ABOUT NHI

Who we are

Established by the U.S. Congress in 1970, the National Highway Institute (NHI) is the training and education arm of the Federal Highway Administration (FHWA). NHI's team of talented Federal and contract employees are housed within FHWA's Office of Technical Services (OTS).

NHI helps improve the performance of the transportation industry through training. To achieve this mission, NHI provides leadership and resources to guide the development and delivery of transportation-related training in many formats including both classroom-based and distance-based learning.

Our Partners

NHI partners with public and private organizations and educational institutions to support the training and educational needs of the transportation workforce.

Skills Development

NHI courses are instrumental in developing core competencies and new skills, as well as sharing leading technologies and current policies in the United States and abroad. NHI instructors strive to ensure that participants leave the training not only with additional knowledge, but also the ability to apply that knowledge directly to their work.

Our Training

NHI offers three types of training.

Instructor-led (ILT). These courses are held in-person and led by an instructor. In order to open a session, an organization must request to host it. Once the session is opened, other individuals may sign up for that session (based on availability).

Web conference (WCT). A live, online training that takes place at a set time. Web-conference training follows the same procedure as ILTs (it must be hosted by a transportation organization). NHI hosts two monthly Web-conference series: *NHI Innovations* and *Real Solutions Seminar Series*. Both series feature guest speakers who cover a wide variety of topics for a diverse audience. *NHI Innovations* and *Real Solutions Seminar Series* are both free of charge. To learn more, see the "Free Web-Conference Training" section.

Web based (WBT). An online course that is available 24/7. Participants can control the pace at which they complete the course, and may return to it as many times as they wish, although the final exams can only be completed for a score once.

Certain **"blended"** courses may combine two or three of these methods (for example, a course may have a Web-based component that must be completed before the Instructor-led component).

Instructors make every effort to tailor individual sessions to meet the unique needs and array of experiences of the hosting organization, including covering local issues and topics of special interest. Drawing on their subject matter expertise, instructors can modify case studies and exercises to make them pertinent to the participant's experiences.

Accreditation

NHI is authorized to award continuing education units (CEUs) through the International Association of Continuing Education and Training (IACET).

Quick Stats

- NHI trains the transportation workforce through Instructor-led, Web-based, Video, and Web-conference training.
- In fiscal year 2010, NHI directly trained tens of thousands of participants.
- Our training materials are used by State DOTs, LTAP and TTAP centers, universities, local municipalities and governments, planning groups and more.

Learn More

For more information, please visit the NHI Web site at **www.nhi.fhwa.dot.gov** or contact the NHI Training Team at nhitraining@dot.gov. Want to be added to our mailing list? E-mail nhimarketing@dot.gov.

The Complete NHI Catalog
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HOST A COURSE

NHI Partners with Hosts to Deliver Training

NHI has a unique business model, which allows NHI to partner with the transportation industry to develop and deliver training. When we deliver training throughout the country and abroad, the hosting organizations provide facilities and equipment, and NHI provides top notch instructors and course materials.

Because of this unique delivery model, "Hosts" or Local Coordinators play a significant role in coordinating NHI training. In this section of the catalog, we will review how to host sessions of NHI training. For new hosts, we also provide an orientation at **www.nhi.fhwa.dot.gov/training/HostCourse.aspx**.

Requests

Any organization can host an NHI session – be it FHWA Divisions, State departments of transportation (DOTs), consultants, metropolitan planning organizations (MPOs), professional associations, universities, or others.

To host NHI sessions, the online Host Request form is submitted through the NHI Web site for domestic customers. You can find the Host Request form at **www.nhi.fhwa.dot.gov/training/HostCourse.aspx**.

Domestic Customers

NHI courses are designed for transportation personnel working in both the public and private sectors of the transportation industry. You can host Instructor-led trainings (ILT), which are taught in classrooms, and/or Web-conference trainings (WCT), which are taught via the Internet. To host a course, fill out the appropriate Host Request form (ILT or WCT).

Login to NHI Web Site
NHI has automated its Host Request form process. You can go online to complete a Host Request form in just a few minutes. First time users will need to create a user profile and check the **INSTRUCTOR/HOST BOX**.

If you run into any difficulty when you are logging in, filling out a Host Request form, or navigating the NHI Web site, please contact NHI Customer Support for help by telephone at (703) 235-0534. Your question will be answered as soon as possible during normal business hours. If no one is able to assist you at the time of your call, you may also email the Webmaster at nhiwebmaster@dot.gov.

Confirm Session Dates/Locations/Times
After the Host Request form is received, an Instructor or a member of the NHI team will contact the Local Coordinator to discuss scheduling. After NHI confirms the session, the host will receive confirmation, the local FHWA Training Coordinator will be notified, and the session will be listed on the NHI Web site. While preferred dates may be specified on the Host Request form, sessions are not official until the hosting organization receives formal confirmation from NHI.

Enrollment Options to Make Your Work Easier!
The Local Coordinator contact information will always be listed with the scheduled session. The Local Coordinator can be contacted to enroll participants directly. Hosts are also able to sell session seats through the NHI Web site. We call these "public seats."

When hosts elect this option, the display for a scheduled session will have a shopping cart appear with the listing. Individuals can enroll by adding the session to their shopping cart and proceeding to checkout. The NHI Scheduler will e-mail enrolled participant information to the Local Coordinator and instructor prior to the start date to let them know who will be attending their session.

NHI Course Materials
Course material will be shipped three weeks prior to the session start date. To assist the host in preparation and coordination for the session, a Host/Local Coordinator Checklist is provided on the NHI Web site and has a suggested step-by-step process for those who are setting up the training site.

Provide Payment and Feedback
Payment may be made to NHI by check, money order, or credit card. Checks and money orders must be made payable to the National Highway Institute. To make credit card payments, contact the NHI Training Team at nhitraining@dot.gov or (703) 235-0534. You are not charged for any FHWA participants or participants who paid via the NHI Web site.
We understand how busy you are, but we would appreciate your feedback. Please remember to fill out the Host Evaluation form you receive with your training materials. You can also use the **CONTACT US** link on any NHI Web site page to send us any questions, comments, or concerns.

International Customers

Host NHI Courses

We provide assistance to international organizations wishing to purchase standard NHI training courses on a variety of technical subjects. These courses can be tailored to your organization's specific needs at an additional cost. For more information about training for international participants, please contact Roger Dean at (703) 235-0550 or by e-mail at roger.dean@fhwa.dot.gov.

Provide Payment

NHI will fax an invoice to the individual or organization upon completion of the session. Cashier's checks, international money orders, and credit cards are accepted forms of payment. Special arrangements will have to be made for wire transfers, and customers must ensure that they pay all related bank fees. All cashier's checks and international money orders must be payable in U.S. dollars to the National Highway Institute.

Host/Local Coordinator Checklist

Everyone has attended training sessions where the Instructor could not find the markers or the flip chart paper; the room was too hot or too cold; or there was not enough room for the number of participants scheduled for the session. Based upon the 40 years of experience with our host partners, NHI has developed some good practice tips on hosting an NHI course. The Host/Local Coordinator checklist is available on the NHI Web site at **http://www.nhi.fhwa.dot.gov/training/HostCourse.aspx**.

Fees

Course fees, which include the cost of materials for each participant, are listed with every course description. Typically, a minimum number of 20 paid participants are required to hold a session. However, course fees and minimums may vary. Hosts are not charged for FHWA personnel or participants who have paid via the NHI Web site. Hosts are not charged for any instructor expenses. NHI will continue to recover the full cost of delivery for international presentations. These will be handled on a case-by-case basis.

Checks, money orders, or other generally accepted forms of payment from individual session participants will be accepted as part of the NHI course session fee, and must be made payable to the National Highway Institute. Such payments are forwarded to NHI as soon as they are received with the amount of the invoice reduced accordingly; or they can be submitted as part of the total payment upon invoice to the hosting organization.

Surcharges

Course hosts may charge participants an additional fee to recover all or part of costs associated with hosting the course. However, we ask hosts to contact the NHI Scheduler at (703) 235-0534 with this information prior to the confirmation of the session. Hosts must also inform participants of the surcharge. Participants covered by the final host payment must register with the host, and not online. Hosts will not receive a refund from NHI to cover associated expenses incurred in hosting the session. The surplus amount is credited to the Host's final invoice. FHWA employees attending the session are not required to pay any additional fees.

Cancellation Policy/Refunds

The host of an NHI course must contact the NHI Training Director at (703) 235-0520 for approval to cancel a session for any reason. To avoid incurring any fees, we request cancellation no later than 10 working days prior to the session start date. If the course materials have been sent, the host must contact the NHI Materials Manager at (703) 235-0552. In the event of cancellation for any reason, it is the hosts' responsibility to contact all participants. There must be validation that the registrants received cancellation notice. Notice to out-of-State participants is especially important to avoid charges for travel. If notification of cancellation occurs in less then 10 days prior to the start date of the session, travel costs for the participants and Instructors may be the responsibility of the host.

Your refund will be processed as quickly as possible. Credit card reimbursements should appear within two billing cycles. A credit to host another NHI course will be issued if payment was made by check. For questions about your refund, please contact the NHI Training Team at (703) 235-0534 or nhitraining@dot.gov. For the most up-to-date information on NHI policies, please refer to the NHI Web site.

Audience

When assessing internal training needs, we encourage hosts of NHI course sessions to survey the training needs of entities outside their own organization. In some cases, the combined needs may warrant hosting a course for which there otherwise would not be sufficient interest. By attending training together, all parties receive the same training, benefit from the breadth of experience added to classroom discussions, and increase their understanding of each other's perspectives by working together on class exercises.

INTERNATIONAL ASSOCIATION FOR CONTINUING EDUCATION AND TRAINING

The National Highway Institute (NHI) has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 1760 Old Meadow Road, Suite 500, McLean, VA 22102.

IACET is an independent, non-profit association whose goal is to ensure quality continuing education for professionals. For an organization to become an IACET approved CEU authorized provider, it must demonstrate that it designs, develops, and delivers training in accordance with proven adult learning theory and recognizes instructional systems design practices. Each course description in the NHI Catalog includes the number of CEUs awarded upon successful completion of the course.

There is a trend by States to require annual professional education for professional employees coupled with the need to make every dollar committed to training count. Recognition by IACET assures both the employee and the employer that taking a NHI course is a valuable use of time and scarce training dollars.

One CEU is awarded for every ten contact hours of training led by a qualified instructor and qualified instruction. Lunch periods and breaks are not calculated when determining the number of contact hours. Thus, in an eight hour day, there are six contact hours of instruction for an award of 0.6 CEU per day. In addition, NHI is approved to award CEUs for its distance learning training. The training may take the form of Web-based training, Web-based conferencing, video conferencing, self-paced or any combination of the various methods.

On occasion, there may be adjustments to the course length to accommodate course hosting location conditions. In that event, the number of CEUs awarded will be adjusted to reflect the actual contact hours.

NHI will maintain individual training records for seven years for the CEUs awarded for successful completion of eligible courses effective January 1, 2004. Individuals and their employers are also encouraged to maintain their own training records including course name, class dates, instructor name, class roster and CEUs awarded.

FREE WEB-CONFERENCE TRAINING

NHI is excited to offer FREE Web-conference training. These trainings save both time and money, while covering the latest topics and techniques within the transportation industry. This training comes in the form of two monthly Web-conference series: *NHI Innovations* and *Real Solutions Seminar Series*. All transportation professionals in the public and private sectors are invited to participate. Both series allow participants to ask questions and receive answers from the guest speakers.

NHI Innovations

NHI partners with Highways for LIFE, an FHWA program working to accelerate the adoption of new technologies, to present *NHI Innovations*. Each month, a panel of experts leads participants in a discussion of innovations in the transportation industry and describes key factors in successful implementation of those innovations.

Some past topics include:

- Best Practices in Accelerated Construction Techniques
- Pavement Smoothness
- Road Safety Audits
- Speed Management in Work Zones

Visit the *NHI Innovations* section of the Web site to register for the next *NHI Innovations* Web conference or to listen to past Web conferences.

Real Solutions Seminar Series

This series of free monthly Webinars features a guest speaker who presents problems or issues faced in the field and what steps were taken to solve them. In some sessions, additional panelists join the guest speaker to further discuss that seminar's topic.

Some past topics include:

- Best Practices for Integrating Climate Change Considerations in the Transportation Planning Process
- eLearning and Distance Learning within the Transportation Industry
- Smart Corridors and Complete Streets: A Look at Some Situations and Strategies
- Solving Old Traffic Noise Ills: Tennessee Type II Noise Abatement Program

Visit the *Real Solutions Seminar Series* section of the Web site to register for the next *Real Solutions* Web conference or to listen to past Web conferences.

Learn More

For more information, please visit the NHI Web site at **www.nhi.fhwa.dot.gov**.

Want to be notified when a free Web conference is scheduled? Email nhimarketing@dot.gov.

NHI CERTIFICATES OF ACCOMPLISHMENT

The National Highway Institute (NHI) offers the Certificate of Accomplishment program, which was designed to recognize individuals who have successfully completed and achieved passing grades in selected groupings of related NHI course offerings. The certificate program features suites of complementary NHI courses bundled together to enable participants to enhance their depth and breadth of knowledge and expertise in specific disciplines or topic areas.

Certificates of Accomplishment are available in the following disciplines, with more to come over the next year.

Work Zone Safety

Certificate of Accomplishment in Work Zone Safety features the following NHI courses:

- 380003—Design and Operation of Work Zone Traffic Control
- 380060—Work Zone Traffic Control for Maintenance Operations
- 380063—Construction Zone Safety Inspection
- 380072—Advanced Work Zone Management and Design

Relocation Under The Uniform Act

Certificate of Accomplishment in Relocation under the Uniform Act features the following NHI courses:

- 141029—Basic Relocation under the Uniform Act
- 141030—Advanced Relocation under the Uniform Act
- 141031—Business Relocation under the Uniform Act

Incident Management

Certificate of Accomplishment in Incident Management features the following NHI courses:

- 133048A—Managing Traffic Incident and Roadway Emergencies (2 day)
- 133099—Managing Travel for Planned Special Events (2 day)
- 133101—Using the Incident Command System (ICS) at Highway Incidents (2 day)

Freight Management and Operations

Certificate of Accomplishment in Freight Management and Operations features the following NHI courses:

- 139003—Advanced Freight Planning
- 139005—Linking Freight to Planning and the Environment
- 139006/139006A—Integrating Freight in the Tranportation Planning Process/Integrating Freight in the Transportation Planning Process WBT 508 Version*

*Participants must successfully complete 139006 Integrating Freight in the Transportation Planning Process prior to attending 139003. Participants MUST bring a copy of their certificate of completion to their scheduled session of 139003 and provide it to the lead instructor.

Any course sessions successfully completed and passed within the chosen NHI course suite since January 1, 2004, are eligible for inclusion in the Certificate of Accomplishment program. Sessions attended prior to that date are not eligible. No waivers or substitutions will be accepted.

All the courses in the suite must be completed within 4 years of taking the first course. To be eligible to receive a Certificate of Accomplishment, participants must successfully complete each course in the suite. Successful completion includes attendance of the full session and scoring at least 70% on the final assessment.

For more information about the Certificates of Accomplishment, please visit the NHI Web site at www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Course Number

FHWA-NHI-130053

Updated Training

Course Title

Bridge Inspection Refresher Training

The major goals of this course are to refresh the skills of practicing bridge inspectors in fundamental visual inspection techniques; review the background knowledge necessary to understand how bridges function; communicate issues of national significance relative to the nations' bridge infrastructures; re-establish proper condition and appraisal rating practices; and review the professional obligations of bridge inspectors.

This course is based on the "Bridge Inspector's Reference Manual," 2002 (updated in 2006) with reference to the AASHTO Manual as defined by the National Bridge Inspection Standards regulation.

Core course topics include inspector qualifications and duties, bridge mechanics, record keeping and documentation, fatigue and fracture in steel bridges, traffic safety features, safety, National Bridge Inventory (NBI) component ratings, superstructure type identification, inspection techniques and case studies for decks, superstructures, bearings, substructures, channels and culverts, and a mock bridge inspection classroom exercise.

Optional topics include fiber reinforced polymer, inspection of truss gusset plates, inspection of adjacent box beams, bridge site signing, structure inventory and appraisal overview, common NBI miscodings, element level ratings and timber superstructures.

For this version of the course (3-day), the host agency will need to select four (4) desired optional topics. Course instructors will contact the host prior to the course to complete a pre-course questionnaire, determine optional topics to be taught, and discuss the course schedule.

Outcomes

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

- Describe the current overall condition and condition trends for the nation's bridges
- Identify the recent National Bridge Inspection Standards (NBIS) revisions
- Accurately code National Bridge Inventory (NBI) items
- Identify and document inspection observations using standard methods
- Evaluate defects based on the 2008 AASHTO Manual for Bridge Evaluation
- Code NBI components using the Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges
- Determine if overall structure/structural member is fracture critical prone
- Accurately inspect and evaluate a bridge's four traffic safety features
- List the keys to ensuring a safe work environment
- Explain bridge responses and bridge mechanic principles

Target Audience

The target audience for this course includes Federal, State, and local agencies and private sector personnel employed in inspecting bridges or managing bridge inspection programs. The course is built to accommodate those that have completed comprehensive bridge inspection training (130055 or similar) or met the criteria for a bridge inspector under the State's procedures or requirements.

TRAINING LEVEL: Intermediate

FEE: 2013: $725 Per Person; 2014: N/A

LENGTH: 3 DAYS (CEU: 1.8 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130053A

New Training

Course Title

Bridge Inspection Refresher Training

The major goals of this course are to refresh the skills of practicing bridge inspectors in fundamental visual inspection techniques; review the background knowledge necessary to understand how bridges function; communicate issues of national significance relative to the nations' bridge infrastructures; re-establish proper condition and appraisal rating practices; and review the professional obligations of bridge inspectors.

This course is based on the "Bridge Inspector's Reference Manual," 2002 (updated in 2006) with reference to the AASHTO Manual as defined by the National Bridge Inspection Standards regulation.

Core course topics include inspector qualifications and duties, bridge mechanics, record keeping and documentation, fatigue and fracture in steel bridges, traffic safety features, safety, National Bridge Inventory (NBI) component ratings, superstructure type identification, inspection techniques and case studies for decks, superstructures, bearings, substructures, channels and culverts, and two (2) mock bridge inspection classroom exercises.

Optional topics include fiber reinforced polymer, inspection of truss gusset plates, inspection of adjacent box beams, bridge site signing, structure inventory and appraisal overview, common NBI miscodings, element level ratings and timber superstructures.

For this version of the course (3.5-day), the host agency will need to select six to seven (6-7) desired optional topics. Course instructors will contact the host prior to the course to complete a pre-course questionnaire, determine optional topics to be taught, and discuss the course schedule.

Outcomes

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

- Describe the current overall condition and condition trends for the nation's bridges
- Identify the recent National Bridge Inspection Standards (NBIS) revisions
- Accurately code National Bridge Inventory (NBI) items
- Identify and document inspection observations using standard methods
- Evaluate defects based on the 2008 AASHTO Manual for Bridge Evaluation
- Code NBI components using the Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges
- Determine if overall structure/structural member is fracture critical prone
- Accurately inspect and evaluate a bridge's four traffic safety features
- List the keys to ensuring a safe work environment
- Explain bridge responses and bridge mechanic principles

Target Audience

The target audience for this course includes Federal, State, and local agencies and private sector personnel employed in inspecting bridges or managing bridge inspection programs. The course is built to accommodate those that have completed comprehensive bridge inspection training (130055 or similar) or met the criteria for a bridge inspector under the State's procedures or requirements.

TRAINING LEVEL: Intermediate

FEE: 2013: $825 Per Person; 2014: N/A

LENGTH: 3.5 DAYS (CEU: 2.2 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130054

Updated Training

Course Title

Engineering Concepts for Bridge Inspectors

This course was updated in 2010 and provides knowledge of the elementary concepts in bridge engineering for individuals involved with the inspection of in-service highway bridges. The course covers the purpose of highway bridge inspections and the roles of inspectors through the discussion of common bridge types and materials, material properties, and bridge components as well as details, loadings, stresses, strains, and deterioration of bridge materials and members. Participants will be asked to complete an exam at the end of the course, which they must earn a 70% or better on to successfully complete the course and receive a certificate of completion.

This course prepares participants for the 2-week, intensive Instructor-led course in bridge inspection, 130055 Safety Inspection of In-Service Bridges. Upon successful completion of 130054, participants will have met the prerequisite requirement for participation in the 130055 course.* If participants would like to enroll in the 130055 course, they will be required to demonstrate their certificate of completion for 130054 as proof that the prerequisite requirement has been fulfilled.

Participation in 130054 is not the only option to fulfill the prerequisite requirement for 130055.* Individuals have the option to 1) successfully complete the Web-based training and assessment (130101 Introduction to Safety of In-Service Bridges) or 2) for those with engineering backgrounds or prior knowledge and experience in the field of bridge inspection may "test-out" through a Web-based assessment (130101A Introduction to Safety Inspection of In-Service Bridges).

*Please note: Upon successful completion of this prerequisite course, you will be eligible to take the 130055 training course for up to 2 years.

Outcomes

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

- Describe the basis for bridge inspection
- Describe the various roles of the bridge inspection team
- Identify common bridge types and major components, primary members, secondary members and features of highway bridges
- Name the common materials used in bridges
- Describe the basic properties, strengths, and weaknesses of each material
- Describe basic engineering concepts
- Describe standard highway bridge loadings
- Describe the types, signs, and causes of structural distress
- Identify other features associated with bridges
- Name protective measures required to mitigate hazards

Target Audience

This course is designed for Federal, State, and local technicians and inspectors who have limited experience with the inspection of in-service highway bridges. Engineers without bridge experience or those who need a refresher in basic bridge design concepts will also benefit from the course. Individuals completing this course could serve on a bridge inspection team, but would require additional experience and training to qualify as team leaders.

Training Level: Basic

Fee: 2013: $925 Per Person; 2014: N/A

Length: 5 DAYS (CEU: 3 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130055

Course Title

Safety Inspection of In-Service Bridges

NOTE: This course was updated in 2012 and now contains prerequisite requirements for participants and host requirements in preparation for the field exercises. See details below.

This course is based on the 2012 FHWA "Bridge Inspector's Reference Manual (BIRM)" and provides training on the safety inspection of in-service highway bridges. The course includes two bridge inspection field trips; instruction on critical findings, their identification and response; curriculum on the American Association of State Highway and Transportation Officials element level inspection approach; and activities that maximize participant engagement throughout the course. This course does not go into depth on fracture critical, underwater, or complex bridge inspections. Other specialty courses, 130078 Fracture Critical Inspection Techniques for Steel Bridges and 130091 Underwater Bridge Inspection, cover these topics.

Participants will be asked to complete mid-term and final course assessments with a cumulative score of 70% or better to successfully complete the course and receive a certificate of completion. The sponsoring agency/State may monitor the examinations and retain the scores to qualify or certify bridge inspectors. Satisfactory completion of this course will fulfill the comprehensive bridge inspection training requirements of the National Bridge Inspection Standards. Note: Many States have additional requirements to become a bridge inspection team leader.

Participant Prerequisite Requirement: ALL participants must have met one of the three prerequisite requirements for participation in this course* and bring a course completion certificate bearing their name to the first day of the class. The passing score for all prerequisites is 70% or better. Individuals have the option to complete one of the following three prerequisite requirements: 1) 130054 Engineering Concepts for Bridge Inspectors, a 5-day Instructor-led course; 2) 130101 Introduction to Safety Inspection of In-Service Bridges, a14-hour Web-based training and assessment; and/or 3) 130101a Prerequisite Assessment for Safety Inspection of In-Service Bridges, a Web-based assessment.

Host Requirements: The host/sponsoring agency is required to provide transportation for course participants to attend the field trip portion of this course at the host/sponsoring agency's own expense. The host must coordinate with the instructor to identify bridges for inspection during the field trip exercises, in advance of the course delivery. Alternatively, hosts have the option of requesting to replace one or both of the field trips with the Virtual Bridge Inspection computer-based exercise, if weather conditions or coordination issues may make physical field trips problematic. Additionally, the host must ensure that ALL students have successfully met the prerequisite requirement* and have a valid course completion certificate for one of the three prerequisite options.

*Please note: prerequisite must be completed within two years of the course start date.

Outcomes

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

- Discuss the duties and responsibilities of a bridge inspector and define inspection concepts including personal and public safety issues associated with bridge inspections
- List the inspection equipment needs for various types of bridges and site conditions
- Describe, identify, evaluate, and document the various components and deficiencies that can exist on bridge components and elements
- List design characteristics and describe inspection methods and locations for common concrete, steel, and timber structures
- Identify and evaluate the various culvert and waterway deficiencies
- Discuss the need to inspect underwater portions of bridges
- Describe nondestructive evaluation methods for basic bridge materials
- Demonstrate how to field inspect and evaluate common concrete, steel, and timber bridges

Target Audience

Federal, State, and local highway agency employees; and consultants involved in inspecting bridges or in bridge inspection management and leadership positions. A background in bridge engineering is strongly recommended. All participants must successfully complete (score 70% or better) one of the following three prerequisite requirements within two years prior to attending this training: 1)130054 Engineering Concepts for Bridge Inspectors ; 2) 130101 Introduction

to Safety Inspection of In-Service Bridges ; or 3) 130101a Prerequisite Assessment for Safety Inspection of In-Service Bridges .

TRAINING LEVEL: Intermediate

FEE: 2013: $1700 Per Person; 2014: N/A

LENGTH: 10 DAYS (CEU: 6 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130078

Updated Training

Course Title

Fracture Critical Inspection Techniques for Steel Bridges

The course curriculum for this training reflects current practices, while addressing new and emerging technologies available to bridge inspectors. In addition, the course features exemplary training; hands-on workshops for popular types of nondestructive evaluation (NDE) equipment; and a case study of an inspection plan for a fracture critical bridge.

The first day of the training focuses on the concept of fracture critical members (FCMs), FCM identification, failure mechanics, fatigue in metal, and an overview of NDE methods. Day two includes demonstration sessions and hands-on applications of NDE techniques for dye penetrant, magnetic particle testing, Eddy current testing, and ultrasonic testing. Days three and four emphasize inspection procedures and reporting for common FCMs, including problematic details, I-girders, floor beams, trusses, box girders, pin and hanger assemblies, arch ties, eyebars, and cross girders/pier caps. The course will conclude with a case study detailing the preparation of an inspection plan of a fracture critical bridge. Additionally, the course instructors will tailor discussions of topics based on State needs and requirements.

"This training will help inspectors evaluate bridges more thoroughly and will provide them with additional knowledge in how structures work and what can take place when they don't work," states Bill Drosehn, district bridge inspection engineer for the Massachusetts DOT.

Note: Hosts are required to provide safety goggles for all course participants as well as a well-ventilated space for conducting the dye penetrant demonstration.

Outcomes

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

- Identify fracture critical members (FCMs)
- Identify problematic details
- Identify areas most susceptible to fatigue and fracture
- Record defects
- Evaluate defects
- Evaluate nondestructive evaluation (NDE) methods
- Evaluate retrofit details

Target Audience

Those who will benefit most from this training are public and private sector bridge inspectors, supervisors, project engineers, and others responsible for field inspection of fracture critical steel bridge members. Prior to taking this course, participants should have completed NHI course 130055, Safety Inspection of In-Service Bridges, or possess equivalent field experience relative to bridges. Participants also should have a thorough understanding of bridge mechanics and bridge safety inspection procedures as required by the National Bridge Inspection Standards.

Training Level: Intermediate

Fee: 2013: $825 Per Person; 2014: N/A

Length: 3.5 DAYS (CEU: 2.5 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130081

Course Title

LRFD for Highway Bridge Superstructures - Concrete (2-Day)

This course expands the suite of FHWA services to assist State and local governments in a successful implementation of load and resistance factor design (LRFD). The course promotes the philosophy of the LRFD design platform and establishes the motivation for LRFD as the reassurance that safe design practices are being applied where needed. For structural applications, the curriculum follows the AASHTO "LRFD Bridge Design Specifications," 3rd Edition, 2004 (AASHTO LRFD), including the approved 2005 and 2006 Interims.

This course is a combination of instructor-led discussions and workshop exercises. It includes LRFD theory applied to design examples and illustrates step-by-step LRFD design procedures. The training includes the extensive use of student exercises and example problems to demonstrate overall design, detailing, and construction principles addressed in the reference materials, and provides hands-on experience in the AASHTO LRFD design and detailing of concrete superstructures. Exercise and example problems are based on components of overall comprehensive bridge design examples using AASHTO LRFD and provide comparisons between ASD, LFD, and LRFD design methods where meaningful.

The curriculum materials are comprised of a comprehensive design manual, FHWA Publication No. FHWA NHI 06-001, lecture and workshop exercises intended to promote or enhance a working knowledge of the AASHTO LRFD specification, and a participant workbook for lecture notes and exercises.

The curriculum material contains the following major topics:

1. Preliminary design concepts for prestressed concrete superstructures
2. Pretensioned concrete I-girder design
3. Continuous pretensioned concrete I-girder design
4. Staged construction of prestressed concrete girder bridges
5. Bearing design

Outcomes

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

- Describe the concrete bridge superstructure design and construction process in accordance with the AASHTO LRFD specifications
- Identify the application of appropriate AASHTO LRFD specification articles dealing with selection of bridge type, size, and location; bridge economics; concrete bridge superstructure design; and bearings selection and design
- Demonstrate the use of the AASHTO LRFD specification requirements for concrete superstructure design through the completion of step-by-step procedures, student exercises, and design examples
- Successfully complete applicable learning outcome assessments with a combined score of 70 percent or higher

Target Audience

This course has been developed for the needs of practicing public and private sector structural and bridge engineers with 1-10 years of experience. The primary audience is agency and consultant structural designers. Pre-training Competencies: Individuals attending this course should have a minimum BSCE degree and have a working knowledge of the AASHTO LRFD or the "AASHTO Standard Specifications for Highway Bridges," and have relevant design experience using either of these specifications on at least one bridge superstructure.

Training Level: Intermediate

Fee: 2013: $620 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130081A

Course Title

LRFD for Highway Bridge Superstructures - Steel (2-Day)

This new course expands the suite of FHWA services to assist State and local governments in a successful implementation of load and resistance factor design (LRFD). The course promotes the philosophy of the LRFD design platform and establishes the motivation for LRFD as the reassurance that safe design practices are being applied where needed. For structural applications, the curriculum follows the AASHTO "LRFD Bridge Design Specifications," 3rd Edition, 2004 (AASHTO LRFD), including the approved 2005 and 2006 Interims.

This course is a combination of instructor-led discussions and workshop exercises. It includes LRFD theory applied to design examples and illustrates step-by-step LRFD design procedures. The training includes the extensive use of student exercises and example problems to demonstrate overall design, detailing, and construction principles addressed in the reference materials, and provides hands-on experience in the AASHTO LRFD design and detailing of steel superstructures. Exercise and example problems are based on components of overall comprehensive bridge design examples using AASHTO LRFD and provide comparisons between ASD, LFD, and LRFD design methods where meaningful.

The curriculum materials are comprised of a comprehensive design manual, FHWA Publication No. FHWA NHI 06-001, lecture and workshop exercises intended to promote or enhance a working knowledge of the AASHTO LRFD specification, and a participant workbook for lecture notes and exercises.

The curriculum material contains the following major topics:

1. Preliminary design concepts for steel superstructures
2. Steel I-girder design (including miscellaneous steel detail design)
3. Bearing design

Outcomes

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

- Describe the steel bridge superstructure design and construction process in accordance with the AASHTO LRFD specifications
- Identify the application of appropriate AASHTO LRFD specification articles dealing with selection of bridge type, size, and location; bridge economics; steel bridge superstructure design; and bearings selection and design
- Demonstrate the use of the AASHTO LRFD specification requirements for steel superstructure design through the completion of step-by-step procedures, student exercises, and design examples
- Successfully complete applicable learning outcome assessments with a combined score of 70 percent or higher

Target Audience

This course has been developed for the needs of practicing public and private sector structural and bridge engineers with 1-10 years of experience. The primary audience is agency and consultant structural designers. Pre-training Competencies: Individuals attending this course should have a minimum BSCE degree and have a working knowledge of the AASHTO LRFD or the "AASHTO Standard Specifications for Highway Bridges," and have relevant design experience using either of these specifications on at least one bridge superstructure.

Training Level: Basic

Fee: 2013: $620 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130081B

Course Title

LRFD for Highway Bridge Superstructures - Concrete (2.5-Day)

This new course expands the suite of FHWA services to assist State and local governments in a successful implementation of load and resistance factor design (LRFD). The course promotes the philosophy of the LRFD design platform and establishes the motivation for LRFD as the reassurance that safe design practices are being applied where needed. For structural applications, the curriculum follows the AASHTO "LRFD Bridge Design Specifications," 3rd Edition, 2004 (AASHTO LRFD), including the approved 2005 and 2006 Interims.

This course is a combination of instructor-led discussions and workshop exercises. It includes LRFD theory applied to design examples and illustrates step-by-step LRFD design procedures. The training includes the extensive use of student exercises and example problems to demonstrate overall design, detailing, and construction principles addressed in the reference materials, and provides hands-on experience in the AASHTO LRFD design and detailing of concrete superstructures. Exercise and example problems are based on components of overall comprehensive bridge design examples using AASHTO LRFD and provide comparisons between ASD, LFD, and LRFD design methods where meaningful.

The curriculum materials are comprised of a comprehensive design manual, FHWA Publication No. FHWA NHI 06-001, lecture and workshop exercises intended to promote or enhance a working knowledge of the AASHTO LRFD specification, and a participant workbook for lecture notes and exercises.

The curriculum material contains the following major topics:

1. General superstructure design considerations
2. Preliminary design concepts for prestressed concrete superstructures
3. Pretensioned concrete I-girder design
4. Continuous pretensioned concrete I-girder design
5. Staged construction of prestressed concrete girder bridges
6. Bearing design

Outcomes

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

- Describe the concrete bridge superstructure design and construction process in accordance with the AASHTO LRFD specifications
- Identify the application of appropriate AASHTO LRFD specification articles dealing with selection of bridge type, size, and location; bridge economics; evolution of bridge design codes; bridge loads and load combinations; structural analysis; deck design; concrete bridge superstructure design; and bearings selection and design
- Demonstrate the use of the AASHTO LRFD specification requirements for concrete superstructure design through the completion of step-by-step procedures, student exercises, and design examples
- Successfully complete applicable learning outcome assessments with a combined score of 70 percent or higher

Target Audience

This course has been developed for the needs of practicing public and private sector structural and bridge engineers with 1-10 years of experience. The primary audience is agency and consultant structural designers. Pre-training Competencies: Individuals attending this course should have a minimum BSCE degree, and have a working knowledge of the AASHTO LRFD or the "AASHTO Standard Specifications for Highway Bridges," and have relevant design experience using either of these specifications on at least one bridge superstructure.

TRAINING LEVEL: Intermediate

FEE: 2013: $695 Per Person; 2014: N/A

LENGTH: 2.5 DAYS (CEU: 1.5 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130081C

Course Title

LRFD for Highway Bridge Superstructures - Steel (2.5-Day)

This new course expands the suite of FHWA services to assist State and local governments in a successful implementation of load and resistance factor design (LRFD). The course promotes the philosophy of the LRFD design platform and establishes the motivation for LRFD as the reassurance that safe design practices are being applied where needed. For structural applications, the curriculum follows the AASHTO "LRFD Bridge Design Specifications," 3rd Edition, 2004 (AASHTO LRFD), including the approved 2005 and 2006 Interims.

This course is a combination of instructor-led discussions and workshop exercises. It includes LRFD theory applied to design examples and illustrates step-by-step LRFD design procedures. The training includes the extensive use of student exercises and example problems to demonstrate overall design, detailing, and construction principles addressed in the reference materials, and provides hands-on experience in the AASHTO LRFD design and detailing of steel superstructures. Exercise and example problems are based on components of overall comprehensive bridge design examples using AASHTO LRFD and provide comparisons between ASD, LFD, and LRFD design methods where meaningful.

The curriculum materials are comprised of a comprehensive design manual, FHWA Publication No. FHWA NHI 06-001, lecture and workshop exercises intended to promote or enhance a working knowledge of the AASHTO LRFD specification, and a participant workbook for lecture notes and exercises.

The curriculum material contains the following major topics:

1. General superstructure design considerations
2. Preliminary design concepts for steel superstructures
3. Steel I-girder design (including miscellaneous steel detail design)
4. Bearing design

Outcomes

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

- Describe the steel bridge superstructure design and construction process in accordance with the AASHTO LRFD specifications
- Identify the application of appropriate AASHTO LRFD specification articles dealing with selection of bridge type, size, and location; bridge economics; evolution of bridge design codes; bridge loads and load combinations; structural analysis; deck design; steel bridge superstructure design; and bearings selection and design
- Demonstrate the use of the AASHTO LRFD specification requirements for steel superstructure design through the completion of step-by-step procedures, student exercises, and design examples
- Successfully complete applicable learning outcome assessments with a combined score of 70 percent or higher

Target Audience

This course has been developed for the needs of practicing public and private sector structural and bridge engineers with 1-10 years of experience. The primary audience is agency and consultant structural designers. Pre-training Competencies: Individuals attending this course should have a minimum BSCE degree, have a working knowledge of the AASHTO LRFD or the "AASHTO Standard Specifications for Highway Bridges," and have relevant design experience using either of these specifications on at least one bridge superstructure.

TRAINING LEVEL: Intermediate

FEE: 2013: $695 Per Person; 2014: N/A

LENGTH: 2.5 DAYS (CEU: 1.5 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130081D

Course Title

LRFD for Highway Bridge Superstructures - Steel and Concrete (4.5-Day)

This new course expands the suite of FHWA services to assist State and local governments in a successful implementation of load and resistance factor design (LRFD). The course promotes the philosophy of the LRFD design platform and establishes the motivation for LRFD as the reassurance that safe design practices are being applied where needed. For structural applications, the curriculum follows the AASHTO "LRFD Bridge Design Specifications," 3rd Edition, 2004 (AASHTO LRFD), including the approved 2005 and 2006 Interims.

This course is a combination of instructor-led discussions and workshop exercises. It includes LRFD theory applied to design examples and illustrates step-by-step LRFD design procedures. The training includes the extensive use of student exercises and example problems to demonstrate overall design, detailing, and construction principles addressed in the reference materials, and provides hands-on experience in the AASHTO LRFD design and detailing of steel and concrete superstructures. Exercise and example problems are based on components of overall comprehensive bridge design examples using AASHTO LRFD and provide comparisons between ASD, LFD, and LRFD design methods where meaningful.

The curriculum materials are comprised of a comprehensive design manual, FHWA Publication No. FHWA NHI 06-001, lecture and workshop exercises intended to promote or enhance a working knowledge of the AASHTO LRFD specification, and a participant workbook for lecture notes and exercises.

The curriculum material contains the following major topics:

1. General superstructure design considerations
2. Preliminary design concepts for steel superstructures
3. Steel I-girder design (including miscellaneous steel detail design
4. Preliminary design concepts for prestressed concrete superstructures
5. Pretensioned concrete I-girder design
6. Continuous pretensioned concrete I-girder design
7. Staged construction of prestressed concrete girder bridges
8. Bearing design

Outcomes

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

- Describe the bridge superstructure design and construction process in accordance with the AASHTO LRFD specifications
- Identify the application of appropriate AASHTO LRFD specification articles dealing with selection of bridge type, size, and location; bridge economics; evolution of bridge design codes; bridge loads and load combinations; structural analysis; deck design; concrete bridge superstructure design; steel bridge superstructure design; and bearings selection and design
- Demonstrate the use of the AASHTO LRFD specification requirements for superstructure design through the completion of step-by-step procedures, student exercises, and design examples
- Successfully complete applicable learning outcome assessments with a combined score of 70 percent or higher

Target Audience

This course has been developed for the needs of practicing public and private sector structural and bridge engineers with 1-10 years of experience. The primary audience is agency and consultant structural designers. Pre-training Competencies: Individuals attending this course should have a minimum BSCE degree, have a working knowledge of the AASHTO LRFD or the "AASHTO Standard Specifications for Highway Bridges," and have relevant design experience using either of these specifications on at least one bridge superstructure.

Training Level: Intermediate

Fee: 2013: $995 Per Person; 2014: N/A

Length: 4.5 DAYS (CEU: 2.7 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130087

Course Title

Inspection and Maintenance of Ancillary Highway Structures

This course provides training in the inspection and maintenance of ancillary structures, such as structural supports for highway signs, luminaries, and traffic signals. Its goal is to provide agencies with information to aid in establishing and conducting an inspection program in accordance with the FHWA "Guidelines for the Installation, Inspection, Maintenance, and Repair of Structural Supports for Highway Signs, Luminaries, and Traffic Signals."

Outcomes

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

- List and identify common visible weld defects
- Identify appropriate nondestructive testing techniques
- Identify factors that lead to corrosion and explain mitigation methods used in ancillary structures
- Define the severity of observed defects in accordance with the FHWA guidelines
- Identify defects in base/anchor rod installations
- List key issues in construction inspection of ancillary structures
- Identify repair techniques and discuss their use

Target Audience

Structural engineers, material engineers, traffic engineers, field inspectors, construction supervisors, maintenance personnel, and other technical personnel involved in the installation, inspection, maintenance, and repair of ancillary highway structures. This course is not a design course; however, the information should be helpful to those working in design and specification of ancillary structures.

Training Level: Basic

Fee: 2013: $620 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130088

Course Title

Bridge Construction Inspection

The Bridge Construction Inspection Course (BCIC) is one of the core curriculum initiatives cited by AASHTO, FHWA, and the five regional organizations. These core curriculum initiatives are being pursued in order to maximize regional, public, and industry resources in the development of core training and qualification-based certification programs, improve the quality of bridge construction, and promote uniformity in training content and qualification requirements.

Overall, the BCIC improves quality, ensures uniformity, and establishes minimum competencies for bridge construction inspection. The underlying themes of the course can be broken down into key segments. The BCIC will provide the construction inspector with:

1. The requisite knowledge of construction that will make him/her an effective inspector

2. An overall awareness of the problems and consequences that can arise during construction and how these factors will impact the safety and service life of the structure

3. A knowledge of the inspections that should be performed to confirm conformance to the contract documents, or document contract nonconformance

Outcomes

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

- Explain the role of the construction inspector as part of the overall project team
- Interpret drawings and specifications
- Anticipate possible construction and materials problems
- Maintain bridge controls for location and elevation
- Describe construction sequence for various bridge systems (e.g. foundations, substructures, superstructures, and miscellaneous systems), bridge types and materials
- Conduct regular systematic inspections of materials and standards of construction, through the use of job aids, such as checklists
- Explain and perform basic inspection and testing of materials
- Perform accurate surveys and checking of dimensions
- Make and maintain sufficient records

Target Audience

Construction supervisors, transportation department field inspectors, field engineers, resident engineers, structural engineers, materials engineers, and other technical personnel involved in the construction inspection of bridges. The course is developed for participants without an in-depth engineering background. However, more knowledgeable persons can attend and will add to the overall effectiveness of the training through their active participation.

Training Level: Basic

Fee: 2013: $920 Per Person; 2014: N/A

Length: 4.5 DAYS (CEU: 2.7 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130091

Updated Training

Course Title

Underwater Bridge Inspection

The latest changes to the National Bridge Inspection Standards (NBIS), which became effective January 13, 2005, require FHWA-approved bridge inspection training for all divers conducting underwater inspections. One method of meeting this requirement is the completion of an FHWA-approved underwater diver bridge inspection training course. Satisfactory completion of this 4-day course will fulfill the NBIS requirement.

This course provides an overview of diving operations that will be useful to agency personnel responsible for managing underwater bridge inspections.

Course topics include: methods of underwater inspection, underwater material deterioration mechanisms and inspection techniques, scour inspection techniques, underwater element-level rating, and underwater bridge inspection training. A final examination based on course content will be administered to participants.

Outcomes

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

- Specifically, upon completion of the course, participants should be able to:
- Explain the need and benefits of inspecting the underwater portions of bridge structures.
- Describe typical underwater defects and deterioration, and identify conditions contributing to rates of deterioration.
- Identify the types of inspection equipment available, and the advantages and limitations of each.
- Identify procedures for planning and performing thorough and safe underwater bridge inspections.
- Assign component and element level condition ratings for underwater components in accordance with NBIS and agency requirements.

Target Audience

The course is intended for trained divers who require a knowledge base of underwater bridge inspection and evaluation techniques in order to meet the educational requirements of the NBIS for underwater bridge inspection training. The course would also be of interest to non-diver bridge inspectors, and FHWA, state, and local agency structural engineers.

Training Level: Basic

Fee: 2013: $900 Per Course; 2014: N/A

Length: 4 DAYS (CEU: 2.1 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130091A

New Training

Course Title

Underwater Bridge Inspection

The latest changes to the National Bridge Inspection Standards (NBIS), which became effective January 13, 2005, require FHWA-approved bridge inspection training for all divers conducting underwater inspections. One method of meeting this requirement is the completion of an FHWA-approved underwater diver bridge inspection training course. Satisfactory completion of this 5-day course will fulfill the NBIS requirement.

This course provides an overview of diving operations that will be useful to agency personnel responsible for managing underwater bridge inspections.

Course topics include: methods of underwater inspection, underwater material deterioration mechanisms and inspection techniques, scour inspection techniques, underwater element-level rating, and underwater bridge inspection training. A final examination based on course content will be administered to participants.

Outcomes

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

- Specifically, upon completion of the course, participants should be ablet to:
- Explain the need and benefits of inspection the underwater portions of bridge structures.
- Describe typical underwater defects and deterioration, and identify conditions contributing to rates of deterioration.
- Identify the types of inspection equipment available, and the advantages and limitations of each
- Identify porcedures for planning and performing through and safe underwater bridge inspections.
- Assign component and element level condition ratings for underwater components in accordance with NBIS and agency requirements.

Target Audience

The course is intended for trained divers who require a knowledge base of underwater bridge inspection and evaluation techniques in order to meet the educational requirements of the NBIS for underwater bridge inspection training. The course would also be of interest to non-diver bridge inspectors, and FHWA, state, and local agency structural engineers.

Training Level: Basic

Fee: 2013: $900 Per Person; 2014: N/A

Length: 5 DAYS (CEU: 2.1 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130091B

New Training

Course Title

Underwater Bridge Repair, Rehabilitation, and Countermeasures

Underwater Bridge Repair, Rehabilitation, and Countermeasures is a two-day course that will provide training to design engineers, construction inspectors, resident engineers and inspection divers in techniques for selecting and executing repairs to below water bridge elements. The primary goal of this course is to enable design engineers to select, design, and specify appropriate and durable repairs to below water bridge elements. A secondary goal of this course is to train staff in effective construction inspection of below water repairs. This course may be presented as a follow-up to NHI Course No. 130091A, Underwater Bridge Inspections.

Outcomes

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

- Determine whether below water repairs can be completed "in the wet", or require a cofferdam (or similar).
- Describe typical environmental constraints to performing repairs below water.
- Describe three methods of achieving a dry construction site within a body of water.
- List three attributes of good concrete repair mix designs.
- Describe the differences between flexible and rigid concrete forming systems.
- Describe underwater concrete placement techniques.
- Write installation procedures for pile jackets.
- Describe three methods for repair of pier scour.
- Describe the benefits of cathodic protection for bridge substructures.
- Describe four stages of underwater repair activities for underwater construction inspection.

Target Audience

The course is intended for design engineers, construction inspectors, resident engineers and inspection divers who may be engaged in the design, specifications or inspection of repairs to bridge elements located in and below water. The course may be of interest to contract administrators responsible for bridge repair or rehabilitation projects. It is expected that participants will have a working knowledge of bridge terminology, construction materials, and traditional repair techniques. Participants may also have backgrounds in bridge maintenance, repair, or construction. The audience will include persons with a range of education and technical backgrounds.

Training Level: Basic

Fee: 2013: $580 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130092

Course Title

Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures

This course provides novice and experienced bridge engineers with the fundamental knowledge necessary to apply the most recent AASHTO LRFR Specifications to bridge ratings. This course introduces participants to applications of LRFR specifications that can be used to enhance bridge safety and to identify and discuss the steps to ensure successful transition to this new state-of-the art methodology.

Load Rating of Concrete and Steel Superstructure Bridges will provide participants with in-depth training in evaluating reinforced and prestressed concrete bridges and steel bridges using LRFR methodology. This course will illustrate the use of the current AASHTO evaluation specifications and state-of-the art evaluation methods with step-by-step examples.

Outcomes

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

- Describe the purpose of performing a load rating
- Identify the benefits of the LRFR methodology
- Demonstrate the LRFR process and the general load rating equations
- Explain legal loads and their use in load rating
- Determine distribution factors for load rating
- State the LRFR limit states
- Select evaluation factors for rating
- Describe the process for load posting and importance of load posting
- Describe the procedure for checking overload permits
- Demonstrate the application of LRFR requirements by completing load rating exercises
- Identify material deteriorations that affect load capacity of bridge components
- Calculate the flexural resistances of a prestressed concrete girder for load rating
- Calculate the shear resistance of a prestressed concrete girder for load rating
- Apply the load rating procedures for concrete slab bridges
- Calculate the flexural and shear resistance of a steel I-girder bridge for load rating
- Evaluate fatigue for load rating a steel girder bridge
- Apply LRFR requirements by completing load rating exercises

Target Audience

Bridge engineers with 0-20 years of experience.

Training Level: Basic

Fee: 2013: $1250 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130092A

Course Title

Load and Resistance Factor Rating for Highway Bridges

This course provides novice and experienced bridge engineers with the fundamental knowledge necessary to apply the most recent AASHTO Load and Resistance Factor Rating (LRFR) Specifications to bridge load rating.

Outcomes

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

- Describe the purpose of performing a load rating
- Identify the benefits of the LRFR methodology
- Demonstrate the LRFR process and the general load rating equations
- Explain legal loads and their use in load rating
- Determine distribution factors for load rating
- State the LRFR limit states
- Select evaluation factors for rating
- Describe the process for load posting and importance of load posting
- Describe the procedure for checking overload permits
- Demonstrate the application of LRFR requirements by completing load rating exercises

Target Audience

Bridge engineers with 0-20 years of experience.

Training Level: Basic

Fee: 2013: $800 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130092B

New Training

Course Title

Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures

This course provides novice and experienced bridge engineers with the fundamental knowledge necessary to apply the most recent AASHTO LRFR Specifications to bridge ratings. This course introduces participants to applications of LRFR specifications that can be used to enhance bridge safety and to identify and discuss the steps to ensure successful transition to this new state-of-the art methodology.

This 2-day course (130092B) is the second half of the 4-day 130092 course.

Outcomes

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

- Demonstrate the application of LRFR requirements by completing load rating exercises
- Identify material deteriorations that affect load capacity of bridge components
- Calculate the flexural resistances of a prestressed concrete girder for load rating
- Calculate the shear resistance of a prestressed concrete girder for load rating
- Apply the load rating procedures for concrete slab bridges
- Calculate the flexural and shear resistance of a steel I-girder bridge for load rating
- Evaluate fatigue for load rating a steel girder bridge
- Apply LRFR requirements by completing load rating exercises

Target Audience

Bridge engineers with 0-20 years of experience.

Training Level: Basic

Fee: 2013: $800 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130093

Course Title

LRFD Seismic Analysis and Design of Bridges

This course is a comprehensive and practical training course that addresses the requirements and recommendations of the seismic provisions in both the AASHTO LRFD Bridge Design Specifications and the AASHTO Guide Specifications for LRFD Seismic Bridge Design. The course reviews the fundamental principles of seismic design including engineering seismology, seismic and geotechnical hazards, and methods for modeling and analyzing bridges subject to earthquake ground motions. The course also discusses seismic capacity design methods of piers, foundations, superstructures and connections. Additionally, the course presents the principles and pros and cons of common seismic isolation techniques, typical isolation hardware, and construction and testing requirements consistent with the recently updated AASHTO Guide Specifications for Seismic Isolation Design. Lastly, the final lesson of the course addresses screening, evaluation, and selection of retrofit strategies and measures following closely to the philosophy and process described in the FHWA Seismic Retrofitting Manual for Highway Structures.

Outcomes

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

- Identify geotechnical hazards and their impact on structural design
- Discuss what Earthquake Resisting Elements (ERE) are and explain why some are preferred and why some are not
- List three Describe the essential parts of the capacity design process
- Describe strategies for protecting bridge superstructures and methods for accommodating lateral displacements
- List the steps of foundation seismic design
- Describe the seismic analysis and design process in accordance with the AASHTO LRFD Bridge Design Specifications (LS) and AASHTO Seismic Guide Specifications (GS).
- Develop design response spectrum
- Describe common processes embedded in both the LS and GS and explain the key differences between the Force-Based (LS) and
- Displacement-Based (GS) Methods.
- Describe the key difference between the LS and GS seismic design methods
- List basic purposes, component and testing requirements for a seismic isolation system
- Describe common retrofitting measures for bridge superstructures, columns and foundations

Target Audience

This course is intended to engage a target audience of bridge engineers with zero and up to 20 years of experience, through instructor-led presentations, discussions, Q&A, group activities, walkthrough examples, hands-on student exercises, and demonstrations.

Training Level: Intermediate

Fee: 2013: $1230 Per Person; 2014: N/A

Length: 5 DAYS (CEU: 3 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130093A

Course Title

Displacement Based Seismic Design of Bridges

This course is a comprehensive and practical training course that addresses the requirements and recommendations of the seismic provisions in both the AASHTO LRFD Bridge Design Specifications and the AASHTO Guide Specifications for LRFD Seismic Bridge Design. The course reviews the fundamental principles of seismic design including engineering seismology, seismic and geotechnical hazards, and methods for modeling and analyzing bridges subject to earthquake ground motions. The course also discusses seismic capacity design methods of piers, foundations, superstructures and connections. Additionally, the course presents the principles and pros and cons of common seismic isolation techniques, typical isolation hardware, and construction and testing requirements consistent with the recently updated AASHTO Guide Specifications for Seismic Isolation Design. Lastly, the final lesson of the course addresses screening, evaluation, and selection of retrofit strategies and measures following closely to the philosophy and process described in the FHWA Seismic Retrofitting Manual for Highway Structures.

Outcomes

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

- Identify geotechnical hazards and their impact on structural design
- Discuss what Earthquake Resisting Elements (ERE) are and explain why some are preferred and why some are not
- List three Describe the essential parts of the capacity design process
- Describe strategies for protecting bridge superstructures and methods for accommodating lateral displacements
- List the steps of foundation seismic design
- Describe the seismic analysis and design process in accordance with the AASHTO LRFD Bridge Design Specifications (LS) and AASHTO Seismic Guide Specifications (GS).
- Develop design response spectrum
- Describe common processes embedded in both the LS and GS and explain the key differences between the Force-Based (LS) and
- Displacement-Based (GS) Methods.
- Describe the key difference between the LS and GS seismic design methods
- List basic purposes, component and testing requirements for a seismic isolation system
- Describe common retrofitting measures for bridge superstructures, columns and foundations

Target Audience

This course is intended to engage a target audience of bridge engineers with zero and up to 20 years of experience, through instructor-led presentations, discussions, Q&A, group activities, walkthrough examples, hands-on student exercises, and demonstrations.

Training Level: Intermediate

Fee: 2013: $18000 Per Course; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130095

Updated Training

Course Title

LRFD and Analysis of Curved Steel Highway Bridges

This five-day course expands the suite of FHWA services to assist State and local governments in a successful implementation of Load and Resistance Factor Design (LRFD). This course applies the principles of LRFD to the analysis and design of skewed and horizontally curved steel bridges. For structural applications, the curriculum follows the AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010 (AASHTO LRFD Specifications). The training course focuses primarily on the analysis and design of skewed and horizontally curved steel I-girder bridges. However, the accompanying Reference Manual also includes design examples for horizontally curved steel box-girder bridges.

This course provides a combination of instructor-led discussions and workshop exercises. It includes LRFD theory applied to design examples, and it illustrates step-by-step LRFD design procedures for skewed and curved steel bridges. The course includes participant exercises in which students apply the LRFD principles to specific applications, guided walk-throughs in which the instructor guides the participants through design examples, case studies in which real-life examples are used to illustrate the principles being learned, as well as models to help participants observe firsthand the behavior of skewed and curved bridges.

The curriculum materials are comprised of a comprehensive Reference Manual, lecture and workshop exercises intended to promote and enhance a working knowledge of the AASHTO LRFD Specifications as they apply to skewed and curved steel bridges, and a Participant Workbook containing slides, design examples, exercises, narrative descriptions and room for participant notes.

The curriculum material contains the following major topics:

1. General introduction (course introduction and overview)
2. Fundamentals (system behavior, torsion and live load force effects)
3. Structural analysis (general analysis considerations, bearing constraints, approximate methods, 2D refined methods, 3D refined methods and recommended level of analysis)
4. Design (preliminary design decisions, girder design verifications and design detail items)
5. Fabrication and construction

Outcomes

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

- Describe the bridge superstructure analysis, design, fabrication and construction process for skewed or horizontally curved steel I-girder superstructures and for horizontally curved steel box-girder superstructures in accordance with the AASHTO LRFD Specifications
- Illustrate the application of the AASHTO LRFD Specifications to the analysis and design process for skewed and curved steel-bridge superstructures, taking into account erection and construction considerations
- Demonstrate understanding of analysis and design specification requirements for skewed and curved steel girder bridges through the completion of participant exercises and guided walk-throughs and the review of design examples

Target Audience

This course has been developed for the needs of practicing public and private sector structural and bridge engineers with 0 to approximately 20 years of experience. The primary audience is Host Agency and consultant structural designers. Pre-training Competencies: Individuals attending this course should have a minimum BSCE degree and have a working knowledge of the current AASHTO LRFD Specifications or the AASHTO Standard Specifications for Highway Bridges. They should also have relevant design experience using either of these specifications on at least one bridge superstructure.

Training Level: Basic

Fee: 2013: $1230 Per Person; 2014: N/A

Length: 5 DAYS (CEU: 3.1 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130095A

Updated Training

Course Title

Fundamental and Structural Analysis for Curved and Skewed Steel Bridges

This 2½-day course presents the first half of the five-day course (Course No. FHWA-NHI-130095). It expands the suite of FHWA services to assist State and local governments in a successful implementation of Load and Resistance Factor Design (LRFD). This course applies the principles of LRFD to the analysis of skewed and horizontally curved steel bridges. For structural applications, the curriculum follows the AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010 (AASHTO LRFD Specifications). The training course focuses primarily on the analysis of skewed and horizontally curved steel I-girder bridges. However, the accompanying Reference Manual also includes design examples for horizontally curved steel box-girder bridges.

This course provides a combination of instructor-led discussions and workshop exercises. It includes LRFD theory applied to analysis examples, and it illustrates step-by-step LRFD analysis procedures for skewed and curved steel bridges. The course includes participant exercises in which students apply the LRFD principles to specific applications, guided walk-throughs in which the instructor guides the participants through analysis examples, case studies in which real-life examples are used to illustrate the principles being learned, as well as models to help participants observe firsthand the behavior of skewed and curved bridges.

The curriculum materials are comprised of a comprehensive Reference Manual, lecture and workshop exercises intended to promote and enhance a working knowledge of the AASHTO LRFD Specifications as they apply to skewed and curved steel bridges, and a Participant Workbook containing slides, analysis examples, exercises, narrative descriptions and room for participant notes.

The curriculum material contains the following major topics:

1. General introduction (course introduction and overview)
2. Fundamentals (system behavior, torsion and live load force effects)
3. Structural analysis (general analysis considerations, bearing constraints, approximate methods, 2D refined methods, 3D refined methods and recommended level of analysis)

Outcomes

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

- Describe the bridge superstructure analysis process for skewed or horizontally curved steel I-girder superstructures and for horizontally curved steel box-girder superstructures in accordance with the AASHTO LRFD Specifications
- Illustrate the application of the AASHTO LRFD Specifications to the analysis process for skewed and curved steel-bridge superstructures
- Demonstrate understanding of analysis specification requirements for skewed and curved steel girder bridges through the completion of participant exercises and guided walk-throughs and the review of analysis examples

Target Audience

This course has been developed for the needs of practicing public and private sector structural and bridge engineers with 0 to approximately 20 years of experience. The primary audience is Host Agency and consultant structural designers. Pre-training Competencies: Individuals attending this course should have a minimum BSCE degree and have a working knowledge of the current AASHTO LRFD Specifications or the AASHTO Standard Specifications for Highway Bridges. They should also have relevant design experience using either of these specifications on at least one bridge superstructure.

Training Level: Basic

Fee: 2013: $820 Per Person; 2014: N/A

Length: 2.5 DAYS (CEU: 1.6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130095B

Updated Training

Course Title

Design and Fabrication of Curved and Skewed Steel Bridges

This 2½-day course presents the second half of the five-day course (Course No. FHWA-NHI-130095). It expands the suite of FHWA services to assist State and local governments in a successful implementation of Load and Resistance Factor Design (LRFD). This course applies the principles of LRFD to the design of skewed and horizontally curved steel bridges. For structural applications, the curriculum follows the AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010 (AASHTO LRFD Specifications). The training course focuses primarily on the design of skewed and horizontally curved steel I-girder bridges. However, the accompanying Reference Manual also includes design examples for horizontally curved steel box-girder bridges.

This course provides a combination of instructor-led discussions and workshop exercises. It includes LRFD theory applied to design examples, and it illustrates step-by-step LRFD design procedures for skewed and curved steel bridges. The course includes participant exercises in which students apply the LRFD principles to specific applications, guided walk-throughs in which the instructor guides the participants through design examples, case studies in which real-life examples are used to illustrate the principles being learned, as well as models to help participants observe firsthand the behavior of skewed and curved bridges.

The curriculum materials are comprised of a comprehensive Reference Manual, lecture and workshop exercises intended to promote and enhance a working knowledge of the AASHTO LRFD Specifications as they apply to skewed and curved steel bridges, and a Participant Workbook containing slides, design examples, exercises, narrative descriptions and room for participant notes.

The curriculum material contains the following major topics:

1. Design (preliminary design decisions, girder design verifications and design detail items)
2. Fabrication and construction

Outcomes

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

- Describe the bridge superstructure design, fabrication and construction process for skewed or horizontally curved steel I-girder superstructures and for horizontally curved steel box-girder superstructures in accordance with the AASHTO LRFD Specifications
- Illustrate the application of the AASHTO LRFD Specifications to the design process for skewed and curved steel-bridge superstructures, taking into account erection and construction considerations
- Demonstrate understanding of design specification requirements for skewed and curved steel girder bridges through the completion of participant exercises and guided walk-throughs and the review of design examples
- Successfully complete applicable Learning Outcome Assessments with a combined score of 70 percent or higher

Target Audience

This course has been developed for the needs of practicing public and private sector structural and bridge engineers with 0 to approximately 20 years of experience. The primary audience is Host Agency and consultant structural designers. Pre-training Competencies: Individuals attending this course should have a minimum BSCE degree and have a working knowledge of the current AASHTO LRFD Specifications or the AASHTO Standard Specifications for Highway Bridges. They should also have relevant design experience using either of these specifications on at least one bridge superstructure.

Training Level: Basic

Fee: 2013: $820 Per Person; 2014: N/A

Length: 2.5 DAYS (CEU: 1.6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130096

New Training

Course Title

Cable-Stayed Bridge Seminar

The National Highway Institute's (NHI) one-day Cable-Stayed Signature Bridge Seminar is intended to provide participants with an introduction to planning, design, and construction of long-span, cable-stayed bridges. The seminar provides an overview of the features of cable-stayed bridges; their construction and maintenance considerations; and analyses needed to design these highly redundant structures including special aerodynamic studies.

This seminar will engage participants through Instructor-led presentations, discussions, Q&A, group activities, and walkthrough examples. Participants will review a case study to help them understand how the curriculum can be applied to making basic design decisions. Major topics covered include: bridge configurations, construction methodology, component details, analysis, aerodynamics, design methodology, construction engineering, and maintenance and inspection. As part of the seminar, participants will receive a copy of FHWA Design Guidelines for the Arch and Cable-Supported Signature Bridges.

As a result of the seminar, participants will become familiar with the features of, construction and maintenance considerations; and analyses needed to design cable-stayed bridges.

Outcomes

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

- Describe the benefits of the cable-stayed bridge as a structure type over other alternatives
- Identify possible span and cable arrangements
- Compare steel, concrete or composite superstructure types
- Select possible pylon shape
- Define the general approaches for erecting steel and concrete cable-stayed bridges
- Define the roles and responsibilities of the owner, contractor and construction engineer
- Identify the needs for aerodynamics studies, testing and evaluation, and discuss practical solutions to mitigate wind effects

Target Audience

The primary target audience includes bridge engineers with 10 to 30 years of expericence.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 1 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130099

New Training

Course Title

Bridge Inspection Non-Destructive Evaluation Showcase (BINS)

The FHWA Office of Infrastructure R&D, in cooperation with the FHWA Office of Bridge Technology and the FHWA Resource Center, has identified that the need exists within state Departments of Transportation (DOT) for training on selected non-destructive evaluation (NDE) methods that can be used to assess existing conditions in highway bridge structures during routine inspections, supplementing visual inspections.

The Bridge Inspectors NDE Showcase (BINS) is an informal, one-day training course which provides bridge inspectors the ability to see the latest in commercially available nondestructive tools and systems for use on bridges. The workshop is presented through a series of lectures, instructional videos, and live demonstrations showing basic operation of the equipment.

This seminar is designed to provide bridge inspection staff the opportunity to view efficient and effective inspection tools and techniques, with the ultimate goal of achieving safer bridges through more reliable bridge inspections. The following technical inspection tools are featured: Eddy Current, Ultrasonic, Infrared Thermography, Impact Echo, and Ground Penetrating Radar.

Course instructors are qualified engineers experienced in using NDE equipment on bridges.

Outcomes

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

- Summarize and demonstrate the basic principles and general operational procedures for five (5) hand-held nondestructive testing (NDT) systems used for inspection of bridge components, including:
- Eddy Current Testing
- Ultrasonic Testing
- Infrared Thermography
- Impact Echo (IE)
- Ground Penetrating Radar (GPR)

Target Audience

The primary audience for the Bridge Inspection Non-Destructive Evaluation Showcase (BINS) course is Federal, State, and local highway bridge inspectors, consultants, and bridge inspection staff.

Training Level: Basic

Fee: 2013: $13000 Per Course; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 100

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130101

New Training WBT

Course Title

Introduction to Safety Inspection of In-Service Bridges - WEB-BASED

Introduction to Safety Inspection of In-Service Bridges is designed to prepare participants with the necessary fundamentals required for a more intensive course in bridge inspection. This WBT introduces the elementary concepts of bridge inspection, bridge functions, and bridge inspection terminology. Participants who complete this WBT will be prepared for more intensive courses in bridge inspection, which focus on documentation, rating, assessment, and field inspection.

Introduction to Safety Inspection of In-Service Bridges covers bridge components and elements, bridge mechanics, design features, bridge materials, decks, superstructures, bearings, substructures, channels, inspection preparations, inspection reporting activities, and work area safety.

This course prepares participants for the 2-week, intensive Instructor-led course in bridge inspection, 130055 Safety Inspection of In-Service Bridges.

Upon successful completion of 130101, participants will have met the prerequisite requirement for participation in the 130055 course (for sessions beginning March 5, 2012 or later).* If participants would like to enroll in the 130055 course, they will be required to demonstrate their certificate of completion for 130101 as proof that the prerequisite requirement has been fulfilled.

Participation in 130101 is not the only option to fulfill the prerequisite requirement for 130055.* Individuals have the option to 1) successfully complete NHI-130054 Engineering Concepts for Bridge Inspectors (Instructor-led course) or 2) for those with engineering backgrounds or prior knowledge and experience in the field of bridge inspection may "test-out" through a Web-based assessment (130101A Introduction to Safety Inspection of In-Service Bridges).

*Please note: Upon successful completion of this prerequisite course, you will be eligible to take the 130055 training course for up to 2 years.

Outcomes

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

- Describe the basis for bridge inspection
- Identify the three major bridge components and various culvert types
- Identify the various elements that comprise bridge components
- Describe standard highway bridge loadings
- Describe the basic concepts of elasticity of materials, response of materials to an applied force, response of structural members to a variety of loadings, the relationship between stresses and strains, and load rating
- Describe span arrangements, deck-superstructure interaction, and redundancy
- Describe the basic properties, strengths and weaknesses of steel, concrete, and timber
- Describe the types, signs and causes of structural distress in steel, concrete, and timber
- Describe the general purpose of decks, superstructures, and bearings
- Describe the general purpose and function of substructure units
- Describe waterway features and the effect of scour
- Describe the requirements for preparing for an inspection
- Describe the basic bridge inspection reporting requirements
- Name protective measurements to mitigate the hazards involved when working in the field performing bridge inspection

Target Audience

This training has been developed for Federal, State, and local highway agency employees and consultants involved in inspecting bridges or in charge of a bridge inspection unit. A background in bridge engineering is strongly recommended.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 14 HOURS (CEU: 1.4 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130101A

New Training WBT

Course Title

Prerequisite Assessment for Safety Inspection of In-Service Bridges - WEB-BASED

Prerequisite Assessment for Safety Inspection of In-Service Bridges (FHWA-NHI-130101A) is a required prerequisite necessary for those interested in taking the course Safety Inspection of In-Service Bridges (FWHA-NHI-130055). The assessment is divided into three sections; participants are given three opportunities to pass each section with a score of 70% or better. Passing all three assessment sections signifies successful completion.

The assessment covers a range of topics that includes the bridge inspection program, bridge components and elements, bridge mechanics, design features, bridge materials, decks, superstructures, bearings, substructures, channels, inspection preparations, inspection reporting activities, and work area safety. To access this online assessment, enroll in NHI 130101A "Prerequisite Assessment for Safety Inspection of In-Service Bridges" via the NHI Web site.

Upon successful completion of 130101A, participants will have met the prerequisite requirement for participation in the 130055 Safety Inspection of In-Service Bridges course (for sessions beginning March 5, 2012 or later).* If participants would like to enroll in the 130055 course, they will be required to demonstrate their certificate of completion for 130101A as proof that the prerequisite requirement has been fulfilled.

Participation in 130101A is not the only option to fulfill the prerequisite requirement for 130055.* Individuals have the option to 1) successfully complete NHI-130054 Engineering Concepts for Bridge Inspectors (Instructor-led course) or 2) successfully complete the Web-based training and assessment (130101 Introduction to Safety of In-Service Bridges)

*Please note: Upon successful completion of this prerequisite course, you will be eligible to take the 130055 training course for up to 2 years.

Outcomes

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

- There are no course outcomes associated with this prerequisite assessment.

Target Audience

This assessment has been developed for Federal, State, and local highway agency employees and consultants involved in inspecting bridges or in charge of a bridge inspection unit. A background in bridge engineering is strongly recommended.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132012

Course Title

Soils and Foundations Workshop

This course is geared toward practicing design and construction engineers who routinely deal with soil and foundation problems but have little theoretical background in soil mechanics or foundation engineering. The course takes a project-oriented approach whereby the soils input to a bridge project is followed from conception to completion. In each phase of the project, the soil concepts will be developed into specific foundation designs and recommendations. The classroom presentation includes a variety of exercises to verify achievement of learning objectives. Each participant will take away a comprehensive reference manual on soils and foundations and a participant workbook containing a copy of all slides presented and completed exercises.

Outcomes

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

- Identifying the minimum level of geotechnical input in various project phases of a highway project
- Recalling the equipment and procedures used to implement a subsurface investigation of soil and rock conditions
- Demonstrating basic skills in visual description of soils native to the host state
- Recalling geotechnical facilities and personnel in the host state
- Recalling the basic soil test procedures and how the results of the various soil tests are applied results to highway projects
- Listing procedures used for both settlement and stability analysis, and recalling design solutions to stability and settlement problems for approach roadway embankments
- Listing procedures used for determining bearing capacity and settlement of shallow foundations such as spread footings
- Identifying the basic skills needed in the design and construction management of driven pile and drilled shaft foundations
- Recalling the driven pile and drilled shaft foundation construction equipment and construction inspection procedures
- Description static load testing and recalling the basic skills needed to interpret static load test results
- Recalling the basic skills needed in the design and construction of earth retaining structures
- Discussing the format and minimum content of an adequate foundation report

Target Audience

Personnel from the following units at the transportation agency could benefit from this workshop: geotechnical, bridge design, roadway design, materials, construction, and maintenance. The personnel who will benefit the most are the first-line supervisors involved in the design of highway structures and embankments. The greatest impact will be achieved by convincing structural, design, and construction engineers to use procedures from this course as a guide for routine geotechnical work. All attendees should be encouraged to attend the entire course, not just sections that are in their specialty. One of the major benefits of this course is to give engineers an appreciation of activities outside their specialties that influence, or are influenced by, the work of the geotechnical engineer.

Training Level: Basic

Fee: 2013: $900 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132014

Course Title

Drilled Shafts

Drilled shafts are an alternate type of deep foundation that may be more cost effective and perform better than other types of deep foundations in bridge piers at river crossings and in retrofit operations, high-mast lighting, earth retaining structures, single-column piers, and similar applications. This course provides participants with specific technical guidance on all aspects of designing, installing, and monitoring the construction of drilled shafts. The lessons address the following topics: applications, advantages, and disadvantages of drilled shafts for transportation structure foundations; general requirements for subsurface investigations; construction methods; construction case histories; construction specifications; principles of designing drilled shafts for axial and lateral loading; expansive soils, downdrag, and similar effects; load testing; inspection; integrity testing; repair and retrofit of defective shafts; and cost estimation. The participants will receive a comprehensive reference manual on drilled shaft construction and design used by engineers who perform detailed designs of drilled shafts, write construction specifications, and evaluate the performance of contractors through a comprehensive inspection program.

Outcomes

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

- Describe the various drilling rigs and tools that are available to construct drilled shafts under varied subsurface soil and rock conditions
- Recognize the basic features of drilling aids, such as casings and drilling slurries, and the reasons for certain fundamental requirements for these aids
- Design drilled shafts for axial loading in simple soil and rock profiles
- Demonstrate a general understanding of the elements of designing drilled shafts for lateral loads
- Demonstrate an understanding of the need for load tests and available methods for performing the tests
- Formulate the basic elements of construction specifications for drilled shafts
- Demonstrate an understanding of integrity testing, repair, and retrofit of defective shafts
- Estimate costs for drilled shafts

Target Audience

The target audience for this course includes geotechnical engineers, bridge designers, and resident engineers. The course embraces both construction and design, and it is important that all participants attend all lessons, not just those in their immediate areas of interest. A key issue is how the details of construction affect the way in which a drilled shaft should be designed and how the intent of the design affects inspection. Participants are expected to have a degree in engineering for which they have passed an undergraduate course in soil mechanics and/or have successfully completed NHI course FHWA-NHI-132012 Soils and Foundations Workshop.

Training Level: Intermediate

Fee: 2013: $760 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132036

Course Title

Earth Retaining Structures

The goal of this course is to provide agencies with state-of-the-practice design tools and construction techniques to expand implementation of safe and cost-effective earth retention technologies. This course addresses the selection, design, construction, and performance of earth retaining structures used for support of fills and excavations or cut slopes. Instructors cover factors that affect wall selection, including contracting approaches with an emphasis on required bidding documents for each approach. Class discussions will include design procedures and case histories, demonstrating the selection, design, and performance of various earth retaining structures. Detailed information on subsurface investigation, soil and rock property design parameter selection, lateral earth pressures for wall system design, and load and resistance factor design (LRFD) for retaining walls are provided.

Outcomes

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

- Describe potential applications for Earth Retaining Structures (ERS)
- Select a technically appropriate and cost-effective ERS
- Select appropriate material properties, soil design parameters, and earth pressure diagrams
- Perform design analysis and prepare conceptual designs
- Review contractor submitted documents
- Discuss contracting methods
- Describe construction and inspection activities for ERS

Target Audience

The primary audience for this course is agency and consultant bridge/structures, geotechnical, and roadway design engineers; engineering geologists; and consultant review specialists. In addition, management, specification, and contracting specialists and construction engineers involved in design and contracting aspects of retaining structures are encouraged to attend. Attendees should have a basic knowledge of soil mechanics and structural engineering, including some understanding of LRFD concepts.

Training Level: Intermediate

Fee: 2013: $760 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132040

Course Title

Geotechnical Aspects of Pavements

This course covers the latest methods and procedures to address the geotechnical issues in pavement design, construction, and performance for new construction, reconstruction, and rehabilitation pavement projects. The course content includes geotechnical exploration and characterization of in-place and constructed subgrades; design and construction of subgrades and unbound layers for paved and unpaved roads, with emphasis on the American Association of State Highway Transportation Officials (AASHTO) 1993 empirical design procedure and on the new Mechanistic-Empirical Pavement Design Guide (MEPDG); drainage of bases, subbases, and subgrades and its impact on providing safe, cost-effective, and durable pavements; problematic soils, soil improvement, stabilization, and other detailed geotechnical issues in pavement design and construction; and construction methods, specifications, and QC/QA (quality control/quality assurance) inspection for pavement projects.

The goal of the course is for each participant to recognize the importance of the geotechnical aspects relevant to the design, construction, and performance of a pavement system. Participants will develop an appreciation for the importance of adequate subsurface exploration and laboratory characterization of subgrade soils as well as the requisite pavement design parameters for subgrades, unbound base and subbase layers, including drainage features. The course is designed to elicit maximum input from participants, particularly regarding an understanding of the impact of geotechnical features on the long-term performance of pavement systems.

Outcomes

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

- Explain the geotechnical parameters of interest in pavement design and their effects on the performance of different types of pavements
- Explain the influence of climate, moisture, and drainage on pavement performance
- Identify and explain the impact of unsuitable subgrades on pavement performance
- Determine the geotechnical inputs needed for design of pavements, both for the AASHTO 93 empirical design procedure and the new MEPDG
- Evaluate and select appropriate remediation measures for pavement subgrades
- Explain the geotechnical aspects of construction specifications and inspection requirements
- Identify subgrade problems during construction and develop recommended solutions

Target Audience

Many groups within an agency are involved with different aspects of definition, design, use, and construction verification of pavement geomaterials. These groups include pavement design engineers, geotechnical engineers, materials engineers, specification writers, and construction engineers who are or will be involved in the design, evaluation, and construction (or reconstruction or rehabilitation) of pavements. This course was developed as a forum for these various personnel to work together to enhance current procedures for building and maintaining more cost-efficient pavement structures.

Training Level: Basic

Fee: 2013: $760 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132042

Course Title

Design of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes

Mechanically stabilized earth walls (MSEWs) are commonly used on roadway projects and are typically cost effective and aesthetically pleasing. The basic concept behind MSEWs is to combine soil, reinforcing materials made of steel or polymers, and appropriate facing to produce a composite system with engineering properties that are ideal for most roadway applications. Reinforced soil slopes (RSS) utilize the same types of reinforcement for the construction of steep embankments. Both MSEWs and RSS structures can provide substantial savings in construction time and costs when compared with other types of earth retaining systems.

The goal of the course is to educate agencies about state-of-the-practice design tools. This includes comprehensive instruction on the design of MSEWs using load resistance factor design (LRFD). The course also presents construction practices to promote implementation of mechanically stabilized earth technology in cost effective earth retention structures. This course would most benefit persons who are involved in the design and construction of earth retention structures for surface transportation projects.

Outcomes

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

- Recognize potential applications for MSEWs and RSS structures in transportation facilities
- Prepare conceptual and basic (i.e., for simple geometry) designs, and be able to check contractor-submitted designs for walls and slopes
- Examine and select appropriate material properties and parameters used in design
- Calculate the cost of conceptual MSEWs and RSS structures and determine if construction is a cost-effective option
- Select appropriate specification/contracting method(s) and prepare detailed specifications for materials and methods of construction
- Define and communicate major components of construction inspection of MSEWs and RSS structures to confirm compliance with design

Target Audience

The primary audience for this course is agency and consultant bridge/structures, geotechnical, and roadway design engineers; engineering geologists; and consultant review specialists. In addition, management, specification and contracting specialists, and construction engineers interested in design and contracting aspects of MSEWs and RSS structures are encouraged to attend. Attendees should have a basic knowledge of soil mechanics and structural engineering. (Note that NHI offers a 1-day course, FHWA-NHI-132043 Construction of MSEW and RSS.

Training Level: Intermediate

Fee: 2013: $760 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132078

Course Title

Micropile Design and Construction

The primary goal of this course is to provide the target audience with guidance on when and where it is appropriate to use micropiles, and educate engineers about the state of the practice in the design and construction of micropiles. The course covers stepwise procedures for the design of micropiles for structural support and for slope stability applications. Construction, inspection and integrity-testing aspects and issues are discussed as well. Classroom presentations include exercises that will lead participants through the technical and cost feasibility aspects of structural support and slope stability design with micropiles. Each participant will receive a workbook and reference manual containing detailed micropile design examples for various applications.

FHWA-NHI-132012 Soils and Foundations course is a recommended prerequisite.

Outcomes

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

- Briefly describe the history and current status of the micropile industry
- Identify potential micropile applications
- Explain construction constraints, techniques, and performance
- Assess feasibility of micropiles for a given application
- Prepare conceptual and basic designs, and evaluate contractor-submitted designs
- Select appropriate specification/contracting method(s) and prepare contract documents
- Describe construction monitoring and inspection requirements

Target Audience

This course is directed toward practicing geotechnical, foundation, construction and bridge/structural engineers who have knowledge and experience in the design and construction of driven piles and drilled shaft foundations. Engineers involved with the design and construction of structure foundations will all benefit from this training, which builds upon the basic concepts presented in NHI courses FHWA-NHI-132012, FHWA-NHI-132014, and FHWA-NHI-132021.

Training Level: Intermediate

Fee: 2013: $660 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134029

Course Title

Bridge Maintenance Training

This course focuses on cost-effective bridge maintenance and repair procedures performed by typical transportation agency crews. Included are step-by-step instructions for the preparation and performance of maintenance and repair on common bridge elements. Bridge preservation is emphasized throughout. While engineers often attend, the material is designed for bridge crew supervisors and technicians.

Outcomes

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

- Justify, develop and implement a cost-effective preservation strategy for a group of bridges
- Identify maintenance or repair needs and select the best remedial strategy.
- Describe properties and preservation options involving common bridge materials such as concrete, steel and timber
- Describe the step-by-step tasks required to accomplish proven preservation procedures on the various bridge elements
- Identify critical members and avoid procedures that might result in damage such as field welding repairs on fracture critical tension members
- Recognize problems that warrant specialized expertise, for example, soliciting the involvement of a qualified structural engineer when repairing structural damage
- Apply effective management techniques (such as planning, scheduling, monitoring and reporting) during daily bridge maintenance operations

Target Audience

State and local bridge maintenance technicians and supervisors. This course is also recommended for asset management team members.

Training Level: Intermediate

Fee: 2013: $670 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134062

Course Title

Bridge Evaluation for Rehabilitation Design Considerations 4.5 Day

The ultimate goal of this effort is the development of a nationally accepted program that will serve to improve quality, ensure uniformity, and establish a minimum standard for bridge rehabilitation. The course will present innovative and state-of-the-art bridge rehabilitation technologies and procedures for a broad array of structural elements including bridge decks, girders, piers, and abutments.

Core curriculum for the course is 4.5 days and covers the outcomes listed below.

Outcomes

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

- Describe conditions that suggest the need for rehabilitation
- Identify the need for, and capacity of, destructive and/or non destructive testing (NDT) for assessment of existing conditions
- Prescribe analysis and load testing to determine the effect of existing conditions on the structure
- Distinguish root causes of distress and deterioration
- Formulate appropriate rehabilitation strategies
- Select procedures and materials for rehabilitation
- Develop effective rehabilitation construction documents
- Prepare and implement quality assurance for construction
- Monitor and resolve construction and material problems

Target Audience

The target audience includes design engineers, field engineers, resident engineers, structural engineers, materials engineers, and other technical personnel involved in the construction and rehabilitation design of bridges. Participants with an engineering background are expected to constitute the target audience. People knowledgeable in new bridge design, but not necessarily bridge rehabilitation, should attend.

Training Level: Intermediate

Fee: 2013: $770 Per Person; 2014: N/A

Length: 4.5 DAYS (CEU: 2.7 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134062A

Course Title

Bridge Evaluation for Rehabilitation Design Considerations 5-Day

The ultimate goal of this effort is the development of a nationally accepted program that will serve to improve quality, ensure uniformity, and establish a minimum standard for bridge rehabilitation. The course will present innovative and state-of-the-art bridge rehabilitation technologies and procedures for a broad array of structural elements including bridge decks, girders, piers, and abutments.

The 5-day version of this course includes two additional modules on the rehabilitation of timber and masonry structures.

Outcomes

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

- Describe conditions that suggest the need for rehabilitation
- Identify the need for, and capacity of, destructive and/or non destructive testing (NDT) for assessment of existing conditions
- Prescribe analysis and load testing to determine the effect of existing conditions on the structure
- Distinguish root causes of distress and deterioration
- Formulate appropriate rehabilitation strategies
- Select procedures and materials for rehabilitation
- Develop effective rehabilitation construction documents
- Prepare and implement quality assurance for construction
- Monitor and resolve construction and material problems

Target Audience

The target audience includes design engineers, field engineers, resident engineers, structural engineers, materials engineers, and other technical personnel involved in the construction and rehabilitation design of bridges. Participants with an engineering background are expected to constitute the target audience. People knowledgeable in new bridge design, but not necessarily bridge rehabilitation should attend.

Training Level: Intermediate

Fee: 2013: $820 Per Person; 2014: N/A

Length: 5 DAYS (CEU: 3 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131032

Course Title

Hot-Mix Asphalt Construction

Updated in 2002, this training resulted from a partnership between the American Association of State Highway and Transportation Officials (AASHTO), the Transportation Curriculum Council (TCCC), Federal Highway Administration (FHWA), and hot-mix asphalt (HMA) industry. It was developed through the cooperative efforts of the Joint AASHTO/FHWA/Industry Training Committee on Asphalt. It combines lectures and problem-solving workshop sessions to provide participants with a working knowledge of the hot-mix asphalt construction process and equipment. The course is designed to help participants understand the effect of construction actions on the final product. This program reviews the entire HMA construction process beginning with the delivery of the HMA to the job site, through lay down and compaction, and concluding with quality control/quality assurance (QC/QA) of the completed pavement. To emphasize recommended good practice in HMA construction, various exercises are used, including troubleshooting typical field problems. The course concludes with an examination which reviews the key elements of HMA construction.

Participants are required to bring a calculator.

Outcomes

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

- Describe the purpose of project documents, pre-construction and pre-paving conferences, and cooperative communications on the job
- List the steps involved in preparing bases and existing pavements for overlays
- Select correct patching materials and placement techniques for pavement repair
- Define a proper HMA delivery process to the job site
- Explain the effect of the various components of a HMA paving machine on the finished mat
- Describe how to make a good longitudinal or transverse joint
- Identify QA techniques that apply to the HMA construction

Target Audience

This course is designed for an audience that contains 50 percent contractor supervisory personnel and 50 percent Federal, State, and local highway agency construction engineers and field inspectors involved in the planning, construction, and review of HMA placement projects. It is important that such a mix of participants is present.

Training Level: Intermediate

Fee: 2013: $450 Per Person; 2014: N/A

Length: 2.5 DAYS (CEU: 1.5 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131050

New Training

Course Title

Asphalt Pavement In-Place Recycling Techniques

Transportation agencies focusing on the use of sustainable, cost effective, and environmentally conscious construction practices often consider in-place recycling techniques as a viable alternative to the more traditional rehabilitation techniques used on asphalt-surfaced pavements. NHI training 131050 Asphalt Pavement In-place Recycling Techniques is designed to help participants acquire necessary skills for selecting the appropriate in-place recycling technique for a given set of conditions, choosing the appropriate materials for the project, developing suitable specifications, and constructing those projects effectively.

The Asphalt Pavement In-place Recycling Techniques course includes two brief Web-based training (WBT) modules, and two days of instructor-led, classroom-based training (ILT). Through independent study, classroom interaction, and workshop activities, participants explore the current technologies available in the area of asphalt pavement in-place recycling. Two WBT lessons introduce pavement evaluation techniques and the three potential recycling techniques, along with the types of equipment commonly used for each. The classroom session focuses on project and technique selection and justification, materials considerations and mix design, construction specifications, and project control considerations during construction.

Outcomes

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

- Describe the economic, environmental, and engineered performance benefits associated with using in-place asphalt recycling
- Identify the key factors that contribute to the selection of appropriate in-place asphalt recycling techniques under different traffic levels, pavement conditions, and environments
- Identify the key requirements in developing effective in-place asphalt recycling construction specifications, including method specification and end-result or performance specifications
- Demonstrate the ability to select the appropriate new materials and additives needed for each of three HMA pavement in-place recycling techniques
- List steps that can be taken to address a variety of issues that may impact the constructability of a project

Target Audience

This course is intended for State and local transportation agency engineers, such as pavement managers and maintenance engineers, and other agency personnel who are responsible for selecting, designing, or constructing the agency's asphalt pavement maintenance, resurfacing, rehabilitation, and reconstruction alternatives. The course particularly benefits those individuals responsible for selecting and designing asphalt in-place recycling projects, for writing effective specifications, or for inspecting asphalt in-place recycling projects during their construction. Contractors, consulting engineers, and industry representatives involved in asphalt pavement in-place recycling also will benefit from this course.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131050A

Updated Training WBT

Course Title

Asphalt Pavement In-Place Recycling Techniques--WEB-BASED

Transportation agencies focusing on the use of sustainable, cost-effective, and environmentally conscious construction practices often consider in-place recycling techniques as a viable alternative to the more traditional rehabilitation techniques used on asphalt-surfaced pavements. NHI training 131050 Asphalt Pavement In-place Recycling Techniques is designed to help participants acquire necessary skills for selecting the appropriate in-place recycling technique for a given set of conditions, choosing the appropriate materials for the project, developing suitable specifications, and constructing those projects effectively.

The Asphalt Pavement In-place Recycling Techniques course includes two brief Web-based training (WBT) modules, and two days of instructor-led, classroom-based training (ILT). Through independent study, classroom interaction, and workshop activities, participants explore the current technologies available in the area of asphalt pavement in-place recycling. Two WBT lessons introduce pavement evaluation techniques and the three potential recycling techniques, along with the types of equipment commonly used for each. The classroom session focuses on project and technique selection and justification, materials considerations and mix design, construction specifications, and project control considerations during construction.

Outcomes

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

- Describe the economic, environmental, and engineered performance benefits associated with using in-place asphalt recycling
- Identify the key factors that contribute to the selection of appropriate in-place asphalt recycling techniques under different traffic levels, pavement conditions, and environments
- Identify the key requirements in developing effective in-place asphalt recycling construction specifications, including method specification and end-result or performance specifications
- Demonstrate the ability to select the appropriate new materials and additives needed for each of three HMA pavement in-place recycling techniques
- List steps that can be taken to address a variety of issues that may impact the constructability of a project

Target Audience

This course is intended for State and local transportation agency engineers, such as pavement managers and maintenance engineers, and other agency personnel who are responsible for selecting, designing, or constructing the agency's asphalt pavement maintenance, resurfacing, rehabilitation, and reconstruction alternatives. The course particularly benefits those individuals responsible for selecting and designing asphalt in-place recycling projects, for writing effective specifications, or for inspecting asphalt in-place recycling projects during their construction. Contractors, consulting engineers, and industry representatives involved in asphalt pavement in-place recycling also will benefit from this course.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131060

Course Title

Concrete Pavement Design Details and Construction Practices

This course provides participants with current guidelines on design and construction details for concrete pavements. Topics include important concrete pavement design details, including subgrade preparation, base selection, drainage design, thickness design, joint design, and shoulder characterization. The course explains how to select the proper details to enhance structural performance. Emphasis is given to jointed plain concrete pavements (JPCP), although the course includes instruction on jointed reinforced concrete pavements (JRCP) and continuously reinforced concrete pavements (CRCP).

Outcomes

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

- Recognize the effect of critical concrete pavement design details on overall concrete pavement performance
- Identify critical construction and maintenance practices that impact performance
- Select appropriate concrete pavement design details to enhance the performance of the pavement for a specific design condition

Target Audience

Highway engineers who are responsible for the design and construction of better-performing, longer-lasting concrete pavements.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131062

Course Title

Portland Cement Concrete Pavement Evaluation and Rehabilitation

This course will present state-of-the-practice and state-of-the-art techniques to identify the causes and patterns of different types of pavement distress, and techniques for rehabilitation selection, design, and construction that can be applied for those various types of distress.

Outcomes

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

- Describe the typical behavior and performance of Portland cement concrete (PCC) pavements
- Identify common PCC pavement distress types and be able to describe their mechanisms
- Describe key components of a thorough project-level evaluation
- Describe the variety of rehabilitation techniques available for PCC pavements
- Identify feasible rehabilitation techniques for existing PCC pavements
- Describe a process for selecting the preferred rehabilitation alternative for a given pavement

Target Audience

FHWA, State, and local highway engineers in design, construction, and maintenance who are involved in the application of pavement rehabilitation techniques.

Training Level: Intermediate

Fee: 2013: $450 Per Person; 2014: N/A

Length: 2.5 DAYS (CEU: 1.5 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131063

Course Title

Hot-Mix Asphalt Pavement Evaluation and Rehabilitation

The course presents state-of-the-practice techniques to identify the causes and patterns of different types of pavement distress and techniques for rehabilitation selection, design, and construction that can be applied to those various types of distress.

Note: On the final day of class, which is a half-day, class will conclude at 1 PM.

Outcomes

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

- Describe typical behavior and performance of hot-mix asphalt (HMA) pavements
- Identify common types of HMA pavements distress and be able to describe their mechanisms
- Describe key components of a thorough project-level evaluation
- Describe the variety of rehabilitation techniques available and state their deficiencies
- Identify feasible rehabilitation techniques for HMA pavements exhibiting different distresses and conditions
- Develop the process for selecting the preferred rehabilitation alternative

Target Audience

FHWA, State, and local highway engineers in design, construction, and maintenance who are involved in the application of pavement rehabilitation techniques.

Training Level: Basic

Fee: 2013: $450 Per Person; 2014: N/A

Length: 2.5 DAYS (CEU: 1.5 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131100

Updated Training

Course Title

Pavement Smoothness: Use of Inertial Profiler Measurements for Construction Quality Control

Studies have shown that roughness is one of the biggest priorities of highway users. Additional studies have shown that pavements that are built smooth stay smoother longer and provide a longer pavement life. Most State highway agencies (SHAs) have some type of smoothness specification that is used to evaluate the smoothness of newly constructed or rehabilitated pavements during acceptance testing. Many agencies also have incentives or disincentives for new construction and rehabilitation, which are based on pavement smoothness.

Increasingly these agencies are turning to inertial profilers as the most reliable instrument for construction acceptance testing and verifying pavement smoothness. The intent of this course is to train inertial profiler operators in the basics of performing construction acceptance testing and to train those reviewing the data to comprehend how those data were obtained and what they represent in order to build smoother riding roadways.

The course has been developed to be delivered in a single day of instructor-led training. In order to keep the instructor-led portion of the training to a single day, the training includes two hours of independent study that should be completed prior to attending the instructor-led session.

Outcomes

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

- Perform checks of the inertial profiler components to identify that the equipment is in proper working order.
- Determine the impact of current surface and environmental conditions on data collection.
- Collect profile data using appropriate operating techniques.
- Calculate a smoothness index using appropriate data processing techniques and computational procedures for use in construction quality control and specification compliance.
- Identify what features in a collected profile are manifested in a smoothness or roughness index.

Target Audience

The course was designed for an audience directly involved in the use of inertial profilers and the application of the data obtained from inertial profilers. This includes State and contractor road profiler operators who perform data collection, initial processing, and reporting of smoothness data. Paving superintendents, project engineers, pavement engineers, and inspectors who are performing data analysis, quality control, and acceptance will also benefit from this course. Ideally, each session of the course will include a mixture of State and contractor personnel, including those who collect data, those performing data processing, and those making decisions based upon data. ASSUMED TRAINING COMPETENCIESThe participants should have a basic understanding of how to operate a computer including turning it on and off, running programs, and saving data.

Training Level: Intermediate

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131103A

Course Title

Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments

In preventive maintenance, the types of treatments and the timing of their applications provide highway agencies with a very broad range of life-extending treatment techniques and enable agencies to achieve their goals of enhancing pavement performance in a cost-effective and efficient manner while meeting their customers' need for an improved level of service.

This course targets those field personnel involved in constructing preventive maintenance treatments, including both buying agency's inspectors and the contractors' foremen and field crews. It contains modules on all of the categories of preventive maintenance treatments in widespread use today, focusing on the best practices for designing and constructing those treatments. It also addresses troubleshooting construction practices, so that participants can clearly identify the results of poor construction practices. This course is the second in a series of three courses (NHI 131115, 131103, and 131116) on the general subject of pavement preservation.

The 2-day version consists of Modules 1 and 4, with content selected by the hosting organization from topics in Modules 2 and 3. The course instructor will assist the host in selecting the most appropriate topics for the target audience and length of the session.

Module 1: Introduction to Preventive Maintenance

Module 2: Crack Filling and Sealing; Fog Seals, Sand Seals, Scrub Seals, and Rejuvenators; Slurry Seals and Microsurfacing; Chip Seals; In-Place Recycling; Thin and Ultra-Thin HMA Overlays

Module 3: Joint Resealing and Crack Sealing; Diamond Grinding and Grooving; Full-Depth Repairs; Partial-Depth Repairs; Load Transfer Restoration; Thin PCC Overlays; Undersealing

Module 4: Course Summary

Outcomes

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

- Describe the benefits provided by preventive maintenance treatments
- Describe critical design factors for preventive maintenance techniques
- Describe the recommended procedures for the construction of the preventive maintenance techniques
- Identify critical post-construction/pre-opening inspection objectives
- Participants should be able to demonstrate mastery of the learning outcomes for the treatments they have learned.

Target Audience

Construction foremen and agency construction inspectors, up to and including middle managers. While it is aimed at those who have some familiarity with the equipment and materials used to construct effective preventive maintenance treatments, it should also be of value to those just starting out in the maintenance field. This course is also recommended for asset management team members.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131103B

Course Title

Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments

In preventive maintenance, the types of treatments and the timing of their applications provide highway agencies with a very broad range of life-extending treatment techniques and enable agencies to achieve their goals of enhancing pavement performance in a cost-effective and efficient manner while meeting their customers' need for an improved level of service.

This course targets those field personnel involved in constructing preventive maintenance treatments, including both buying agency's inspectors and the contractors' foremen and field crews. It contains modules on all of the categories of preventive maintenance treatments in widespread use today, focusing on the best practices for designing and constructing those treatments. It also addresses troubleshooting construction practices, so that participants can clearly identify the results of poor construction practices. This course is the second in a series of three courses (NHI 131115, 131103, and 131116) on the general subject of pavement preservation.

The 3-day version consists of Modules 1 and 4, with content selected by the hosting organization from topics in Modules 2 and 3. The course instructor will assist the host in selecting the most appropriate topics for the target audience and length of the session.

Module 1: Introduction to Preventive Maintenance

Module 2: Crack Filling and Sealing; Fog Seals, Sand Seals, Scrub Seals, and Rejuvenators; Slurry Seals and Microsurfacing; Chip Seals; In-Place Recycling; Thin and Ultra-Thin HMA Overlays

Module 3: Joint Resealing and Crack Sealing; Diamond Grinding and Grooving; Full-Depth Repairs; Partial-Depth Repairs; Load Transfer Restoration; Thin PCC Overlays; Undersealing

Module 4: Course Summary

Outcomes

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

- Describe the benefits provided by preventive maintenance treatments
- Describe critical design factors for preventive maintenance techniques
- Describe the recommended procedures for the construction of the preventive maintenance techniques
- Identify critical post-construction/pre-opening inspection objectives
- Participants should be able to demonstrate mastery of the learning outcomes for the treatments they have learned.

Target Audience

Construction foremen and agency construction inspectors, up to and including middle managers. While it is aimed at those who have some familiarity with the equipment and materials used to construct effective preventive maintenance treatments, it should also be of value to those just starting out in the maintenance field. This course is also recommended for asset management team members.

Training Level: Intermediate

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131103C

Course Title

Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments

In preventive maintenance, the types of treatments and the timing of their applications provide highway agencies with a very broad range of life-extending treatment techniques and enable agencies to achieve their goals of enhancing pavement performance in a cost-effective and efficient manner while meeting their customers' need for an improved level of service.

This course targets those field personnel involved in constructing preventive maintenance treatments, including both buying agency's inspectors and the contractors' foremen and field crews. It contains modules on all of the categories of preventive maintenance treatments in widespread use today, focusing on the best practices for designing and constructing those treatments. It also addresses troubleshooting construction practices, so that participants can clearly identify the results of poor construction practices. This course is the second in a series of three courses (NHI 131115, 131103, and 131116) on the general subject of pavement preservation.

The 4-day version includes all of the following:

Module 1: Introduction to Preventive Maintenance

Module 2: Crack Filling and Sealing; Fog Seals, Sand Seals, Scrub Seals, and Rejuvenators; Slurry Seals and Microsurfacing; Chip Seals; In-Place Recycling; Thin and Ultra-Thin HMA Overlays

Module 3: Joint Resealing and Crack Sealing; Diamond Grinding and Grooving; Full-Depth Repairs; Partial-Depth Repairs; Load Transfer Restoration; Thin PCC Overlays; Undersealing

Module 4: Course Summary

Outcomes

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

- Describe the benefits provided by preventive maintenance treatments
- Describe critical design factors for preventive maintenance techniques
- Describe the recommended procedures for the construction of the preventive maintenance techniques
- Identify critical post-construction/pre-opening inspection objectives

Target Audience

Construction foremen and agency construction inspectors, up to and including middle managers. While it is aimed at those who have some familiarity with the equipment and materials used to construct effective preventive maintenance treatments, it should also be of value to those just starting out in the maintenance field. This course is also recommended for asset management team members.

Training Level: Intermediate

Fee: 2013: $600 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131106

Updated Training

Course Title

Introduction to Transportation Asset Management

Transportation asset management is a strategic approach to managing physical transportation infrastructure. This introductory course covers the principles of asset management and introduces the five core questions every agency should be able to answer about its assets. The course also illustrates available tools to support the use of asset management in transportation agencies and provides guidelines for the implementation of these principles.

The course materials were updated in 2009 to place more of an emphasis on the use of asset management principles and the implementation of these concepts.

Outcomes

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

- Describe the basic principles of asset management.
- List the 5 core questions you should be able to answer about your
- assets.
- Identify tools and resources available to support asset management
- activities.
- Apply asset management principles to realistic situations. (This
- objective will be achieved through the workshops and activities that are incorporated into the course. For example, at the end of the day participants will work in a group to conduct a workshop in which they have to recommend an investment strategy based on available data.)
- Explain the use of the implementation guidelines to enhance their
- agency's application of asset management principles and concepts.

Target Audience

Senior-level and mid-level managers from State departments of transportation and other transportation agencies, who typically have the responsibility for decision-making in one or more areas addressed by transportation asset management. Participants should represent a number of organizational units, including (but not limited to) planning, engineering (e.g., facility management, design, construction), capital programming, maintenance and operations, financial management, traffic and safety engineering, system operation and management, and information technology. The course is also intended for individuals who manage or provide critical information to senior managers, or who have direct responsibility for meeting specific transportation system performance or program delivery targets.

Training Level: Intermediate

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131106A

Updated Training

Course Title

Introduction to Transportation Asset Management with Workshop

Asset management principles are becoming increasingly important to help agencies manage their assets as they face fewer available resources, higher expectations for customer service, and increased demand for more transparency in the decision process. In an asset management environment, investment decisions are linked to targeted performance levels that have been established based on current and expected asset conditions. Trade-offs between investments in different types of assets and different investment priorities can be assessed because of the availability of reliable data and a clear set of performance metrics that the agency hopes to achieve. As a result, agencies are better able to use their funding effectively and to defend their need for additional resources.

The Transportation Asset Management course introduces a strategic approach to managing physical transportation infrastructure. This course covers the principles of asset management and introduces the five core questions every agency should be able to answer about its assets. The course also illustrates available tools to support the use of asset management in transportation agencies and provides guidelines for the implementation of these principles.

The course materials were updated in December of 2009 to place more of an emphasis on the use of asset management principles and the implementation of these concepts.

To further support the implementation of asset management principles, this 1.5-day version of the course includes a ½-day workshop that will be conducted immediately before or after the presentation of the course materials. During the workshop the instructors will facilitate activities that include one of the following:

A self-assessment to determine agency strengths and weaknesses in terms of asset management.

Breakout groups to develop strategies for addressing specific implementation strategies for adopting asset management principles.

Work sessions to help develop portions of an asset management plan.

Outcomes

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

- Champion the use of asset management principles and concepts within your agency.
- Define your role in supporting your agency's asset management efforts.
- Using the 5 core questions, describe the state of your agency's asset management program.
- Using existing resources, enhance your agency's use of asset management.
- Identify specific steps the agency can take

Target Audience

Senior-level and mid-level managers from State departments of transportation and other transportation agencies, who typically have the responsibility for decision-making in one or more areas addressed by transportation asset management. Participants should represent a number of organizational units, including (but not limited to) planning, engineering (e.g., facility management, design, construction), capital programming, maintenance and operations, financial management, traffic and safety engineering, system operation and management, and information technology. The course is also intended for individuals who manage or provide critical information to senior managers, or who have direct responsibility for meeting specific transportation system performance or program delivery targets.

TRAINING LEVEL: Intermediate

FEE: 2013: $350 Per Person; 2014: N/A

LENGTH: 1.5 DAYS (CEU: 0 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131110

Updated Training WBT

Course Title

Pavement Preservation Treatment Construction - WEB-BASED

FHWA, in partnership with Caltrans, the National Center for Pavement Preservation, and the Transportation Curriculum Coordination Council (TCCC) created the Pavement Preservation Treatment Construction Guide (PPTCG) as a resource for agency and industry pavement preservation practitioners. This course is designed to provide participants with an introduction to the PPTCG, so that they can better use it to familiarize themselves with general information on pavement preservation concepts and techniques. The guide covers basic pavement preservation concepts, as well as information on specific treatments to extend the life of asphalt pavements. The module topics are:

1. Introduction to Pavement Preservation (NHI-131110A)
2. Materials (NHI-131110B)
3. Crack Sealing, Crack Filling and Joint Sealing of Flexible and Rigid Pavements (NHI-131110C)
4. Patching and Edge Repairs (NHI-131110D)
5. Chip Seals (NHI-131110E)
6. Fog Seals (NHI-131110F)
7. Slurry Seals (NHI-131110G)
8. Micro-surfacing Projects (NHI-131110H)
9. Thin Functional and Maintenance Overlay Projects (NHI-131110I)
10. Ultra Thin, Hot-Mixed, Bonded Overlay Projects (NHI-131110J)
11. Selecting a Pavement Presentation Treatment (NHI-131110K)

Each of the modules is also offered as individual trainings and can be accessed by registering for the course number listed with each module.

Outcomes

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

- Identify the components and value of a Pavement Preventive Maintenance (PPM) program
- Identify pavement conditions and other attributes that suggest whether preventive maintenance is appropriate
- Identify various pavement preservation strategies, techniques and materials
- State the performance characteristics of various pavement preservation strategies, techniques and materials
- Select the appropriate strategy(ies), technique(s) and material to extend the service life and retard the development of pavement distress

Target Audience

The primary audience for the Pavement Preservation Treatment Construction WBT course is Federal, State, and local highway construction and maintenance teams, specifically the highway workers and inspectors involved in the placement of pavement preservation treatments. Although not in the primary audience, design engineers will also benefit from the online guide and the associated training. The training course is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6.5 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131110A

Updated Training WBT

Course Title

Pavement Preservation Treatment Series: Introduction to Pavement Preservation - WEB-BASED

This training is part of the "Pavement Preservation Treatment" series and is designed to provide participants with an introduction to the Pavement Preservation Treatment Construction Guide (PPTCG) and the basics of pavement preservation. Topics include: pavement structure, distresses, and differentiating pavement preservation from preventive maintenance.

As stated, this training draws on the PPTCG, which was created by FHWA, in partnership with Caltrans, the National Center for Pavement Preservation, and the Transportation Curriculum Coordination Council (TCCC) as a resource for agency and industry pavement preservation practitioners. It provides information on basic pavement preservation concepts and the different treatments available and how they should be applied, so agencies can make informed decisions when determining which treatments best fit their pavement preservation needs. The training is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

To take the entire series of trainings for the PPTCG, access the NHI website and register for NHI-131110.

Outcomes

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

- Identify common surface distresses in pavements.
- Distinguish between distresses caused by surface failure and those caused by subsurface layer failure.
- Recognize the difference between pavement preservation and pavement maintenance.

Target Audience

The primary audience for the Pavement Preservation Treatment Construction WBT course is Federal, State, and local highway construction and maintenance teams, specifically the highway workers and inspectors involved in the placement of pavement preservation treatments. Although not in the primary audience, design engineers will also benefit from the online guide and the associated training. The training course is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: .5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131110B

Updated Training WBT

Course Title

Pavement Preservation Treatment Series: Materials - WEB-BASED

This training is part of the "Pavement Preservation Treatment" series and is designed to provide participants with information on the materials used for preventive maintenance treatments. Topics include: materials comprising maintenance treatments, emulsions, and aggregates.

This training draws on the Pavement Preservation Treatment Construction Guide (PPTCG), which was created by FHWA, in partnership with Caltrans, the National Center for Pavement Preservation, and the Transportation Curriculum Coordination Council (TCCC) as a resource for agency and industry pavement preservation practitioners. It provides information on basic pavement preservation concepts and the different treatments available and how they should be applied, so agencies can make informed decisions when determining which treatments best fit their pavement preservation needs. The training is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

To take the entire series of trainings for the PPTCG, access the NHI website and register for NHI-131110.

Outcomes

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

- List the materials used in preventive maintenance treatments for flexible and rigid pavements.
- Recognize the differences between asphalt cement and emulsions and their use in pavement preservation treatments.
- List the six physical properties of aggregates that affect the performance of preservation treatments.

Target Audience

The primary audience for the Pavement Preservation Treatment Construction WBT course is Federal, State, and local highway construction and maintenance teams, specifically the highway workers and inspectors involved in the placement of pavement preservation treatments. Although not in the primary audience, design engineers will also benefit from the online guide and the associated training. The training course is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131110C

Updated Training WBT

Course Title

Pavement Preservation Treatment Series: Crack Sealing & Filling, and Joint Sealing - WEB-BASED

This training is part of the "Pavement Preservation Treatment" series and is designed to provide participants with information on crack sealing, crack filling, and joint sealing of flexible and rigid pavements. Topics include: working and non-working cracks, fatigue and longitudinal cracks, correct temperatures for crack sealant, crack repair sequence, hot sealant, and crack sealing or filling criteria.

This training draws on the Pavement Preservation Treatment Construction Guide (PPTCG), which was created by FHWA, in partnership with Caltrans, the National Center for Pavement Preservation, and the Transportation Curriculum Coordination Council (TCCC) as a resource for agency and industry pavement preservation practitioners. It provides information on basic pavement preservation concepts and the different treatments available and how they should be applied, so agencies can make informed decisions when determining which treatments best fit their pavement preservation needs. The training is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

To take the entire series of trainings for the PPTCG, access the NHI website and register for NHI-131110.

Outcomes

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

- Describe the difference between a working crack and a nonworking crack.
- List the types of distresses that crack sealing, crack filling, and joint sealing treatments will repair.
- Describe how proper storage and handling of sealants and fillers affect their constructability and performance.
- Describe the procedure of repairing surface cracks and rigid joints.
- Identify common problems associated with crack sealing, crack filling, and joint sealing treatments and recognize their solutions.
- List the capabilities and limitations of crack sealing, crack filling, and joint sealing treatments.

Target Audience

The primary audience for the Pavement Preservation Treatment Construction WBT course is Federal, State, and local highway construction and maintenance teams, specifically the highway workers and inspectors involved in the placement of pavement preservation treatments. Although not in the primary audience, design engineers will also benefit from the online guide and the associated training. The training course is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131110D

Updated Training WBT

Course Title

Pavement Preservation Treatment Series: Localized Pavement Repair - WEB-BASED

This training is part of the "Pavement Preservation Treatment" series and is designed to provide participants with information on localized pavement repair. Topics include: pothole formation and edge failure, seal or fill decisions, construction of, and problems with, pothole patching, dig outs, edge repairs, and skin patching, and capabilities and limitations of localized repairs.

This training draws on the Pavement Preservation Treatment Construction Guide (PPTCG), which was created by FHWA, in partnership with Caltrans, the National Center for Pavement Preservation, and the Transportation Curriculum Coordination Council (TCCC) as a resource for agency and industry pavement preservation practitioners. It provides information on basic pavement preservation concepts and the different treatments available and how they should be applied, so agencies can make informed decisions when determining which treatments best fit their pavement preservation needs. The training is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

To take the entire series of trainings for the PPTCG, access the NHI website and register for NHI-131110.

Outcomes

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

- Describe the mechanisms of pothole formation and edge failure.
- Select the type of localized pavement repair best suited to a given condition.
- Describe the process of pothole patching, dig outs, edge repairs, and skin patching.
- Identify common problems associated with pothole patching, dig outs, edge repairs, and skin patching and recognize their solutions.
- List the key capabilities and limitations of localized pavement repairs.

Target Audience

The primary audience for the Pavement Preservation Treatment Construction WBT course is Federal, State, and local highway construction and maintenance teams, specifically the highway workers and inspectors involved in the placement of pavement preservation treatments. Although not in the primary audience, design engineers will also benefit from the online guide and the associated training. The training course is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131110E

Updated Training WBT

Course Title

Pavement Preservation Treatment Series: Chip Seals - WEB-BASED

This training is part of the "Pavement Preservation Treatment" series and is designed to provide participants with information on chip seals. Topics include: project selection, pavement and weather condition requirements, storage, traffic control, construction sequence, aggregate spreading distance, brooming, chip spreading process, distributor preparation, and troubleshooting.

This training draws on the Pavement Preservation Treatment Construction Guide (PPTCG), which was created by FHWA, in partnership with Caltrans, the National Center for Pavement Preservation, and the Transportation Curriculum Coordination Council (TCCC) as a resource for agency and industry pavement preservation practitioners. It provides information on basic pavement preservation concepts and the different treatments available and how they should be applied, so agencies can make informed decisions when determining which treatments best fit their pavement preservation needs. The training is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

To take the entire series of trainings for the PPTCG, access the NHI website and register for NHI-131110.

Outcomes

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

- Recognize pavement conditions best suited to the chip seal treatment.
- Identify how proper storage and handling of chip seal materials affect their constructability and performance.
- Describe the construction of chip seals.
- Identify common problems associated with chip seals and recognize their solutions.
- Recognize key capabilities and limitations of chip seals.

Target Audience

The primary audience for the Pavement Preservation Treatment Construction WBT course is Federal, State, and local highway construction and maintenance teams, specifically the highway workers and inspectors involved in the placement of pavement preservation treatments. Although not in the primary audience, design engineers will also benefit from the online guide and the associated training. The training course is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131110F

Updated Training WBT

Course Title

Pavement Preservation Treatment Series: Fog Seals - WEB-BASED

This training is part of the "Pavement Preservation Treatment" series and is designed to provide participants with information on fog seals. Topics include: uses of fog seals, suitable pavement surfaces, storage and handling of materials, application process, and problems and causation.

This training draws on the Pavement Preservation Treatment Construction Guide (PPTCG), which was created by FHWA, in partnership with Caltrans, the National Center for Pavement Preservation, and the Transportation Curriculum Coordination Council (TCCC) as a resource for agency and industry pavement preservation practitioners. It provides information on basic pavement preservation concepts and the different treatments available and how they should be applied, so agencies can make informed decisions when determining which treatments best fit their pavement preservation needs. The training is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

To take the entire series of trainings for the PPTCG, access the NHI website and register for NHI-131110.

Outcomes

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

- Recognize pavement conditions most suitable for a fog seal.
- Describe how proper storage and handling of fog seal materials affect their constructability and performance.
- Describe the construction of a fog seal.
- Identify common problems associated with fog seals and recognize their solutions.
- List the key capabilities and limitations of fog seal treatments.

Target Audience

The primary audience for the Pavement Preservation Treatment Construction WBT course is Federal, State, and local highway construction and maintenance teams, specifically the highway workers and inspectors involved in the placement of pavement preservation treatments. Although not in the primary audience, design engineers will also benefit from the online guide and the associated training. The training course is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131110G

Updated Training WBT

Course Title

Pavement Preservation Treatment Series: Slurry Seals - WEB-BASED

This training is part of the "Pavement Preservation Treatment" series and is designed to provide participants with information on slurry seals. Topics include: reasons to use slurry seals, gradations of slurry seal aggregate, preparation and application process, and problems and solutions.

This training draws on the Pavement Preservation Treatment Construction Guide (PPTCG), which was created by FHWA, in partnership with Caltrans, the National Center for Pavement Preservation, and the Transportation Curriculum Coordination Council (TCCC) as a resource for agency and industry pavement preservation practitioners. It provides information on basic pavement preservation concepts and the different treatments available and how they should be applied, so agencies can make informed decisions when determining which treatments best fit their pavement preservation needs. The training is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

To take the entire series of trainings for the PPTCG, access the NHI website and register for NHI-131110.

Outcomes

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

- Identify the type of slurry seal appropriate to various traffic conditions.
- Describe the construction of slurry seals.
- Identify common problems associated with slurry seals and recognize their solutions.
- List the key capabilities and limitations of slurry seals.

Target Audience

The primary audience for the Pavement Preservation Treatment Construction WBT course is Federal, State, and local highway construction and maintenance teams, specifically the highway workers and inspectors involved in the placement of pavement preservation treatments. Although not in the primary audience, design engineers will also benefit from the online guide and the associated training. The training course is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131110H

Updated Training WBT

Course Title

Pavement Preservation Treatment Series: Micro-Surfacing - WEB-BASED

This training is part of the "Pavement Preservation Treatment" series and is designed to provide participants with information on micro-surfacing. Topics include: pavement and traffic condition considerations, construction, and troubleshooting.

This training draws on the Pavement Preservation Treatment Construction Guide (PPTCG), which was created by FHWA, in partnership with Caltrans, the National Center for Pavement Preservation, and the Transportation Curriculum Coordination Council (TCCC) as a resource for agency and industry pavement preservation practitioners. It provides information on basic pavement preservation concepts and the different treatments available and how they should be applied, so agencies can make informed decisions when determining which treatments best fit their pavement preservation needs. The training is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

To take the entire series of trainings for the PPTCG, access the NHI website and register for NHI-131110.

Outcomes

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

- Identify pavement conditions most suitable for a micro-surfacing treatment.
- Describe the construction of micro-surfacing.
- Identify common problems associated with micro-surfacing and recognize their solutions.
- List the key capabilities and limitations of micro-surfacing relative to various traffic conditions.

Target Audience

The primary audience for the Pavement Preservation Treatment Construction WBT course is Federal, State, and local highway construction and maintenance teams, specifically the highway workers and inspectors involved in the placement of pavement preservation treatments. Although not in the primary audience, design engineers will also benefit from the online guide and the associated training. The training course is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131110I

Updated Training WBT

Course Title

Pavement Preservation Treatment Series: Thin Functional HMA Overlay - WEB-BASED

This training is part of the "Pavement Preservation Treatment" series and is designed to provide participants with information on thin functional hot-mix asphalt overlays. Topics include: proper usage, suitable pavement conditions, construction, and troubleshooting.

This training draws on the Pavement Preservation Treatment Construction Guide (PPTCG), which was created by FHWA, in partnership with Caltrans, the National Center for Pavement Preservation, and the Transportation Curriculum Coordination Council (TCCC) as a resource for agency and industry pavement preservation practitioners. It provides information on basic pavement preservation concepts and the different treatments available and how they should be applied, so agencies can make informed decisions when determining which treatments best fit their pavement preservation needs. The training is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

To take the entire series of trainings for the PPTCG, access the NHI website and register for NHI-131110.

Outcomes

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

- Identify pavement conditions best suited for a thin hot mix asphalt overlay.
- Describe the construction process for a thin hot mix asphalt overlay.
- Identify common problems associated with a thin hot mix asphalt overlay and recognize their solutions.
- List the key capabilities and benefits of a thin hot mix asphalt overlay relative to various traffic conditions.

Target Audience

The primary audience for the Pavement Preservation Treatment Construction WBT course is Federal, State, and local highway construction and maintenance teams, specifically the highway workers and inspectors involved in the placement of pavement preservation treatments. Although not in the primary audience, design engineers will also benefit from the online guide and the associated training. The training course is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131110J

Updated Training WBT

Course Title

Pavement Preservation Treatment Series: Ultra Thin HMA Bonded Wearing Course - WEB-BASED

This training is part of the "Pavement Preservation Treatment" series and is designed to provide participants with information on ultra thin, hot-mixed asphalt bonded wearing course. Topics include: usage, distresses and application considerations, construction, and troubleshooting.

This training draws on the Pavement Preservation Treatment Construction Guide (PPTCG), which was created by FHWA, in partnership with Caltrans, the National Center for Pavement Preservation, and the Transportation Curriculum Coordination Council (TCCC) as a resource for agency and industry pavement preservation practitioners. It provides information on basic pavement preservation concepts and the different treatments available and how they should be applied, so agencies can make informed decisions when determining which treatments best fit their pavement preservation needs. The training is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

To take the entire series of trainings for the PPTCG, access the NHI website and register for NHI-131110.

Outcomes

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

- Identify pavement conditions best suited to ultra thin, hot-mixed asphalt bonded wearing course.
- Describe the construction of ultra thin, hot-mixed, asphalt bonded wearing course.
- Identify common problems associated with ultra thin, hot-mixed, asphalt bonded wearing course and recognize their solutions.
- List key capabilities and benefits of ultra thin, hot-mixed, asphalt bonded wearing course relative to various traffic conditions.

Target Audience

The primary audience for the Pavement Preservation Treatment Construction WBT course is Federal, State, and local highway construction and maintenance teams, specifically the highway workers and inspectors involved in the placement of pavement preservation treatments. Although not in the primary audience, design engineers will also benefit from the online guide and the associated training. The training course is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131110K

Updated Training WBT

Course Title

Pavement Preservation Treatment Series: Selecting the Right Treatment - WEB-BASED

This training is part of the "Pavement Preservation Treatment" series and is designed to provide participants with information on preservation treatment selection.

The training draws on the Pavement Preservation Treatment Construction Guide (PPTCG), which was created by FHWA, in partnership with Caltrans, the National Center for Pavement Preservation, and the Transportation Curriculum Coordination Council (TCCC) as a resource for agency and industry pavement preservation practitioners. It provides information on basic pavement preservation concepts and the different treatments available and how they should be applied, so agencies can make informed decisions when determining which treatments best fit their pavement preservation needs. The training is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

To take the entire series of trainings for the PPTCG, access the NHI website and register for NHI-131110.

Outcomes

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

- Select the appropriate pavement preservation treatment(s) after analyzing given pavement and traffic conditions.

Target Audience

The primary audience for the Pavement Preservation Treatment Construction WBT course is Federal, State, and local highway construction and maintenance teams, specifically the highway workers and inspectors involved in the placement of pavement preservation treatments. Although not in the primary audience, design engineers will also benefit from the online guide and the associated training. The training course is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: .5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131112

Updated Training WCT

Course Title

Principles and Practices for Enhanced Maintenance Management Systems - WEB-CONFERENCE

Is your agency in the process of enhancing its maintenance management capabilities?

Are you interested in learning more about developing effective performance measures for maintenance activities?

If so, join us for a blended training course that features both independent study material and facilitated Web conferences. Now you can learn all of the information provided in the 3.5-day instructor-led course (NHI-131107), without leaving your office!

This course is an introduction to the methods and practices used in an enhanced maintenance management system (MMS) to effectively maintain and operate a highway network. It provides participants with the principles and practices of using MMS effectively and illustrates efficient maintenance and operation of a highway network. Throughout the course, participants are provided with activities and assignments specific to using MMS.

The course materials rely heavily on the recently developed AASHTO Guidelines for Maintenance Management Systems, the Transportation Asset Management Guide, along with several other recent publications on the topic. The materials will be supplemented with examples from State and local highway agencies to illustrate the application of the principles in transportation agencies. This course has the same content and outcomes as FHWA-NHI-131107, Principles and Practices for Enhanced Maintenance Management Systems.

Responsibilities:

You will be expected to complete seven online lessons and three facilitated Web conferences. You must complete all 7 of the online lessons and participate in the Web conferences to obtain your certificate. By passing the online test at the end of the course, you can also receive Continuing Education Units (CEUs) for the course. All participants will need their own computer with internet connection and a telephone line to participate in the Web conference.

Outcomes

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

- Compare and contrast a first generation MMS with an enhanced MMS
- Describe the terms “outcome-based” and “performance-based” and how they pertain to an enhanced MMS
- Describe the use of service levels to support the programming and budgeting activities incorporated into an MMS
- Identify the types of systems that should be integrated with an MMS and provide several examples of the types of data that should interface between each system
- List the potential benefits to be realized by fully integrating an enhanced MMS
- Identify several steps that will advance an agency’s current maintenance management practices now and in the future

Target Audience

The target audience for this course includes State and local maintenance engineers, maintenance supervisors, asset managers, and their industry counterparts. The course is specifically for individuals who are responsible for directing and managing maintenance operations and budgets, maintenance project and treatment selection, and/or the monitoring of system conditions.

Training Level: Basic

Fee: 2013: $150 Per Person; 2014: N/A

Length: 15 HOURS (CEU: 1.5 UNITS)

Class Size: MINIMUM: 15; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131115

Course Title

Pavement Preservation: Preventive Maintenance Treatment, Timing, and Selection

This is the first in a series of three courses on the general subject of pavement preservation (NHI 131115, 131103, 131116). The purpose of this 2-day course is to improve the skills of those involved in implementing pavement preservation programs. This includes improving the selection of pavement preventive maintenance projects and the selection of preventive maintenance treatments.

Outcomes

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

- Describe the different types of pavements and how they perform in response to traffic and environmental loading
- Identify concepts of a preventive maintenance program and the role of such a program in pavement management
- Identify pavement conditions and other attributes that indicate whether preventive maintenance is appropriate for a given pavement
- Describe preventive maintenance treatments and materials
- Determine when is the most appropriate time during the life of a pavement to apply a preventive maintenance treatment
- Select the most appropriate (or "best") preventive maintenance treatment for a given pavement based on a combination of timing, anticipated benefits, economic considerations, and other key factors

Target Audience

The target audience for this course is mid- or upper-level highway agency professionals responsible for pavement preservation/maintenance and management. This might include a Pavement Engineer, Project Manager/Maintenance Engineer, Regional Director, Materials Lab personnel, Planning/Programming staff, Pavement Management Engineer/Manager, or Road Superintendent within a state highway agency. For local agencies, this group might include Public Works Directors or Chief Engineers/engineers of cities, towns, counties, and metropolitan planning organizations (MPOs). Current performance and responsibilities of the target audience include evaluating pavements, selecting pavements and treatments for preservation projects, and/or making budget determinations for pavement preservation projects (preservation vs. reconstruction). Appropriate background information or prior knowledge which would be useful for the course participants includes: Basic understanding of the information imported in a pavement condition report; Ability to interpret the results of a pavement condition report; Identify deterioration/distress using visual information and determine the causes of that deterioration/distress.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131116

Course Title

Pavement Management Systems: Characteristics of an Effective Program

Transportation agencies have made large investments in their pavement infrastructure, which makes effective pavement management an important component of an agency's transportation asset management program. However, pavement management concepts are not always taught in the traditional civil engineering curriculum and there is little training available on this important concept. In fact, in a 2006 survey of the Federal Highway Administration (FHWA) division offices, most offices indicated a need for training in this area. The need was further emphasized by participants at the 2007 National Pavement Management Conference.

This 1-day course was designed to help improve the effectiveness of an existing pavement management program. In addition to introducing the basic components of an effective pavement management program, the course materials illustrate the effective use of pavement management information and provide opportunities for participants to identify strategies that will help enhance their existing capabilities. The focus of the class is broad enough to include data collection activities, condition assessment, program development, investment analysis, and other uses of pavement management information to support an agency's decision processes to improve pavement performance. The role of pavement management in supporting an agency's transportation asset management program at the strategic, network, and project levels is also introduced.

Only Lesson 4-1 of Module 4 will be covered during this 1-day version of the course, introducing strategies to improve the effectiveness of the agency's pavement management program. Since the training is offered at no charge, availability of instructors may be limited.

Outcomes

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

- Identify the components of an effective Pavement Management Program and describe the contribution of each to the Program's success
- Explain the role of pavement management in supporting an agency's Transportation Asset Management (TAM) Program
- Describe effective uses of pavement management information

Target Audience

The target audience for this course includes transportation professionals from state and local agencies responsible for managing and maintaining pavements and/or prioritizing pavement projects for programming purposes. Course participants should be directly involved with providing data to support pavement management activities, selecting pavement projects, developing candidate project recommendations, or determining funding allocations for pavement-related activities. The primary audience will be practitioners from state highway agencies, but the course is also appropriate for individuals from local agencies.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131116A

Course Title

Pavement Management Systems: Characteristics of an Effective Program

Transportation agencies have made large investments in their pavement infrastructure, which makes effective pavement management an important component of an agency's transportation asset management program. However, pavement management concepts are not always taught in the traditional civil engineering curriculum and there is little training available on this important concept. In fact, in a 2006 survey of the Federal Highway Administration (FHWA) division offices, most offices indicated a need for training in this area. The need was further emphasized by participants at the 2007 National Pavement Management Conference.

This 1.5-day course was designed to help improve the effectiveness of an existing pavement management program. In addition to introducing the basic components of an effective pavement management program, the course materials illustrate the effective use of pavement management information and provide opportunities for participants to identify strategies that will help enhance their existing capabilities. The focus of the class is broad enough to include data collection activities, condition assessment, program development, investment analysis, and other uses of pavement management information to support an agency's decision processes to improve pavement performance. The role of pavement management in supporting an agency's transportation asset management program at the strategic, network, and project levels is also introduced.

This 1.5-day version of the course allows for a state to receive all of the lessons in Module 4: Lesson 4-1 (strategies to improve the effectiveness of the agency's pavement management program), Lesson 4-2 (pavement condition assessment and performance modeling), and Lesson 4-3 (using pavement management to support a pavement preservation program). Since it is offered at no charge, availability of instructors may be limited.

Outcomes

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

- Identify the components of an effective Pavement Management Program and describe the contribution of each to the Program's success
- Explain the role of pavement management in supporting an agency's Transportation Asset Management (TAM) Program
- Describe effective uses of pavement management information
- Describe several strategies for improving the effectiveness of a Pavement Management Program

Target Audience

The target audience for this course includes transportation professionals from state and local agencies responsible for managing and maintaining pavements and/or prioritizing pavement projects for programming purposes. Course participants should be directly involved with providing data to support pavement management activities, selecting pavement projects, developing candidate project recommendations, or determining funding allocations for pavement-related activities. The primary audience will be practitioners from state highway agencies, but the course is also appropriate for individuals from local agencies.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131117

WBT

Course Title

TCCC Basic Materials for Highway and Structure Construction and Maintenance - WEB-BASED

This training is provided 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 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.

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 supervision.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 3 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131121

WBT

Course Title

TCCC Construction of Portland Cement Concrete Pavements - WEB-BASED

Improving and maintaining the quality of concrete is an important aspect of keeping pavements safe and long lasting. This training provides participants with an overview of the entire Portland cement concrete (PCC) paving and restoration process: setting forms, mixing, hauling, curing and applicable repair techniques. This training is presented in several modules:

1. Construction Quality
2. PCC Production Overview
3. Slipform Paving
4. Fixed Form Paving
5. Pavement Curing, Sawing, and Joint Sealing Operations
6. Concrete Pavement Restoration

This self-paced, Web-based training is designed for participants to progress at their own pace. The training focuses on the proper methods for construction of concrete paving and pavement restoration techniques with an emphasis on cause and effect.

Outcomes

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

- Describe the differences between truck-mixed and ready-mixed concrete
- Identify factors in production and paving operations that contribute to achieving a smooth ride
- Describe the differences between slip-form and fixed-form paving
- Identify the factors that impact saw timing and crack control
- Recognize the importance and key factors in placing joint sealant materials
- Identify the components of concrete pavement restoration application and construction techniques
- Describe the purpose and appropriate use of full depth and partial depth repairs
- Indentify critical factors for curing and sawing operations that affect pavement performance
- Describe the purpose of grinding and dowel bar retrofit
- Identify applicable repair techniques for concrete pavement restoration
- Describe purpose of slab stabilization and joint and crack resealing

Target Audience

This training is designed for contractors, technicians, and inspectors who are involved in daily pavement operations for the placement and restoration of PCC pavements. Participants should have some working knowledge of concrete pavement construction.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 10 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131122

WBT

Course Title

TCCC Portland Cement Concrete Paving Inspection - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review inspection practices for Portland cement concrete paving projects. The training was originally developed by the Iowa Department of Transportation and more currently updated and reviewed by the TCCC and NHI. This course is recommended for the Transportation Curriculum Coordination Council levels I and II.

This training course has been prepared to provide guidance and instruction to inspectors involved in the construction of Portland cement concrete (PCC) pavements. The important tasks involved in this work are explained and proper procedures are described. The material is targeted for those who have not had experience in PCC paving construction.

Outcomes

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

- Identify the materials in a PCC mixture and the concrete properties
- Comprehend Design Project Plans and recognize the joints types and saw cuts
- Identify the safety requirements and recognize safe Traffic Control practices
- Recognize and comprehend the use of the equipment in a PCC Paving project
- Recognize various sub grade treatments
- Inspect project tasks for compliance with pre-paving requirements, i.e., survey stakes, proof rolling, subgrade, and dowel baskets
- Inspect project tasks for compliance with PCC Paving requirements, i.e., string line, place and consolidate, finish, and texture
- Perform post-construction checks

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process of placement and inspection of Portland cement concrete paving. It is applicable to anyone desiring a better understanding of activities and inspection procedures on Portland cement concrete paving projects.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131126

New Training WBT

Course Title

TCCC Concrete Pavement Preservation Series - WEB-BASED

The Transportation Curriculum Coordination Council (TCCC) in partnership with NHI is pleased to offer this comprehensive training series (FHWA-NHI-131126) for concrete pavement preservation. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. 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. This course is recommended for the Transportation Curriculum Coordination Council levels I - IV.

This Concrete Pavement Preservation Series presents current guidelines and recommendations for the design, construction, and selection of cost-effective concrete pavement preservation strategies. It concentrates primarily on strategies and methods that are applicable at the project level, and not at the network level, where pavement management activities function and address such issues as prioritizing and budgeting.

To streamline registration and enable you to take some or all of these courses when it best suits your schedule, we have created this new series option which automatically registers you for all 10 modules-it's that easy. They are as follows:

Module 1: Preventive Maintenance and Pavement Preservation Concepts (FHWA-NHI-131126A)

Module 2: Concrete Pavement Evaluation (FHWA-NHI-131126B)

Module 3: Slab Stabilization and Slab Jacking (FHWA-NHI-131126C)

Module 4: Partial-Depth Repairs (FHWA-NHI-131126D)

Module 5: Full-Depth Repairs (FHWA-NHI-131126E)

Module 6: Retrofitted Edge Drains (FHWA-NHI-131126F)

Module 7: Load Transfer Restoration (FHWA-NHI-131126G)

Module 8: Diamond Grinding and Grooving (FHWA-NHI-131126H)

Module 9: Joint Resealing and Crack Sealing (FHWA-NHI-131126I)

Module 10: Strategy Selection (FHWA-NHI-131126J)

Outcomes

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

- Define pavement preservation
- List the major components of a pavement evaluation and the types of information gained from each
- Identify the purpose and suitable application of various concrete pavement preservation treatments
- Describe recommended materials and construction/installation practices for each treatment
- List factors to consider in the selection of concrete pavement preservation treatments

Target Audience

The intended audience for the Concrete Pavement Preservation Web-based Training is quite diverse, and includes design engineers, quality control personnel, contractors, suppliers, technicians, and trades people. While the course is aimed at those who have some familiarity with concrete pavements and pavement preservation, it should also be of value to those that are new to the field. In addition, our target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 11 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131126A

New Training WBT

Course Title

TCCC Preventative Maintenance and Pavement Preservation Concepts - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide guidance on critical concrete pavement preservation issues. The training was sponsored by the FHWA and developed by the National Concrete Pavement Technology Center at Iowa State University. This training is offered by NHI, and we would like to give special recognition to the TCCC for their efforts. This course is recommended for the Transportation Curriculum Coordination Council levels I - IV.

This module discusses how preventative maintenance impacts pavement preservation, good candidates for preservation, and the benefits to pavement preservation.

This module is part of the curriculum from the Concrete Pavement Preservation Series (FHWA-NHI-131126) which presents current guidelines and recommendations for the design, construction, and selection of cost-effective concrete pavement preservation strategies. The other Web-based training modules include:

FHWA-NHI-131126B Concrete Pavement Evaluation

FHWA-NHI-131126C Slab Stabilization and Slab Jacking

FHWA-NHI-131126D Partial-Depth Repairs

FHWA-NHI-131126E Full-Depth Repairs

FHWA-NHI-131126F Retrofitted Edge Drains

FHWA-NHI-131126G Load Transfer Restoration

FHWA-NHI-131126H Diamond Grinding and Grooving

FHWA-NHI-131126I Joint Resealing and Crack Sealing

FHWA-NHI-131126J Strategy Selection

Outcomes

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

- Define pavement preservation and preventive maintenance
- Describe characteristics of suitable pavements for preventive maintenance
- Describe the importance of selecting and placing the “right” treatment and placing it at the “right” time
- List the benefits of pavement preservation

Target Audience

The intended audience for the Concrete Pavement Preservation Web-based Training is quite diverse, and includes design engineers, quality control personnel, contractors, suppliers, technicians, and trades people. While the course is aimed at those who have some familiarity with concrete pavements and pavement preservation, it should also be of value to those that are new to the field. In addition, our target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131126B

New Training WBT

Course Title

TCCC Concrete Pavement Evaluation - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide guidance on critical concrete pavement preservation issues. The training was sponsored by the FHWA and developed by the National Concrete Pavement Technology Center at Iowa State University. This training is offered by NHI, and we would like to give special recognition to the TCCC for their efforts. This course is recommended for the Transportation Curriculum Coordination Council levels I - IV.

This module discusses how preventative maintenance impacts pavement preservation, good candidates for preservation, and the benefits to pavement preservation. This module also describes the common procedures associated with conducting thorough pavement evaluations.

This module is part of the curriculum from the Concrete Pavement Preservation Series (FHWA-NHI-131126) which presents current guidelines and recommendations for the design, construction, and selection of cost-effective concrete pavement preservation strategies. The other Web-based training modules include:

FHWA-NHI-131126A Preventive Maintenance and Pavement Preservation Concepts

FHWA-NHI-131126C Slab Stabilization and Slab Jacking

FHWA-NHI-131126D Partial-Depth Repairs

FHWA-NHI-131126E Full-Depth Repairs

FHWA-NHI-131126F Retrofitted Edge Drains

FHWA-NHI-131126G Load Transfer Restoration

FHWA-NHI-131126H Diamond Grinding and Grooving

FHWA-NHI-131126I Joint Resealing and Crack Sealing

FHWA-NHI-131126J Strategy Selection

Outcomes

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

- Describe the need for a thorough pavement evaluation
- Name the common pavement evaluation components
- Describe what information is obtained from each pavement evaluation component

Target Audience

The intended audience for the Concrete Pavement Preservation Web-based Training is quite diverse, and includes design engineers, quality control personnel, contractors, suppliers, technicians, and trades people. While the course is aimed at those who have some familiarity with concrete pavements and pavement preservation, it should also be of value to those that are new to the field. In addition, our target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131126C

New Training WBT

Course Title

TCCC Slab Stabilization and Slab Jacking - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide guidance on critical concrete pavement preservation issues. The training was sponsored by the FHWA and developed by the National Concrete Pavement Technology Center at Iowa State University. This training is offered by NHI, and we would like to give special recognition to the TCCC for their efforts. This course is recommended for the Transportation Curriculum Coordination Council levels I - IV.

This module covers the use of slab stabilization (also known as undersealing) and slab jacking of concrete pavements. Slab stabilization restores support beneath slabs where voids have been detected, and slab jacking is used to raise depressed or settled slabs.

This module is part of the curriculum from the Concrete Pavement Preservation Series (FHWA-NHI-131126) which presents current guidelines and recommendations for the design, construction, and selection of cost-effective concrete pavement preservation strategies. The other Web-based training modules include:

FHWA-NHI-131126A Preventive Maintenance and Pavement Preservation Concepts

FHWA-NHI-131126B Concrete Pavement Evaluation

FHWA-NHI-131126D Partial-Depth Repairs

FHWA-NHI-131126E Full-Depth Repairs

FHWA-NHI-131126F Retrofitted Edge Drains

FHWA-NHI-131126G Load Transfer Restoration

FHWA-NHI-131126H Diamond Grinding and Grooving

FHWA-NHI-131126I Joint Resealing and Crack Sealing

FHWA-NHI-131126J Strategy Selection

Outcomes

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

- List benefits of slab stabilization and slab jacking
- Describe recommended materials and mixtures
- Describe recommended construction steps for both procedures
- Identify typical construction problems and remedies for slab stabilization

Target Audience

The intended audience for the Concrete Pavement Preservation Web-based Training is quite diverse, and includes design engineers, quality control personnel, contractors, suppliers, technicians, and trades people. While the course is aimed at those who have some familiarity with concrete pavements and pavement preservation, it should also be of value to those that are new to the field. In addition, our target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131126D

New Training WBT

Course Title

TCCC Partial-Depth Repairs - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide guidance on critical concrete pavement preservation issues. The training was sponsored by the FHWA and developed by the National Concrete Pavement Technology Center at Iowa State University. This training is offered by NHI, and we would like to give special recognition to the TCCC for their efforts. This course is recommended for the Transportation Curriculum Coordination Council levels I - IV.

This module covers the procedures for partial-depth repairs (PDR) on PCC pavements. PDR is the removal and replacement of small, shallow areas of deteriorated PCC at spalled or distressed joints.

This module is part of the curriculum from the Concrete Pavement Preservation Series (FHWA-NHI-131126) which presents current guidelines and recommendations for the design, construction, and selection of cost-effective concrete pavement preservation strategies. The other Web-based training modules include:

FHWA-NHI-131126A Preventive Maintenance and Pavement Preservation Concepts

FHWA-NHI-131126B Concrete Pavement Evaluation

FHWA-NHI-131126C Slab Stabilization and Slab Jacking

FHWA-NHI-131126E Full-Depth Repairs

FHWA-NHI-131126F Retrofitted Edge Drains

FHWA-NHI-131126G Load Transfer Restoration

FHWA-NHI-131126H Diamond Grinding and Grooving

FHWA-NHI-131126I Joint Resealing and Crack Sealing

FHWA-NHI-131126J Strategy Selection

Outcomes

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

- List benefits and appropriateness of partial-depth repairs
- List the advantages and disadvantages of different available repair materials
- Describe recommended construction procedures
- Identify typical construction problems and appropriate remedies

Target Audience

The intended audience for the Concrete Pavement Preservation Web-based Training is quite diverse, and includes design engineers, quality control personnel, contractors, suppliers, technicians, and trades people. While the course is aimed at those who have some familiarity with concrete pavements and pavement preservation, it should also be of value to those that are new to the field. In addition, our target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131126E

New Training WBT

Course Title

TCCC Full-Depth Repairs - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide guidance on critical concrete pavement preservation issues. The training was sponsored by the FHWA and developed by the National Concrete Pavement Technology Center at Iowa State University. This training is offered by NHI, and we would like to give special recognition to the TCCC for their efforts. This course is recommended for the Transportation Curriculum Coordination Council levels I - IV.

This module covers the procedures for cast-in-place Portland cement concrete (PCC) full-depth repair (FDR) of jointed concrete pavements (JCP) including jointed plain (JPCP) and jointed reinforced concrete pavements (JRCP). FDR techniques for continuously reinforced concrete pavements (CRCP) are discussed separately toward the end of the presentation. FDR is the cast-in-place concrete repairs that extend the full-depth of the existing slab.

This module is part of the curriculum from the Concrete Pavement Preservation Series (FHWA-NHI-131126) which presents current guidelines and recommendations for the design, construction, and selection of cost-effective concrete pavement preservation strategies. The other Web-based training modules include:

FHWA-NHI-131126A Preventive Maintenance and Pavement Preservation Concepts

FHWA-NHI-131126B Concrete Pavement Evaluation

FHWA-NHI-131126C Slab Stabilization and Slab Jacking

FHWA-NHI-131126D Partial-Depth Repairs

FHWA-NHI-131126F Retrofitted Edge Drains

FHWA-NHI-131126G Load Transfer Restoration

FHWA-NHI-131126H Diamond Grinding and Grooving

FHWA-NHI-131126I Joint Resealing and Crack Sealing

FHWA-NHI-131126J Strategy Selection

Outcomes

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

- List the benefits of full-depth repairs
- Describe primary design considerations in terms of dimensions, load transfer, and materials
- Describe recommended construction activities
- Identify typical construction problems and remedies

Target Audience

The intended audience for the Concrete Pavement Preservation Web-based Training is quite diverse, and includes design engineers, quality control personnel, contractors, suppliers, technicians, and trades people. While the course is aimed at those who have some familiarity with concrete pavements and pavement preservation, it should also be of value to those that are new to the field. In addition, our target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131126F

New Training WBT

Course Title

TCCC Retrofitted Edge Drains - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide guidance on critical concrete pavement preservation issues. The training was sponsored by the FHWA and developed by the National Concrete Pavement Technology Center at Iowa State University. This training is offered by NHI, and we would like to give special recognition to the TCCC for their efforts. This course is recommended for the Transportation Curriculum Coordination Council levels I - IV.

This module presents design and construction information on retrofitted edge drains. This treatment is not as widely used as it once was, largely because it has limited applicability. Specifically, it must be targeted to those pavements that are 1) in good structural condition and 2) have bases with some degree of permeability that would allow water to be drained from beneath the pavement and to the edge drain.

This module is part of the curriculum from the Concrete Pavement Preservation Series (FHWA-NHI-131126) which presents current guidelines and recommendations for the design, construction, and selection of cost-effective concrete pavement preservation strategies. The other Web-based training modules include:

FHWA-NHI-131126A Preventive Maintenance and Pavement Preservation Concepts

FHWA-NHI-131126B Concrete Pavement Evaluation

FHWA-NHI-131126C Slab Stabilization and Slab Jacking

FHWA-NHI-131126D Partial-Depth Repairs

FHWA-NHI-131126E Full-Depth Repairs

FHWA-NHI-131126G Load Transfer Restoration

FHWA-NHI-131126H Diamond Grinding and Grooving

FHWA-NHI-131126I Joint Resealing and Crack Sealing

FHWA-NHI-131126J Strategy Selection

Outcomes

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

- List benefits of drainage
- List components of edge drain systems
- Describe recommended installation procedures
- Identify typical construction problems and remedies

Target Audience

The intended audience for the Concrete Pavement Preservation Web-based Training is quite diverse, and includes design engineers, quality control personnel, contractors, suppliers, technicians, and trades people. While the course is aimed at those who have some familiarity with concrete pavements and pavement preservation, it should also be of value to those that are new to the field. In addition, our target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131126G

New Training WBT

Course Title

TCCC Load Transfer Restoration - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide guidance on critical concrete pavement preservation issues. The training was sponsored by the FHWA and developed by the National Concrete Pavement Technology Center at Iowa State University. This training is offered by NHI, and we would like to give special recognition to the TCCC for their efforts. This course is recommended for the Transportation Curriculum Coordination Council levels I - IV.

This module presents design and construction information on load transfer restoration (LTR), sometimes referred to as retrofitted load transfer. In the introduction we will describe the difference between load transfer restoration (generic term) and dowel bar retrofitting (DBR) which is a specific means of achieving LTR. There are other methods available, but DBR is the most proven.

This module is part of the curriculum from the Concrete Pavement Preservation Series (FHWA-NHI-131126) which presents current guidelines and recommendations for the design, construction, and selection of cost-effective concrete pavement preservation strategies. The other Web-based training modules include:

FHWA-NHI-131126A Preventive Maintenance and Pavement Preservation Concepts

FHWA-NHI-131126B Concrete Pavement Evaluation

FHWA-NHI-131126C Slab Stabilization and Slab Jacking

FHWA-NHI-131126D Partial-Depth Repairs

FHWA-NHI-131126E Full-Depth Repairs

FHWA-NHI-131126F Retrofitted Edge Drains

FHWA-NHI-131126H Diamond Grinding and Grooving

FHWA-NHI-131126I Joint Resealing and Crack Sealing

FHWA-NHI-131126J Strategy Selection

Outcomes

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

- List benefits and applications of load transfer restoration
- Describe recommended materials and mixtures
- Describe recommended construction procedures
- Identify typical construction problems and remedies

Target Audience

The intended audience for the Concrete Pavement Preservation Web-based Training is quite diverse, and includes design engineers, quality control personnel, contractors, suppliers, technicians, and trades people. While the course is aimed at those who have some familiarity with concrete pavements and pavement preservation, it should also be of value to those that are new to the field. In addition, our target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131126H

New Training WBT

Course Title

TCCC Diamond Grinding and Grooving - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide guidance on critical concrete pavement preservation issues. The training was sponsored by the FHWA and developed by the National Concrete Pavement Technology Center at Iowa State University. This training is offered by NHI, and we would like to give special recognition to the TCCC for their efforts. This course is recommended for the Transportation Curriculum Coordination Council levels I - IV.

This module describes recommended procedures for surface restoration of Portland cement concrete (PCC) pavements, specifically diamond grinding and diamond grooving operations.

This module is part of the curriculum from the Concrete Pavement Preservation Series (FHWA-NHI-131126) which presents current guidelines and recommendations for the design, construction, and selection of cost-effective concrete pavement preservation strategies. The other Web-based training modules include:

FHWA-NHI-131126A Preventive Maintenance and Pavement Preservation Concepts

FHWA-NHI-131126B Concrete Pavement Evaluation

FHWA-NHI-131126C Slab Stabilization and Slab Jacking

FHWA-NHI-131126D Partial-Depth Repairs

FHWA-NHI-131126E Full-Depth Repairs

FHWA-NHI-131126F Retrofitted Edge Drains

FHWA-NHI-131126G Load Transfer Restoration

FHWA-NHI-131126I Joint Resealing and Crack Sealing

FHWA-NHI-131126J Strategy Selection

Outcomes

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

- Differentiate between diamond grinding and diamond grooving and list the benefits of each
- Identify appropriate blade spacing dimensions for grinding and grooving
- Describe recommended construction procedures
- Identify typical construction problems and remedies

Target Audience

The intended audience for the Concrete Pavement Preservation Web-based Training is quite diverse, and includes design engineers, quality control personnel, contractors, suppliers, technicians, and trades people. While the course is aimed at those who have some familiarity with concrete pavements and pavement preservation, it should also be of value to those that are new to the field. In addition, our target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131126I

New Training WBT

Course Title

TCCC Joint Sealing and Crack Resealing - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide guidance on critical concrete pavement preservation issues. The training was sponsored by the FHWA and developed by the National Concrete Pavement Technology Center at Iowa State University. This training is offered by NHI, and we would like to give special recognition to the TCCC for their efforts. This course is recommended for the Transportation Curriculum Coordination Council levels I - IV.

This module covers joint resealing and crack sealing for concrete pavements. Joint resealing and crack sealing is defined as placement of an approved sealant material in an existing joint or crack to reduce moisture infiltration and prevent intrusion of incompressibles.

This module is part of the curriculum from the Concrete Pavement Preservation Series (FHWA-NHI-131126) which presents current guidelines and recommendations for the design, construction, and selection of cost-effective concrete pavement preservation strategies. The other Web-based training modules include:

FHWA-NHI-131126A Preventive Maintenance and Pavement Preservation Concepts

FHWA-NHI-131126B Concrete Pavement Evaluation

FHWA-NHI-131126C Slab Stabilization and Slab Jacking

FHWA-NHI-131126D Partial-Depth Repairs

FHWA-NHI-131126E Full-Depth Repairs

FHWA-NHI-131126F Retrofitted Edge Drains

FHWA-NHI-131126G Load Transfer Restoration

FHWA-NHI-131126H Diamond Grinding and Grooving

FHWA-NHI-131126J Strategy Selection

Outcomes

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

- List the benefits of joint resealing
- Describe desirable sealant properties and characteristics
- Describe recommended installation procedures
- Identify typical construction problems and appropriate remedies

Target Audience

The intended audience for the Concrete Pavement Preservation Web-based Training is quite diverse, and includes design engineers, quality control personnel, contractors, suppliers, technicians, and trades people. While the course is aimed at those who have some familiarity with concrete pavements and pavement preservation, it should also be of value to those that are new to the field. In addition, our target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131126J

New Training WBT

Course Title

TCCC Strategy Selection - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide guidance on critical concrete pavement preservation issues. The training was sponsored by the FHWA and developed by the National Concrete Pavement Technology Center at Iowa State University. This training is offered by NHI, and we would like to give special recognition to the TCCC for their efforts. This course is recommended for the Transportation Curriculum Coordination Council levels I - IV.

This module provides guidance on the selection of concrete pavement preservation strategies. Based on a collective review of a number of recent published documents, this module covers the seven step process that can be used to determine the most appropriate treatment (or combination of treatments) for a PCC pavement.

This module is part of the curriculum from the Concrete Pavement Preservation Series (FHWA-NHI-131126) which presents current guidelines and recommendations for the design, construction, and selection of cost-effective concrete pavement preservation strategies. The other Web-based training modules include:

FHWA-NHI-131126A Preventive Maintenance and Pavement Preservation Concepts

FHWA-NHI-131126B Concrete Pavement Evaluation

FHWA-NHI-131126C Slab Stabilization and Slab Jacking

FHWA-NHI-131126D Partial-Depth Repairs

FHWA-NHI-131126E Full-Depth Repairs

FHWA-NHI-131126F Retrofitted Edge Drains

FHWA-NHI-131126G Load Transfer Restoration

FHWA-NHI-131126H Diamond Grinding and Grooving

FHWA-NHI-131126I Joint Resealing and Crack Sealing

Outcomes

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

- Describe the treatment selection process
- List the components of a life-cycle cost analysis
- List other factors that may enter the selection process

Target Audience

The intended audience for the Concrete Pavement Preservation Web-based Training is quite diverse, and includes design engineers, quality control personnel, contractors, suppliers, technicians, and trades people. While the course is aimed at those who have some familiarity with concrete pavements and pavement preservation, it should also be of value to those that are new to the field. In addition, our target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131127

WBT

Course Title

TCCC Concrete Series - WEB-BASED

The Transportation Curriculum Coordination Council (TCCC) in partnership with NHI is pleased to offer this comprehensive training series (FHWA-NHI-131127) for any engineer or supervisor working with Portland cement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. 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. This course is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The TCCC Concrete Series is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University.

To streamline registration and enable you to take some or all of these courses when it best suits your schedule, we have created this new series option which automatically registers you for all 11 modules-it's that easy. They are as follows:

Module 1 - TCCC Design of Pavement (FHWA-NHI-134101)

Module 2 - TCCC Fundamentals of Materials Used for Concrete Pavements (FHWA-NHI-134084)

Module 3 - TCCC Mix Design Principles (FHWA-NHI-134087)

Module 4 - TCCC Fresh Concrete Properties (FHWA-NHI-134097)

Module 5 - TCCC Basics of Cement Hydration (FHWA-NHI-134096)

Module 6 - TCCC Incompatibility in Concrete Pavement Systems (FHWA-NHI-134085)

Module 7 - TCCC Early Age Cracking (FHWA-NHI-134095)

Module 8 - TCCC Hardened Concrete Properties- Durability (FHWA-NHI-134075)

Module 9 - TCCC Construction of Concrete Pavements (FHWA-NHI-134098)

Module 10 - TCCC QCQA for Concrete Pavements (FHWA-NHI-134100)

Module 11 - TCCC Troubleshooting for Concrete Pavements (FHWA-NHI-134102)

Outcomes

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

- Explain concrete pavement construction as a complex, integrated system involving several discrete practices that interrelate and affect one another in various ways
- Recognize and implement technologies, tests, and best practices to identify materials, concrete properties, and construction practices that are known to optimize concrete performance
- Identify factors that lead to premature distress in concrete, and learn how to avoid or reduce those factors
- Apply appropriate how-to and troubleshooting information

Target Audience

This training is intended as both a training tool and a reference to help concrete paving engineers, quality control personnel, specifiers, contractors, suppliers, technicians, and tradespeople bridge the gap between recent research and practice regarding optimizing the performance of concrete for pavements.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 12 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131128

New Training WBT

Course Title

TCCC Testing Self-Consolidating Concrete - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review the properties and applications of self-consolidating concrete as well as the test methods used for measuring SCC properties according to ASTM test methods. This training is recommended for the Transportation Curriculum Coordination Council levels I, II, and III.

This training includes an overview of the fresh properties of self-consolidating concrete including terminology, target guidelines and quality control. In addition, ASTM test methods for slump flow and flow rate, passing ability using the j-ring, column segregation, static segregation and making self consolidated concrete test cylinders are reviewed.

Outcomes

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

- Define self-consolidating concrete
- Understand the terminology associated with self-consolidating concrete
- Perform the tests associated with SCC
- Report the test results

Target Audience

This course is designed for anyone who would like to understand more about self consolidating concrete, including personnel running self-consolidating concrete tests in the field along with supervisors in charge of field testing technicians.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131129

New Training WBT

Course Title

TCCC HMA Paving Field Inspection - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide guidance and instruction to inspectors involved in the construction of hot mix asphalt (HMA) pavements. The important tasks involved in this work are explained and proper procedures are described. This training is recommended for the Transportation Curriculum Coordination Council levels I, II, and III.

This training is arranged in a fashion to help the inspector first learn the various aspects of what is involved in a HMA paving operation and then become familiar with the duties that are a part of the HMA pavement grade inspection responsibilities. It also explains how to recognize the mix properties of a HMA mixture. The information included will assist the inspector in recognizing problems during a project and offering solutions to the problems. This training is not intended to cover every aspect of HMA paving.

Outcomes

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

- Know various aspects of what is involved in a HMA paving operation
- Understand the duties of a HMA paving inspector
- Recognize the mix properties of a HMA mixture
- Recognize the problems that may occur on HMA paving projects
- Understand the product and project so solutions can be recommended

Target Audience

This training would be beneficial to anyone that is involved with an HMA paving project, but focuses on technicians/inspectors that are involved with the production, placement, and inspection of HMA paving projects.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 4.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131130

New Training WBT

Course Title

TCCC Advanced Self-Consolidating Concrete - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to reviews advanced concepts, properties, and applications of self-consolidating concrete. This training is recommended for the Transportation Curriculum Coordination Council levels II, III, and IV.

This training will cover the basic characteristics of self-consolidating concrete as well as advantages of using SCC as compared to conventional concrete. In addition, it will discuss SCC's composition and proportioning as well as fresh and hardened properties. Finally, we will review specific examples where SCC has been used as well as the details of SCC use in slipform paving.

Outcomes

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

- Define self-consolidating concrete
- List procedures for creating SCC
- Identify SCC performance characteristics
- Compare SCC and conventional concrete
- Recognize SCC applications

Target Audience

Anyone who would like to understand more about self consolidating concrete, including personnel running self-consolidating concrete tests in the field along with supervisors in charge of field testing technicians.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131131

New Training WBT

Course Title

TCCC Superpave Mix Design Process and Analysis - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review Superpave mix design. This training is recommended for the Transportation Curriculum Coordination Council levels II, III and IV.

This training will give Hot Mix Asphalt materials engineers and/or materials technicians a better understanding of Superpave mix design process and analysis. The training will also give a better understanding of volumetrics for those who perform mix designs (typically technicians) and those who analyze the data (typically engineers).

Module 1: Mix Design. This module will describe the design of asphalt concrete mix and how Superpave mix design is analyzed.

Module 2: Volumetrics. This module will cover asphalt mixture volumetrics and volumetric properties using phase diagrams.

Outcomes

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

- Describe the procedures involved in the Superpave mix design
- Recall how to select the proper materials for a Superpave mix
- Describe how Superpave mix is compacted
- Define HMA Volumetric terms
- Describe factors which can influence key mass-volume relationships and calculations
- Describe how to use phase diagrams to calculate volumetric properties

Target Audience

This training is targeted to those who are responsible for the laboratory testing and evaluation of Superpave mix designs.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131132

New Training WBT

Course Title

TCCC Chip Seal Best Practices - WEB-BASED

The Chip Seal Best Practices course presents ways to assist in the development and implementation of pavement preservation programs by identifying the benefits of using chip seal as part of a preventive maintenance program.

This course has six modules. Module 1 is an introduction into chip seals, module 2 covers designing chip seal mixes, module 3 is selecting the proper materials for the chip seal mix, module 4 focuses on the use of the equipment, module 5 covers proper construction practices, and module 6 rounds out the course with performance measures of chip seals. The combination of all this information provides an excellent overview of successful chip seal practices worldwide.

Outcomes

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

- Define chip seal
- Describe how chip seals are used as a preventive maintenance treatment for pavement
- Identify materials used in chip seals
- Describe the characteristics of chip seal design
- Identify types of chip seal
- Identify the important considerations of aggregate and binder selection
- Describe aggregate-binder compatibility
- Describe equipments used in chip seal practices
- Identify important variables in construction practice
- Define the measures of control implemented over the quality of materials and construction
- Identify construction best practices
- Describe the components of engineering-based performance measures
- Identify qualitative performance indicators for chip seal
- Define common visible chip seal distresses

Target Audience

This training is recommended for the Transportation Curriculum Coordination Council levels I, II and III. This training would benefit entry level construction inspectors, maintenance employees and contractor personnel as well as serve as refresher training for those already well versed in the selection and application of a chip seal as a preventive maintenance treatment.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 3 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131133

New Training WBT

Course Title

TCCC Roller Compacted Concrete Pavements - WEB-BASED

The Roller Compacted Concrete (RCC) Pavements course provides detailed overviews of RCC properties and materials, mixture proportioning, structural design issues, and production and construction considerations, plus troubleshooting guidelines and an extensive reference list for more comprehensive information.

This course contains six modules. Module 1 is an introduction in RCC covering the characteristics, benefits, limitations, selection considerations, and typical uses. Module 2 discusses the property differences between RCC and conventional mixes, material requirements and testing. Module 3 covers mix proportioning of RCC, while Module 4 gets into structural design of RCC pavements. Module 5 acquaints the student with production and the proper handling and storage of materials, mixing and batching, and production planning. Module 6 covers the actual construction of a RCC pavement. All of the modules for this training were developed from the August 2010 "Guide for Roller-Compacted Concrete Pavements" which is available from the Portland Cement Association website www.cement.org/pavements.

Outcomes

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

- Define RCC key elements and common uses
- Define RCC properties and materials
- Describe RCC mix proportioning
- Describe structural design of RCC pavement
- Identify RCC production
- Identify RCC pavement construction

Target Audience

This training provides agencies, contractors, materials suppliers, and others with a thorough introduction to and updated review of RCC and its many paving applications. This training is recommended for the Transportation Curriculum Coordination Council levels II through IV.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131134

New Training WBT

Course Title

TCCC Superpave for Construction - WEB-BASED

The Superpave for Construction Course contains information for field construction personnel on the Superpave mix design system and the control of field produced Hot Mix Asphalt.

There are two modules in this course. The first module introduces the Superpave Hot Mix Asphalt design testing and analysis. It will cover design testing procedures, design analysis methods, and will include calculations to analyze the volumetrics of paving samples. Module two includes relevant volumetric examples including the use of phase diagrams to calculate volumetric properties. Example problems are included. This course is an excellent learning tool to assist in understanding corrective actions for volumetric parameters.

Outcomes

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

- Describe the benefits of Superpave over previous mix design methodologies
- Understand Superpave mix design procedures and testing
- Understand mix design analysis methods
- Perform the calculation necessary to analyze the volumetrics of paving samples for comparison
- Describe how to use phase diagrams to calculate volumetric properties
- Describe factors which can influence key mass-volume relationships and calculations
- Understand corrective action for volumetric parameters
- Calculate and evaluate volumetric properties through example problems

Target Audience

This training is targeted to intermediate and advanced technicians from both contractor and agency employment, which will be involved in construction of pavements using Superpave. This training is recommended for the Transportation Curriculum Coordination Council levels II and III.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 3.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131135

New Training WBT

Course Title

TCCC Aggregate Sampling Basics - WEB-BASED

The Aggregate Sampling Basics course will cover the importance of proper sampling, why we need to sample aggregate, and why we need special procedures to do so. We will cover how to obtain a proper sample that will accurately represent the materials by utilizing sampling principles and preferred methods.

The specifications covered in the course are from the American Association of State Highway and Transportation Officials or AASHTO. The course starts at the beginning with what are aggregates, what are aggregate uses, and continues through proper sampling. It also has information on aggregate processing and sieving. The course contains interaction with the student and quizzes to make sure the material was understood.

Outcomes

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

- Define aggregates
- Describe aggregate processing
- Describe aggregate sampling

Target Audience

This training is targeted to the beginning technician that will be obtaining aggregate samples for testing during production or on a project for agency, industry or consultant. This training is recommended for the Transportation Curriculum Coordination Council levels I and II.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131136

New Training WBT

Course Title

TCCC Materials Testing: Reducing Aggregate Samples - WEB-BASED

The Materials Testing and Reducing Aggregate Samples course will cover the two methods for splitting a sample; using a mechanical splitter and quartering. The purpose of these procedures is to reduce large samples of aggregate to the appropriate size for testing. The end product should be a sample that is representative of the source.

The American Association of State Highway and Transportation Officials or AASHTO procedures and specifications are used throughout the course. The course covers two methods used for splitting, the mechanical method and the quartering method. Both of these processes are covered in detail. There are questions for the students as a review of the material. References are given for further information.

Outcomes

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

- Define aggregate reducing
- Describe the aggregate reducing method using mechanical splitter
- Describe the aggregate reducing method using quartering

Target Audience

This training is targeted to the beginning technician that will be reducing samples for testing using mechanical spitting and/or quartering for a contractor, producer, agency, or consultant. This training is recommended for the Transportation Curriculum Coordination Council levels I and II.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131137

New Training WBT

Course Title

Special Mixture Design Considerations and Methods for Warm Mix Asphalt - WEB-BASED

Highway transportation agencies are exploring the use of warm mix asphalt (WMA) for pavement projects. Because of the potential environmental and engineering benefits that WMA provides, agency and industry personnel want to learn the proper design considerations for a quality WMA mixture design. Mixture design technicians and engineers are particularly interested in design differences between WMA and HMA.

The Special Mixture Design Considerations and Methods for Warm Mix Asphalt course explains the key differences between WMA and HMA design procedures. Participants in this course compare important elements of the mixtures and review the effects of those elements on the final WMA product. Learners also have an opportunity to apply AASHTO R35 standard practice to a WMA design modification, converting an HMA mixture design to WMA.

Outcomes

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

- Describe differences between warm mix asphalt (WMA) and hot mix asphalt (HMA) mixture design processes.
- Convert HMA mixtures to WMA mixtures.

Target Audience

This training was developed for experienced HMA mixture design technicians and engineers who are interested in using WMA. Participants should have basic computer skills, such as manipulating windows, using directories, and opening Web browsers.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132036

Course Title

Earth Retaining Structures

The goal of this course is to provide agencies with state-of-the-practice design tools and construction techniques to expand implementation of safe and cost-effective earth retention technologies. This course addresses the selection, design, construction, and performance of earth retaining structures used for support of fills and excavations or cut slopes. Instructors cover factors that affect wall selection, including contracting approaches with an emphasis on required bidding documents for each approach. Class discussions will include design procedures and case histories, demonstrating the selection, design, and performance of various earth retaining structures. Detailed information on subsurface investigation, soil and rock property design parameter selection, lateral earth pressures for wall system design, and load and resistance factor design (LRFD) for retaining walls are provided.

Outcomes

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

- Describe potential applications for Earth Retaining Structures (ERS)
- Select a technically appropriate and cost-effective ERS
- Select appropriate material properties, soil design parameters, and earth pressure diagrams
- Perform design analysis and prepare conceptual designs
- Review contractor submitted documents
- Discuss contracting methods
- Describe construction and inspection activities for ERS

Target Audience

The primary audience for this course is agency and consultant bridge/structures, geotechnical, and roadway design engineers; engineering geologists; and consultant review specialists. In addition, management, specification, and contracting specialists and construction engineers involved in design and contracting aspects of retaining structures are encouraged to attend. Attendees should have a basic knowledge of soil mechanics and structural engineering, including some understanding of LRFD concepts.

Training Level: Intermediate

Fee: 2013: $760 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132040

Course Title

Geotechnical Aspects of Pavements

This course covers the latest methods and procedures to address the geotechnical issues in pavement design, construction, and performance for new construction, reconstruction, and rehabilitation pavement projects. The course content includes geotechnical exploration and characterization of in-place and constructed subgrades; design and construction of subgrades and unbound layers for paved and unpaved roads, with emphasis on the American Association of State Highway Transportation Officials (AASHTO) 1993 empirical design procedure and on the new Mechanistic-Empirical Pavement Design Guide (MEPDG); drainage of bases, subbases, and subgrades and its impact on providing safe, cost-effective, and durable pavements; problematic soils, soil improvement, stabilization, and other detailed geotechnical issues in pavement design and construction; and construction methods, specifications, and QC/QA (quality control/quality assurance) inspection for pavement projects.

The goal of the course is for each participant to recognize the importance of the geotechnical aspects relevant to the design, construction, and performance of a pavement system. Participants will develop an appreciation for the importance of adequate subsurface exploration and laboratory characterization of subgrade soils as well as the requisite pavement design parameters for subgrades, unbound base and subbase layers, including drainage features. The course is designed to elicit maximum input from participants, particularly regarding an understanding of the impact of geotechnical features on the long-term performance of pavement systems.

Outcomes

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

- Explain the geotechnical parameters of interest in pavement design and their effects on the performance of different types of pavements
- Explain the influence of climate, moisture, and drainage on pavement performance
- Identify and explain the impact of unsuitable subgrades on pavement performance
- Determine the geotechnical inputs needed for design of pavements, both for the AASHTO 93 empirical design procedure and the new MEPDG
- Evaluate and select appropriate remediation measures for pavement subgrades
- Explain the geotechnical aspects of construction specifications and inspection requirements
- Identify subgrade problems during construction and develop recommended solutions

Target Audience

Many groups within an agency are involved with different aspects of definition, design, use, and construction verification of pavement geomaterials. These groups include pavement design engineers, geotechnical engineers, materials engineers, specification writers, and construction engineers who are or will be involved in the design, evaluation, and construction (or reconstruction or rehabilitation) of pavements. This course was developed as a forum for these various personnel to work together to enhance current procedures for building and maintaining more cost-efficient pavement structures.

Training Level: Basic

Fee: 2013: $760 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134061

Course Title

Construction Program Management and Inspection

The Federal Highway Administration's (FHWA) responsibilities for construction project and program oversight has changed considerably throughout the years. Today, the FHWA field engineers are typically involved in a diverse array of issues that were not common in construction projects of decades past. Changes in legislation, declines in staffing resources and expertise, and increased complexity of the Federal-aid construction program have all had an impact on how the FHWA conducts construction program management and oversight. Today's FHWA field engineers must have a more focused and programmatic approach in fulfilling construction stewardship and oversight responsibilities.

This 2-day training workshop highlights the FHWA roles and resources to assist the State in delivering a quality construction program. The training will assist the FHWA field engineers in maintaining and improving technical competence and in selecting a balanced program of construction management techniques.

The workshop uses the "Construction Program Management and Inspection Guide" as instructional material. While the workshop is focused primarily at FHWA's staff and FHWA oversight activities, participation by State partners and other relevant entities is highly encouraged to further educate and train Federal Aide partners to "act on FHWA's behalf in line with the Divisions/State DOT Stewardship Agreement.

Outcomes

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

- Manage and oversee Federal-aid construction programs.

Target Audience

This training is targeted at FHWA Division field engineers and State agencies, and will provide staff with the background and knowledge they need for managing and overseeing their Federal-aid construction programs. The training is geared towards the new FHWA generalist employee but is also intended as a refresher for the veteran FHWA engineer.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 15; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134075

WBT

Course Title

TCCC Hardened Concrete Properties - Durability - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels II - IV.

Durability as a property of hardened concrete is essential for long-lasting pavements. This workshop discusses factors that contribute to durable concrete and covers permeability, frost resistance, sulfate resistance, alkali silica attack, and a brief look at abrasion resistance.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Recognize factors contribute to durable concrete
- Explain the importance of permeability, alkali-silica reaction, abrasion resistance and, in certain regions in the country, frost resistance and sulfate resistance of hardened concrete
- Identify tests that can be performed to determine the variables affecting the durability of hardened concrete

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that concrete meets all the requirements for durability. It is applicable to anyone desiring a better understanding of the factors of durability.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134084

WBT

Course Title

TCCC Fundamentals of Materials Used for Concrete Pavements - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. 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. This training is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The materials used in Portland cement concrete play an extremely valuable role in the performance of the concrete. This training covers both the non-reactive and reactive materials used in Portland cement concrete. This would include the aggregates, curing compound, reinforcement, and the materials that are chemically reactive.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-NHI-134085 TCCC Incompatibility in Concrete Pavement Systems

FHWA-NHI-134087 TCCC Mix Design Principles

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Identify materials used in Portland cement concrete
- Describe the importance of each material and the role it plays in the performance of the concrete
- Describe how each material reacts with the other materials to obtain strength, permeability, workability, etc.

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that the materials used in Portland cement concrete meet specification requirements and are compatible to provide good, durable concrete. It is applicable to anyone desiring a better understanding of the materials used in Portland cement concrete.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134085

WBT

Course Title

TCCC Incompatibility in Concrete Pavement Systems - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. 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. This training is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The materials used in Portland cement concrete play an extremely valuable role in the performance of the concrete. This training covers the incompatibilities of materials used in Portland cement concrete. Although certain materials may be perfectly acceptable on their own, when they are combined they are not compatible with each other. This can cause early stiffening, retardation, cracking, and the lack of a quality of air void system.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-NHI-134084 TCCC Fundamentals of Materials Used for Concrete Pavements

FHWA-NHI-134087 TCCC Mix Design Principles

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Identify the causes of incompatible conditions leading to early stiffening or setting and occasional early age cracking
- Recognize the importance to use the correct air void system
- Describe test methods used to identify incompatibilities

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that the materials used in Portland cement concrete meet specification requirements and are compatible to provide good, durable concrete. It is applicable to anyone desiring a better understanding of the materials used in Portland cement concrete.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134087

WBT

Course Title

TCCC Mix Design Principles - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. This training is recommended for the Transportation Curriculum Coordination Council levels II - IV.

This module discusses mix design and mix proportioning. Mix design is the process of choosing the characteristics we are looking for in the concrete mixture. Mix proportioning, on the other hand, involves taking the information provided by the mix design process and using that information to determine the actual proportions of ingredients in the mixture. This course discusses theoretical, laboratory, and field testing to determine the Portland cement concrete mix that will achieve the best possible durability, strength, constructability, economy, and uniformity.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-NHI-134084 TCCC Fundamentals of Materials Used for Concrete Pavements

FHWA-NHI-134085 TCCC Incompatibility in Concrete Pavement Systems

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Describe the overall goal of mix design
- Define the difference between mix design and mix proportioning
- Recognize field and laboratory testing plans
- Describe test methods used to identify incompatibilities

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that the mix design and proportioning of Portland cement concrete materials meet specification requirements and provide good, durable concrete. It is applicable to anyone desiring a better understanding of the mix design of Portland cement concrete.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134095

WBT

Course Title

TCCC Early Age Cracking - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. 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. This training is recommended for the Transportation Curriculum Coordination Council levels II - IV.

Cracks are not a problem as long as they are controlled through jointing; ideally the concrete will crack below the saw joint to relieve the stress. Uncontrolled random cracks are not aesthetically acceptable and can reduce ride quality, durability, and particularly load transfer. Early cracking in this module is defined as those cracks that occur before the concrete is open to public traffic. In this module, we will be talking about early age cracking. Primarily, why does it occur and how can it be eliminated or at least controlled?

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Describe the various mechanisms that can lead to early age cracking
- Define and understand why curling and warping occur
- Recognize how curling and warping affect early age cracking
- Recognize the proper use of the materials and maintaining good construction practices can control early age cracking
- Describe how certain material properties and construction methods can affect early age cracking and can help prevent the cracking from occurring

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that concrete meets all the requirements to prevent early age cracking. It is applicable to anyone desiring a better understanding of the causes and prevention of early age cracking.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134096

WBT

Course Title

TCCC Basics of Cement Hydration - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels III and IV.

This module covers how a concrete mixture changes from a plastic state to become a solid concrete slab in a relatively short period of time. Central to this transformation is a complex process called hydration, an irreversible series of chemical reactions between water and cement.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Knowledge of physical and chemical occurrences during cement hydration
- Identify various factors that can adversely affect these occurrences
- Recognize the different temperature changes during particular stages of hydration

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that the mix design and proportioning of Portland cement concrete materials meet specification requirements and provide good, durable concrete. It is applicable to anyone desiring a better understanding of the mix design of Portland cement concrete.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134097

WBT

Course Title

TCCC Fresh Concrete Properties - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels III and IV.

This module covers the properties of fresh concrete needed to produce high-quality, long lasting pavements and how to monitor these properties.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- List the main properties of fresh concrete
- Describe what affects each property
- Recognize how to monitor these properties through concrete testing

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that the properties of a concrete mixture provide ease in placement, ease of consolidation, and long lasting pavement. It is applicable to anyone desiring a better understanding of the properties of Portland cement concrete.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134098

WBT

Course Title

TCCC Construction of Concrete Pavements - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels II, III, and IV

This module covers construction operations and establishes important ties to design and materials.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Recognize the principles of good quality Portland cement concrete pavement construction
- Identify proper material handling
- Describe the importance of the design and mixing of Portland cement concrete
- Recognize when field adjustments may be necessary
- Describe paving operations including placing, finishing, curing, and sawing concrete

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the plant manufacturing process, delivery, placement, and inspection of Portland cement concrete paving.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134100

WBT

Course Title

TCCC QCQA for Concrete Pavements - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels III and IV.

This module covers an overview of QC/QA concepts and definitions. It does not provide sufficient detail to actually develop a comprehensive QC/QA plan.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Identify the basic QC/QA terminology and record keeping requirements
- Recognize the statistical quality control chart
- Describe the common QC/QA tests performed for concrete paving projects

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the quality control activities on a Portland cement concrete paving project.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134101

WBT

Course Title

TCCC Design of Pavement - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels III and IV.

This module covers pavement design and subgrade concepts as they relate to materials and construction. It does not provide sufficient detail to actually design or evaluate a design. It covers the primary goal of pavement design, which is to provide a pavement with the following characteristics: safe, long lasting, cost effective, low maintenance, and constructible.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Identify pavement types and design features
- Recognize what design variables are controlled by field operations
- Discuss the two primary types of pavement distresses (performance measures)
- Recognize how subgrades and bases effect construction operations and long-term pavement performance

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in designing, constructing, and inspecting Portland cement concrete pavements.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134102

WBT

Course Title

TCCC Troubleshooting for Concrete Pavements - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels III and IV.

This module covers using the information available in the IMCP Manual and particularly tables 10-1 through 10-4 to identify and diagnose problems related to concrete pavement pre and post construction and to develop a plan to address the problems.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

Outcomes

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

- Recognize IMCP manual tables 10-1 thru 10-4 to identify and diagnose problems with Portland cement concrete pavement
- Compose a plan to correct problems associated with Portland cement concrete pavement.

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in designing mixes, constructing and inspecting Portland cement concrete pavements.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109B

New Training WBT

Course Title

Maintenance Training Series: Shaping and Shoulders - WEB-BASED

Shoulders play an important role in both pavement performance and roadway safety. Maintaining shoulders in a proper and timely manner is a primary goal of transportation agencies. In an effort to assist agencies in meeting this goal, the Shaping and Shoulders training provides information on the maintenance of both paved and unpaved shoulders, including specific details on the maintenance of gravel shoulders.

In addition to a discussion of the various types of shoulders, project selection considerations, and key maintenance issues, this training places shoulders and shaping into the context of an overall maintenance and pavement preservation program.

This training was developed as part of the Maintenance Training Series. To access all the trainings in the series, enroll in the 134109 course.

Outcomes

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

- Identify desirable characteristics of various types of shoulders
- Identify project selection considerations for shaping and shoulders
- Describe shoulder shaping and blading activities, including equipment requirements and construction activities
- Describe how a shoulder and ditching program forms the core of the overall maintenance and pavement preservation program

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109C

New Training WBT

Course Title

Maintenance Training Series: Thin HMA Overlays and Leveling - WEB-BASED

Thin HMA overlays and leveling are common pavement treatments and can be a central part of a maintenance crew's activities. During the Thin HMA Overlays and Leveling training, participants will be introduced to the characteristics and purposes of thin HMA overlays as well as the placement of leveling courses. Each of these techniques is capable of improving the functionality of an otherwise structurally sound pavement.

The training also covers information on the materials, personnel, and equipment needed for thin HMA overlays; items that should be considered when making project selection decisions; and guidance on proper mixture compaction. This information is designed to help participants improve project planning and execution for thin HMA overlays and leveling treatments.

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Determine the purpose of thin HMA overlays and leveling courses
- Identify material components of HMA overlays
- Identify personnel and equipment needed for HMA overlays and leveling construction
- Identify project selection considerations for thin HMA overlays and leveling
- Identify how this treatment can be incorporated into an overall system preservation program

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109D

New Training WBT

Course Title

Maintenance Training Series: Base and Subbase Stabilization and Repair - WEB-BASED

Before preservation treatments can be applied, localized repairs may be necessary for a pavement's base or subbase. The Base and Subbase Stabilization and Repair course gives participants the knowledge they need to determine if the base or subbase must be stabilized or repaired, to select the appropriate stabilization and repair methods for a given project, and to ensure the repair is performed properly.

This training reviews the failures and distresses that indicate structural deterioration exists in a roadway. The course also covers project selection and trade-off considerations through example roadway projects that give participants the opportunity to evaluate a roadway and determine if it is a candidate for reconstruction or repair. Participants can use this information, as well as guidance on design and construction, to make sound project planning decisions.

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Identify the symptoms of a localized base or subbase problem, which require greater depth of stabilization and repair than a hot-mix asphalt (HMA) or portland cement concrete (PCC) surface repair patch
- Determine when it is appropriate to employ base or subbase repair on a preventive maintenance project
- Identify the most appropriate repair methods if base or subbase failures are identified in a project

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109E

New Training WBT

Course Title

Maintenance Training Series: Roadway Drainage - WEB-BASED

Shoulder, ditch, and pipe or culvert maintenance activities are performed frequently throughout the year. These activities are critical for avoiding hazardous roadway conditions and extending the life of pavements by controlling water flow along maintainable pathways. This course, Roadway Drainage, provides information on the purpose, function, and components of roadway drainage systems.

This course reviews the components of shoulders and ditches, the purpose of a roadway drainage inventory, and the permits used in roadway drainage maintenance. Examples of existing drainage inventories are provided. In addition, the benefits of proper water removal are discussed through examples of drainage system issues, such as ponding and washouts, in order to emphasize the connection between good drainage and roadway safety.

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Identify the purpose and function of roadway drainage systems
- Identify eight components of roadway drainage systems
- Identify the purpose of a roadway drainage inventory
- Identify the purpose of permits in roadway drainage maintenance
- Identify the components of shoulders and ditches

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132012

Course Title

Soils and Foundations Workshop

This course is geared toward practicing design and construction engineers who routinely deal with soil and foundation problems but have little theoretical background in soil mechanics or foundation engineering. The course takes a project-oriented approach whereby the soils input to a bridge project is followed from conception to completion. In each phase of the project, the soil concepts will be developed into specific foundation designs and recommendations. The classroom presentation includes a variety of exercises to verify achievement of learning objectives. Each participant will take away a comprehensive reference manual on soils and foundations and a participant workbook containing a copy of all slides presented and completed exercises.

Outcomes

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

- Identifying the minimum level of geotechnical input in various project phases of a highway project
- Recalling the equipment and procedures used to implement a subsurface investigation of soil and rock conditions
- Demonstrating basic skills in visual description of soils native to the host state
- Recalling geotechnical facilities and personnel in the host state
- Recalling the basic soil test procedures and how the results of the various soil tests are applied results to highway projects
- Listing procedures used for both settlement and stability analysis, and recalling design solutions to stability and settlement problems for approach roadway embankments
- Listing procedures used for determining bearing capacity and settlement of shallow foundations such as spread footings
- Identifying the basic skills needed in the design and construction management of driven pile and drilled shaft foundations
- Recalling the driven pile and drilled shaft foundation construction equipment and construction inspection procedures
- Description static load testing and recalling the basic skills needed to interpret static load test results
- Recalling the basic skills needed in the design and construction of earth retaining structures
- Discussing the format and minimum content of an adequate foundation report

Target Audience

Personnel from the following units at the transportation agency could benefit from this workshop: geotechnical, bridge design, roadway design, materials, construction, and maintenance. The personnel who will benefit the most are the first-line supervisors involved in the design of highway structures and embankments. The greatest impact will be achieved by convincing structural, design, and construction engineers to use procedures from this course as a guide for routine geotechnical work. All attendees should be encouraged to attend the entire course, not just sections that are in their specialty. One of the major benefits of this course is to give engineers an appreciation of activities outside their specialties that influence, or are influenced by, the work of the geotechnical engineer.

Training Level: Basic

Fee: 2013: $900 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132013

Course Title

Geosynthetics Engineering Workshop (1-Day)

This course (1-day) provides training on construction with geosynthetics in transportation applications. The course examines the use of geotextiles, geogrids, pavement edge drains, drainage composites, erosion control materials and sediment control materials. Construction of filtration, drainage, temporary and permanent erosion control, sediment control, roadway separation, roadway reinforcement, roadway subgrade improvement, pavement overlays, embankments over soft foundations, mechanically stabilized earth walls, mechanically stabilized earth slopes applications are reviewed.

This 1-day construction summary course provides an introduction to geosynthetic installations.

Outcomes

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

- Recognize geosynthetic applications for transportation facilities, construction and maintenance
- Identify types of geosynthetics and the functions they perform
- State and review general construction procedures and inspection items for geosynthetic installations
- Locate references on geosynthetic materials and geosynthetic applications

Target Audience

Federal, State and local transportation personnel (bridge, hydraulic, pavement, geotechnical, construction, and maintenance engineers, and construction inspectors and technicians) involved with construction and maintenance of transportation facilities that include earthwork construction.

Training Level: Basic

Fee: 2013: $450 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132013A

Course Title

Geosynthetics Engineering Workshop (3-Day)

This 3-day course, provides training on the appropriate, cost-effective utilization of geosynthetics in transportation applications. The course examines the use of geotextiles, geogrids, pavement edge drains, drainage composites, erosion control materials, sediment control materials, and geomembranes. In addition, instructors also cover applications of filtration, drainage, temporary and permanent erosion control, sediment control, roadway separation, roadway reinforcement, roadway subgrade improvement, pavement overlays, embankments over soft foundations, mechanically stabilized earth walls, mechanically stabilized earth slopes, geomembrane containment ponds, and geomembrane pavement encapsulation.

Outcomes

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

- List six geosynthetic applications for transportation facilities, construction and maintenance
- Identify types of geosynthetics, and the functions they perform
- Discuss if geosynthetics are a feasible, cost-effective option for construction or maintenance of transportation works
- State and locate general construction procedures and inspection items for geosynthetic installations
- Locate references on geosynthetic materials and geosynthetic applications
- Prepare basic designs for filtration, drainage, temporary and permanent erosion control, sediment control, roadways, pavement overlays, embankments over soft foundations, mechanically stabilized earth walls, and reinforced earth slope transportation applications
- Select appropriate test methods for material properties and design parameters for specific geosynthetic projects, and differentiate between index and performance tests/properties
- Locate and review appropriate materials and construction specifications for geosynthetic projects
- Discuss the need for site specific monitoring or special inspection schemes

Target Audience

Federal, State and local transportation personnel (bridge, hydraulic, pavement, geotechnical, construction, and maintenance engineers, and construction inspectors and technicians) involved with design and/or construction of transportation facilities that include earthwork. In addition, public agency and private sector construction engineers and project inspectors responsible for installation, construction monitoring and inspection of geosynthetics installations can attend either course. There are no prerequisites, although prior attendance in FHWA-NHI-132012 Soils and Foundations Workshop is recommended.

Training Level: Basic

Fee: 2013: $760 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132013B

Course Title

Geosynthetics Engineering Workshop - Hydraulics and Drainage (1.5-Day)

This 1.5-day provides training on the appropriate, cost-effective utilization of geosynthetics in hydraulic applications for transportation works. The course examines the use of geotextiles, pavement edge drains, drainage composites, erosion control materials, and sediment control materials. Applications of filtration, drainage, temporary and permanent erosion control, and sediment control are addressed. Geomembrane applications of flow barriers, containment ponds and pavement are summarized.

Outcomes

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

- List four geosynthetic hydraulic applications for transportation works
- Identify three types of erosion control geosynthetics and the functions they perform
- Discuss feasibility and cost-effectiveness of geosynthetics in drainage and filtration applications
- State and review construction procedures for geosynthetic drainage, filtration, and erosion control installations
- Review design concepts and determine the basic design requirements for geosynthetics in conventional drains and erosion control applications
- Explain difference between temporary and permanent erosion control geosynthetics
- Select appropriate material property and design parameter test methods and prepare specification requirement for hydraulic applications of geosynthetics

Target Audience

Federal, State and local transportation personnel (hydraulic, erosion control, geotechnical, construction, and maintenance engineers, and construction inspectors and technicians) involved with design and/or construction and/or maintenance of transportation facilities that incorporate drainage and/or erosion control features. In addition, public agency and private sector construction engineers and project inspectors responsible for installation, construction monitoring and inspection of geosynthetic drainage and/or erosion control installations can attend either course. There are no prerequisites, although prior attendance of NHI course 132012 - Soils and Foundations Workshop is recommended.

Training Level: Basic

Fee: 2013: $540 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132013C

Course Title

Geosynthetics Engineering Workshop - Roadways (1.5-Day)

Course 132013 C (1 1/2 day) provides training on the appropriate, cost-effective utilization of geosynthetics in roadway applications. The course examines the use of geotextiles, geogrids, and pavement edge drains in pavement structures. Applications of filtration, drainage, roadway separation, roadway reinforcement, roadway subgrade improvement, and pavement overlays are addressed.

Outcomes

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

- List four geosynthetic pavement applications for transportation works
- Identify four types of geosynthetics used in pavement systems, and identify functions they perform
- Calculate if geosynthetics are a feasible, cost-effective option for construction or maintenance of pavements
- State and review construction procedures for geosynthetic pavement installations
- Review design concepts and determine the basic design requirements for geosynthetics in pavement systems
- Select appropriate material property and design parameter test methods and prepare specification requirement for geosynthetic reinforcement

Target Audience

Federal, State and local transportation personnel (pavement, geotechnical, construction, and maintenance engineers, and construction inspectors and technicians) involved with design and/or construction and/or maintenance of pavement systems. In addition, public agency and private sector construction engineers and project inspectors responsible for installation, construction monitoring and inspection of geosynthetics installations can attend either course. There are no prerequisites, although prior attendance in FHWA-NHI-132012 Soils and Foundations Workshop and FHWA-NHI-132040 Geotechnical Aspects of Pavements are recommended.

Training Level: Basic

Fee: 2013: $540 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132013D

Course Title

Geosynthetics Engineering Workshop - Reinforcement (1.5-Day)

This 1.5-day course provides training on the appropriate, cost-effective utilization of geosynthetics in transportation applications. The course examines the use of geotextiles and geogrids as soil reinforcement. Embankments over soft foundations, geosynthetic reinforced MSE walls, reinforced soil slopes, and geosynthetic reinforced load transfer platforms are addressed.

Outcomes

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

- List three geosynthetic reinforcement applications for transportation works
- Identify four types of geosynthetic reinforcements, and discuss relative strengths and cost
- State and review construction procedures for geosynthetic reinforcement installations
- Identify primary design references for geosynthetic reinforcement applications for transportation works
- Review design concepts and determine the basic design requirements for embankments over soft foundations, mechanically stabilized earth walls and earth slopes transportation applications
- Select appropriate material property and design parameter test methods and prepare specification requirement for geosynthetic reinforcement

Target Audience

Federal, State and local transportation personnel (bridge, geotechnical, construction engineers, and construction inspectors and technicians) involved with design and/or construction of transportation facilities that incorporate reinforced soil earthworks. In addition, public agency and private sector construction engineers and project inspectors responsible for installation, construction monitoring and inspection of reinforced soil installations can attend either course. There are no prerequisites, although prior attendance in FHWA-NHI-132012 Soils and Foundations Workshop is recommended.

Training Level: Basic

Fee: 2013: $540 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132014

Course Title

Drilled Shafts

Drilled shafts are an alternate type of deep foundation that may be more cost effective and perform better than other types of deep foundations in bridge piers at river crossings and in retrofit operations, high-mast lighting, earth retaining structures, single-column piers, and similar applications. This course provides participants with specific technical guidance on all aspects of designing, installing, and monitoring the construction of drilled shafts. The lessons address the following topics: applications, advantages, and disadvantages of drilled shafts for transportation structure foundations; general requirements for subsurface investigations; construction methods; construction case histories; construction specifications; principles of designing drilled shafts for axial and lateral loading; expansive soils, downdrag, and similar effects; load testing; inspection; integrity testing; repair and retrofit of defective shafts; and cost estimation. The participants will receive a comprehensive reference manual on drilled shaft construction and design used by engineers who perform detailed designs of drilled shafts, write construction specifications, and evaluate the performance of contractors through a comprehensive inspection program.

Outcomes

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

- Describe the various drilling rigs and tools that are available to construct drilled shafts under varied subsurface soil and rock conditions
- Recognize the basic features of drilling aids, such as casings and drilling slurries, and the reasons for certain fundamental requirements for these aids
- Design drilled shafts for axial loading in simple soil and rock profiles
- Demonstrate a general understanding of the elements of designing drilled shafts for lateral loads
- Demonstrate an understanding of the need for load tests and available methods for performing the tests
- Formulate the basic elements of construction specifications for drilled shafts
- Demonstrate an understanding of integrity testing, repair, and retrofit of defective shafts
- Estimate costs for drilled shafts

Target Audience

The target audience for this course includes geotechnical engineers, bridge designers, and resident engineers. The course embraces both construction and design, and it is important that all participants attend all lessons, not just those in their immediate areas of interest. A key issue is how the details of construction affect the way in which a drilled shaft should be designed and how the intent of the design affects inspection. Participants are expected to have a degree in engineering for which they have passed an undergraduate course in soil mechanics and/or have successfully completed NHI course FHWA-NHI-132012 Soils and Foundations Workshop.

Training Level: Intermediate

Fee: 2013: $760 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132022

Course Title

Driven Pile Foundations - Construction Monitoring

This course provides information on current methods of driven pile technology with emphasis on data interpretation and decisionmaking issues common to driven pile installation and monitoring. The course covers the following areas: specifications, contracting issues, pile installation, monitoring, and inspection. Application and interpretation of the wave equation and dynamic and static pile-load-testing methods are highlighted with an emphasis on the practical issues related to pile monitoring and acceptance on typical construction projects. Construction material includes pile capacity verification by formula; wave equation; dynamic test or static test; performance and interpretation of compression, tension, and lateral load test; new load testing devices; the Osterberg Cell and Statnamic; operation and inspection of pile hammers, including new hydraulic hammers; and troubleshooting of pile hammer operation and pile installation problems. (Refer to course FHWA-NHI-132021 Driven Pile Foundations - Design and Construction for additional background information.) The goal of this course is to transfer the necessary knowledge and skills to plan driven pile foundation projects and to implement QA/QC procedures during construction.

Outcomes

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

- Discuss the appropriate pile type in a given soil profile based on the advantages and disadvantages of common driven pile types
- Explain the importance and appropriate methods of pile installation inspection
- Identify pile hammer types, their operational characteristics, and key pile hammer and pile hammer accessory inspection issues
- Define key components of driven pile specifications
- Identify the project influence and significance of pile drivability, pile refusal, and minimum and estimated pile toe elevations
- Use dynamic formulas, wave equation analyses, dynamic pile testing and static load testing correctly and effectively
- Identify pile toe accessories, pile splicing methods, and pile installation aids applicable to the pile type and subsurface conditions

Target Audience

The target audience for this course includes geotechnical specialists, bridge engineers, construction engineers, consultant review specialists, and advanced-level technicians involved in and responsible for specifying and monitoring construction of driven pile foundations. Basic knowledge of subsurface investigation methods is desirable.

Training Level: Intermediate

Fee: 2013: $640 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132031

Course Title

Subsurface Investigations

This course is designed to help participants understand the importance of a properly planned, reviewed, and executed subsurface investigation program to the design and construction of transportation facilities and to provide them with the skills to do this work. The course presents the latest methods and procedures in the planning, executing, and interpreting the various subsurface investigation methods and for developing appropriate parameters for soil and rock design and construction for engineering applications. Topics include the geotechnical specialist's role in subsurface investigations; exploration methodologies; types of exploratory equipment and their suitability for various subsurface conditions; the use of in situ testing and geophysical surveys for subsurface characterizations; the handling, transportation, and storage of soil and rock samples; and laboratory testing techniques and interpretation of data. In addition, the course covers contracting for soil and rock investigations, correlation of soil and rock properties, and preparation of clear and concise geotechnical reports. Classroom instruction includes participant exercises and example problems to reinforce course outcomes.

Outcomes

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

- Recognize the importance of performing an adequate subsurface investigation
- Plan and execute a subsurface exploration program for a typical surface transportation project
- Use existing information in planning the investigation program
- Apply appropriate in situ testing procedures based upon the expected subsurface conditions and obtain high-quality soil and rock samples for laboratory testing
- Assign appropriate laboratory testing procedures for determining soil and rock design parameters
- Interpret the results of laboratory tests and determine soil and rock parameters to be used in design
- Summarize the results of a subsurface investigation in a concise geotechnical report

Target Audience

The target audience for this course includes FHWA, State, and local transportation agency employees; college and university faculty; and consultant engineers who are or will be involved in the planning, execution, review, and interpretation of subsurface investigations. An undergraduate degree in geology, engineering geology, civil engineering, or equivalent engineering experience in the highway/transportation field is desirable.

Training Level: Intermediate

Fee: 2013: $760 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132033

Course Title

Soil Slope and Embankment Design and Construction

This course covers important aspects associated with the design and construction of soil slopes and embankments. It is intended to provide transportation earthwork professionals with knowledge to recognize potential problems with soil slope/embankment stability and deformation in transportation projects. Participants will develop the skills necessary to design and evaluate soil slopes and embankments and learn about the implications for construction and inspections. The course embraces both design and construction.

Participants will receive a comprehensive reference manual, used by practicing highway and geotechnical engineers covering investigation, design, construction, and mitigation of soil slopes and embankments. The participant workbook contains copies of visual aids and student exercises that closely follow the PowerPoint slide presentations. The participant exercises promote interaction in the classroom and illustrate the basic principles and analyses.

Outcomes

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

- Recognize potential failure modes or deformation types for soil slopes and embankments
- Identify the potential failure modes for soil slopes and the type of analysis required to evaluate stability of the slope
- Determine the stability of a slope using slope stability charts
- Recognize the major design consideration for embankments constructed using earth fill, rock fill, and lightweight fill
- List the steps necessary for designing an embankment over compressible foundation soil
- List the common causes/triggering mechanisms for landslides/slope instabilities
- List appropriate stabilization methods

Target Audience

The target audience is bridge, geotechnical, or transportation engineers with 0 to 20 years of experience and responsible for the design, analysis, and construction maintenance or remediation of soil slopes and embankments on surface transportation facilities.

Training Level: Intermediate

Fee: 2013: $700 Per Person; 2014: N/A

Length: 2.5 DAYS (CEU: 1.5 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132034

Course Title

Ground Improvement Techniques

This course covers important design and construction aspects associated with ground improvement techniques including Vertical Drains, Lightweight Fills, Vibro-Compaction, Dynamic Compaction, Stone Columns, Deep Soil Mixing, Column Supported Embankments, MSE Walls and Reinforced Soil Slopes, Soil Nailing, and Grouting. The goal of the course is to help participants determine the applicability and preliminary cost analysis for techniques that could be employed to improve the ground to permit construction of geotechnical facilities for transportation applications.

Participants will develop an appreciation for exploring and characterizing subsurface soil and rock in the laboratory, as well as the requisite design parameters necessary to develop a preliminary design and cost estimate. Instructors will discuss and summarize the advantages and limitations of each method. The course is designed to elicit maximum input from participants particularly regarding their understanding of application criteria, the impact of geotechnical features on the long-term performance, and contracting methods.

Outcomes

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

- Locate criteria to determine the applicability of each ground improvement method for a specific project and soil condition under consideration
- Describe advantages, disadvantages, and limitations for each ground improvement method discussed
- Prepare conceptual and basic designs, and be able to check contractor-submitted designs
- Discuss appropriate QA/QC methods for each type of ground improvement method
- Summarize key elements of a preferred contracting method for each technique
- Develop a preliminary cost estimate based on a preliminary design

Target Audience

The target audience is bridge, geotechnical, or transportation engineers with 0 to 20 years of experience and responsible for the planning, design, or construction for ground improvement on surface transportation facilities.

Training Level: Intermediate

Fee: 2013: $760 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132035

Course Title

Rock Slopes

This course presents geological investigation techniques, shear strength theories for determining rock strength, and design methods for rock slopes with different failure mechanisms. Other topics include rock blasting, rock slope stabilization methods, and contracting issues. Classroom instruction includes the discussion of sample problems and case histories involving rock slope analyses and designs.

Participants will receive a comprehensive reference manual (FHWA-NHI-99-007) and the accompanying exercises (FHWA-NHI-99-036). The reference manual covers investigation, design, and construction of rock slopes for highway/geotechnical engineers. It is geared towards practicing engineers who are involved with rock slope design and stabilization, but may not have the complete theoretical background. The exercises (FHWA-NHI-99-036) are designed to promote interaction in the classroom and to illustrate the basic principles and analyses. Solutions are included with each exercise.

Outcomes

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

- Describe the basic principles of rock slope design
- Plan and execute a geological investigation, including geologic mapping
- Perform appropriate in situ and laboratory strength tests
- Determine rational design parameters by proper evaluation of in situ and laboratory test data along with appropriate rock strength correlations
- Identify the failure mechanisms associated with rock slopes and apply appropriate design methodologies
- Design effective rockfall protection and slope stabilization measures
- Design a monitoring program for cut slopes

Target Audience

The target audience for this course includes FHWA, State, and local highway agency employees; college and university faculty; and consultant engineers/geologists who are or will be involved in the design, excavation, and stabilization of rock slopes. An undergraduate degree in geology, engineering geology, civil engineering, or equivalent engineering experience in the highway/transportation field is desirable.

Training Level: Intermediate

Fee: 2013: $660 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132036

Course Title

Earth Retaining Structures

The goal of this course is to provide agencies with state-of-the-practice design tools and construction techniques to expand implementation of safe and cost-effective earth retention technologies. This course addresses the selection, design, construction, and performance of earth retaining structures used for support of fills and excavations or cut slopes. Instructors cover factors that affect wall selection, including contracting approaches with an emphasis on required bidding documents for each approach. Class discussions will include design procedures and case histories, demonstrating the selection, design, and performance of various earth retaining structures. Detailed information on subsurface investigation, soil and rock property design parameter selection, lateral earth pressures for wall system design, and load and resistance factor design (LRFD) for retaining walls are provided.

Outcomes

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

- Describe potential applications for Earth Retaining Structures (ERS)
- Select a technically appropriate and cost-effective ERS
- Select appropriate material properties, soil design parameters, and earth pressure diagrams
- Perform design analysis and prepare conceptual designs
- Review contractor submitted documents
- Discuss contracting methods
- Describe construction and inspection activities for ERS

Target Audience

The primary audience for this course is agency and consultant bridge/structures, geotechnical, and roadway design engineers; engineering geologists; and consultant review specialists. In addition, management, specification, and contracting specialists and construction engineers involved in design and contracting aspects of retaining structures are encouraged to attend. Attendees should have a basic knowledge of soil mechanics and structural engineering, including some understanding of LRFD concepts.

Training Level: Intermediate

Fee: 2013: $760 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132037

Course Title

Spread Footings: LRFD Design and Construction

This updated course (January 2012) replaces NHI training 132037 Shallow Foundations, which was developed in 2001. Designed in accordance with the AASHTO Bridge LRFD Specification, 5th Ed., 2010, the course describes basic principles and state-of-the-practice analysis, load and resistance factor design (LRFD) procedures, and construction procedures for shallow foundations in soil and rock with particular application to transportation facilities.

The main topics covered are LRFD procedures for spread footings, vertical stress distribution, tolerable settlement criteria, settlement criteria in coarse-grained soils, settlement in fine-grained soils, time rate of consolidation settlement in fine-grained soils, bearing resistance in soil and rock, sliding resistance in soil and rock, problematic soils and ground improvement techniques, and inspection and construction monitoring methods for spread footings. Group exercises are interspersed throughout the course, enabling participants to be actively involved in the learning experience. This course provides FHWA recommended technical guidance in accordance with standard of practice for design and construction of spread footings for LRFD.

Outcomes

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

- List the key steps in the design of spread footings
- Identify common significant construction points for an abutment footing
- Compute settlement of spread footings at service limit states
- Use the bearing capacity equation to evaluate the nominal bearing resistance of spread footings at strength limit state
- Recognize the impact of each parameter on the calculated bearing resistance
- Estimate nominal bearing resistance for spread footings on rock
- List the ground improvement techniques that may be used to improve problematic soils
- Identify key geotechnical construction activities as they relate to spread footings

Target Audience

This course is intended for geotechnical professionals, foundation designers, highway/bridge engineers, and project engineers who are involved in the analysis, design, construction, and maintenance of spread footings for surface transportation facilities. The target audience may also include FHWA, State, and local highway agency employees, college and university faculty, and consultant engineers/geologists who are or will be involved in the research, design, construction and maintenance of spread footings/shallow foundations.

Training Level: Intermediate

Fee: 2013: $660 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132040

Course Title

Geotechnical Aspects of Pavements

This course covers the latest methods and procedures to address the geotechnical issues in pavement design, construction, and performance for new construction, reconstruction, and rehabilitation pavement projects. The course content includes geotechnical exploration and characterization of in-place and constructed subgrades; design and construction of subgrades and unbound layers for paved and unpaved roads, with emphasis on the American Association of State Highway Transportation Officials (AASHTO) 1993 empirical design procedure and on the new Mechanistic-Empirical Pavement Design Guide (MEPDG); drainage of bases, subbases, and subgrades and its impact on providing safe, cost-effective, and durable pavements; problematic soils, soil improvement, stabilization, and other detailed geotechnical issues in pavement design and construction; and construction methods, specifications, and QC/QA (quality control/quality assurance) inspection for pavement projects.

The goal of the course is for each participant to recognize the importance of the geotechnical aspects relevant to the design, construction, and performance of a pavement system. Participants will develop an appreciation for the importance of adequate subsurface exploration and laboratory characterization of subgrade soils as well as the requisite pavement design parameters for subgrades, unbound base and subbase layers, including drainage features. The course is designed to elicit maximum input from participants, particularly regarding an understanding of the impact of geotechnical features on the long-term performance of pavement systems.

Outcomes

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

- Explain the geotechnical parameters of interest in pavement design and their effects on the performance of different types of pavements
- Explain the influence of climate, moisture, and drainage on pavement performance
- Identify and explain the impact of unsuitable subgrades on pavement performance
- Determine the geotechnical inputs needed for design of pavements, both for the AASHTO 93 empirical design procedure and the new MEPDG
- Evaluate and select appropriate remediation measures for pavement subgrades
- Explain the geotechnical aspects of construction specifications and inspection requirements
- Identify subgrade problems during construction and develop recommended solutions

Target Audience

Many groups within an agency are involved with different aspects of definition, design, use, and construction verification of pavement geomaterials. These groups include pavement design engineers, geotechnical engineers, materials engineers, specification writers, and construction engineers who are or will be involved in the design, evaluation, and construction (or reconstruction or rehabilitation) of pavements. This course was developed as a forum for these various personnel to work together to enhance current procedures for building and maintaining more cost-efficient pavement structures.

Training Level: Basic

Fee: 2013: $760 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132041

Course Title

Geotechnical Instrumentation

The course is designed to provide participants with the necessary knowledge and skills to plan, select, and implement instrumentation programs in geotechnical features for construction monitoring and performance verification. The course will discuss measurement tools, including recommendations for a systematic and complete approach to planning monitoring programs. The course presents recommendations for selecting proper instrumentation for various types of construction. Tasks covered include calibration, maintenance and installation of instrumentation, collection of data, processing and presentation of collected data, interpretation of processed data, and reporting of results.

Outcomes

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

- Recognize effective uses of geotechnical instrumentation in transportation projects
- Identify benefits of instrumentation
- Identify typical instrumentation programs for common transportation structures
- Recognize role of instrumentation and how it is used for answering key geotechnical questions
- Identify available instruments and where to find additional information and assistance
- Plan an instrumentation program in a systematic way
- Examine practical methods to collect and use data from instrumentation
- Perform an evaluation of the need for and potential benefits of geotechnical instrumentation on a project

Target Audience

The target audience is bridge, geotechnical, or transportation engineers with 0 to 20 years of experience and responsible for the planning, design, and implementation of instrumentation programs for geotechnical construction on surface transportation facilities.

Training Level: Intermediate

Fee: 2013: $660 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132042

Course Title

Design of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes

Mechanically stabilized earth walls (MSEWs) are commonly used on roadway projects and are typically cost effective and aesthetically pleasing. The basic concept behind MSEWs is to combine soil, reinforcing materials made of steel or polymers, and appropriate facing to produce a composite system with engineering properties that are ideal for most roadway applications. Reinforced soil slopes (RSS) utilize the same types of reinforcement for the construction of steep embankments. Both MSEWs and RSS structures can provide substantial savings in construction time and costs when compared with other types of earth retaining systems.

The goal of the course is to educate agencies about state-of-the-practice design tools. This includes comprehensive instruction on the design of MSEWs using load resistance factor design (LRFD). The course also presents construction practices to promote implementation of mechanically stabilized earth technology in cost effective earth retention structures. This course would most benefit persons who are involved in the design and construction of earth retention structures for surface transportation projects.

Outcomes

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

- Recognize potential applications for MSEWs and RSS structures in transportation facilities
- Prepare conceptual and basic (i.e., for simple geometry) designs, and be able to check contractor-submitted designs for walls and slopes
- Examine and select appropriate material properties and parameters used in design
- Calculate the cost of conceptual MSEWs and RSS structures and determine if construction is a cost-effective option
- Select appropriate specification/contracting method(s) and prepare detailed specifications for materials and methods of construction
- Define and communicate major components of construction inspection of MSEWs and RSS structures to confirm compliance with design

Target Audience

The primary audience for this course is agency and consultant bridge/structures, geotechnical, and roadway design engineers; engineering geologists; and consultant review specialists. In addition, management, specification and contracting specialists, and construction engineers interested in design and contracting aspects of MSEWs and RSS structures are encouraged to attend. Attendees should have a basic knowledge of soil mechanics and structural engineering. (Note that NHI offers a 1-day course, FHWA-NHI-132043 Construction of MSEW and RSS.

Training Level: Intermediate

Fee: 2013: $760 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132043

Course Title

Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes

This course presents the concepts of mechanically stabilized earth wall (MSEW) and reinforced soil slope (RSS) systems and their application to roadways. The construction materials for both systems are described and guidance on acceptance for use is given. MSEW and RSS system construction steps are taught and typical construction practices and techniques are presented.

Outcomes

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

- Recognize potential applications for MSEWs and RSS structures in transportation facilities
- Recognize differences between available systems and their components
- Understand the intent of specification/contracting method(s)
- Define and communicate major components of construction inspection of MSEWs and RSS structures to confirm compliance with design
- Understand the steps for MSEW and RSS construction and the corresponding points for inspection

Target Audience

The primary audience for this course is agency and consultant construction engineers, inspectors, and technicians. In addition, management; specification and contracting specialists; bridge/structures, geotechnical, and roadway design engineers; and engineering geologists interested in construction aspects of MSEWs and RSS structures are encouraged to attend. Attendees should have a basic knowledge of soil mechanics and structural engineering. (Note that NHI offers a 3-day course, FHWA-NHI-132042 Design of MSEWs and RSSs and a 3-day course, FHWA-NHI-132080 Inspection of MSEWs and RSSs.

Training Level: Intermediate

Fee: 2013: $425 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132069

Course Title

Driven Pile Foundation Inspection

This course provides Federal, State, and local inspectors with practical knowledge and standard industry practices for inspecting pile-driving operations at transportation construction sites.

To establish a national standard for transportation personnel, NHI developed the course based on a number of Federal and State sources: the course materials from the Florida Department of Transportation's Pile Driving Inspector's Qualification test, AASHTO's 2000 Bridge Construction Specifications, and the NHI courses Driven Pile Foundations - Design and Construction (FHWA-NHI-132021) and Driven Pile Foundations - Construction Monitoring (FHWA-NHI-132022). However, the local specifications, inspection reports, and plan sheets available from the hosting agency also will be discussed. The course includes a 3-hour qualification examination.

NOTE: All participants should be advised by the local coordinator/session host that they are encouraged to complete NHI 132069A Pile Driving Inspectors Tutorial (WBT).

Outcomes

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

- Explain the inspector's role, duties, and responsibilities
- Describe the pile-driving system components
- Recognize key inspection elements of the contract documents
- Identify proper communication and coordination with the engineer and contractor
- Identify the key elements of a pile installation plan
- Recognize and identify pile-driving system components and tools
- Verify tip elevations, cutoff elevations, pile penetration, and length driven for vertical and battered piles
- Perform inspection of pile-driving operations and verify compliance with construction tolerances
- Recognize when to stop driving based upon provided driving criteria, minimum tip or penetration, and refusal guidelines.
- Verify pile condition, labeling, and marking for compliance
- Recognize and explain the difference between test piles and production piles and the various types of pile testing
- Identify "driving" irregularities
- Identify and document pay quantities
- Interpret and apply applicable AASHTO specifications relating to foundation acceptance
- List potential problems and safety issues

Target Audience

The target audience for this course includes those who inspect pile-driving operations during construction of foundations and major structures. In addition, project management and construction engineers in charge of pile-driving construction inspections are encouraged to attend. Attendees should have completed courses in basic courses in reading construction plans as well as construction math and high school algebra.

Training Level: Intermediate

Fee: 2013: $680 Per Person; 2014: N/A

Length: 2.5 DAYS (CEU: 1.5 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132070

Course Title

Drilled Shaft Foundation Inspection

Drilled Shaft Foundation Inspection is a stand-alone course developed to provide a basis for local, regional, or national qualification of drilled shaft foundation inspectors. The goal of this course is to provide inspectors with practical knowledge and standard industry practices for the inspection of drilled shaft foundation construction. A 2-hour qualification exam is administered on the third day of the course.

The course follows recommended FHWA specifications and practices for drilled shaft construction but may be modified to follow local agency specifications and practices.

NOTE: All participants should be advised by the local coordinator/session host that they are encouraged to complete NHI 132070A Drilled Shaft Inspector Tutorial (WBT).

Outcomes

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

- Identify and understand the role and duties of the inspector
- Recognize key inspection elements of the contract documents
- Identify proper communication and coordination with the engineer and contractor
- Interpret and verify contractor compliance with items in the drilled shaft installation plan
- Recognize and identify drilled shaft construction equipment and tools
- Perform visual field verification of soil/rock material for comparison to supplied soil boring data/logs
- Calculate percent recovery and rock quality designation (RQD)
- Recognize and identify the various types of drilled shaft construction
- Perform inspection of drilled shaft excavations for compliance with plans, construction tolerances, and cleanliness
- Verify reinforcing cage construction compliance including side spacers and cross-hole sonic logging (CSL) tubes
- Determine concrete volumes for theoretical shafts and develop concrete curves
- Identify shaft "concreting" irregularities
- Perform calculations for volume, area, circumference, and elevation
- Locate, explain, and apply applicable FHWA, AASHTO, and State DOT specifications relating to compliance

Target Audience

The target audience for this course includes agency and consultant personnel who inspect foundations or major structures. In addition, project management and construction engineers in charge of drilled shaft construction inspection are encouraged to attend. This course is designed to be most beneficial to foundation inspectors who are responsible for inspecting drilled shafts during construction.

Training Level: Intermediate

Fee: 2013: $680 Per Person; 2014: N/A

Length: 2.5 DAYS (CEU: 1.5 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132070B

WBT

Course Title

Drilled Shaft Inspector Tutorial - WEB-BASED

132070B Drilled Shaft Inspection Tutorial provides training on the fundamental concepts of drilled shafts construction for those involved in the inspection of drilled shafts. This 4-hour Web-based training (WBT) includes the following topics related to drilled shafts: foundations drilled shaft types, methods of construction, construction equipment, and tools. 132070B was developed as a companion training aid for the Instructor-led training 132070 Drilled Shaft Foundation Inspection course. This course replaces 132070A and it is recommended that this WBT be completed prior to attending 132070 Drilled Shaft Foundation Inspection.

This course details the work of the inspector prior, during and after completion of the drilled shaft construction process. Areas of focus include: the inspector's roles, functions, responsibilities, and levels of involvement at different phases of construction. The drilled shaft construction process is covered from the inspector's viewpoint with regards to the documents and tools required for inspection, including equipment and site required checks. Also highlighted is the inspector's role during the drilled shaft excavation process; the rebar cage fabrication and positioning process; and during the placement of concrete. Theoretical and actual drilled shaft concrete volumes calculation, post installation, load, and integrity tests, and other types of tests are also addressed in this course. 132070B details the steps in the drilled shaft construction process and identifies specific responsibilities and methods that will assist inspectors in safely achieving project goals.

Outcomes

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

- Describe the inspector's duties and responsibilities during drilled shaft construction
- Explain the inspector's role in the drilled shaft construction process
- Identify different construction methods
- List equipment and tools used by the inspector and at a drilled shaft construction site
- List the steps in the drilled shaft construction process
- Identify specific responsibilities and methods to assist the inspector in achieving their goal

Target Audience

Federal, State, and local highway agency employees and consultant personnel who inspect foundations or major structures, as well as project managers and construction engineers responsible for drilled shaft construction inspection may benefit from this course.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 4 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132078

Course Title

Micropile Design and Construction

The primary goal of this course is to provide the target audience with guidance on when and where it is appropriate to use micropiles, and educate engineers about the state of the practice in the design and construction of micropiles. The course covers stepwise procedures for the design of micropiles for structural support and for slope stability applications. Construction, inspection and integrity-testing aspects and issues are discussed as well. Classroom presentations include exercises that will lead participants through the technical and cost feasibility aspects of structural support and slope stability design with micropiles. Each participant will receive a workbook and reference manual containing detailed micropile design examples for various applications.

FHWA-NHI-132012 Soils and Foundations course is a recommended prerequisite.

Outcomes

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

- Briefly describe the history and current status of the micropile industry
- Identify potential micropile applications
- Explain construction constraints, techniques, and performance
- Assess feasibility of micropiles for a given application
- Prepare conceptual and basic designs, and evaluate contractor-submitted designs
- Select appropriate specification/contracting method(s) and prepare contract documents
- Describe construction monitoring and inspection requirements

Target Audience

This course is directed toward practicing geotechnical, foundation, construction and bridge/structural engineers who have knowledge and experience in the design and construction of driven piles and drilled shaft foundations. Engineers involved with the design and construction of structure foundations will all benefit from this training, which builds upon the basic concepts presented in NHI courses FHWA-NHI-132012, FHWA-NHI-132014, and FHWA-NHI-132021.

Training Level: Intermediate

Fee: 2013: $660 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132079

Course Title

Subsurface Investigation Qualification

This course is part of a series to develop a training and qualification/certification program for geotechnical inspectors and field personnel. The course follows FHWA guidelines and practices for subsurface investigations. Topics addressed in the course include exploration equipment and methods, safety, borehole sealing, drilling and sampling requirements and criteria, proper visual classification and description of soils and rocks, common drilling errors, and dealing with difficult subsurface site conditions. A 2-hour qualification exam is administered at the end of the course.

Outcomes

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

- Explain the investigation specialist's general role and duties, as well as the importance of coordination and communication with the field personnel and engineers
- Explain the purpose of geotechnical subsurface investigations and why adequate, consistent, and quality investigations are essential
- Identify the major components of the typical subsurface investigation plan
- Identify common drilling rigs, uses, and components
- Explain the importance of accurate borehole logging and documentation
- Describe the importance of accurate groundwater investigations
- Discuss safety issues involving operation of a drill rig

Target Audience

The target audience for this course includes drillers, drilling inspectors, engineers, geologists, and technicians involved in field data collection and quality assurance of subsurface investigations.

Training Level: Intermediate

Fee: 2013: $740 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132080

Course Title

Inspection of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes

This course is part of a series to develop a training and qualification/certification program for geotechnical field inspectors. Topics addressed in the course include the types and durability of mechanically stabilized earth walls (MSEWs) and reinforced soil slopes (RSS); construction methods and sequences; alignment control; methods of fill and compaction control; plans, specifications, and the geotechnical report; shop drawings; and safety. A 2-hour qualification exam is administered at the end of the course.

Outcomes

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

- Identify the basic MSEW and RSS types and design philosophy
- Explain the role and duties of the MSEW and RSS inspector
- Identify current practices for constructing MSE structures
- Define key inspection elements for MSEWs and RSS contract documents to assure compliance
- Explain the logical steps to ensure proper communication with engineers and field personnel
- Understand the steps for MSEW and RSS construction

Target Audience

The target audience for this course includes inspectors (novice to senior level), engineers, geologists, and technicians involved in field data collection and quality assurance for MSEWs and RSS structures. In addition, managers; specification and contracting specialists; bridge/structure, geotechnical and roadway design engineers; and engineering geologists interested in construction aspects of MSEWs and RSS structures are encouraged to attend.

Training Level: Intermediate

Fee: 2013: $740 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132081

Course Title

Highway Slope Maintenance and Slide Restoration

As focus changes toward the asset management of our existing infrastructure, the value of maintaining and managing our embankment and cut slopes becomes more apparent. This course provides the essentials to slope maintenance and slide restoration for transportation field personnel with an asset management perspective. This course is not meant to be highly technical, and explains ¿ conceptually and in layman's terms ¿ the conditions and factors affecting slope movement, stability and deterioration, and the cost considerations of maintenance, stabilization and of slope failures. The course also provides the fundamental aspects of slope management systems and discusses the rationale of slope management considering the legal implications of slope failures and rock fall.

Outcomes

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

- Discuss common soil and rock slope movement and instability
- Describe common factors and conditions under which slopes deteriorate and become less stable
- Describe the affects of earth material properties on slope stability
- Discuss the influences of water on slope stability
- Identify failure-prone conditions
- Describe the importance of necessary communication and coordination with geotechnical specialists
- Discuss best maintenance practices
- Discuss methods of slope monitoring
- Describe key components of slope management systems
- Recognize common soil and rock slope stabilization techniques
- Compare cost differences between preventative measures for slope maintenance and slide restoration and costs associated with slope failures
- Discuss legal implications of slope failures, rock fall and management systems

Target Audience

The target audience for this course includes a wide range of transportation personnel consisting of Federal, State and local maintenance, geotechnical, operations and asset management engineers, geologists, managers, supervisors and personnel involved in assessing, maintaining, managing and repairing cut-slopes, fill-slopes and associated features. Although the potential audience of this course is wide-ranging, the course is primarily provided for the State maintenance specialists.

Training Level: Basic

Fee: 2013: $680 Per Person; 2014: N/A

Length: 2.5 DAYS (CEU: 1.5 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132082

Course Title

LRFD for Highway Bridge Substructures

This course expands the suite of FHWA services to assist State and local governments in the successful implementation of load and resistance factor design (LRFD). The course promotes the philosophy of the LRFD design platform, establishes the motivation for LRFD as a reassurance that safe design practices are being applied, and applies these principles to geotechnical design for bridge foundations. The course's PowerPoint slides and Participant Workbook are regularly updated and the course follows the latest American Association of State Highway Transportation Officials (AASHTO) "LRFD Bridge Design Specifications".

Major topics in this course include: loads, load distribution, and load combinations; principles of limit state designs; geotechnical spread footing design (soil and rock); driven pile and drilled shaft design (soil and rock); and substructure design and detailing for a cantilever abutment and hammerhead pier.

Structured as a combination of Instructor-led discussions and workshop exercises, this course includes LRFD theory applied to design examples and illustrates step-by-step LRFD design procedures. The training includes the extensive use of student exercises and example problems to demonstrate overall design, detailing, and construction principles addressed in the reference materials. The course also provides hands-on experience in the AASHTO LRFD design and detailing of bridge abutment and pier elements, deep and shallow foundation design, and earth retaining structures. Exercise and example problems are based on components of overall comprehensive bridge design examples using AASHTO LRFD and provide comparisons between ASD, LFD, and LRFD design methods.

Outcomes

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

- Define AASHTO LRFD limit states and compute structural and geotechnical design loads
- Apply AASHTO LRFD criteria for design
- Integrate the AASHTO LRFD specification provisions into the host agency's current practice
- Integrate the geotechnical aspects of LRFD foundation design into LRFD structural design

Target Audience

Bridge, geotechnical, and transportation engineers with 0-20 years of experience who are responsible for the design and construction of bridge substructures on surface transportation facilities may benefit from this course.

Training Level: Intermediate

Fee: 2013: $900 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132083

New Training WCT

Course Title

Implementation of LRFD Geotechnical Design for Bridge Foundations

The Implementation of Load and Resistance Factor Design (LRFD): Geotechnical Design for Bridge Foundations is a Web-conference training (WCT) that is designed to assist transportation agencies with the successful development of LRFD Design Guidance for bridge foundations. The training follows the 2010 American Association of State Highway Transportation Officials (AASHTO) LRFD Bridge Design Specifications, Fifth Edition, while incorporating local experiences of design engineers and various transportation agencies. The course is presented in two sessions with a variety of interactive discussions and exercises to verify achievement of learning objectives.

The training introduces a step-by-step procedure for implementing the LRFD platform and provides recommendations to assist transportation agencies in implementing these steps. It also highlights principal changes in the AASHTO design specifications regarding the transition from allowable stress design (ASD) to LRFD and discusses options for selecting LRFD design methods.

Outcomes

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

- Describe an LRFD implementation plan for development of LRFD guidance
- List and discuss the principal changes between ASD and LRFD
- Identify, implement, and compare three options for selection of LRFD Geotechnical Design Methods
- Calibrate resistance factors (f) by fitting to ASD methods
- Summarize the procedure for and evaluate results of reliability calibration of f
- List the conditions to adhere to when using AASHTO's LRFD design methods
- Select conditions for development of local LRFD geotechnical design methods
- Evaluate and address project site variability
- Recall the advantages of development of local LRFD geotechnical design methods through reliability calibration
- Describe a road map for the development of LRFD Design Guidance for bridge foundations

Target Audience

The Implementation of LRFD Geotechnical Design for Bridge Functions WCT is intended for State DOT engineers who are involved with the development of LRFD specifications for foundations, or who manage and conduct LRFD geotechnical research studies, or who are involved with LRFD design of bridge foundations. All intended learners are expected to have completed NHI Course 130082 or have equivalent knowledge of AASHTO LRFD Specifications for structural foundation, and are expected to be familiar with AASHTO Standard Specifications (ASD) design methods for foundations.

Training Level: Basic

Fee: 2013: $50 Per Person; 2014: N/A

Length: 4 HOURS (CEU: .4 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132084

New Training WBT

Course Title

Geotechnical Subsurface Exploration - WEB-BASED

The Subsurface Explorations Web-based Training course will provide transportation engineers with a basic knowledge and understanding of subsurface exploration programs for design and construction of structure foundations, walls, and other geotechnical features. Properly conducted subsurface exploration programs are an essential part of geotechnical engineering, and are a critical step in understanding soil and rock properties necessary for design.

The course covers a range of topics related to subsurface exploration programs including earth materials, subsurface conditions, geophysical methods, drilling methods and equipment, soil and rock sampling methods, in-situ testing, and groundwater investigation. Upon completion of this course, participants will be able to apply basic geotechnical engineering principles and sound geotechnical methods to transportation projects.

Outcomes

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

- Identify the key geotechnical considerations associated with typical transportation projects
- Describe the recommended process for characterizing subsurface conditions
- Identify the primary types of geophysical methods
- Identify types of drilling methods and equipment
- Identify types of soil and rock sampling methods
- Explain the purpose of in-situ tests and energy-efficiency parameters
- Explain the purpose of doing a groundwater investigation
- Describe minimum guidelines for the geotechnical investigation of both roadway and structure sites

Target Audience

The course is intended for transportation engineers and geotechnical specialists who are involved with the planning, design, and construction of surface transportation facilities. The course will be oriented toward those professionals who routinely deal with soils and foundations issues but who may have little theoretical background in soil mechanics or foundation engineering.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132089

Course Title

TCCC Earthwork Series: Earth Materials as Engineering Materials - WEB-BASED

The Earth Materials as Engineering Materials is part of the Earthwork Series. This training is an overview of the basic properties of earth materials or soil and their engineering properties as they relate to construction. Soil is the product of mechanical and chemical weathering of rocks. Most naturally occurring soils consist of a mixture of assorted grains of different sizes and shapes.

This course consists of five lessons. The lessons include components and types of soil, soil description and classification, engineering characteristics, process of material verification, and preliminary inspector responsibilities. The course discusses the Atterberg Limits, which include shrinkage limits, liquid limits, plastic limits, and plastic index. These are the four basic measures of the nature of fine-grained soil. This is an interactive training that covers all areas thoroughly, including questions to ensure the participant understands the materials.

Outcomes

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

- Identify the components and types of soil
- Identify the soil characteristics that effect engineering performance
- Recognize the differences between description and classification of soil
- Explain the processes of soil verification
- Recognize preliminary inspector responsibilities as a part of contract specifications

Target Audience

This training is targeted to both agency and industry technicians that will be using earth materials as engineering materials on an earthwork project. This training is beneficial to anyone working on the project but is targeted to the intermediate to advanced technician. This training is recommended for the Transportation Curriculum Coordination Council levels II through IV.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132090

New Training WBT

Course Title

TCCC Earthwork Series: Site Preparation - WEB-BASED

Site Preparation is one of the modules included in the Earthwork Series. This module of the series is designed to help inspectors understand responsibilities of preparing the site for the start of the construction process. This would include clearing and grubbing, utility relocation, and inspector responsibilities.

The first lesson of this module will define clearing, grubbing, and scalping of the site and cover the plan notes. The second lesson covers utility location. It will define the main utility groups and utility relocation types and will discuss preparation and staking procedures. This lesson also discusses the need for traffic control during the relocation process. The last lesson covers the inspector's role during the utility new and relocation process. This lesson covers backfilling and compaction, utility conflicts, and documentation responsibilities. This course will assist the inspector in making sure the site is prepared according to specifications and in a safe environment.

Outcomes

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

- Define clearing and grubbing responsibilities
- Understand the processes involved during utility relocation
- Identify the inspector responsibilities during site preparation

Target Audience

This training is targeted to both agency and industry technicians that will be performing site preparation inspection on an earthwork project. This training is recommended for the Transportation Curriculum Coordination Council levels II through IV. This training is beneficial to anyone working on the project but is targeted to the intermediate to advanced technician.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132091

New Training WBT

Course Title

TCCC Earthwork Series: Grades and Grading - WEB-BASED

Grades and Grading is the third part of the Earthwork five part series. It is designed to prepare technical front-line workers for what they can expect to see during actual project inspection. Topics covered include an overview of the plans that pertain to earthwork and earthwork quantities, grade stakes that will be encountered and their meanings, how Global Positioning System (GPS) works and its functions in the field, and verifying and documenting grade information.

The introductory lesson covers an overview of the plan sheets that deal with earthwork and earthwork quantities, topographical images and their meaning, stationing and control points, and profile/section sheets. The second section covers the typical grade stakes used throughout a project and their meaning. The GPS section discusses the history of GPS in construction and how it relates to current projects. And the final section covers how to verify the grade and what information is needed in the documentation from the inspector.

This course provides the front-line technical inspector with the proper tools to assure that the project is built on a stable platform.

Outcomes

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

- Describe the process of plan reading
- Identify the purpose of grade stakes
- Explain how Global Positioning System (GPS) works
- Describe requirements for grade verification and documentation

Target Audience

This training is designed for intermediate to advanced technicians who perform site preparation inspection on earthwork projects. The training was developed by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI and is recommended for TCCC levels II through IV.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 3.5 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-132094

Course Title

LRFD Seismic Analysis and Design of Transportation Structures, Features, and Foundations

This course is a comprehensive and practical training course for analysis and design of transportation geotechnical features including soil and rock slopes, earth embankments, retaining walls, MSE walls, and buried structures; and bridge structural foundations including shallow and deep foundations, and abutment walls. It is developed in consideration of the requirements and recommendations of the seismic provisions in both the 2009 AASHTO LRFD Bridge Design Specifications and the AASHTO Guide Specifications for LRFD Seismic Bridge Design, the Final Report from NCHRP Project 12-70 "Seismic Analysis and Design of Retaining Walls, Buried Structures, Slopes, and Embankments", and 2006 FHWA Seismic Retrofitting Manual for Highway Structures.

In addition, the course reviews the fundamental principles including engineering seismology, earthquake hazard analysis, site characterization, ground motion characterization, and site response analysis, and highlight updated topics such as the 1000-yr USGS hazard map; updated AASHTO site classes/factors and spectral shapes; the "3-Point" Design Spectrum Construction method; derivation of the relative displacement spectrum; and regional differences in ground motion characteristics (i.e. western US (WUS) characteristics versus central and eastern US (CEUS). It addresses geotechnical hazards which can adversely impact bridges and other transportation structures and features during seismic event including slope instability, soil liquefaction, ground settlement, and fault Rupture. Liquefaction-induced lateral spread failures are also addressed.

Outcomes

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

- Recognize sources of primary and secondary damage due to earthquakes
- Describe the AASHTO seismic design philosophy
- Describe the input for a seismic hazard analysis and interpret the output for a bedrock site condition
- Develop an AASHTO acceleration response spectra and adjust it for local site conditions
- Estimate the residual undrained shearing resistance of liquefied sand
- Develop the input for an equivalent linear seismic site response analysis
- Determine the appropriate seismic coefficient for a pseudo static slope stability analysis and calculate the permanent seismic displacement of an unstable soil slope
- Evaluate the potential for liquefaction triggering and consequences
- Identify potential mitigation measures for slope instability, liquefaction and lateral spreading
- Evaluate external stability of gravity and semi-gravity walls subject to seismic loading
- Discuss types of soil-foundation-structure interaction and how its effects are modeled
- Evaluate the geotechnical and structural capacity of a spread footing
- Identify the primary capacity considerations for deep foundations under seismic loading
- Develop the abutment spring stiffness relationship

Target Audience

This course is intended to engage a target audience of bridge and geotechnical engineers with zero and up to 20 years of experience through instructor-led presentations, discussions, Q&A, group activities, walkthrough examples, hands-on student exercises, and demonstrations.

Training Level: Basic

Fee: 2013: $1200 Per Person; 2014: N/A

Length: 5 DAYS (CEU: 3 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135046

Course Title

Stream Stability and Scour at Highway Bridges

The National Highway Institute's (NHI) 3-day Stream Stability and Scour at Highway Bridges course provides participants with comprehensive training in the prevention of hydraulic-related bridge failures. Course participants will receive training in conducting a stream stability classification and qualitative analysis of stream response and make estimates of scour at a bridge opening.

Material for the course comes primarily from two Hydraulic Engineering Circulars (HEC), "Evaluating Scour at Bridges" (HEC-18), 5th Edition (2012), and "Stream Stability at Highway Structures" (HEC-20), 4th Edition (2012). The effects of stream instability, scour, erosion, and stream aggradation and degradation are covered. Quantitative techniques are provided for estimating long-term degradation and for calculating the magnitude of contraction scour in a bridge opening. Procedures for estimating local scour at bridge piers and abutments for simple and complex substructures are also provided. A comprehensive workshop integrates qualitative analysis and analytical techniques to determine the need for a Scour Plan of Action for correcting stream instability and scour problems. For this 3-day course, the host agency will need to select 3 optional topics (out of 8 possible topics). Course instructors will contact the host prior to the course to complete a pre-course questionnaire, determine optional topics to be taught, and discuss the course schedule.

This comprehensive training provides preventive techniques for identifying, analyzing, and calculating various hydraulic factors that impact bridge stability. Public and private sector engineers responsible for maintaining the integrity of highway bridges will find it invaluable.

Prior to the beginning of the course, participants are strongly encouraged to enroll in the following Web-based training (WBT) courses: 135091 Basic Hydraulic Principles Review, 135086 Stream Stability Factors and Concepts, and 135087 Scour at Highway Bridges: Concepts and Definitions. Mastery of the concepts covered in these WBTs will enhance participation in the Instructor-led training.

Outcomes

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

- Identify indicators of stream instability that can threaten bridges
- Identify stream types and their potential for instability problems
- Describe open-channel hydraulics concepts in bridge scour and stream instability analyses
- Define types of scour that can occur at bridge crossings
- Describe aggradation, degradation, and contraction scour
- Calculate contraction scour for live bed and clear water conditions
- Describe factors that influence scour at piers
- Calculate pier scour for three typical case studies
- Describe the factors that influence scour at abutments
- Describe how HEC-18, HEC-20, and HEC-23 provide analysis procedures for stream instability and bridge scour
- Perform Level I and II analyses
- Classify a stream using two different classification systems
- Conduct a qualitative analysis of stream responses
- Apply the HEC-18 scour equations to determine total scour at a bridge
- Determine the need for a Scour Plan of Action at a scour-critical bridge

Target Audience

Federal, State, and local highway hydraulic, structural, and geotechnical engineers as well as bridge inspectors responsible for maintaining the integrity of highway bridges against possible hydraulic-related problems. Consultants who perform bridge engineering work are encouraged to attend.

Training Level: Intermediate

Fee: 2013: $720 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135048

Course Title

Countermeasure Design for Bridge Scour and Stream Instability (2.5-Day)

This course provides an overview of countermeasures to highway related failures from the effects of stream instability, scour, erosion, and stream aggradation and degradation problems. Material for the 2.5-day course comes primarily from Hydraulic Engineering Circular (HEC) "Bridge Scour and Stream Instability Countermeasures - Experience, Selection, and Design Guidance" (HEC-23).

Given a stream instability and scour problem, participants will select appropriate countermeasures to correct the problem. The course provides training in recommended strategies for developing a plan that includes appropriate countermeasures, including alternatives to conventional riprap and filter design.

Participants will apply hydraulics analysis techniques to countermeasure design for seven design guideline workshops. The course provides an introduction to fixed and portable instrumentation for scour monitoring using slides and video demonstrations. Participants will receive training in designing a monitoring program to reduce the risk from scour.

NHI Course 135046 provides training in identifying and analyzing stream instability and scour problems at highway bridges and is recommended as a prerequisite for this course.

NHI Courses #135086 and #135087 are Web-based training module and are prerequisites for NHI Hydraulics courses 135047 and 135048.

Outcomes

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

- Develop a plan of action for a scour critical bridge
- Propose countermeasures for stream instability and scour problems
- Identify countermeasures for bridge scour and stream instability using the HEC-23 countermeasures matrix
- Design selected countermeasures with HEC-23 design guidelines

Target Audience

Federal, State, and local highway hydraulic, structural, and geotechnical engineers and bridge inspectors responsible for maintaining the integrity of highway bridges against possible hydraulic-related problems. Consultants who do bridge engineering work are also encouraged to attend.

Training Level: Intermediate

Fee: 2013: $655 Per Person; 2014: N/A

Length: 2.5 DAYS (CEU: 1.5 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133028

Course Title

Traffic Signal Design and Operation

There is a need to understand that the congestion and delays that exist on our streets and roadways can be better managed with a thorough understanding of effective traffic signal timing and optimization. Well-developed, designed, implemented, maintained, and operated traffic signal control projects are essential to this process. Engineering tools are available to design, optimize, analyze, and simulate traffic flow. This course addresses the application of the "Manual of Uniform Traffic Control Devices" (MUTCD) to intersection displays, as well as signal timing, computerized traffic signal systems, control strategies, integrated systems, traffic control simulation, and optimization software. The course is divided into two primary parts: Traffic Signal Timing and Design, and Traffic Signal Systems.

Outcomes

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

- List the steps required to plan, design, and implement a signalized intersection
- Devise an appropriate data collection plan for planning, designing, and operating a signalized intersection
- Perform a warrant analysis using the MUTCD warrants, including local policies
- Design basic phasing of the intersection - which movements will get a separate phase, and how they are numbered
- Calculate signal timing at the design stage for both actuated and coordinated operational strategies, including pedestrian clearance intervals
- Determine location of signal displays
- Select signal-related signs and pavement markings, including turning-movement signs and advance warning signs

Target Audience

Traffic engineering personnel from State, Federal, and local agencies involved in planning, design, operation or maintenance of traffic signals or traffic signal systems. The course will not assume any prior knowledge of computers and thus will describe the theory of operation and the manner in which it can be applied to traffic signal controls.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133072

Course Title

High Occupancy Vehicle (HOV) Facilities (3-Day)

The HOV Facilities training course will provide participants with a general appreciation and understanding of the key policies, technical, and other issues to consider in the planning, design, implementation, management, operation, and marketing of HOV facilities. HOV facilities are a proven and viable operational strategy to help move more people along congested urban and suburban routes. HOV facilities are a strategy to assist public agencies and transportation services providers to address the identified mobility, safety, productivity, environmental, and quality of life needs in metropolitan areas. The technical reference for this course is the NCHRP Report 414: HOV Systems Manual.

Outcomes

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

- Identify and discuss the concepts, goals and benefits of HOV facilities.
- Describe the public involvement and marketing techniques that may be appropriate in the planning, design, or operation of an HOV facility or system.
- Identify the different types of freeway and arterial HOV facilities, their operational characteristics, and the conditions where they may be successful.
- Identify the primary stakeholders involved with HOV systems along with the key policies, institutional issues, and interest to integrate into the planning, development, implementation, and operation of HOV facilities.
- Identify the major types of vehicles expected to use an HOV facility or regional system and the key operational characteristics to consider.
- Discuss the range of studies, methodologies, tools, and analysis appropriate to use in planning individual HOV facilities or a regional HOV system.
- Discuss the key roadway, operational, and enforcement issues to consider in the planning, design, and implementation phases of HOV facilities.

Target Audience

Traffic engineers, transportation planners, roadway design engineers, transportation managers/supervisors, transit planners, transit managers/supervisors, and public information specialists who are involved in the planning, design, management, operations, and marketing of an HOV system. Pre-training Competencies: Individuals attending this course should have a basic understanding of traffic engineering or transportation planning principles, along with an appreciation of the elementary concepts of traffic management strategies, traffic flow theory, roadway improvement planning, project design processes, public outreach and marketing.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133072A

Course Title

High Occupancy Vehicle (HOV) Facilities (3.5-Day)

The HOV Facilities training course will provide participants with a general appreciation and understanding of the key policies, technical, and other issues to consider in the planning, design, implementation, management, operation, and marketing of HOV facilities. HOV facilities are a proven and viable operational strategy to help move more people along congested urban and suburban routes. HOV facilities are a strategy to assist public agencies and transportation services providers to address the identified mobility, safety, productivity, environmental, and quality of life needs in metropolitan areas. In the 3.5 day course additional emphasis will be placed on the unique elements of arterial streets, the agencies and groups typically associated with arterial HOV facilities, and the various types of arterial HOV facilities and traffic signal treatments. This course will also describe typical arterial HOV lane designs and the issues likely to be encountered during the design process. The technical reference for this course is the NCHRP Report 414: HOV Systems Manual.

Outcomes

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

- Identify and discuss the concepts, goals and benefits of HOV facilities.
- Describe the public involvement and marketing techniques that may be appropriate in the planning, design, or operation of an HOV facility or system.
- Identify the different types of freeway and arterial HOV facilities, their operational characteristics, and the conditions where they may be successful.
- Identify the primary stakeholders involved with HOV systems along with the key policies, institutional issues, and interest to integrate into the planning, development, implementation, and operation of HOV facilities.
- Identify the major types of vehicles expected to use an HOV facility or regional system and the key operational characteristics to consider.
- Discuss the range of studies, methodologies, tools, and analysis appropriate to use in planning individual HOV facilities or a regional HOV system.
- Discuss the key roadway, operational, and enforcement issues to consider in the planning, design, and implementation phases of HOV facilities.

Target Audience

Traffic engineers, transportation planners, roadway design engineers, transportation managers/supervisors, transit planners, transit managers/supervisors, and public information specialists who are involved in the planning, design, management, operations, and marketing of an HOV system. Pre-training Competencies: Individuals attending this course should have a basic understanding of traffic engineering or transportation planning principles, along with an appreciation of the elementary concepts of traffic management strategies, traffic flow theory, roadway improvement planning, project design processes, public outreach and marketing.

Training Level: Basic

Fee: 2013: $550 Per Person; 2014: N/A

Length: 3.5 DAYS (CEU: 2.1 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133075

Course Title

Freeway Management and Operations (2-Day)

This course provides participants with an appreciation of the key policies, institutional issues, challenges and barriers, and technical and other issues to consider in the planning, design, implementation, management, operation, evaluation, and marketing of freeway facilities. The course is based upon the "Freeway Management and Operations Handbook," September 2003 (FHWA-OP-04-003, EDL No.: 13875). Unlike the 3-day course, which covers all of the information in the handbook, the 2-day course allows a host to tailor the course to the particular needs of the participants. The 2-day course covers nine core sessions and three optional sessions selected from the following list:

Roadway and Operational Improvements

Ramp Management and Control

Lane Management and Control

HOV Systems

Traffic Incident Management

Planned Special Events

Information Dissemination

Information Sharing and Integrations

Communication Media

Outcomes

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

- Describe the purpose of freeway facilities and the role they serve in relation to the surface transportation system
- Identify the types and causes of congestion on freeway facilities
- Describe the relationship between a public agency's traffic operations program and the activities involved in managing and controlling traffic on freeway facilities
- Describe the value of monitoring, evaluating, and reporting on the performance of freeway facilities
- Identify the range of functions and elements of a transportation management system
- List detection and surveillance techniques used to support freeway management and operations activities
- Depending upon the optional sessions selected for the 2-day course, participants will be able to:
- Compare the potential to improve traffic flow between roadway improvements vs. shorter-term, lower-cost, operational improvements on freeway facilities
- Describe the range of ramp management and control strategies and the conditions under which they might be warranted
- Describe the range of lane management and control strategies and the conditions under which they might be warranted
- Describe the significance of high occupancy vehicle (HOV) lanes as a strategy for improving the performance of freeway facilities
- Identify activities associated with responding to a traffic incident
- List strategies for mitigating the impacts associated with planned special events
- Define travel information, 511 service, pre-trip, and en-route travel condition information
- Describe the significance of sharing or not sharing information and key issues to consider when establishing and maintaining an interface to electronically share information (voice, data, and video)
- Identify key similarities and differences between communications alternative to meet the varied needs of freeway management and operations activities

Target Audience

This course is designed for professionals engaged in any aspect of planning, design, implementation, management,

evaluation, enforcement, operation, or marketing of freeway facilities and should be considered as an introductory course for individuals with limited or no experience in traffic management or freeway management. This course is also of value to individuals whose experience is concentrated in one area of freeway operations as the course exposes participants to the wide array of freeway management activities. Participants could include traffic engineers and technicians, transportation planners, roadway design engineers and technicians, construction and maintenance engineers and technicians, managers/supervisors, transit planners, traffic management center (TMC) staff, and public information specialists from public agencies, consultants and contractors, and colleges and universities.

TRAINING LEVEL: Intermediate

FEE: 2013: $400 Per Person; 2014: N/A

LENGTH: 2 DAYS (CEU: 1.2 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133075A

Course Title

Freeway Management and Operations (3-Day)

This training course provides participants with an appreciation of the key policies, institutional issues, challenges and barriers, and technical and other issues to consider in the planning, design, implementation, management, operation, evaluation, and marketing of freeway facilities. The 3-day course is divided into 18 sessions, based upon the information presented in the "Freeway Management and Operations Handbook," September 2003 (FHWA-OP-04-003, EDL No.: 13875).

Outcomes

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

- Describe the purpose of freeway facilities and the role they serve related to the surface transportation system
- Identify types and causes of congestion on freeway facilities
- Describe the relationship between a public agency's traffic operations program and the activities involved in managing and controlling traffic on freeway facilities
- Describe the value of monitoring, evaluating, and reporting on the performance of freeway facilities
- Compare the potential to improve traffic flow between roadway improvements vs. shorter-term, lower-cost, operational improvements on freeway facilities
- Describe the range of ramp management and control strategies and the conditions under which they might be warranted
- Describe the range of lane management and control strategies and the conditions under which they might be warranted
- Describe the value of high occupancy vehicle (HOV) lanes as a strategy for improving the performance of freeway facilities
- Identify activities associated with responding to a traffic incident
- List strategies for mitigating the impacts associated with planned special events
- Define travel information, 511 service, pre-trip, and en-route travel condition information
- Identify the range of functions and elements of a transportation management system
- Describe the importance of sharing information and key issues to consider when establishing and maintaining an interface to electronically share information (voice, data, and video)
- List detection and surveillance techniques used to support freeway management and operations activities
- Identify key similarities and differences between communications alternatives to meet the varied needs of freeway management and operations activities

Target Audience

This course is designed for professionals engaged in any aspect of the planning, design, implementation, management, evaluation, enforcement, operation, or marketing of freeway facilities and should be considered as an introductory course for individuals with limited or no experience in traffic management or freeway management. This course is also of value to individuals whose experience is concentrated in one area of freeway operations as the course exposes participants to the wide array of freeway management activities. Participants could include traffic engineers and technicians, transportation planners, roadway design engineers and technicians, construction and maintenance engineers and technicians, managers/supervisors, transit planners, traffic management center (TMC) staff, and public information specialists from public agencies, consultants and contractors, and colleges and universities.

TRAINING LEVEL: Intermediate

FEE: 2013: $500 Per Person; 2014: N/A

LENGTH: 3 DAYS (CEU: 1.8 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133078

Course Title

Access Management, Location and Design

This course has received a major update and improvements. The biggest change is that all participants will receive the TRB Access Manual for use in the class and reference after the training. NHI is providing 30 TRB Access Manuals per class and charging the host for these at our cost - $40 per copy. If there are excess manuals those are to be retained by the host. Each host will be charged a flat fee of $1,200 for the manuals (30 x $40) to allow NHI to recoup only our purchase costs.

This course covers the complex technical issues that underlie effective access management practices on streets and highways and provides the technical rationale for proper signal spacing, driveway spacing and design, the application and design of auxiliary lanes. "Before" and "after" case studies illustrate the impacts of projects to improve traffic safety and operations. In addition, the course addresses the issues involved in developing and administering an effective access management program. The course references the state-of-the-practice as presented in the Transportation Research Board's 2003 Access Management Manual, the latest edition of AASHTO's A Policy on Geometric Design of Highways and Streets (Green Book), and pertinent NCHRP reports. In summary, this training provides a lasting reference and specific applications of techniques and practices that will enable transportation engineering and planning personnel to implement successful access management strategies and programs. All participants will receive the class notebook and a copy of the TRB Access Management Manual.

Outcomes

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

- Discuss the impact of access on highway safety and operations
- Choose access management techniques to mitigate challenges
- Identify practices needed for implementing access management programs

Target Audience

This course targets transportation and planning professionals involved in traffic operations, roadway design, the planning of circulation systems, and land development. Specifically, the course is designed for those individuals directly involved in implementing access management solutions in their jurisdictions, as it focuses heavily on resources and solutions to reduce the impact of access points on traffic flow.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133099

Course Title

Managing Travel for Planned Special Events (2-Day)

The Rose Bowl, the Macy's Day Parade, and the Nation's numerous marathons, golf tournaments, and county fairs are just some of the planned special events that are held throughout the country every year. Managing travel to these and other events will allow event patrons to enjoy themselves from the moment they leave home. In addition, a well-designed transportation plan for these events accommodates the needs of the nearby residents and businesses.

This course provides practitioners with a working knowledge of the techniques and strategies they may wish to use for the successful planning and operation of a specific planned special event. Practitioners will gain an understanding of the collective tasks facing multidisciplinary and inter-jurisdictional stakeholder groups charged with developing and implementing solutions to acute and system-wide impacts on travel during a special event. Instructors will identify all potential tasks and stakeholder activities conducted within individual phases of managing planned special events.

This course will refer to FHWA's Managing Travel for Planned Special Events Handbook and guide participants on how to apply key concepts in the handbook. The handbook in CD format is provided with the course materials.

The 2-day version of the course will guide practitioners through all the phases of managing travel for planned special events for a specific event category, based upon an event scenario defined by the course participants. In addition, the goal of the 2-day course and group exercises is to meet the participant's needs in planning and managing a similar future event for a specific locale. Course participants will identify and apply pertinent planning steps, operations activities, and associated considerations in developing an action plan for the defined planned special event scenario.

This course is part of the Certificate of Accomplishment in Incident Management. To learn more about how you can achieve a certificate in Incident Management visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Outcomes

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

- Name the main categories of planned special events
- State key phases of managing travel for planned special events
- Identify the goals of managing travel for planned special events
- Describe the benefits of proactively managing travel for planned special events
- Describe the purpose and value of an action plan for managing travel for a specific planned special event
- List key components of an action plan
- Identify key factors that influence the potential effect a planned special event may have on the performance of the surface transportation system
- List key components of a traffic management plan
- State opportunities or sources where resources could be obtained to initiate activities identified in a planned special event travel management action plan
- Name near-term or short-term actions that are priorities in a planned special event travel management action plan
- State potential activities involved with the implementation of a traffic management plan for a planned special event
- Name key activities performed by the traffic management team on the day of the event
- Explain how post-event activities may improve the management of travel for future planned special events

Target Audience

Transportation agencies that will be involved in developing the plans and implementing transportation management plans for upcoming events.This course and the corresponding workshop are designed for any individual engaged in or responsible for directing agency resources related to the following five key phases associated with managing travel for planned special events: (1) program planning, (2) event operations planning, (3) implementation activities, (4) day-of-event activities, and (5) post-event activities. This is an introductory course and workshop for individuals with limited or no experience with applying the recommended concepts and techniques in all of the phases involved with

managing travel for planned special events. Participants could include traffic engineers and technicians, transportation planners, managers/supervisors, transit planners and operations supervisors, transportation management center staff, law enforcement personnel, public safety transportation coordinators (e.g., fire, emergency medical types of personnel, etc.), public information specialists, event operators (e.g., parking management, traffic control, etc.), emergency management personnel, consultants, and post-secondary students and faculty.

TRAINING LEVEL: Basic

FEE: 2013: $400 Per Person; 2014: N/A

LENGTH: 2 DAYS (CEU: 1.2 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133099A

Course Title

Managing Travel for Planned Special Events (1-Day)

The Rose Bowl, the Macy's Day Parade, and the Nation's numerous marathons, golf tournaments, and county fairs are just some of the planned special events that are held throughout the country every year. Managing travel to these and other events will allow event patrons to enjoy themselves from the moment they leave home. In addition, a well-designed transportation plan for these events accommodates the needs of the nearby residents and businesses.

This course provides practitioners with a working knowledge of the techniques and strategies they may wish to use for the successful planning and operation of a specific planned special event. Practitioners will gain an understanding of the collective tasks facing multidisciplinary and inter-jurisdictional stakeholder groups charged with developing and implementing solutions to acute and system-wide problems affecting travel during a special event. Instructors will identify all potential tasks and stakeholder activities conducted within individual phases of managing planned special events. The course will refer to FHWA's Managing Travel for Planned Special Events Handbook and guide participants on how to apply key concepts in the handbook. The handbook in CD format is provided with the course materials.

NOTE: See FHWA-NHI-133099 for the 2-day version of the course, which will provide scenario-based exercises and practices in a workshop format.

Outcomes

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

- Name the main categories of planned special events
- State key phases of managing travel for planned special events
- Identify the goals of managing travel for planned special events
- Describe the benefits of proactively developing plans designed to manage travel for planned special events
- Describe the purpose and value of an action plan for managing travel for a specific planned special event
- List key components of an action plan
- Identify key factors that influence the potential effect a planned special event may have on the performance of the surface transportation system
- List key components of a traffic management plan

Target Audience

This course and the 2-day workshop are designed for any individual engaged in or responsible for directing agency resources related to the following five key phases associated with managing travel for planned special events: (1) program planning, (2) event operations planning, (3) implementation activities, (4) day-of-event activities, and (5) post-event activities. The 1-day introductory course is for individuals with limited or no experience with applying the recommended concepts and techniques in all of the phases involved with managing travel for a planned special event. Participants could include traffic engineers and technicians, transportation planners, managers/supervisors, transit planners and operations supervisors, transportation management center staff, law enforcement personnel, public safety transportation coordinators (e.g., fire, emergency medical personnel, etc.), public information specialists, event operators (e.g., parking management, traffic control, etc.), emergency management personnel, consultants, and post-secondary students and faculty.

Training Level: Basic

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133101

Course Title

Using the Incident Command System at Highway Incidents

Using the Incident Command System at Highway Incidents is a two-day course designed to assist novice practitioners, particularly representatives of transportation organizations and towing and recovery, obtain a working knowledge of the Incident Command System (ICS) management system and how it applies to managing highway incidents. As a training tool, this course assists agencies, jurisdictions, and regions in achieving compliance with Homeland Security Presidential Directive-5 (HSPD-5), Management of Domestic Incidents. HSPD-5 requires all Federal departments and agencies to make adoption of the National Incident Management System (NIMS) by State, tribal, and local organizations a condition for Federal preparedness assistance beginning in FY 2005. This course specifies the framework governing ICS organization and operations as presented in NIMS. The course also incorporates guidelines and procedures for establishing each of the major functional areas and associated elements of the ICS organization in addition to key perspectives of the public safety community, as described in the Model Procedures Guide for Highway Incidents by the National Fire Service Incident Management System Consortium.

This course is part of the Certificate of Accomplishment in Incident Management. To learn more about how you can achieve a certificate in Incident Management visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Outcomes

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

- Describe advance planning initiatives supporting ICS implementation
- Identify ICS functional areas and associated organizational elements within each area
- Contrast methods for performing the ICS Command function
- List steps facilitating Incident Action Plan development and ICS implementation
- Plan using ICS concept of operations
- Use ICS to provide resources and services to other responding agencies

Target Audience

The Using the Incident Command System at Highway Incidents is a two-day course primarily targeted at Operations and Maintenance personnel from state and local Departments of Transportation and Public Works. More specifically: Incident Response Teams, Motorist Assistance Patrols, and Transportation Management Center Staff. The secondary audience for this course is Public Safety Responders. This includes: Police, Fire, Emergency Teams, Towing and Recovery Teams, and Hazardous Materials Response Teams.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133107

New Training WBT

Course Title

Principles of Evacuation Planning Tutorial

Principles of Evacuation Planning Tutorial (133107) is a Web-based asynchronous/independent training that provides an introductory overview of evacuation planning topics and common considerations. It covers the roles and responsibilities of local, regional, and state agencies involved in the evacuation process, while highlighting the importance of collaboration.

This course also presents current and emerging evacuation planning tools, methodologies, and trends, and offers insight into special considerations that evacuation planning stakeholders should take into account when designing, reviewing, or contributing to evacuation planning efforts. Emphasis is placed on multi-agency/jurisdictional planning as part of identifying effective practices used in the U.S.

This training was developed at the request of the FHWA Transportation Pooled Fund Study Security and Emergency Management Update and Request. The pooled fund study states are California, Florida, Georgia, Kansas, Mississippi, Montana, New York, Texas, and Wisconsin. In addition, the TSA is a member of the pooled fund study.

Outcomes

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

- Define evacuation planning from a transportation standpoint
- Describe how evacuation planning impacts local and state emergency management transportation operations
- Define the roles and responsibilities of local, regional, and state agencies
- List the benefits of working across agencies and localities to maximize the effectiveness of emergency planning efforts
- List evacuation planning considerations specific to Notice and No-Notice evacuations
- Describe other special considerations that evacuation planning stakeholders should take into account when executing evacuation plans
- Identify tools and methods for coordination and collaboration
- Identify current and emerging evacuation planning practices
- Describe effective emergency evacuation planning practices
- Explain the value of engaging other organizations and jurisdictions
- Identify resources available to emergency evacuation planning stakeholders and how to access them for further study

Target Audience

The Principles of Evacuation Planning Tutorial (133107) is designed for transportation and emergency planning stakeholders along with local leadership (e.g. local public and private emergency management stakeholders). This course also will be made available to a variety of other professionals with an interest in evacuation planning including Government jurisdictions below state level; transportation planners;metropolitan planning organizations; transportation planners (city/county); local emergency managers; transportation management center staff; state and local police planners; metro emergency planners; public works and public schools planners; and other contributing stakeholders.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: .5 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133108

New Training

Course Title

Planning and Managing Successful Applications of Traffic Analysis Tools

Planning and Managing Successful Applications of Traffic Analysis Tools (TAT) is a two-day insturctor-led course utilizing lecture and small-group collaborative exercises to train participants on how to use traffic analysis tools for transportation decision making. This course is designed to cover:

Appropriate roles for traffic analysis tools

Classes of analytical tools and their capabilities

Managing the application of traffic analysis tools to support transportation decision-making, including planning for analysis, data collection, model validation and using the model to evaluate competing project alternatives.

"Traffic analysis tools" is a collective term used to describe a variety of software-based analytical procedures and methodologies that support different aspects of traffic and transportation analyses. Traffic analysis tools include methodologies such as sketch-planning, travel demand modeling, traffic signal optimization, and traffic simulation.

The course provides an overview of how traffic analysis tools can be applied. The course includes lecture, full-group interaction, and small group activities. The purpose of the course is to provide participants with the basic tools and resources needed for effective use of traffic analysis tools as well as direction on where to go more information.

Outcomes

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

- Identify the need, scope, and role of traffic operations analysis
- Describe the project management process for traffic analysis
- Develop a fundamentally-sound and relevant analysis plan
- Describe role of statistics in calibration and alternatives analysis
- Identify impacts of study alternatives
- Interpret and communicate study results

Target Audience

A mix of experience with traffic analysis tools among participants is preferred. No prior experience with traffic analysis tools is required. The course is designed to promote interactions between participants. Therefore, the group is likely to benefit from a variety of viewpoints if participants have varied levels of analytical experience and diverse agency affiliations. The group may include:State Department of Transportation Staff (District Engineers, Corridor Planners, Project Eng., Traffic Eng., Environmental Eng.)FHWA staff (Division Staff, Transportation Engineers, Traffic Staff, Planners) Metropolitan Planning Organization Staff (Planners)Consultants

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 12; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133109

New Training

Course Title

Strategies Developing Work Zone Traffic Analyses

Strategies for Developing Work Zone Traffic Analyses is offered as a one-day instructor-led course utilizing lecture and small-group collaborative exercises to educate participants on how to develop effective transportation modeling strategies to support work zone-related decision-making. There is no hands-on computer based modeling work conducted in this course; rather it deals with developing analysis plans that combine people, data and tools to address work zone issues. The course is designed to cover:

Characterizing a work zone with respect to a prospective analysis

Classes of analytical tools and their capabilities within the context of work zones

Selecting an appropriate transportation modeling approach maximizing insight into potential impacts and mitigating technical risk

The course includes lecture, full-group interaction, and small group activities. The purpose of the course is three-fold. First, it will educate the participants regarding the constraints and opportunities of work zone analysis associated with available transportation modeling tools. Second, it will build familiarity for the participants with the various work zone factors influencing the development of a transportation analysis plan. Third, it will provide the participants with practical experience in developing analysis plans in a collaborative process considering issues ranging from work zone characteristics, performance measurement, technical risk assessment and resource constraints.

Outcomes

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

- Define the need, scope, and role of work zone modeling and analysis
- Describe the work zone analysis decision-making engine and the interactions among scheduling, application, and transportation management plan decisions
- Explain how to characterize a work zone
- Identify the transportation modeling approaches available for work zone analysis
- Discuss how a transportation modeling approach can be used given a set of work zone characteristics
- Justify the selection of transportation modeling approach

Target Audience

A mix of experience with traffic analysis tools and work zone planning among participants is preferred. No prior experience with traffic analysis tools is required. The course is designed to promote interactions between participants. Therefore, the group is likely to benefit from a variety of viewpoints if participants have varied levels of analytical experience and diverse agency affiliations. The group may include:State Department of Transportation Staff (District Engineers, Corridor Planners, Project Eng., Traffic Eng., Work Zone Planners)FHWA staff (Division Staff, Transportation Engineers, Traffic Staff, Planners)Metropolitan Planning Organization Staff (Planners)Consultants

Training Level: Basic

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 12; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133110

New Training WBT

Course Title

Strategies for Developing Work Zone Traffic Analyses (Web-Based)

Strategies for Developing Work Zone Traffic Analyses is an interactive Web-based training course that provides an overview of how traffic analysis tools can be applied specifically to work zone analysis problems. Traffic analysis tools represent various transportation modeling approaches such as sketch planning, travel demand modeling, and traffic simulation (microscopic, mesoscopic, and simulation approaches).

The purpose of this course is three-fold. First, it will educate the participants regarding the constraints and opportunities of work zone analysis associated with available transportation modeling approaches. Second, it will build familiarity with the various work zone factors influencing the selection of a transportation modeling approach. Third, it will provide the participants with practical experience in developing a transportation modeling approach in a collaborative process that considers issues ranging from work zone characteristics, performance measurement, technical risk assessment, and resource constraints. In conclusion, participants will be able to characterize a work zone and select and justify a transportation modeling approach based upon the work zone characterization.

Outcomes

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

- Define a role for work zone modeling
- Describe the work zone analysis decision-making engine
- Explain how to characterize a work zone
- Identify transportation modeling approaches
- Describe alternative transportation modeling approaches
- Justify selection of a transportation modeling approach

Target Audience

The Strategies for Developing Work Zone Traffic Analyses (WBT) is designed for professionals employed by State DOTs (district engineers, corridor planners, project engineers, traffic engineers, and work zone planners), FHWA Division Offices Staff, transportation engineers, traffic staff, planners, MPOs, and consultants.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: .3 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133111

New Training

Course Title

Advancing Planning for Operations in Metropolitan Areas

The National Highway Institute (NHI) course, Advancing Planning for Operations in Metropolitan Areas, is a one and half day course designed to help transportation professionals involved in planning and operations. The course provides an understanding of the inclusion of management and operations (M&O) in the metropolitan transportation planning process through an objectives-driven, performance-based approach.

Advancing Planning for Operations in Metropolitan Areas is aimed at helping transportation professional involved in planning operations. The course provides the foundation for creating an objectives-driven, performance-based approach to planning for operations in metropolitan areas. It encourages enhanced regional collaboration and coordination between planners and operators in advancing M&O, and effectively integrating the congestion management process (CMP) in transportation planning.

Outcomes

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

- Identify Federal requirements associated with planning for operations
- List the benefits and opportunities of planning for operations
- Describe key components of an objectives-driven, performance-based approach
- Apply an objectives-driven approach with outcome-based performance measures to plan for operations
- Identify effective collaborative practices that support planning for operations

Target Audience

Advancing Planning for Operations in Metropolitan Areas is a 1 ½ day course for transportation professionals involved in planning and operations from MPOs, State DOTs, transit agencies, and local transportation agencies. This course is designed for those professional that are charged with improving the performance of our existing and planned transportation infrastructure. The target audience is those senior and mid-level planners and operators directly involved in transportation planning and/or system operations at the metropolitan level. A mixed audience of planners and operators is extremely important to achieving the maximum benefits of this course.

Training Level: Basic

Fee: 2013: $350 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133112

Course Title

Design and Operation of Work Zone Traffic Control (1-Day)

Formerly Course No. 380003

This course provides participants with information on the safest and most efficient work zone traffic controls, including the application of effective design and installation concepts; and using signs and markings for detours, construction zones, and maintenance sites. The legal, administrative, and operational aspects also will be discussed. Classroom presentations include lectures, case histories, and workshops.

This course is part of the Certificate of Accomplishment in Work Zone Safety. To learn more about how you can achieve a certificate in Work Zone Safety visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

NHI is providing 30 MUTCD Manuals per class and charging the host for these at our cost - $10 per copy. If there are excess manuals those are to be retained by the host. Each host will be charged a flat fee of $300 for the manuals (30 x $10) to allow NHI to recoup only our purchase costs.

Outcomes

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

- Describe each step involved in providing work zone traffic controls
- Identify and apply workable concepts and techniques for designing, installing, and maintaining controls in construction, maintenance, and utility operations
- Identify appropriate principles in the design of traffic control plans
- Apply traffic control plans to site conditions, monitor traffic controls, and make changes indicated by traffic accidents and incidents
- Discuss techniques and procedures used by different agencies
- Assess the legal consequences of action and inaction relative to work zone traffic control and identify risk management procedures

Target Audience

Design, construction, and maintenance personnel responsible for designing, installing, and monitoring work zone traffic control.

Training Level: Intermediate

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133112A

Course Title

Design and Operation of Work Zone Traffic Control (3-Day)

Formerly course no. 380003A

This course provides participants with information on the safest and most efficient work zone traffic controls, including the application of effective design and installation concepts; and using signs and markings for detours, construction zones, and maintenance sites. The legal, administrative, and operational aspects also will be discussed. Classroom presentations include lectures, case histories, and workshops.

This course is part of the Certificate of Accomplishment in Work Zone Safety. To learn more about how you can achieve a certificate in Work Zone Safety visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

NHI is providing 30 MUTCD Manuals per class and charging the host for these at our cost - $10 per copy. If there are excess manuals those are to be retained by the host. Each host will be charged a flat fee of $300 for the manuals (30 x $10) to allow NHI to recoup only our purchase costs.

Outcomes

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

- Describe each step involved in providing work zone traffic controls
- Identify and apply workable concepts and techniques for designing, installing, and maintaining controls in construction, maintenance, and utility operations
- Identify appropriate principles in the design of traffic control plans
- Apply traffic control plans to site conditions, monitor traffic controls, and make changes indicated by traffic accidents and incidents
- Discuss techniques and procedures used by different agencies
- Assess the legal consequences of action and inaction relative to work zone traffic control and identify risk management procedures

Target Audience

Design, construction, and maintenance personnel responsible for designing, installing, and monitoring work zone traffic control.

Training Level: Intermediate

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133113

Course Title

Work Zone Traffic Control for Maintenance Operations

This course provides guidance and training for field personnel working in the planning, selection, application, and operation of short-term work zones. The course addresses typical short-term maintenance activities occurring on two-lane rural highways and multilane urban streets and highways. The course covers the applicable standards for work zone protection contained in the "Manual on Uniform Traffic Control Devices" (MUTCD), discussing the need for proper application of devices, while addressing liability issues of highway agencies and individuals. Classroom presentation includes practical exercises to plan, set up, operate, and remove work zone safety devices, including appropriate flagging procedures for these operations.

This course is part of the Certificate of Accomplishment in Work Zone Safety. To learn more about how you can achieve a certificate in Work Zone Safety visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

NHI is providing 30 MUTCD Manuals per class and charging the host for these at our cost - $10 per copy. If there are excess manuals those are to be retained by the host. Each host will be charged a flat fee of $300 for the manuals (30 x $10) to allow NHI to recoup only our purchase costs.

Outcomes

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

- Apply traffic control through short-term and mobile work areas
- Use national work zone standards and requirements as contained in Part VI of the MUTCD
- Use standard traffic control devices in work zones
- Design and install traffic control schemes for short-term and mobile operations on rural two- and multilane streets and highways
- Apply proper flagging procedures

Target Audience

State, county, and utility personnel, such as maintenance crews, survey crews, and utility crews, who are responsible for establishing traffic controls through short-term, utility, and maintenance work areas.

Training Level: Accomplished

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133114

Course Title

Construction Zone Safety Inspection (1-Day)

Formerly Course No. 380063

This course provides training in the management of traffic control plans and the inspection of construction zone safety devices. Participants receive instruction in traffic control plan review, inspection of traffic control procedures and safety devices, and the resolution of discrepancies from the traffic control plan, as well as on deficiencies in safety hardware maintenance. The following major topics are covered: Inspection of traffic control plan operation, maintenance of work zone signs and markings, inspection of construction safety hardware, and resolution of discrepancies from contract requirements.

This course is part of the Certificate of Accomplishment in Work Zone Safety. To learn more about how you can achieve a certificate in Work Zone Safety visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

NHI is providing 30 MUTCD Manuals per class and charging the host for these at our cost - $10 per copy. If there are excess manuals those are to be retained by the host. Each host will be charged a flat fee of $300 for the manuals (30 x $10) to allow NHI to recoup only our purchase costs.

Outcomes

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

- Recognize the importance of construction zone safety devices
- Identify the contract requirements for selected devices
- Inspect the installation and operation of safety devices, including discrepancies and deficiencies in safety devices
- Resolve discrepancies from the contract requirements and ensure corrections in the deficient safety devices

Target Audience

FHWA safety engineers, FHWA highway engineers, and State and local personnel involved in the management of traffic control plans and the inspection of construction zone safety devices.

Training Level: Basic

Fee: 2013: $325 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133114A

Course Title

Construction Zone Safety Inspection (1.5 Day)

Formerly Course No. 380063A

This course provides training in the management of traffic control plans and the inspection of construction zone safety devices. Participants receive instruction in traffic control plan review, inspection of traffic control procedures and safety devices, and the resolution of discrepancies from the traffic control plan, as well as on deficiencies in safety hardware maintenance. The following major topics are covered: Inspection of traffic control plan operation, maintenance of work zone signs and markings, inspection of construction safety hardware, and resolution of discrepancies from contract requirements.

This course is part of the Certificate of Accomplishment in Work Zone Safety. To learn more about how you can achieve a certificate in Work Zone Safety visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

NHI is providing 30 MUTCD Manuals per class and charging the host for these at our cost - $10 per copy. If there are excess manuals those are to be retained by the host. Each host will be charged a flat fee of $300 for the manuals (30 x $10) to allow NHI to recoup only our purchase costs.

Outcomes

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

- Recognize the importance of construction zone safety devices
- Identify the contract requirements for selected devices
- Inspect the installation and operation of safety devices, including discrepancies and deficiencies in safety devices
- Resolve discrepancies from the contract requirements and ensure corrections in the deficient safety devices

Target Audience

FHWA safety engineers, FHWA highway engineers, and State and local personnel involved in the management of traffic control plans and the inspection of construction zone safety devices.

Training Level: Basic

Fee: 2013: $350 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133115

Course Title

Advanced Work Zone Management and Design

Formerly Course No. 380072

This course provides participants with advanced levels of knowledge and competencies with technical and non-technical aspects of work zone traffic control practices including work zone planning, design, project management, and contract issues. The course is designed to provide maximum flexibility by including core, recommended, and optional lessons. Each participant receives a copy of the "Advanced Work Zone Management and Design" reference manual and a participant workbook that contains all lesson materials.

This course is part of the Certificate of Accomplishment in Work Zone Safety. To learn more about how you can achieve a certificate in Work Zone Safety visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Outcomes

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

- Apply the latest safety and mobility design concepts as it relates to temporary traffic control (TTC) plans for work zones
- Identify the latest MUTCD principles as it relates to TTC plans for planning, design, project management, and describe the various contracting issues that may need to be resolved
- Demonstrate knowledge of the latest concepts as related to Parts 1, 5 and 6 of the MUTCD
- Demonstrate knowledge of key concepts in the AASHTO Design Guide and other standards as related to such items as worker and flagger apparel (such as ANSI and similar standard guides)
- Evaluate work zone temporary traffic control designs for nighttime and daytime issues
- Analyze and evaluate operational, safety and mobility impacts of work zones, including scheduling, scope, phases and alternate routes
- Consider the application of ITS technologies and where applicable apply ITS technologies to work zone planning, design and execution
- Consider alternative innovations, best practices and recent research findings in work zone planning, design and execution
- Develop temporary transportation management plans for safety and mobility
- List elements necessary for successful contracts and identify strategies for resolving contract issues, including best practices in work zone contracting, also identify tools to resolve conflicts with contracting issues
- Identify and resolve community issues, including impacts of work zones on affected residential and business areas. Apply public participation, outreach, and work zone strategies to minimize or mitigate community impacts with respect to work zones
- Identify and analyze specific (key) issues and concerns that affect work zone design and demonstrate ability to explain safety and mobility issues, impacts and alternatives to peers, public and/or decision makers
- Summarize work zone safety and mobility impacts and alternatives

Target Audience

State, and local design engineers, traffic and safety engineers, senior work zone traffic engineers, transportation planners, employees of metropolitan planning organizations and board members, regional planners, regional construction engineers (with work zone experience), and senior engineering technicians.

Training Level: Accomplished

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133116

New Training WBT

Course Title

TCCC Maintenance of Traffic for Technicians - WEB BASED

Formerly Course No. 380098

This course is currently being updated to reflect changes in the MUTCD. Until this update is complete, please check all references to the latest MUTCD to make sure they are current.

The Maintenance of Traffic for Technicians Web-based training presents information about the placement of, field maintenance required for, and inspection of traffic control devices. In addition, drafting work zone traffic control plans and flagging are discussed.

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to introduce maintenance of traffic for technicians. This training is recommended for the TCCC levels I and II.

We've broken this training into five modules:

1. General Terms and Procedures
2. Traffic Channelizing and Control Devices
3. Traffic Control Zones
4. Flagger Operations
5. Traffic Control Zone Operations

Outcomes

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

- Identify the correct placement of work zone traffic control devices
- Perform field maintenance of work zone traffic control devices
- Inspect placement or operational functions of work zone traffic control devices
- Generate work zone traffic control plans
- Explain the basics of flagging

Target Audience

This training is designed for all persons with duties that include: Direct responsibility for placement of work zone traffic control devices; Direct responsibility for field maintenance of work zone traffic control devices; Inspection of the placement or operational function of work zone traffic control devices; and Drafting or electronic generation of work zone traffic control plans. The target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133117

New Training WBT

Course Title

TCCC Maintenance of Traffic for Supervisors - WEB BASED

Formerly Course No. 380099

This course is currently being updated to reflect changes in the MUTCD. Until this update is complete, please check all references to the latest MUTCD to make sure they are current.

The Maintenance of Traffic for Supervisors Web-based training presents information about the placement of, field maintenance required for, and inspection of traffic control devices. In addition, drafting work zone traffic control plans and flagging are discussed. This training focuses on the design of a traffic control plan, and how and why one needs to operate and implement traffic control in the work zone.

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to introduce maintenance of traffic for supervisors. This training is recommended for the TCCC levels III and IV.

We've broken this training into five modules:

1. Fundamental Principles of Temporary Traffic Control Zones
2. Temporary Traffic Control Devices
3. Traffic Control Zones
4. Transportation Management Plans
5. Flagger Operations

Outcomes

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

- Describe how to create clear, organized traffic control plans
- Identify acceptable temporary traffic control devices
- Determine good and bad flagging techniques

Target Audience

This training is designed for personnel with responsibility or authority to decide on the specific maintenance of traffic requirements to be implemented. These positions include engineers responsible for work zone traffic control development and work site traffic supervisors. The target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133118

New Training WBT

Course Title

TCCC Flagger Training - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review the basics of flagger duties. This training is intended for the Transportation Curriculum Coordination Council levels I and II. This training would also be useful as a refresher course for all employees involved with work zone traffic control where flaggers are utilized.

Being a flagger is the most important job on the work site. Careless use of the sign or distraction from duty could cause serious injury to workers or the motoring public. Performing flagger duties diligently can prevent traffic incidents in the work area.

This is a basic training in the area of flagger training. It has been designed for someone learning the first steps in performing flagger duties. This training does not go into individual state flagger training or certification requirements. For more information on flagger training requirements contact your State's safety office.

Outcomes

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

- Identify the responsibilities of a flagger
- Describe the proper ways to place signs
- Describe the proper position for flagging
- Define the flagging procedures for stop, slow, and proceed
- Identify the correct procedures for various flagging situations
- Describe the proper conduct in flagging

Target Audience

This training is intended for individuals that will be performing or are engaging in flagger duties on construction/ maintenance projects. The course will assist them in better understanding the importance and duties involved with flagging on a project. It would be beneficial to the entry level employee as well as the experienced flagger.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133119

New Training WBT

Course Title

Safe and Effective Use of Law Enforcement Personnel in Work Zones - WEB-BASED

NHI training 133119 Safe and Effective Use of Law Enforcement Personnel in Work Zones is an interactive Web-based training (WBT) course that provides law enforcement agencies with the practices and procedures to improve traffic safety in work zones. Work zone law enforcement is highly effective in reducing speeding, speed variability, and undesirable driving behaviors such as tailgating and unsafe lane changes, which improves both traffic and worker safety. The presence of work zone enforcement is also believed to raise driver awareness and overall alertness, further improving work zone safety.

The purpose of this course is to provide basic knowledge to help save lives, avoid work zone crashes, and improve safety when working in a work zone. This course will provide tips for safe practices for law enforcement officers (LEO's) in work zones as well as providing for a safer work zone environment. This Web-based training will educate participants on the standards and guidelines related to temporary traffic control in work zones; the role of LEO's in work zones; the components of a typical work zone; and the proper practices and procedures related to the use of law enforcement officers in work zones.

Outcomes

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

- Describe the role of LEO's in work zones
- Explain proper practices and procedures related to the use of LEO's in work zones
- Explain safe operating practices of LEO's working in a Temporary Traffic Control (TTC) zone

Target Audience

133119 Safe and Effective User of Law Enforcement Personnel in Work Zones is a Web-based training course designed for LEO's. Specifically, this course targets state troopers, state, county, municipal officers, and highway patrol officers who will participate in work zone activities.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133120

New Training

Course Title

Work Zone Traffic Analysis Applications and Decision Framework

Work Zone Traffic Analysis - Applications and Decision Framework is a two-day instructor-led course utilizing lecture and group collaborative exercises to provide guidance on work zone traffic analysis applications and decision framework. It will help work practitioners in understanding the analytical methods involved in conducting a work zone traffic analysis. This course is designed to cover establishing a work zone traffic analysis process; step-by-step guidance on determining the most suitable tools to perform a work zone analysis; key considerations when applying various modeling tools for work zone traffic analysis; a decision framework on how to select the best alternatives based on a set of performance measures; essential components of work zone traffic analysis report and a variety of case studies to demonstrate a diverse set of work zone traffic analysis applications.

The course provides an overview of the Federal Highway Administration's guidebook titled "Traffic Analysis Toolbox XII - Work Zone Traffic Analysis - Applications and Decision Framework. " Work Zone Traffic Analysis (WZTA) is the process of evaluating and determining the mobility and safety impacts within a transportation construction, maintenance, or rehabilitation project. The purpose of the course is to provide participants an understanding of the analytical methods involved in conducting and developing a WZTA as well as direction on where to go for more information.

Outcomes

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

- Establish a work zone traffic analysis process
- Select the appropriate tool for work zone traffic analysis
- Identify and assess key considerations for modeling approach
- Apply modeling tools to work zone traffic analysis
- Apply road user costs
- Reconcile inconsistencies and conduct sensitivity analysis
- Establish a MOTAA decision framework
- Develop analysis report structure

Target Audience

Engineers, planners, modelers, and others responsible for framing a work zone traffic analysis, those who decide on and use work zone traffic analysis tools for which zone strategies to implement, and decision-makers considering work zone traffic analysis. These include State DOT staff, FHWA staff, Metropolitan Planning Organization staff, and consultants. This course is designed for those individuals seeking to supplement and expand their basic knowledge and understanding of work zone traffic analysis. This is a mid-level course and it focuses heavily on the analysis tools and methods for work zone traffic analysis and case study examples.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109I

New Training WBT

Course Title

Maintenance Training Series: Basics of Work Zone Traffic Control - WEB-BASED

Meeting the national requirements for work zone traffic control is a critically important responsibility of maintenance personnel. The national requirements, found in Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD), promote driver and worker safety during roadway maintenance projects. This training, Basics of Work Zone Traffic Control, provides an introduction to the requirements outlined in Part 6 of the 2009 MUTCD. The course also offers an overview of the manual's structure and requirements regarding traffic control devices and their applications, flagging operations and procedures, and pedestrian and worker safety.

Through a series of work zone scenarios, this training uses the MUTCD Part 6 to review fundamental concepts of setting up work zones, including proper signage, taper lengths, and flagging procedures. Participants are encouraged to compare their State's standards, if available, to the guidance established in the MUTCD and determine what additional requirements may need to be met to establish safe, compliant work zones.

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Describe the content and use of The Manual on Uniform Traffic Control Devices (MUTCD) Part 6
- Use the MUTCD to correctly answer questions about the basics of work zone traffic control
- Differentiate among standard, guidance, and option conditions in the MUTCD
- Differentiate among standard, guidance, and option conditions in the MUTCD for work zone traffic control in rural and urban areas

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380069

Course Title

Road Safety Audits/Assessments

Performing effective road safety audits/assessments, (RSAs), improves safety and demonstrates to the public an agency's dedication to crash reduction. An RSA is a formal safety performance examination of an existing or future road or intersection by an independent audit team. The RSA training provides practical information on how to conduct an RSA, select a location, and build an independent, multi-disciplinary team. The costs, time, benefits, and common myths and concerns surrounding RSAs will be discussed. Participants learn how to improve transportation safety by applying a new proactive approach. Emphasis is placed on using low cost safety improvements as well as understanding the interaction between the highway and all road users.

The training includes hands-on application of the training materials, which includes information on each stage of a road safety audit and easy-to-use-prompt lists. A copy of "FHWA Road Safety Audit Guidelines" is provided.

Outcomes

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

- Express the road safety audit process terminology
- Perform a simple road safety audit, as a member of a team
- Assess the benefits of a road safety audit on a local or statewide basis

Target Audience

Personnel who are likely to serve on a road safety audit team including Federal, State, local transportation personnel, first responders and consultants who conduct highway safety studies should also attend.

Training Level: Accomplished

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380071

Course Title

Interactive Highway Safety Design Model

This course instructs highway design project managers, planners, designers, and traffic and safety reviewers in the application of the Interactive Highway Safety Design Model (IHSDM) software and provides guidance on interpretation of the output.

IHSDM is a suite of software tools to evaluate safety of two-lane rural highways. The software, developed for FHWA, was released in 2003 after several years of research and development to provide state-of-the-art techniques for safety analysis. IHSDM contains five tools that can be used to apply the most recent safety analysis techniques in a relatively straightforward and automated manner. For more information about IHSDM, go to http://www.tfhrc.gov/safety/ihsdm/ihsdm.htm.

Participants gain hands-on experience with the software. Therefore, the training facility must be equipped with computers. There should be no more than two participants per computer. Minimum system specifications for the computers are as follows: Operating System - Microsoft Vista, Windows XP or Windows 2000 Professional; HTML Browser - Microsoft Internet Explorer, Netscape Navigator, or Foxfire; Spreadsheet Program, Microsoft Excel or equivalent; Hardware - At least 450 MHz Pentium III (or equivalent) CPU, 256 MB RAM or greater desirable, 800x600 high colors (16 bit) display; and 300 MB free disk space

Outcomes

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

- Describe key capabilities and limitations of IHSDM
- Evaluate a two-lane rural highway using IHSDM
- Recognize when and how IHSDM can be used in the project development process

Target Audience

Highway design project managers, planners, designers, and traffic and safety reviewers with at least one or two years of experience with highway design, preferably two-lane rural highway design.

Training Level: Accomplished

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380074

Course Title

Designing and Operating Intersections for Safety

Through numerous interactive discussions, exercises, and case studies, this course examines various aspects of design and operations and how they affect the safety of an intersection and its various users. The full course contains a total of six modules: Users and Intersections, Diagnostics and Countermeasures, Geometric Design, Unsignalized Intersections, Signalized Intersections, and Case Studies.

Outcomes

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

- List the user groups to consider
- Describe user characteristics and how they affect intersection design and safety
- Describe approaches to balance needs of different user groups
- Review how to determine which intersections have poor crash experience
- Review how to assess causes of high crash experience or high potential
- Describe how to select appropriate countermeasures
- Define intersection design objectives, controls, and focus area
- Identify key safety-related intersection geometric design decisions, applications, and assumptions
- Describe the measured and potential safety improvements that result from key intersection geometrics
- Describe safety issues at unsignalized intersections
- Summarize MUTCD requirements for signalizing an intersection
- Select appropriate countermeasures to address safety issues at unsignalized intersections
- Identify common safety concerns at signalized intersections
- Discuss contributing factors to safety concerns
- Select countermeasures to the safety of signalized intersections

Target Audience

The target audience for the course includes traffic and design engineers with one to five years of work experience.

Training Level: Accomplished

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380077

Course Title

Intersection Safety Workshop

Beginning with an introduction to intersection and crash characteristics, this course provides information on ready-to-use, direct-application safety measures for rural unsignalized and signalized intersections. Participants are presented with a synthesis of countermeasures and their associated crash reduction factors as identified in the "AASHTO Strategic Highway Safety Plan - NCHRP 500 Guidebooks." The course focuses on the application of these countermeasures and design and safety operations best practices for substantive improvements to intersection safety. During the course, participants have the opportunity to present intersection safety situations that they are currently facing and discuss appropriate countermeasures and best practices to address those situations.

Outcomes

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

- Apply models (equations) to predict the number of crashes for an intersection based upon traffic volumes
- Identify high crash intersections and recognize appropriate engineering countermeasures
- Identify crash reduction factors/crash modification factors associated with countermeasures
- Describe safety performance of intersection geometric design features and the models to quantify the safety effect
- List regulatory, warning, and guide signing and markings countermeasures and associated safety benefits
- List highway lighting countermeasures and associated safety benefits
- List traffic signal countermeasures and associated safety benefits

Target Audience

Federal, State, and local transportation traffic and safety engineers, and planners involved in reducing intersection crashes.

Training Level: Accomplished

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380078

Course Title

Signalized Intersection Guidebook Workshop

This course provides an overview of the "Signalized Intersections: Informational Guide FHWA-HRT-04-091." The guide is a comprehensive document containing methods for evaluating the safety and operations of signalized intersections and tools to remedy deficiencies. It takes a holistic approach to signalized intersections and considers the safety and operational implications of a particular treatment on all system users, including motorists, pedestrians, bicyclists, and transit users. Using the guide, participants learn to make insightful intersection assessments, understand the tradeoffs of potential improvement measures, and apply guidebook measures and best practices to reduce the incidence of intersection crashes.

Outcomes

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

- Recognize and apply fundamentals of signalized intersections in terms of user needs, geometric design, traffic design, and illumination
- Describe signalized intersection project process, safety analysis methods, and operational analysis methods
- Describe the more than 100 signalized intersection treatments and their advantages and disadvantages

Target Audience

Federal, State, and local transportation, traffic and safety engineers, and planners involved in planning, designing, operating, and remedying crash problems for signalized intersections.

Training Level: Intermediate

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380079

WBT

Course Title

AASHTO Roadside Design Guide - WEB-BASED

This course provides an overview of the AASHTO "Roadside Design Guide." Emphasis is on current highway agency policies and practices. The AASHTO "Roadside Design Guide" is the textbook for this course. You may purchase a copy of the "Roadside Design Guide" directly from the AASHTO bookstore at http://www.transportation.org/.

Outcomes

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

- Apply the clear zone concept to all classes of roadways
- Recognize unsafe roadside design features and elements and make appropriate changes
- Identify the need for a traffic barrier
- Select, design and install a traffic barrier
- Apply safety concepts to roadside features and appurtenance selection/use in work zones
- Compare alternate safety treatments and select a cost-effective design
- Identify policies and practices that are inconsistent with current state-of-the-art

Target Audience

Federal, State and local highway engineers involved in the formulation and/or application of policies and standards relating to the design of safer roadsides.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 14 HOURS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380095

New Training

Course Title

Geometric Design: Applying Flexibility and Risk Management

Highway designers often face complex trade-offs when developing projects. A "quality" design may be thought of as satisfying the needs of a wide variety of users while balancing the often competing interests of cost, safety, mobility, social and environmental impacts. Applying flexibility and risk management in highway design requires more than simply assembling geometric elements from the available tables, charts and equations of design criteria. This course provides participants with knowledge of the functional basis of critical design criteria to enable informed decisions when applying engineering judgment and flexibility. The course exercises and case studies provide practical applications of current knowledge from research and operational experience of human factors and safety effects for various design elements.

Outcomes

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

- Define the relationship among design criteria, design guidelines and design standards
- Describe the concepts of design speed, target speed, posted speed and operating speed
- Describe the FHWA Policy for Design Standards and Design Exceptions
- List the 13 controlling geometric design criteria that require a formal written design exception from FHWA
- Evaluate the safety effects and qualitative risk of proposed design exceptions
- Evaluate the effectiveness and appropriateness of mitigation strategies for design exceptions
- Describe the relationship between safety and key geometric features of highway alignment and cross section
- Describe the applicability of a human-centered approach to geometric design considerations

Target Audience

This course is targeted toward engineers that are involved in applying engineering judgment in the selection of design criteria and in the assessment of design exceptions. It is most practical for practicing engineers and highway decision makers from state highway agencies, local agencies, design consultants, and FHWA field offices.

Training Level: Accomplished

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380100

WCT

Course Title

Using IHSDM

The Interactive Highway Safety Design Model (IHSDM) is a suite of software tools that quantitatively analyze and evaluate safety and operational effects of geometric design decisions on two-lane rural highways. FHWA expanded the IHSDM Crash Prediction Module (CPM) in 2010 to implement The Highway Safety Manual's Part C (Predictive Method), which highlights predictive methods for estimating the expected average crash frequency of a network, facility, or individual site. The IHSDM contains six evaluation modules: Crash Prediction, Policy Review, Design Consistency, Intersection Review, Traffic Analysis, and Driver/Vehicle.

The IHSDM course is a highly-interactive training that gives participants the opportunity to use the actual IHSDM software tools to evaluate and analyze real highway designs. NHI recently updated the delivery format and training materials for the course. The training materials were updated to reflect the expanded CPM. The new delivery format consists of 4 hours of self-paced, Web-based trainings and four 2-hour sessions of virtual, instructor-led trainings, known as Web-conference training.

Outcomes

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

- Explain the scope and uses for the IHSDM tool.
- Input rural highway data to IHSDM.
- Explain the purpose of each of the six IHSDM modules.
- Demonstrate the workflow for each IHSDM module.
- Interpret and apply data from IHSDM reports and graphs to make rural highways safer.

Target Audience

The Using IHSDM Course is designed for personnel working on highway design projects who will be directly interacting with the IHSDM software tools or applying the data generated by them. The IHSDM course benefits highway design project managers, planners, designers, safety engineers, and other personnel responsible for reviewing operations and safety on rural highways. Participants should have general familiarity with highway design elements and terminology.

Training Level: Intermediate

Fee: 2013: $200 Per Person; 2014: N/A

Length: 12 HOURS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 10; MAXIMUM: 45

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-130088

Course Title

Bridge Construction Inspection

The Bridge Construction Inspection Course (BCIC) is one of the core curriculum initiatives cited by AASHTO, FHWA, and the five regional organizations. These core curriculum initiatives are being pursued in order to maximize regional, public, and industry resources in the development of core training and qualification-based certification programs, improve the quality of bridge construction, and promote uniformity in training content and qualification requirements.

Overall, the BCIC improves quality, ensures uniformity, and establishes minimum competencies for bridge construction inspection. The underlying themes of the course can be broken down into key segments. The BCIC will provide the construction inspector with:

1. The requisite knowledge of construction that will make him/her an effective inspector

2. An overall awareness of the problems and consequences that can arise during construction and how these factors will impact the safety and service life of the structure

3. A knowledge of the inspections that should be performed to confirm conformance to the contract documents, or document contract nonconformance

Outcomes

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

- Explain the role of the construction inspector as part of the overall project team
- Interpret drawings and specifications
- Anticipate possible construction and materials problems
- Maintain bridge controls for location and elevation
- Describe construction sequence for various bridge systems (e.g. foundations, substructures, superstructures, and miscellaneous systems), bridge types and materials
- Conduct regular systematic inspections of materials and standards of construction, through the use of job aids, such as checklists
- Explain and perform basic inspection and testing of materials
- Perform accurate surveys and checking of dimensions
- Make and maintain sufficient records

Target Audience

Construction supervisors, transportation department field inspectors, field engineers, resident engineers, structural engineers, materials engineers, and other technical personnel involved in the construction inspection of bridges. The course is developed for participants without an in-depth engineering background. However, more knowledgeable persons can attend and will add to the overall effectiveness of the training through their active participation.

Training Level: Basic

Fee: 2013: $920 Per Person; 2014: N/A

Length: 4.5 DAYS (CEU: 2.7 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131100

Updated Training

Course Title

Pavement Smoothness: Use of Inertial Profiler Measurements for Construction Quality Control

Studies have shown that roughness is one of the biggest priorities of highway users. Additional studies have shown that pavements that are built smooth stay smoother longer and provide a longer pavement life. Most State highway agencies (SHAs) have some type of smoothness specification that is used to evaluate the smoothness of newly constructed or rehabilitated pavements during acceptance testing. Many agencies also have incentives or disincentives for new construction and rehabilitation, which are based on pavement smoothness.

Increasingly these agencies are turning to inertial profilers as the most reliable instrument for construction acceptance testing and verifying pavement smoothness. The intent of this course is to train inertial profiler operators in the basics of performing construction acceptance testing and to train those reviewing the data to comprehend how those data were obtained and what they represent in order to build smoother riding roadways.

The course has been developed to be delivered in a single day of instructor-led training. In order to keep the instructor-led portion of the training to a single day, the training includes two hours of independent study that should be completed prior to attending the instructor-led session.

Outcomes

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

- Perform checks of the inertial profiler components to identify that the equipment is in proper working order.
- Determine the impact of current surface and environmental conditions on data collection.
- Collect profile data using appropriate operating techniques.
- Calculate a smoothness index using appropriate data processing techniques and computational procedures for use in construction quality control and specification compliance.
- Identify what features in a collected profile are manifested in a smoothness or roughness index.

Target Audience

The course was designed for an audience directly involved in the use of inertial profilers and the application of the data obtained from inertial profilers. This includes State and contractor road profiler operators who perform data collection, initial processing, and reporting of smoothness data. Paving superintendents, project engineers, pavement engineers, and inspectors who are performing data analysis, quality control, and acceptance will also benefit from this course. Ideally, each session of the course will include a mixture of State and contractor personnel, including those who collect data, those performing data processing, and those making decisions based upon data. ASSUMED TRAINING COMPETENCIESThe participants should have a basic understanding of how to operate a computer including turning it on and off, running programs, and saving data.

Training Level: Intermediate

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131117

WBT

Course Title

TCCC Basic Materials for Highway and Structure Construction and Maintenance - WEB-BASED

This training is provided 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 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.

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 supervision.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 3 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131121

WBT

Course Title

TCCC Construction of Portland Cement Concrete Pavements - WEB-BASED

Improving and maintaining the quality of concrete is an important aspect of keeping pavements safe and long lasting. This training provides participants with an overview of the entire Portland cement concrete (PCC) paving and restoration process: setting forms, mixing, hauling, curing and applicable repair techniques. This training is presented in several modules:

1. Construction Quality
2. PCC Production Overview
3. Slipform Paving
4. Fixed Form Paving
5. Pavement Curing, Sawing, and Joint Sealing Operations
6. Concrete Pavement Restoration

This self-paced, Web-based training is designed for participants to progress at their own pace. The training focuses on the proper methods for construction of concrete paving and pavement restoration techniques with an emphasis on cause and effect.

Outcomes

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

- Describe the differences between truck-mixed and ready-mixed concrete
- Identify factors in production and paving operations that contribute to achieving a smooth ride
- Describe the differences between slip-form and fixed-form paving
- Identify the factors that impact saw timing and crack control
- Recognize the importance and key factors in placing joint sealant materials
- Identify the components of concrete pavement restoration application and construction techniques
- Describe the purpose and appropriate use of full depth and partial depth repairs
- Indentify critical factors for curing and sawing operations that affect pavement performance
- Describe the purpose of grinding and dowel bar retrofit
- Identify applicable repair techniques for concrete pavement restoration
- Describe purpose of slab stabilization and joint and crack resealing

Target Audience

This training is designed for contractors, technicians, and inspectors who are involved in daily pavement operations for the placement and restoration of PCC pavements. Participants should have some working knowledge of concrete pavement construction.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 10 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131122

WBT

Course Title

TCCC Portland Cement Concrete Paving Inspection - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review inspection practices for Portland cement concrete paving projects. The training was originally developed by the Iowa Department of Transportation and more currently updated and reviewed by the TCCC and NHI. This course is recommended for the Transportation Curriculum Coordination Council levels I and II.

This training course has been prepared to provide guidance and instruction to inspectors involved in the construction of Portland cement concrete (PCC) pavements. The important tasks involved in this work are explained and proper procedures are described. The material is targeted for those who have not had experience in PCC paving construction.

Outcomes

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

- Identify the materials in a PCC mixture and the concrete properties
- Comprehend Design Project Plans and recognize the joints types and saw cuts
- Identify the safety requirements and recognize safe Traffic Control practices
- Recognize and comprehend the use of the equipment in a PCC Paving project
- Recognize various sub grade treatments
- Inspect project tasks for compliance with pre-paving requirements, i.e., survey stakes, proof rolling, subgrade, and dowel baskets
- Inspect project tasks for compliance with PCC Paving requirements, i.e., string line, place and consolidate, finish, and texture
- Perform post-construction checks

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process of placement and inspection of Portland cement concrete paving. It is applicable to anyone desiring a better understanding of activities and inspection procedures on Portland cement concrete paving projects.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131127

WBT

Course Title

TCCC Concrete Series - WEB-BASED

The Transportation Curriculum Coordination Council (TCCC) in partnership with NHI is pleased to offer this comprehensive training series (FHWA-NHI-131127) for any engineer or supervisor working with Portland cement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. 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. This course is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The TCCC Concrete Series is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University.

To streamline registration and enable you to take some or all of these courses when it best suits your schedule, we have created this new series option which automatically registers you for all 11 modules-it's that easy. They are as follows:

Module 1 - TCCC Design of Pavement (FHWA-NHI-134101)

Module 2 - TCCC Fundamentals of Materials Used for Concrete Pavements (FHWA-NHI-134084)

Module 3 - TCCC Mix Design Principles (FHWA-NHI-134087)

Module 4 - TCCC Fresh Concrete Properties (FHWA-NHI-134097)

Module 5 - TCCC Basics of Cement Hydration (FHWA-NHI-134096)

Module 6 - TCCC Incompatibility in Concrete Pavement Systems (FHWA-NHI-134085)

Module 7 - TCCC Early Age Cracking (FHWA-NHI-134095)

Module 8 - TCCC Hardened Concrete Properties- Durability (FHWA-NHI-134075)

Module 9 - TCCC Construction of Concrete Pavements (FHWA-NHI-134098)

Module 10 - TCCC QCQA for Concrete Pavements (FHWA-NHI-134100)

Module 11 - TCCC Troubleshooting for Concrete Pavements (FHWA-NHI-134102)

Outcomes

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

- Explain concrete pavement construction as a complex, integrated system involving several discrete practices that interrelate and affect one another in various ways
- Recognize and implement technologies, tests, and best practices to identify materials, concrete properties, and construction practices that are known to optimize concrete performance
- Identify factors that lead to premature distress in concrete, and learn how to avoid or reduce those factors
- Apply appropriate how-to and troubleshooting information

Target Audience

This training is intended as both a training tool and a reference to help concrete paving engineers, quality control personnel, specifiers, contractors, suppliers, technicians, and tradespeople bridge the gap between recent research and practice regarding optimizing the performance of concrete for pavements.

TRAINING LEVEL: Intermediate

FEE: 2013: $0 Per Person; 2014: N/A

LENGTH: 12 HOURS (CEU: 0 UNITS)

CLASS SIZE: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131129

New Training WBT

Course Title

TCCC HMA Paving Field Inspection - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide guidance and instruction to inspectors involved in the construction of hot mix asphalt (HMA) pavements. The important tasks involved in this work are explained and proper procedures are described. This training is recommended for the Transportation Curriculum Coordination Council levels I, II, and III.

This training is arranged in a fashion to help the inspector first learn the various aspects of what is involved in a HMA paving operation and then become familiar with the duties that are a part of the HMA pavement grade inspection responsibilities. It also explains how to recognize the mix properties of a HMA mixture. The information included will assist the inspector in recognizing problems during a project and offering solutions to the problems. This training is not intended to cover every aspect of HMA paving.

Outcomes

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

- Know various aspects of what is involved in a HMA paving operation
- Understand the duties of a HMA paving inspector
- Recognize the mix properties of a HMA mixture
- Recognize the problems that may occur on HMA paving projects
- Understand the product and project so solutions can be recommended

Target Audience

This training would be beneficial to anyone that is involved with an HMA paving project, but focuses on technicians/inspectors that are involved with the production, placement, and inspection of HMA paving projects.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 4.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131131

New Training WBT

Course Title

TCCC Superpave Mix Design Process and Analysis - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review Superpave mix design. This training is recommended for the Transportation Curriculum Coordination Council levels II, III and IV.

This training will give Hot Mix Asphalt materials engineers and/or materials technicians a better understanding of Superpave mix design process and analysis. The training will also give a better understanding of volumetrics for those who perform mix designs (typically technicians) and those who analyze the data (typically engineers).

Module 1: Mix Design. This module will describe the design of asphalt concrete mix and how Superpave mix design is analyzed.

Module 2: Volumetrics. This module will cover asphalt mixture volumetrics and volumetric properties using phase diagrams.

Outcomes

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

- Describe the procedures involved in the Superpave mix design
- Recall how to select the proper materials for a Superpave mix
- Describe how Superpave mix is compacted
- Define HMA Volumetric terms
- Describe factors which can influence key mass-volume relationships and calculations
- Describe how to use phase diagrams to calculate volumetric properties

Target Audience

This training is targeted to those who are responsible for the laboratory testing and evaluation of Superpave mix designs.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131132

New Training WBT

Course Title

TCCC Chip Seal Best Practices - WEB-BASED

The Chip Seal Best Practices course presents ways to assist in the development and implementation of pavement preservation programs by identifying the benefits of using chip seal as part of a preventive maintenance program.

This course has six modules. Module 1 is an introduction into chip seals, module 2 covers designing chip seal mixes, module 3 is selecting the proper materials for the chip seal mix, module 4 focuses on the use of the equipment, module 5 covers proper construction practices, and module 6 rounds out the course with performance measures of chip seals. The combination of all this information provides an excellent overview of successful chip seal practices worldwide.

Outcomes

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

- Define chip seal
- Describe how chip seals are used as a preventive maintenance treatment for pavement
- Identify materials used in chip seals
- Describe the characteristics of chip seal design
- Identify types of chip seal
- Identify the important considerations of aggregate and binder selection
- Describe aggregate-binder compatibility
- Describe equipments used in chip seal practices
- Identify important variables in construction practice
- Define the measures of control implemented over the quality of materials and construction
- Identify construction best practices
- Describe the components of engineering-based performance measures
- Identify qualitative performance indicators for chip seal
- Define common visible chip seal distresses

Target Audience

This training is recommended for the Transportation Curriculum Coordination Council levels I, II and III. This training would benefit entry level construction inspectors, maintenance employees and contractor personnel as well as serve as refresher training for those already well versed in the selection and application of a chip seal as a preventive maintenance treatment.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 3 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131133

New Training WBT

Course Title

TCCC Roller Compacted Concrete Pavements - WEB-BASED

The Roller Compacted Concrete (RCC) Pavements course provides detailed overviews of RCC properties and materials, mixture proportioning, structural design issues, and production and construction considerations, plus troubleshooting guidelines and an extensive reference list for more comprehensive information.

This course contains six modules. Module 1 is an introduction in RCC covering the characteristics, benefits, limitations, selection considerations, and typical uses. Module 2 discusses the property differences between RCC and conventional mixes, material requirements and testing. Module 3 covers mix proportioning of RCC, while Module 4 gets into structural design of RCC pavements. Module 5 acquaints the student with production and the proper handling and storage of materials, mixing and batching, and production planning. Module 6 covers the actual construction of a RCC pavement. All of the modules for this training were developed from the August 2010 "Guide for Roller-Compacted Concrete Pavements" which is available from the Portland Cement Association website www.cement.org/pavements.

Outcomes

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

- Define RCC key elements and common uses
- Define RCC properties and materials
- Describe RCC mix proportioning
- Describe structural design of RCC pavement
- Identify RCC production
- Identify RCC pavement construction

Target Audience

This training provides agencies, contractors, materials suppliers, and others with a thorough introduction to and updated review of RCC and its many paving applications. This training is recommended for the Transportation Curriculum Coordination Council levels II through IV.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131134

New Training WBT

Course Title

TCCC Superpave for Construction - WEB-BASED

The Superpave for Construction Course contains information for field construction personnel on the Superpave mix design system and the control of field produced Hot Mix Asphalt.

There are two modules in this course. The first module introduces the Superpave Hot Mix Asphalt design testing and analysis. It will cover design testing procedures, design analysis methods, and will include calculations to analyze the volumetrics of paving samples. Module two includes relevant volumetric examples including the use of phase diagrams to calculate volumetric properties. Example problems are included. This course is an excellent learning tool to assist in understanding corrective actions for volumetric parameters.

Outcomes

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

- Describe the benefits of Superpave over previous mix design methodologies
- Understand Superpave mix design procedures and testing
- Understand mix design analysis methods
- Perform the calculation necessary to analyze the volumetrics of paving samples for comparison
- Describe how to use phase diagrams to calculate volumetric properties
- Describe factors which can influence key mass-volume relationships and calculations
- Understand corrective action for volumetric parameters
- Calculate and evaluate volumetric properties through example problems

Target Audience

This training is targeted to intermediate and advanced technicians from both contractor and agency employment, which will be involved in construction of pavements using Superpave. This training is recommended for the Transportation Curriculum Coordination Council levels II and III.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 3.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134001

Course Title

Principles of Writing Highway Construction Specifications (2-Day)

This course addresses the engineering and legal aspects, as well as 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.

This course is a 2-day course and can be tailored to meet the needs of the host organization. A 3-day and 4-day versions are also available. 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 standard course modules are:

Module 1: Definitions, Forms, and Purpose of Specifications

Module 2: Specification Writing Principles

The host agency selects 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

Outcomes

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

- Recognize and apply the principles of writing clear, concise, complete, and technically correct specifications

Target Audience

Personnel working in contract administration, design, materials selection and quality control, and the management of highway construction, including contribution of information in contract provisions. This includes specification writers who use the information in writing the formal contract documents. This course is also recommended for asset management team members. PREREQUISITES: This course is not for beginners! Participants must have experience (five years minimum) in at least one of the following disciplines: contract administration, materials, specification writing, roadway or bridge design, roadway or bridge construction.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134001A

Course Title

Principles of Writing Highway Construction Specifications (3-Day)

This course addresses the engineering and legal aspects, as well as 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.

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

The standard course modules are:

Module 1: Definitions, Forms, and Purpose of Specifications

Module 2: Specification Writing Principles

The host agency selects 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

Outcomes

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

- Recognize and apply the principles of writing clear, concise, complete, and technically correct specifications
- Demonstrate appreciation for the importance of specifications for highway construction contracting

Target Audience

Personnel working in contract administration, design, materials selection and quality control, and the management of highway construction, including contribution of information in contract provisions. This includes specification writers who use the information in writing the formal contract documents. This course is also recommended for asset management team members. PREREQUISITES: This course is not for beginners! Participants must have experience (five years minimum) in at least one of the following disciplines: contract administration, materials, specification writing, roadway or bridge design, roadway or bridge construction.

Training Level: Intermediate

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134001B

Course Title

Principles of Writing Highway Construction Specifications (4-Day)

This course addresses the engineering and legal aspects, as well as 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.

This course is a 4-day course and can be tailored to meet the needs of the host organization. A 2-day and 3-day versions are also available. The 4-day course consists of all seven modules.

The course modules are:

Module 1: Definitions, Forms, and Purpose of Specifications

Module 2: Specification Writing Principles

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

Outcomes

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

- Recognize and apply the principles of writing clear, concise, complete, and technically correct specifications
- Write specifications in the active voice imperative mood
- Write specifications without ambiguities and with measurable standards
- Describe the difference between traditional methods specifications and statistically based quality assurance specifications
- Identify newer types of procurement and contracting methods
- Demonstrate appreciation for the importance of specifications for highway construction contracting

Target Audience

Personnel working in contract administration, design, materials selection and quality control, and the management of highway construction, including contribution of information in contract provisions. This includes specification writers who use the information in writing the formal contract documents. This course is also recommended for asset management team members. PREREQUISITES: This course is not for beginners! Participants must have experience (five years minimum) in at least one of the following disciplines: contract administration, materials, specification writing, roadway or bridge design, roadway or bridge construction.

Training Level: Intermediate

Fee: 2013: $600 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134005

Updated Training

Course Title

Value Engineering Workshop (3-day)

Value Engineering (VE) is a systematic process of review and analysis of a project during the concept and design phases. VE is conducted by a multi-disciplined team of persons not involved in the project to provide recommendations such as: a) providing the needed functions safely, reliably, and at the lowest overall cost; b) improving the value and quality of the project; and c) reducing the time to complete the project.

This course begins with a Web-based training (WBT) component that is completed prior to the first day of the class (134005A). The 3-day workshop involves training participants to be valued contributors to the Value Engineering team, conducting a Value Engineering study in a team environment. It is preferable that the host agency provides actual project(s) to be used in this course, although The National Highway Institute (NHI) can provide projects upon request. Depending on the projects selected for use in the course, and based on the request of the host agency, the 3-day classroom session can be expanded to 4 or 5 days in length (NHI-134005B and NHI-134005C).

Upon successful course completion, participants will have acquired the training necessary to successfully participate in future Value Engineering studies for their agencies.

Outcomes

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

- Explain how Value Engineering can improve project performance, reduce costs, and enhance value.
- Acquire the necessary behaviors and skills to be an effective Value Engineering team member with the ability to: Investigate the project and analyze project functions and costs; Creatively speculate on alternative ways to perform the various functions; Evaluate the most effective life-cycle alternatives; Develop viable alternatives into fully supported recommendations; Present the recommendations to stakeholders and agency management

Target Audience

The target audience for this course consists of FHWA and state highway agency personnel in management, administrative, and engineering disciplines who will participate as Value Engineering team members. Consultants or agency representatives of all technical disciplines associated with project design, development, construction, and maintenance can be included in order to provide the multiple perspectives needed to maximize the effectiveness of the team.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134005A

Updated Training WBT

Course Title

Introduction to Value Engineering - WEB-BASED

Value Engineering (VE) is a systematic process of review and analysis of a project during the concept and design phases. VE is conducted by a multi-disciplined team of persons not involved in the project to provide recommendations such as: a) providing the needed functions safely, reliably, and at the lowest overall cost; b) improving the value and quality of the project; and c) reducing the time to complete the project.

This Web-based training is intended to provide an overview of the Value Engineering process, know as the Value Engineering study. Included in the training is a discussion of the benefits of utilizing VE, the keys to completing a successful VE study, and an overview of the objectives and tasks completed by the VE team at each phase.

Participants can complete this training independently. Those who plan on attending the 3-day Value Engineering classroom training must complete this online module prior to coming to class. Course certificates should be printed out and presented to the instructor on the first day to verify completion.

Outcomes

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

- Identify the purpose of Value Engineering and its benefits to a highway transportation agency.
- Identify the critical skills required to participate successfully in the VE study.
- Describe each phase of creating a Value Engineering Job Plan in terms of the objective and tasks.

Target Audience

The target audience for this course consists of FHWA and state highway agency personnel in management, administrative, and engineering disciplines who will participate as Value Engineering team members or who are interested in learning more about the process. Consultants or agency representatives of all technical disciplines associated with project design, development, construction, and maintenance who will participate in a Value Engineering study should also attend.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: .5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134005B

Updated Training

Course Title

Value Engineering Workshop (4-day)

Value Engineering (VE) is a systematic process of review and analysis of a project during the concept and design phases. VE is conducted by a multi-disciplined team of persons not involved in the project to provide recommendations such as: a) providing the needed functions safely, reliably, and at the lowest overall cost; b) improving the value and quality of the project; and c) reducing the time to complete the project.

This course begins with a Web-based training (WBT) component that is completed prior to the first day of the class. The 4-day workshop involves training participants to be valued contributors to the Value Engineering team, conducting a Value Engineering study in a team environment. It is preferable that the host agency provides actual project(s) to be used in this course, although The National Highway Institute (NHI) can provide projects upon request. Depending on the projects selected for use in the course, and based on the request of the host agency, the 3-day classroom session can be expanded to 3 or 5 days in length (NHI-134005 and NHI-134005C).

Upon successful course completion, participants will have acquired the training necessary to successfully participate in future Value Engineering studies for their agencies.

Outcomes

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

- Explain how value engineering can improve project performance, reduce costs, and enhance value.
- Acquire the necessary behaviors and skills to be an effective Value Engineering Team member with the ability to: Investigate the project and analyze project functions and costs; Creatively speculate on alternative ways to perform the various functions; Evaluate the most effective life-cycle alternatives; Develop viable alternatives into fully supported recommendations; Present the recommendations to stakeholders and agency management

Target Audience

The target audience for this course consists of FHWA and state highway agency personnel in management, administrative, and engineering disciplines who will participate as Value Engineering team members. Consultants or agency representatives of all technical disciplines associated with project design, development, construction, and maintenance can be included in order to provide the multiple perspectives needed to maximize the effectiveness of the team.

Training Level: Basic

Fee: 2013: $600 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134005C

Updated Training

Course Title

Value Engineering Workshop (5-day)

Value Engineering (VE) is a systematic process of review and analysis of a project during the concept and design phases. VE is conducted by a multi-disciplined team of persons not involved in the project to provide recommendations such as: a) providing the needed functions safely, reliably, and at the lowest overall cost; b) improving the value and quality of the project; and c) reducing the time to complete the project.

This course begins with a Web-based training (WBT) component that is completed prior to the first day of the class (134005A). The 3-day workshop involves training participants to be valued contributors to the Value Engineering team, conducting a Value Engineering study in a team environment. It is preferable that the host agency provides actual project(s) to be used in this course, although The National Highway Institute (NHI) can provide projects upon request. Depending on the projects selected for use in the course, and based on the request of the host agency, the 5-day classroom session can be shortened to 3 or 4 days in length (NHI-134005 and NHI-134005B).

Upon successful course completion, participants will have acquired the training necessary to successfully participate in future Value Engineering studies for their agencies.

Outcomes

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

- Explain how value engineering can improve project performance, reduce costs, and enhance value.
- Acquire the necessary behaviors and skills to be an effective Value Engineering Team member with the ability to: Investigate the project and analyze project functions and costs; Creatively speculate on alternative ways to perform the various functions; Evaluate the most effective life-cycle alternatives; Develop viable alternatives into fully supported recommendations; Present the recommendations to stakeholders and agency management

Target Audience

The target audience for this course consists of FHWA and state highway agency personnel in management, administrative, and engineering disciplines who will participate as Value Engineering team members. Consultants or agency representatives of all technical disciplines associated with project design, development, construction, and maintenance can be included in order to provide the multiple perspectives needed to maximize the effectiveness of the team.

Training Level: Basic

Fee: 2013: $700 Per Person; 2014: N/A

Length: 5 DAYS (CEU: 3 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134006

Updated Training

Course Title

Utility Coordination for Highway Projects

This is a blended course, with both Web-based and instructor-led components. The Web-based training component (NHI 134006A) must be completed before attending the instructor-led training session.

Every State highway agency participates in construction projects that include accommodation and relocation of utilities along public rights-of-way. 134006 Utility Coordination for Highway Projects considers how communication, cooperation, and coordination between transportation agencies and utility companies can mitigate or avoid common challenges. Participants in this blended course (combination of Web-based and instructor-led formats) learn how, when, and where in the project development process to identify and conduct effective utility coordination.

Participants first take a self-paced, Web-based training to learn about regulatory requirements for both public and private utilities, subsurface utility engineering (SUE), and their own State's Utility Accommodation Policy. During the 2-day classroom event, participants learn to identify risks and potential issues associated with utilities, and then work together to evaluate ways to avoid or mitigate those risks and issues. (Please note: An optional lesson on utility challenges in projects using design-build delivery and other alternative contracting methods is available to be taught at the discretion of the State.) By putting these lessons into practice, utility-related complications in many cases can be predicted and mitigated at the most appropriate stage of project development, which can reduce potential negative impacts to timeline and budget.

Outcomes

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

- Explain the importance of early and effective cooperation, communication, and coordination of utility-related activities throughout a project's lifecycle.
- Identify successful techniques that could be used to avoid or mitigate utility challenges throughout the project development and delivery process.
- Explain the major impacts of identified conflicts or issues on the schedule or budget of a project.
- Explain the basic skills necessary to identify utility conflicts and develop a utility conflict matrix.
- Generate a personal resource toolkit for each of six major areas of project development (planning, design, environmental considerations, right-of-way, construction, and maintenance).

Target Audience

The course targets Federal, State, and local personnel who are responsible for planning, designing, constructing, operating, and maintaining transportation facilities that involve the accommodation or relocation of utilities. It is most effectively delivered with participation from representatives of public and private utility companies, DOT contractors, risk managers, right-of-way staff, mid-to-senior level managers, and engineering consultants.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.5 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134006A

Updated Training WBT

Course Title

Introduction to Utility Coordination for Highway Projects--WEB-BASED

NHI 134006 is a blended course, with both Web-based and instructor-led components. The Web-based training component (NHI 134006A) must be completed before attending the instructor-led training session.

Every State highway agency participates in construction projects that include accommodation and relocation of utilities along public rights-of-way. 134006 Utility Coordination for Highway Projects considers how communication, cooperation, and coordination between transportation agencies and utility companies can mitigate or avoid common challenges.

In the Web-based training, participants learn about regulatory requirements for both public and private utilities, subsurface utility engineering (SUE), and their own State's Utility Accommodation Policy. By putting these lessons into practice, utility-related complications in many cases can be predicted and mitigated at the most appropriate stage of project development, which can reduce potential negative impacts to timeline and budget.

Outcomes

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

- Explain the importance of early and effective cooperation, communication, and coordination of utility-related activities throughout a project's lifecycle.
- Identify successful techniques that could be used to avoid or mitigate utility challenges throughout the project development and delivery process.
- Explain the major impacts of identified conflicts or issues on the schedule or budget of a project.

Target Audience

The course targets Federal, State, and local personnel who are responsible for planning, designing, constructing, operating, and maintaining transportation facilities that involve the accommodation or relocation of utilities. It is most effectively delivered with additional participation from representatives of public and private utility companies, DOT contractors, risk managers, right-of-way staff, mid-to senior-level managers, and engineering consultants.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 4 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134029

Course Title

Bridge Maintenance Training

This course focuses on cost-effective bridge maintenance and repair procedures performed by typical transportation agency crews. Included are step-by-step instructions for the preparation and performance of maintenance and repair on common bridge elements. Bridge preservation is emphasized throughout. While engineers often attend, the material is designed for bridge crew supervisors and technicians.

Outcomes

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

- Justify, develop and implement a cost-effective preservation strategy for a group of bridges
- Identify maintenance or repair needs and select the best remedial strategy.
- Describe properties and preservation options involving common bridge materials such as concrete, steel and timber
- Describe the step-by-step tasks required to accomplish proven preservation procedures on the various bridge elements
- Identify critical members and avoid procedures that might result in damage such as field welding repairs on fracture critical tension members
- Recognize problems that warrant specialized expertise, for example, soliciting the involvement of a qualified structural engineer when repairing structural damage
- Apply effective management techniques (such as planning, scheduling, monitoring and reporting) during daily bridge maintenance operations

Target Audience

State and local bridge maintenance technicians and supervisors. This course is also recommended for asset management team members.

Training Level: Intermediate

Fee: 2013: $670 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134037A

Course Title

Managing Highway Contract Claims: Analysis and Avoidance

In partnership with the Transportation Curriculum Coordination Council (TCCC), this 2.5-day course was updated to include coverage of claims avoidance, claims handling, and preparation of legal actions by both the State and the individuals involved. The course is structured so that emphasis can be given to scheduling (using CPM) or to documentation and preparation of legal actions caused by claims. The host agency's selection should be stated when requesting the course. The course manual and classroom instruction addresses the following areas:

1. Philosophy/concept of construction contracting, changes and claims competitive bidding/reliance on plans and specifications why claims have increased

2. Construction contracts in laymen's language, basic contract principles significant contract clause changes, differing site conditions, liquidated damages, suspension of work, termination, inspection, acceptance indemnification clauses

3. Strengths and weaknesses of State Highway Contracts

4. Preparing contract documents

5. Contract administration directed and constructive changes procedures (notice, equitable adjustment/force account, timelines scheduling cost evaluations, delay claims/inefficiency/damages exculpatory language, excusable and inexcusable delays acceleration, disruptions, interferences, performing delay analysis, damage calculations (mitigation)

6. Documentation and record keeping bid documents, periodic reports, schedules, internal and external correspondence, photographs; use as evidence

7. Managing claims identification, procedures, preparation/claim defense plan strategy, claim presentation

8. Negotiation timing, strategy, team approach (workshop)

9. Design consultant liability

10. Disputes resolution litigation, arbitration, administrative procedures alternate disputes resolution

11. How to prepare for trial/arbitration depositions, trial, preparation of exhibits/consultants working with attorneys

Outcomes

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

- Define the recommended terminology associated with claims and the accompanying dispute resolution process
- Identify the three key elements of a claim
- Determine whether or not a change has occurred
- Measure the impacts of the change
- Calculate the resultant cost of the change
- Explain the value of a systems approach to claims avoidance
- Identify the dispute resolution procedures available to the host

Target Audience

This course is intended for FHWA, State, and local highway design and construction engineers, resident engineers, or individual one step above the project level involved in project development, specification writing, and individuals involved in the preparation for the defense of a construction claim.

Training Level: Intermediate

Fee: 2013: $450 Per Person; 2014: N/A

Length: 2.5 DAYS (CEU: 1.5 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134042

Course Title

Quality Assurance: Materials Control and Acceptance (4.5-Day)

This course provides participants with an understanding of the elements of a statistically based quality assurance program. It is also a prerequisite course for those pursuing training on the development of quality assurance specifications.

The course begins with an introduction to quality management and quality assurance. Through lectures, discussion, and workshops, participants learn techniques for collecting, organizing, analyzing, and interpreting data. Using the techniques taught in the course, participants assess the strengths, weaknesses, and risks of process control and acceptance plans. The course concludes with steps for successful implementation of quality specifications.

This course requires a solid foundation in basic mathematics and statistics.

The course topics include: Sampling Theory, Organization of Data, Analysis of Data, The Normal Distribution, Sources of Variability, Process Control, Acceptance Plans and Risks, and Percent within Limits Acceptance Plans.

Outcomes

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

- Define terms related to quality assurance.
- Identify the importance of organizing data and how to plot frequency histograms.
- Explain how a sample relates to the population, the relationship between single and multiple samples, including the myth of a single representative sample, and use of random stratified sampling tables.
- Calculate population and sample means, standard deviation, coefficient of variation, and control chart limits.
- Identify sources of variability and how to use precision and bias statements
- Use statistical process control charts.
- Identify the elements of acceptance plans and the strengths and weaknesses of acceptance plans based on sample means and percent within limits.
- Identify procedures for verification of contractor tests used in the acceptance decision.

Target Audience

This course is appropriate for Federal, State, and local highway agency personnel involved in specification development. Typically this group consists of engineers and technicians in materials, construction, and research.

Training Level: Accomplished

Fee: 2013: $650 Per Person; 2014: N/A

Length: 4.5 DAYS (CEU: 2.7 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134049

Course Title

Use of Critical Path Method (CPM) for Estimating, Scheduling and Timely Completion

This course is designed to educate State highway, FHWA, and industry project staff about the availability of effective construction and maintenance planning and scheduling tools that can help in providing visual representation of current project status, completed tasks, and expected completion of all activities. These tools can be focused to accelerate construction and minimize impact on the traveling public.

Outcomes

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

- Create a CPM chart for a sample project using these basic components: a project definition, milestones and a Gantt chart, work schedules (including work breakdown schedules), and an activity network
- Calculate resource needs and reserves, and propose resource leveling strategies
- Prepare a risk analysis/management plan for the sample project
- Use a complex CPM to determine the status of the project, identifying slack or float and delays
- Describe methods for managing multi-project scheduling

Target Audience

Federal, State, local, and private contractor project engineers/managers and related field personnel.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134055

Course Title

Construction Inspection, Workmanship, and Quality

This 2-day course helps transportation professionals involved in the inspection of highway construction projects improve their understanding of the factors that contribute to high-quality products. Using workshops and real-life examples that are relevant to participants, the course covers legal, liability, and risk issues, as well as quality assurance topics related to construction projects. Emphasizing stewardship and oversight roles, the course discusses the importance of fostering partnerships, cooperation, and teamwork among stakeholders, as well as the importance of quality decisions. With the goal of improving overall product quality and system performance, the course presents participants with approaches that help improve the quality of field decisions and the implementation of decisive actions in the field.

Outcomes

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

- Identify the components of workmanship as they relate to highway and bridge construction and assess their own skills against standards and expectations for a job
- Describe the construction team (owner, inspector, contractor, engineer) and the roles and needs of each team member in achieving good communication and quality workmanship
- Link different types of specifications to the associated roles and responsibilities of the inspector, contractor, engineer, and owner
- Identify situations in which legal issues related to inspection and duties affect the performance of their assignments
- Apply the basic concepts of risk assessment to case examples from construction inspection and translate that into good decisions in the field
- Identify various successful State programs that provide training, methodology, and/or certification programs that lead to improved construction workmanship and quality and locate programs for certification and qualification in their jurisdiction

Target Audience

This course targets field personnel involved in all aspects of highway construction from engineers to technicians. The ideal audience will have a mix of experience and responsibility levels so that agency-specific practices can be shared by more experienced participants with those who are newer to the field. The course materials also are appropriate for project manager/resident engineer involvement.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134058

Course Title

Alternative Contracting

This course addresses the legal aspects, and potential program implications of using alternative project delivery strategies and nontraditional contracting practices. This includes alternative project delivery methods such as design-build, construction manager at risk, and performance contracting. It also includes the use of nontraditional contracting provisions such as warranties, multiparameter bidding, incentive-disincentive provisions for contract time, lane rental, alternate pavement type bidding, and many other nontraditional contracting techniques. The course has certain required modules; however, the requesting agency may customize the course by selecting from additional modules. Classroom activities include lectures, case studies, workshops, and writing assignments.

Outcomes

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

- Identify alternative project delivery, procurement, and contract management methods for highway construction
- Identify objectives for the use of alternative project delivery, procurement, and contract management methods
- Differentiate among traditional design-bid-build and alternative project delivery, procurement, and contract management methods based on relative advantages and risks
- Define how project risks are reallocated using various project delivery, procurement, and contract management methods
- Select appropriate alternative contracting methods for use with a given project or select appropriate projects for use with a given alternative contracting method or methods
- Identify contract requirements appropriate for alternative contracting methods

Target Audience

Personnel working in contract administration, project development and design, and the management of highway construction, including contribution of information in contract provisions.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134060

Course Title

Partnering: A Key Tool for Improving Project Delivery in the Field

This training course will assist individuals involved in highway construction projects to create, participate, lead, champion, and evaluate partnered projects. The course also develops confidence to promote a partnering culture in an organization. In this course, you'll learn the background, purpose, principles, and processes of partnering; review a partnering charter, implementation checklist, and an issue resolution chart; and communicate to others the value of partnering.

Outcomes

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

- Effectively integrate partnering at the project level
- Design, develop, and implement control documents required to effectively implement partnering
- Guide other project personnel to successfully integrate partnering at the project level

Target Audience

This course is designed for state and local public agency personnel and their industry counterparts involved in the delivery of, and decision-making process for, construction projects. Specifically, the course will target: Those responsible for the delivery of multiple construction projects; Personnel who are involved on-site on a daily basis and who are responsible for the delivery of a single contract; Participants at the management level responsible for the delivery of a construction program through subordinate organizations; Invited individuals from specific states representing utilities, state and local partners, key permitting agencies, key local agencies, emergency services, and other stakeholders.

Training Level: Basic

Fee: 2013: $350 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134061

Course Title

Construction Program Management and Inspection

The Federal Highway Administration's (FHWA) responsibilities for construction project and program oversight has changed considerably throughout the years. Today, the FHWA field engineers are typically involved in a diverse array of issues that were not common in construction projects of decades past. Changes in legislation, declines in staffing resources and expertise, and increased complexity of the Federal-aid construction program have all had an impact on how the FHWA conducts construction program management and oversight. Today's FHWA field engineers must have a more focused and programmatic approach in fulfilling construction stewardship and oversight responsibilities.

This 2-day training workshop highlights the FHWA roles and resources to assist the State in delivering a quality construction program. The training will assist the FHWA field engineers in maintaining and improving technical competence and in selecting a balanced program of construction management techniques.

The workshop uses the "Construction Program Management and Inspection Guide" as instructional material. While the workshop is focused primarily at FHWA's staff and FHWA oversight activities, participation by State partners and other relevant entities is highly encouraged to further educate and train Federal Aide partners to "act on FHWA's behalf in line with the Divisions/State DOT Stewardship Agreement.

Outcomes

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

- Manage and oversee Federal-aid construction programs.

Target Audience

This training is targeted at FHWA Division field engineers and State agencies, and will provide staff with the background and knowledge they need for managing and overseeing their Federal-aid construction programs. The training is geared towards the new FHWA generalist employee but is also intended as a refresher for the veteran FHWA engineer.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 15; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134062

Course Title

Bridge Evaluation for Rehabilitation Design Considerations 4.5 Day

The ultimate goal of this effort is the development of a nationally accepted program that will serve to improve quality, ensure uniformity, and establish a minimum standard for bridge rehabilitation. The course will present innovative and state-of-the-art bridge rehabilitation technologies and procedures for a broad array of structural elements including bridge decks, girders, piers, and abutments.

Core curriculum for the course is 4.5 days and covers the outcomes listed below.

Outcomes

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

- Describe conditions that suggest the need for rehabilitation
- Identify the need for, and capacity of, destructive and/or non destructive testing (NDT) for assessment of existing conditions
- Prescribe analysis and load testing to determine the effect of existing conditions on the structure
- Distinguish root causes of distress and deterioration
- Formulate appropriate rehabilitation strategies
- Select procedures and materials for rehabilitation
- Develop effective rehabilitation construction documents
- Prepare and implement quality assurance for construction
- Monitor and resolve construction and material problems

Target Audience

The target audience includes design engineers, field engineers, resident engineers, structural engineers, materials engineers, and other technical personnel involved in the construction and rehabilitation design of bridges. Participants with an engineering background are expected to constitute the target audience. People knowledgeable in new bridge design, but not necessarily bridge rehabilitation, should attend.

Training Level: Intermediate

Fee: 2013: $770 Per Person; 2014: N/A

Length: 4.5 DAYS (CEU: 2.7 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134062A

Course Title

Bridge Evaluation for Rehabilitation Design Considerations 5-Day

The ultimate goal of this effort is the development of a nationally accepted program that will serve to improve quality, ensure uniformity, and establish a minimum standard for bridge rehabilitation. The course will present innovative and state-of-the-art bridge rehabilitation technologies and procedures for a broad array of structural elements including bridge decks, girders, piers, and abutments.

The 5-day version of this course includes two additional modules on the rehabilitation of timber and masonry structures.

Outcomes

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

- Describe conditions that suggest the need for rehabilitation
- Identify the need for, and capacity of, destructive and/or non destructive testing (NDT) for assessment of existing conditions
- Prescribe analysis and load testing to determine the effect of existing conditions on the structure
- Distinguish root causes of distress and deterioration
- Formulate appropriate rehabilitation strategies
- Select procedures and materials for rehabilitation
- Develop effective rehabilitation construction documents
- Prepare and implement quality assurance for construction
- Monitor and resolve construction and material problems

Target Audience

The target audience includes design engineers, field engineers, resident engineers, structural engineers, materials engineers, and other technical personnel involved in the construction and rehabilitation design of bridges. Participants with an engineering background are expected to constitute the target audience. People knowledgeable in new bridge design, but not necessarily bridge rehabilitation should attend.

Training Level: Intermediate

Fee: 2013: $820 Per Person; 2014: N/A

Length: 5 DAYS (CEU: 3 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134063

New Training

Course Title

Maintenance Leadership Academy

The Maintenance Leadership Academy provides an intensive training program to individuals who hold positions as State, district, and county maintenance supervisors. The Academy assists departments that are experiencing high turnover rates and want to decrease the time for acclimating new managers. The training provides an opportunity for career development, highlighting the changes that have occurred over the past 20 years and the future of the Highway Maintenance field.

Participants acquire an understanding of the various processes, methods, and materials that are applied to maintain their organization's bridge and highway systems. Participants develop a knowledge base of personnel management, materials selection, equipment use, and applicable methods to react to problems in bridges, roadways, budgeting, and planning.

The Academy curriculum consists of self-paced lessons accessed via the Web and classroom sessions. Self-paced lessons are completed prior to attending each of the two classroom sessions. Upon enrolling for the Maintenance Leadership Academy, participants attend a 1-hour orientation Web conference that provides an overview of the Academy's schedule and information on how to access the self-paced lessons.

An example schedule for the Academy is as follows:

- Week 1: Participants enroll and attend a 1-hour Web conference orientation

- Weeks 2-3: Participants complete 22 hours of independent study materials

- Weeks 4-5: Participants attend 8 days of classroom training

- Weeks 6-7: Participants complete 10.5 hours of independent study material and attend a 1-hour homework review Web conference

- Week 8: Participants attend 4 days of classroom training

Outcomes

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

- Describe the use of maintenance administration in achieving highway agency goals. (Module A)
- Describe how various treatments fit into an overall system preservation program and when to implement them. (Module B)
- Identify appropriate drainage maintenance and roadside management techniques. (Module C)
- Describe the maintenance manager's roles and responsibilities for developing, implementing, and managing a comprehensive plan for dealing with weather-related events. (Module D)
- Explain the maintenance and use of traffic control devices (including work zone plans, work zone traffic control devices, signs, striping, guardrails, and median barriers) in maintenance operations. (Module E)
- Describe how environmental protection issues, regulations and control measures affect highway maintenance activities. (Module F)

Target Audience

This course was designed for State, regional, or county personnel who manage operations programs and deal with oversight and quality assurance over broader geographic areas. They are involved with handling materials, scheduling, budgeting and planning. Participants have an advanced skill in maintenance activities. Participants enrolling in the Academy will need to have taken NHI-134064 "Transportation Construction Quality Assurance" and NHI-131110 "Pavement Preservation Treatment Construction" or had equivalent training or experience in these content areas.

Training Level: Accomplished

Fee: 2013: $1900 Per Person; 2014: N/A

Length: 12 DAYS (CEU: 10.5 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134064

Course Title

Transportation Construction Quality Assurance (1.5-Day)

The Federal Highway Administration (FHWA) identified the need for transportation construction and materials personnel to increase their knowledge of the fundamentals of effective transportation construction Quality Assurance (QA). This course was developed to ensure that agency, contractor, producer, and consultant personnel responsible for interpreting and applying quality assurance specifications in transportation construction are properly qualified. The course will utilize a Quality Assurance Reference Manual, adapted from the current NETTCP manual.

This one and a half-day version of the course covers Chapters 1 through 6 of the course materials and will be available to, and appropriate for, all audiences including management level personnel. The content covered in this first day includes how quality assurance is featured in a transportation construction quality assurance program, quality assurance program elements, the evolution of quality assurance specifications, measuring quality, and the roles and responsibilities of both contractor and agency personnel.

Outcomes

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

- Consistently apply fundamental Quality Assurance concepts, terminology, and definitions
- Differentiate QA specifications from other specifications
- Explain each of the six core elements of a QA program and how each is essential to successful implementation of Quality Assurance
- Describe the respective roles and responsibilities of the project decision makers (Contractor QC and Agency Acceptance personnel) and how their interaction contributes to construction quality

Target Audience

This is an intermediate-level course for personnel who are implementing QA specifications on construction projects. Necessary background knowledge for participants is 3-5 years minimum in transportation construction specifications inspections. The suggested list of personnel that may consider attending, if they have the requisite background knowledge are Contractor/Consultant Personnel (QC managers/QC Plan Administrators, Senior Production Facility QC Technician/Inspectors, Senior QC Laboratory Personnel, and Senior Field QC Technicians/Inspectors) and Agency Personnel (Project Managers/Resident Engineers, Senior Production Facility Acceptance Technicians/Inspectors, Senior Acceptance Laboratory Personnel, and Senior Field Acceptance Technicians/Inspectors.

Training Level: Intermediate

Fee: 2013: $350 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134064A

Course Title

Transportation Construction Quality Assurance (3-Day)

The Federal Highway Administration (FHWA) identified the need for transportation construction and materials personnel to increase their knowledge of the fundamentals of effective transportation construction Quality Assurance (QA). This course was developed to ensure that agency, contractor, producer, and consultant personnel responsible for interpreting and applying quality assurance specifications in transportation construction are properly qualified. The course will utilize a Quality Assurance Reference Manual, adapted from the current NETTCP manual.

This three-day version of the course covers Chapters 1 through 10 of the course materials and will be available to, and appropriate for, production, laboratory, and field QC and Acceptance technicians and inspectors. This version contains mathematical terms and principles used in QA sampling, testing, and decision-making. The content also includes how quality assurance is featured in a transportation construction quality assurance program, quality assurance program elements, the evolution of quality assurance specifications, measuring quality, and the roles and responsibilities of both contractor and agency personnel.

Outcomes

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

- Consistently apply fundamental Quality Assurance concepts, terminology, and definitions
- Differentiate QA specifications from other specifications
- Explain each of the six core elements of a QA program and how each is essential to successful implementation of Quality Assurance
- Describe the respective roles and responsibilities of the project decision makers (Contractor QC and Agency Acceptance personnel) and how their interaction contributes to construction quality
- Apply the mathematical concepts of variability, statistical distribution, and sampling protocols to measure construction quality
- Describe the primary components of inspection, properly document the results of inspection, and utilize inspection data to quantify quality of workmanship

Target Audience

This is an intermediate-level course for personnel who are implementing QA specifications on construction projects. Necessary background knowledge for participants: 3-5 years minimum in transportation construction specifications inspections, basic statistical knowledge/training, some usage of tools necessary to the Quality Assurance process (contractor test results). The suggested list of personnel that may consider attending, if they have the requisite background knowledge are Contractor/Consultant Personnel (QC managers/QC Plan Administrators, Senior Production Facility QC Technician/Inspectors, Senior QC Laboratory Personnel, and Senior Field QC Technicians/Inspectors) and Agency Personnel (Project Managers/Resident Engineers, Senior Production Facility Acceptance Technicians/Inspectors, Senior Acceptance Laboratory Personnel, andSenior Field Acceptance Technicians/Inspectors).

Training Level: Intermediate

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134065

Updated Training

Course Title

Risk Management

During planning for a transportation improvement, thorough consideration of potential risks can help reduce or eliminate them, ensuring a smoother project life cycle. In the same way, accounting for risk in program management and strategic planning can help transportation agencies minimize or avoid unexpected costs or delays. Recent legislation reflects the growing importance of understanding risk in government programs. Congress included requirements for risk management in the latest highway authorization, the Moving Ahead for Progress in the 21st Century Act (MAP-21).

This course provides an understanding of risk management concepts and processes, including terminology, benefits of use, risk management planning, and a framework for implementation. The course presents a cyclical risk management framework through classroom training and an independent study assignment, focusing on gathering information; identifying risk; analyzing and prioritizing risk events; documenting risk; identifying risk response strategies; incorporating response strategies into a plan; and monitoring, evaluation, and adjustment of strategies. The 1-hour independent study assignment is completed by participants before attending the 2-day classroom session.

Participants use tools and methods from each step of the framework in a series of exercises that provide realistic, job-relevant practice in applying the risk management process. In order to maximize the impact of the training and increase the likelihood of participants' mastery of the risk management process, the agency can select active agency issues (project, program, or network) to be used during the exercises. In addition, the agency can provide problem statements and pre-select the teams for the exercises. Contact the NHI Training Program Manager for further information on making such arrangements.

Outcomes

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

- Explain the overall organizational context, framework, and importance of risk management to others.
- Follow a consistent process for managing risk.
- Utilize standard risk terminology, tools, and methods.
- Apply the risk management process to a project or program within established time-constraints.
- Develop effective plans for internal and external communication and consultation about risk and risk-related issues.

Target Audience

The target audience for this course includes Federal, State and local highway employees who are responsible for directing and managing all aspects of highway related programs and projects such as planning, environment, project development, design, construction, operations, maintenance, and finance. Audience experience, background, knowledge, skills and abilities are expected to vary widely. No previous experience with risk management is required.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134067

Course Title

Inspection of Bridge Rehabilitation

This 4-day course has been designed to improve quality, ensure uniformity, and establish a minimum standard for bridge rehabilitation

An inspector often finds himself or herself in the midst of an unplanned situation during a project. The keys to successfully ensuring quality on rehab jobs are: knowing what should happen on a given job; identifying problems when they do happen; and correctly using available resources to solve the problem. This course presents innovative and best practice inspection techniques for each structural element of a bridge.

This 4-day course will introduce participants to distress and deterioration they may encounter when working with concrete or steel that requires repair. It is essential to identify the issues that harm these materials because it is often poor construction techniques that lead to reduced structural condition or shortened service life. The focus then turns to construction and inspection practices pertaining to concrete decks, steel superstructures, concrete superstructures and substructures, joints, and bearings.

The course is activity-rich, using discussions of best practices, small and large group activities for identifying critical inspection moments, and a wide array of case studies from real projects to emphasize the importance of applying these techniques in the field.

Outcomes

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

- Relate observable deterioration of bridge structural elements to distress mechanisms.
- Associate potential construction and materials problems.
- Explain the role of the construction inspector as part of the overall project team.
- Interpret drawings and specifications.
- Describe rehabilitation sequences for various bridge systems, bridge types, and materials.
- Explain basic inspection and testing of materials.
- Make and maintain sufficient records.

Target Audience

This course will be appropriate for inspectors with 1-5 years of experience who are seeking a better foundation in bridge rehabilitation techniques. They will likely have a basic grasp of construction and inspection methods, bridge terminology, and causes of distress and deterioration, although this information will be reviewed at the beginning of the course.The course will be appropriate for experienced bridge inspectors who are seeking to learn about innovative methods in bridge rehabilitation and obtain a refresher on familiar inspection methods. Construction supervisors, transportation department field inspectors, construction inspectors, field engineers, resident engineers, structural engineers, materials engineers, and other technical personnel involved in the inspection of bridge rehabilitation projects will benefit from this course. The course is designed for participants without an in-depth engineering background. However, those with engineering backgrounds are welcome to attend and can provide valuable perspective in the context of group activities and discussions.

Training Level: Basic

Fee: 2013: $800 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134068

Course Title

Addressing Uncertainty in Cost Estimating

The course covers consideration of risk and uncertainty in project cost estimates when using either a deterministic or probabilistic method. This course will provide participants with an overview of current cost estimating practice and an appreciation of the importance of cost estimating. The course will compare and contrast deterministic and probabilistic methods of cost estimating, including which method is most appropriate during the various phases of project development. Upon completion, participants will be able to select the most appropriate methodology based upon the project's characteristics and phase of development. Participants will be able to assist more experienced estimators in preparing either a deterministic or probabilistic estimate. Case studies and exercises will provide participants with an understanding of how to account for risk and uncertainty in an estimate; however, the course will not teach all of the mechanics on how to prepare complete cost estimates.

Various forms of Federal legislation and guidelines exist that define the role of FHWA in the review and acceptance of State DOT cost estimates, especially for FHWA major projects, which have a total project cost of $500 million or more. While this course will specifically address cost estimating for large and complex projects, the concepts presented are applicable and scalable for developing estimates for all transportation projects.

Outcomes

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

- Explain the principles of Probabilistic estimating
- List appropriate stages of estimating for using deterministic & probabilistic estimating methods
- Identify uncertainties and how to consider them in a cost estimate
- Quantify the likelihood of occurrence and consequence of risk events
- Determine how the results from a risk-based estimate can be applied to project development
- Determine when it is appropriate to use a deterministic, probabilistic, or combination of methods
- Analyze and evaluate the process of creating a cost estimate to determine if it is consistent with the FHWA Major Projects Cost Estimating Guidance
- Report cost and schedule estimates accurately and comprehensively to stakeholders

Target Audience

Target audience performs, or will perform, the following as part of their job responsibilities: preparing, analyzing and/or approving cost and schedule estimates; conducting pre-construction/early cost estimating that would be carried through the life of the project; and identifying risks/obstacles/red-flag issues that could trigger a cost increase or delay. This training is designed for Federal and State DOT personnel, local government personnel, MPOs, design consultants as well as engineers and planners. The training is valuable for both new and existing employees.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134069

WBT

Course Title

TCCC Ethics Awareness for the Transportation Industry - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide good practices for ethical behavior of transportation employees. The training was prepared by State DOT personnel for State DOT personnel.

The training contains good practices from various agencies. The topics of discussion in this training are: conflict of interest, safety, fraud, falsification of documentation, reporting ethical concerns, gifts and favors, fairness, personal use of agency property, and consequences.

Not all State agencies' codes of conduct are the same but they all demand similar ethical behavior of their employees. Be sure to access to your agency's codes or check with your supervisor for more information specific to your organization. Each State agency/company has their own work rules, which the viewer needs to review and follow.

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 with your feedback.

Outcomes

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

- Describe agency expectations on ethics
- Give an example of a current code of conduct policy
- Recognize and practice good ethics as an employee in the transportation industry
- Explain the consequences when rules and regulations are not followed

Target Audience

This training is designed for Level I and Level II State and 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 supervision.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134070

WBT

Course Title

SpecRisk Quality Assurance Specification Development and Validation Course - WEB-BASED

This course will provide an introduction to statistical analysis and the development of statistically valid quality assurance specifications, introducing general guidelines established and put forth by the Federal Government and FHWA policy. The course also provides participants with an introduction to SpecRisk, the resource that is necessary to successfully develop statistically valid specifications. The course is designed and delivered to motivate members of the target audience to use SpecRisk software to develop their specifications. Although the course demonstrates basic functions of the software, it is not intended to be an in-depth training on how to use SpecRisk.

This course requires a solid foundation in basic statistics. Completion of FHWA-NHI 134042, or equivalent training, is also recommended. NHI 134042 trains participants to identify the importance of organizing data and how to plot frequency histograms. It explains how a sample relates to the population, the relationship between single and multiple samples, and the use of random stratified sampling tables. This knowledge provides an excellent foundation for this course.

Outcomes

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

- Recognize key concepts to develop an effective, statistically valid Quality Assurance (QA) specification.
- Make an informed selection among available options when developing an acceptance plan.
- Develop QA specifications in alignment with best practices, Federal regulations, and FHWA policy.
- Apply SpecRisk software to understand risks and develop statistically valid specifications.

Target Audience

Personnel involved in specification development: Federal, State, and local highway agency engineers and technicians in materials, construction, and research. The training is also appropriate for industry personnel that are involved in reviewing and providing input to the specification development process.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 8 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134071

WBT

Course Title

TCCC Basic Construction and Maintenance Documentation - Improving the Daily Diary - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to help improve documentation on construction and maintenance projects. The training was prepared by State DOT personnel for State DOT personnel.

It contains good practices from various agencies. This training is intended to assist you with proper documentation on a construction or maintenance project. It is important that the information in the daily diary kept for projects are accurate, correct, and factual to insure proper payment and to avoid lawsuits.

Please note that the terminology may differ slightly from DOT to DOT; for example, the document may also be referred to as a Daily Work Report. Each State agency/company has their own requirements, which the viewer needs to review and follow.

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 with your feedback.

Outcomes

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

- Compose a complete and correct daily diary
- Recognize the importance of daily diary entries

Target Audience

This training is designed for Level I and Level II State and 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 supervision.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134072

WBT

Course Title

TCCC Math Module - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review math basics such as, math functions, algebra, and geometry. This course includes instruction that would be applicable to variety of end users. The basic math functions would be appropriate to the entry level technician or as a review.

The more complex areas of algebra and geometry would be appropriate for the more advanced technician. Problems covered in this course can be applied to further an employee's education or use the principals to solve everyday work problems. This course can be used as both a learning tool and/or as an excellent refresher.

Outcomes

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

- Perform basic and intermediate calculations using mathematics, algebra, and geometry
- Understand the impact of mathematics, algebra, and geometry in their job functions
- Build upon a foundation for applying operations and engineering concepts on the job
- Understand the impact that their actions may have on the safe and reliable operation of DOT components and systems

Target Audience

This course is designed for FHWA, State, and Local Agencies and their industry counterparts that are involved in construction and maintenance practices. It is applicable to anyone that will be performing everyday calculations for inspection, testing, and a variety of other job functions.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134073

Course Title

Leap Not Creep: Accelerating Innovation Implementation

This course is designed to provide transportation employees with the necessary tools to implement innovations quickly and successfully, and mainstream the innovations into an agency's standard practice. The training discusses the features of successful implementations, provides information on the components of an implementation plan, lists resources for locating innovations and funding for implementation, and discusses strategies for identifying and neutralizing challenges to implementing innovations.

The course is taught in a blended format. First, participants attend a two-hour Web conference to introduce the course and set expectations. One to two weeks following the Web conference, participants attend two days of classroom training to complete the course.

Note to Session Hosts: When requesting to host the course, the "Requested Date" and "Alternate Date" should be input to reflect the requested dates for the two day classroom portion of the course. When the course request is approved, the assigned instructor will contact the host to schedule both the classroom portion and the 2-hour Web conference one to two weeks prior to the classroom session.

Outcomes

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

- Identify the benefits of implementing innovations.
- Describe the evolution of an innovation from the identification of a need to mainstreaming an innovation into standard practice.
- Describe the key factors of successful innovation implementation.
- Develop a deployment plan for implementing an innovation.
- List three strategies that could be employed by agency decision-makers to support innovation implementation.
- Determine resources required to mainstream the innovation into standard practice.
- Identify strategies for overcoming barriers to implementing an innovation.
- Locate resources to support the deployment of innovations, such as funding resources.

Target Audience

The target audience for this course will be people are responsible for leading a team, or are preparing to lead a team, that's responsible for deploying an innovation; selecting innovations that will be implemented within the organization; and promoting the use of innovations within an organization.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 15; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134074

New Training WBT

Course Title

TCCC Bolted Connections - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to introduce the basics of structural bolted connections. The information presented is useful for non-structural applications as well. Bolting is a common method of making connections, care should be exercised both in their design, installation and maintenance. For the purposes of this course, we are focusing on the installation of bolts. This training is recommended for the Transportation Curriculum Coordination Council levels II through IV.

This module consists of three lessons:

Bolted joints reviews the basic connection types, types of holes, faying/contact surfaces, use of washers, tightening patterns, and fastener documentation.

Installation procedures explain how important it is to protect the fastener assemblies and surfaces during construction. We will review fastener assemblies' pre-installation verification and explain the rotational-capacity testing.

Installation methods discuss basic guidelines to achieve quality fastener installations. There are several accepted methods for installing structural bolts. The methods covered in this training are turn-of-nut, calibrated wrench, direct tension indicator, twist-off bolt, and lock pin and collar.

Outcomes

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

- Identify various fastener connection types
- Describe installation procedures
- Identify and describe various accepted installation methods

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the installation and inspection of bolts and bolted connections on construction projects.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134075

WBT

Course Title

TCCC Hardened Concrete Properties - Durability - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels II - IV.

Durability as a property of hardened concrete is essential for long-lasting pavements. This workshop discusses factors that contribute to durable concrete and covers permeability, frost resistance, sulfate resistance, alkali silica attack, and a brief look at abrasion resistance.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Recognize factors contribute to durable concrete
- Explain the importance of permeability, alkali-silica reaction, abrasion resistance and, in certain regions in the country, frost resistance and sulfate resistance of hardened concrete
- Identify tests that can be performed to determine the variables affecting the durability of hardened concrete

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that concrete meets all the requirements for durability. It is applicable to anyone desiring a better understanding of the factors of durability.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134077

Course Title

Contract Administration Core Curriculum (Resource Center Workshop)

This 1.5-day course has been prepared by the Federal Highway Administration (FHWA), Contract Administration Group. This Group is located within the Office of Program Administration (HIPA) office, which is a part of the Office of Infrastructure.

This course is designed to discuss contract provisions, administrative procedures, and applicable policies related to Federal-aid construction contracts. Discussions will include those contract procedures, policies, and requirements prescribed in 23 CFR Sections 230, 633, and 635; and their applicability to construction contracts. There will also be discussion about the detection and reporting of fraud to the Office of the Inspector General (OIG), U.S. Department of Transportation.

Outcomes

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

- Locate and interpret policy, procedures and directives that affect construction contract provisions and contracting procedures
- Research FHWA policy via statutes, regulations, and directives in a systematic manner, using the web and other resources
- List the 5 financial steps involved after contract award through State reimbursement from the US Treasury (Reimbursable program)
- Interpret the13 provisions of form FHWA-1273 ¿ "Required Contract Provisions for Federal-aid Construction Projects"
- Explain how State and Local Procedures can coexist with Federal procedures while maintaining Federal aid eligibility
- Be able to interpret the State's oversight agreement
- Use fraud indicators to detect the possibility of fraud and refer any matters involving fraud, bribery, kickbacks, gratuities, etc. to the USDOT/OIG

Target Audience

All FHWA Division Office personnel that must read, interpret and apply Federal regulations that effect administration of Federal aid contracts. All State and local government agency personnel that must interpret and apply Federal regulations that effect administration of Federal aid contracts.

Training Level: Basic

Fee: 2013: $3500 Per Course; 2014: N/A

Length: 1.5 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134078

WBT

Course Title

TCCC GPS Technology - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review Global Positioning System (GPS) technology. GPS technology is becoming a commonly used tool for construction and maintenance. This course will provide the participant with a general understanding of GPS and the accuracy that can be obtained with this new technology. GPS is used for surveying, rough and fine grading, utility locations, excavation and grading, paving, and a number of other uses. In this course, the participant will learn what advantages are gained using this technology and how these advantages are transferred to government agencies and the end user. The understanding of GPS is essential to technicians when performing inspection and maintenance job functions.

Outcomes

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

- Define GPS
- Describe the levels of GPS accuracy
- Explain how GPS is used in construction today
- Identify the advantages to contractors that use GPS
- Identify the challenges faced by contractors and government agencies adopting this new technology

Target Audience

This course is designed for FHWA, State, and Local Agencies and their industry counterparts that are currently using or will be adopting this new technology. It is applicable to anyone desiring a better understanding of Global Positioning Systems.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134084

WBT

Course Title

TCCC Fundamentals of Materials Used for Concrete Pavements - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. 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. This training is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The materials used in Portland cement concrete play an extremely valuable role in the performance of the concrete. This training covers both the non-reactive and reactive materials used in Portland cement concrete. This would include the aggregates, curing compound, reinforcement, and the materials that are chemically reactive.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-NHI-134085 TCCC Incompatibility in Concrete Pavement Systems

FHWA-NHI-134087 TCCC Mix Design Principles

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Identify materials used in Portland cement concrete
- Describe the importance of each material and the role it plays in the performance of the concrete
- Describe how each material reacts with the other materials to obtain strength, permeability, workability, etc.

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that the materials used in Portland cement concrete meet specification requirements and are compatible to provide good, durable concrete. It is applicable to anyone desiring a better understanding of the materials used in Portland cement concrete.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134085

WBT

Course Title

TCCC Incompatibility in Concrete Pavement Systems - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. 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. This training is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The materials used in Portland cement concrete play an extremely valuable role in the performance of the concrete. This training covers the incompatibilities of materials used in Portland cement concrete. Although certain materials may be perfectly acceptable on their own, when they are combined they are not compatible with each other. This can cause early stiffening, retardation, cracking, and the lack of a quality of air void system.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-NHI-134084 TCCC Fundamentals of Materials Used for Concrete Pavements

FHWA-NHI-134087 TCCC Mix Design Principles

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Identify the causes of incompatible conditions leading to early stiffening or setting and occasional early age cracking
- Recognize the importance to use the correct air void system
- Describe test methods used to identify incompatibilities

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that the materials used in Portland cement concrete meet specification requirements and are compatible to provide good, durable concrete. It is applicable to anyone desiring a better understanding of the materials used in Portland cement concrete.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134087

WBT

Course Title

TCCC Mix Design Principles - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. This training is recommended for the Transportation Curriculum Coordination Council levels II - IV.

This module discusses mix design and mix proportioning. Mix design is the process of choosing the characteristics we are looking for in the concrete mixture. Mix proportioning, on the other hand, involves taking the information provided by the mix design process and using that information to determine the actual proportions of ingredients in the mixture. This course discusses theoretical, laboratory, and field testing to determine the Portland cement concrete mix that will achieve the best possible durability, strength, constructability, economy, and uniformity.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-NHI-134084 TCCC Fundamentals of Materials Used for Concrete Pavements

FHWA-NHI-134085 TCCC Incompatibility in Concrete Pavement Systems

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Describe the overall goal of mix design
- Define the difference between mix design and mix proportioning
- Recognize field and laboratory testing plans
- Describe test methods used to identify incompatibilities

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that the mix design and proportioning of Portland cement concrete materials meet specification requirements and provide good, durable concrete. It is applicable to anyone desiring a better understanding of the mix design of Portland cement concrete.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134095

WBT

Course Title

TCCC Early Age Cracking - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. 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. This training is recommended for the Transportation Curriculum Coordination Council levels II - IV.

Cracks are not a problem as long as they are controlled through jointing; ideally the concrete will crack below the saw joint to relieve the stress. Uncontrolled random cracks are not aesthetically acceptable and can reduce ride quality, durability, and particularly load transfer. Early cracking in this module is defined as those cracks that occur before the concrete is open to public traffic. In this module, we will be talking about early age cracking. Primarily, why does it occur and how can it be eliminated or at least controlled?

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Describe the various mechanisms that can lead to early age cracking
- Define and understand why curling and warping occur
- Recognize how curling and warping affect early age cracking
- Recognize the proper use of the materials and maintaining good construction practices can control early age cracking
- Describe how certain material properties and construction methods can affect early age cracking and can help prevent the cracking from occurring

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that concrete meets all the requirements to prevent early age cracking. It is applicable to anyone desiring a better understanding of the causes and prevention of early age cracking.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134096

WBT

Course Title

TCCC Basics of Cement Hydration - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels III and IV.

This module covers how a concrete mixture changes from a plastic state to become a solid concrete slab in a relatively short period of time. Central to this transformation is a complex process called hydration, an irreversible series of chemical reactions between water and cement.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Knowledge of physical and chemical occurrences during cement hydration
- Identify various factors that can adversely affect these occurrences
- Recognize the different temperature changes during particular stages of hydration

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that the mix design and proportioning of Portland cement concrete materials meet specification requirements and provide good, durable concrete. It is applicable to anyone desiring a better understanding of the mix design of Portland cement concrete.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134097

WBT

Course Title

TCCC Fresh Concrete Properties - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels III and IV.

This module covers the properties of fresh concrete needed to produce high-quality, long lasting pavements and how to monitor these properties.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- List the main properties of fresh concrete
- Describe what affects each property
- Recognize how to monitor these properties through concrete testing

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the process to assure that the properties of a concrete mixture provide ease in placement, ease of consolidation, and long lasting pavement. It is applicable to anyone desiring a better understanding of the properties of Portland cement concrete.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134098

WBT

Course Title

TCCC Construction of Concrete Pavements - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels II, III, and IV

This module covers construction operations and establishes important ties to design and materials.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Recognize the principles of good quality Portland cement concrete pavement construction
- Identify proper material handling
- Describe the importance of the design and mixing of Portland cement concrete
- Recognize when field adjustments may be necessary
- Describe paving operations including placing, finishing, curing, and sawing concrete

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the plant manufacturing process, delivery, placement, and inspection of Portland cement concrete paving.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134100

WBT

Course Title

TCCC QCQA for Concrete Pavements - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels III and IV.

This module covers an overview of QC/QA concepts and definitions. It does not provide sufficient detail to actually develop a comprehensive QC/QA plan.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Identify the basic QC/QA terminology and record keeping requirements
- Recognize the statistical quality control chart
- Describe the common QC/QA tests performed for concrete paving projects

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the quality control activities on a Portland cement concrete paving project.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134101

WBT

Course Title

TCCC Design of Pavement - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels III and IV.

This module covers pavement design and subgrade concepts as they relate to materials and construction. It does not provide sufficient detail to actually design or evaluate a design. It covers the primary goal of pavement design, which is to provide a pavement with the following characteristics: safe, long lasting, cost effective, low maintenance, and constructible.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134102 TCCC Troubleshooting for Concrete Pavements

Outcomes

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

- Identify pavement types and design features
- Recognize what design variables are controlled by field operations
- Discuss the two primary types of pavement distresses (performance measures)
- Recognize how subgrades and bases effect construction operations and long-term pavement performance

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in designing, constructing, and inspecting Portland cement concrete pavements.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134102

WBT

Course Title

TCCC Troubleshooting for Concrete Pavements - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review integrated materials and construction practices for concrete pavement. The training was developed by the National Concrete Pavement Technology Center at Iowa State University. This training is recommended for the Transportation Curriculum Coordination Council levels III and IV.

This module covers using the information available in the IMCP Manual and particularly tables 10-1 through 10-4 to identify and diagnose problems related to concrete pavement pre and post construction and to develop a plan to address the problems.

This module is part of a curriculum from the "Integrated Materials and Construction Practices for Concrete Pavement" manual developed through the National Concrete Pavement Technology Center at Iowa State University. The other Web-based training modules include:

FHWA-NHI-134075 TCCC Hardened Concrete Properties - Durability

FHWA-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

FHWA-NHI-134095 TCCC Early Age Cracking

FHWA-NHI-134096 TCCC Basics of Cement Hydration

FHWA-NHI-134097 TCCC Fresh Concrete Properties

FHWA-NHI-134098 TCCC Construction of Concrete Pavements

FHWA-NHI-134100 TCCC QCQA for Concrete Pavements

FHWA-NHI-134101 TCCC Design of Pavement

Outcomes

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

- Recognize IMCP manual tables 10-1 thru 10-4 to identify and diagnose problems with Portland cement concrete pavement
- Compose a plan to correct problems associated with Portland cement concrete pavement.

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in designing mixes, constructing and inspecting Portland cement concrete pavements.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134105

New Training WBT

Course Title

TCCC Pipe Installation, Inspection, and Quality - WEB-BASED

This training was developed by the Transportation Curriculum Coordination Council (TCCC) in partnership with State DOT personnel. It helps transportation professionals involved in the installation, inspection, and quality of pipe on highway construction projects improve their understanding of the factors that contribute to high-quality installations. The training was prepared by State DOT personnel for State DOT personnel. It contains good practices from various agencies. Each State agency/company has their own specifications, which the viewer needs to review and follow for the specified pipe.

This course is focused on the three basic pipe materials. They are Concrete, Metal, and Plastic. This course contains important instructional material, procedures and guidance that has been developed to maintain uniformity among pipe inspectors. This course will cover what you need to know, do, and look for during the inspection of pipe installation.

This training is directed toward the intermediate level technician, to give them an in-depth view of the basic materials used in pipe construction. The course modules will address the different types of pipe as well as the foundation work, bedding selection, placement, joint sealants, backfilling and documentation for concrete, metal and plastic pipe.

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.

Outcomes

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

- Identify basic material pipe types
- Recognize proper foundation and bedding requirements for pipe
- Link different types of pipe with its required specifications for installation
- Identify common errors to avoid when dealing with placement, joints and backfilling of pipe
- Recognize the importance of accurate records and reporting

Target Audience

This course targets field personnel involved in all aspects of highway construction from engineers to technicians. The ideal audience will have a mix of experience and responsibility levels so that agency-specific practices can be shared by more experienced participants with those who are newer to the field. The course materials also are appropriate for project manager/resident engineer involvement.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 7 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134106

New Training WBT

Course Title

TCCC Basic Construction Surveying - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review the basics of construction surveying. This training has been prepared to provide guidance and instruction to those involved in construction surveying. The important surveying tasks involved in this work and the surveying procedures to be followed are also described in this training.

This training is targeted for those who are new to the construction surveying experience or for anyone needing a refresher. This training is recommended for the Transportation Curriculum Coordination Council levels I and II.

We've broken this training into three modules:

1. Basic Surveying Concepts
2. Measurement and Construction Surveying
3. Survey Mathematics

Outcomes

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

- Describe basic surveying concepts
- Understand measurement and construction surveying
- List the instruments and techniques used in measurement
- Perform stationing and staking operations
- Perform basic survey mathematics

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in construction survey. This training is targeted for those who have not had construction surveying experience or anyone needing a review over the key concepts of surveying.

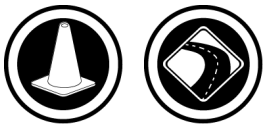
Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 3 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov



Course Number

FHWA-NHI-134107

New Training WBT

Course Title

TCCC Recognizing Roadside Weeds (Southeastern States) - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI and has been designed for someone learning the first steps in the vegetation management. However, it does not go into the education of weed prevention. This training is recommended for the Transportation Curriculum Coordination Council levels I, and II.

The first step in determining an appropriate weed control strategy is to identify the weed plant. There are numerous different plants growing along many roadsides that can be considered weeds. This is a basic course in the area of weed identification. Most weeds are territorial to different climates and regions, therefore, making it difficult to identify nationally weeds that are dealt with by different State DOT's. This training does focus on southeastern states and is organized in alphabetical order of the weeds that will be covered.

For more information on how stop the migration of weeds contact your State Vegetation Management Program.

Outcomes

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

- Understand the definition of a weed
- Describe the reasons for weed control
- Identify several of the most common weeds

Target Audience

This course is designed for entry level individuals working in vegetation management.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134108

New Training WBT

Course Title

TCCC Plan Reading Series - WEB-BASED

The Transportation Curriculum Coordination Council (TCCC) in partnership with NHI is pleased to offer this comprehensive training series (FHWA-NHI-134108) for highway plan reading. This training is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The ability to read plans is essential for anyone involved in highway and/or bridge construction. This training contains modules covering both basic plan reading instructions, as well as, providing a more in-depth level of instruction for anyone seeking more information and/or a review of plan reading.

To streamline registration and enable you to take some or all of these trainings when it best suits your schedule, we have created this new series option which automatically registers you for all 8 modules-it's that easy. They are as follows:

Module 1: Highway Plan Reading Basics (134108A) - This module describes the foundational information needed to begin reading and understanding highway plans. This includes an overview of the title page and its components, station numbers, townships, and quantity estimates.

Module 2: Grading Plans (134108B) - This module reviews the information found in the Grading Plans (sheets that begin with "B") section of a highway plan.

Module 3: Traffic Control Plans (134108C) - This module reviews the information found in the Traffic Control Plans (sheets that begin with "C") section of a highway plan.

Module 4: Erosion and Sediment Control Plans (134108D) - This module reviews the information found in the Erosion and Sediment Control Plans (sheets that begin with "D") section of a highway plan.

Module 5: Right of Way Plans (134108E) - This module reviews the information found in Right-of-Way Plans for a highway project.

Module 6: County Plans (134108F) - This module reviews the information found in a county plan.

Module 7: Bridge Plans (134108G) - This module reviews the information found in a bridge plan.

Module 8: Culvert Plans (134108H) - This module reviews the information found in a culvert plan.

Outcomes

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

- Recognize plan sheets for highway, county, bridge, culvert construction
- Recognize station locations and calculate; cross section, profile, and plan views; centerline location; point of intersection; and a variety of plan details
- Recognize plan sheet for all parts of both a bridge substructure and superstructure
- Comprehend the terminology and symbols used when reading plans

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the construction process of highways, county, bridges, or culverts. It is applicable to anyone desiring a better understanding of plan reading.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 8 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134108A

New Training WBT

Course Title

TCCC Plan Reading: Highway Plan Reading Basics - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review the basics for highway plan reading. This course is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The ability to read plans is essential for anyone involved in highway and/or bridge construction. This training describes the foundational information needed to begin reading and understanding highway plans. This includes an overview of the title page and its components, station numbers, townships, and quantity estimates.

This training is part of the curriculum from the Plan Reading Series (FHWA-NHI-134108) which covers both basic plan reading instructions, as well as, providing a more in-depth level of instruction for anyone seeking more information and/or a review of plan reading. The other Web-based training modules include:

FHWA-NHI-134108B Grading Plans

FHWA-NHI-134108C Traffic Control Plans

FHWA-NHI-134108D Erosion and Sediment Control Plans

FHWA-NHI-134108E Right-of-Way Plans

FHWA-NHI-134108F County Plans

FHWA-NHI-134108G Bridge Plans

FHWA-NHI-134108H Culvert Plans

Outcomes

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

- Describe the components of a plan's title sheet
- Calculate the distance between two station numbers
- Explain how a township is designated in a plan
- Identify quantity estimates for given supplies and materials

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the construction process of highways and/or bridges. It is applicable to anyone desiring a better understanding of plan reading.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134108B

New Training WBT

Course Title

TCCC Plan Reading: Grading Plans - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review the basics for highway plan reading. This course is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The ability to read plans is essential for anyone involved in highway and/or bridge construction. This training reviews the information found in the Grading Plans (sheets that begin with "B") section of a highway plan.

This training is part of the curriculum from the Plan Reading Series (FHWA-NHI-134108) which covers both basic plan reading instructions, as well as, providing a more in-depth level of instruction for anyone seeking more information and/or a review of plan reading. The other Web-based training modules include:

FHWA-NHI-134108A Highway Plan Reading Basics

FHWA-NHI-134108C Traffic Control Plans

FHWA-NHI-134108D Erosion and Sediment Control Plans

FHWA-NHI-134108E Right-of-Way Plans

FHWA-NHI-134108F County Plans

FHWA-NHI-134108G Bridge Plans

FHWA-NHI-134108H Culvert Plans

Outcomes

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

- Describe the information provided in the grading plans
- Identify grade characteristics provided in the typical grading sections sheets
- Explain the importance of plan and profile sheets
- Describe the different elements that can be depicted in plan and profile sheets

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the construction process of highways and/or bridges. It is applicable to anyone desiring a better understanding of plan reading.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134108C

New Training WBT

Course Title

TCCC Plan Reading: Traffic Control Plans - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review the basics for highway plan reading. This course is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The ability to read plans is essential for anyone involved in highway and/or bridge construction. This training reviews the information found in the Traffic Control Plans (sheets that begin with "C") section of a highway plan.

This training is part of the curriculum from the Plan Reading Series (FHWA-NHI-134108) which covers both basic plan reading instructions, as well as, providing a more in-depth level of instruction for anyone seeking more information and/or a review of plan reading. The other Web-based training modules include:

FHWA-NHI-134108A Highway Plan Reading Basics

FHWA-NHI-134108B Grading Plans

FHWA-NHI-134108D Erosion and Sediment Control Plans

FHWA-NHI-134108E Right-of-Way Plans

FHWA-NHI-134108F County Plans

FHWA-NHI-134108G Bridge Plans

FHWA-NHI-134108H Culvert Plans

Outcomes

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

- Describe the information provided in the traffic control plans
- Identify signs to be used in the project
- Identify sign locations

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the construction process of highways and/or bridges. It is applicable to anyone desiring a better understanding of plan reading.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: .5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134108D

New Training WBT

Course Title

TCCC Plan Reading: Erosion and Sediment Control Plans - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review the basics for highway plan reading. This course is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The ability to read plans is essential for anyone involved in highway and/or bridge construction. This training reviews the information found in the Erosion and Sediment Control Plans (sheets that begin with "D") section of a highway plan.

This training is part of the curriculum from the Plan Reading Series (FHWA-NHI-134108) which covers both basic plan reading instructions, as well as, providing a more in-depth level of instruction for anyone seeking more information and/or a review of plan reading. The other Web-based training modules include:

FHWA-NHI-134108A Highway Plan Reading Basics

FHWA-NHI-134108B Grading Plans

FHWA-NHI-134108C Traffic Control Plans

FHWA-NHI-134108E Right-of-Way Plans

FHWA-NHI-134108F County Plans

FHWA-NHI-134108G Bridge Plans

FHWA-NHI-134108H Culvert Plans

Outcomes

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

- Describe the information provided in the erosion and sediment control plans
- Explain the erosion and sediment control items used in the plan

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the construction process of highways and/or bridges. It is applicable to anyone desiring a better understanding of plan reading.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: .5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134108E

New Training WBT

Course Title

TCCC Plan Reading: Right-of-Way Plans - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review the basics for highway plan reading. This course is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The ability to read plans is essential for anyone involved in highway and/or bridge construction. This training reviews the information found in right-of-way plans for a highway project.

This training is part of the curriculum from the Plan Reading Series (FHWA-NHI-134108) which covers both basic plan reading instructions, as well as, providing a more in-depth level of instruction for anyone seeking more information and/or a review of plan reading. The other Web-based training modules include:

FHWA-NHI-134108A Highway Plan Reading Basics

FHWA-NHI-134108B Grading Plans

FHWA-NHI-134108C Traffic Control Plans

FHWA-NHI-134108D Erosion and Sediment Control Plans

FHWA-NHI-134108F County Plans

FHWA-NHI-134108G Bridge Plans

FHWA-NHI-134108H Culvert Plans

Outcomes

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

- Explain the purpose of right-of-way plans
- Explain when right-of-way is needed
- Describe the information provided in right-of-way plans
- Describe when land is acquired for easements
- Explain how parcels are used in right-of-way plans
- Describe how utilities will be handled for the project

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the construction process of highways and/or bridges. It is applicable to anyone desiring a better understanding of plan reading.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134108F

New Training WBT

Course Title

TCCC Plan Reading: County Plans - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review the basics for highway plan reading. This course is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The ability to read plans is essential for anyone involved in highway and/or bridge construction. This training reviews the information found in a county plan.

This training is part of the curriculum from the Plan Reading Series (FHWA-NHI-134108) which covers both basic plan reading instructions, as well as, providing a more in-depth level of instruction for anyone seeking more information and/or a review of plan reading. The other Web-based training modules include:

FHWA-NHI-134108A Highway Plan Reading Basics

FHWA-NHI-134108B Grading Plans

FHWA-NHI-134108C Traffic Control Plans

FHWA-NHI-134108D Erosion and Sediment Control Plans

FHWA-NHI-134108E Right-of-Way Plans

FHWA-NHI-134108G Bridge Plans

FHWA-NHI-134108H Culvert Plans

Outcomes

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

- Describe the information provided in a county plan
- Given a county plan, explain the details of the project

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the construction process of highways and/or bridges. It is applicable to anyone desiring a better understanding of plan reading.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134108G

New Training WBT

Course Title

TCCC Plan Reading: Bridge Plans - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review the basics for highway plan reading. This course is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The ability to read plans is essential for anyone involved in highway and/or bridge construction. This training reviews the information found in a bridge plan.

This training is part of the curriculum from the Plan Reading Series (FHWA-NHI-134108) which covers both basic plan reading instructions, as well as, providing a more in-depth level of instruction for anyone seeking more information and/or a review of plan reading. The other Web-based training modules include:

FHWA-NHI-134108A Highway Plan Reading Basics

FHWA-NHI-134108B Grading Plans

FHWA-NHI-134108C Traffic Control Plans

FHWA-NHI-134108D Erosion and Sediment Control Plans

FHWA-NHI-134108E Right-of-Way Plans

FHWA-NHI-134108F County Plans

FHWA-NHI-134108H Culvert Plans

Outcomes

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

- Identify the major components of a bridge structure
- Describe the information provided in a bridge plan
- Using a bridge plan, explain details of the project

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the construction process of highways and/or bridges. It is applicable to anyone desiring a better understanding of plan reading.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134108H

New Training WBT

Course Title

TCCC Plan Reading: Culvert Plans - WEB-BASED

This training is provided by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review the basics for highway plan reading. This course is recommended for the Transportation Curriculum Coordination Council levels II - IV.

The ability to read plans is essential for anyone involved in highway and/or bridge construction. This training reviews the information found in a culvert plan.

This training is part of the curriculum from the Plan Reading Series (FHWA-NHI-134108) which covers both basic plan reading instructions, as well as, providing a more in-depth level of instruction for anyone seeking more information and/or a review of plan reading. The other Web-based training modules include:

FHWA-NHI-134108A Highway Plan Reading Basics

FHWA-NHI-134108B Grading Plans

FHWA-NHI-134108C Traffic Control Plans

FHWA-NHI-134108D Erosion and Sediment Control Plans

FHWA-NHI-134108E Right-of-Way Plans

FHWA-NHI-134108F County Plans

FHWA-NHI-134108G Bridge Plans

Outcomes

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

- Identify the major components of a culvert
- Describe the information provided in a culvert plan
- Using a culvert plan, explain details of the project

Target Audience

This training is designed for FHWA, State, and local agencies and their industry counterparts involved in the construction process of highways and/or bridges. It is applicable to anyone desiring a better understanding of plan reading.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109

New Training WBT

Course Title

Maintenance Training Series - WEB-BASED

The Maintenance Training Series was created to train individuals responsible for the maintenance of our Nation's roadways. The series consists of 11 self-paced, Web-based trainings (WBTs) on various maintenance operations topics, ranging from the conceptual (pavement preservation) to the practical (management of underground storage tanks). The trainings included in the series are listed below and each will take approximately 1 hour to complete.

Participants who wish to complete all 11 trainings in the Maintenance Training Series should enroll in course 134109. Those who are interested in specific topics may enroll in each training individually.

- Pavement Preservation Program (134109A)
- Shaping and Shoulders (134109B)
- Thin HMA Overlays and Leveling (134109C)
- Base and Subbase Stabilization and Repair (134109D)
- Drainage (134109E)
- Outdoor Advertising and Litter Control (134109F)
- Roadside Vegetation Management (134109G)
- Weather-related Operations (134109H)
- Basics of Work Zone Traffic Control (134109I)
- Underground Storage Tanks (134109J)
- Cultural and Historic Preservation (134109K)

Outcomes

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

- Learning outcomes have been established at the module level. Please see the individual modules for the specific learning outcomes.

Target Audience

This course was designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance over broader geographic areas. The target audience is also involved with handling materials, scheduling, budgeting and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 11 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109A

New Training WBT

Course Title

Maintenance Training Series: Pavement Preservation Program - WEB-BASED

Pavement preservation represents a major paradigm shift in the way many transportation agencies view and operate their highway networks. The Pavement Preservation Programs course provides basic information on what comprises a pavement preservation program and how it is implemented. It places particular emphasis on changes in practice and assignment of dedicated funding.

Additionally, the training covers the benefits and challenges to a preservation program; Federal and State resources available to support a preservation program; and approaches for communicating the advantages of pavement preservation to stakeholders.

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Identify the benefits and challenges of implementing a pavement preservation program
- Determine ways to develop support for a pavement preservation program

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109B

New Training WBT

Course Title

Maintenance Training Series: Shaping and Shoulders - WEB-BASED

Shoulders play an important role in both pavement performance and roadway safety. Maintaining shoulders in a proper and timely manner is a primary goal of transportation agencies. In an effort to assist agencies in meeting this goal, the Shaping and Shoulders training provides information on the maintenance of both paved and unpaved shoulders, including specific details on the maintenance of gravel shoulders.

In addition to a discussion of the various types of shoulders, project selection considerations, and key maintenance issues, this training places shoulders and shaping into the context of an overall maintenance and pavement preservation program.

This training was developed as part of the Maintenance Training Series. To access all the trainings in the series, enroll in the 134109 course.

Outcomes

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

- Identify desirable characteristics of various types of shoulders
- Identify project selection considerations for shaping and shoulders
- Describe shoulder shaping and blading activities, including equipment requirements and construction activities
- Describe how a shoulder and ditching program forms the core of the overall maintenance and pavement preservation program

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109C

New Training WBT

Course Title

Maintenance Training Series: Thin HMA Overlays and Leveling - WEB-BASED

Thin HMA overlays and leveling are common pavement treatments and can be a central part of a maintenance crew's activities. During the Thin HMA Overlays and Leveling training, participants will be introduced to the characteristics and purposes of thin HMA overlays as well as the placement of leveling courses. Each of these techniques is capable of improving the functionality of an otherwise structurally sound pavement.

The training also covers information on the materials, personnel, and equipment needed for thin HMA overlays; items that should be considered when making project selection decisions; and guidance on proper mixture compaction. This information is designed to help participants improve project planning and execution for thin HMA overlays and leveling treatments.

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Determine the purpose of thin HMA overlays and leveling courses
- Identify material components of HMA overlays
- Identify personnel and equipment needed for HMA overlays and leveling construction
- Identify project selection considerations for thin HMA overlays and leveling
- Identify how this treatment can be incorporated into an overall system preservation program

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109D

New Training WBT

Course Title

Maintenance Training Series: Base and Subbase Stabilization and Repair - WEB-BASED

Before preservation treatments can be applied, localized repairs may be necessary for a pavement's base or subbase. The Base and Subbase Stabilization and Repair course gives participants the knowledge they need to determine if the base or subbase must be stabilized or repaired, to select the appropriate stabilization and repair methods for a given project, and to ensure the repair is performed properly.

This training reviews the failures and distresses that indicate structural deterioration exists in a roadway. The course also covers project selection and trade-off considerations through example roadway projects that give participants the opportunity to evaluate a roadway and determine if it is a candidate for reconstruction or repair. Participants can use this information, as well as guidance on design and construction, to make sound project planning decisions.

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Identify the symptoms of a localized base or subbase problem, which require greater depth of stabilization and repair than a hot-mix asphalt (HMA) or portland cement concrete (PCC) surface repair patch
- Determine when it is appropriate to employ base or subbase repair on a preventive maintenance project
- Identify the most appropriate repair methods if base or subbase failures are identified in a project

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109E

New Training WBT

Course Title

Maintenance Training Series: Roadway Drainage - WEB-BASED

Shoulder, ditch, and pipe or culvert maintenance activities are performed frequently throughout the year. These activities are critical for avoiding hazardous roadway conditions and extending the life of pavements by controlling water flow along maintainable pathways. This course, Roadway Drainage, provides information on the purpose, function, and components of roadway drainage systems.

This course reviews the components of shoulders and ditches, the purpose of a roadway drainage inventory, and the permits used in roadway drainage maintenance. Examples of existing drainage inventories are provided. In addition, the benefits of proper water removal are discussed through examples of drainage system issues, such as ponding and washouts, in order to emphasize the connection between good drainage and roadway safety.

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Identify the purpose and function of roadway drainage systems
- Identify eight components of roadway drainage systems
- Identify the purpose of a roadway drainage inventory
- Identify the purpose of permits in roadway drainage maintenance
- Identify the components of shoulders and ditches

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109F

New Training WBT

Course Title

Maintenance Training Series: Outdoor Advertising and Litter Control - WEB-BASED

The Highway Beautification Act (HBA) of 1965 mandated a state program, based on Federal rules and regulations, for improving motorists' visual experiences on the roadway. The HBA affects billboards and advertisements along State roadways. The Outdoor Advertising and Litter Control course familiarizes maintenance personnel with the rules and regulations governing placement and control of outdoor advertising along highway rights-of-way to ensure they are in compliance with the standards stipulated in the HBA. Additionally, the course covers litter control safety for public groups assisting State DOTs in litter pickup.

Participants learn about the rules and regulations for maintaining and controlling outdoor advertising, guidance on administering an outdoor advertising program, the steps involved in the permitting process, and appropriate actions for non-compliance by sign owners. Additionally, participants are encouraged to compare the standards outlined in the HBA to their State's rules and regulations, which may include stricter provisions than those in the HBA.

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Identify Federal and State regulations, laws, ordinances, guidelines, and policies governing outdoor advertisement placement
- Describe the permit process
- Describe the role of the maintenance supervisor in outdoor advertising control

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: .5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109G

New Training WBT

Course Title

Maintenance Training Series: Roadside Vegetation Management - WEB-BASED

Vegetation management is much more than routine mowing of grass and trimming of bushes and trees. The Roadside Vegetation Management course explains the need for and purpose of good vegetation management. The course also underscores why vegetation management is a critical part of a roadway maintenance program.

Participants learn about equipment and herbicides used for vegetation management, including an overview of mechanical vegetation control and the environmental controls and precautions needed when using herbicides as part of a noxious weed control program.

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Describe why vegetation control is important to roadway safety and performance
- Identify the types of equipment used for mechanical vegetation control
- Identify types of herbicide vegetation management methods, their use, environmental control, and precautions
- Describe the requirements of a noxious weed control program

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109H

New Training WBT

Course Title

Maintenance Training Series: Weather-related Operations - WEB-BASED

Storm control is a major component of roadway maintenance in many areas of the country. State, municipal, and county agencies are responsible for providing safe, passable roadways even in severe weather. While the majority of the Weather-related Operations course concentrates on snow and ice storms, many of the elements apply to other weather events as well. Tornadoes, hurricanes, and flooding all require coordination and dedication of maintenance personnel. In any weather event, agencies need to restore roadways and bridges and to ensure they are safe for motorists.

Participants learn about the planning requirements for an effective storm response, including scheduling and training personnel, identifying equipment needs, executing dry runs, and the additional requirements posed by a multi-day storm event. This training assists participants with planning and responding effectively to all weather-related operations.

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Identify the elements of an effective storm response plan
- Identify factors involved in scheduling personnel needs
- Identify safety and training considerations for maintenance personnel who are involved in weather-related operations
- Identify the types of equipment used in a snow and ice removal plan and their uses
- Describe how to identify equipment needs for a particular storm

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109I

New Training WBT

Course Title

Maintenance Training Series: Basics of Work Zone Traffic Control - WEB-BASED

Meeting the national requirements for work zone traffic control is a critically important responsibility of maintenance personnel. The national requirements, found in Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD), promote driver and worker safety during roadway maintenance projects. This training, Basics of Work Zone Traffic Control, provides an introduction to the requirements outlined in Part 6 of the 2009 MUTCD. The course also offers an overview of the manual's structure and requirements regarding traffic control devices and their applications, flagging operations and procedures, and pedestrian and worker safety.

Through a series of work zone scenarios, this training uses the MUTCD Part 6 to review fundamental concepts of setting up work zones, including proper signage, taper lengths, and flagging procedures. Participants are encouraged to compare their State's standards, if available, to the guidance established in the MUTCD and determine what additional requirements may need to be met to establish safe, compliant work zones.

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Describe the content and use of The Manual on Uniform Traffic Control Devices (MUTCD) Part 6
- Use the MUTCD to correctly answer questions about the basics of work zone traffic control
- Differentiate among standard, guidance, and option conditions in the MUTCD
- Differentiate among standard, guidance, and option conditions in the MUTCD for work zone traffic control in rural and urban areas

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109J

New Training WBT

Course Title

Maintenance Training Series: Underground Storage Tanks - WEB-BASED

The Nation's underground storage tank (UST) systems consist of underground tanks and piping that store petroleum and other hazardous materials. This course, Underground Storage Tanks, addresses the procedures to install, operate, and remove USTs.

Developed specifically for maintenance personnel, this course provides participants with an understanding of the Federal laws and regulations that govern UST systems. During the course, participants acquire the knowledge needed to successfully oversee UST installations and closures. Specifically, the course explores the requirements of industry installation and closure codes, leakage detection, spill and overfill prevention, corrosion protection, and ensuring a "clean" closure.

This training was developed as part of the Maintenance Training Series. To access all the trainings in the series, enroll in the 134109 course.

Outcomes

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

- Describe the regulatory framework governing the operation of underground storage tanks
- Describe UST operations
- Describe the process that must be followed to obtain satisfactory "clean closure" from the appropriate oversight agency
- Describe UST cleanup and removal operations

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109K

New Training WBT

Course Title

Maintenance Training Series: Cultural and Historic Preservation - WEB-BASED

Cultural and historic sites are often located within an area where maintenance activities are scheduled to be completed. This training, Cultural and Historic Preservation, is teaches participants about regulations and concerns related to safeguarding cultural and historic sites from the potential impacts of highway maintenance activities. Examples of maintenance activities that can impact cultural or historic sites include slope stabilization, shoulder or pavement widening, and vegetation control. Additional examples are presented during the course.

This course assists participants with recognizing potential historic or cultural resources, verifying a site's cultural or historic status, and avoiding impacts to sites when carrying out maintenance activities. Since completing these tasks often requires additional expertise, resources for obtaining needed assistance are provided. In addition, participants learn how maintenance activities can enhance cultural and historic sites through utilization of Context Sensitive Solutions (CSS).

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Identify governing bodies and registries that should be consulted prior to commencing maintenance activities on sites of cultural and historic importance
- Recognize what sorts of structures, landmarks, and properties could pose potential cultural and historic preservation issues
- Describe how to avoid impacts to historic sites
- Describe the role of DOT in maintaining and enhancing cultural resources

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134110

Course Title

TCCC Change Orders, Claims, and Dispute Resolutions - WEB-BASED

Highway construction contracts often require modification due to scope changes, differing site conditions, or a number of other reasons. Administration of changes and/or claims can result in a dispute. Some contracts have a dispute resolution process specified to facilitate timely administration of the issue. This training explores all of these topics and more and provides you with an overview of the change process, the claim process, and the Federal government's role in these situations.

The Change Orders, Claims, and Dispute Resolutions course contains two lessons. Lesson 1 contains information on change orders and Lesson 2 covers claims and dispute resolutions. This course discusses the relationship between the contractor and owner and different ways a change can be handled between the two. The course has good information on how to avoid a claim. When a claim does occur, the course covers the claim process and the federal government's role in the process. The course includes videos, questions and answers, and reviews all the key points throughout the training.

Outcomes

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

- Describe what constitutes a change in a transportation contract
- Define the different kinds of changes
- Identify the authority behind change orders
- Identify the existing regulations that impact changes
- Describe the Federal government's role in the change process
- Define claim
- Describe the process for determining a claim's validity
- Define dispute resolution
- Describe the best way to avoid disputes

Target Audience

This training is targeted technicians and administrators that are responsible for change orders, claims, and change resolutions. This training is recommended for the Transportation Curriculum Coordination Council levels I, II, and III.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134111

New Training WBT

Course Title

TCCC Bridge Construction Inspection: Inspector Safety - WEB-BASED

The Bridge Construction Inspection Safety discusses safety standards and the inspector's role in enforcing them, as well as, the personal protective equipment that is designed to protect the worker's body against occupational and safety hazards.

There are three topics that this course will cover including safety responsibility, personal protective equipment, and potential hazards. The course references OSHA and ANSI safety standards. Two important areas covered include communication and inspector authority. Hazards on the bridge construction site including equipment, traffic and falls are each detailed for the inspector. Trenching and excavation hazards, confined spaces, painting hazards and construction over waterways are important safety areas that anyone on bridge inspection should be knowledgeable of and are included in the course.

Outcomes

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

- Understand the inspector's safety role
- Describe necessary construction site personal protective equipment (PPE)
- Identify potential safety hazards

Target Audience

This training is targeted to anyone performing bridge inspection duties for either agencies or consultants. This course focuses on the entry level inspector, but is a good refresher for any level of inspector. This training is recommended for the Transportation Curriculum Coordination Council levels II through IV.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380098

New Training WBT

Course Title

TCCC Maintenance of Traffic for Technicians - WEB-BASED

New Course No. 133116

This course is currently being updated to reflect changes in the MUTCD. Until this update is complete, please check all references to the latest MUTCD to make sure they are current.

The Maintenance of Traffic for Technicians Web-based training presents information about the placement of, field maintenance required for, and inspection of traffic control devices. In addition, drafting work zone traffic control plans and flagging are discussed.

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to introduce maintenance of traffic for technicians. This training is recommended for the TCCC levels I and II.

We've broken this training into five modules:

1. General Terms and Procedures
2. Traffic Channelizing and Control Devices
3. Traffic Control Zones
4. Flagger Operations
5. Traffic Control Zone Operations

Outcomes

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

- Identify the correct placement of work zone traffic control devices
- Perform field maintenance of work zone traffic control devices
- Inspect placement or operational functions of work zone traffic control devices
- Generate work zone traffic control plans
- Explain the basics of flagging

Target Audience

This training is designed for all persons with duties that include: Direct responsibility for placement of work zone traffic control devices; Direct responsibility for field maintenance of work zone traffic control devices; Inspection of the placement or operational function of work zone traffic control devices; and Drafting or electronic generation of work zone traffic control plans. The target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380099

New Training WBT

Course Title

TCCC Maintenance of Traffic for Supervisors - WEB-BASED

New Course No. 133117

This course is currently being updated to reflect changes in the MUTCD. Until this update is complete, please check all references to the latest MUTCD to make sure they are current.

The Maintenance of Traffic for Supervisors Web-based training presents information about the placement of, field maintenance required for, and inspection of traffic control devices. In addition, drafting work zone traffic control plans and flagging are discussed. This training focuses on the design of a traffic control plan, and how and why one needs to operate and implement traffic control in the work zone.

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to introduce maintenance of traffic for supervisors. This training is recommended for the TCCC levels III and IV.

We've broken this training into five modules:

1. Fundamental Principles of Temporary Traffic Control Zones
2. Temporary Traffic Control Devices
3. Traffic Control Zones
4. Transportation Management Plans
5. Flagger Operations

Outcomes

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

- Describe how to create clear, organized traffic control plans
- Identify acceptable temporary traffic control devices
- Determine good and bad flagging techniques

Target Audience

This training is designed for personnel with responsibility or authority to decide on the specific maintenance of traffic requirements to be implemented. These positions include engineers responsible for work zone traffic control development and work site traffic supervisors. The target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

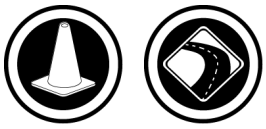
Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov



Course Number

FHWA-NHI-380108

New Training WBT

Course Title

Maintenance of Drainage Features for Safety - WEB-BASED

The purpose of this training is to highlight common roadway drainage problems that can cause an unsafe condition and suggest inspection methods and corrective action. Maintaining roadway drainage is important for safety and for ensuring the long life of the roadway by preventing erosion of the roadway, saturation of the subbase, and damage to roadway structures. The training is broken into two modules:

Module 1: Effects of Drainage describes common roadway safety hazards and how to recognize drainage problems.

Module 2: Safe Drainage Features and Work Zones covers solutions to common roadway safety issues and work zone safety.

This training is not intended to be a design guide. Participants may want to contact their State Local Technical Assistance Program (LTAP) for more details on drainage design.

Outcomes

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

- Identify problems created by ponding and standing water on the roadway
- Describe safety issues related to ditches and side slopes
- Describe how drainage features can become safety hazards
- Identify methods for identifying drainage problems
- Recall conditions to look for during field inspections
- Explain how to fix or prevent common roadway side slope problems
- Describe work zone safety procedures

Target Audience

This training is intended to help local road agency maintenance workers understand the importance of maintaining and upgrading drainage features on their road system to avoid an unsafe condition.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-381004

New Training WBT

Course Title

TCCC CDL Series - General Knowledge - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI has been designed for someone interested in commercial driver's license (CDL) general knowledge. This training is recommended for the Transportation Curriculum Coordination Council levels I and II or anyone interested in obtaining a CDL.

This training contains the general knowledge and safe driving information that all commercial drivers should know. It is broken into three modules:

Module 1 reviews vehicle control, shifting gears, seeing the road, communicating, speed control, and space management.

Module 2 covers night driving, driving in cold and hot weather, mountain driving, and railroad crossings.

Module 3 discusses seeing hazards, driving and road emergencies, staying alert and fit to drive, and transporting hazards.

This general knowledge training does not have specific information on air brakes or pre-trip inspection. You may complete other training in the CDL series to learn more about them.

For more information on the CDL examination and requirements that apply to your State, contact your State license agencies.

Outcomes

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

- Describe the procedures in controlling your vehicle and shifting gears
- Define the steps to seeing the road in various situations
- Recognize the importance of signaling and communicating your presence
- Identify the important components of speed control and space management
- Describe the proper ways to drive at night
- Identify the correct practices for driving in cold weather and hot weather
- Describe the procedures for driving on a mountain
- Recognize the proper way to cross a railroad
- Describe the procedures in responding to driving emergencies and emergencies on the road
- Identify the guidelines to staying alert and fit to drive
- Define the proper way to transport hazardous materials

Target Audience

This course is designed for any individuals wanting to learn more about commercial driver's license (CDL) general information.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 3 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-381005

New Training WBT

Course Title

TCCC CDL Series - Air Brakes - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI has been designed for someone interested in commercial driver's license (CDL) air brake systems. This training is recommended for the Transportation Curriculum Coordination Council levels I and II or anyone interested in obtaining a CDL.

In this training we'll discuss the parts of an air brake system, dual air brake systems, how to inspect your air brake system, and how to effectively use your air brake system. If you want to drive a truck or bus with air brakes, or pull a trailer with air brakes, you'll need to take a test on this material.

This training contains information on air brakes system that all commercial drivers should know. It is broken into two modules:

Module 1 consists of air brake system parts and dual air brakes systems.

Module 2 consists of inspecting air brakes and using air brakes.

This air brakes training does not have specific information on general knowledge or pre-trip inspection. You may complete other training in the CDL series to learn more about them.

For more information on the CDL examination and requirements that apply to your State, contact your State license agencies.

Outcomes

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

- Identify the important parts of the air brake system
- Define dual air brakes
- Recognize key elements in the air flow process of the dual air brake system
- Identify the important components of air brakes inspection
- Recognize the proper ways to use air brakes

Target Audience

This course is designed for any individuals wanting to learn more about commercial driver's license (CDL) air brake systems.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135010

Course Title

River Engineering for Highway Encroachments

The course provides training in the theory and application of alluvial channel flow, fluvial geomorphology, sediment transport, and river mechanics to the planning, location, design, construction, maintenance, and operation of highways. Material for this course comes from "Hydraulic Design Series 6 (HDS-6): River Engineering for Highway Encroachments Highways in the River Environment." The course includes detailed coverage on how to estimate rates of sediment transport by selecting appropriate equations for use in the computations. Additional topics include sediment properties and sediment measurement techniques. Case histories provide practical examples of problems that occur at highway crossings and encroachments of streams and rivers. A computer generated 360-degree virtual tour site visit is used for a comprehensive workshop. Example problems in sediment transport will be worked by the course participants.

Prior to the beginning of the course, participants are strongly encouraged to enroll in the Web-based training entitled, 135091 basic Hydraulic Principles Review. Mastery of the concepts covered in this WBT is important to successful completion of the Instructor-led training.

Outcomes

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

- Apply open channel flow equations and concepts to flow in alluvial channels
- Determine resistance to flow and sediment transport at highway crossings
- Apply sediment transport and sediment continuity relationships for the analysis of streambed degradation and aggradation
- Evaluate the inter-relationships between fluvial (river) geomorphology and highway hydraulic design

Target Audience

Engineers who are responsible for the evaluation of stream stability and the design of highway hydraulic structures. The course is designed for graduate engineers (BS) who have been trained in basic hydraulics of rigid-boundary, open channel flow.

Training Level: Intermediate

Fee: 2013: $720 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135027

Course Title

Urban Drainage Design (3-Day)

This course provides a detailed introduction to urban roadway drainage design. Design guidance for solving basic problems encountered in urban roadway drainage design is provided. The topics are hydrology including rational equation, soil conservation method, regression equations, and synthetic hydrographs; and highway drainage including gutter flow, roadway inlet interception, storm drain systems, energy and hydraulic grade lines, detention ponds, and stormwater management.

The 4-day course includes the basic 3-day course, plus presentation of the 1-day course FHWA-NHI-135028 Stormwater Pump Station Design.

Outcomes

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

- Determine runoff (peak flows and volumes) from urban watersheds
- Apply basic hydraulic principles to urban drainage design
- Perform roadway drainage designs using various roadway inlets
- Size and/or analyze storm drain conveyance systems
- Establish the energy and hydraulic grade lines for storm drains
- Design and/or analyze detention basins
- Perform hydraulic design of pumping stations (with optional day four)

Target Audience

Highway designers with limited experience in drainage design, but familiar with mathematical concepts such as algebra and geometry and have some working background in hydrology and hydraulics.

Training Level: Intermediate

Fee: 2013: $720 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135027A

Course Title

Urban Drainage Design (4-Day)

This course provides a detailed introduction to urban roadway drainage design. Design guidance for solving basic problems encountered in urban roadway drainage design is provided. The topics are hydrology including rational equation, soil conservation method, regression equations, and synthetic hydrographs; and highway drainage including gutter flow, roadway inlet interception, storm drain systems, energy and hydraulic grade lines, detention ponds, and stormwater management.

The 4-day course includes the basic 3-day course, plus presentation of the 1-day course FHWA-NHI-135028 Stormwater Pump Station Design.

Outcomes

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

- Determine runoff (peak flows and volumes) from urban watersheds
- Apply basic hydraulic principles to urban drainage design
- Perform roadway drainage designs using various roadway inlets
- Size and/or analyze storm drain conveyance systems
- Establish the energy and hydraulic grade lines for storm drains
- Design and/or analyze detention basins
- Perform hydraulic design of pumping stations (with optional day four)

Target Audience

Highway designers with limited experience in drainage design, but familiar with mathematical concepts such as algebra and geometry and have some working background in hydrology and hydraulics.

Training Level: Intermediate

Fee: 2013: $850 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135028

Course Title

Stormwater Pump Station Design

This course provides an overview of the location and type selection of stormwater pump stations. A major portion of the course is devoted to recommended hydraulic design procedures for sizing and optimizing stormwater pump stations. This course is also offered as a 1-day add-on to FHWA-NHI-135027 Urban Drainage Design. Topics to be discussed include, site considerations, hydrology, storage, pump configuration, mass curve routing, pump selection, sump dimensions, and mechanical and electrical considerations.

Outcomes

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

- Determine locations where pump stations are appropriate
- List types of pumps and pump stations
- Apply basic hydraulic principles to accomplish graphical mass curve routing
- Size pumps and determine start/stop elevations
- Determine storage volume needed
- Size wet wells according to industry standards

Target Audience

Highway designers with some experience in storm drainage design, familiarity with mathematical concepts such as algebra and geometry, and a working background in hydraulics and hydrology.

Training Level: Intermediate

Fee: 2013: $520 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135041

Course Title

HEC-RAS, River Analysis System (3-Day)

The host is responsible for providing 15 computers with the following minimum configuration: 850 MHz Intel Pentium III Processor or equivalent with 128 MB RAM, Windows NT 4.0 with Service Pack 6a or 98 Second Edition or 95 (SR-1), 100 MB available disk space, CD-ROM drive, and 1024 x 768 color video display.

HEC-RAS is a computer program designed as the successor to the U.S. Army Corps of Engineers' Hydraulic Engineering Circular HEC-2, Water Surface Profiles program (WSPRO). The program incorporates the Standard Step Method for Water Surface Profile computations, bridge hydraulics, including the method presented in WSPRO, culvert hydraulics, flood encroachments, design of open channel flow, analyzing split flow options and sub- and supercritical flow computations. The program can be used to compute bridge pier and abutment scour following the HEC-18 guidelines. The program is Windows-based and uses a graphical user interface for file management, data entry and editing, program execution and output display. It provides easy conversion from English to metric units and vice versa.

Both courses provide an overview and hands-on experience with the computer program, including modeling of bridges, but the 3.5-day version adds coverage of culvert modeling or multiple-opening bridges. A representative from the host agency is encouraged to contact the instructor when setting up the course to determine which length course would best suit the needs of the course participants and if the 3.5-day version is requested whether coverage of culverts or multiple-opening bridges is preferred. Each participant will receive a notebook containing the course notes, and a CD containing user documentation, HEC-RAS software, and example computer workshops.

Prior to the beginning of the course, participants are strongly encouraged to enroll in the Web-based training entitled, 135091 basic Hydraulic Principles Review. Mastery of the concepts covered in this WBT is important to successful completion of the Instructor-led training.

Outcomes

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

- Apply the conservation of mass, energy and momentum to computations of water surface profiles, hydraulics of bridges, and the hydraulics of culverts
- Create cross section, bridge, and culvert data files
- Create flow files
- Run the HEC-RAS computer program to solve all applications as presented in this course
- Troubleshoot the output data to determine the validity of the results

Target Audience

Federal, State, and local hydraulic engineers who have responsibility for the design and analysis of river systems and stream crossings. Participants should have experience in using the Windows environment and knowledge of the fundamentals of open channel flow, including basic understanding of HEC-2 or WSPRO.

Training Level: Intermediate

Fee: 2013: $720 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135041A

Course Title

HEC-RAS, River Analysis System (3.5-Day)

The host is responsible for providing 15 computers with the following minimum configuration: 850 MHz Intel Pentium III Processor or equivalent with 128 MB RAM, Windows XP or Windows NT 4.0 with Service Pack 6a or 98 Second Edition or 95 (SR-1), 100 MB available disk space, CD-ROM drive, and 1024 x 768 color video display. Note: Software is not yet compatible with Windows 2007 (Vista).

HEC-RAS is a computer program designed as the successor to the U.S. Army Corps of Engineers' Hydraulic Engineering Circular HEC-2, Water Surface Profiles program (WSPRO). The program incorporates the Standard Step Method for Water Surface Profile computations, bridge hydraulics, including the method presented in WSPRO, culvert hydraulics, flood encroachments, design of open channel flow, analyzing split flow options and sub- and supercritical flow computations. The program can be used to compute bridge pier and abutment scour following the HEC-18 guidelines. The program is Windows-based and uses a graphical user interface for file management, data entry and editing, program execution and output display. It provides easy conversion from English to metric units and vice versa.

Both courses provide an overview and hands-on experience with the computer program, including modeling of bridges, but the 3.5-day version adds coverage of culvert modeling or multiple-opening bridges. A representative from the host agency is encouraged to contact the instructor when setting up the course to determine which length course would best suit the needs of the course participants and if the 3.5-day version is requested whether coverage of culverts or multiple-opening bridges is preferred. Each participant will receive a notebook containing the course notes, and a CD containing user documentation, HEC-RAS software, and example computer workshops.

Prior to the beginning of the course, participants are strongly encouraged to enroll in the Web-based training entitled, 135091 basic Hydraulic Principles Review. Mastery of the concepts covered in this WBT is important to successful completion of the Instructor-led training.

Outcomes

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

- Apply the conservation of mass, energy and momentum to computations of water surface profiles, hydraulics of bridges, and the hydraulics of culverts
- Create cross section, bridge, and culvert data files
- Create flow files
- Run the HEC-RAS computer program to solve all applications as presented in this course
- Troubleshoot the output data to determine the validity of the results

Target Audience

Federal, State, and local hydraulic engineers who have responsibility for the design and analysis of river systems and stream crossings. Participants should have experience in using the Windows environment and knowledge of the fundamentals of open channel flow, including basic understanding of HEC-2 or WSPRO.

Training Level: Intermediate

Fee: 2013: $780 Per Person; 2014: N/A

Length: 3.5 DAYS (CEU: 2.1 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135046

Course Title

Stream Stability and Scour at Highway Bridges

The National Highway Institute's (NHI) 3-day Stream Stability and Scour at Highway Bridges course provides participants with comprehensive training in the prevention of hydraulic-related bridge failures. Course participants will receive training in conducting a stream stability classification and qualitative analysis of stream response and make estimates of scour at a bridge opening.

Material for the course comes primarily from two Hydraulic Engineering Circulars (HEC), "Evaluating Scour at Bridges" (HEC-18), 5th Edition (2012), and "Stream Stability at Highway Structures" (HEC-20), 4th Edition (2012). The effects of stream instability, scour, erosion, and stream aggradation and degradation are covered. Quantitative techniques are provided for estimating long-term degradation and for calculating the magnitude of contraction scour in a bridge opening. Procedures for estimating local scour at bridge piers and abutments for simple and complex substructures are also provided. A comprehensive workshop integrates qualitative analysis and analytical techniques to determine the need for a Scour Plan of Action for correcting stream instability and scour problems. For this 3-day course, the host agency will need to select 3 optional topics (out of 8 possible topics). Course instructors will contact the host prior to the course to complete a pre-course questionnaire, determine optional topics to be taught, and discuss the course schedule.

This comprehensive training provides preventive techniques for identifying, analyzing, and calculating various hydraulic factors that impact bridge stability. Public and private sector engineers responsible for maintaining the integrity of highway bridges will find it invaluable.

Prior to the beginning of the course, participants are strongly encouraged to enroll in the following Web-based training (WBT) courses: 135091 Basic Hydraulic Principles Review, 135086 Stream Stability Factors and Concepts, and 135087 Scour at Highway Bridges: Concepts and Definitions. Mastery of the concepts covered in these WBTs will enhance participation in the Instructor-led training.

Outcomes

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

- Identify indicators of stream instability that can threaten bridges
- Identify stream types and their potential for instability problems
- Describe open-channel hydraulics concepts in bridge scour and stream instability analyses
- Define types of scour that can occur at bridge crossings
- Describe aggradation, degradation, and contraction scour
- Calculate contraction scour for live bed and clear water conditions
- Describe factors that influence scour at piers
- Calculate pier scour for three typical case studies
- Describe the factors that influence scour at abutments
- Describe how HEC-18, HEC-20, and HEC-23 provide analysis procedures for stream instability and bridge scour
- Perform Level I and II analyses
- Classify a stream using two different classification systems
- Conduct a qualitative analysis of stream responses
- Apply the HEC-18 scour equations to determine total scour at a bridge
- Determine the need for a Scour Plan of Action at a scour-critical bridge

Target Audience

Federal, State, and local highway hydraulic, structural, and geotechnical engineers as well as bridge inspectors responsible for maintaining the integrity of highway bridges against possible hydraulic-related problems. Consultants who perform bridge engineering work are encouraged to attend.

TRAINING LEVEL: Intermediate

FEE: 2013: $720 Per Person; 2014: N/A

LENGTH: 3 DAYS (CEU: 2 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135047

Course Title

Stream Stability and Scour at Highway Bridges for Bridge Inspectors

This course is an abbreviated presentation of FHWA-NHI-135046 Stream Stability and Scour at Highway Bridges. The course provides an understanding of and assistance in detecting hydraulic-related problems at highway bridges. The effects of steam instability, scour, erosion, and stream aggradation and degradation are covered. Countermeasures to these problems are discussed. This course concentrates on visual keys to detecting scour and stream instability problems and provides an introduction to portable scour monitoring instrumentation. The course emphasizes inspection guidelines to complete the hydraulic and scour-related coding requirements of the National Bridge Inspection Standards (NBIS). This course can be offered as a 1-day module in conjunction with the 3-day FHWA-NHI-135046 or as a stand-alone presentation.

NHI Courses #135086 and #135087 are Web-based training module and are prerequisites for NHI Hydraulics courses 135047 and 135048.

Outcomes

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

- Identify stream instability and scour problems at bridges
- Conduct field evaluations for scour and stream instability problems and properly code the results in the National Bridge Inventory
- Recognize countermeasures for stream instability and scour

Target Audience

Federal, State, and local highway bridge inspectors responsible for detecting possible hydraulic-related problems that may threaten the integrity of highway bridges. Consultants who do bridge inspection work for the States may attend if space is available.

Training Level: Basic

Fee: 2013: $420 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135048

Course Title

Countermeasure Design for Bridge Scour and Stream Instability (2.5-Day)

This course provides an overview of countermeasures to highway related failures from the effects of stream instability, scour, erosion, and stream aggradation and degradation problems. Material for the 2.5-day course comes primarily from Hydraulic Engineering Circular (HEC) "Bridge Scour and Stream Instability Countermeasures - Experience, Selection, and Design Guidance" (HEC-23).

Given a stream instability and scour problem, participants will select appropriate countermeasures to correct the problem. The course provides training in recommended strategies for developing a plan that includes appropriate countermeasures, including alternatives to conventional riprap and filter design.

Participants will apply hydraulics analysis techniques to countermeasure design for seven design guideline workshops. The course provides an introduction to fixed and portable instrumentation for scour monitoring using slides and video demonstrations. Participants will receive training in designing a monitoring program to reduce the risk from scour.

NHI Course 135046 provides training in identifying and analyzing stream instability and scour problems at highway bridges and is recommended as a prerequisite for this course.

NHI Courses #135086 and #135087 are Web-based training module and are prerequisites for NHI Hydraulics courses 135047 and 135048.

Outcomes

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

- Develop a plan of action for a scour critical bridge
- Propose countermeasures for stream instability and scour problems
- Identify countermeasures for bridge scour and stream instability using the HEC-23 countermeasures matrix
- Design selected countermeasures with HEC-23 design guidelines

Target Audience

Federal, State, and local highway hydraulic, structural, and geotechnical engineers and bridge inspectors responsible for maintaining the integrity of highway bridges against possible hydraulic-related problems. Consultants who do bridge engineering work are also encouraged to attend.

Training Level: Intermediate

Fee: 2013: $655 Per Person; 2014: N/A

Length: 2.5 DAYS (CEU: 1.5 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135056

Course Title

Culvert Design

The National Highway Institute's (NHI) 3-day Culvert Design course provides participants with an in-depth, hands-on understanding of how to hydraulically size and design a highway culvert. The course covers a range of design topics, including allowable headwater at the inlet, permissible outlet velocity, energy dissipation measures, aquatic organism passage, mechanisms of culvert failures, and repair and rehabilitation options.

Material for this 3-day course is primarily derived from the Hydraulic Design Series No. 5 (HDS 5), Hydraulic Design of Highway Culverts textbook, which is provided to participants. Additional references used throughout this course include Hydraulic Engineering Circular No. 14 (HEC-14); Hydraulic Design of Energy Dissipators for Culverts and Channels; HEC-26, Culvert Design for Aquatic Organism Passage; and HEC-9, Debris Control Structures, Evaluation, and Countermeasures. Course topics include culvert design principles and procedures and debris control structures. Throughout the course, participants engage in a number of workshops where problems are completed, both long-hand and with a computer using the FHWA HY-8 Culvert Hydraulic Analysis and Design Program. Additionally, a portable hydraulic flume is set up in the classroom for the participants to observe hydraulic principles associated with various culvert configurations, aquatic organism passage features, and culvert linings.

At the end of this course, participants will be able to apply fundamental engineering concepts, methods, and the HY-8 computer program to analyze and design culvert crossings meeting a variety of hydraulic and environmental design criteria.

Prior to taking this course, participants are strongly encouraged to enroll in the Web-based training (WBT) entitled, 135091 Basic Hydraulic Principles Review. Mastery of the concepts covered in this WBT is important to successful completion of the Instructor-led training.

Outcomes

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

- Justify the importance of culvert design
- Explain the overall culvert design process
- Summarize basic hydraulic concepts
- Discuss factors influencing hydraulic performance and design of culverts
- Explain how to calculate culvert outlet velocity
- Apply nomographs and computer methods to design a roadway culvert
- Design culverts that meet aquatic organism passage (AOP) requirements
- Assess impacts of repair and rehabilitation of culverts on hydraulic performance
- Design energy dissipator and debris control structures for culverts
- Design culverts for various situations
- Discuss culvert failures and how they can be prevented

Target Audience

This intermediate-level training course is intended for hydraulic engineers, transportation engineers, and highway designers involved with roadway drainage and culvert design. Environmental scientists with an interest in aquatic organism passage may also benefit from participation in this course.

TRAINING LEVEL: Intermediate

FEE: 2013: $720 Per Person; 2014: N/A

LENGTH: 3 DAYS (CEU: 2 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135065

Course Title

Introduction to Highway Hydraulics

This course is based on Hydraulic Design Series No. 4 (HDS-4), "Introduction to Highway Hydraulics." The objective of the course is to provide a broad overview of basic highway drainage concepts. Fundamental hydraulic concepts are discussed, followed by open-channel flow principles and design applications of open-channel flow in highway drainage, including the design of stable channels, and pavement drainage. Closed-conduit concepts and applications in highway drainage include the application of culvert and storm drainage design. The presentation concludes with an introduction to concepts and design of energy dissipators. Detailed design criteria are drawn from other Hydraulic Design Series manuals and Hydraulic Engineering Circulars (HECs), providing a broad overview of all components of highway drainage design with an emphasis on practical applications. A portable hydraulic flume is set up in the classroom for the participants to observe numerous hydraulic principles. The participants take velocity and discharge measurements from the flume while in various setups and use the information to make design calculations.

Outcomes

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

- Calculate design discharge using the rational method or regression equation procedures
- Apply the continuity and energy equation to solve practical design problems
- Use the Weir equation to calculate the flow overtopping a roadway embankment
- Use Manning's equation to calculate velocity or flow depth in simple or compound channels and recognize when this equation cannot be appropriately applied
- Evaluate channel flow conditions (subcritical, critical, or supercritical) using the Froude number
- Design a stable channel using basic hydraulic concepts and Hydraulic Engineering Circular HEC-15
- Apply basic pavement drainage concepts in calculation procedures described in HEC-22
- Design a simple culvert crossing using the procedures in HDS-5
- Design a simple storm drain and calculate the Hydraulic Grade Line (HGL) using the energy equation and HEC-22
- Describe which energy dissipaters are useful for culvert or storm drain applications based on HEC-14

Target Audience

Entry-level engineers or engineering technicians who are performing highway drainage calculations on transportation facilities. It will also be useful as a refresher course on hydraulic fundamentals for experienced personnel.

Training Level: Basic

Fee: 2013: $720 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135067

Course Title

Practical Highway Hydrology

The course provides engineers and designers with the background and skills necessary for the practical application of hydrologic principles to highway design. Participants will be required to work example problems that stress actual design situations. The course is based on the Hydraulic Design Series (HDS) No. 2, "Highway Hydrology" which is also used in the course as a reference manual.

Participants will learn how to select and effectively implement techniques for estimating peak flows and flood hydrographs in gaged and ungaged streams for watersheds of the size typically encountered in highway drainage design. Through a series of optional modules, additional topics including channel routing, wetland hydrology, arid lands hydrology, and snowmelt hydrology are available given host agency preferences.

The overall course objectives enhance the understanding of basic hydrologic concepts and principles as they pertain to highways, and enable application of appropriate hydrologic concepts and tools in the design of drainage facilities and hydraulic structures.

Outcomes

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

- Identify which peak flow design methods are suitable for given watershed characteristics and design requirements
- Estimate times of concentration
- Apply the SCS, regression and rational methods for peak flows
- Analyze gage flows using Log-Pearson III Frequency Analysis
- Develop hydrographs using the unit hydrograph and other techniques
- Perform storage routing calculations
- Design a storm water management facility

Target Audience

Highway engineers and designers who are responsible for designing channels, storm drains, and stormwater detention, as well as those involved in the hydraulic design of bridges and culverts. Attendees will benefit from, but are not required to have, a basic knowledge of hydrologic science. The course is a useful primer for those new to the subject and a thorough review for experienced hydrologic and hydraulic engineers.

Training Level: Intermediate

Fee: 2013: $720 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135071

Course Title

Surface Water Modeling System with Flo2DH and SMS

The host is responsible for providing 15 computers with the following minimum configuration: 850 MHz Intel Pentium III Processor or equivalent with 128 MB RAM, Windows NT 4.0 with Service Pack 6a or 98 Second Edition or 95 (SR-1), 100 MB available disk space, CD-ROM drive, and 1024 x 768 color video display.

The course presentation provides a balance of hydraulic theory, background of the finite element method, data requirements necessary to operate the Flo2DH module of the Finite Element Surface Water Modeling System (FESWMS) computer program and to use of Surface-Water Modeling System (SMS) in the development of input data files and the analysis of the data output.

The Flo2DH is a depth averaged two-dimensional surface water model for analyzing complex flow patterns in river or tidal situations. The program has been designed for modeling bridges and hydraulic structures commonly found in highway hydraulic applications. The program is capable of modeling bridges, bridges in pressure flow, culverts, weir flow over the roadway, and general and local scour through the reach being analyzed. The model is capable of handling steady and unsteady flow through hydraulic systems. Because of the intensive input data requirements and large amounts of output generated by the Flo2DH computer program, the pre- and post-processing program SMS is used in the course. SMS is capable of interactively building finite element networks, including the input data files necessary to use the Flo2DH computer program. The program is also capable of graphically presenting the output from Flo2DH, using a variety of formats.

Participants will receive a notebook that includes course materials, a Flo2DH user's manual and SMS user's manual, including copies of the software used in the course. Non-State highway agency course participants will receive a demonstration version of the proprietary SMS computer program.

Prior to the beginning of the course, participants are strongly encouraged to enroll in the Web-based training entitled, 135091 basic Hydraulic Principles Review. Mastery of the concepts covered in this WBT is important to successful completion of the Instructor-led training.

Outcomes

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

- Apply the fundamentals and use the capabilities of the Flo2DH computer program to develop two-dimensional water surface elevations and velocity fields
- Develop input data necessary for use in the Flo2DH computer program
- Use SMS as a pre- and post-processing program for the Flo2DH computer program
- Use SMS to build finite element networks and input data files for use with the Flo2DH computer program, including to graphically view and manipulate the output

Target Audience

Federal, State, and local hydraulic engineers who have responsibility for the design and analysis of highway stream crossings. In order to derive the most benefit from this training, course participants should have knowledge of the fundamentals of open channel flow and should be familiar with the general concepts associated with two-dimensional surface water flow modeling. Experience with Windows computer programs is helpful.

Training Level: Accomplished

Fee: 2013: $750 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 26

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135080

Course Title

Hydrologic Analysis and Modeling with WMS

This course is designed as a hands-on, application-oriented training course using the Watershed Modeling System (WMS) to make hydrologic estimates using a variety of techniques. It will provide attendees with the knowledge and tools necessary to use data derived from geographical information systems (GIS) to develop hydrologic estimates and model runoff from watersheds. The course also teaches how to use digital terrain data for the development of watershed parameters that are required by most commonly used hydrologic analysis programs.

The WMS is a comprehensive environment for hydrologic analysis. It is developed by the Environmental Modeling Research Laboratory (EMRL) of Brigham Young University, and has been licensed for use by all State and Federal highway agencies. WMS makes it possible to take advantage of the wealth of digital terrain, land use, soil, and other GIS data readily available from government and private agencies. This data can then be used for preparing input files for several commonly used hydrologic models. Models supported by the interface include HEC-1 (HMS), TR-20, TR-55, and the Rational Method. This course also includes instruction in use of the regional regression equations contained in the National Flood Frequency (NFF) database. This course teaches the techniques and methods necessary to locate and use GIS data so that labor intensive processes such as delineating watershed boundaries and calculating modeling parameters from paper maps can be avoided when computing design flows and developing flow hydrographs at bridges and culverts.

Participants will receive a notebook that includes course materials, a WMS User's Manual, and copies of the software, workshops, and tutorials used in the course. Non-State highway agency course participants will receive a demonstration version of the proprietary WMS computer program.

Outcomes

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

- Automate basin delineation in WMS with GIS vector data, DEMs, and TINs
- Efficiently use digital watershed data for hydrologic modeling parameter development
- Locate and obtain digital data sources for watershed delineation and hydrologic model development
- Use WMS to build hydrologic input data files for use with HEC-1 (HMS), TR-20, TR-55, regional regression equations, and Rational Method programs, including instruction on how to graphically view the output

Target Audience

Federal, State, and local hydrologic/hydraulic engineers who have responsibility for the design and analysis of highway stream crossings. In order to derive the most benefit from this training, course participants should have knowledge of the fundamentals of hydrology and hydrologic modeling. Experience with one of the aforementioned hydrologic modeling computer programs would be helpful.

Training Level: Intermediate

Fee: 2013: $620 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 25

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135081

Course Title

Introduction to Highway Hydraulics Software

The host agency is responsible for providing computers with the following minimum configuration: 1.6 GHz Intel Pentium III Processor or equivalent with 512 MB RAM, 100 MB available disk space, CD-ROM drive, and Windows XP. One computer is required for every two participants.

The course provides engineers and designers with hands-on computer experience in the selection and application of software tools commonly applied for highway hydraulics including estimating peak flows and hydrographs, as well as the analysis and design of storm drains, culverts, detention basins, and channels. The Watershed Modeling System (WMS) will be the Windows interface used for most applications. Software covered in the course includes:

1. NFF (National Flood Frequency Program)
2. SCS TR-55
3. HEC-1/HEC-HMS
4. FHWA Storm Drain for design of pipes and inlets
5. HY8 (Windows version) for culvert and energy dissipator analysis and design
6. WMS detention basin and channel calculators for detention basin and channel design

Outcomes

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

- Define a drainage outlet and delineate a watershed using WMS
- Compute peak flows using NFF and TR-55
- Perform normal depth and stability calculations using the WMS channel calculator
- Design a culvert using HY8
- Select and size an energy dissipator using the HY8 energy dissipator software
- Design and analyze storm drain inlets and pipes using WMS and the FHWA storm drain program
- Route a hydrograph through a detention basin using the WMS detention basin calculator

Target Audience

Highway engineers and designers responsible for the hydrologic and hydraulic aspects of designing storm drains, culverts, detention basins, and channels. Attendees should have a basic knowledge of hydrology and hydraulics. The course will briefly review theory, but will focus on hands-on problem solving.

Training Level: Intermediate

Fee: 2013: $720 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 14; MAXIMUM: 24

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135082

Course Title

Highways in the Coastal Environment

Over 60,000 miles of roads in the United States are occasionally exposed to coastal surge and waves. Due to these unique design conditions, many highways and bridges suffer damage during coastal storms, including hurricanes and El Nino events. The purpose of this course is to teach important concepts and terminology of coastal science and engineering to highway engineers for use in the planning and design of coastal roads. The course is based on the Hydraulic Engineering Circular (HEC) No. 25, "Highways in the Coastal Environment" (2nd Edition), which is also used in the course as a reference manual.

The course includes the use of a portable flume for demonstration of key concepts and for hands-on participant activities. In addition to the presentation of materials and the flume demonstrations, the course incorporates various workshops and exercises to reinforce key concepts. Topics covered in the course include:

1. Introduction to highways in the coastal environment
2. Waves
3. Tide and water levels
4. Revetment design for coastal embankments
5. Wave loads on bridge decks
6. Coastal geology and sediments
7. Shoreline change and stabilization
8. Road overwash
9. Tidal inlets and coastal bridges

Outcomes

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

- Describe coastal engineering design issues related to highways using standard terminology with an understanding of the physical processes unique to this design environment
- Identify appropriate planning, analysis, and design methods for highways and bridges exposed to coastal surge and waves
- Describe differing levels of complexity involving coastal engineering and appropriate qualifications of engineers and coastal engineering consultants to address this complexity in design.

Target Audience

Participants are adult learners with (1) a general civil engineering education and background who currently work in highway planning and design and (2) coastal engineers with some experience in transportation engineering.

Training Level: Intermediate

Fee: 2013: $700 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 14; MAXIMUM: 24

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135085

WBT

Course Title

Plan of Action (POA) for Scour Critical Bridges - WEB-BASED

This seminar provides guidance on developing a Plan of Action (POA) for scour critical bridges. The seminar highlights the history of the POA requirement and recommends management and inspection strategies for POA development. The seminar introduces the FHWA POA Standard Template and illustrates the use of the POA via a case study of a scour critical bridge in a riverine setting.

Outcomes

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

- Describe the purpose of a Plan of Action (POA) for a scour critical bridge
- Identify strategies for developing and implementing a POA
- Describe the sections of the POA Standard Template

Target Audience

Federal, State, and local bridge owners responsible for developing Plan of Actions (POA) for scour critical bridges.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135086

WBT

Course Title

Stream Stability Factors and Concepts (Prerequisite) WEB-BASED

This course is intended to help participants understand river processes and stream stability factors and concepts as a prerequisite for NHI Courses 135046, 135047, 135048. Participants will also be introduced to the concepts of water and sediment continuity.

Outcomes

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

- After completing this course participants will be able to describe the factors influencing stream stability that are important to a bridge scour evaluation, and define water and sediment continuity concepts.

Target Audience

Federal, State, and local highway hydraulic, structural, and geotechnical engineers and bridge inspectors responsible for maintaining the integrity of highway bridges against possible hydraulic-related problems. Consultants who do bridge engineering work are also encouraged to take this prerequisite.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135087

WBT

Course Title

Scour at Highway Bridges: Concepts and Definitions (Prerequisite) WEB-BASED

This course has been designed to provide an introduction to scour as a prerequisite for NHI courses 135046, 135047, and 135048.

Outcomes

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

- Define scour
- Define total scour and each of it's three components
- Characterize the time dependency of scour
- Distinguish between live-bed and clear-water scour

Target Audience

Federal, State, and local highway hydraulic, structural, and geotechnical engineers and bridge inspectors responsible for maintaining the integrity of highway bridges against possible hydraulic-related problems. Consultants who do bridge engineering work are also encouraged to take this prerequisite.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-135091

New Training WBT

Course Title

Basic Hydraulic Principles Review

Basic Hydraulic Principles Review is designed to familiarize participants with the background concepts, theories, and equations associated with basic hydraulic principles routinely used in highway engineering. NHI strongly suggests that participants complete this self-paced Web-based training (WBT) before attending any Instructor-led hydraulics courses. To fully understand the material presented in NHI hydraulics courses, participants must have an understanding of the basic hydraulic principles presented in this course.

In this course, "hydraulics" is considered to be the determination of various properties and characteristics of flowing water. Such determinations are essential for quantifying the nature of water flow under various conditions. This includes natural features such as streams and rivers, as well as man-made structures such as: bridges, drainage ditches, pipes, culverts, weirs, and spillways.

This WBT consists of three main lessons: Fundamental Concepts, Steady Uniform Flow, and Steady Non-Uniform Flow. After each lesson, knowledge check questions will be presented to test participants' understanding of the material presented in the lesson. The fundamental principles of hydraulics are used as a basis for designing new structures, as well as determining the flow capacity of existing structures. To access this training, enroll in NHI 135091 "Basic Hydraulic Principles Review" via the NHI Web site.

Outcomes

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

- Define fundamental hydraulic concepts of open-channel flow
- Identify steady uniform flow conditions
- Describe the equations used for steady uniform flow
- Identify steady non-uniform flow conditions
- Describe the equations used for steady non-uniform flow

Target Audience

The primary target audience includes Federal and State Department of Transportation Hydraulic Engineering Units and consultants. The course is relevant to anyone involved in bridge designs over waterways, regardless of their technical discipline or whether they are in the private, municipal, sState or Federal sectors. This course is designed primarily for entry-level engineers or engineering technicians who deal with hydraulics. It is also beneficial for experienced personnel as a refresher course on hydraulic fundamentals.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131103A

Course Title

Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments

In preventive maintenance, the types of treatments and the timing of their applications provide highway agencies with a very broad range of life-extending treatment techniques and enable agencies to achieve their goals of enhancing pavement performance in a cost-effective and efficient manner while meeting their customers' need for an improved level of service.

This course targets those field personnel involved in constructing preventive maintenance treatments, including both buying agency's inspectors and the contractors' foremen and field crews. It contains modules on all of the categories of preventive maintenance treatments in widespread use today, focusing on the best practices for designing and constructing those treatments. It also addresses troubleshooting construction practices, so that participants can clearly identify the results of poor construction practices. This course is the second in a series of three courses (NHI 131115, 131103, and 131116) on the general subject of pavement preservation.

The 2-day version consists of Modules 1 and 4, with content selected by the hosting organization from topics in Modules 2 and 3. The course instructor will assist the host in selecting the most appropriate topics for the target audience and length of the session.

Module 1: Introduction to Preventive Maintenance

Module 2: Crack Filling and Sealing; Fog Seals, Sand Seals, Scrub Seals, and Rejuvenators; Slurry Seals and Microsurfacing; Chip Seals; In-Place Recycling; Thin and Ultra-Thin HMA Overlays

Module 3: Joint Resealing and Crack Sealing; Diamond Grinding and Grooving; Full-Depth Repairs; Partial-Depth Repairs; Load Transfer Restoration; Thin PCC Overlays; Undersealing

Module 4: Course Summary

Outcomes

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

- Describe the benefits provided by preventive maintenance treatments
- Describe critical design factors for preventive maintenance techniques
- Describe the recommended procedures for the construction of the preventive maintenance techniques
- Identify critical post-construction/pre-opening inspection objectives
- Participants should be able to demonstrate mastery of the learning outcomes for the treatments they have learned.

Target Audience

Construction foremen and agency construction inspectors, up to and including middle managers. While it is aimed at those who have some familiarity with the equipment and materials used to construct effective preventive maintenance treatments, it should also be of value to those just starting out in the maintenance field. This course is also recommended for asset management team members.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131103B

Course Title

Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments

In preventive maintenance, the types of treatments and the timing of their applications provide highway agencies with a very broad range of life-extending treatment techniques and enable agencies to achieve their goals of enhancing pavement performance in a cost-effective and efficient manner while meeting their customers' need for an improved level of service.

This course targets those field personnel involved in constructing preventive maintenance treatments, including both buying agency's inspectors and the contractors' foremen and field crews. It contains modules on all of the categories of preventive maintenance treatments in widespread use today, focusing on the best practices for designing and constructing those treatments. It also addresses troubleshooting construction practices, so that participants can clearly identify the results of poor construction practices. This course is the second in a series of three courses (NHI 131115, 131103, and 131116) on the general subject of pavement preservation.

The 3-day version consists of Modules 1 and 4, with content selected by the hosting organization from topics in Modules 2 and 3. The course instructor will assist the host in selecting the most appropriate topics for the target audience and length of the session.

Module 1: Introduction to Preventive Maintenance

Module 2: Crack Filling and Sealing; Fog Seals, Sand Seals, Scrub Seals, and Rejuvenators; Slurry Seals and Microsurfacing; Chip Seals; In-Place Recycling; Thin and Ultra-Thin HMA Overlays

Module 3: Joint Resealing and Crack Sealing; Diamond Grinding and Grooving; Full-Depth Repairs; Partial-Depth Repairs; Load Transfer Restoration; Thin PCC Overlays; Undersealing

Module 4: Course Summary

Outcomes

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

- Describe the benefits provided by preventive maintenance treatments
- Describe critical design factors for preventive maintenance techniques
- Describe the recommended procedures for the construction of the preventive maintenance techniques
- Identify critical post-construction/pre-opening inspection objectives
- Participants should be able to demonstrate mastery of the learning outcomes for the treatments they have learned.

Target Audience

Construction foremen and agency construction inspectors, up to and including middle managers. While it is aimed at those who have some familiarity with the equipment and materials used to construct effective preventive maintenance treatments, it should also be of value to those just starting out in the maintenance field. This course is also recommended for asset management team members.

Training Level: Intermediate

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131103C

Course Title

Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments

In preventive maintenance, the types of treatments and the timing of their applications provide highway agencies with a very broad range of life-extending treatment techniques and enable agencies to achieve their goals of enhancing pavement performance in a cost-effective and efficient manner while meeting their customers' need for an improved level of service.

This course targets those field personnel involved in constructing preventive maintenance treatments, including both buying agency's inspectors and the contractors' foremen and field crews. It contains modules on all of the categories of preventive maintenance treatments in widespread use today, focusing on the best practices for designing and constructing those treatments. It also addresses troubleshooting construction practices, so that participants can clearly identify the results of poor construction practices. This course is the second in a series of three courses (NHI 131115, 131103, and 131116) on the general subject of pavement preservation.

The 4-day version includes all of the following:

Module 1: Introduction to Preventive Maintenance

Module 2: Crack Filling and Sealing; Fog Seals, Sand Seals, Scrub Seals, and Rejuvenators; Slurry Seals and Microsurfacing; Chip Seals; In-Place Recycling; Thin and Ultra-Thin HMA Overlays

Module 3: Joint Resealing and Crack Sealing; Diamond Grinding and Grooving; Full-Depth Repairs; Partial-Depth Repairs; Load Transfer Restoration; Thin PCC Overlays; Undersealing

Module 4: Course Summary

Outcomes

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

- Describe the benefits provided by preventive maintenance treatments
- Describe critical design factors for preventive maintenance techniques
- Describe the recommended procedures for the construction of the preventive maintenance techniques
- Identify critical post-construction/pre-opening inspection objectives

Target Audience

Construction foremen and agency construction inspectors, up to and including middle managers. While it is aimed at those who have some familiarity with the equipment and materials used to construct effective preventive maintenance treatments, it should also be of value to those just starting out in the maintenance field. This course is also recommended for asset management team members.

Training Level: Intermediate

Fee: 2013: $600 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131106

Updated Training

Course Title

Introduction to Transportation Asset Management

Transportation asset management is a strategic approach to managing physical transportation infrastructure. This introductory course covers the principles of asset management and introduces the five core questions every agency should be able to answer about its assets. The course also illustrates available tools to support the use of asset management in transportation agencies and provides guidelines for the implementation of these principles.

The course materials were updated in 2009 to place more of an emphasis on the use of asset management principles and the implementation of these concepts.

Outcomes

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

- Describe the basic principles of asset management.
- List the 5 core questions you should be able to answer about your
- assets.
- Identify tools and resources available to support asset management
- activities.
- Apply asset management principles to realistic situations. (This
- objective will be achieved through the workshops and activities that are incorporated into the course. For example, at the end of the day participants will work in a group to conduct a workshop in which they have to recommend an investment strategy based on available data.)
- Explain the use of the implementation guidelines to enhance their
- agency's application of asset management principles and concepts.

Target Audience

Senior-level and mid-level managers from State departments of transportation and other transportation agencies, who typically have the responsibility for decision-making in one or more areas addressed by transportation asset management. Participants should represent a number of organizational units, including (but not limited to) planning, engineering (e.g., facility management, design, construction), capital programming, maintenance and operations, financial management, traffic and safety engineering, system operation and management, and information technology. The course is also intended for individuals who manage or provide critical information to senior managers, or who have direct responsibility for meeting specific transportation system performance or program delivery targets.

Training Level: Intermediate

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131106A

Updated Training

Course Title

Introduction to Transportation Asset Management with Workshop

Asset management principles are becoming increasingly important to help agencies manage their assets as they face fewer available resources, higher expectations for customer service, and increased demand for more transparency in the decision process. In an asset management environment, investment decisions are linked to targeted performance levels that have been established based on current and expected asset conditions. Trade-offs between investments in different types of assets and different investment priorities can be assessed because of the availability of reliable data and a clear set of performance metrics that the agency hopes to achieve. As a result, agencies are better able to use their funding effectively and to defend their need for additional resources.

The Transportation Asset Management course introduces a strategic approach to managing physical transportation infrastructure. This course covers the principles of asset management and introduces the five core questions every agency should be able to answer about its assets. The course also illustrates available tools to support the use of asset management in transportation agencies and provides guidelines for the implementation of these principles.

The course materials were updated in December of 2009 to place more of an emphasis on the use of asset management principles and the implementation of these concepts.

To further support the implementation of asset management principles, this 1.5-day version of the course includes a ½-day workshop that will be conducted immediately before or after the presentation of the course materials. During the workshop the instructors will facilitate activities that include one of the following:

A self-assessment to determine agency strengths and weaknesses in terms of asset management.

Breakout groups to develop strategies for addressing specific implementation strategies for adopting asset management principles.

Work sessions to help develop portions of an asset management plan.

Outcomes

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

- Champion the use of asset management principles and concepts within your agency.
- Define your role in supporting your agency's asset management efforts.
- Using the 5 core questions, describe the state of your agency's asset management program.
- Using existing resources, enhance your agency's use of asset management.
- Identify specific steps the agency can take

Target Audience

Senior-level and mid-level managers from State departments of transportation and other transportation agencies, who typically have the responsibility for decision-making in one or more areas addressed by transportation asset management. Participants should represent a number of organizational units, including (but not limited to) planning, engineering (e.g., facility management, design, construction), capital programming, maintenance and operations, financial management, traffic and safety engineering, system operation and management, and information technology. The course is also intended for individuals who manage or provide critical information to senior managers, or who have direct responsibility for meeting specific transportation system performance or program delivery targets.

Training Level: Intermediate

Fee: 2013: $350 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131112

Updated Training WCT

Course Title

Principles and Practices for Enhanced Maintenance Management Systems - WEB-CONFERENCE

Is your agency in the process of enhancing its maintenance management capabilities?

Are you interested in learning more about developing effective performance measures for maintenance activities?

If so, join us for a blended training course that features both independent study material and facilitated Web conferences. Now you can learn all of the information provided in the 3.5-day instructor-led course (NHI-131107), without leaving your office!

This course is an introduction to the methods and practices used in an enhanced maintenance management system (MMS) to effectively maintain and operate a highway network. It provides participants with the principles and practices of using MMS effectively and illustrates efficient maintenance and operation of a highway network. Throughout the course, participants are provided with activities and assignments specific to using MMS.

The course materials rely heavily on the recently developed AASHTO Guidelines for Maintenance Management Systems, the Transportation Asset Management Guide, along with several other recent publications on the topic. The materials will be supplemented with examples from State and local highway agencies to illustrate the application of the principles in transportation agencies. This course has the same content and outcomes as FHWA-NHI-131107, Principles and Practices for Enhanced Maintenance Management Systems.

Responsibilities:

You will be expected to complete seven online lessons and three facilitated Web conferences. You must complete all 7 of the online lessons and participate in the Web conferences to obtain your certificate. By passing the online test at the end of the course, you can also receive Continuing Education Units (CEUs) for the course. All participants will need their own computer with internet connection and a telephone line to participate in the Web conference.

Outcomes

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

- Compare and contrast a first generation MMS with an enhanced MMS
- Describe the terms “outcome-based” and “performance-based” and how they pertain to an enhanced MMS
- Describe the use of service levels to support the programming and budgeting activities incorporated into an MMS
- Identify the types of systems that should be integrated with an MMS and provide several examples of the types of data that should interface between each system
- List the potential benefits to be realized by fully integrating an enhanced MMS
- Identify several steps that will advance an agency’s current maintenance management practices now and in the future

Target Audience

The target audience for this course includes State and local maintenance engineers, maintenance supervisors, asset managers, and their industry counterparts. The course is specifically for individuals who are responsible for directing and managing maintenance operations and budgets, maintenance project and treatment selection, and/or the monitoring of system conditions.

Training Level: Basic

Fee: 2013: $150 Per Person; 2014: N/A

Length: 15 HOURS (CEU: 1.5 UNITS)

Class Size: MINIMUM: 15; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131115

Course Title

Pavement Preservation: Preventive Maintenance Treatment, Timing, and Selection

This is the first in a series of three courses on the general subject of pavement preservation (NHI 131115, 131103, 131116). The purpose of this 2-day course is to improve the skills of those involved in implementing pavement preservation programs. This includes improving the selection of pavement preventive maintenance projects and the selection of preventive maintenance treatments.

Outcomes

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

- Describe the different types of pavements and how they perform in response to traffic and environmental loading
- Identify concepts of a preventive maintenance program and the role of such a program in pavement management
- Identify pavement conditions and other attributes that indicate whether preventive maintenance is appropriate for a given pavement
- Describe preventive maintenance treatments and materials
- Determine when is the most appropriate time during the life of a pavement to apply a preventive maintenance treatment
- Select the most appropriate (or "best") preventive maintenance treatment for a given pavement based on a combination of timing, anticipated benefits, economic considerations, and other key factors

Target Audience

The target audience for this course is mid- or upper-level highway agency professionals responsible for pavement preservation/maintenance and management. This might include a Pavement Engineer, Project Manager/Maintenance Engineer, Regional Director, Materials Lab personnel, Planning/Programming staff, Pavement Management Engineer/Manager, or Road Superintendent within a state highway agency. For local agencies, this group might include Public Works Directors or Chief Engineers/engineers of cities, towns, counties, and metropolitan planning organizations (MPOs). Current performance and responsibilities of the target audience include evaluating pavements, selecting pavements and treatments for preservation projects, and/or making budget determinations for pavement preservation projects (preservation vs. reconstruction). Appropriate background information or prior knowledge which would be useful for the course participants includes: Basic understanding of the information imported in a pavement condition report; Ability to interpret the results of a pavement condition report; Identify deterioration/distress using visual information and determine the causes of that deterioration/distress.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131116

Course Title

Pavement Management Systems: Characteristics of an Effective Program

Transportation agencies have made large investments in their pavement infrastructure, which makes effective pavement management an important component of an agency's transportation asset management program. However, pavement management concepts are not always taught in the traditional civil engineering curriculum and there is little training available on this important concept. In fact, in a 2006 survey of the Federal Highway Administration (FHWA) division offices, most offices indicated a need for training in this area. The need was further emphasized by participants at the 2007 National Pavement Management Conference.

This 1-day course was designed to help improve the effectiveness of an existing pavement management program. In addition to introducing the basic components of an effective pavement management program, the course materials illustrate the effective use of pavement management information and provide opportunities for participants to identify strategies that will help enhance their existing capabilities. The focus of the class is broad enough to include data collection activities, condition assessment, program development, investment analysis, and other uses of pavement management information to support an agency's decision processes to improve pavement performance. The role of pavement management in supporting an agency's transportation asset management program at the strategic, network, and project levels is also introduced.

Only Lesson 4-1 of Module 4 will be covered during this 1-day version of the course, introducing strategies to improve the effectiveness of the agency's pavement management program. Since the training is offered at no charge, availability of instructors may be limited.

Outcomes

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

- Identify the components of an effective Pavement Management Program and describe the contribution of each to the Program's success
- Explain the role of pavement management in supporting an agency's Transportation Asset Management (TAM) Program
- Describe effective uses of pavement management information

Target Audience

The target audience for this course includes transportation professionals from state and local agencies responsible for managing and maintaining pavements and/or prioritizing pavement projects for programming purposes. Course participants should be directly involved with providing data to support pavement management activities, selecting pavement projects, developing candidate project recommendations, or determining funding allocations for pavement-related activities. The primary audience will be practitioners from state highway agencies, but the course is also appropriate for individuals from local agencies.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-131116A

Course Title

Pavement Management Systems: Characteristics of an Effective Program

Transportation agencies have made large investments in their pavement infrastructure, which makes effective pavement management an important component of an agency's transportation asset management program. However, pavement management concepts are not always taught in the traditional civil engineering curriculum and there is little training available on this important concept. In fact, in a 2006 survey of the Federal Highway Administration (FHWA) division offices, most offices indicated a need for training in this area. The need was further emphasized by participants at the 2007 National Pavement Management Conference.

This 1.5-day course was designed to help improve the effectiveness of an existing pavement management program. In addition to introducing the basic components of an effective pavement management program, the course materials illustrate the effective use of pavement management information and provide opportunities for participants to identify strategies that will help enhance their existing capabilities. The focus of the class is broad enough to include data collection activities, condition assessment, program development, investment analysis, and other uses of pavement management information to support an agency's decision processes to improve pavement performance. The role of pavement management in supporting an agency's transportation asset management program at the strategic, network, and project levels is also introduced.

This 1.5-day version of the course allows for a state to receive all of the lessons in Module 4: Lesson 4-1 (strategies to improve the effectiveness of the agency's pavement management program), Lesson 4-2 (pavement condition assessment and performance modeling), and Lesson 4-3 (using pavement management to support a pavement preservation program). Since it is offered at no charge, availability of instructors may be limited.

Outcomes

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

- Identify the components of an effective Pavement Management Program and describe the contribution of each to the Program's success
- Explain the role of pavement management in supporting an agency's Transportation Asset Management (TAM) Program
- Describe effective uses of pavement management information
- Describe several strategies for improving the effectiveness of a Pavement Management Program

Target Audience

The target audience for this course includes transportation professionals from state and local agencies responsible for managing and maintaining pavements and/or prioritizing pavement projects for programming purposes. Course participants should be directly involved with providing data to support pavement management activities, selecting pavement projects, developing candidate project recommendations, or determining funding allocations for pavement-related activities. The primary audience will be practitioners from state highway agencies, but the course is also appropriate for individuals from local agencies.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134001

Course Title

Principles of Writing Highway Construction Specifications (2-Day)

This course addresses the engineering and legal aspects, as well as 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.

This course is a 2-day course and can be tailored to meet the needs of the host organization. A 3-day and 4-day versions are also available. 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 standard course modules are:

Module 1: Definitions, Forms, and Purpose of Specifications

Module 2: Specification Writing Principles

The host agency selects 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

Outcomes

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

- Recognize and apply the principles of writing clear, concise, complete, and technically correct specifications

Target Audience

Personnel working in contract administration, design, materials selection and quality control, and the management of highway construction, including contribution of information in contract provisions. This includes specification writers who use the information in writing the formal contract documents. This course is also recommended for asset management team members. PREREQUISITES: This course is not for beginners! Participants must have experience (five years minimum) in at least one of the following disciplines: contract administration, materials, specification writing, roadway or bridge design, roadway or bridge construction.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134001A

Course Title

Principles of Writing Highway Construction Specifications (3-Day)

This course addresses the engineering and legal aspects, as well as 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.

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

The standard course modules are:

Module 1: Definitions, Forms, and Purpose of Specifications

Module 2: Specification Writing Principles

The host agency selects 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

Outcomes

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

- Recognize and apply the principles of writing clear, concise, complete, and technically correct specifications
- Demonstrate appreciation for the importance of specifications for highway construction contracting

Target Audience

Personnel working in contract administration, design, materials selection and quality control, and the management of highway construction, including contribution of information in contract provisions. This includes specification writers who use the information in writing the formal contract documents. This course is also recommended for asset management team members. PREREQUISITES: This course is not for beginners! Participants must have experience (five years minimum) in at least one of the following disciplines: contract administration, materials, specification writing, roadway or bridge design, roadway or bridge construction.

Training Level: Intermediate

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134001B

Course Title

Principles of Writing Highway Construction Specifications (4-Day)

This course addresses the engineering and legal aspects, as well as 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.

This course is a 4-day course and can be tailored to meet the needs of the host organization. A 2-day and 3-day versions are also available. The 4-day course consists of all seven modules.

The course modules are:

Module 1: Definitions, Forms, and Purpose of Specifications

Module 2: Specification Writing Principles

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

Outcomes

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

- Recognize and apply the principles of writing clear, concise, complete, and technically correct specifications
- Write specifications in the active voice imperative mood
- Write specifications without ambiguities and with measurable standards
- Describe the difference between traditional methods specifications and statistically based quality assurance specifications
- Identify newer types of procurement and contracting methods
- Demonstrate appreciation for the importance of specifications for highway construction contracting

Target Audience

Personnel working in contract administration, design, materials selection and quality control, and the management of highway construction, including contribution of information in contract provisions. This includes specification writers who use the information in writing the formal contract documents. This course is also recommended for asset management team members. PREREQUISITES: This course is not for beginners! Participants must have experience (five years minimum) in at least one of the following disciplines: contract administration, materials, specification writing, roadway or bridge design, roadway or bridge construction.

Training Level: Intermediate

Fee: 2013: $600 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134005

Updated Training

Course Title

Value Engineering Workshop (3-day)

Value Engineering (VE) is a systematic process of review and analysis of a project during the concept and design phases. VE is conducted by a multi-disciplined team of persons not involved in the project to provide recommendations such as: a) providing the needed functions safely, reliably, and at the lowest overall cost; b) improving the value and quality of the project; and c) reducing the time to complete the project.

This course begins with a Web-based training (WBT) component that is completed prior to the first day of the class (134005A). The 3-day workshop involves training participants to be valued contributors to the Value Engineering team, conducting a Value Engineering study in a team environment. It is preferable that the host agency provides actual project(s) to be used in this course, although The National Highway Institute (NHI) can provide projects upon request. Depending on the projects selected for use in the course, and based on the request of the host agency, the 3-day classroom session can be expanded to 4 or 5 days in length (NHI-134005B and NHI-134005C).

Upon successful course completion, participants will have acquired the training necessary to successfully participate in future Value Engineering studies for their agencies.

Outcomes

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

- Explain how Value Engineering can improve project performance, reduce costs, and enhance value.
- Acquire the necessary behaviors and skills to be an effective Value Engineering team member with the ability to: Investigate the project and analyze project functions and costs; Creatively speculate on alternative ways to perform the various functions; Evaluate the most effective life-cycle alternatives; Develop viable alternatives into fully supported recommendations; Present the recommendations to stakeholders and agency management

Target Audience

The target audience for this course consists of FHWA and state highway agency personnel in management, administrative, and engineering disciplines who will participate as Value Engineering team members. Consultants or agency representatives of all technical disciplines associated with project design, development, construction, and maintenance can be included in order to provide the multiple perspectives needed to maximize the effectiveness of the team.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134005A

Updated Training WBT

Course Title

Introduction to Value Engineering - WEB-BASED

Value Engineering (VE) is a systematic process of review and analysis of a project during the concept and design phases. VE is conducted by a multi-disciplined team of persons not involved in the project to provide recommendations such as: a) providing the needed functions safely, reliably, and at the lowest overall cost; b) improving the value and quality of the project; and c) reducing the time to complete the project.

This Web-based training is intended to provide an overview of the Value Engineering process, know as the Value Engineering study. Included in the training is a discussion of the benefits of utilizing VE, the keys to completing a successful VE study, and an overview of the objectives and tasks completed by the VE team at each phase.

Participants can complete this training independently. Those who plan on attending the 3-day Value Engineering classroom training must complete this online module prior to coming to class. Course certificates should be printed out and presented to the instructor on the first day to verify completion.

Outcomes

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

- Identify the purpose of Value Engineering and its benefits to a highway transportation agency.
- Identify the critical skills required to participate successfully in the VE study.
- Describe each phase of creating a Value Engineering Job Plan in terms of the objective and tasks.

Target Audience

The target audience for this course consists of FHWA and state highway agency personnel in management, administrative, and engineering disciplines who will participate as Value Engineering team members or who are interested in learning more about the process. Consultants or agency representatives of all technical disciplines associated with project design, development, construction, and maintenance who will participate in a Value Engineering study should also attend.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: .5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134005B

Updated Training

Course Title

Value Engineering Workshop (4-day)

Value Engineering (VE) is a systematic process of review and analysis of a project during the concept and design phases. VE is conducted by a multi-disciplined team of persons not involved in the project to provide recommendations such as: a) providing the needed functions safely, reliably, and at the lowest overall cost; b) improving the value and quality of the project; and c) reducing the time to complete the project.

This course begins with a Web-based training (WBT) component that is completed prior to the first day of the class. The 4-day workshop involves training participants to be valued contributors to the Value Engineering team, conducting a Value Engineering study in a team environment. It is preferable that the host agency provides actual project(s) to be used in this course, although The National Highway Institute (NHI) can provide projects upon request. Depending on the projects selected for use in the course, and based on the request of the host agency, the 3-day classroom session can be expanded to 3 or 5 days in length (NHI-134005 and NHI-134005C).

Upon successful course completion, participants will have acquired the training necessary to successfully participate in future Value Engineering studies for their agencies.

Outcomes

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

- Explain how value engineering can improve project performance, reduce costs, and enhance value.
- Acquire the necessary behaviors and skills to be an effective Value Engineering Team member with the ability to: Investigate the project and analyze project functions and costs; Creatively speculate on alternative ways to perform the various functions; Evaluate the most effective life-cycle alternatives; Develop viable alternatives into fully supported recommendations; Present the recommendations to stakeholders and agency management

Target Audience

The target audience for this course consists of FHWA and state highway agency personnel in management, administrative, and engineering disciplines who will participate as Value Engineering team members. Consultants or agency representatives of all technical disciplines associated with project design, development, construction, and maintenance can be included in order to provide the multiple perspectives needed to maximize the effectiveness of the team.

Training Level: Basic

Fee: 2013: $600 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134005C

Updated Training

Course Title

Value Engineering Workshop (5-day)

Value Engineering (VE) is a systematic process of review and analysis of a project during the concept and design phases. VE is conducted by a multi-disciplined team of persons not involved in the project to provide recommendations such as: a) providing the needed functions safely, reliably, and at the lowest overall cost; b) improving the value and quality of the project; and c) reducing the time to complete the project.

This course begins with a Web-based training (WBT) component that is completed prior to the first day of the class (134005A). The 3-day workshop involves training participants to be valued contributors to the Value Engineering team, conducting a Value Engineering study in a team environment. It is preferable that the host agency provides actual project(s) to be used in this course, although The National Highway Institute (NHI) can provide projects upon request. Depending on the projects selected for use in the course, and based on the request of the host agency, the 5-day classroom session can be shortened to 3 or 4 days in length (NHI-134005 and NHI-134005B).

Upon successful course completion, participants will have acquired the training necessary to successfully participate in future Value Engineering studies for their agencies.

Outcomes

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

- Explain how value engineering can improve project performance, reduce costs, and enhance value.
- Acquire the necessary behaviors and skills to be an effective Value Engineering Team member with the ability to: Investigate the project and analyze project functions and costs; Creatively speculate on alternative ways to perform the various functions; Evaluate the most effective life-cycle alternatives; Develop viable alternatives into fully supported recommendations; Present the recommendations to stakeholders and agency management

Target Audience

The target audience for this course consists of FHWA and state highway agency personnel in management, administrative, and engineering disciplines who will participate as Value Engineering team members. Consultants or agency representatives of all technical disciplines associated with project design, development, construction, and maintenance can be included in order to provide the multiple perspectives needed to maximize the effectiveness of the team.

Training Level: Basic

Fee: 2013: $700 Per Person; 2014: N/A

Length: 5 DAYS (CEU: 3 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134029

Course Title

Bridge Maintenance Training

This course focuses on cost-effective bridge maintenance and repair procedures performed by typical transportation agency crews. Included are step-by-step instructions for the preparation and performance of maintenance and repair on common bridge elements. Bridge preservation is emphasized throughout. While engineers often attend, the material is designed for bridge crew supervisors and technicians.

Outcomes

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

- Justify, develop and implement a cost-effective preservation strategy for a group of bridges
- Identify maintenance or repair needs and select the best remedial strategy.
- Describe properties and preservation options involving common bridge materials such as concrete, steel and timber
- Describe the step-by-step tasks required to accomplish proven preservation procedures on the various bridge elements
- Identify critical members and avoid procedures that might result in damage such as field welding repairs on fracture critical tension members
- Recognize problems that warrant specialized expertise, for example, soliciting the involvement of a qualified structural engineer when repairing structural damage
- Apply effective management techniques (such as planning, scheduling, monitoring and reporting) during daily bridge maintenance operations

Target Audience

State and local bridge maintenance technicians and supervisors. This course is also recommended for asset management team members.

Training Level: Intermediate

Fee: 2013: $670 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134042

Course Title

Quality Assurance: Materials Control and Acceptance (4.5-Day)

This course provides participants with an understanding of the elements of a statistically based quality assurance program. It is also a prerequisite course for those pursuing training on the development of quality assurance specifications.

The course begins with an introduction to quality management and quality assurance. Through lectures, discussion, and workshops, participants learn techniques for collecting, organizing, analyzing, and interpreting data. Using the techniques taught in the course, participants assess the strengths, weaknesses, and risks of process control and acceptance plans. The course concludes with steps for successful implementation of quality specifications.

This course requires a solid foundation in basic mathematics and statistics.

The course topics include: Sampling Theory, Organization of Data, Analysis of Data, The Normal Distribution, Sources of Variability, Process Control, Acceptance Plans and Risks, and Percent within Limits Acceptance Plans.

Outcomes

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

- Define terms related to quality assurance.
- Identify the importance of organizing data and how to plot frequency histograms.
- Explain how a sample relates to the population, the relationship between single and multiple samples, including the myth of a single representative sample, and use of random stratified sampling tables.
- Calculate population and sample means, standard deviation, coefficient of variation, and control chart limits.
- Identify sources of variability and how to use precision and bias statements
- Use statistical process control charts.
- Identify the elements of acceptance plans and the strengths and weaknesses of acceptance plans based on sample means and percent within limits.
- Identify procedures for verification of contractor tests used in the acceptance decision.

Target Audience

This course is appropriate for Federal, State, and local highway agency personnel involved in specification development. Typically this group consists of engineers and technicians in materials, construction, and research.

Training Level: Accomplished

Fee: 2013: $650 Per Person; 2014: N/A

Length: 4.5 DAYS (CEU: 2.7 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134058

Course Title

Alternative Contracting

This course addresses the legal aspects, and potential program implications of using alternative project delivery strategies and nontraditional contracting practices. This includes alternative project delivery methods such as design-build, construction manager at risk, and performance contracting. It also includes the use of nontraditional contracting provisions such as warranties, multiparameter bidding, incentive-disincentive provisions for contract time, lane rental, alternate pavement type bidding, and many other nontraditional contracting techniques. The course has certain required modules; however, the requesting agency may customize the course by selecting from additional modules. Classroom activities include lectures, case studies, workshops, and writing assignments.

Outcomes

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

- Identify alternative project delivery, procurement, and contract management methods for highway construction
- Identify objectives for the use of alternative project delivery, procurement, and contract management methods
- Differentiate among traditional design-bid-build and alternative project delivery, procurement, and contract management methods based on relative advantages and risks
- Define how project risks are reallocated using various project delivery, procurement, and contract management methods
- Select appropriate alternative contracting methods for use with a given project or select appropriate projects for use with a given alternative contracting method or methods
- Identify contract requirements appropriate for alternative contracting methods

Target Audience

Personnel working in contract administration, project development and design, and the management of highway construction, including contribution of information in contract provisions.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134064

Course Title

Transportation Construction Quality Assurance (1.5-Day)

The Federal Highway Administration (FHWA) identified the need for transportation construction and materials personnel to increase their knowledge of the fundamentals of effective transportation construction Quality Assurance (QA). This course was developed to ensure that agency, contractor, producer, and consultant personnel responsible for interpreting and applying quality assurance specifications in transportation construction are properly qualified. The course will utilize a Quality Assurance Reference Manual, adapted from the current NETTCP manual.

This one and a half-day version of the course covers Chapters 1 through 6 of the course materials and will be available to, and appropriate for, all audiences including management level personnel. The content covered in this first day includes how quality assurance is featured in a transportation construction quality assurance program, quality assurance program elements, the evolution of quality assurance specifications, measuring quality, and the roles and responsibilities of both contractor and agency personnel.

Outcomes

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

- Consistently apply fundamental Quality Assurance concepts, terminology, and definitions
- Differentiate QA specifications from other specifications
- Explain each of the six core elements of a QA program and how each is essential to successful implementation of Quality Assurance
- Describe the respective roles and responsibilities of the project decision makers (Contractor QC and Agency Acceptance personnel) and how their interaction contributes to construction quality

Target Audience

This is an intermediate-level course for personnel who are implementing QA specifications on construction projects. Necessary background knowledge for participants is 3-5 years minimum in transportation construction specifications inspections. The suggested list of personnel that may consider attending, if they have the requisite background knowledge are Contractor/Consultant Personnel (QC managers/QC Plan Administrators, Senior Production Facility QC Technician/Inspectors, Senior QC Laboratory Personnel, and Senior Field QC Technicians/Inspectors) and Agency Personnel (Project Managers/Resident Engineers, Senior Production Facility Acceptance Technicians/Inspectors, Senior Acceptance Laboratory Personnel, and Senior Field Acceptance Technicians/Inspectors.

Training Level: Intermediate

Fee: 2013: $350 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134064A

Course Title

Transportation Construction Quality Assurance (3-Day)

The Federal Highway Administration (FHWA) identified the need for transportation construction and materials personnel to increase their knowledge of the fundamentals of effective transportation construction Quality Assurance (QA). This course was developed to ensure that agency, contractor, producer, and consultant personnel responsible for interpreting and applying quality assurance specifications in transportation construction are properly qualified. The course will utilize a Quality Assurance Reference Manual, adapted from the current NETTCP manual.

This three-day version of the course covers Chapters 1 through 10 of the course materials and will be available to, and appropriate for, production, laboratory, and field QC and Acceptance technicians and inspectors. This version contains mathematical terms and principles used in QA sampling, testing, and decision-making. The content also includes how quality assurance is featured in a transportation construction quality assurance program, quality assurance program elements, the evolution of quality assurance specifications, measuring quality, and the roles and responsibilities of both contractor and agency personnel.

Outcomes

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

- Consistently apply fundamental Quality Assurance concepts, terminology, and definitions
- Differentiate QA specifications from other specifications
- Explain each of the six core elements of a QA program and how each is essential to successful implementation of Quality Assurance
- Describe the respective roles and responsibilities of the project decision makers (Contractor QC and Agency Acceptance personnel) and how their interaction contributes to construction quality
- Apply the mathematical concepts of variability, statistical distribution, and sampling protocols to measure construction quality
- Describe the primary components of inspection, properly document the results of inspection, and utilize inspection data to quantify quality of workmanship

Target Audience

This is an intermediate-level course for personnel who are implementing QA specifications on construction projects. Necessary background knowledge for participants: 3-5 years minimum in transportation construction specifications inspections, basic statistical knowledge/training, some usage of tools necessary to the Quality Assurance process (contractor test results). The suggested list of personnel that may consider attending, if they have the requisite background knowledge are Contractor/Consultant Personnel (QC managers/QC Plan Administrators, Senior Production Facility QC Technician/Inspectors, Senior QC Laboratory Personnel, and Senior Field QC Technicians/Inspectors) and Agency Personnel (Project Managers/Resident Engineers, Senior Production Facility Acceptance Technicians/Inspectors, Senior Acceptance Laboratory Personnel, andSenior Field Acceptance Technicians/Inspectors).

Training Level: Intermediate

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134070

WBT

Course Title

SpecRisk Quality Assurance Specification Development and Validation Course - WEB-BASED

This course will provide an introduction to statistical analysis and the development of statistically valid quality assurance specifications, introducing general guidelines established and put forth by the Federal Government and FHWA policy. The course also provides participants with an introduction to SpecRisk, the resource that is necessary to successfully develop statistically valid specifications. The course is designed and delivered to motivate members of the target audience to use SpecRisk software to develop their specifications. Although the course demonstrates basic functions of the software, it is not intended to be an in-depth training on how to use SpecRisk.

This course requires a solid foundation in basic statistics. Completion of FHWA-NHI 134042, or equivalent training, is also recommended. NHI 134042 trains participants to identify the importance of organizing data and how to plot frequency histograms. It explains how a sample relates to the population, the relationship between single and multiple samples, and the use of random stratified sampling tables. This knowledge provides an excellent foundation for this course.

Outcomes

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

- Recognize key concepts to develop an effective, statistically valid Quality Assurance (QA) specification.
- Make an informed selection among available options when developing an acceptance plan.
- Develop QA specifications in alignment with best practices, Federal regulations, and FHWA policy.
- Apply SpecRisk software to understand risks and develop statistically valid specifications.

Target Audience

Personnel involved in specification development: Federal, State, and local highway agency engineers and technicians in materials, construction, and research. The training is also appropriate for industry personnel that are involved in reviewing and providing input to the specification development process.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 8 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-137030

Course Title

Principles and Tools for Road Weather Management

This course provides transportation professionals in highway maintenance and/or highway operations with training to develop tools and strategies for addressing road weather problems. The course begins with an overview of the types of road weather problems and their associated costs, as well as basic meteorology for non-meteorologists. Through this course, participants are exposed to various strategies for addressing road weather problems, including Road Weather Information Systems (RWIS) and the development of crosscutting decision support systems to respond effectively to weather situations. In addition, road weather solutions unique to maintenance management, traffic management, traveler information, and emergency management are discussed.

Outcomes

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

- Recognize the crosscutting impacts that weather has upon roadway operations
- Identify the technical and institutional challenges of implementing road weather management strategies
- Explain the range of effective and open solutions to the various types of weather for various management practices, i.e., maintenance, traffic, emergency, and safety management
- Discuss the variety of operational tools and techniques available to the transportation community to deal with the impacts

Target Audience

This course is designed for persons engaged in any aspect of highway maintenance, operations, traffic management, emergency management, and highway safety, specifically those engaged in the implementation of solutions for roadway problems; technical specialists engaged in the implementation of solutions for roadway problems that are caused by weather; State and local transportation/public works agencies, and mid-level managers who direct their agency's resources; and FHWA personnel.

Training Level: Basic

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-137033

Course Title

ITS/CVO Security Awareness

The ITS/CVO Security Awareness course is a 1-day course that provides techniques for identifying and ranking vulnerability in the CVO Transportation System (CVO TS); techniques for developing countermeasures - both procedural and technical - for mitigating vulnerability; and strategies for implementation and maintenance of these countermeasures.

The following key points are covered in this course:

Vulnerable Assets and Security Priorities in Commercial Vehicle Operations

Addressing Vulnerabilities

Planning for Deployment

Next Steps/Applying Steps to Implement ITS/CVO Security Initiatives

The purpose of this course is not to make participants experts, but to provide them with the basic tools and resources needed for ITS/CVO Security Awareness, and direction on where to go for more information.

Outcomes

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

- Name vulnerabilities and security priorities in commercial vehicle operations
- State procedural and technology countermeasures available to address vulnerabilities
- List the key phases in deploying ITS/CVO security solutions.
- Formulate next steps and potential opportunities to coordinate efforts in the deployment of potential ITS/CVO security initiatives

Target Audience

The stakeholders include but are not limited to: Federal agency personnel representing the Departments of Transportation and Homeland Security at the national headquarters and state/division; State agency personnel representing motor carrier enforcement, motor carrier credentialing, homeland security, and emergency management and public safety agencies; Metropolitan Planning Organizations involved with the development of regional transportation plans; Port authorities including seaports, airports, inland ports, and intermodal operations; and Members of the Motor Carrier/ Shipper industry (if course sponsor feels it is appropriate based on their situation).

Training Level: Basic

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-137041

Course Title

ITS Deployment Analysis System (IDAS)

This course is a hands-on computer training session on the newly developed ITS Deployment Analysis System (IDAS) software. IDAS provides ITS sketch planning capability to calculate the relative costs and benefits of ITS investments. IDAS incorporates a cost module, a benefit module and an internal travel demand model to generate cost/benefit comparisons for alternative ITS deployment scenarios. IDAS uses the output from an existing transportation planning model to establish a best-case scenario on which the user can deploy ITS services on specific links in the regional transportation network model.

The hosting organization is responsible for providing computers with the following recommended requirements: 500 MHz Intel Pentium II Processor or equivalent with 128 MB of RAM, Windows 2000, Windows NT, or Windows XP, color monitors, 2 GB of available disk space. IMPORTANT - Maximum of two (2) participants per terminal.

Outcomes

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

- Explain the importance of integrating operations/ITS into the planning and decision-making processes
- Explain that IDAS software can be used to link operations to the planning process
- Demonstrate how IDAS uses the network and output from an existing regional travel demand model
- Employ IDAS to screen ITS alternatives and produce a cost/benefit analysis.
- Interpret IDAS results
- Review and refine IDAS defaults

Target Audience

FHWA, State DOT, metropolitan planning organization, and local government transportation planning staff members who are involved in the day-to-day elements of transportation planning and modeling would benefit for this course. Operations Engineers, ITS Project Managers, and Transit Agency Personnel (this includes individuals who: 1. develop inputs for, set up, and carry out analyses of operations/ITS alternatives and/or 2. examine results, conduct sensitivity analyses, and explore tradeoffs of such analyses created by others) would also benefit for this course.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 24

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-137044

Course Title

Improving Highway Safety with Intelligent Transportation Systems (ITS)

This is a two-day course aimed at increasing awareness of the potential to gain highway safety improvements through the deployment of Intelligent Transportation System (ITS) technologies at the highway system, mainstream (highway improvement project) and stand alone project level, and accelerate the introduction and evaluation of ITS applications by increasing the recognition of their contribution to making highways safer. Furthermore, the course surveys the participants on their experiences deploying ITS for highway safety improvements and reviews procedures and requirements of safety strategic planning and the ITS deployment process.

Outcomes

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

- Discuss participant's highway safety challenges and triumphs
- Identify general uses of ITS to improve highway safety
- Identify and discuss USDOT ITS initiatives
- List, describe, discuss, and extract four highway safety priority areas specific to state or local highway/street agencies
- Identify and demonstrate how ITS can contribute to improved highway safety and traffic operations through a work zone
- Identify and discuss the current status of highway safety and the need to continuously improve highway safety programs
- Identify and discuss ITS-supported countermeasures that can be employed to address highway safety priority areas identified in the participant's jurisdictions
- Identify and discuss organizational and individual-level actions for potential ITS and Safety collaboration in the future at the planning level and necessary activities to enable the actions

Target Audience

The improving Highway Safety with Intelligent Transportation Systems course is designed to assist professionals in both the highway safety and ITS communities. Participants may be planners, operators, designers, or maintenance personnel. These may be for example, the employees of, or contractors for, State departments of transportation, metropolitan planning organizations, and city and county agencies. The course activities will draw on attendee's experience, expectations, and contributions. Because an underlying objective is to foster cooperation among the Safety and ITS communities, it is critical that both be well represented: a 50/50 split in attendees' backgrounds would be most desirable.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-137046

WBT

Course Title

ITS Deployment Analysis System (IDAS) - WEB-BASED

This course is a Web-based training session on the newly developed ITS Deployment Analysis System (IDAS) software. IDAS provides ITS sketch planning capability to calculate the relative costs and benefits of ITS investments. IDAS incorporates a cost module, a benefit module and an internal travel demand model to generate cost/benefit comparisons for alternative ITS deployment scenarios. IDAS uses the output from an existing transportation planning model to establish a best-case scenario on which the user can deploy ITS services on specific links in the regional transportation network model.

The participant's computer should have the following recommended requirements: 500 MHz Intel Pentium II Processor or equivalent with 128 MB of RAM, Windows 2000, Windows NT, or Windows XP, color monitors, 2 GB of available disk space.

Outcomes

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

- Explain the importance of integrating operations/ITS into the planning and decision-making processes
- Explain that IDAS software can be used to link operations to the planning process
- Demonstrate how IDAS uses the network and output from an existing regional travel demand model
- Employ IDAS to screen ITS alternatives and produce a cost/benefit analysis.
- Interpret IDAS results
- Review and refine IDAS defaults

Target Audience

FHWA, State DOT, metropolitan planning organization, and local government transportation planning staff members who are involved in the day-to-day elements of transportation planning and modeling would benefit for this course. Operations Engineers, ITS Project Managers, and Transit Agency Personnel (this includes individuals who: 1. develop inputs for, set up, and carry out analyses of operations/ITS alternatives and/or 2. examine results, conduct sensitivity analyses, and explore tradeoffs of such analyses created by others) would also benefit for this course.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 5 HOURS (CEU: .5 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-137048

New Training WBT

Course Title

Turbo Architecture-Web-Based

Turbo Architecture is an interactive software program that assists transportation planners and system integrators in the development of regional and project architectures. This Web-based training (WBT) provides ITS professionals with a hands-on experience using the Turbo software. Participants will work with simulated examples and practice exercises to create, maintain, and use regional and project ITS architectures.

At the end of the training, participants will be able to use the Turbo software to create and modify a regional or project architecture including providing a link to planning, entering stakeholders, entering inventory data, selecting ITS services, creating operational concepts, tailoring functional requirements, building and customizing interfaces, customizing standards mappings, entering agreements, creating outputs, and applying features to new projects.

Outcomes

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

- Recall training objective and delivery elements
- Verify the correct installation of Turbo
- Explain the use and importance of Turbo
- Explain Turbo's support of the ITS project life cycle

Target Audience

The Turbo Architecture WBT is designed for ITS professionals employed by MPOs, transit agencies, municipalities, State DOTs, FHWA Division Offices, or consultants and system integrators who use and/or maintain an ITS architecture and are involved with ITS planning, deployment, and operations.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-138001

New Training WBT

Course Title

Transportation Performance Management Awareness - Federal Aid Version

This course provides an introduction to performance management and covers the definition of performance management and basic performance management concepts, explains the critical role that the planning process plays in implementing a performance management program, and addresses what performance management means to the Federal Highway Administration.

Outcomes

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

- Describe performance management
- Describe the basic elements of a performance management program
- Explain the critical role planning plays in implementing a performance management program

Target Audience

The target audience for this training will be all FHWA employees.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-138002

New Training WBT

Course Title

Transportation Performance Management Awareness - Federal Lands Version

This course provides an introduction to performance management and covers the definition of performance management and basic performance management concepts, explains the critical role that the planning process plays in implementing a performance management program, and addresses what performance management means to the Federal Highway Administration.

Outcomes

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

- Describe performance management
- Describe the basic elements of a performance management program
- Explain the critical role planning plays in implementing a performance management program

Target Audience

The target audience for this training will be all Federal Lands employees.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-139003

Course Title

Advanced Freight Planning

This course expands on freight topics covered in other FHWA-developed freight planning courses to provide techniques and strategies designed for those individuals directly involved in the implementation of transportation planning, programming and allocation of resources. It provides participants with the skills needed to identify, prioritize, develop and implement freight supportive projects. This is an advanced level course and it focuses heavily on resources and solutions, and how those solutions can be applied to developing plans and programs for public and private sectors.

Participants must successfully complete either FHWA-NHI-139001 (prior to 31 March 2008) or FHWA-NHI-139006 (after 1 April 2008) Integrating Freight in the Transportation Planning Process prior to attending 139003. Participants MUST bring a copy of their certificate of completion to their scheduled session of FHWA-NHI-139003 and provide it to the lead instructor.

This course is part of the Certificate of Accomplishment in Freight Management and Operations. To learn more about how you can achieve a certificate in Freight Management and Operations visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Outcomes

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

- Discuss how freight transportation needs differ for major industry sectors
- Describe the role of the freight transportation systems in supporting economic competitiveness
- List the economic drivers that influence private sector freight transportation decisions
- Discuss how private sector needs can inform public sector performance measures
- Summarize methods for identifying and prioritizing freight projects
- Discuss the benefits of engaging private sector stakeholders in project identification
- List potential funding mechanisms for freight projects

Target Audience

Mid-level State DOT transportation and freight planners, City and County Planners (who deal with freight planning issues), MPO staff, Mid- and high-level public sector transportation and freight planners, consultants, private sector Freight Managers, economic development analysts, and FHWA Employees.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-139004

Course Title

Principles of Effective Commercial Motor Vehicle (CMV) Size and Weight Enforcement

Principles of Effective Commercial Motor Vehicle Size and Weight Enforcement is a two-day course intended to provide advanced, in-depth, understanding of federal motor vehicle size and weight regulations and the importance of state level vehicle size and weight enforcement programs. This course targets transportation professionals responsible for overseeing the preservation of federal and state highway assets through annual VSW enforcement planning and federal certification, as well as personnel directly involved in commercial VSW enforcement. The course provides techniques and strategies designed for those individuals working to implement VSW enforcement programs.

In summary, this course will provide participants with the knowledge and tools to implement effective programs for enforcing federal VSW regulations.

Outcomes

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

- Demonstrate the importance of Commercial VSW Enforcement
- Describe Federal VSW Regulations
- Discuss current issues, trends and technologies related to VSW Enforcement
- Use the SEP and Annual Certification to measure progress for implementing an effective VSW Enforcement Program

Target Audience

The target audience for the course are: FHWA Division Office Staff; State DOTs/Public Works Policymakers; Public employees from State and Local transportation agencies with Commercial Vehicle Operations (CVO) size and weight responsibilities; Personnel from state and local law enforcement agencies; Federal Motor Carrier Safety Administration (FMCSA) field office personnel; Trucking company managers; Trucking association officials; Law enforcement associations; and Training staff from state transportation agencies.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-139005

Course Title

Linking Freight to Planning and the Environment

Linking Freight to Planning and the Environment is a two-day course designed to assist public and private sector transportation planners and engineers, environmental planners, and freight planners in the public and private sectors better address and more effectively integrate freight and environment considerations in the public sector planning and project development processes. The course will also emphasize applicable and recent case studies from all modes to demonstrate the range of practices that are available to small, medium and large MPOs and urban and rural state DOTs, as well as exercises on analysis techniques and tool application.

This course is part of the Certificate of Accomplishment in Freight Management and Operations. To learn more about how you can achieve a certificate in Freight Management and Operations visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Outcomes

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

- Explain to transportation decision-makers the importance of addressing freight and environmental considerations within the transportation planning, programming, and project development process
- Incorporate freight and environmental issues earlier and more consistently within the transportation planning and programming process
- Identify strategies that balance statewide, regional, or metropolitan freight mobility needs with community and environmental goals
- Identify potential transportation improvement projects that balance freight mobility and community and environmental impacts
- Locate the resources and tools available to address freight and environmental considerations within the transportation planning and programming process

Target Audience

Mid-level State DOT transportation planners, freight planners, environmental planners and engineers; City and County transportation planners, freight planners and environmental planners; MPO transportation planners, freight planners and environmental planners; Mid- and high-level public sector transportation and freight planners; FHWA transportation planners, freight planners and environmental planners; U.S. DOT transportation planners, freight planners and environmental planners; State and Federal Resource Agencies transportation planners, freight planners and environmental planners, such as the Environmental Protection Agency, U.S. Fish and Wildlife, Army Corp of Engineers, etc.; and Consultants.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-139006

WBT

Course Title

Integrating Freight in the Transportation Planning Process - WEB-BASED Standard Version

Freight transportation issues can be complex and involve many different stakeholders, all of whom have different perspectives on the freight transportation system. The challenge faced by many public-sector transportation planners is how to best incorporate these freight perspectives into the transportation planning process in a way that results in a safe and efficient transportation system for both people and goods. This Web-based training course will provide a greater understanding of freight trends, its stakeholders, and its issues, so that public-sector transportation planners are better able to incorporate freight into their respective transportation planning processes and programs.

This WBT course is an update of and replaces the instructor-led course FHWA-NHI-139001. If you are taking this course as a prerequisite for FHWA-NHI-139003 Advanced Freight Planning, you MUST provide your certificate of completion to the lead instructor on the first day of class. You will be able to print out your certificate after you complete your online exam. If you need help enrolling in this web-based training course, please call 703-235-0500.

This course is part of the Certificate of Accomplishment in Freight Management and Operations. To learn more about how you can achieve a certificate in Freight Management and Operations visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

In accordance with the Rehabilitation Act of 1973, as amended, this WBT is also available in an accessible 508 compliant version. See course number FHWA-NHI-139006W for more information.

Outcomes

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

- Upon completion of the course, participants will be able to:
- Identify the stakeholders involved in freight transportation
- Explain the role of different modes in freight transportation
- Describe some trends affecting freight transportation, and their impact on a State's transportation system and communities
- Discuss some of the common issues that prevent freight from being fully incorporated into the planning process
- Identify key resources to help guide statewide and metropolitan freight planning effort

Target Audience

Transportation planners and freight transportation planners from State DOTs, MPOs, local governments, and Federal agencies.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-139006W

WBT

Course Title

Integrating Freight in the Transportation Planning Process - WEB-BASED Accessible 508 Version

In accordance with the Rehabilitation Act of 1973, as amended, this WBT was developed as an accessible 508 compliant version. See course number FHWA-NHI-139006 for the standard WBT version.

Freight transportation issues can be complex and involve many different stakeholders, all of whom have different perspectives on the freight transportation system. The challenge faced by many public-sector transportation planners is how to best incorporate these freight perspectives into the transportation planning process in a way that results in a safe and efficient transportation system for both people and goods. This Web-based training course will provide a greater understanding of freight trends, its stakeholders, and its issues, so that public-sector transportation planners are better able to incorporate freight into their respective transportation planning processes and programs.

This WBT course is an update of and replaces the instructor-led course FHWA-NHI-139001. If you are taking this course as a prerequisite for FHWA-NHI-139003 Advanced Freight Planning, you MUST bring your certificate of completion to the first day of class. You will be able to print out your certificate after you complete your online exam.

This course is part of the Certificate of Accomplishment in Freight Management and Operations. To learn more about how you can achieve a certificate in Freight Management and Operations visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Outcomes

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

- Upon completion of the course, participants will be able to:
- Identify the stakeholders involved in freight transportation
- Explain the role of different modes in freight transportation
- Describe some trends affecting freight transportation, and their impact on a State's transportation system and communities
- Discuss some of the common issues that prevent freight from being fully incorporated into the planning process
- Identify key resources to help guide statewide and metropolitan freight planning effort

Target Audience

Transportation planners and freight transportation planners from State DOTs, MPOs, local governments, and Federal agencies.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-141029

Course Title

Basic Relocation under the Uniform Act

The course is designed for the beginning relocation agent or for those persons interested in a basic knowledge of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act). The purpose is to answer questions, meet technical needs, and broaden the knowledge of those engaged in the relocation of persons displaced as a result of a Federal or Federally-funded project. The course covers all functional areas of the relocation assistance program, with emphasis on residential displacements.

This course is part of the Certificate of Accomplishment in Relocation under the Uniform Act. To learn more about how you can achieve a certificate in Relocation visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Outcomes

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

- Explain the principles of the Uniform Act and implementing regulations
- Describe the Uniform Act planning requirements
- Describe an agency's advisory services responsibilities
- Describe the elements of comparable replacement housing
- Calculate replacement housing payments for owners and tenants
- Explain replacement housing of last resort
- Compute residential and non-residential moving costs

Target Audience

Federal, State, and local public agencies, FHWA personnel, and other interested persons.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-141030

Course Title

Advanced Relocation under the Uniform Act

This training goes beyond the basic functional areas of relocation assistance and concentrates on areas of specific concern, such as mortgage differential payments, settlement costs, and partial acquisitions. Other topics, including comparability, last resort housing, multiple use, tenants, and nonresidential moves -- including businesses, are also covered. The training is designed to allow flexibility in adjusting course materials to meet the needs of the requesting agency.

Prerequisites: Completion of FHWA-NHI-141029 Basic Relocation and the Web-based training FHWA-NHI-141045 Real Estate Acquisition Under the Uniform Act: An Overview or approximately one year of experience working in the relocation program. The training is peppered with interesting case study exercises, so bring an HP12 C calculator to class.

This training is part of the Certificate of Accomplishment in Relocation under the Uniform Act. To learn more about how you can achieve a certificate in Relocation visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Outcomes

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

- Explain the principles that govern relocation provisions of the Uniform Relocation and Real Property Acquisition Policies Act of 1970 (Uniform Act) and implementing regulations
- Describe at least three factors involved in difficult relocation subject areas
- Describe issues that may arise when developing advisory assistance plans for difficult relocation areas
- Determine eligibility for certain relocation payments in difficult relocation cases
- Determine challenging issues when calculating complex nonresidential moving costs
- Calculate complex nonresidential moving costs

Target Audience

Federal, State, and local public agencies, FHWA personnel, right-of-way contractors, and other interested persons.

Training Level: Intermediate

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-141031

Course Title

Business Relocation under the Uniform Act

This course provides comprehensive information on the various aspects of business relocation and is designed to address the relocation of businesses, farms and nonprofit organizations. The main topics include eligibility, moving payments and benefits, advisory services, actual direct loss of tangible personal property, substitute personal property payments, reestablishment expenses, and fixed payment in lieu of (ILO) payments. A module about the move process includes the move option available to a business, as well as the need for an inventory and move specifications.

This course is part of the Certificate of Accomplishment in Relocation under the Uniform Act. To learn more about how you can achieve a certificate in Relocation visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Outcomes

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

- Provide advisory services for businesses
- Determine moving and related expense payments for businesses, farms and non-profit organizations
- Determine reestablishment expenses for small businesses
- Determine fixed payments for businesses, farms and non-profit organizations
- Evaluate the move process for businesses
- Determine how to move hazardous materials for businesses

Target Audience

State departments of transportation, local public agencies, FHWA personnel, and other Federal agency personnel. Suggest that participants have at least two years general relocation experience.

Training Level: Accomplished

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-141043

Updated Training

Course Title

Appraisal for Federal-Aid Highway Programs

Please note that this training has been approved for Continuing Education Credits in several states by their respective appraisal licensing boards. As part of our training delivery, we will assist in preparing the documents required for course approval in your state. However, any fees associated with the application process are the responsibility of the requestor. Additionally, this course counts toward IRWA's SR/WA designation and R/W-AC re-certification. Participants should bring an HP 12c calculator for the classroom exercises.

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act) and its implementing regulations require the uniform and equitable treatment of persons displaced from their homes, businesses, or farms and establish uniform and equitable land acquisition policies for public programs using Federal funds. Title III of the Uniform Act addresses real property acquisition policies, including appraisal requirements.

The training is designed to help transportation professionals understand and conform with the appraisal requirements of the Uniform Act and 49 CFR Part 24. It is intended for experienced appraisal personnel and focuses on preparing, presenting, and understanding appraisal reports in conformance with the Uniform Act. In addition, the training addresses the appraiser's role in the overall project development process and how an appraiser's expertise can assist in completing a transportation project effectively and efficiently.

Outcomes

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

- Explain basic eminent domain principles
- Apply Federal-aid appraisal requirements
- Use partial acquisition appraisal techniques
- Explain the use and application of the waiver valuation process
- Apply appraisal techniques to unique situations within highway programs
- Describe the role of the appraiser in the land acquisition process

Target Audience

State departments of transportation (DOTs), local public agencies (LPAs), city and county attorneys, consultants; FHWA and other Federal agency staff involved in the appraisal process. Prerequisite: A course in the basic practices and principles of real estate appraisal (e.g. International Right of Way Association course 400, the Appraisal Institute's courses 110 and 120) or a college-level course in appraisal.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-141044

Updated Training

Course Title

Appraisal Review for Federal-Aid Highway Programs

Please note that this training has been approved for Continuing Education Credits in several States by their respective appraisal licensing boards. As part of our course delivery, we will assist in preparing the documents required for course approval in your State. However, any fees associated with the application process are the responsibility of the requestor. Additionally, this training counts toward IRWA's SR/WA designation and R/W-AC re-certification. Participants should bring an HP 12c calculator for the classroom exercises.

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (Uniform Act) ensures that persons whose real property is acquired or who are displaced as a result of a Federal or Federally-assisted project are treated fairly and consistently. This course focuses on the application of appraisal review principles and how they fit within the Uniform Act and 49 CFR Part 24 as related to transportation project development. Focusing on larger parcel, uneconomic remnants, cost to cure, and severance damages, the course discusses the qualifications, roles, and responsibilities of the review appraiser from pre- to post-appraisal activities.

Outcomes

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

- Explain basic eminent domain principles
- Apply Federal-Aid appraisal review requirements
- Apply appraisal review techniques to unique situations within Federal-Aid highway programs
- Describe the role of the review appraiser in the land acquisition process

Target Audience

State departments of transportation (DOTs), local public agencies (LPAs), city and county attorneys, consultants; FHWA and other Federal agency staff involved in the appraisal process. Prerequisite: A course in the basic practices and principles of real estate appraisal (e.g. International Right of Way Association course 400, the Appraisal Institute's courses 110 and 120) or a college-level course in appraisal.

Training Level: Accomplished

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-141045

Updated Training WBT

Course Title

Real Estate Acquisition under the Uniform Act: An Overview - WEB-BASED

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) is the basis for Federally-funded real estate acquisition programs. This self-paced training provides an overview of the Uniform Act's three key elements: valuation, acquisition, and relocation. This course underscores the importance of following Uniform Act requirements when acquiring property for a Federally-funded transportation project.

Outcomes

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

- Provide a basic overview of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act)
- Discuss the three key elements of the Uniform Act: valuation/appraisal, acquisition and relocation
- Explain how to develop an estimate of just compensation using the appraisal process or appraisal waiver procedure(s)
- Identify relocation benefits and services required by the Uniform Act
- List places to obtain relevant resource documents and materials

Target Audience

Federal, State, and local government employees and consultants who acquire real estate for Federally-funded transportation projects. This includes acquisition and relocation agents; program or project managers; grant administrators or grant recipients; appraisers, realty specialists, attorneys, engineers, planners, and others involved with real property acquisition.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-141047

Updated Training WBT

Course Title

Local Public Agency Real Estate Acquisition - WEB-BASED

This Web-based seminar is designed for local government staff involved with acquiring real property for Federally-assisted transportation projects. The seminar explains the importance of adhering to the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended (Uniform Act) to ensure that federal funding is not at risk. With the Uniform Act as the centerpiece, this self-paced training is comprised of seven distinct learning modules. These include project development, valuation, acquisition, negotiation, relocation and property management.

Outcomes

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

- Explain the statutory basis for Federal requirements and relate these to State and local laws, regulations and procedures
- Explain the intent of the Uniform Act and describe what States and LPAs must do to comply
- Describe how a typical project is developed and strategies for enhancing project delivery
- Describe the LPA role in the appraisal process and determine the appropriate valuation format for specific situations
- Describe the sequence for land acquisition and options available to the negotiator
- Explain what relocation advisory services are to be provided to property owners and tenants and differentiate the residential and nonresidential relocation processes
- Summarize various property management activities and evaluate property management actions using specific case studies

Target Audience

Local Public Agency (LPA) project managers and Right-of-Way (ROW) staff; FHWA, other Federal agency and State staff; and consultants who are unfamiliar with Federal-aid ROW acquisition requirements under the Uniform Act.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-141048

WBT

Course Title

Outdoor Advertising Control: Bonus States - WEB-BASED

Outdoor Advertising Control limits the location, size, spacing and lighting of signs adjacent to the Interstate, National Highway System and other Federal-Aid Primary routes. Regulators are responsible for enforcing these requirements

There are two NHI Outdoor Advertising Control (OAC) Web-based trainings, designed for Bonus States (23 states) and Non-Bonus States (the remaining states). This training is designed for the Bonus States and includes one additional lesson with the unique requirements these States must address Additionally, this training will help participants interpret major legislation and make effective decisions in support of OAC.

Outcomes

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

- Apply Federal laws and regulations to assist in interpreting State and local laws and regulations for effective control
- Identify major Federal outdoor advertising legislation and regulations, and their importance for effective control
- Implement the process of effective control

Target Audience

Staff from FHWA, State DOTs, Counties, Cities and Towns, Townships and Consultants assisting governmental entities with their Outdoor Advertising Control program.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-141049

WBT

Course Title

Outdoor Advertising Control: Non-Bonus States - WEB-BASED

Outdoor advertising control limits the location, size, spacing and lighting of signs adjacent to the Interstate, National Highway System and other Federal-Aid Primary routes. Regulators are responsible for enforcing these requirements.

There are two NHI outdoor advertising control (OAC) Web-based trainings, designed for Bonus States (23 states) and Non-Bonus States (the remaining States). The material in this training applies to all States and will help participants interpret major legislation and make effective decisions in support of OAC. The Bonus State training contains one additional lesson with unique requirements that Bonus States must address. Please refer to Web-based training, FHWA-NHI-141048 Outdoor Advertising Control: Bonus States for further information.

Outcomes

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

- Apply Federal laws and regulations to assist in interpreting State and local laws and regulations for effective control
- Identify major Federal outdoor advertising legislation and regulations, and their importance for effective control
- Implement the process of effective control

Target Audience

FHWA employees, State DOT employees, counties, cities and towns, townships, and consultants assisting governmental entities with their OAC program.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-141050

New Training

Course Title

Introduction to Federal-Aid Right of Way Requirements for Local Public Agencies

This two-day introductory course provides Local Public Agencies (LPAs) with a working knowledge of Federal requirements and procedures for acquiring property for Federally-assisted transportation projects. The course focuses on applying the Uniform Act and related Federal Regulations to specific situations and issues. Designed as a hands-on, highly interactive learning experience, instructors guide participants through a series of right-of-way (ROW) problem solving exercises and large group discussions. We encourage those with limited ROW knowledge to register for the free NHI 141045 web-based training course in advance of this instructor-led course session.

Outcomes

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

- Explain the legal basis for land acquisition by a governmental entity
- Assess the impact of a roadway improvement as it relates to the Uniform Act
- Sequence the right-of-way process (ROW) within the overall project development process
- Determine the appropriate valuation process for ROW acquistion
- Apply the Uniform Act requirements for ROW acquisition
- Apply the Uniform Act requirements to relocation assistance
- Determine the agency's responsibilities for managing real property

Target Audience

Those within local public agencies who are responsible for acquring right-of-way for federally-funded projects, as well as those responsible for oversight of LPAs, in addition to FHWA personnel, consultants, Federal and State staff and other interested parties.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109J

New Training WBT

Course Title

Maintenance Training Series: Underground Storage Tanks - WEB-BASED

The Nation's underground storage tank (UST) systems consist of underground tanks and piping that store petroleum and other hazardous materials. This course, Underground Storage Tanks, addresses the procedures to install, operate, and remove USTs.

Developed specifically for maintenance personnel, this course provides participants with an understanding of the Federal laws and regulations that govern UST systems. During the course, participants acquire the knowledge needed to successfully oversee UST installations and closures. Specifically, the course explores the requirements of industry installation and closure codes, leakage detection, spill and overfill prevention, corrosion protection, and ensuring a "clean" closure.

This training was developed as part of the Maintenance Training Series. To access all the trainings in the series, enroll in the 134109 course.

Outcomes

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

- Describe the regulatory framework governing the operation of underground storage tanks
- Describe UST operations
- Describe the process that must be followed to obtain satisfactory "clean closure" from the appropriate oversight agency
- Describe UST cleanup and removal operations

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134109K

New Training WBT

Course Title

Maintenance Training Series: Cultural and Historic Preservation - WEB-BASED

Cultural and historic sites are often located within an area where maintenance activities are scheduled to be completed. This training, Cultural and Historic Preservation, is teaches participants about regulations and concerns related to safeguarding cultural and historic sites from the potential impacts of highway maintenance activities. Examples of maintenance activities that can impact cultural or historic sites include slope stabilization, shoulder or pavement widening, and vegetation control. Additional examples are presented during the course.

This course assists participants with recognizing potential historic or cultural resources, verifying a site's cultural or historic status, and avoiding impacts to sites when carrying out maintenance activities. Since completing these tasks often requires additional expertise, resources for obtaining needed assistance are provided. In addition, participants learn how maintenance activities can enhance cultural and historic sites through utilization of Context Sensitive Solutions (CSS).

This training was developed as part of the Maintenance Training Series. To access all the courses in the series, enroll in the 134109 course.

Outcomes

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

- Identify governing bodies and registries that should be consulted prior to commencing maintenance activities on sites of cultural and historic importance
- Recognize what sorts of structures, landmarks, and properties could pose potential cultural and historic preservation issues
- Describe how to avoid impacts to historic sites
- Describe the role of DOT in maintaining and enhancing cultural resources

Target Audience

This course is designed for State, regional, and county personnel who manage operations programs and deal with oversight and quality assurance across broad geographic areas. This target audience also is involved with handling materials, scheduling, budgeting, and planning.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-139005

Course Title

Linking Freight to Planning and the Environment

Linking Freight to Planning and the Environment is a two-day course designed to assist public and private sector transportation planners and engineers, environmental planners, and freight planners in the public and private sectors better address and more effectively integrate freight and environment considerations in the public sector planning and project development processes. The course will also emphasize applicable and recent case studies from all modes to demonstrate the range of practices that are available to small, medium and large MPOs and urban and rural state DOTs, as well as exercises on analysis techniques and tool application.

This course is part of the Certificate of Accomplishment in Freight Management and Operations. To learn more about how you can achieve a certificate in Freight Management and Operations visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Outcomes

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

- Explain to transportation decision-makers the importance of addressing freight and environmental considerations within the transportation planning, programming, and project development process
- Incorporate freight and environmental issues earlier and more consistently within the transportation planning and programming process
- Identify strategies that balance statewide, regional, or metropolitan freight mobility needs with community and environmental goals
- Identify potential transportation improvement projects that balance freight mobility and community and environmental impacts
- Locate the resources and tools available to address freight and environmental considerations within the transportation planning and programming process

Target Audience

Mid-level State DOT transportation planners, freight planners, environmental planners and engineers; City and County transportation planners, freight planners and environmental planners; MPO transportation planners, freight planners and environmental planners; Mid- and high-level public sector transportation and freight planners; FHWA transportation planners, freight planners and environmental planners; U.S. DOT transportation planners, freight planners and environmental planners; State and Federal Resource Agencies transportation planners, freight planners and environmental planners, such as the Environmental Protection Agency, U.S. Fish and Wildlife, Army Corp of Engineers, etc.; and Consultants.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142005

Course Title

NEPA and Transportation Decisionmaking

This course considers FHWA's policies and procedures for applying the National Environmental Policy Act (NEPA) to the project development and decisionmaking processes related to transportation facilities. The course examines the evolution of environmental policy and the integration of social, environmental, and economic factors into the framework of laws, regulations, policies, and guidance, which assist in achieving a decision on a transportation project that is in the best overall public interest.

The course emphasizes using the Council on Environmental Quality and FHWA's regulations and guidance for implementing NEPA and Section 4(f) of the Department of Transportation Act, as well as initiatives for interagency coordination and streamlining the project development process. Also emphasized are public involvement, Title VI/ Environmental Justice, FHWA's policy for mitigation and enhancement, and the role of transportation in achieving sustainable development.

Outcomes

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

- Describe the NEPA principles in the development of transportation projects
- Describe the NEPA umbrella concept in transportation decisionmaking
- Explain the roles and responsibilities of participants in the NEPA process
- Describe the importance of a reasoned, collaborative process when developing and evaluating alternatives
- Discuss balancing an array of interests and values in making transportation decisions
- List the milestones in transportation planning that link to the NEPA project development process
- Describe documentation requirements of the NEPA process
- Discuss environmental streamlining, leadership, and stewardship in managing the NEPA process

Target Audience

FHWA, State departments of transportation (including consultants acting on behalf of the State), Federal and State environmental resource agencies, local governments, and metropolitan planning organizations who participate in the transportation decisionmaking process. We strongly encourage the sponsoring organization to invite a mix of planning and environmental staff from these agencies.

Training Level: Intermediate

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142036

Course Title

Public Involvement in the Transportation Decisionmaking Process

Public involvement is much more than public hearings. It involves creative thinking as well as the willingness and ability to interact openly and sensitively to the public's preferred forms of communication and participation. Public involvement is about reaching out to and involving the public in transportation decisionmaking. The public should have a role in every phase of decisionmaking, including the design of the participation plan itself. Successful public involvement addresses the public's procedural, psychological, and substantive needs while gathering useful information. By focusing on interests--rather than positions--public involvement can become more meaningful as well as useful.

Outcomes

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

- Describe U.S. DOT transportation decisionmaking processes, including those that trigger the National Environmental Policy Act
- Describe the relationship between public involvement and decisionmaking
- Develop a public involvement plan with stakeholder assistance that includes attention to non-traditional populations as an evaluation component
- Describe interest-based problem solving and the values that underlie it
- Identify ways to enhance public involvement plans

Target Audience

Federal, State, and local transportation agency staff, metropolitan planning organization personnel, transit operators, consultants, and others who are responsible for planning, implementing, or participating in any phase of the public involvement process.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142042

Course Title

Fundamentals of Title VI/Environmental Justice

Environmental justice and Title VI of the Civil Rights Act of 1964 apply to every stage of transportation decisionmaking. The U.S. Department of Transportation (USDOT) and its partners are committed to integrating the nondiscrimination principles of environmental justice and Title VI into all Federal-aid programs. Through these and other transportation programs, many opportunities exist to establish partnerships with other public and private organizations to create livable communities that meet the needs of all people. This course presents participants with a framework for using a variety of approaches and tools for accomplishing environmental justice goals in Federal-aid programs and other transportation projects.

Outcomes

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

- Define environmental justice and describe its relationship to Title VI
- Explain the fundamental principles of environmental justice
- Apply the principles of environmental justice to transportation decisions
- Identify how environmental justice applies to each stage of transportation decisionmaking
- Describe the benefits of environmental justice in transportation decisionmaking
- Develop proactive strategies, methods, and techniques to implement environmental justice in transportation programs and projects

Target Audience

Federal, State, and local transportation agency transit or planning personnel (including consultants acting on their behalf) who interact with minority and low-income communities; State and local agency personnel providing community services; and elected officials and their representatives.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142045

Course Title

Pedestrian Facility Design

To emphasize the importance of planning for pedestrians, the course focuses on case examples involving corridor and intersection design issues. Participants are engaged through lecture, discussion, video demonstrations of problem areas in corridors and intersections, small group problem identification, and the development of design alternatives. This training was developed to provide information and application opportunities to those involved in the design of pedestrian facilities. The Americans with Disabilities Act (ADA) requires newly constructed and altered sidewalks to be accessible and usable by people with disabilities, and accessibility improvements need to be implemented for existing facilities.

Outcomes

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

- List the characteristics of pedestrians and motorized traffic that influence pedestrian facility design
- Apply the concepts of universal design and applicable design reference material to redesigning an existing location and/or designing a new location that meets the needs of motorized and nonmotorized users
- Use the reference manual provided in the course to support design decisions for the case example
- Given a case example, identify potential conflicts between pedestrians and other traffic and propose design options that improve access and safety
- Given a case example, analyze the network for improvement options to meet the needs of pedestrian and other traffic

Target Audience

Engineers with planning, design, construction, or maintenance responsibilities; pedestrian and bicycle specialists, disability and orientation specialists, transportation planners, architects, landscape architects, as well as decisionmakers at the project planning level.

Training Level: Intermediate

Fee: 2013: $350 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142046

Course Title

Bicycle Facility Design

This training will assist planners and designers in learning how to apply the existing standards and how to deal with other technical issues involved. The availability of Federal, State, and local transportation funding for bicycle facilities that serve transportation and recreational users is resulting in a dramatic increase in the number of bicycling (and shared use) facilities being planned and built. Although there are no Federal design standards for bicycle facilities, the AASHTO Guide for the Development of Bicycle Facilities, or a modification thereof, serves as a design guide. As with most guides, the AASHTO guide cannot address every possible scenario so designers often need to apply engineering judgment where specific information is not provided. The training fee includes a copy of the AASHTO Guide for the Development of Bicycle Facilities.

Outcomes

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

- List the needs of bicyclists as transportation facility users
- Identify common roadway and traffic conditions that affect bicyclists
- Describe the characteristics of a roadway and a shared-use path that are designed to accommodate bicyclists
- List the benefits to the transportation system of accommodating bicyclists with different abilities
- Recognize opportunities to accommodate bicyclists during the planning, design, construction, and operational phases of a project

Target Audience

Federal, State, or local engineers with planning, design, construction, or maintenance responsibilities; bicycle specialists, transportation planners, landscape architects, as well as decisionmakers at the project planning level.

Training Level: Accomplished

Fee: 2013: $450 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142047

Course Title

Water Quality Management of Highway Runoff

In reaction to the impact of human activity on water quality, the Clean Water Act was passed in 1972 in order to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The act regulates discharges to U.S. waters through permits issued under the National Pollutant Discharge Elimination System permitting program and places requirements on State transportation agencies for managing runoff water quality. Understanding the legal responsibilities, terminology, and the general roles of players in the regulatory process is critical in order to properly plan for, budget, and implement water quality management.

The intent of this course is to provide a basic understanding of water quality parameters, processes, requirements, and best management practices (BMPs) in order to provide the transportation community with guidance on how to mitigate impacts and protect water quality. The course shares approaches and technologies for the water quality management of highway stormwater runoff, including the effective maintenance, inspection, and performance evaluation of BMPs.

Outcomes

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

- Identify and characterize the quantity and quality of highway runoff
- Describe how highway runoff can affect ecosystems
- List major Federal requirements that apply to management of highway runoff
- Explain how to select a mitigation strategy from a watershed perspective
- Describe design concepts and considerations in selecting and siting appropriate BMPs for controlling highway runoff
- Develop conceptual designs for various BMPs considering treatment targets, design requirements, BMP performance goals, siting and maintenance considerations, etc.
- Explain how to integrate mitigation of highway runoff impacts into the project development process
- Discuss the importance of BMP inspection, performance evaluation, monitoring, and maintenance

Target Audience

This course is designed for State department of transportation staff who negotiate permit conditions with the appropriate State agency; design engineers who must be cognizant of permit requirements; construction personnel who implement the highway designs; inspectors who ensure that water quality management features (BMPs) are functioning as designed; biologists who identify habitat for wildlife and potential ecosystem impacts; landscape architects and botanists who ensure that vegetation is preserved to the maximum extent practicable and that appropriate vegetation is used to provide water quality benefits after construction; and environmental scientists who monitor and evaluate water quality.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142048

Course Title

Managing Road Impacts on Stream Ecosystems: An Interdisciplinary Approach

Managing Road Impacts on Stream Ecosystems: An Interdisciplinary Approach is a three-day course that is intended to introduce and discuss the basic concepts related to the impacts that roadways have on streams and stream ecosystems. The course will be structured to first address the ecological and physical characteristics of stream ecosystems, discuss the impacts that roadways can have on those ecosystems, and then turn to tools that the practitioner can use to help avoid and mitigate those effects. Through the use of Case Examples, discussion, and other application techniques, the participants will be afforded an opportunity to use critical thinking to identify solutions and preventative measures related to the impacts of roads on streams and their riparian communities.

Outcomes

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

- Evaluate how roads interact with and impact stream ecosystems
- List major State and Federal Requirements that apply to roadway impacts on stream ecosystems:
- Identify relevant stakeholders
- Involve stakeholders in an environmental review process
- Describe the benefits of collaboration among disciplines in assessing and mitigating road impacts to stream ecosystems
- Describe the characteristics and functions of a stream ecosystem
- Identify stream restoration tools and techniques
- Develop monitoring protocols
- Identify risk and uncertainty associated with treatment approaches in fluvial environments

Target Audience

This course has been developed for FHWA, State Department of Transportation (DOTs), Federal and State environmental resource agency staff and consultants involved in the design, construction, operation, and maintenance of roadway facilities. The course is intended to address the issues of and be of benefit to both the engineers and the environmental specialists involved in highway design, planning, and maintenance. Participants should have some general knowledge of stream dynamics and ecological considerations. However, an extensive background is neither required nor assumed.

Training Level: Intermediate

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142049

Course Title

Beyond Compliance: Historic Preservation in Transportation Project Development

Section 106 of the National Historic Preservation Act requires Federal agencies to take into account the effects of their undertakings on properties listed in, or eligible for listing in the National Register of Historic Places. This is accomplished through consultation with resource agencies, stakeholders, tribes, Native Hawaiian organizations, and the public. The regulation implementing Section 106 strongly encourages close coordination between the Section 106 process and National Environmental Policy Act (NEPA) requirements. The regulation also gives agencies great flexibility in how they fulfill their Section 106 responsibilities.

This training is designed to help transportation professionals meet the requirements of Section 106 and take advantage of the flexibility offered by the Section 106 regulation. The training focuses on the fundamentals of Section 106, placing it in context with other environmental requirements, including NEPA and Section 4(f) of the Department of Transportation Act. The course presents a number of innovative and programmatic approaches to Section 106 compliance that streamline and enhance environmental reviews and project delivery. The training emphasizes practical, real-world approaches for completing the Section 106 process, with the goal of balancing historic preservation concerns with the needs of transportation projects.

Outcomes

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

- Identify key historic preservation laws and other authorities
- Describe the Section 106 process
- Define the roles and responsibilities of all parties in the Section 106 process
- Describe the NEPA transportation decisionmaking process
- Describe the relationship among Section 106, NEPA project development, and Section 4(f)
- Identify principles and opportunities for environmental streamlining and stewardship

Target Audience

Those involved in or affected by the Federal-Aid Highway program, including staff of State DOTs, MPOs, FHWA headquarters and field offices, city and county governments, tribal governments, consultants, State and tribal Historical Preservation Offices (SHPO/THPO), and other Federal and State resource agencies that deal with transportation issues.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142051

Updated Training

Course Title

Highway Traffic Noise

Since this course incorporates an Interactive Sound Information System (ISIS) as part of the presentation, there are times during the 3 days that the session will be very loud. Therefore, we encourage the Session Host to be aware of this when reserving a training room. Additionally, we recommend that participants registering for this course take the free NHI 142063 Highway Traffic Noise: Basic Acoustics in advance of their session. NHI 142063 is a web-based training course (WBT) that is self-paced and offered at no charge.

This training will help educate engineers, environmental specialists, designers, planners, and consultants about traffic noise and ways to reduce the impacts. Shaped by a technical panel of FHWA noise specialists, environmental specialists at State departments of transportation (DOTs), and the chair of the Transportation Research Board's Committee on Transportation-Related Noise and Vibration, the training is an introductory- yet comprehensive- overview of highway traffic noise.

Topics covered include the basic principles of acoustics, how to determine when a noise analysis is required, typical strategies to mitigate noise in highway projects, noise measurement, construction noise, and public involvement. The training also provides an overview of the FHWA Traffic Noise Model (FHWA TNM), which was developed to predict noise levels and evaluate noise abatement measures.

The NHI commissioned a customized version of the Interactive Sound Information System (ISIS) as part of the curriculum design for this course. ISIS is a noise simulation software program that employs high-quality digital recordings, precise sound control, and graphic imagery to present basic acoustical concepts and sounds from various traffic loads. ISIS also demonstrates the sound level reductions provided by various noise barrier configurations.

The course includes a presentation on the July 2010 revision to the FHWA noise regulations and policies (Title 23 CFR Part 772: Procedures for Abatement of Highway Traffic Noise and Construction Noise) and related State highway agency noise policies. Participants will learn about noise-compatible planning, which encourages local governments and developers to avoid noise-sensitive land uses adjacent to highways or to abate or mitigate potential noise impacts.

Outcomes

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

- Explain the basic principles of acoustics
- Describe all necessary documentation to fulfill FHWA noise requirements, as codified in 23 CFR 772
- Determine when a noise study is required
- Explain applicable Federal noise abatement regulations and policies

Target Audience

FHWA staff; State department of transportation environmental specialists, designers, planners or engineers; city or county environmental engineers, coordinators or specialists; consultants.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142052

WBT

Course Title

Introduction to NEPA and Transportation Decisionmaking - WEB-BASED

This Web-based training is a basic introduction to FHWA's National Environmental Policy Act (NEPA) transportation decisionmaking process. It provides an overview of the environmental process, including the integration of social, environmental, and economic factors within the framework of existing laws, regulations, policies, and guidance for transportation project decisions. The training covers the requirements of NEPA as implemented by the Council on Environmental Quality, as well as FHWA's regulations and guidance for NEPA implementation and project decisionmaking. Separate lessons address such topics as purpose and need, alternatives development and analysis, impact analysis, public involvement, interagency coordination, mitigation, and documentation.

We recommend completion of this training prior to enrolling in FHWA-NHI-142005.

Outcomes

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

- Relate the origin, evolution, and context of NEPA
- Describe the intent, goals, and basic requirements of NEPA
- Describe the NEPA umbrella concept in transportation decisionmaking
- Identify the NEPA principles in the development of transportation projects
- Explain the roles and responsibilities of the lead agency, applicant, and cooperating agencies in the NEPA process
- List documentation requirements of the NEPA process

Target Audience

Staff from FHWA, State DOT (including consultants acting on behalf of the State), Federal and State environmental resource agencies, local government, and MPOs who participate in the transportation decisionmaking process.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 4 HOURS (CEU: .4 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142054

Updated Training

Course Title

Design and Implementation of Erosion and Sediment Control

This training is the result of a joint effort between the Federal Highway Administration (FHWA) and the U.S. Environmental Protection Agency (EPA), and reflects the agencies' commitment to providing education and training on planning, design, implementation, enforcement, inspection, and maintenance strategies to control erosion and sediment on highway construction projects. The agencies also are committed to ensuring that regulatory issues are addressed accurately and uniformly. Each discipline involved in a highway construction project has a different set of priorities. Reflecting the National Highway Institute's (NHI) commitment to learner-centered training, the course offers participants opportunities for discussion and joint problem solving, enabling participants to gain information about the roles and responsibilities of other team members.

Outcomes

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

- Describe the components of an erosion and sediment control (ESC) plan
- List the sources of information for the ESC plan
- Identify management practices and related measures that are appropriate for typical situations and for a case example
- List typical construction and inspection problems. Describe both suitable prevention strategies and remedies for failures
- Link Federal and State environmental regulations to the components of the ESC plan

Target Audience

The training targets Federal, State, and local highway design, construction, inspection, and maintenance staff. In addition, environmental agency representatives, as well as consultants and members of the construction industry, are encouraged to attend to provide their perspectives, learn each other's responsibilities, and explore an array of options to control erosion and sedimentation.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142055

Course Title

Advanced Seminar on Transportation Project Development: Navigating the NEPA Maze

Building upon demonstrated knowledge and understanding of the NEPA project development process, this advanced training provides practical tools and approaches to successfully resolve complex environmental issues and challenges. Designed in seminar format, this training is highly interactive and guides participants through the NEPA decisionmaking process, pointing out potential pitfalls and providing the skills and knowledge to apply critical thinking to reach defensible decisions.

Outcomes

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

- Manage and deliver projects and programs more effectively
- Apply tools and techniques to their jobs
- Apply principles of environmental stewardship and streamlining to complex projects
- Employ integrated coordination of related laws and regulations, as well as coordination among all stakeholders
- Identify strategies to manage controversial projects
- Formulate solutions to complex environmental challenges
- Apply lessons learned from relevant case law
- Build a defensible administrative record
- Identify solutions to emerging issues

Target Audience

Experienced environmental practitioners and project development managers (i.e. planning, design, legal, and technical specialists) involved in the NEPA and transportation decisionmaking process. We encourage a mix of experienced staff from FHWA, State DOTs, resource and permitting agencies, and local governments, as well as consultants.

Training Level: Accomplished

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142059

Updated Training WCT

Course Title

Effective Communications in Public Involvement

This course helps transportation officials become better communicators when conducting the public involvement component of transportation planning and project delivery. Participants learn ways to overcome the frustrations and loss of control during public meetings because of hostilities, grandstanding and gamesmanship. The course explores how and why the public develops entrenched and sometimes inflexible, emotionally charged positions; traces the root causes of hostilities and anger in public involvement; and teaches strategies to help you and your organization gain trust and credibility with the public. Additionally, the course covers how to incorporate an effective communications plan into the public involvement program; prepare for and carry out all types of public meetings; handle hostile groups and individuals; give effective presentations at public meetings; as well as completing proper meeting follow up.

COURSE SEQUENCE

PART1: The first Instructor-led WCT (Module 1) starts on a Tuesday, from 1:00pm-3:00pm Eastern Time. Each registered participant accesses the WCT from their own computer and a phone line to access the audio portions of the module, Sharing computer screens is not recommended.

PART 2: A series of self-paced training modules (Modules 2, 3, 4 and 5) will be taken after the Module 1 WCT and must be completed before the start of the second Instructor-led WCT (Module 6).

PART 3: The second Instructor-led WCT (Module 6), starts the following Tuesday (seven days from the start of the course) from 1:00pm-3:00pm Eastern Time. Following the end of this second WCT, participants will complete course evaluations and take their exams online.

Outcomes

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

- Define values, interests and needs (VIN)
- Outline how VIN drive the public decision-making process
- Identify at least three common problems that develop from a failure to understand and address VIN
- Communicate through your public's VIN
- Incorporate your public VIN into a communications plan
- Explain how to develop a communications plan that creates an informed public
- Develop a plan for a public meeting
- List at least four tips on how to make an effective presentation
- Describe at least five facilitation techniques necessary for accomplishing most meeting goals
- Describe a five-step process for dealing with hostile individuals and groups

Target Audience

Federal, State and local transportation agency staff, metropolitan planning organization personnel, consultants and others who plan, implement and participate in public involvement for transportation long-range planning and project delivery.

Training Level: Basic

Fee: 2013: $100 Per Person; 2014: N/A

Length: 6 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 15; MAXIMUM: 25

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142060

Course Title

Practical Conflict Management Skills for Environmental Issues

This course is designed to teach basic conflict management skills, including interest-based negotiation, communication, and facilitation skills, as well as leadership behaviors and to examine opportunities for applying these collaborative skills in the context of transportation decisionmaking where there are environmental issues. The purpose of the course is to help transportation and environmental agencies, Tribes, and stakeholders bridge their different agency mandates and diverse interests and offers opportunities for participants to share their varied perspectives on important issues and resources. The course models how to participate in meaningful discussions and demonstrates how to maintain a positive and constructive dialogue, arrive at integrative decisions, make good use of limited time and personnel resources, achieve streamlined processes, and make decisions that serve the public.

Outcomes

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

- Use interpersonal skills to engage productively with individuals within their agency
- Use interpersonal skills to work productively with other agencies, organizations, Tribes, and the general public
- Analyze agency roles and decisionmaking processes with respect to potential conflict
- Apply conflict management strategies to planning, project development, and project implementation
- Apply conflict management strategies to increase the effectiveness of inter-agency and intra-agency working relationships and programmatic initiatives

Target Audience

This training program is intended for Federal, State, Metropolitan Planning Organization, Local Public Agency, and Tribal representatives who are involved in Federally-funded transportation projects. The target audience may include environmental protection specialists; transportation planners, project managers, design engineers, and transportation/environmental liaisons; legal counsel, and Federal, Tribal, and State resource agency staff who review and implement transportation projects and are involved in transportation planning as well as environmental consultants and non-governmental organizational representatives. Participants should have a working knowledge of the National Environmental Protection Act (NEPA) and the transportation planning and project development processes.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142062

New Training WBT

Course Title

Administrative Record - WEB-BASED

This web-based training (WBT) course describes the purpose of an Administrative Record, explains what should be included in an Administrative Record, and presents best practices for building a defensible Administrative Record. Please note that this WBT is not meant to take the place of formal legal advice and consultation with FHWA counsel is strongly recommended.

Outcomes

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

- Describe the purpose of an Administrative Record
- Explain the factors involved in determining what should be included in an Administrative Record
- Describe best practices for building a defensible Administrative Record

Target Audience

This course is designed for Federal Highway Administration (FHWA) Division office staff who are responsible for the Administrative Record, as well as for State DOT employees and their contractors who need to build and maintain an Administrative Record.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142063

New Training WBT

Course Title

Highway Traffic Noise: Basic Acoustics - WEB-BASED

This Web-based training (WBT) course provides an overview of Acoustic Principles related to highway traffic noise. The course incorporates the Interactive Sounds Information System (ISIS) -- a customized noise simulation model -- to demonstrate Acoustic Principles.

The WBT begins with the characteristics of sound and discusses how to apply basic concepts of acoustics to solve sample problems. It proceeds to the propagation of sound: a presentation on the four phenomena of divergence, ground effects, atmospheric effects, and shielding by natural and man-made features. The interaction between highway noise and barriers is described and key noise barrier concepts are presented (i.e. direct, incident, transmittal, reflected, and diffracted). Traffic noise sources are discussed, as well as a brief overview of traffic noise modeling and vehicle classification types.

The goal for the Highway Traffic Noise: Basic Acoustics WBT is to explain the basic principles of highway traffic acoustics.

Outcomes

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

- Apply basic concepts of acoustics to solve sample problems
- Add levels in decibels
- Describe characteristics affecting noise propagation
- Describe how noise interacts with barriers
- Determine the increase in level for N sources vs. one source
- Determine the change in level with changing distance for a point source and for a line source

Target Audience

The Basic Acoustics of Highway Traffic Noise WBT is intended for FHWA staff; State department of transportation (DOT) environmental specialists, designers, planners or engineers; city or county environmental engineers, coordinators or specialists, and consultants. The training design for this WBT assumes that participants have basic computer skills (e.g. manipulating windows, using directories, a web browser, etc).

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142068

New Training WBT

Course Title

Air Quality Planning: Clean Air Act Overview

The purpose of this training is to provide participants with an overview of air quality planning, including requirements, processes, interactions with and implications for, transportation planning and project development.

This is the first in a future series of air quality Web-based trainings (WBTs) that will be available within the next year:

142068: Clear Air Act Overview

142069: SIP and TCM Requirements and Policies

142070: SIP Development Process

142071: Transportation Planning and Project Development Process

142072: Transportation Conformity

Outcomes

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

- Define the purpose of the Clean Air Act
- Describe the 1990 Clean Air Act Amendments
- Identify and explain Clean Air Act Amendment provisions relevant to transportation
- Recognize impacts of Clean Air Act

Target Audience

The target audience for the Air Quality Series is transportation and air quality planners and engineers from State and local departments of transportation (DOT), metropolitan planning organizations (MPO), transit agencies, Federal agencies (Federal Highway Administration, Federal Transit Administration, U.S. Environmental Protection Agency, U.S. Department of Energy, etc.), and State and local environmental agencies. Others include transportation and environmental consultants, public officials and staff members, community and interest groups, as well as other stakeholders in the planning process.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142069

New Training WBT

Course Title

Air Quality Planning: SIP and TCM Requirements and Policies

This course covers the different types of SIPs and key CAA SIP requirements general to all SIPs and specific to ozone, CO and PM SIPs; discusses how the EPA processes SIPs; explores the key features of EPA SIP policies and how they differ from CAA requirements; and explains RACM and how it applies to TCMs.

This is the second in a future series of air quality Web-based trainings (WBTs) that will be available within the next year:

142068: Clear Air Act Overview

142069: SIP and TCM Requirements and Policies

142070: SIP Development Process

142071: Transportation Planning and Project Development Process

142072: Transportation Conformity

Outcomes

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

- Define SIP
- List different types of SIPs and their purposes
- Identify SIP requirements in Title I of the Clean Air Act
- Describe TCM requirements
- Describe what is meant by Reasonably Available Control Measure, or RACM, and how this applies to TCMs

Target Audience

The target audience for the Air Quality Series is transportation and air quality planners and engineers from State and local departments of transportation (DOT), metropolitan planning organizations (MPO), transit agencies, Federal agencies (Federal Highway Administration, Federal Transit Administration, U.S. Environmental Protection Agency, U.S. Department of Energy, etc.), and State and local environmental agencies. Others include transportation and environmental consultants, public officials and staff members, community and interest groups, as well as other stakeholders in the planning process.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-151043

Course Title

Transportation and Land Use

The course is designed to help practitioners develop a multimodal transportation system that supports desired land uses and helps them shape land uses to support the transportation system. Course lessons include the principles of transportation and land use; the processes through which transportation and land use issues can be jointly addressed; and implementation steps to ensure that transportation and land use systems are designed in a compatible, mutually supportive manner.

Outcomes

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

- Explain how transportation decisions affect land use, growth patterns and related community impacts on both regional and local scales.
- Explain how land use patterns affect peoples' travel patterns and the overall performance of the transportation system.
- Describe the various transportation planning processes--including statewide planning, metropolitan planning, corridor planning/alternatives analysis, the NEPA process, subarea planning, and project development--and how land use considerations can be integrated into these processes.
- Describe local comprehensive planning and land use regulatory activities, and how the process and outcomes of these activities can support local and regional transportation objectives.
- Identify the full range of stakeholders--including public agencies, private and nonprofit organizations, and the general public--who should be involved in transportation and land use planning and decisionmaking, and describe methods for involving these stakeholders.
- Describe methods that are available for implementing coordinated transportation and land use strategies.
- Identify analytical tools that are available for measuring and forecasting the impacts of transportation and land use decisions.

Target Audience

Primary: Mid-level State DOT employees, City and County engineers and planners, MPO staff, transit operators, Federal employees (FHWA, FTA, EPA), resource agency staff, consultants. Secondary: Elected officials, regulatory agency staff, local zoning officials, site designers, citizen activists, developers, media representatives and business leaders.

Training Level: Intermediate

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-139003

Course Title

Advanced Freight Planning

This course expands on freight topics covered in other FHWA-developed freight planning courses to provide techniques and strategies designed for those individuals directly involved in the implementation of transportation planning, programming and allocation of resources. It provides participants with the skills needed to identify, prioritize, develop and implement freight supportive projects. This is an advanced level course and it focuses heavily on resources and solutions, and how those solutions can be applied to developing plans and programs for public and private sectors.

Participants must successfully complete either FHWA-NHI-139001 (prior to 31 March 2008) or FHWA-NHI-139006 (after 1 April 2008) Integrating Freight in the Transportation Planning Process prior to attending 139003. Participants MUST bring a copy of their certificate of completion to their scheduled session of FHWA-NHI-139003 and provide it to the lead instructor.

This course is part of the Certificate of Accomplishment in Freight Management and Operations. To learn more about how you can achieve a certificate in Freight Management and Operations visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Outcomes

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

- Discuss how freight transportation needs differ for major industry sectors
- Describe the role of the freight transportation systems in supporting economic competitiveness
- List the economic drivers that influence private sector freight transportation decisions
- Discuss how private sector needs can inform public sector performance measures
- Summarize methods for identifying and prioritizing freight projects
- Discuss the benefits of engaging private sector stakeholders in project identification
- List potential funding mechanisms for freight projects

Target Audience

Mid-level State DOT transportation and freight planners, City and County Planners (who deal with freight planning issues), MPO staff, Mid- and high-level public sector transportation and freight planners, consultants, private sector Freight Managers, economic development analysts, and FHWA Employees.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-139005

Course Title

Linking Freight to Planning and the Environment

Linking Freight to Planning and the Environment is a two-day course designed to assist public and private sector transportation planners and engineers, environmental planners, and freight planners in the public and private sectors better address and more effectively integrate freight and environment considerations in the public sector planning and project development processes. The course will also emphasize applicable and recent case studies from all modes to demonstrate the range of practices that are available to small, medium and large MPOs and urban and rural state DOTs, as well as exercises on analysis techniques and tool application.

This course is part of the Certificate of Accomplishment in Freight Management and Operations. To learn more about how you can achieve a certificate in Freight Management and Operations visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Outcomes

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

- Explain to transportation decision-makers the importance of addressing freight and environmental considerations within the transportation planning, programming, and project development process
- Incorporate freight and environmental issues earlier and more consistently within the transportation planning and programming process
- Identify strategies that balance statewide, regional, or metropolitan freight mobility needs with community and environmental goals
- Identify potential transportation improvement projects that balance freight mobility and community and environmental impacts
- Locate the resources and tools available to address freight and environmental considerations within the transportation planning and programming process

Target Audience

Mid-level State DOT transportation planners, freight planners, environmental planners and engineers; City and County transportation planners, freight planners and environmental planners; MPO transportation planners, freight planners and environmental planners; Mid- and high-level public sector transportation and freight planners; FHWA transportation planners, freight planners and environmental planners; U.S. DOT transportation planners, freight planners and environmental planners; State and Federal Resource Agencies transportation planners, freight planners and environmental planners, such as the Environmental Protection Agency, U.S. Fish and Wildlife, Army Corp of Engineers, etc.; and Consultants.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-139006

Course Title

Integrating Freight in the Transportation Planning Process - WEB-BASED Standard Version

Freight transportation issues can be complex and involve many different stakeholders, all of whom have different perspectives on the freight transportation system. The challenge faced by many public-sector transportation planners is how to best incorporate these freight perspectives into the transportation planning process in a way that results in a safe and efficient transportation system for both people and goods. This Web-based training course will provide a greater understanding of freight trends, its stakeholders, and its issues, so that public-sector transportation planners are better able to incorporate freight into their respective transportation planning processes and programs.

This WBT course is an update of and replaces the instructor-led course FHWA-NHI-139001. If you are taking this course as a prerequisite for FHWA-NHI-139003 Advanced Freight Planning, you MUST provide your certificate of completion to the lead instructor on the first day of class. You will be able to print out your certificate after you complete your online exam. If you need help enrolling in this web-based training course, please call 703-235-0500.

This course is part of the Certificate of Accomplishment in Freight Management and Operations. To learn more about how you can achieve a certificate in Freight Management and Operations visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

In accordance with the Rehabilitation Act of 1973, as amended, this WBT is also available in an accessible 508 compliant version. See course number FHWA-NHI-139006W for more information.

Outcomes

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

- Upon completion of the course, participants will be able to:
- Identify the stakeholders involved in freight transportation
- Explain the role of different modes in freight transportation
- Describe some trends affecting freight transportation, and their impact on a State's transportation system and communities
- Discuss some of the common issues that prevent freight from being fully incorporated into the planning process
- Identify key resources to help guide statewide and metropolitan freight planning effort

Target Audience

Transportation planners and freight transportation planners from State DOTs, MPOs, local governments, and Federal agencies.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-139006W

WBT

Course Title

Integrating Freight in the Transportation Planning Process - WEB-BASED Accessible 508 Version

In accordance with the Rehabilitation Act of 1973, as amended, this WBT was developed as an accessible 508 compliant version. See course number FHWA-NHI-139006 for the standard WBT version.

Freight transportation issues can be complex and involve many different stakeholders, all of whom have different perspectives on the freight transportation system. The challenge faced by many public-sector transportation planners is how to best incorporate these freight perspectives into the transportation planning process in a way that results in a safe and efficient transportation system for both people and goods. This Web-based training course will provide a greater understanding of freight trends, its stakeholders, and its issues, so that public-sector transportation planners are better able to incorporate freight into their respective transportation planning processes and programs.

This WBT course is an update of and replaces the instructor-led course FHWA-NHI-139001. If you are taking this course as a prerequisite for FHWA-NHI-139003 Advanced Freight Planning, you MUST bring your certificate of completion to the first day of class. You will be able to print out your certificate after you complete your online exam.

This course is part of the Certificate of Accomplishment in Freight Management and Operations. To learn more about how you can achieve a certificate in Freight Management and Operations visit the NHI Web site at http://www.nhi.fhwa.dot.gov/training/cert_programs.aspx.

Outcomes

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

- Upon completion of the course, participants will be able to:
- Identify the stakeholders involved in freight transportation
- Explain the role of different modes in freight transportation
- Describe some trends affecting freight transportation, and their impact on a State's transportation system and communities
- Discuss some of the common issues that prevent freight from being fully incorporated into the planning process
- Identify key resources to help guide statewide and metropolitan freight planning effort

Target Audience

Transportation planners and freight transportation planners from State DOTs, MPOs, local governments, and Federal agencies.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-141045

Updated Training WBT

Course Title

Real Estate Acquisition under the Uniform Act: An Overview - WEB-BASED

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) is the basis for Federally-funded real estate acquisition programs. This self-paced training provides an overview of the Uniform Act's three key elements: valuation, acquisition, and relocation. This course underscores the importance of following Uniform Act requirements when acquiring property for a Federally-funded transportation project.

Outcomes

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

- Provide a basic overview of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act)
- Discuss the three key elements of the Uniform Act: valuation/appraisal, acquisition and relocation
- Explain how to develop an estimate of just compensation using the appraisal process or appraisal waiver procedure(s)
- Identify relocation benefits and services required by the Uniform Act
- List places to obtain relevant resource documents and materials

Target Audience

Federal, State, and local government employees and consultants who acquire real estate for Federally-funded transportation projects. This includes acquisition and relocation agents; program or project managers; grant administrators or grant recipients; appraisers, realty specialists, attorneys, engineers, planners, and others involved with real property acquisition.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142036

Course Title

Public Involvement in the Transportation Decisionmaking Process

Public involvement is much more than public hearings. It involves creative thinking as well as the willingness and ability to interact openly and sensitively to the public's preferred forms of communication and participation. Public involvement is about reaching out to and involving the public in transportation decisionmaking. The public should have a role in every phase of decisionmaking, including the design of the participation plan itself. Successful public involvement addresses the public's procedural, psychological, and substantive needs while gathering useful information. By focusing on interests--rather than positions--public involvement can become more meaningful as well as useful.

Outcomes

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

- Describe U.S. DOT transportation decisionmaking processes, including those that trigger the National Environmental Policy Act
- Describe the relationship between public involvement and decisionmaking
- Develop a public involvement plan with stakeholder assistance that includes attention to non-traditional populations as an evaluation component
- Describe interest-based problem solving and the values that underlie it
- Identify ways to enhance public involvement plans

Target Audience

Federal, State, and local transportation agency staff, metropolitan planning organization personnel, transit operators, consultants, and others who are responsible for planning, implementing, or participating in any phase of the public involvement process.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142059

Updated Training WCT

Course Title

Effective Communications in Public Involvement

This course helps transportation officials become better communicators when conducting the public involvement component of transportation planning and project delivery. Participants learn ways to overcome the frustrations and loss of control during public meetings because of hostilities, grandstanding and gamesmanship. The course explores how and why the public develops entrenched and sometimes inflexible, emotionally charged positions; traces the root causes of hostilities and anger in public involvement; and teaches strategies to help you and your organization gain trust and credibility with the public. Additionally, the course covers how to incorporate an effective communications plan into the public involvement program; prepare for and carry out all types of public meetings; handle hostile groups and individuals; give effective presentations at public meetings; as well as completing proper meeting follow up.

COURSE SEQUENCE

PART1: The first Instructor-led WCT (Module 1) starts on a Tuesday, from 1:00pm-3:00pm Eastern Time. Each registered participant accesses the WCT from their own computer and a phone line to access the audio portions of the module, Sharing computer screens is not recommended.

PART 2: A series of self-paced training modules (Modules 2, 3, 4 and 5) will be taken after the Module 1 WCT and must be completed before the start of the second Instructor-led WCT (Module 6).

PART 3: The second Instructor-led WCT (Module 6), starts the following Tuesday (seven days from the start of the course) from 1:00pm-3:00pm Eastern Time. Following the end of this second WCT, participants will complete course evaluations and take their exams online.

Outcomes

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

- Define values, interests and needs (VIN)
- Outline how VIN drive the public decision-making process
- Identify at least three common problems that develop from a failure to understand and address VIN
- Communicate through your public's VIN
- Incorporate your public VIN into a communications plan
- Explain how to develop a communications plan that creates an informed public
- Develop a plan for a public meeting
- List at least four tips on how to make an effective presentation
- Describe at least five facilitation techniques necessary for accomplishing most meeting goals
- Describe a five-step process for dealing with hostile individuals and groups

Target Audience

Federal, State and local transportation agency staff, metropolitan planning organization personnel, consultants and others who plan, implement and participate in public involvement for transportation long-range planning and project delivery.

Training Level: Basic

Fee: 2013: $100 Per Person; 2014: N/A

Length: 6 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 15; MAXIMUM: 25

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142068

New Training WBT

Course Title

Air Quality Planning: Clean Air Act Overview

The purpose of this training is to provide participants with an overview of air quality planning, including requirements, processes, interactions with and implications for, transportation planning and project development.

This is the first in a future series of air quality Web-based trainings (WBTs) that will be available within the next year:

142068: Clear Air Act Overview

142069: SIP and TCM Requirements and Policies

142070: SIP Development Process

142071: Transportation Planning and Project Development Process

142072: Transportation Conformity

Outcomes

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

- Define the purpose of the Clean Air Act
- Describe the 1990 Clean Air Act Amendments
- Identify and explain Clean Air Act Amendment provisions relevant to transportation
- Recognize impacts of Clean Air Act

Target Audience

The target audience for the Air Quality Series is transportation and air quality planners and engineers from State and local departments of transportation (DOT), metropolitan planning organizations (MPO), transit agencies, Federal agencies (Federal Highway Administration, Federal Transit Administration, U.S. Environmental Protection Agency, U.S. Department of Energy, etc.), and State and local environmental agencies. Others include transportation and environmental consultants, public officials and staff members, community and interest groups, as well as other stakeholders in the planning process.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142069

New Training WBT

Course Title

Air Quality Planning: SIP and TCM Requirements and Policies

This course covers the different types of SIPs and key CAA SIP requirements general to all SIPs and specific to ozone, CO and PM SIPs; discusses how the EPA processes SIPs; explores the key features of EPA SIP policies and how they differ from CAA requirements; and explains RACM and how it applies to TCMs.

This is the second in a future series of air quality Web-based trainings (WBTs) that will be available within the next year:

142068: Clear Air Act Overview

142069: SIP and TCM Requirements and Policies

142070: SIP Development Process

142071: Transportation Planning and Project Development Process

142072: Transportation Conformity

Outcomes

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

- Define SIP
- List different types of SIPs and their purposes
- Identify SIP requirements in Title I of the Clean Air Act
- Describe TCM requirements
- Describe what is meant by Reasonably Available Control Measure, or RACM, and how this applies to TCMs

Target Audience

The target audience for the Air Quality Series is transportation and air quality planners and engineers from State and local departments of transportation (DOT), metropolitan planning organizations (MPO), transit agencies, Federal agencies (Federal Highway Administration, Federal Transit Administration, U.S. Environmental Protection Agency, U.S. Department of Energy, etc.), and State and local environmental agencies. Others include transportation and environmental consultants, public officials and staff members, community and interest groups, as well as other stakeholders in the planning process.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-151039

Course Title

Applying GIS and Spatial Data Technologies to Transportation

FHWA developed this training in cooperation with the Bureau of Transportation Statistics, to train participants in how to implement transportation planning applications that rely on spatial data technologies. This course describes examples of applications using today's major spatial data technologies and discusses various aspects of the applications such as the level of effort for development, technological challenges, training needs, and evaluation measures. Particular emphasis is placed on crosscutting implementation issues, both technological and organizational. Exercises focus on using spatial data technologies in an environment where data sharing and cooperative agreements are essential components for success. Reflecting NHI's commitment to learner-centered training, the training offers participants opportunities for discussion and joint problem solving through which they will gain information about the roles and responsibilities of other team members.

The overall training goal is to prepare participants to evaluate and plan for the implementation of a variety of transportation planning applications that rely on spatial data technologies.

Outcomes

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

- Recognize and list emerging/current spatial data technologies
- List the benefits and limitations of each technology
- Benchmark the trends in terms of high, medium, and low risk for implementation
- List reasons a transportation planner would want to apply the technology
- Describe specific examples of applications utilizing spatial data technologies in transportation decisionmaking
- Identify common obstacles when implementing each technology.
- Recognize the value of both internal and external cooperative efforts when implementing the technologies

Target Audience

Participants should have a basic understanding of geographic information systems (GIS). Various professional users of spatial data technologies from State departments of transportation, metropolitan planning organizations, county/city governments; professional staff from State/Federal agencies that have cooperative efforts with other agencies such as environmental data warehouses (e.g., Florida, North Carolina, etc.), transit agencies, airport/port authorities, and consultants.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-151042

Course Title

Transportation Safety Planning

Developed in cooperation with the Federal Transit Administration (FTA) and the National Transit Institute, this course is designed to identify opportunities for improving the manner in which safety is integrated as a key planning factor and performance measure in all transportation plans and programs.

Recently updated to reflect the provisions from SAFETEA-LU, this course will help you identify opportunities for improving the manner in which safety is integrated as a key planning factor and performance measure in all transportation plans and programs. Upon completion of the course, you will be able to: identify the benefits of addressing safety early and throughout the transportation planning process; identify safety strategies related to users, vehicles, infrastructure, and system operations; and, learn other core safety planning concepts.

Outcomes

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

- Define safety from the perspective of more than one discipline and identify the significant challenges for transportation safety planning.
- Explain the 4 Es of safety and the potential impact of multidisciplinary, collaborative relationships among them and other partners.
- Describe the roadway, vehicle, environmental and human factors involved in crashes.
- Recognize the human, economic, mobility and other benefits of investing in transportation safety.
- Describe the legislative history associated with transportation safety planning.
- Describe the elements of the transportation planning process and how the development of SHSPs influences the traditional process.
- Identify types, strengths, and weaknesses of transportation safety data.
- Identify methods for incorporating safety into the vision, goals, objectives, and performance measures in the transportation planning process.
- Explain how crash data are used to identify problem locations and opportunities for improving safety.
- Identify appropriate methods and research for selecting effective countermeasures and targeting diverse cultural and geographic populations.
- Identify methods for evaluating and prioritizing projects, programs and policies.
- Describe methods and tools for tracking progress, assessing outcomes, and using evaluation results to inform and influence the transportation safety planning process.
- Describe transportation safety planning resources and support mechanisms.
- Report on the degree to which your state LRTP or TIP addresses safety.

Target Audience

The course is intended for transportation planning and safety professionals representing metropolitan planning organizations, state departments of transportation, state highway safety offices (SHSO), transit agencies, the Federal Transit Administration (FTA), the Federal Highway Administration (FHWA), the National Highway Traffic Safety Administration, local planning organizations, and others involved in the transportation planning process, such as motor carrier safety programs, emergency response personnel, and law enforcement.

TRAINING LEVEL: Intermediate

FEE: 2013: $350 Per Person; 2014: N/A

LENGTH: 2 DAYS (CEU: 1.2 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-151043

Course Title

Transportation and Land Use

The course is designed to help practitioners develop a multimodal transportation system that supports desired land uses and helps them shape land uses to support the transportation system. Course lessons include the principles of transportation and land use; the processes through which transportation and land use issues can be jointly addressed; and implementation steps to ensure that transportation and land use systems are designed in a compatible, mutually supportive manner.

Outcomes

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

- Explain how transportation decisions affect land use, growth patterns and related community impacts on both regional and local scales.
- Explain how land use patterns affect peoples' travel patterns and the overall performance of the transportation system.
- Describe the various transportation planning processes--including statewide planning, metropolitan planning, corridor planning/alternatives analysis, the NEPA process, subarea planning, and project development--and how land use considerations can be integrated into these processes.
- Describe local comprehensive planning and land use regulatory activities, and how the process and outcomes of these activities can support local and regional transportation objectives.
- Identify the full range of stakeholders--including public agencies, private and nonprofit organizations, and the general public--who should be involved in transportation and land use planning and decisionmaking, and describe methods for involving these stakeholders.
- Describe methods that are available for implementing coordinated transportation and land use strategies.
- Identify analytical tools that are available for measuring and forecasting the impacts of transportation and land use decisions.

Target Audience

Primary: Mid-level State DOT employees, City and County engineers and planners, MPO staff, transit operators, Federal employees (FHWA, FTA, EPA), resource agency staff, consultants. Secondary: Elected officials, regulatory agency staff, local zoning officials, site designers, citizen activists, developers, media representatives and business leaders.

Training Level: Intermediate

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-151044

WBT

Course Title

Traffic Monitoring and Pavement Design Programs - WEB-BASED

The goal of this FREE online presentation is to promote interaction and collaboration between traffic monitoring program staff and pavement program staff. The presentation supports implementation of the new Mechanistic Empirical Pavement Design Guide (MEPDG). FHWA's Office of Highway Policy Information, in collaboration with the Design Guide Implementation Team (DIGI Team), created this presentation to help ensure that pavement data needs are met with the existing traffic monitoring program or adjustments to the program.

Please note that the Flash Player must be installed on your computer in order to view the presentation.

Outcomes

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

- Describe the traffic monitoring program
- Describe the pavement design program, as it relates to traffic monitoring
- Explain the interconnectivity and interdependency between the traffic monitoring and pavement design programs
- Identify ways to make the best use of available funding to meet users' data needs

Target Audience

Federal and State department of transportation specialists, designers, and administrators who are responsible for traffic monitoring and pavement programs. Local transportation agencies, as well as those who are new to the traffic program and pavement programs, may also find this presentation to be interesting and helpful.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-151045

WBT

Course Title

Highway Performance Monitoring System: An Introduction - WEB-BASED

The goal of this FREE online presentation is to promote interaction and collaboration between traffic monitoring program staff and HPMS coordinators. FHWA's Office of Highway Policy Information created this presentation to help ensure that HPMS data needs are met with the existing traffic monitoring program or adjustments to the program.

Please note that the Flash Player must be installed on your computer in order to view the presentation.

Outcomes

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

- Describe the traffic monitoring program
- Describe HPMS data requirements that can be met by the traffic monitoring program
- Explain the interconnectivity and interdependency between the traffic monitoring program and HPMS
- Identify ways to make the best use of available funding to meet users' data needs

Target Audience

Federal and State department of transportation specialists, planners, designers, and administrators who are responsible for collecting traffic data and using vehicle classification data for HPMS programs and other statewide programs. Local transportation agencies, as well as those who are new to the traffic monitoring and HPMS programs, may also find this presentation to be interesting and helpful.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-151046

New Training WBT

Course Title

FHWA Planning and Research Grants: History, Sources, and Regulations - WEB-BASED

NHI 151046 is a 2-hour WBT that introduces Federal financial assistance and FHWA's planning and research grant regulations. The course covers sources for requirements and funds; sources and hierarchy of Federal grant requirements; and the process for providing grant funding, as it relates to 23 CFR 420 and 450.

This Web-based training (WBT) course is one of a series designed as an introduction to FHWA planning and research grant administration. The series includes four independent WBTs that cover the history of FHWA planning and research grants, the Common Grant Rule, Cost Principles, and Audits:

FHWA-NHI-151046--FHWA Planning and Research Grants: History, Sources, and Regulations;

FHWA-NHI-151047--FHWA Planning and Research Grants: Common Grant Rule;

FHWA-NHI-151048--FHWA Planning and Research Grants: Cost Principles; and

FHWA-NHI-151049--FHWA Planning and Research Grants: Audits.

These WBTs are designed to complement FHWA-NHI-151021 Administration of FHWA Planning and Research Grants, a 2-day Instructor-led training course. They are not intended to replace NHI 151021.

Outcomes

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

- Identify basic principles of grant administration
- Describe the hierarchy of laws, regulations, requirements, and the relationship among them
- Explain terminology associated with grant administration
- Explain the purpose and policy for 23 CFR, Part 420

Target Audience

The target audience includes FHWA, State Department of Transportation (State DOT), Metropolitan Planning Organization (MPO), and other agency staff who expend or administer Federal-aid funds, including planning, engineering, and fiscal staff.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-151047

New Training WBT

Course Title

FHWA Planning and Research Grants: Common Grant Rule - WEB-BASED

NHI 151047 is a 3-hour WBT that discusses the process for providing grant funding and Common Grant Rule requirements found in 49 CFR Part 18 (i.e. pre-award, post award, and after-the-award). The course reviews OMB grant circulars and the general Grant Rule for Institutions of Higher Education, Hospitals and other Non-Profit Organizations.

This Web-based training (WBT) course is one of a series designed as an introduction to FHWA planning and research grant administration. The series includes four independent WBTs that cover the history of FHWA planning and research grants, the Common Grant Rule, Cost Principles, and Audits:

FHWA-NHI-151046--FHWA Planning and Research Grants: History, Sources, and Regulations;

FHWA-NHI-151047--FHWA Planning and Research Grants: Common Grant Rule;

FHWA-NHI-151048--FHWA Planning and Research Grants: Cost Principles; and

FHWA-NHI-151049--FHWA Planning and Research Grants: Audits.

These WBTs are designed to complement FHWA-NHI-151021 Administration of FHWA Planning and Research Grants, a 2-day Instructor-led training course. They are not intended to replace NHI 151021.

Outcomes

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

- Identify laws and implementing regulations (issued by FHWA, U.S. Department of Administration [DOT] and applicable OMB circulars) that apply to the administration of Federal-aid funding
- Describe how to apply Federal laws and regulations to administer funds
- Define the basic principles of Federalism incorporated in the Common Grant Rule
- Describe pre-award, post-award, and after-the-award Common Grant Rule requirements
- Differentiate among requirements at different stages of the Common Grant Rule

Target Audience

The target audience includes FHWA, State Department of Transportation (State DOT), Metropolitan Planning Organization (MPO), and other agency staff who expend or administer Federal-aid funds, including planning, engineering, and fiscal staff.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 3 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-151048

New Training WBT

Course Title

FHWA Planning and Research Grants: Cost Principles - WEB-BASED

NHI 151048 is a 2.5-hour WBT that presents general cost principles, selected items of cost, and indirect cost plans (2CFR 225, fomerly OMB Circular A-87).

This Web-based training (WBT) course is one of a series designed as an introduction to FHWA planning and research grant administration. The series includes four independent WBTs that cover the history of FHWA planning and research grants, the Common Grant Rule, Cost Principles, and Audits:

FHWA-NHI-151046--FHWA Planning and Research Grants: History, Sources, and Regulations;

FHWA-NHI-151047--FHWA Planning and Research Grants: Common Grant Rule;

FHWA-NHI-151048--FHWA Planning and Research Grants: Cost Principles; and

FHWA-NHI-151049--FHWA Planning and Research Grants: Audits.

These WBTs are designed to complement FHWA-NHI-151021 Administration of FHWA Planning and Research Grants, a 2-day Instructor-led training course. They are not intended to replace NHI 151021.

Outcomes

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

- Identify basic cost principles
- Identify selected items of cost
- Explain the purpose of indirect cost plans

Target Audience

The target audience includes FHWA, State Department of Transportation (State DOT), Metropolitan Planning Organization (MPO), and other agency staff who expend or administer Federal-aid funds, including planning, engineering, and fiscal staff.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-151049

New Training WBT

Course Title

FHWA Planning and Research Grants: Audits - WEB-BASED

NHI 151049 is a 2-hour WBT that covers basic audit requirements and reviews OMB Circular A-133. The course provides examples of when a single audit is required and explains what triggers a single audit.

This Web-based training (WBT) course is one of a series designed as an introduction to FHWA planning and research grant administration. The series includes four independent WBTs that cover the history of FHWA planning and research grants, the Common Grant Rule, Cost Principles, and Audits:

FHWA-NHI-151046--FHWA Planning and Research Grants: History, Sources, and Regulations;

FHWA-NHI-151047--FHWA Planning and Research Grants: Common Grant Rule;

FHWA-NHI-151048--FHWA Planning and Research Grants: Cost Principles; and

FHWA-NHI-151049--FHWA Planning and Research Grants: Audits.

These WBTs are designed to complement FHWA-NHI-151021 Administration of FHWA Planning and Research Grants, a 2-day Instructor-led training course. They are not intended to replace NHI 151021.

Outcomes

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

- Describe basic audit requirements
- Identify single audit roles and responsibilities

Target Audience

The target audience includes FHWA, State Department of Transportation (State DOT), Metropolitan Planning Organization (MPO), and other agency staff who expend or administer Federal-aid funds, including planning, engineering, and fiscal staff.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-152054

Course Title

Introduction to Urban Travel Demand Forecasting

Through classroom lectures and interactive workshops, this introductory course covers the traditional four-step modeling process of trip generation, trip distribution, mode choice, and trip assignment. The course includes presentations on land use inputs, network and zone structures, time of day factoring, and reasonableness checking.

In order to ensure that participants have a basic overview of travel demand forecasting, each registered participant will receive a Self-Instructional CD--entitled Introduction to Travel Forecasting--in advance of a scheduled session. To ensure that these CDs are shipped, we request that the Host provide the instructor coordinator with names and mailing addresses of their registrants. Participants are expected to complete the CD in advance of the session

A half day computer lab exercise is included to reinforce the concepts presented in the classroom. The hosting organization is responsible for providing MS Windows microcomputers with color graphics, color monitors, and at least 10 megabytes of hard disk space. There should be no more than two participants per computer station.

Prerequisites: Computer experience and an understanding of college-level algebra. Participants must bring scientific calculators to the session.

Outcomes

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

- Describe the role of travel forecasting within transportation planning
- Explain the principles of the four-step model: trip generation, trip distribution, mode choice, and trip assignment
- Demonstrate how input data is used in each step of the four-step model
- Identify reasonableness checks for model inputs, outputs, and equations
- Interpret the outputs from each step

Target Audience

Federal, State, local planners, and engineers, and consultants who wish to gain a better understanding of the principles and applications of travel demand forecasting models.

Training Level: Intermediate

Fee: 2013: $600 Per Person; 2014: N/A

Length: 4 DAYS (CEU: 2.4 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-152069

Course Title

Metropolitan Transportation Planning

This course provides a general introduction and overview of the metropolitan transportation planning process, underscoring its relationship to informed decision making. Aspects covered include key elements of the planning process; planning requirements; visioning, goals, objectives and measures of effectiveness; program and project development; alternatives and tools for their analysis.

NHI also offers FHWA-NHI-139001 Integrating Freight in the Transportation Planning Process.

Outcomes

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

- Explain why the metropolitan transportation planning process exists and why it is important
- Identify the requirements of the metropolitan transportation planning process and describe the products
- Identify the players in the process and describe their roles and responsibilities
- Distinguish among vision, goals, objectives, and measures of effectiveness (MOEs) and describe the proper use of each
- Explain how to identify transportation needs and problems and how to analyze and evaluate alternative strategies
- Recognize the components of the transportation plan and the transportation improvement program
- Explain the relationship between planning and project development

Target Audience

Planning, transportation planning, programming, or project development staff working or participating in the metropolitan transportation planning process. These include participants from metropolitan planning organizations, State or local departments of transportation, transit agencies, or the Federal DOT. In addition, Federal or State resource and regulatory agencies, (e.g., EPA, Army Corps of Engineers, US Coast Guard, Fish And Wildlife Service, or Park Service, etc.).

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-152072

Course Title

Highway Program Financing

This training provides an overview of the Federal-Aid Highway Program, focusing on various aspects of highway program financing unique to the Federal Highway Administration (FHWA). Topics include the following: the operation of the Highway Trust Fund and its significance to the funding level of the Federal-Aid Highway Program; the content and policy implication of authorizing and appropriating legislation; the FHWA apportionment process; discussion of obligation limitation, allocations, deductions, earmarking, and transferability; and the effect of policy and budget considerations on the use of Federal-Aid funds. The training has been updated to complement the new Federal-aid authorization bill.

Outcomes

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

- Describe the flow of Federal financing from authorization to reimbursement
- Explain authorization, appropriation, apportionment, allocation, and obligation limitation
- Discuss the impact contract authority and obligation limitation have on the use of Federal funds
- Explain how the Federal budgetary process applies to the Federal-Aid Highway Program
- Describe the significance of the Highway Trust Fund to the funding levels for the Federal-Aid Highway Program

Target Audience

This training is intended for Federal, State, regional and local government employees, as well as contractors and others from the private sector, interested in the process by which the Federal-Aid Highway program is authorized and how the funds are distributed. NHI encourages a mix of participants at each session.

Training Level: Basic

Fee: 2013: $350 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-231027

WBT

Course Title

Funds Management for FHWA Employees - WEB-BASED

The course specifically focuses on the Principles of Appropriations Law as codified in the GAO "Red Book" Volume 1 and 2 (Chapters 6-8, 10 and 11) and it's Application to the unique requirements of the HTF. Course content covers the following topics:

Provide information on the historical perspective, life cycle of an appropriation, constitutional basis, definitions, and effect of decisions of the Comptroller General.

The legal framework: basic concepts about appropriations, relationships between appropriations, Congressional intent, authorization acts, appropriation acts, supplemental and deficiency appropriations, and apportionment and allotment.

Agency regulations and administrative control: agency regulations and interpretations, agency discretion.

Availability of appropriations, purpose: principles/concepts, "Necessary Expense" doctrine, specific purpose authorities and limitations, attendance at meetings, attorney's fees, compensation restrictions, entertainment, recreation, morale, welfare, food, fines and penalties, municipal services, gifts and awards, guard services, rewards, lobbying, membership fees, personal expenses, state and local taxes, telephone services, and a group study of Comptroller General decisions relating to the above material.

Availability of appropriations, time: general principles, "Bona Fide Needs" rule, concepts, prior and future year needs, replacing and modifying contracts, exceptions, advance payments considerations, dispositions of appropriations balances, close of fiscal year, and a group study of the Comptroller General decisions related to above.

Availability of appropriations, amount: earmarking, avoiding Anti-Deficiency

Act violations, supplemental appropriations, augmentation of appropriations, and a group study, and a group study of Comptroller General decisions related to the above.

Obligation of appropriations: nature of obligations, recording obligations and reporting, de-obligation, (tied to 23 USC Sec 106(3)) and contingent liabilities.

Operating under continuing resolutions: rate for operations, project or activities, and relationship to other legislation.

Liability and relief of accountable officers: general principles, physical loss or deficiency, illegal or improper payment, relief, and a group study of Comptroller decisions relate to the above.

Grants and Cooperative Agreements, guaranteed and insured loans, to include discussion of Transportation Innovative Finance vehicles such as State Infrastructure Banks (SIBs), Grant Anticipated Revenue Vehicles (GARVEEs) Section 129 Loans and Transportation Infrastructure Finance and Innovation Act projects, overview of GAO principles of appropriations, law, claims against the United States, debt collection, payment of judgments, and review and general discussion of recent Comptroller decisions.

Outcomes

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

- Explain how resources are requested and approved.
- Describe the different types of appropriations available
- Describe each type of appropriation
- Explain the use and significance of each type of appropriation
- Discuss the general guidelines for controlling the use of federal resources.
- Explain the limitations and latitudes on the use of the federal resources.

Target Audience

The target audience includes Financial Managers and Specialists, Division Administrators and Assistant Division Administrators, Program and Project Managers, and Supervisors and Team Leaders who are drawn from a cross section of these occupations. The target audience is primarily employees involved with the HTF.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 6 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-231028

New Training

Course Title

Using the AASHTO Audit Guide for the Procurement and Administration of A/E Contracts

Using the AASHTO Audit Guide for the Procurement and Administration of A/E Contracts course is a one-day introductory course of interest to a wide variety of practitioners whose jobs require that they work with Architectural and Engineering (A/E) contracts. The course incorporates small- and large group discussions, case study activities, and both a scored and unscored assessment to reinforce learning.

The course begins with an overview of government contracting for A/E services and the related roles and responsibilities. Participants learn about the A/E Project Cycle and discuss cost components common to A/E contracts.

Next, participants learn about important regulations and standards applicable to the administration of A/E contracts and the role of each. Key cost principles are covered so that participants can learn to distinguish between direct and indirect costs and to differentiate between the concepts of allowability, allocability, and reasonableness.

The importance of internal controls is emphasized as participants are taught to recognize risk factors and indicators of control deficiencies. In a discussion of key areas of costs, participants learn to use the AASHTO Uniform Audit & Accounting Guide to better understand directly associated costs and whether specific indirect costs are allowable. A case study helps participants to practice the application of these principles.

After an overview of A/E firm audits and related roles and responsibilities, participants review a sample cost proposal and related contract wording in order to begin linking audit information, cost proposals, and contracts. The course ends with a discussion of cognizance and the risk management framework followed by a review of select tools and resources that support the administration of A/E contracts.

Outcomes

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

- Explain the Federal and State laws, regulations, policies and procedures that relate to the procurement and administration of A/E contracts.
- Explain how to use audit information in the procurement and administration of A/E contracts.
- Identify and discuss concepts of direct and indirect, allowable and unallowable costs in A/E contracts.
- Locate selected tools and resources to assist in the procurement and administration of A/E contracts.

Target Audience

This course is particularly suited for practitioners associated with procurement, audit, and the administration of A/E contracts.

Training Level: Basic

Fee: 2013: $300 Per Person; 2014: N/A

Length: 9 HOURS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-231029

New Training

Course Title

Using the AASHTO Audit Guide for the Development of A/E Consultant Indirect Cost Rates

This two-day advanced course is of interest to a wide variety of practitioners who want to be able to apply the AASHTO Audit Guide in the development and administration of A/E design consultant direct and indirect costs and rates. This course is written for both prime A/E consultants and subconsultants.

Outcomes

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

- Employ appropriate requirements, concepts, and tools necessary to develop and apply indirect cost rates to A/E contracts.
- Describe the required components of compliant internal controls.
- Prepare an appropriate analysis necessary to demonstrate the reasonableness of compensation.
- Interpret and apply Federal and State laws, regulations, policies and procedures.
- Explain various components of the external oversight framework including ethics, dispute resolution, and the FHWA function.
- Compare and distinguish between contract types and implications on account costing and billing.

Target Audience

This course is intended for those who perform one or more of the following roles: o Performing indirect cost rate audits for A/E Design firmso Ensuring compliance with the AASHTO Audit Guideo Administering contracts or subcontracts and procuring services o Managing contracts or subcontractso Ensuring compliance of contracts or subcontractso Providing oversight of local contracts or subcontractso Building and reviewing cost proposalso Approving the payment of A/E design consultant invoiceso Auditing indirect cost and contract proposalso Closing out and performing final reconciliations of contracts o Designing and enforcing internal control systemso Reviewing RFPs and contracts for government projectso Sell A/E design services to State DOTs

Training Level: Intermediate

Fee: 2013: $450 Per Person; 2014: N/A

Length: 14 HOURS (CEU: 1.4 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-231030

Course Title

Using the AASHTO Audit Guide for the Auditing and Oversight of A/E Consultant Indirect Cost Rates

This two-day advanced course is of interest to A/E design firms; State DOT and local government auditors; CPAs; and FHWA, State DOT, and A/E design firm financial and/or consultant services management who perform the audit or audit compliance review function in accordance with the AASHTO Uniform Audit & Accounting Guide (AASHTO Audit Guide). The course focuses primarily on audit requirements and procedures designed to develop reasonable assurance that indirect cost rates are developed in accordance with applicable Federal regulations and guidance. The course incorporates small- and large-group discussions, document reviews, case study activities, un-scored self-assessments, and a scored final assessment to reinforce learning.

Outcomes

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

- Perform audit functions related to the planning, performance, or oversight of A/E consultant indirect cost rate audits.
- Determine and attest to A/E consultant compliance with applicable guidance and/or requirements.
- Discuss how State DOTs will use the CPA Workpaper Review Program (AASHTO Audit Guide Appendix A) to evaluate audits performed by CPAs.
- Identify and apply appropriate audit tools and techniques as specified in the AASHTO Audit Guide.
- Describe the components of a complete audit report and how to evaluate the report presentation.
- Describe various components of the State DOT's oversight and risk management framework.
- Describe at a high level the FHWA's roles and responsibilities in its stewardship and oversight of Federal-Aid funds related to procurement of A/E design services and administration of related agreements.

Target Audience

This course is primarily for those who perform one or more of the following functions:o Perform indirect cost rate audits for A/E design firmso Ensure coonsistency with the AASHTO Audit Guideo Ensure compliance of contracts or subcontractso Provide oversight of local agency contracts or subcontractso Review cost proposalso Audit indirect cost and contract proposalso Close out and perform final reconciliation of contractso Design and enforce internal control systemso Review RFPs and contracts for government projectso Evaluate the effectiveness of the State DOT oversight and risk management framework

Training Level: Accomplished

Fee: 2013: $450 Per Person; 2014: N/A

Length: 14 HOURS (CEU: 1.4 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134042

Course Title

Quality Assurance: Materials Control and Acceptance (4.5-Day)

This course provides participants with an understanding of the elements of a statistically based quality assurance program. It is also a prerequisite course for those pursuing training on the development of quality assurance specifications.

The course begins with an introduction to quality management and quality assurance. Through lectures, discussion, and workshops, participants learn techniques for collecting, organizing, analyzing, and interpreting data. Using the techniques taught in the course, participants assess the strengths, weaknesses, and risks of process control and acceptance plans. The course concludes with steps for successful implementation of quality specifications.

This course requires a solid foundation in basic mathematics and statistics.

The course topics include: Sampling Theory, Organization of Data, Analysis of Data, The Normal Distribution, Sources of Variability, Process Control, Acceptance Plans and Risks, and Percent within Limits Acceptance Plans.

Outcomes

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

- Define terms related to quality assurance.
- Identify the importance of organizing data and how to plot frequency histograms.
- Explain how a sample relates to the population, the relationship between single and multiple samples, including the myth of a single representative sample, and use of random stratified sampling tables.
- Calculate population and sample means, standard deviation, coefficient of variation, and control chart limits.
- Identify sources of variability and how to use precision and bias statements
- Use statistical process control charts.
- Identify the elements of acceptance plans and the strengths and weaknesses of acceptance plans based on sample means and percent within limits.
- Identify procedures for verification of contractor tests used in the acceptance decision.

Target Audience

This course is appropriate for Federal, State, and local highway agency personnel involved in specification development. Typically this group consists of engineers and technicians in materials, construction, and research.

Training Level: Accomplished

Fee: 2013: $650 Per Person; 2014: N/A

Length: 4.5 DAYS (CEU: 2.7 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134061

Course Title

Construction Program Management and Inspection

The Federal Highway Administration's (FHWA) responsibilities for construction project and program oversight has changed considerably throughout the years. Today, the FHWA field engineers are typically involved in a diverse array of issues that were not common in construction projects of decades past. Changes in legislation, declines in staffing resources and expertise, and increased complexity of the Federal-aid construction program have all had an impact on how the FHWA conducts construction program management and oversight. Today's FHWA field engineers must have a more focused and programmatic approach in fulfilling construction stewardship and oversight responsibilities.

This 2-day training workshop highlights the FHWA roles and resources to assist the State in delivering a quality construction program. The training will assist the FHWA field engineers in maintaining and improving technical competence and in selecting a balanced program of construction management techniques.

The workshop uses the "Construction Program Management and Inspection Guide" as instructional material. While the workshop is focused primarily at FHWA's staff and FHWA oversight activities, participation by State partners and other relevant entities is highly encouraged to further educate and train Federal Aide partners to "act on FHWA's behalf in line with the Divisions/State DOT Stewardship Agreement.

Outcomes

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

- Manage and oversee Federal-aid construction programs.

Target Audience

This training is targeted at FHWA Division field engineers and State agencies, and will provide staff with the background and knowledge they need for managing and overseeing their Federal-aid construction programs. The training is geared towards the new FHWA generalist employee but is also intended as a refresher for the veteran FHWA engineer.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 15; MAXIMUM: 40

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134064

Course Title

Transportation Construction Quality Assurance (1.5-Day)

The Federal Highway Administration (FHWA) identified the need for transportation construction and materials personnel to increase their knowledge of the fundamentals of effective transportation construction Quality Assurance (QA). This course was developed to ensure that agency, contractor, producer, and consultant personnel responsible for interpreting and applying quality assurance specifications in transportation construction are properly qualified. The course will utilize a Quality Assurance Reference Manual, adapted from the current NETTCP manual.

This one and a half-day version of the course covers Chapters 1 through 6 of the course materials and will be available to, and appropriate for, all audiences including management level personnel. The content covered in this first day includes how quality assurance is featured in a transportation construction quality assurance program, quality assurance program elements, the evolution of quality assurance specifications, measuring quality, and the roles and responsibilities of both contractor and agency personnel.

Outcomes

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

- Consistently apply fundamental Quality Assurance concepts, terminology, and definitions
- Differentiate QA specifications from other specifications
- Explain each of the six core elements of a QA program and how each is essential to successful implementation of Quality Assurance
- Describe the respective roles and responsibilities of the project decision makers (Contractor QC and Agency Acceptance personnel) and how their interaction contributes to construction quality

Target Audience

This is an intermediate-level course for personnel who are implementing QA specifications on construction projects. Necessary background knowledge for participants is 3-5 years minimum in transportation construction specifications inspections. The suggested list of personnel that may consider attending, if they have the requisite background knowledge are Contractor/Consultant Personnel (QC managers/QC Plan Administrators, Senior Production Facility QC Technician/Inspectors, Senior QC Laboratory Personnel, and Senior Field QC Technicians/Inspectors) and Agency Personnel (Project Managers/Resident Engineers, Senior Production Facility Acceptance Technicians/Inspectors, Senior Acceptance Laboratory Personnel, and Senior Field Acceptance Technicians/Inspectors.

Training Level: Intermediate

Fee: 2013: $350 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134064A

Course Title

Transportation Construction Quality Assurance (3-Day)

The Federal Highway Administration (FHWA) identified the need for transportation construction and materials personnel to increase their knowledge of the fundamentals of effective transportation construction Quality Assurance (QA). This course was developed to ensure that agency, contractor, producer, and consultant personnel responsible for interpreting and applying quality assurance specifications in transportation construction are properly qualified. The course will utilize a Quality Assurance Reference Manual, adapted from the current NETTCP manual.

This three-day version of the course covers Chapters 1 through 10 of the course materials and will be available to, and appropriate for, production, laboratory, and field QC and Acceptance technicians and inspectors. This version contains mathematical terms and principles used in QA sampling, testing, and decision-making. The content also includes how quality assurance is featured in a transportation construction quality assurance program, quality assurance program elements, the evolution of quality assurance specifications, measuring quality, and the roles and responsibilities of both contractor and agency personnel.

Outcomes

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

- Consistently apply fundamental Quality Assurance concepts, terminology, and definitions
- Differentiate QA specifications from other specifications
- Explain each of the six core elements of a QA program and how each is essential to successful implementation of Quality Assurance
- Describe the respective roles and responsibilities of the project decision makers (Contractor QC and Agency Acceptance personnel) and how their interaction contributes to construction quality
- Apply the mathematical concepts of variability, statistical distribution, and sampling protocols to measure construction quality
- Describe the primary components of inspection, properly document the results of inspection, and utilize inspection data to quantify quality of workmanship

Target Audience

This is an intermediate-level course for personnel who are implementing QA specifications on construction projects. Necessary background knowledge for participants: 3-5 years minimum in transportation construction specifications inspections, basic statistical knowledge/training, some usage of tools necessary to the Quality Assurance process (contractor test results). The suggested list of personnel that may consider attending, if they have the requisite background knowledge are Contractor/Consultant Personnel (QC managers/QC Plan Administrators, Senior Production Facility QC Technician/Inspectors, Senior QC Laboratory Personnel, and Senior Field QC Technicians/Inspectors) and Agency Personnel (Project Managers/Resident Engineers, Senior Production Facility Acceptance Technicians/Inspectors, Senior Acceptance Laboratory Personnel, andSenior Field Acceptance Technicians/Inspectors).

Training Level: Intermediate

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134070

WBT

Course Title

SpecRisk Quality Assurance Specification Development and Validation Course - WEB-BASED

This course will provide an introduction to statistical analysis and the development of statistically valid quality assurance specifications, introducing general guidelines established and put forth by the Federal Government and FHWA policy. The course also provides participants with an introduction to SpecRisk, the resource that is necessary to successfully develop statistically valid specifications. The course is designed and delivered to motivate members of the target audience to use SpecRisk software to develop their specifications. Although the course demonstrates basic functions of the software, it is not intended to be an in-depth training on how to use SpecRisk.

This course requires a solid foundation in basic statistics. Completion of FHWA-NHI 134042, or equivalent training, is also recommended. NHI 134042 trains participants to identify the importance of organizing data and how to plot frequency histograms. It explains how a sample relates to the population, the relationship between single and multiple samples, and the use of random stratified sampling tables. This knowledge provides an excellent foundation for this course.

Outcomes

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

- Recognize key concepts to develop an effective, statistically valid Quality Assurance (QA) specification.
- Make an informed selection among available options when developing an acceptance plan.
- Develop QA specifications in alignment with best practices, Federal regulations, and FHWA policy.
- Apply SpecRisk software to understand risks and develop statistically valid specifications.

Target Audience

Personnel involved in specification development: Federal, State, and local highway agency engineers and technicians in materials, construction, and research. The training is also appropriate for industry personnel that are involved in reviewing and providing input to the specification development process.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 8 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134073

Course Title

Leap Not Creep: Accelerating Innovation Implementation

This course is designed to provide transportation employees with the necessary tools to implement innovations quickly and successfully, and mainstream the innovations into an agency's standard practice. The training discusses the features of successful implementations, provides information on the components of an implementation plan, lists resources for locating innovations and funding for implementation, and discusses strategies for identifying and neutralizing challenges to implementing innovations.

The course is taught in a blended format. First, participants attend a two-hour Web conference to introduce the course and set expectations. One to two weeks following the Web conference, participants attend two days of classroom training to complete the course.

Note to Session Hosts: When requesting to host the course, the "Requested Date" and "Alternate Date" should be input to reflect the requested dates for the two day classroom portion of the course. When the course request is approved, the assigned instructor will contact the host to schedule both the classroom portion and the 2-hour Web conference one to two weeks prior to the classroom session.

Outcomes

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

- Identify the benefits of implementing innovations.
- Describe the evolution of an innovation from the identification of a need to mainstreaming an innovation into standard practice.
- Describe the key factors of successful innovation implementation.
- Develop a deployment plan for implementing an innovation.
- List three strategies that could be employed by agency decision-makers to support innovation implementation.
- Determine resources required to mainstream the innovation into standard practice.
- Identify strategies for overcoming barriers to implementing an innovation.
- Locate resources to support the deployment of innovations, such as funding resources.

Target Audience

The target audience for this course will be people are responsible for leading a team, or are preparing to lead a team, that's responsible for deploying an innovation; selecting innovations that will be implemented within the organization; and promoting the use of innovations within an organization.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 15; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-310115

WBT

Course Title

Introducing Highway Federal-Aid - WEB-BASED Standard Version

Based upon customer feedback, NHI has summarized portions of FHWA-NHI-310109 Federal-Aid 101 into this self-paced, Web-based format. We encourage everyone to take advantage of the opportunity to attend the full, Instructor-led training. However, for those constrained by time or travel money, this WBT provides a good short-term option.

The overall goal of this training is to provide an overview of the key elements of the Federal-Aid Highway Program. Specifically, this training focuses on the general requirements and laws that govern the Federal-Aid Highway Program, the processes and procedures of project development, and the identification of inherent flexibility in the Federal-Aid Program. NHI is continuously expanding our Web-based training offerings and would love to hear what you think about this training. When you complete it, please take the time to fill out the online course evaluation form provided. We've also prepared an accessible, 508-compliant version, see FHWA-NHI-310115W for more information.

Outcomes

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

- Identify the key elements of the overall Highway Federal-Aid project development process
- Explain the FHWA civil rights programs (i.e., Title VI, Disadvantaged Business Enterprise (DBE), EEO Contract Compliance, Title VII, Americans with Disabilities Act (ADA), Indian Outreach) and their relationship to the Federal-Aid Highway Program and the Federal/State relationships
- Identify where environmental justice is included in all aspects of project planning, development, and construction
- Develop a flowchart of the project development process from the initial planning concept through the environmental and right-of-way processes, on to construction and opening to traffic
- Identify the roles of safety, intelligent transportation systems, operations, research, and development in the Federal-Aid process
- Identify timing and use of public involvement throughout the Highway Federal-Aid project development process
- Explain the similarities and relations among the Federal-Aid laws and regulations and other laws (i.e., NEPA, Uniform Act, the Davis Bacon Act, OMB Circular A-87, 49 CFR Part 18 (Common Rule))

Target Audience

New/mid career hires from all disciplines (i.e., planners, engineers, environmental specialists, financial specialists or managers) or FHWA employees who took the FHWA-NHI-310109 Federal Aid 101 Instructor-Led Training before 2005.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 8 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-310115W

WBT

Course Title

Introducing Highway Federal-Aid- WEB-BASED Accessible 508 Version

Based upon customer feedback, NHI has summarized portions of FHWA-NHI-310109 Federal Aid 101 into this self-paced Web-based format. We encourage everyone to take advantage of the opportunity to attend the full, Instructor-led training. However, for those of you constrained by time or travel money, this WBT provides a good short-term option.

The overall goal of this WBT is to provide an overview of the key elements of the Federal-Aid Highway Program. Specifically, this training focuses on the general requirements and laws that govern the Federal-Aid Highway Program; the processes and procedures of project development, and the identification of inherent flexibility in the Federal-Aid Program. We've also prepared standard version. See FHWA-NHI-310115 for more information.

Outcomes

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

- Identify the key elements of the overall Highway Federal-Aid project development process
- Explain the FHWA civil rights programs (i.e., Title VI, Disadvantaged Business Enterprise (DBE), EEO Contract Compliance, Title VII, Americans with Disabilities Act (ADA), Indian Outreach) and their relationship to the Federal-Aid Highway Program and the Federal/State relationships
- Identify where environmental justice is included in all aspects of project planning, development, and construction
- Develop a flowchart of the project development process from the initial planning concept through the environmental and right-of-way processes, on to construction and opening to traffic
- Identify the roles of safety, intelligent transportation systems, operations, research, and development in the Federal-Aid process
- Identify timing and use of public involvement throughout the Highway Federal-Aid project development process
- Explain the similarities and relations among the Federal-Aid laws and regulations and other laws (i.e., NEPA, Uniform Act, the Davis Bacon Act, OMB Circular A-87, 49 CFR Part 18 (Common Rule))

Target Audience

New/mid career hires from all disciplines (i.e., planners, engineers, environmental specialists, financial specialists or managers) or FHWA employees who took the FHWA-NHI-310109 Federal Aid 101 Instructor-Led Training before 2005.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 8 HOURS (CEU: .6 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-310119

Course Title

Writing Effective Program Review Reports: Moving People to Action

The ability to provide clear communication is vital to the business of FHWA and good writing skills are a key element in the communication process. FHWA uses program reviews as tools to fulfill its stewardship and oversight responsibilities, manage program risk, and identify process improvements for the Federal-aid program. Each year, FHWA conducts approximately 200 program reviews. The product of these reviews is usually a review that details the observations and recommendations of the review team in an effort to improve a process or product. The review's effectiveness is largely determined by how well the review is communicated to the target audience.

The goal of this course is to improve the writing skills of FHWA's employees. Improved writing skills should lead to higher quality review reviews, which in turn should increase FHWA's ability to motivate the reading audience to act upon the review's recommendations. Action on the part of the reader will ultimately lead to improved effectiveness in delivering FHWA programs by reducing costs, accelerating project delivery, and improving stewardship and oversight. Throughout this course, you will learn that effective writing is more than proper punctuation and using spell-check. It's learning how to write for your audience, the busy reader. You will also learn writing skills that will aid in motivating your readers to action.

Outcomes

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

- write an executive summary that informs the audience about potential problems and persuades them to act on your recommendations or solution;
- write recommendations that motivate the audience to take corrective action;
- discuss usefulness and readability;
- describe how review content is generated by questions;
- develop and answer review objectives;
- evaluate the logical link of review objectives, observations, and recommendations;
- focus on the relevant elements of an observation finding to create convincing support;
- use the deductive message-first structure throughout reviews;
- design/organize reviews to benefit the busy reader;
- control paragraph unity (one main topic) and coherence (flow);
- avoid information overload within sentences;
- control common sentence problems; and
- develop objective criteria for writing and reviewing reviews.

Target Audience

This course is primarily intended for FHWA personnel who are responsible for writing program reviews. It is anticipated that participants may not have in-depth writing background. More knowledgeable persons may be expected to attend and will add to the overall effectiveness of the training through their active participation.

Training Level: Intermediate

Fee: 2013: $350 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 10; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-310120

Updated Training

Course Title

Conducting Effective Program Reviews

The Conducting Effective Program Reviews, provides participants with an introduction and/or review of the best practices and tools involved in the planning and conducting of effective program reviews.

To accomplish FHWA's Stewardship Mission, units at every level and in every program area need the expertise to plan, design and carry out, often jointly with partners, reviews to ensure that operational processes are consistent with established standards and expectations, performing at the most effective and efficient level, and that best practices are captured and made available to units at all levels.

Building on FHWA experience and expertise gained through Program Reviews, Process Reviews, and Continuous Process Improvement Reviews, an improved workshop, tailored to the unit's needs is now being offered.

The Workshop consists of assistance in the form of consultation, training and hands on assistance in the methodology and tools for conducting successful reviews.

Outcomes

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

- Write a review Objective and create a Team Charter
- Develop a Review Workplan, including the steps to collect data
- Select data analysis tools to be used during a program review
- Define the key parts of an observation
- Link the parts of an observation to an objective and recommendation
- Develop a program review report and conduct effective close-out meetings

Target Audience

The target audience for Conducting Effective Program Reviews includes FHWA staff who participate in and/or lead program or process reviews. As such, the FHWA staff will be primarily the division offices, but may include staff from FHWA headquarters, State DOTs, or the Resource Centers (RC).

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 0 UNITS)

Class Size: MINIMUM: 10; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-310123

New Training

Course Title

FHWA Contracting Officers Representative (COR)

Contracting Officer's Representatives (COR) are integral to the acquisition process and perform critical acquisition functions; FHWA relies on CORs to help the Contracting Officer (CO) monitor work conducted under contracts in order to meet the Agency mission. Because of this important role, FHWA needs to develop the knowledge of their new and mid-career hires in the area of acquisition management.

The overall course goal is to address the essential core competencies, outlined by the Office of Federal Procurement Policy (OFPP), required for CORs to effectively monitor Federal Government contracts. The class is tailored to meet the specific needs of FHWA CORs with examples and content directed to common contract types and issues faced by FHWA and Federal Lands Programs.

Participants who successfully complete the course will earn 40 Continuous Learning Points in support of a Level II FAC-COR certification.

Outcomes

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

- Explain the duties and responsibilities of the Contracting Officer's Representative (COR)
- Discuss COR best practices
- Define key acquisition terminology
- Associate the importance of professional business skills with effectively monitoring the work under the contract
- Determine the elements of contract monitoring appropriate for a given contract
- Describe the process leading up to contract award
- Appropriately respond to legal and ethical issues that may arise

Target Audience

New/mid-career hires who anticipate being appointed as a COR, current CORs who desire refresher/updated COR training. Agreement Officer's Technical Representatives, persons monitoring task orders under an Indefinite Delivery/ Indefinite Quantity contract, and anyone desiring Basoc CPR Training.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 5 DAYS (CEU: 3 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133028

Course Title

Traffic Signal Design and Operation

There is a need to understand that the congestion and delays that exist on our streets and roadways can be better managed with a thorough understanding of effective traffic signal timing and optimization. Well-developed, designed, implemented, maintained, and operated traffic signal control projects are essential to this process. Engineering tools are available to design, optimize, analyze, and simulate traffic flow. This course addresses the application of the "Manual of Uniform Traffic Control Devices" (MUTCD) to intersection displays, as well as signal timing, computerized traffic signal systems, control strategies, integrated systems, traffic control simulation, and optimization software. The course is divided into two primary parts: Traffic Signal Timing and Design, and Traffic Signal Systems.

Outcomes

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

- List the steps required to plan, design, and implement a signalized intersection
- Devise an appropriate data collection plan for planning, designing, and operating a signalized intersection
- Perform a warrant analysis using the MUTCD warrants, including local policies
- Design basic phasing of the intersection - which movements will get a separate phase, and how they are numbered
- Calculate signal timing at the design stage for both actuated and coordinated operational strategies, including pedestrian clearance intervals
- Determine location of signal displays
- Select signal-related signs and pavement markings, including turning-movement signs and advance warning signs

Target Audience

Traffic engineering personnel from State, Federal, and local agencies involved in planning, design, operation or maintenance of traffic signals or traffic signal systems. The course will not assume any prior knowledge of computers and thus will describe the theory of operation and the manner in which it can be applied to traffic signal controls.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133078

Course Title

Access Management, Location and Design

This course has received a major update and improvements. The biggest change is that all participants will receive the TRB Access Manual for use in the class and reference after the training. NHI is providing 30 TRB Access Manuals per class and charging the host for these at our cost - $40 per copy. If there are excess manuals those are to be retained by the host. Each host will be charged a flat fee of $1,200 for the manuals (30 x $40) to allow NHI to recoup only our purchase costs.

This course covers the complex technical issues that underlie effective access management practices on streets and highways and provides the technical rationale for proper signal spacing, driveway spacing and design, the application and design of auxiliary lanes. "Before" and "after" case studies illustrate the impacts of projects to improve traffic safety and operations. In addition, the course addresses the issues involved in developing and administering an effective access management program. The course references the state-of-the-practice as presented in the Transportation Research Board's 2003 Access Management Manual, the latest edition of AASHTO's A Policy on Geometric Design of Highways and Streets (Green Book), and pertinent NCHRP reports. In summary, this training provides a lasting reference and specific applications of techniques and practices that will enable transportation engineering and planning personnel to implement successful access management strategies and programs. All participants will receive the class notebook and a copy of the TRB Access Management Manual.

Outcomes

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

- Discuss the impact of access on highway safety and operations
- Choose access management techniques to mitigate challenges
- Identify practices needed for implementing access management programs

Target Audience

This course targets transportation and planning professionals involved in traffic operations, roadway design, the planning of circulation systems, and land development. Specifically, the course is designed for those individuals directly involved in implementing access management solutions in their jurisdictions, as it focuses heavily on resources and solutions to reduce the impact of access points on traffic flow.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133116

New Training WBT

Course Title

TCCC Maintenance of Traffic for Technicians - WEB BASED

Formerly Course No. 380098

This course is currently being updated to reflect changes in the MUTCD. Until this update is complete, please check all references to the latest MUTCD to make sure they are current.

The Maintenance of Traffic for Technicians Web-based training presents information about the placement of, field maintenance required for, and inspection of traffic control devices. In addition, drafting work zone traffic control plans and flagging are discussed.

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to introduce maintenance of traffic for technicians. This training is recommended for the TCCC levels I and II.

We've broken this training into five modules:

1. General Terms and Procedures
2. Traffic Channelizing and Control Devices
3. Traffic Control Zones
4. Flagger Operations
5. Traffic Control Zone Operations

Outcomes

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

- Identify the correct placement of work zone traffic control devices
- Perform field maintenance of work zone traffic control devices
- Inspect placement or operational functions of work zone traffic control devices
- Generate work zone traffic control plans
- Explain the basics of flagging

Target Audience

This training is designed for all persons with duties that include: Direct responsibility for placement of work zone traffic control devices; Direct responsibility for field maintenance of work zone traffic control devices; Inspection of the placement or operational function of work zone traffic control devices; and Drafting or electronic generation of work zone traffic control plans. The target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-133117

New Training WBT

Course Title

TCCC Maintenance of Traffic for Supervisors - WEB BASED

Formerly Course No. 380099

This course is currently being updated to reflect changes in the MUTCD. Until this update is complete, please check all references to the latest MUTCD to make sure they are current.

The Maintenance of Traffic for Supervisors Web-based training presents information about the placement of, field maintenance required for, and inspection of traffic control devices. In addition, drafting work zone traffic control plans and flagging are discussed. This training focuses on the design of a traffic control plan, and how and why one needs to operate and implement traffic control in the work zone.

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to introduce maintenance of traffic for supervisors. This training is recommended for the TCCC levels III and IV.

We've broken this training into five modules:

1. Fundamental Principles of Temporary Traffic Control Zones
2. Temporary Traffic Control Devices
3. Traffic Control Zones
4. Transportation Management Plans
5. Flagger Operations

Outcomes

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

- Describe how to create clear, organized traffic control plans
- Identify acceptable temporary traffic control devices
- Determine good and bad flagging techniques

Target Audience

This training is designed for personnel with responsibility or authority to decide on the specific maintenance of traffic requirements to be implemented. These positions include engineers responsible for work zone traffic control development and work site traffic supervisors. The target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134107

New Training WBT

Course Title

TCCC Recognizing Roadside Weeds (Southeastern States) - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI and has been designed for someone learning the first steps in the vegetation management. However, it does not go into the education of weed prevention. This training is recommended for the Transportation Curriculum Coordination Council levels I, and II.

The first step in determining an appropriate weed control strategy is to identify the weed plant. There are numerous different plants growing along many roadsides that can be considered weeds. This is a basic course in the area of weed identification. Most weeds are territorial to different climates and regions, therefore, making it difficult to identify nationally weeds that are dealt with by different State DOT's. This training does focus on southeastern states and is organized in alphabetical order of the weeds that will be covered.

For more information on how stop the migration of weeds contact your State Vegetation Management Program.

Outcomes

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

- Understand the definition of a weed
- Describe the reasons for weed control
- Identify several of the most common weeds

Target Audience

This course is designed for entry level individuals working in vegetation management.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-137030

Course Title

Principles and Tools for Road Weather Management

This course provides transportation professionals in highway maintenance and/or highway operations with training to develop tools and strategies for addressing road weather problems. The course begins with an overview of the types of road weather problems and their associated costs, as well as basic meteorology for non-meteorologists. Through this course, participants are exposed to various strategies for addressing road weather problems, including Road Weather Information Systems (RWIS) and the development of crosscutting decision support systems to respond effectively to weather situations. In addition, road weather solutions unique to maintenance management, traffic management, traveler information, and emergency management are discussed.

Outcomes

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

- Recognize the crosscutting impacts that weather has upon roadway operations
- Identify the technical and institutional challenges of implementing road weather management strategies
- Explain the range of effective and open solutions to the various types of weather for various management practices, i.e., maintenance, traffic, emergency, and safety management
- Discuss the variety of operational tools and techniques available to the transportation community to deal with the impacts

Target Audience

This course is designed for persons engaged in any aspect of highway maintenance, operations, traffic management, emergency management, and highway safety, specifically those engaged in the implementation of solutions for roadway problems; technical specialists engaged in the implementation of solutions for roadway problems that are caused by weather; State and local transportation/public works agencies, and mid-level managers who direct their agency's resources; and FHWA personnel.

Training Level: Basic

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-137044

Course Title

Improving Highway Safety with Intelligent Transportation Systems (ITS)

This is a two-day course aimed at increasing awareness of the potential to gain highway safety improvements through the deployment of Intelligent Transportation System (ITS) technologies at the highway system, mainstream (highway improvement project) and stand alone project level, and accelerate the introduction and evaluation of ITS applications by increasing the recognition of their contribution to making highways safer. Furthermore, the course surveys the participants on their experiences deploying ITS for highway safety improvements and reviews procedures and requirements of safety strategic planning and the ITS deployment process.

Outcomes

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

- Discuss participant's highway safety challenges and triumphs
- Identify general uses of ITS to improve highway safety
- Identify and discuss USDOT ITS initiatives
- List, describe, discuss, and extract four highway safety priority areas specific to state or local highway/street agencies
- Identify and demonstrate how ITS can contribute to improved highway safety and traffic operations through a work zone
- Identify and discuss the current status of highway safety and the need to continuously improve highway safety programs
- Identify and discuss ITS-supported countermeasures that can be employed to address highway safety priority areas identified in the participant's jurisdictions
- Identify and discuss organizational and individual-level actions for potential ITS and Safety collaboration in the future at the planning level and necessary activities to enable the actions

Target Audience

The improving Highway Safety with Intelligent Transportation Systems course is designed to assist professionals in both the highway safety and ITS communities. Participants may be planners, operators, designers, or maintenance personnel. These may be for example, the employees of, or contractors for, State departments of transportation, metropolitan planning organizations, and city and county agencies. The course activities will draw on attendee's experience, expectations, and contributions. Because an underlying objective is to foster cooperation among the Safety and ITS communities, it is critical that both be well represented: a 50/50 split in attendees' backgrounds would be most desirable.

Training Level: Intermediate

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142045

Course Title

Pedestrian Facility Design

To emphasize the importance of planning for pedestrians, the course focuses on case examples involving corridor and intersection design issues. Participants are engaged through lecture, discussion, video demonstrations of problem areas in corridors and intersections, small group problem identification, and the development of design alternatives. This training was developed to provide information and application opportunities to those involved in the design of pedestrian facilities. The Americans with Disabilities Act (ADA) requires newly constructed and altered sidewalks to be accessible and usable by people with disabilities, and accessibility improvements need to be implemented for existing facilities.

Outcomes

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

- List the characteristics of pedestrians and motorized traffic that influence pedestrian facility design
- Apply the concepts of universal design and applicable design reference material to redesigning an existing location and/or designing a new location that meets the needs of motorized and nonmotorized users
- Use the reference manual provided in the course to support design decisions for the case example
- Given a case example, identify potential conflicts between pedestrians and other traffic and propose design options that improve access and safety
- Given a case example, analyze the network for improvement options to meet the needs of pedestrian and other traffic

Target Audience

Engineers with planning, design, construction, or maintenance responsibilities; pedestrian and bicycle specialists, disability and orientation specialists, transportation planners, architects, landscape architects, as well as decisionmakers at the project planning level.

Training Level: Intermediate

Fee: 2013: $350 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-142046

Course Title

Bicycle Facility Design

This training will assist planners and designers in learning how to apply the existing standards and how to deal with other technical issues involved. The availability of Federal, State, and local transportation funding for bicycle facilities that serve transportation and recreational users is resulting in a dramatic increase in the number of bicycling (and shared use) facilities being planned and built. Although there are no Federal design standards for bicycle facilities, the AASHTO Guide for the Development of Bicycle Facilities, or a modification thereof, serves as a design guide. As with most guides, the AASHTO guide cannot address every possible scenario so designers often need to apply engineering judgment where specific information is not provided. The training fee includes a copy of the AASHTO Guide for the Development of Bicycle Facilities.

Outcomes

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

- List the needs of bicyclists as transportation facility users
- Identify common roadway and traffic conditions that affect bicyclists
- Describe the characteristics of a roadway and a shared-use path that are designed to accommodate bicyclists
- List the benefits to the transportation system of accommodating bicyclists with different abilities
- Recognize opportunities to accommodate bicyclists during the planning, design, construction, and operational phases of a project

Target Audience

Federal, State, or local engineers with planning, design, construction, or maintenance responsibilities; bicycle specialists, transportation planners, landscape architects, as well as decisionmakers at the project planning level.

Training Level: Accomplished

Fee: 2013: $450 Per Person; 2014: N/A

Length: 1.5 DAYS (CEU: .9 UNITS)

Class Size: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-151042

Course Title

Transportation Safety Planning

Developed in cooperation with the Federal Transit Administration (FTA) and the National Transit Institute, this course is designed to identify opportunities for improving the manner in which safety is integrated as a key planning factor and performance measure in all transportation plans and programs.

Recently updated to reflect the provisions from SAFETEA-LU, this course will help you identify opportunities for improving the manner in which safety is integrated as a key planning factor and performance measure in all transportation plans and programs. Upon completion of the course, you will be able to: identify the benefits of addressing safety early and throughout the transportation planning process; identify safety strategies related to users, vehicles, infrastructure, and system operations; and, learn other core safety planning concepts.

Outcomes

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

- Define safety from the perspective of more than one discipline and identify the significant challenges for transportation safety planning.
- Explain the 4 Es of safety and the potential impact of multidisciplinary, collaborative relationships among them and other partners.
- Describe the roadway, vehicle, environmental and human factors involved in crashes.
- Recognize the human, economic, mobility and other benefits of investing in transportation safety.
- Describe the legislative history associated with transportation safety planning.
- Describe the elements of the transportation planning process and how the development of SHSPs influences the traditional process.
- Identify types, strengths, and weaknesses of transportation safety data.
- Identify methods for incorporating safety into the vision, goals, objectives, and performance measures in the transportation planning process.
- Explain how crash data are used to identify problem locations and opportunities for improving safety.
- Identify appropriate methods and research for selecting effective countermeasures and targeting diverse cultural and geographic populations.
- Identify methods for evaluating and prioritizing projects, programs and policies.
- Describe methods and tools for tracking progress, assessing outcomes, and using evaluation results to inform and influence the transportation safety planning process.
- Describe transportation safety planning resources and support mechanisms.
- Report on the degree to which your state LRTP or TIP addresses safety.

Target Audience

The course is intended for transportation planning and safety professionals representing metropolitan planning organizations, state departments of transportation, state highway safety offices (SHSO), transit agencies, the Federal Transit Administration (FTA), the Federal Highway Administration (FHWA), the National Highway Traffic Safety Administration, local planning organizations, and others involved in the transportation planning process, such as motor carrier safety programs, emergency response personnel, and law enforcement.

TRAINING LEVEL: Intermediate

FEE: 2013: $350 Per Person; 2014: N/A

LENGTH: 2 DAYS (CEU: 1.2 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380005

Updated Training

Course Title

Railroad-Highway Grade Crossing Improvement Program

The training provides information on rail-highway crossings, grade crossing components, including program/project development and administration. Workshops will provide the participants a chance to make hands-on applications of the training material, which include such topics as historical background, railroad-highway intersection definition and components, collection and maintenance of data, assessment of crossing safety and operations, identification and selection of alternate improvements, program and project development and implementation, maintenance, and other topics (i.e., private crossings, operation lifesaver).

Outcomes

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

- Describe Active and Passive Devices used in connection with at-grade crossings
- Identify techniques and engineering principles used for at-grade crossings
- Appraise existing at-grade crossings
- Develop alternate methods to improve railroad-highway grade crossings

Target Audience

Federal, State, and local transportation agencies responsible for the design, construction, and/or maintenance of railroad-highway crossings. State and local traffic engineers responsible for highway-railroad grade crossing safety.

Training Level: Accomplished

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380032A

Course Title

Roadside Safety Design (3-Day)

This course provides an overview of the AASHTO Roadside Design Guide. At the end of the course, you will be able to apply the clear zone concept to all classes of roadways; recognize unsafe roadside design features and elements and make appropriate changes; identify the need for a traffic barrier; and apply other highway hardware core competencies.

This course is intended for experienced safety and design engineers.

Outcomes

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

- Apply the clear zone concept to all classes of roadway
- Warrant roadside and median barriers
- Design roadside barriers
- Select the most appropriate end treatment
- Select the most appropriate safety hardware
- Correctly locate safety hardware
- Describe the elements of economic analysis

Target Audience

Experienced Federal, State, and local highway engineers involved in the formulation and/or application of policies and standards relating to the design of safe roadside hardware.

Training Level: Accomplished

Fee: 2013: $600 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380034

Course Title

Design, Construction, and Maintenance of Highway Safety Appurtenances and Features (1-Day)

The course has been developed for a 3-day course presentation but can also be structured into a 1- or 2-day training course. The sponsoring agency will be able to choose the modules for presentation that will best meet its needs. The course covers the design, construction, and maintenance of highway safety appurtenances and features. It covers the purpose and performance requirements of state-of-the-art highway safety features, such as breakaway sign supports, breakaway utility poles, traffic barriers, impact attenuators, traversable terrain, and hardware features such as drainage inlets. The course describes how these features function, what can go wrong, and how to recognize and correct improper installations.

Outcomes

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

- Identify advantages and disadvantages of different types of longitudinal barriers and crash cushions
- Identify National Cooperative Highway Research Program 350 tested safety appurtenances
- Identify application of highway safety appurtenances, why they are used, when and where they should be used, and what is necessary to ensure their function
- Design the placement of, and determine the need for, longitudinal barriers
- Use required installation, construction, and maintenance procedures for proprietary longitudinal barriers, terminals, transitions, crash cushions, bridge railings, and sign supports
- Recognize substandard or potentially hazardous highway appurtenances and features
- Develop alternatives to eliminate, correct, or mitigate unsatisfactory operational characteristics of existing safety devices

Target Audience

Highway engineers, including local personnel involved in the design, construction, or maintenance of highway safety appurtenances and features. This course is suitable for all local, State, and Federal employees that are involved with the installation and repair of highway appurtenances.

Training Level: Accomplished

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380034A

Course Title

Design, Construction, and Maintenance of Highway Safety Appurtenances and Features (2-Day)

The course has been developed for a 3-day course presentation but can also be structured into a 1- or 2-day training course. The sponsoring agency will be able to choose the modules for presentation that will best meet its needs. The course covers the design, construction, and maintenance of highway safety appurtenances and features. It covers the purpose and performance requirements of state-of-the-art highway safety features, such as breakaway sign supports, breakaway utility poles, traffic barriers, impact attenuators, traversable terrain, and hardware features such as drainage inlets. The course describes how these features function, what can go wrong, and how to recognize and correct improper installations.

Outcomes

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

- Identify advantages and disadvantages of different types of longitudinal barriers and crash cushions
- Identify National Cooperative Highway Research Program 350 tested safety appurtenances
- Identify application of highway safety appurtenances, why they are used, when and where they should be used, and what is necessary to ensure their function
- Design the placement of, and determine the need for, longitudinal barriers
- Use required installation, construction, and maintenance procedures for proprietary longitudinal barriers, terminals, transitions, crash cushions, bridge railings, and sign supports
- Recognize substandard or potentially hazardous highway appurtenances and features
- Develop alternatives to eliminate, correct, or mitigate unsatisfactory operational characteristics of existing safety devices

Target Audience

Highway engineers, including local personnel involved in the design, construction, or maintenance of highway safety appurtenances and features. This course is suitable for all local, State, and Federal employees that are involved with the installation and repair of highway appurtenances.

Training Level: Accomplished

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380034B

Course Title

Design, Construction, and Maintenance of Highway Safety Appurtenances and Features (3-Day)

The course has been developed for a 3-day course presentation but can also be structured into a 1- or 2-day training course. The sponsoring agency will be able to choose the modules for presentation that will best meet its needs. The course covers the design, construction, and maintenance of highway safety appurtenances and features. It covers the purpose and performance requirements of state-of-the-art highway safety features, such as breakaway sign supports, breakaway utility poles, traffic barriers, impact attenuators, traversable terrain, and hardware features such as drainage inlets. The course describes how these features function, what can go wrong, and how to recognize and correct improper installations.

Outcomes

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

- Identify advantages and disadvantages of different types of longitudinal barriers and crash cushions
- Identify National Cooperative Highway Research Program 350 tested safety appurtenances
- Identify application of highway safety appurtenances, why they are used, when and where they should be used, and what is necessary to ensure their function
- Design the placement of, and determine the need for, longitudinal barriers
- Use required installation, construction, and maintenance procedures for proprietary longitudinal barriers, terminals, transitions, crash cushions, bridge railings, and sign supports
- Recognize substandard or potentially hazardous highway appurtenances and features
- Develop alternatives to eliminate, correct, or mitigate unsatisfactory operational characteristics of existing safety devices

Target Audience

Highway engineers, including local personnel involved in the design, construction, or maintenance of highway safety appurtenances and features. This course is suitable for all local, State, and Federal employees that are involved with the installation and repair of highway appurtenances.

Training Level: Accomplished

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380069

Course Title

Road Safety Audits/Assessments

Performing effective road safety audits/assessments, (RSAs), improves safety and demonstrates to the public an agency's dedication to crash reduction. An RSA is a formal safety performance examination of an existing or future road or intersection by an independent audit team. The RSA training provides practical information on how to conduct an RSA, select a location, and build an independent, multi-disciplinary team. The costs, time, benefits, and common myths and concerns surrounding RSAs will be discussed. Participants learn how to improve transportation safety by applying a new proactive approach. Emphasis is placed on using low cost safety improvements as well as understanding the interaction between the highway and all road users.

The training includes hands-on application of the training materials, which includes information on each stage of a road safety audit and easy-to-use-prompt lists. A copy of "FHWA Road Safety Audit Guidelines" is provided.

Outcomes

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

- Express the road safety audit process terminology
- Perform a simple road safety audit, as a member of a team
- Assess the benefits of a road safety audit on a local or statewide basis

Target Audience

Personnel who are likely to serve on a road safety audit team including Federal, State, local transportation personnel, first responders and consultants who conduct highway safety studies should also attend.

Training Level: Accomplished

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380070

Course Title

Highway Safety Manual Practitioners Guide for Geometric Design Features

This course includes both 2-lane and multi-lane highways and provides a proven methodology for the safety performance of geometric design decisions in a like manner to that of predicting capacity and level of service based upon large scale definitive research. The crash prediction models for total crashes and cross-section related crashes based upon lane width, shoulder width, roadside hazard, traffic volume (exposure) and other characteristics are presented. Examples of safety performance prediction are presented for highway segments and intersections.

Discussion of research and the interactive effects of lane and shoulder widths, hazard rating, and access density (driveways) on safety performance are presented. Each student receives a copy of the "Safety Effects of Highway Design Features" manual.

IMPORTANT: Participants should bring a scientific notation calculator as the course involves calculating decimal value to decimal power for crash prediction values.

Outcomes

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

- Recognize the safety effects of geometric design features
- Predict the safety performance of geometric design features
- Compare alternative designs based upon an assessment of the safety effects of geometric design features

Target Audience

State and local highway engineers and consultants involved in the design of both two-lane rural and/or multilane highways.

Training Level: Accomplished

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380070A

Course Title

Highway Safety Manual Practitioners Guide for Two-Lane Rural Highways

This course provides a proven methodology for the safety performance of geometric design decisions in a like manner to that of predicting capacity and level of service based upon large scale definitive research. The crash prediction models for total crashes and cross-section related crashes based upon lane width, shoulder width, roadside hazard, traffic volume (exposure) and other characteristics are presented. Examples of safety performance prediction are presented for highway segments and intersections.

Discussion of research and the interactive effects of lane and shoulder widths, hazard rating, and access density (driveways) on safety performance are presented. Each student receives a copy of the "Safety Effects of Highway Design Features for Two-Lane Rural Highways" manual.

IMPORTANT: Participants should bring a scientific notation calculator as the course involves calculating decimal value to decimal power for crash prediction values.

Outcomes

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

- Recognize the safety effects of geometric design features
- Predict the safety performance of geometric design features
- Compare alternative designs based upon an assessment of the safety effects of geometric design features

Target Audience

State and local highway engineers and consultants involved in the design of two-lane rural highways.

Training Level: Accomplished

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380070B

Course Title

Highway Safety Manual Practitioners Guide for Multilane Highways

This course provides proven methodology for the safety performance of geometric design decisions for multilane highways in a like manner to that of predicting capacity and level of service based upon large scale definitive research. The crash prediction models for total crashes based upon lane width, shoulder width, roadside hazard, traffic volume (exposure) and other characteristics are presented. Examples of safety performance prediction are presented for highway segments and intersections.

Discussion of research and the interactive effects on safety performance for median width and barriers, of access (driveways) and side streets and intersection turning lanes are presented. Each student receives a copy of the "Safety Effects of Highway Design Features" manual.

IMPORTANT: Participants should bring a scientific notation calculator as the course involves calculating decimal value to decimal power for crash prediction values.

Outcomes

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

- Recognize the safety effects of geometric design features
- Predict the safety performance of geometric design features
- Compare alternative designs based upon an assessment of the safety effects of geometric design features

Target Audience

State and local highway engineers and consultants involved in the design of multilane highways.

Training Level: Accomplished

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380071

Course Title

Interactive Highway Safety Design Model

This course instructs highway design project managers, planners, designers, and traffic and safety reviewers in the application of the Interactive Highway Safety Design Model (IHSDM) software and provides guidance on interpretation of the output.

IHSDM is a suite of software tools to evaluate safety of two-lane rural highways. The software, developed for FHWA, was released in 2003 after several years of research and development to provide state-of-the-art techniques for safety analysis. IHSDM contains five tools that can be used to apply the most recent safety analysis techniques in a relatively straightforward and automated manner. For more information about IHSDM, go to http://www.tfhrc.gov/safety/ihsdm/ihsdm.htm.

Participants gain hands-on experience with the software. Therefore, the training facility must be equipped with computers. There should be no more than two participants per computer. Minimum system specifications for the computers are as follows: Operating System - Microsoft Vista, Windows XP or Windows 2000 Professional; HTML Browser - Microsoft Internet Explorer, Netscape Navigator, or Foxfire; Spreadsheet Program, Microsoft Excel or equivalent; Hardware - At least 450 MHz Pentium III (or equivalent) CPU, 256 MB RAM or greater desirable, 800x600 high colors (16 bit) display; and 300 MB free disk space

Outcomes

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

- Describe key capabilities and limitations of IHSDM
- Evaluate a two-lane rural highway using IHSDM
- Recognize when and how IHSDM can be used in the project development process

Target Audience

Highway design project managers, planners, designers, and traffic and safety reviewers with at least one or two years of experience with highway design, preferably two-lane rural highway design.

Training Level: Accomplished

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380073

Course Title

Fundamentals of Planning, Design and Approval of Interchange Improvements to the Interstate System

This course provides participants with key knowledge of freeway systems and interchange types, FHWA policy on justification for interchange access approval, and applications of technical knowledge and policy understanding to interchange project decisions. Topics covered in this course include service and system interchange types, 8-point interchange justification process, interchange study and selection process, fundamentals of freeway system operations and planning, urban freeway diagnosis, geometric design considerations, and technical and documentation procedures.

Outcomes

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

- Compare and contrast design and operational attributes of different of freeway interchange types
- Interpret and apply the elements of the FHWA Policy for approving Interstate access
- Describe and apply principles of good freeway systems and interchange design
- Describe the application of design exceptions to interchange project decisions
- Describe the content of an appropriate safety and operational analysis to support an access request
- Compare alternative designs based upon an assessment of appropriate measures of effectiveness (MOEs)
- Apply an interchange design study procedure

Target Audience

The target audience for the course includes traffic engineers and transportation professionals with one to five years of working experience.

Training Level: Accomplished

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380074

Course Title

Designing and Operating Intersections for Safety

Through numerous interactive discussions, exercises, and case studies, this course examines various aspects of design and operations and how they affect the safety of an intersection and its various users. The full course contains a total of six modules: Users and Intersections, Diagnostics and Countermeasures, Geometric Design, Unsignalized Intersections, Signalized Intersections, and Case Studies.

Outcomes

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

- List the user groups to consider
- Describe user characteristics and how they affect intersection design and safety
- Describe approaches to balance needs of different user groups
- Review how to determine which intersections have poor crash experience
- Review how to assess causes of high crash experience or high potential
- Describe how to select appropriate countermeasures
- Define intersection design objectives, controls, and focus area
- Identify key safety-related intersection geometric design decisions, applications, and assumptions
- Describe the measured and potential safety improvements that result from key intersection geometrics
- Describe safety issues at unsignalized intersections
- Summarize MUTCD requirements for signalizing an intersection
- Select appropriate countermeasures to address safety issues at unsignalized intersections
- Identify common safety concerns at signalized intersections
- Discuss contributing factors to safety concerns
- Select countermeasures to the safety of signalized intersections

Target Audience

The target audience for the course includes traffic and design engineers with one to five years of work experience.

Training Level: Accomplished

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380075

Course Title

New Approaches to Highway Safety Analysis

The primary purpose of this course is to help attendees gain an understanding of the Highway Safety Improvement Program (HSIP) process, safety engineering principles and human factors issues related to traffic and road safety. It also provides the participant with an explanation of the latest methods for identifying collision causes and selecting cost-effective safety improvements. Finally, this course will serve as a prerequisite for those who will be utilizing SafetyAnalyst, a set of software tools currently under development that are designed to assist State and local agencies to improve the decisionmaking process in implementing safety improvement projects.

Outcomes

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

- Describe the components of the Highway Safety Improvement Program (HSIP)
- Explain safety engineering principles relevant to planning for highway safety improvement measures specific to three types of crashes ¿ roadway departures, intersection-related, and pedestrian
- Describe the relevance and impact of human factors in the planning of highway safety improvement measures for three types of crashes ¿ roadway departures, intersection-related, and pedestrian
- Determine strategies for the selection of cost-effective highway safety improvement measures for three types of crashes ¿ roadway departures, intersection-related, and pedestrian

Target Audience

This course is intended primarily for State DOT staff involved with the Highway Safety Improvement Program, and for FHWA safety specialists. These specialists include engineers, planners, and technicians.

Training Level: Accomplished

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380076

Course Title

Low-Cost Safety Improvements Workshop

This course provides a comprehensive presentation of low-cost, ready-to-use improvements that enhance the safety of highways. The course covers a synthesis of countermeasures and their associated crash reduction factors as identified in the "AASHTO Strategic Highway Safety Plan -- NCHRP 500 Guidebooks." Countermeasures for specific areas of highway safety, including roadside hazards; signing, markings, and lighting; traffic control devices; intersections; traffic signals; and railroad grade crossings are discussed. The course also introduces recent low-cost safety improvements that have been developed by States and local engineers. Through exercises, participants learn how to analyze highway safety situations and apply appropriate countermeasures to those situations.

Outcomes

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

- Identify appropriate engineering countermeasures from crash patterns
- Recognize deficiencies in operation/design and select appropriate countermeasures for roadside hazards
- Recognize deficiencies in safety performance of signing, markings, and lighting, and elect appropriate countermeasures
- Recognize deficiencies in operation/design of intersections and select appropriate countermeasures
- Recognize deficiencies in operation/design of traffic signals and select appropriate countermeasures
- Recognize deficiencies in operation/design of railroad grade crossings and select appropriate countermeasures
- Illustrate new and innovative low-cost safety improvement measures developed by State DOTs

Target Audience

Federal, State, and local transportation, traffic and safety engineers, and planners involved in reducing crashes.

Training Level: Accomplished

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 35

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380077

Course Title

Intersection Safety Workshop

Beginning with an introduction to intersection and crash characteristics, this course provides information on ready-to-use, direct-application safety measures for rural unsignalized and signalized intersections. Participants are presented with a synthesis of countermeasures and their associated crash reduction factors as identified in the "AASHTO Strategic Highway Safety Plan - NCHRP 500 Guidebooks." The course focuses on the application of these countermeasures and design and safety operations best practices for substantive improvements to intersection safety. During the course, participants have the opportunity to present intersection safety situations that they are currently facing and discuss appropriate countermeasures and best practices to address those situations.

Outcomes

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

- Apply models (equations) to predict the number of crashes for an intersection based upon traffic volumes
- Identify high crash intersections and recognize appropriate engineering countermeasures
- Identify crash reduction factors/crash modification factors associated with countermeasures
- Describe safety performance of intersection geometric design features and the models to quantify the safety effect
- List regulatory, warning, and guide signing and markings countermeasures and associated safety benefits
- List highway lighting countermeasures and associated safety benefits
- List traffic signal countermeasures and associated safety benefits

Target Audience

Federal, State, and local transportation traffic and safety engineers, and planners involved in reducing intersection crashes.

Training Level: Accomplished

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380078

Course Title

Signalized Intersection Guidebook Workshop

This course provides an overview of the "Signalized Intersections: Informational Guide FHWA-HRT-04-091." The guide is a comprehensive document containing methods for evaluating the safety and operations of signalized intersections and tools to remedy deficiencies. It takes a holistic approach to signalized intersections and considers the safety and operational implications of a particular treatment on all system users, including motorists, pedestrians, bicyclists, and transit users. Using the guide, participants learn to make insightful intersection assessments, understand the tradeoffs of potential improvement measures, and apply guidebook measures and best practices to reduce the incidence of intersection crashes.

Outcomes

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

- Recognize and apply fundamentals of signalized intersections in terms of user needs, geometric design, traffic design, and illumination
- Describe signalized intersection project process, safety analysis methods, and operational analysis methods
- Describe the more than 100 signalized intersection treatments and their advantages and disadvantages

Target Audience

Federal, State, and local transportation, traffic and safety engineers, and planners involved in planning, designing, operating, and remedying crash problems for signalized intersections.

Training Level: Intermediate

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380079

WBT

Course Title

AASHTO Roadside Design Guide - WEB-BASED

This course provides an overview of the AASHTO "Roadside Design Guide." Emphasis is on current highway agency policies and practices. The AASHTO "Roadside Design Guide" is the textbook for this course. You may purchase a copy of the "Roadside Design Guide" directly from the AASHTO bookstore at http://www.transportation.org/.

Outcomes

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

- Apply the clear zone concept to all classes of roadways
- Recognize unsafe roadside design features and elements and make appropriate changes
- Identify the need for a traffic barrier
- Select, design and install a traffic barrier
- Apply safety concepts to roadside features and appurtenance selection/use in work zones
- Compare alternate safety treatments and select a cost-effective design
- Identify policies and practices that are inconsistent with current state-of-the-art

Target Audience

Federal, State and local highway engineers involved in the formulation and/or application of policies and standards relating to the design of safer roadsides.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 14 HOURS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380083

WCT

Course Title

Low-Cost Safety Improvements - WEB-BASED

This course helps to equip the target audience with the knowledge and skills needed to analyze crash data, identify crash patterns, and select appropriate "low cost" countermeasures. Upon completion of this course, participants will be able to identify appropriate (i.e., cost effective) engineering countermeasures by using the Six-Step Crash Mitigation Process (CMP).

The course uses a combination of web-conferences and self-paced materials that aid in application to current safety projects. You will need access to both a telephone and internet connection to participate in the live web sessions.

Outcomes

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

- Identify appropriate engineering countermeasures from crash patterns.
- Select appropriate countermeasures for:
- Roadside hazards based upon deficiencies in operations or design.
- Deficiencies in signage, roadway markings, and lighting.
- Deficiencies in operation/design of highway intersections.

Target Audience

This course is intended for individuals responsible for identifying, recommending, selecting, installing and/or maintaining appropriate low cost countermeasures to help reduce the number of crashes.

Training Level: Basic

Fee: 2013: $150 Per Person; 2014: N/A

Length: 10 HOURS (CEU: 1 UNITS)

Class Size: MINIMUM: 10; MAXIMUM: 45

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380085

Course Title

Guardrail Installation Training

This course provides instruction in the principles and practices of guardrail installation and performance. Instruction focuses on the Length of Need of barriers (including a field expedient procedure) but also includes instruction on guardrail transitions and guardrail end treatments. Participants will evaluate existing installations for proper performance characteristics.

Outcomes

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

- Explain the "Roadside Safety" problem and the warrants for barrier.
- Explain how barrier systems operate.
- Describe the installation principles necessary for proper barrier operation.
- Describe the installation principles necessary for proper terminal operation.
- Inspect barrier systems for proper installation and operation.

Target Audience

Due to the amount of material in this one day course, the pace is best suited for the experienced guardrail installer or inspector. Others that may benefit from the course include construction and maintenance engineers.

Training Level: Accomplished

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380088

Course Title

Highway Safety Manual Practitioners Guide for Horizontal Curves

This course provides participants with some tools for evaluating the safety performance of horizontal curves along with suggestions for countermeasures that could improve safety performance. Topics covered in this course include the size and magnitude of the problem, tools for identifying and prioritizing horizontal curve safety, low cost maintenance countermeasures, and a discussion of engineering countermeasures.

Outcomes

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

- Describe the magnitude of the safety issues and the trends in their State
- Describe two tools available for identifying problem locations with or without crash data
- Explain how maintenance activities can improve safety performance of horizontal curves
- Identify several engineering options available that can improve the safety performance of horizontal curves
- Identify operational and public policy issues that can improve the safety performance of horizontal curves

Target Audience

The target audience for the course includes Federal, State and local highway engineers, consulting highway design engineers, and maintenance workers. This training program is intended for individuals that have the responsibility for identifying, recommending, selecting, installing and/or maintaining appropriate countermeasures to help improve the safety of horizontal curves.

Training Level: Intermediate

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380089

Course Title

Designing for Pedestrian Safety

The Designing for Pedestrian Safety course is intended to help state and local transportation engineering professionals address pedestrian safety issues through design and engineering solutions. The training course includes a field exercise in the application of the principles, concepts, and strategies covered in the course. Also the participants will share and prioritize potential policies, programs, and strategies.

Outcomes

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

- Describe the influence of planning factors: land use, street connectivity, access management, site design, and level of service.
- Describe how pedestrians should be considered and provided for during the planning, design, work zone, maintenance, and operations phases.
- Describe how human behavior affects the interaction between pedestrians and drivers
- Identify good practices and effective solutions to enhance pedestrian safety and accessibility.

Target Audience

This course is intended primarily for state DOT staff involved with the Highway Safety Improvement Program, and for FHWA Safety Specialists. These specialists shall include: Engineers, planners, traffic safety and enforcement professionals, public health and injury prevention professionals, and decision-makers who have the responsibility of improving pedestrian safety at the state or local level.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380090

Course Title

Developing a Pedestrian Safety Action Plan

The Developing a Pedestrian Safety Action Plan course is designed to help state and local officials learn "HOW TO" address pedestrian safety issues in the development of a pedestrian safety action plan, program, and activities tailored to their community. It is also intended to assist agencies in the further enhancement of their existing pedestrian safety plan, programs, and activities, including involving partners and stakeholders, collecting and analyzing data and information, prioritizing issues and concerns, selecting and implementing an optimal combination of education, enforcement, engineering strategies. The training course includes a field exercise in the application of the principles, concepts, and strategies covered in the course. Also the participants will share and prioritize potential policies, programs, and strategies.

Outcomes

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

- Develop and implement a Pedestrian Safety Action Plan addressing your specific issues, problems, needs and resources
- Describe how pedestrians should be considered and provided for during the planning, design, work zone, maintenance, and operations phases.
- Describe how human behavior affects the interaction between pedestrians and drivers
- Identify good practices and effective solutions to enhance pedestrian safety and accessibility.

Target Audience

This course is intended primarily for state DOT staff involved with the Highway Safety Improvement Program, and for FHWA Safety Specialists. These specialists shall include: Engineers, planners, traffic safety and enforcement professionals, public health and injury prevention professionals, and decision-makers who have the responsibility of improving pedestrian safety at the state or local level.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380091

Course Title

Planning and Designing for Pedestrian Safety

The Planning and Designing for Pedestrian Safety is a combination of the information from the 2-day "Developing a Pedestrian Safety Action Plan" (NHI ¿ 380089) and 2-day "Designing for Pedestrian Safety" (NHI ¿ 380090) course. This comprehensive course is designed to help state and local officials learn "HOW TO" address pedestrian safety issues in the development of a pedestrian safety action plan, and specific programs and activities tailored to their community. It is also intended to assist agencies in the further enhancement of their existing pedestrian safety plan, programs, and activities, including involving partners and stakeholders, collecting and analyzing data and information, prioritizing issues and concerns, selecting and implementing an optimal combination of education, enforcement, engineering strategies. This course goes into more detail on engineering strategies than the "Developing a Pedestrian Safety Action Plan" (NHI ¿ 3800089) course. This course includes two field exercises in the application of the principles, concepts, and strategies covered in the course. Also the participants will share and prioritize potential policies, programs, and strategies.

Outcomes

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

- Describe the role that planning and street design play in pedestrian safety.
- Demonstrate how pedestrians should be considered and provided for during the planning, design, work zone maintenance, and operations phases of the pedestrian safety action plan.
- Describe how human behavior issues related to pedestrians and drivers interacting safely and common pedestrian crash types.
- Identify good practices and effective solutions to enhance pedestrian safety and accessibility.
- Explain the significance of land-use, street connectivity, and site design in helping to make a safer pedestrian environment.
- Recognize human behavior issues related to pedestrians and drivers interacting safely and common pedestrian crash types.
- Collect and analyze data in a meaningful way to identify safety deficiencies and priorities for improvement.
- Employ commonly used and effective pedestrian crash countermeasures
- Effectively involve stakeholders to create publicly supported and trusted policies, programs, and projects.

Target Audience

Engineers, planners, traffic safety and enforcement professionals, public health and injury prevention professionals, and decision-makers who have the responsibility of improving pedestrian safety at the state or local level.

Training Level: Basic

Fee: 2013: $500 Per Person; 2014: N/A

Length: 3 DAYS (CEU: 1.8 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380093

WCT

Course Title

Application of Crash Modification Factors (CMF)

This course focuses on the application of Crash Modification Factors to select countermeasures. The course covers the project development cycle (starting from network screening and site selection for safety review), diagnostics of safety concerns, cost-benefit evaluation, and countermeasure selection.

This course combines a web-conference and a self-paced lesson that aids in application to your current projects. You will need access to both a telephone and internet connection to participate in the live web sessions.

Outcomes

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

- Explain how Crash Modification Factors are used to estimate the safety effects of highway improvements.
- Apply Crash Modification Factors to compare and select highway safety improvements.

Target Audience

This course is intended for individuals that have the responsibility for identifying, recommending, selecting, installing, and maintaining appropriate countermeasures to help reduce the number of crashes.

Training Level: Basic

Fee: 2013: $125 Per Person; 2014: N/A

Length: 3 HOURS (CEU: .3 UNITS)

Class Size: MINIMUM: 10; MAXIMUM: 45

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380094

Updated Training WCT

Course Title

Science of Crash Modification Factors

This course provides participants with the knowledge and skills needed to critically assess the quality of Crash Modification Factors (CMFs). The course covers concepts underlying the measurement of safety and the development of CMFs, key statistical issues that affect the development of quality CMFs, key methodological issues that affect the development of quality CMFs, and the general and methodological issues and statistical thresholds used to recognize quality CMFs.

This course combines self-paced material that will orient you to CMFs and what constitutes a quality CMF followed by a web-conference that will help you evaluate CMFs found in the CMF Clearinghouse. You will need access to both a telephone and internet connection to participate in the live web session.

Outcomes

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

- Explain the concepts of Crash Modification Factors (CMFs) and the measurement of safety.
- List and describe important statistical issues that affect safety research.
- Describe and compare three methodologies for evaluating the safety effect of a countermeasure.
- Select the most appropriate CMF for a given application.

Target Audience

The professionals who would be most interested in completing this course are those who are responsible for identifying, recommending, selecting, and installing appropriate countermeasures to help reduce the number of crashes.

Training Level: Intermediate

Fee: 2013: $125 Per Person; 2014: N/A

Length: 3 HOURS (CEU: .3 UNITS)

Class Size: MINIMUM: 10; MAXIMUM: 45

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380095

New Training

Course Title

Geometric Design: Applying Flexibility and Risk Management

Highway designers often face complex trade-offs when developing projects. A "quality" design may be thought of as satisfying the needs of a wide variety of users while balancing the often competing interests of cost, safety, mobility, social and environmental impacts. Applying flexibility and risk management in highway design requires more than simply assembling geometric elements from the available tables, charts and equations of design criteria. This course provides participants with knowledge of the functional basis of critical design criteria to enable informed decisions when applying engineering judgment and flexibility. The course exercises and case studies provide practical applications of current knowledge from research and operational experience of human factors and safety effects for various design elements.

Outcomes

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

- Define the relationship among design criteria, design guidelines and design standards
- Describe the concepts of design speed, target speed, posted speed and operating speed
- Describe the FHWA Policy for Design Standards and Design Exceptions
- List the 13 controlling geometric design criteria that require a formal written design exception from FHWA
- Evaluate the safety effects and qualitative risk of proposed design exceptions
- Evaluate the effectiveness and appropriateness of mitigation strategies for design exceptions
- Describe the relationship between safety and key geometric features of highway alignment and cross section
- Describe the applicability of a human-centered approach to geometric design considerations

Target Audience

This course is targeted toward engineers that are involved in applying engineering judgment in the selection of design criteria and in the assessment of design exceptions. It is most practical for practicing engineers and highway decision makers from state highway agencies, local agencies, design consultants, and FHWA field offices.

Training Level: Accomplished

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380096

New Training

Course Title

Modern Roundabouts: Intersections Designed for Safety

The modern roundabout is a proven strategy for improving the safety and operations of intersections. The physical characteristics of a well-designed modern roundabout reduce the frequency and severity of intersection crashes for all users including pedestrians and bicyclists. This course highlights the benefits of modern roundabouts and gives participants the fundamental knowledge needed to plan and consider applying roundabout intersection projects in their area. This course is an introductory level course with a blend of technical and non-technical planning, design and operations considerations.

Outcomes

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

- Distinguish a modern roundabout from other types of circular intersections
- Describe the safety advantages of roundabouts
- Describe the operational advantages roundabouts provide
- Identify what type of locations roundabouts may be appropriate
- Describe strategies to overcome common barriers to implementation of roundabouts, such as negative public perceptions
- Describe the key considerations when planning an area's first roundabout
- Apply basic traffic operational models and capacity calculations for roundabouts
- Describe key geometric design principles of a modern roundabout
- Apply signing and marking suggested practices
- Apply design strategies for pedestrians and bicyclists

Target Audience

Transportation professionals with at least one year of working experience

Training Level: Basic

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380097

Course Title

An Overview of the Railroad-Highway Grade Crossing Improvement Program

A highway-rail grade crossing is the intersection of two transportation modes: railroads and highways. Many crossings are "at-grade" which significantly increases incidents of often-fatal crashes between trains and motor vehicles. Over the past 30 years, there have been substantial reductions in crashes and fatalities at highway-rail grade crossings due to the efforts of federal, state, and local governments, the railroads, and non-profit organizations such as Operation Lifesaver, Inc. Nonetheless, crashes still occur.

The goal of this one-day training course is to provide attendees with the knowledge and tools needed to plan, implement, and evaluate safety improvements to highway-rail grade crossings. The course presents:

An overview of the regulations, responsibilities, and funding mechanisms that apply to today's Highway-Rail Grade Crossing (HRGX) program.

The steps involved in planning, implementing, and evaluating highway-rail grade crossing improvement projects.

Outcomes

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

- Identify the highway-rail grade crossing program components and processes and the regulations that apply to the program.
- Identify highway-rail grade crossing improvement work that is required as part of highway improvement projects under other federal-aid programs.
- Describe the purpose and benefits of assessing highway-rail grade crossing safety and operations.
- Explain considerations for implementing and maintaining a grade crossing improvement project.
- Identify techniques and tools for improving highway-rail grade crossing safety and operations.

Target Audience

The target audience for this training course includes: State DOT personnel involved in highway-rail grade crossings; Public project engineers from railroad industries; Transportation consultants; FHWA safety engineers; MPO/City/county DOT personnel; and FRA crossing managers.

Training Level: Basic

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380098

New Training WBT

Course Title

TCCC Maintenance of Traffic for Technicians - WEB-BASED

New Course No. 133116

This course is currently being updated to reflect changes in the MUTCD. Until this update is complete, please check all references to the latest MUTCD to make sure they are current.

The Maintenance of Traffic for Technicians Web-based training presents information about the placement of, field maintenance required for, and inspection of traffic control devices. In addition, drafting work zone traffic control plans and flagging are discussed.

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to introduce maintenance of traffic for technicians. This training is recommended for the TCCC levels I and II.

We've broken this training into five modules:

1. General Terms and Procedures
2. Traffic Channelizing and Control Devices
3. Traffic Control Zones
4. Flagger Operations
5. Traffic Control Zone Operations

Outcomes

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

- Identify the correct placement of work zone traffic control devices
- Perform field maintenance of work zone traffic control devices
- Inspect placement or operational functions of work zone traffic control devices
- Generate work zone traffic control plans
- Explain the basics of flagging

Target Audience

This training is designed for all persons with duties that include: Direct responsibility for placement of work zone traffic control devices; Direct responsibility for field maintenance of work zone traffic control devices; Inspection of the placement or operational function of work zone traffic control devices; and Drafting or electronic generation of work zone traffic control plans. The target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380099

New Training WBT

Course Title

TCCC Maintenance of Traffic for Supervisors - WEB-BASED

New Course No. 133117

This course is currently being updated to reflect changes in the MUTCD. Until this update is complete, please check all references to the latest MUTCD to make sure they are current.

The Maintenance of Traffic for Supervisors Web-based training presents information about the placement of, field maintenance required for, and inspection of traffic control devices. In addition, drafting work zone traffic control plans and flagging are discussed. This training focuses on the design of a traffic control plan, and how and why one needs to operate and implement traffic control in the work zone.

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to introduce maintenance of traffic for supervisors. This training is recommended for the TCCC levels III and IV.

We've broken this training into five modules:

1. Fundamental Principles of Temporary Traffic Control Zones
2. Temporary Traffic Control Devices
3. Traffic Control Zones
4. Transportation Management Plans
5. Flagger Operations

Outcomes

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

- Describe how to create clear, organized traffic control plans
- Identify acceptable temporary traffic control devices
- Determine good and bad flagging techniques

Target Audience

This training is designed for personnel with responsibility or authority to decide on the specific maintenance of traffic requirements to be implemented. These positions include engineers responsible for work zone traffic control development and work site traffic supervisors. The target audience could be geographically dispersed, in need of immediate training or information, or not have access to travel funds.

Training Level: Intermediate

Fee: 2013: $0 Per Person; 2014: N/A

Length: 5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380100

WCT

Course Title

Using IHSDM

The Interactive Highway Safety Design Model (IHSDM) is a suite of software tools that quantitatively analyze and evaluate safety and operational effects of geometric design decisions on two-lane rural highways. FHWA expanded the IHSDM Crash Prediction Module (CPM) in 2010 to implement The Highway Safety Manual's Part C (Predictive Method), which highlights predictive methods for estimating the expected average crash frequency of a network, facility, or individual site. The IHSDM contains six evaluation modules: Crash Prediction, Policy Review, Design Consistency, Intersection Review, Traffic Analysis, and Driver/Vehicle.

The IHSDM course is a highly-interactive training that gives participants the opportunity to use the actual IHSDM software tools to evaluate and analyze real highway designs. NHI recently updated the delivery format and training materials for the course. The training materials were updated to reflect the expanded CPM. The new delivery format consists of 4 hours of self-paced, Web-based trainings and four 2-hour sessions of virtual, instructor-led trainings, known as Web-conference training.

Outcomes

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

- Explain the scope and uses for the IHSDM tool.
- Input rural highway data to IHSDM.
- Explain the purpose of each of the six IHSDM modules.
- Demonstrate the workflow for each IHSDM module.
- Interpret and apply data from IHSDM reports and graphs to make rural highways safer.

Target Audience

The Using IHSDM Course is designed for personnel working on highway design projects who will be directly interacting with the IHSDM software tools or applying the data generated by them. The IHSDM course benefits highway design project managers, planners, designers, safety engineers, and other personnel responsible for reviewing operations and safety on rural highways. Participants should have general familiarity with highway design elements and terminology.

Training Level: Intermediate

Fee: 2013: $200 Per Person; 2014: N/A

Length: 12 HOURS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 10; MAXIMUM: 45

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380103

New Training

Course Title

Highway Safety Improvement Program Manual

The Highway Safety Improvement Program (HSIP) is a core Federal-aid highway program with the primary purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads through the implementation of infrastructure-related highway safety improvements. The HSIP is a roadway safety management process that consists of three main components: Planning, Implementation and Evaluation. While the HSIP is a Federal program, it is important to note the program components are applicable to road safety management processes at all levels of government. With a focus on results, the HSIP emphasizes a data-driven, strategic approach to improving highway safety.

The this course introduces safety professionals to new procedures and technologies, and provide information on topics ranging from core safety concepts to detailed discussions of technical methods for data-driven safety planning which will result in successful HSIP efforts.

Outcomes

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

- Recognize HSIP purpose, structure, and benefits
- Describe and use data-driven methods to identify sites for potential safety improvement
- Identify steps to conduct engineering studies and approaches to countermeasure identification
- Indentify HSIP funding requirements
- Indentify methods to measure overall HSIP program success and countermeasure effectiveness
- Describe the importance of using evaluation results in future efforts

Target Audience

The course is intended for both new and veteran state and local transportation professionals in the areas of data collection and analysis, safety management processes, and planning and project management.

Training Level: Basic

Fee: 2013: $4500 Per Course; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380105

New Training

Course Title

Highway Safety Manual Practitioners Guide for Intersections

The new Highway Safety Manual is the state of the art "toolbox" for the "science of safety" for the analysis and prediction of crash frequency for highways and streets. The HSM reflects the evolution in safety analysis from descriptive methods to quantitative, predictive analyses.

The Highway Safety Manual (HSM) provides analytical tools and techniques for quantifying the potential effects on crashes as a result of decisions made in planning, design, operations, and maintenance. A universal objective is to reduce the number and severity of crashes within the limits of available resources, science, and technology, while meeting legislatively mandated priorities. The information in the HSM is provided to assist agencies in their effort to integrate safety into their decision-making processes. The HSM is intended to be a resource document that is used nationwide to help transportation professionals conduct safety analyses in a technically sound and consistent manner thereby improving decisions made based on safety performance.

This course introduces practitioners at the state, county, metropolitan planning organization (MPO), or local level to the new techniques and knowledge in the HSM. The users and professionals described above include, but are not limited to transportation planners, highway designers, traffic engineers, and other transportation professionals who make discretionary road planning, design and operational decisions.

Outcomes

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

- Recognize the Highway Safety Manual purpose, structure, and benefits
- Describe and apply Safety Performance Functions and Crash Modification Factors to analyze and predict crash frequency performance of highways, streets, and intersections

Target Audience

The course is intended practitioners at the state, county, metropolitan planning organization (MPO), or local level.

Training Level: Basic

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380106

New Training WBT

Course Title

Highway Safety Manual Online Overview

Implementation of the HSM requires an understanding of the 'Science of Safety' which supports the quantitative methodologies presented in the manual. This course is an overview of the HSM structure, concepts and principles.

The free selection format of the course allows the student to select modules and concepts of interest in the order preferable to their:

· learning style

· time availability

· and previous knowledge level.

It includes an introduction of terminology, examples of the Roadway Safety Management Process (Part B) and Predictive Methods (Part C), explains the relationship of Crash Modification Factors (CMFs) to decision making and quantitative safety analysis, and human factors. FHWA will continue to develop courses, products and services to meet the needs of the HSM implementation community.

Outcomes

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

- Identify the parts of HSM and what they are used for.
- Explain the overall concepts and principles promoted in HS for safety decision making.
- Recognize the benefits of using a quantitative safety analysis in various stages of the transportation project development process.

Target Audience

This course is for all interested students. It is an introductory course intended to provide a broad, base level understanding of HSM.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 12 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380108

New Training WBT

Course Title

Maintenance of Drainage Features for Safety - WEB-BASED

The purpose of this training is to highlight common roadway drainage problems that can cause an unsafe condition and suggest inspection methods and corrective action. Maintaining roadway drainage is important for safety and for ensuring the long life of the roadway by preventing erosion of the roadway, saturation of the subbase, and damage to roadway structures. The training is broken into two modules:

Module 1: Effects of Drainage describes common roadway safety hazards and how to recognize drainage problems.

Module 2: Safe Drainage Features and Work Zones covers solutions to common roadway safety issues and work zone safety.

This training is not intended to be a design guide. Participants may want to contact their State Local Technical Assistance Program (LTAP) for more details on drainage design.

Outcomes

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

- Identify problems created by ponding and standing water on the roadway
- Describe safety issues related to ditches and side slopes
- Describe how drainage features can become safety hazards
- Identify methods for identifying drainage problems
- Recall conditions to look for during field inspections
- Explain how to fix or prevent common roadway side slope problems
- Describe work zone safety procedures

Target Audience

This training is intended to help local road agency maintenance workers understand the importance of maintaining and upgrading drainage features on their road system to avoid an unsafe condition.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380109

New Training

Course Title

Alternative Intersections and Interchanges

Transportation professionals are continually challenged with finding improved ways for satisfying the mobility needs of an increasing population. Highway intersections pose particular challenges with regard to safety and mobility as traffic volumes and congestion levels continue to increase. As a result, drivers, pedestrians, and bicyclists experience longer delays and greater exposure to safety risks. Today's traffic and safety problems are becoming increasingly more complex, and conventional intersections and interchange designs are sometimes found to be insufficient to mitigate transportation problems. Consequently, many engineers are investigating and implementing innovative treatments in an attempt to alleviate these issues.

This course provides participants with an overview of various non-traditional intersection concepts that may offer advantages compared to conventional at-grade intersections and grade-separated interchanges. The training presents the salient geometric, operational, and safety features associated with the alternative design concepts, and will illustrate how intersections are selected using an analysis tool. It also will identify potential advantages and disadvantages of each design.

Outcomes

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

- Describe key design and operation features of the six non-traditional intersections and interchanges: 1. Displaced Left-Turn Intersections; 2. Median U-turn Intersection; 3. Restricted Crossing U-Turn Intersection; 4. Quadrant Roadway Intersection; 5. Double Crossover Diamond Interchange (Diverging Diamond); 6. Displaced Left Turn Diamond Interchange
- List the advantages and disadvantages of their use
- Describe where they are best suited for existing and planned conditions
- Identify resources to acquire additional information on these designs and their implementations

Target Audience

Federal, State, and local transportation traffic and safety engineers, and planners involved in improving the performance of intersections.

Training Level: Intermediate

Fee: 2013: $300 Per Person; 2014: N/A

Length: 1 DAYS (CEU: .6 UNITS)

Class Size: MINIMUM: 22; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380110

New Training WBT

Course Title

Highway Safety Improvement Program Overview - WEB BASED

This course is intended to provide you with a basic understanding of the purpose of the Highway Safety Improvement Program (HSIP) and relationship of HSIP programs, background on data collection and quality measures, and an overview of the HSIP processes for planning, implementation and evaluation.

This training course provides a basic understanding of the purpose of the HSIP and relationship of HSIP programs, as well as a basic understanding of the HSIP processes for planning, implementation, and evaluation. Since data is the foundation of the HSIP, the course provides an overview of safety data including safety data collection and management methods, safety data sources, data quality measures, and methods for overcoming data challenges.

A primary challenge in bringing highway safety professionals, traffic and safety engineers, and transportation planners together is a lack of understanding of each area's responsibilities and a common language. The course provides a basic understanding of how the HSIP works; encourages managers to make employees knowledgeable about the program; and begins to establish a common language among HSIP practitioners. The HSIP Overview Course can help overcome the barriers to cross-discipline collaboration.

NHI hosts the HSIP Overview Course and four other Web-based HSIP-related training courses: 380113 Strategic Highway Safety Plan (SHSP) Development, 380114 SHSP Implementation, 380111 HSIP Project Identification, and 380112 HSIP Project Evaluation.

Outcomes

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

- Describe HSIP program structure;
- Recognize HSIP legislative/regulatory requirements;
- Identify potential safety data issues and method for overcoming data challenges; and
- Explain the processes involved in HSIP planning, implementation and evaluation.

Target Audience

This training course is designed for a wide range of transportation professionals from transportation agency leadership to new practitioners in the transportation safety field, HSIP managers and SHSP partners.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 4 HOURS (CEU: .4 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380111

New Training WCT

Course Title

Highway Safety Improvement Program (HSIP) Project Identification WEB-BASED

The Highway Safety Improvement Program (HSIP) Project Identification Course provides participants with the necessary background and tools needed to identify projects for the HSIP. Background knowledge critical to understanding project identification includes data analysis concepts such as regression-to-the-mean. Tools essential to the network screening process includes approaches that support systemic safety improvements and those aimed at identifying particular sites with potential for safety improvement. The course will allow participants to choose between different network screening methods by distinguishing between the data needs, strengths and weaknesses of the different approaches; identify and evaluate different countermeasures; prioritize projects based on measures of economic effectiveness; and identify potential funding sources and strategies.

Responsibilities:

You will be expected to complete ten online lessons and two facilitated Web conferences. It is recommended that you complete the modules in sequential order. You must complete all ten online lessons and participate in the two Web conferences to obtain your certificate. By passing the online test at the end of the course, you can also receive Continuing Education Units (CEUs) for the course. All participants will need their own computer with internet connection and a telephone line to participate in the Web conferences.

Outcomes

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

- Identify the need for data driven decision making in the HSIP project identification process;
- Identify data sources to use in HSIP project identification;
- Recognize fundamentals of data analysis for HSIP project identification;
- Describe the HSIP project identification process;
- Differentiate between systemic and site specific network screening processes;
- Recognize strengths and limitations of various approaches to network screening;
- Recognize the countermeasure identification process; and
- Identify methods for prioritizing countermeasures and projects for implementation.

Target Audience

The intended audience for this course is planners and engineers who conduct technical analysis to support HSIP project identification; professionals developing emphasis areas for the SHSP; and data analysts responsible for identifying sites with potential for improvement and locations for systemic improvements.

Training Level: Basic

Fee: 2013: $125 Per Person; 2014: N/A

Length: 8 HOURS (CEU: .8 UNITS)

Class Size: MINIMUM: 15; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380112

New Training WCT

Course Title

Highway Safety Improvement Program (HSIP) Project Evaluation

The Highway Safety Improvement Program (HSIP) Project Evaluation Course provides the necessary fundamentals to perform project evaluation. The course presents a description of safety effectiveness evaluation, an overview of fundamentals needed to perform safety effectiveness evaluation, and information about why safety effectiveness evaluation is important to a Highway Safety Improvement Program. Examples of project evaluation methodologies that account for regression-to-the-mean are discussed and you will be given an opportunity to calculate simple observational before-after studies, observational before-after studies with Empirical Bayes adjustment, and observational before-after studies using comparison groups.

This course can be a stand-alone course for professionals requiring an in-depth knowledge of project evaluation methods or part of a series of courses for professionals performing analysis for the HSIP process. Professionals performing analysis for the HSIP process are encouraged to complete the HSIP Overview and HSIP Project Identification courses prior to enrolling in this course.

Responsibilities:

You will be expected to complete six online lessons and two facilitated web conferences. The modules should be taken in order. Self-paced Modules 1 through 5 must be completed prior to web conference Modules 5.1 and 5.2. Module 6 is the final course module and is self-paced. You must complete all six of the online lessons and participate in the two Web conferences to obtain your certificate. By passing the online test at the end of the course, you can also receive Continuing Education Units (CEUs) for the course. All participants will need their own computer with internet connection and a telephone line to participate in the Web conference.

Outcomes

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

- Identify the role of project evaluation in the HSIP;
- Recognize data needs of each project evaluation methodology;
- Conduct project evaluation using each methodology;
- Describe how project evaluation supports the development of crash modification factors; and
- Explain how project evaluation results can benefit the planning process.

Target Audience

The intended audience for this course is planners and engineers who evaluate the safety impact of projects on crash frequency and severity and those conducting technical analysis to support HSIP project and program evaluation.

Training Level: Basic

Fee: 2013: $125 Per Person; 2014: N/A

Length: 5 HOURS (CEU: .5 UNITS)

Class Size: MINIMUM: 15; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380113

New Training WBT

Course Title

Strategic Highway Safety Plan Development

This course provides applications for States presently in the implementation stage or for those in the process of updating their SHSP. This course will also benefit regional and local agencies who are considering or in the process of developing their first regional safety plan, or updating their existing plan.

The course is designed to appeal to experienced SHSP stakeholders and those that are new to the process.

This training course provides a basic understanding of the Strategic Highway Safety Plan (SHSP) development processes. The course will benefit States presently in the implementation stage or those in the process of updating their SHSP, along with regional and local agencies that are developing or updating a regional safety plan. The intended audience for SHSP Development encompasses the many federal, state and local stakeholders which partner on state SHSPs but will be especially useful for individuals who are new to the SHSP.

The SHSP Development Course contains relevant information for all SHSP stakeholders. Many states have updated or are in the process of updating their SHSPs, and a refresher course may be helpful to the oversight committees, emphasis area team members, or as training for new stakeholders. Metropolitan Planning Organizations (MPO), counties, and communities who are encouraged by the state departments of transportation (DOT) to participate in SHSP implementation by developing local safety plans related to the SHSP will find this course instructive. New hires are continually joining the workforce, which creates a demand for a basic tutorial on the background, history, contents, development, and maintenance of the SHSP.

NHI hosts the SHSP Development Course and four other Web-based Highway Safety Improvement Program (HSIP)-related training courses: HSIP Overview, SHSP Implementation, HSIP Project Identification, and HSIP Project Evaluation.

Outcomes

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

- Identify the purpose and benefits of Strategic Highway Safety Plans (SHSPs);
- Recognize SHSP legislative/regulatory requirements;
- Identify the SHSP development process;
- Recognize the importance of data in SHSP development and implementation;
- Recognize the importance of collaboration and leadership in the SHSP development process; and
- Identify the purpose of problem identification, monitoring, and evaluation.

Target Audience

The target audience for this course encompasses a wide range of safety stakeholders involved in SHSP efforts. Stakeholders may include State departments of transportation safety engineers/specialists, transportation planning and safety professionals representing metropolitan planning organizations, local safety and planning organizations/agencies; highway safety offices; motor carrier safety offices; law enforcement agencies; EMS offices and first responders; ; nonprofit and private sector partners; others involved in transportation safety; and representatives from Federal agencies (FHWA, NHTSA, FMCSA, FTA).

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 4 HOURS (CEU: .4 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-380114

New Training WCT

Course Title

Strategic Highway Safety Plan Implementation

The Strategic Highway Safety Plan (SHSP) Implementation Course provides strategies and examples of SHSP implementation processes. It draws from the SHSP Implementation Process Model (IPM) and other sources to assist safety practitioners in managing SHSP implementation. The course recognizes the highly variable nature from one jurisdiction to another, both within and among the states which implement their SHSP according to available opportunities and resources.

While this course is primarily based on ideal practice, each State implements their SHSP according to the available opportunities and resources. Models, such as the SHSP IPM, are representations of ideal processes, and all parts of the model may not work or be necessary for all States. Regardless, this course includes take-aways for everyone. Each course participant should use the pieces that work best for their State.

This training course provides strategies and examples of Strategic Highway Safety Plan (SHSP) implementation processes that will help safety partners manage their state's SHSPs. The intended audience for the SHSP Implementation Course encompasses a wide range of safety stakeholders involved in SHSP management and implementation efforts at all levels (e.g., local, regional, state, and Federal) including: engineers (e.g., safety, traffic, design, operations, maintenance, and management); transportation planners; safety practitioners; law enforcement officers and managers; emergency responders; and nonprofit and private sector partners.

The course recognizes States implement their SHSP according to available opportunities and resources. Models, such as the SHSP Implementation Process Model (IPM) presented in this course, are representations of ideal processes, and all parts of the model may not work or be necessary for all States. The model presents the ideal framework to help states assess, compare, and adjust their own SHSP implementation efforts.

Responsibilities:

You will be expected to complete three online lessons and three facilitated Web conferences. It is recommended that Modules 1 and 2 be completed prior to any other modules. Module 6 can be taken at anytime following the first two, but should be completed prior to taking Modules 7 and 8. You must complete all eight of the online lessons and participate in the Web conferences to obtain your certificate. By passing the online test at the end of the course, you can also receive Continuing Education Units (CEUs) for the course. All participants will need their own computer with internet connection and a telephone line to participate in the Web conference.

NHI hosts SHSP Implementation and four other Web-based Highway Safety Improvement Program (HSIP)-related training courses HSIP Overview, SHSP Development, HSIP Project Identification, and HSIP Project Evaluation.

To register go to NHI Web site at www.nhi.fhwa.dot.gov and search for course number 380114

Outcomes

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

- Identify the "Essential Eight" discussed in the SHSP Implementation Process Model (leadership; communication; collaboration; data collection & analysis; Emphasis Area action plans; SHSP integration into other transportation plans; marketing; and monitoring, evaluation & feedback);
- Recognize the relationship of SHSP to other transportation plans including, the Long Range Transportation Plan, the State Transportation Improvement Program (S/TIP), the HSIP; the Highway Safety Plan (HSP), and the Commercial Vehicle Safety Plan (CVSP) ; and
- Identify effective strategies for implementing the SHSP.

Target Audience

The target audience for this course encompasses the wide range of safety stakeholders involved in SHSP management and implementation efforts at all levels (e.g., local, regional, state, and Federal) including: engineers (e.g., safety, traffic, design, operations, maintenance, and management); transportation planners; safety practitioners; highway safety office personnel; law enforcement executives and officers; EMS office personnel and emergency responders; motor carrier safety office personnel; and nonprofit and private sector partners; others involved in transportation safety; and Federal representatives (FHWA, NHTSA, FMCSA, and FTA).

Training Level: Basic

Fee: 2013: $125 Per Person; 2014: N/A

Length: 4 HOURS (CEU: .4 UNITS)

Class Size: MINIMUM: 0; MAXIMUM: 0

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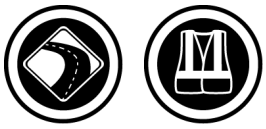

Course Number

FHWA-NHI-381001

New Training WBT

Course Title

TCCC Safety Orientation - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide a general safety awareness orientation. This training will teach that safety is everyone's responsibility. Remember the motto: "Do it safely, or don't do it!" Thanks to SCDOT and IDOT for their contributions to this training. This training is recommended for the Transportation Curriculum Coordination Council levels I and II.

Prevention of injury and safeguarding health is the responsibility of everyone - both management and employee. The safety and health of employees is the overriding concern in all phases of operations.

Completion of the first module will provide you with a general awareness of policy, responsibilities, what to wear, tools, hazards, and personal protective equipment (PPE). The second module will cover proper housekeeping practices, critical elements of hazard communication, confined spaces, procedure for lockout or tagout, and components of health and safety policies.

Outcomes

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

- Identify the reasons for having a safety policy
- Describe the employee and supervisor responsibilities at the workplace
- Identify what is appropriate and safe to wear to work
- Describe the different types of tools and the proper ways to use them
- Describe standard operating procedures to control for hazards
- Identify the components of personal protective equipment (PPE)
- Identify proper housekeeping practices
- Describe the critical elements of hazard communication
- Define confined spaces
- Describe the procedure for lockout or tagout
- Identify the important components of health and safety policies

Target Audience

This training would be beneficial to anyone that is involved with providing a safe work place, safe equipment, proper materials, and establishing and insisting upon safe methods and practices at all times.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-381002

New Training WBT

Course Title

TCCC Safe Use of Hand and Power Operated Tools - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI and has been designed for someone learning the basic steps in tool safety. This training is recommended for the Transportation Curriculum Coordination Council levels I and II.

Hand and power tools are a common part of our everyday lives and are present in nearly every industry. These tools help us to easily perform tasks that otherwise would be difficult or impossible. However, these simple tools can be hazardous and have the potential for causing severe injuries when used or maintained improperly. Special attention toward hand and power tool safety is necessary in order to reduce or eliminate these hazards

In the process of removing or avoiding the hazards, workers must learn to recognize the hazards associated with the different types of tools and the safety precautions necessary to prevent those hazards.

In this training we'll discuss the proper use and maintenance of hand tools and a variety of power tools. This is a basic course in the safe use of hand and power operated tools. However, it does not go into regulatory compliance or manufacturer's instructions.

For more information on hand and power operated tool safety, contact your State safety office or the manufacturer.

Outcomes

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

- Describe how to properly and safely use a hand tool
- Describe how to properly and safely use a power tool
- List five types of power tools
- List the five general safety rules for power tools

Target Audience

This course is designed for any individuals wanting to learn more about hand and power tool safety.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-381004

New Training WBT

Course Title

TCCC CDL Series - General Knowledge - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI has been designed for someone interested in commercial driver's license (CDL) general knowledge. This training is recommended for the Transportation Curriculum Coordination Council levels I and II or anyone interested in obtaining a CDL.

This training contains the general knowledge and safe driving information that all commercial drivers should know. It is broken into three modules:

Module 1 reviews vehicle control, shifting gears, seeing the road, communicating, speed control, and space management.

Module 2 covers night driving, driving in cold and hot weather, mountain driving, and railroad crossings.

Module 3 discusses seeing hazards, driving and road emergencies, staying alert and fit to drive, and transporting hazards.

This general knowledge training does not have specific information on air brakes or pre-trip inspection. You may complete other training in the CDL series to learn more about them.

For more information on the CDL examination and requirements that apply to your State, contact your State license agencies.

Outcomes

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

- Describe the procedures in controlling your vehicle and shifting gears
- Define the steps to seeing the road in various situations
- Recognize the importance of signaling and communicating your presence
- Identify the important components of speed control and space management
- Describe the proper ways to drive at night
- Identify the correct practices for driving in cold weather and hot weather
- Describe the procedures for driving on a mountain
- Recognize the proper way to cross a railroad
- Describe the procedures in responding to driving emergencies and emergencies on the road
- Identify the guidelines to staying alert and fit to drive
- Define the proper way to transport hazardous materials

Target Audience

This course is designed for any individuals wanting to learn more about commercial driver's license (CDL) general information.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 3 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-381005

New Training WBT

Course Title

TCCC CDL Series - Air Brakes - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI has been designed for someone interested in commercial driver's license (CDL) air brake systems. This training is recommended for the Transportation Curriculum Coordination Council levels I and II or anyone interested in obtaining a CDL.

In this training we'll discuss the parts of an air brake system, dual air brake systems, how to inspect your air brake system, and how to effectively use your air brake system. If you want to drive a truck or bus with air brakes, or pull a trailer with air brakes, you'll need to take a test on this material.

This training contains information on air brakes system that all commercial drivers should know. It is broken into two modules:

Module 1 consists of air brake system parts and dual air brakes systems.

Module 2 consists of inspecting air brakes and using air brakes.

This air brakes training does not have specific information on general knowledge or pre-trip inspection. You may complete other training in the CDL series to learn more about them.

For more information on the CDL examination and requirements that apply to your State, contact your State license agencies.

Outcomes

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

- Identify the important parts of the air brake system
- Define dual air brakes
- Recognize key elements in the air flow process of the dual air brake system
- Identify the important components of air brakes inspection
- Recognize the proper ways to use air brakes

Target Audience

This course is designed for any individuals wanting to learn more about commercial driver's license (CDL) air brake systems.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-381006

New Training WBT

Course Title

TCCC CDL Series - Pre-Trip Inspection - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI has been designed for someone interested in commercial driver's license (CDL) pre-trip inspection. This training is recommended for the Transportation Curriculum Coordination Council levels I and II or anyone interested in obtaining a CDL.

This is a basic course in the area of pre-trip inspection. This training covers different parts of the vehicle you would check before a trip. We'll approach the different parts of the vehicle in the order that we would in a standard pre-trip inspection. It is broken into two modules:

Module 1 covers front of the vehicle; engine compartment; engine start and cab check; steering; and suspension. Module 2 reviews brakes; wheels; side of vehicle; back of vehicle; and trailer.

This pre-trip inspection training does not have specific information on air brakes or general knowledge. You may complete other training in the CDL series to learn more about them.

For more information on the CDL examination and requirements that apply to your State, contact your State license agencies.

Outcomes

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

- Describe the inspection items in front of the vehicle and engine compartment
- Identify the important steps in the cab check and air brake check
- Describe the important components of steering inspection
- Define the parts of the front and rear suspension
- Identify the components that are checked in front and rear brakes and front and rear wheels
- Describe the inspection steps for the side and back of the vehicle
- Identify the inspection items for parts of the trailer

Target Audience

This course is designed for any individuals wanting to learn more about commercial driver's license (CDL) pre-trip inspection.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134111

New Training WBT

Course Title

TCCC Bridge Construction Inspection: Inspector Safety - WEB-BASED

The Bridge Construction Inspection Safety discusses safety standards and the inspector's role in enforcing them, as well as, the personal protective equipment that is designed to protect the worker's body against occupational and safety hazards.

There are three topics that this course will cover including safety responsibility, personal protective equipment, and potential hazards. The course references OSHA and ANSI safety standards. Two important areas covered include communication and inspector authority. Hazards on the bridge construction site including equipment, traffic and falls are each detailed for the inspector. Trenching and excavation hazards, confined spaces, painting hazards and construction over waterways are important safety areas that anyone on bridge inspection should be knowledgeable of and are included in the course.

Outcomes

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

- Understand the inspector's safety role
- Describe necessary construction site personal protective equipment (PPE)
- Identify potential safety hazards

Target Audience

This training is targeted to anyone performing bridge inspection duties for either agencies or consultants. This course focuses on the entry level inspector, but is a good refresher for any level of inspector. This training is recommended for the Transportation Curriculum Coordination Council levels II through IV.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-381001

New Training WBT

Course Title

TCCC Safety Orientation - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to provide a general safety awareness orientation. This training will teach that safety is everyone's responsibility. Remember the motto: "Do it safely, or don't do it!" Thanks to SCDOT and IDOT for their contributions to this training. This training is recommended for the Transportation Curriculum Coordination Council levels I and II.

Prevention of injury and safeguarding health is the responsibility of everyone - both management and employee. The safety and health of employees is the overriding concern in all phases of operations.

Completion of the first module will provide you with a general awareness of policy, responsibilities, what to wear, tools, hazards, and personal protective equipment (PPE). The second module will cover proper housekeeping practices, critical elements of hazard communication, confined spaces, procedure for lockout or tagout, and components of health and safety policies.

Outcomes

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

- Identify the reasons for having a safety policy
- Describe the employee and supervisor responsibilities at the workplace
- Identify what is appropriate and safe to wear to work
- Describe the different types of tools and the proper ways to use them
- Describe standard operating procedures to control for hazards
- Identify the components of personal protective equipment (PPE)
- Identify proper housekeeping practices
- Describe the critical elements of hazard communication
- Define confined spaces
- Describe the procedure for lockout or tagout
- Identify the important components of health and safety policies

Target Audience

This training would be beneficial to anyone that is involved with providing a safe work place, safe equipment, proper materials, and establishing and insisting upon safe methods and practices at all times.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-381002

New Training WBT

Course Title

TCCC Safe Use of Hand and Power Operated Tools - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI and has been designed for someone learning the basic steps in tool safety. This training is recommended for the Transportation Curriculum Coordination Council levels I and II.

Hand and power tools are a common part of our everyday lives and are present in nearly every industry. These tools help us to easily perform tasks that otherwise would be difficult or impossible. However, these simple tools can be hazardous and have the potential for causing severe injuries when used or maintained improperly. Special attention toward hand and power tool safety is necessary in order to reduce or eliminate these hazards

In the process of removing or avoiding the hazards, workers must learn to recognize the hazards associated with the different types of tools and the safety precautions necessary to prevent those hazards.

In this training we'll discuss the proper use and maintenance of hand tools and a variety of power tools. This is a basic course in the safe use of hand and power operated tools. However, it does not go into regulatory compliance or manufacturer's instructions.

For more information on hand and power operated tool safety, contact your State safety office or the manufacturer.

Outcomes

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

- Describe how to properly and safely use a hand tool
- Describe how to properly and safely use a power tool
- List five types of power tools
- List the five general safety rules for power tools

Target Audience

This course is designed for any individuals wanting to learn more about hand and power tool safety.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-381003

New Training WBT

Course Title

TCCC Safe Use of Basic Carpentry Tools - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI and has been designed for someone learning the basic steps in tool safety. This training is recommended for the Transportation Curriculum Coordination Council levels I and II.

Carpentry tools are a common part of our everyday lives and are present in nearly every industry. These tools help us to easily perform tasks that otherwise would be difficult or impossible. However, these simple tools can be hazardous and have the potential for causing severe injuries when used or maintained improperly. Special attention toward carpentry tool safety is necessary in order to reduce or eliminate these hazards

In the process of removing or avoiding the hazards, workers must learn to recognize the hazards associated with the different types of tools and the safety precautions necessary to prevent those hazards.

In this training we'll discuss the proper use and maintenance of carpentry tools. This is a basic course in the safe use of carpentry tools and does not go into regulatory compliance or manufacturer's instructions. This training is broken into three modules:

Module 1: Handsaws, Ladders, Screwdrivers and Squares

Module 2: Hammers, Sledge Hammers, Pry Bars, Rulers, and Levels

Module 3: Portable Power Tools

For more information on hand and power operated tool safety, contact your State safety office or the manufacturer.

Outcomes

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

- Describe how to properly and safely use a handsaw
- Explain how to erect and use various types of ladders safely
- Describe proper use and care of common and Phillips screwdrivers
- Explain the correct way to use various types of squares
- Describe the proper uses for these types of common basic carpentry tools
- Explain safety considerations for each tool
- Describe how to properly and safely use a portable electrical drill
- Identify different types of drill bits and their appropriate use
- Describe how to properly and safely use a circular saw
- Explain the purpose of various types of blades

Target Audience

This course is designed for any individuals wanting to learn more about carpentry tool safety.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 3 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-381004

New Training WBT

Course Title

TCCC CDL Series - General Knowledge - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI has been designed for someone interested in commercial driver's license (CDL) general knowledge. This training is recommended for the Transportation Curriculum Coordination Council levels I and II or anyone interested in obtaining a CDL.

This training contains the general knowledge and safe driving information that all commercial drivers should know. It is broken into three modules:

Module 1 reviews vehicle control, shifting gears, seeing the road, communicating, speed control, and space management.

Module 2 covers night driving, driving in cold and hot weather, mountain driving, and railroad crossings.

Module 3 discusses seeing hazards, driving and road emergencies, staying alert and fit to drive, and transporting hazards.

This general knowledge training does not have specific information on air brakes or pre-trip inspection. You may complete other training in the CDL series to learn more about them.

For more information on the CDL examination and requirements that apply to your State, contact your State license agencies.

Outcomes

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

- Describe the procedures in controlling your vehicle and shifting gears
- Define the steps to seeing the road in various situations
- Recognize the importance of signaling and communicating your presence
- Identify the important components of speed control and space management
- Describe the proper ways to drive at night
- Identify the correct practices for driving in cold weather and hot weather
- Describe the procedures for driving on a mountain
- Recognize the proper way to cross a railroad
- Describe the procedures in responding to driving emergencies and emergencies on the road
- Identify the guidelines to staying alert and fit to drive
- Define the proper way to transport hazardous materials

Target Audience

This course is designed for any individuals wanting to learn more about commercial driver's license (CDL) general information.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 3 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-381005

New Training WBT

Course Title

TCCC CDL Series - Air Brakes - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI has been designed for someone interested in commercial driver's license (CDL) air brake systems. This training is recommended for the Transportation Curriculum Coordination Council levels I and II or anyone interested in obtaining a CDL.

In this training we'll discuss the parts of an air brake system, dual air brake systems, how to inspect your air brake system, and how to effectively use your air brake system. If you want to drive a truck or bus with air brakes, or pull a trailer with air brakes, you'll need to take a test on this material.

This training contains information on air brakes system that all commercial drivers should know. It is broken into two modules:

Module 1 consists of air brake system parts and dual air brakes systems.

Module 2 consists of inspecting air brakes and using air brakes.

This air brakes training does not have specific information on general knowledge or pre-trip inspection. You may complete other training in the CDL series to learn more about them.

For more information on the CDL examination and requirements that apply to your State, contact your State license agencies.

Outcomes

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

- Identify the important parts of the air brake system
- Define dual air brakes
- Recognize key elements in the air flow process of the dual air brake system
- Identify the important components of air brakes inspection
- Recognize the proper ways to use air brakes

Target Audience

This course is designed for any individuals wanting to learn more about commercial driver's license (CDL) air brake systems.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-381006

New Training WBT

Course Title

TCCC CDL Series - Pre-Trip Inspection - WEB-BASED

This training was prepared by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI has been designed for someone interested in commercial driver's license (CDL) pre-trip inspection. This training is recommended for the Transportation Curriculum Coordination Council levels I and II or anyone interested in obtaining a CDL.

This is a basic course in the area of pre-trip inspection. This training covers different parts of the vehicle you would check before a trip. We'll approach the different parts of the vehicle in the order that we would in a standard pre-trip inspection. It is broken into two modules:

Module 1 covers front of the vehicle; engine compartment; engine start and cab check; steering; and suspension. Module 2 reviews brakes; wheels; side of vehicle; back of vehicle; and trailer.

This pre-trip inspection training does not have specific information on air brakes or general knowledge. You may complete other training in the CDL series to learn more about them.

For more information on the CDL examination and requirements that apply to your State, contact your State license agencies.

Outcomes

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

- Describe the inspection items in front of the vehicle and engine compartment
- Identify the important steps in the cab check and air brake check
- Describe the important components of steering inspection
- Define the parts of the front and rear suspension
- Identify the components that are checked in front and rear brakes and front and rear wheels
- Describe the inspection steps for the side and back of the vehicle
- Identify the inspection items for parts of the trailer

Target Audience

This course is designed for any individuals wanting to learn more about commercial driver's license (CDL) pre-trip inspection.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 2 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-381007

New Training WBT

Course Title

TCCC PPE and High Visibility Garments - WEB-BASED

The Personal Protective Equipment (PPE) and High Visibility Garments course provides students with the knowledge and skills necessary for proper care and use of Personal Protective Equipment before performing work requiring the use of this equipment.

This course covers all areas of personal protection including eye and visibility protection, head protection, respirators, hearing protection, hand and foot protection, and fall protection. This course will include when training is necessary, the proper use and care of PPE's, and the skill necessary to use PPE's prior to performing work. The course includes interaction between the training and the student and questions covering the material.

Outcomes

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

- Understand when training or retraining in the proper use of PPE is necessary
- Understand use, proper care, useful life, limitations, and timely disposal of PPE
- Demonstrate understanding and skill necessary to use PPE before performing work requiring the use of protective equipment

Target Audience

This training is targeted as an introductory course discussing personal protective equipment and high visibility garments, but would be beneficial to contractors, agencies, or anyone involved with construction and maintenance projects. This training is recommended for the Transportation Curriculum Coordination Council levels I, II, and III.

Training Level: Basic

Fee: 2013: $0 Per Person; 2014: N/A

Length: 1.5 HOURS (CEU: 0 UNITS)

Class Size: MINIMUM: 1; MAXIMUM: 1

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-134073

Course Title

Leap Not Creep: Accelerating Innovation Implementation

This course is designed to provide transportation employees with the necessary tools to implement innovations quickly and successfully, and mainstream the innovations into an agency's standard practice. The training discusses the features of successful implementations, provides information on the components of an implementation plan, lists resources for locating innovations and funding for implementation, and discusses strategies for identifying and neutralizing challenges to implementing innovations.

The course is taught in a blended format. First, participants attend a two-hour Web conference to introduce the course and set expectations. One to two weeks following the Web conference, participants attend two days of classroom training to complete the course.

Note to Session Hosts: When requesting to host the course, the "Requested Date" and "Alternate Date" should be input to reflect the requested dates for the two day classroom portion of the course. When the course request is approved, the assigned instructor will contact the host to schedule both the classroom portion and the 2-hour Web conference one to two weeks prior to the classroom session.

Outcomes

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

- Identify the benefits of implementing innovations.
- Describe the evolution of an innovation from the identification of a need to mainstreaming an innovation into standard practice.
- Describe the key factors of successful innovation implementation.
- Develop a deployment plan for implementing an innovation.
- List three strategies that could be employed by agency decision-makers to support innovation implementation.
- Determine resources required to mainstream the innovation into standard practice.
- Identify strategies for overcoming barriers to implementing an innovation.
- Locate resources to support the deployment of innovations, such as funding resources.

Target Audience

The target audience for this course will be people are responsible for leading a team, or are preparing to lead a team, that's responsible for deploying an innovation; selecting innovations that will be implemented within the organization; and promoting the use of innovations within an organization.

Training Level: Basic

Fee: 2013: $400 Per Person; 2014: N/A

Length: 2 DAYS (CEU: 1.2 UNITS)

Class Size: MINIMUM: 15; MAXIMUM: 30

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-420018

Course Title

Instructor Development Course (3.5-Day)

The 3.5-day is geared to instructors who anticipate teaching from a complete set of training materials (instructor manuals, participant workbooks, and visual aids) developed by training professionals.

This Instructor Development Course (IDC) will provide new and experienced instructors the knowledge and skills to deliver more effective training. NHI defines training as a "demonstration of acquired skills and knowledge of adult learning principles which necessitates that learning outcomes be developed and their attainment be measured."

A skilled trainer, therefore, will emphasize the use of experiential learning techniques, such as problem solving analysis, discussion, question and answer sessions, group activities, demonstrations, role-plays, etc. In essence, these learning activities tap into the knowledge and skills that an adult learner brings to the classroom and have the goal of meeting both the learning outcomes and the participants' expectations.

Pre-Class Assignment:

Training Sessions: You must come prepared to present a 15-minute training session at the beginning of the workshop. The topic for your session should be job related; it can either come from a course you have taught, will be teaching, or are developing. The 15 minutes typically translate to about 5 to 7 minutes of content with time for exercises, activities and/or questions, etc. Visual aids, such as overhead transparencies or handouts should be brought with you. Please bring your own laptop computer if you are planning to do a PowerPoint presentation.

A word of caution, not all training facilities are equipped with the appropriate technical support for a PowerPoint presentation (i.e., in-focus projector or support software) or have the equipment to reproduce overhead transparencies. For this reason, we encourage you to make use of other types of visual aids, such as flip charts, write-on transparencies, and handouts. These nontechnical methods will NOT diminish, but enhance the value of your presentation. Use a holistic approach in your training.

Readings: Read the Instructional Systems Design (ISD) material posed on the NHI Web site. To access the material go to http://www.nhi.fhwa.dot.gov, select Resources, select NHI Philosophy on Learning, select Adult Learning (Print and Read), select Instructional Systems Design (ISD) (Print and Read). You will find printable downloadable files (PDFs) of all required readings and any other materials related to this course.

This course is part of the NHI Instructor Certification program. To learn more about NHI's Instructor Certification visit the NHI Web site at http://www.nhi.fhwa.dot.gov/resources/resources.aspx.

Outcomes

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

- Explain the five steps in the ISD system
- Write a behavioral learning outcome
- Present, measure, and review a learning outcome
- Demonstrate at least two forms of interactivity and positive interpersonal skills
- List five training techniques (e.g., Do not talk to the flip chart; do not stand in front of the projector; and do not stand in one place)
- Demonstrate how to reach the three styles of learning
- Deliver a 15-minute training session that demonstrates adult learning principles

Target Audience

This course is intended for instructors who will be delivering interactive training to adult learners.

Training Level: Basic

Fee: 2013: $700 Per Person; 2014: N/A

Length: 3.5 DAYS (CEU: 2.1 UNITS)

Class Size: MINIMUM: 7; MAXIMUM: 12

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

Course Number

FHWA-NHI-420018A

Course Title

Instructor Development Course (4.5-Day)

This 4.5-day course prepares instructors who teach from a complete set of training materials (instructor manuals, participant workbooks, and visual aids) developed by training professionals. In addition, this course will teach instructors who need to create their own courses or modify existing courses, how to develop instructionally sound learning outcomes, instructor manuals, visual aids, exercises, workshops, and assessments. The course also uses practical techniques to reinforce the various skills need to develop sound course material.

The Instructor Development Course (IDC) will provide new and experienced instructors the knowledge and skills to deliver more effective training. NHI defines training as a "demonstration of acquired skills and knowledge of adult learning principles which necessitates that learning outcomes be developed and their attainment be measured."

A skilled trainer, therefore, will emphasize the use of experiential learning techniques, such as problem solving analysis, discussion, question and answer sessions, group activities, demonstrations, role-plays, etc. In essence, these learning activities tap into the knowledge and skills that an adult learner brings to the classroom and have the goal of meeting both the learning outcomes and the participants' expectations.

Pre-Class Assignment:

Training Sessions: You must come prepared to present a 15-minute training session at the beginning of the workshop. The topic for your session should be job related; it can either come from a course you have taught, will be teaching, or are developing. The 15 minutes typically translate to about 5 to 7 minutes of content with time for exercises, activities and/or questions, etc. Visual aids, such as overhead transparencies or handouts should be brought with you. Please bring your own laptop computer if you are planning to do a PowerPoint presentation.

A word of caution, not all training facilities are equipped with the appropriate technical support for a PowerPoint presentation (i.e., in-focus projector or support software) or have the equipment to reproduce overhead transparencies. For this reason, we encourage you to make use various types of visual aids, such as flip charts, write-on transparencies, and handouts to enhance your training session. These nontechnical methods will NOT diminish, but enhance the value of your presentation. Use a holistic approach in your training.

The Golden Rule for a Trainer/Instructor is: "Always be prepared to instruct."

Readings: Read the Instructional Systems Design (ISD) material posed on the NHI Web site. To access the material go to http://www.nhi.fhwa.dot.gov, select Resources, select NHI Philosophy on Learning, select Adult Learning (Print and read), select Instructional Systems Design (ISD) (Print and Read). You will find printable downloadable files (PDFs) of all required readings and any other materials related to this course.

This course is part of the NHI Instructor Certification program. To learn more about NHI's Instructor Certification visit the NHI Web site at http://www.nhi.fhwa.dot.gov/resources/resources.aspx.

Outcomes

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

- Explain the five steps in the ISD system
- Write a behavioral learning outcome
- Develop various types of visual aids
- Present, measure, and review a learning outcome
- Demonstrate at least two forms of interactivity and positive interpersonal skills
- List five training techniques (e.g., Do not talk to the flip chart; do not stand in front of the projector; and do not stand in one place)
- Demonstrate how to reach the three styles of learning
- Develop an appropriate assessment tool to measure learning
- Deliver a 15-minute training session that demonstrates adult learning principles

Target Audience

This course is intended for instructors who will develop and deliver interactive training to adult learners.

Training Level: Basic

Fee: 2013: $850 Per Person; 2014: N/A

Length: 4.5 DAYS (CEU: 2.7 UNITS)

Class Size: MINIMUM: 7; MAXIMUM: 12

NHI Customer Service: (877) 558-6873 • nhicustomerservice@dot.gov

NHI STORE PROVIDES RESOURCES AND REFERENCE MATERIALS

Created based on customer feedback, the NHI Store is an online resource that enables users to order course materials through the NHI Web site. These materials can be used to plan a workshop, support train-the-trainer programs, or gather highway-related reference materials. The NHI Store offers both electronic downloads and hard copy versions.

To search for and purchase NHI course training materials, please visit www.nhi.fhwa.dot.gov. Easy directions are provided for ordering and payment; special instructions are provided for FHWA employees.

If you are unable to find the training materials you need, please contact us at nhitraining@dot.gov.

The following pages list all materials available for purchase at the time this catalog was published. For the most up-to-date listing, visit the NHI Store at www.nhi.fhwa.dot.gov. Credit card payment is accepted.

Legend

PW - Participant Workbook
RM - Reference Manual
PP - PowerPoint Presentation
OM - Other Materials
EF - Electronic File

Course Number	Material Name	Format	Type	Price
130053	Bridge Inspection Refresher Training (November 2011)	Hard Copy	PW	**$70.00**
130053	Bridge Inspector's Reference Manual-December 2012 (Compact Disc)	Hard Copy	RM	**$20.00**
130053A	Bridge Inspection Refresher Training (November 2011)	Hard Copy	PW	**$70.00**
130053A	Bridge Inspector's Reference Manual-December 2012 (Compact Disc)	Hard Copy	RM	**$20.00**
130054	Bridge Inspector's Reference Manual-December 2012 (Compact Disc)	Hard Copy	RM	**$20.00**
130054	Engineering Concepts For Bridge Inspectors (September 2011)	Hard Copy	PW	**$40.00**
130055	Bridge Inspector's Reference Manual-December 2012 (Compact Disc)	Hard Copy	RM	**$20.00**
130055	Safety Inspection of In-Service Bridges (Vol.1)-July 2012	Hard Copy	PW	**$30.00**
130055	Safety Inspection of In-Service Bridges (Vol.2)-July 2012	Hard Copy	PW	**$30.00**
130078	Fracture Critical Inspection Techniques for Steel Bridges (September 2011)	Hard Copy	PW	**$50.00**
130081	(130081) Load and Resistance Factor Design (LRFD) for Highway Bridge Superstructures (April 2007)	Hard Copy	PW	**$50.00**
130081	Handbook of Retrofit Options for Bridges Vulnerable to Coastal Storms (May 2008)	Hard Copy	OM	**$40.00**
130081	Load and Resistance Factor Design (LRFD) For Highway Bridge Superstructures-Examples (April 2007)	Hard Copy	OM	**$40.00**
130081	Load and Resistance Factor Design (LRFD) For Highway Bridge Superstructures-SEC No. 1 (April 2007)	Hard Copy	RM	**$100.00**
130081A	Load and Resistance Factor Design (LRFD) for Highway Bridge Superstructures-Examples (April 2007)	Hard Copy	OM	**$40.00**
130081A	Load and Resistance Factor Design (LRFD) For Highway Bridge Superstructures-SEC No. 1 (April 2007)	Hard Copy	RM	**$100.00**

Course Number	Material Name	Format	Type	Price
130081B	Load and Resistance Factor Design (LRFD) for Highway Bridge Superstructures-Examples (April 2007)	Hard Copy	OM	**$40.00**
130081B	Load and Resistance Factor Design (LRFD) For Highway Bridge Superstructures-SEC No. 1 (April 2007)	Hard Copy	RM	**$100.00**
130081C	(130081C) Load and Resistance Factor Design (LRFD) for Highway Bridge Superstructures (April 2007)	Hard Copy	PW	**$50.00**
130081C	Load and Resistance Factor Design (LRFD) for Highway Bridge Superstructures-Examples (April 2007)	Hard Copy	OM	**$40.00**
130081C	Load and Resistance Factor Design (LRFD) For Highway Bridge Superstructures-SEC No. 1 (April 2007)	Hard Copy	RM	**$100.00**
130081D	(130081D) LRFD For Highway Bridge Superstructures 4.5 Day (April 2007)	Hard Copy	PW	**$50.00**
130081D	Load and Resistance Factor Design (LRFD) For Highway Bridge Superstructures (April 2007)	Hard Copy	RM	**$100.00**
130081D	Load and Resistance Factor Design (LRFD) for Highway Bridge Superstructures-Examples (April 2007)	Hard Copy	OM	**$40.00**
130087	Guidelines For The Installation, Inspection, Maintenance And Repair Of Structural Supports For Highw	Hard Copy	OM	**$50.00**
130087	Inspection And Maintenance Of Ancillary Highway Structures-(March 2005)	Hard Copy	PW	**$50.00**
130088	Bridge Construction Inspection - Participant Workbook Volume 1 (Feburary 2007)	Hard Copy	PW	**$50.00**
130088	Bridge Construction Inspection - Participant Workbook Volume 2 (Feburary 2007)	Hard Copy	PW	**$40.00**
130091	Bridge Inspector's Reference Manual-December 2012 (Compact Disc)	Hard Copy	RM	**$20.00**
130091	Underwater Bridge Inspection (January 2010)	Hard Copy	PW	**$40.00**
130091	Underwater Inspection of Bridges (June 2010)	Hard Copy	RM	**$40.00**
130091A	Bridge Inspector's Reference Manual-Compact Disc (December 2012)	Hard Copy	RM	**$20.00**
130091A	Underwater Bridge Inspection (January 2010)	Hard Copy	PW	**$40.00**
130091A	Underwater Inspection of Bridges (June 2010)	Hard Copy	RM	**$40.00**
130091B	Underwater Bridge Repair (December 2009)	Hard Copy	RM	**$40.00**
130091B	Underwater Bridge Repair, Rehabilitation, and Countermeasures (December 2009)	Hard Copy	PW	**$30.00**
130092	Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures (May 2010)	Hard Copy	PW	**$40.00**
130092A	Load and Resistance Factor Rating for Highway Bridges (May 2010)	Hard Copy	PW	**$40.00**
130092B	Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures (May 2010)	Hard Copy	PW	**$40.00**
130093	LRFD Seismic Analysis and Design of Bridges (August 2011)	Hard Copy	PW	**$50.00**
130093	LRFD Seismic Analysis and Design of Bridges (February 2011)	Hard Copy	RM	**$75.00**
130093	LRFD Seismic Analysis and Design of Bridges-Design Examples (September 2011)	Hard Copy	OM	**$45.00**
130093A	LRFD Seismic Analysis and Design of Bridges (August 2011)	Hard Copy	PW	**$50.00**

Course Number	Material Name	Format	Type	Price
130093A	LRFD Seismic Analysis and Design of Bridges (February 2011)	Hard Copy	RM	**$75.00**
130093A	LRFD Seismic Analysis and Design of Bridges-Design Examples (September 2011)	Hard Copy	OM	**$45.00**
130095	LRFD and Analysis of Curved Steel Highway Bridges (February 2011)	Hard Copy	PW	**$70.00**
130095	LRFD and Analysis of Curved Steel Highway Bridges (February 2011)-Compact Disc	Hard Copy	RM	**$20.00**
130095A	LRFD and Analysis of Curved Steel Highway Bridges (February 2011)-Compact Disc	Hard Copy	RM	**$20.00**
130095B	LRFD and Analysis of Curved Steel Highway Bridges (February 2011)-Compact Disc	Hard Copy	RM	**$20.00**
130096	Design Criteria for Arch and Cable Stayed Signature Bridges (February 2012)	Hard Copy	RM	**$70.00**
130096	Design Criteria for Arch and Cable Stayed Signature Bridges (February 2012)	Electronic Copy	RM	**$70.00**
130096	Design Criteria for Arch and Cable Stayed Signature Bridges (September 2011)	Hard Copy	PW	**$40.00**
131032	Hot Mix Asphalt Construction - Participant Workbook (July 2002)	Hard Copy	PW	**$50.00**
131050	Asphalt Pavement Recycling Technologies - Participant Workbook (June 2002)	Hard Copy	PW	**$50.00**
131050	Basic Asphalt Recycling Manual	Hard Copy	OM	**$50.00**
131060	Concrete Pavement Design Details And Construction Practices - Participant's Workbook	Hard Copy	PW	**$50.00**
131060	Concrete Pavement Design Details And Construction Practices - Reference Manual	Hard Copy	RM	**$50.00**
131060	Design Details For High-Performance Concrete Pavements: An Interactive CD-ROM	Hard Copy	OM	**$20.00**
131062	PCC Pavement Evaluation And Rehabilitation - Participant Workbook	Hard Copy	PW	**$50.00**
131062	PCC Pavement Evaluation And Rehabilitation - Reference Manual	Hard Copy	RM	**$50.00**
131063	Hot Mix Asphalt Pavement Evaluation And Rehabilitation - Participant's Workbook	Hard Copy	PW	**$50.00**
131063	Hot Mix Asphalt Pavement Evaluation And Rehabilitation - Reference Manual	Hard Copy	RM	**$50.00**
131064	Introduction To Mechanistic-Empirical Pavement Design - Participant Workbook	Hard Copy	PW	**$50.00**
131064	Introduction To Mechanistic-Empirical Pavement Design - Participant Workbook	Electronic Copy	PW	**$50.00**
131064	Introduction To Mechanistic-Empirical Pavement Design - Reference Manual	Hard Copy	RM	**$50.00**
131064	Introduction To Mechanistic-Empirical Pavement Design - Reference Manual	Electronic Copy	RM	**$50.00**
131064	Introduction To Mechanistic-Empirical Pavement Design - Workshop Problems	Hard Copy	OM	**$50.00**
131103A	Pavement Preservation Design and Construction of Quality Preventive Maintenance Treatments - PW	Hard Copy	PW	**$40.00**

Course Number	Material Name	Format	Type	Price
131103A	Pavement Preservation Design and Construction of Quality Preventive Maintenance Treatments - RM	Hard Copy	RM	**$40.00**
131103A	TCCC Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments	Electronic Copy	PW	**Free**
131103B	Pavement Preservation Design and Construction of Quality Preventive Maintenance Treatments - PW	Hard Copy	PW	**$40.00**
131103B	Pavement Preservation Design and Construction of Quality Preventive Maintenance Treatments - RM	Hard Copy	RM	**$40.00**
131103C	Pavement Preservation Design and Construction of Quality Preventive Maintenance Treatments - PW	Hard Copy	PW	**$40.00**
131103C	Pavement Preservation Design and Construction of Quality Preventive Maintenance Treatments - RM	Hard Copy	RM	**$40.00**
131106A	TRANSPORTATION ASSET MANAGEMENT (October 2011)	Hard Copy	PW	**$50.00**
131107	Principles And Practices For Enhanced Maintenance Systems	Electronic Copy	PW	**Free**
131107	Principles And Practices For Enhanced Maintenance Systems - Participant Workbook	Hard Copy	PW	**$50.00**
131115	PAVEMENT PRESERVATION: PREVENTIVE MAINTENANCE TREATMENT, TIMING, AND SELECTION (NOVEMBER 2007)	Electronic Copy	PW	**$40.00**
131116	PAVEMENT MANAGEMENT SYSTEMS: CHARACTERISTICS OF AN EFFECTIVE	Electronic Copy	PW	**Free**
131116	PAVEMENT MANAGEMENT SYSTEMS: CHARACTERISTICS OF AN EFFECTIVE PROGRAM EXECUTIVE SUMMARY	Electronic Copy	EF	**Free**
131116A	PAVEMENT MANAGEMENT SYSTEMS: CHARACTERISTICS OF AN EFFECTIVE PROGRAM	Electronic Copy	PW	**$20.00**
132012	Soils And Foundations Workshop - Reference Manual Volume 1 (December 2006)	Hard Copy	RM	**$40.00**
132012	Soils And Foundations Workshop - Reference Manual Volume 2 (December 2006)	Hard Copy	RM	**$40.00**
132013	Geosynthetics Engineering Workshop (RM)	Hard Copy	RM	**$40.00**
132013A	Geosynthetic Design And Construction Guidelines (March 2009)	Hard Copy	PW	**$50.00**
132013A	Geosynthetics Engineering Workshop	Hard Copy	RM	**$40.00**
132013B	Geosynthetics Engineering Workshop	Hard Copy	RM	**$40.00**
132013C	Geosynthetics Engineering Workshop	Hard Copy	RM	**$40.00**
132013D	Geosynthetics Engineering Workshop	Hard Copy	RM	**$40.00**
132014	Drilled Shafts: Construction Procedures and LRFD Design Methods (May 2010)	Hard Copy	RM	**$50.00**
132022	Design And Construction Of Driven Pile Foundations - Volume I - Resource Manual (April 2006)	Hard Copy	RM	**$50.00**
132022	Design And Construction Of Driven Pile Foundations - Volume II - Resource Manual (April 2006)	Hard Copy	RM	**$40.00**
132022	Driven Pile Foundations - Construction Monitoring	Hard Copy	PW	**$40.00**

Course Number	Material Name	Format	Type	Price
132031	Subsurface Investigations - Geotechnical Site Characterization - Reference Manual (May 2002)	Hard Copy	RM	**$50.00**
132033	Soil Slope and Embankment Design (September 2005)	Hard Copy	RM	**$40.00**
132034	Ground Improvements Reference Manual Volume I (August 2006)	Hard Copy	RM	**$50.00**
132034	Ground Improvements Reference Manual Volume II (August 2006)	Hard Copy	RM	**$40.00**
132035	Rock Slopes - Module 5 - Reference Manual	Hard Copy	RM	**$50.00**
132035	Rock Slopes - Module 5 - Student Exercises (August 1999)	Hard Copy	OM	**$50.00**
132036	Earth Retaining Structures (RM)	Hard Copy	RM	**$50.00**
132037	Shallow Foundations	Hard Copy	PW	**$40.00**
132037	Shallow Foundations - Module 7 - Reference Manual	Hard Copy	RM	**$50.00**
132040	Geotechnial Aspects of Pavements (August 2010)	Hard Copy	RM	**$40.00**
132041	Geotechnical Instrumentation - Module 11 - Reference Manual	Hard Copy	RM	**$50.00**
132042	Corrosion/Degradation of Soil Reinforcements for MSE/RSS (November 2009)	Hard Copy	RM	**$40.00**
132042	Design of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes-Vol 1 (March 2010)	Hard Copy	RM	**$40.00**
132042	Design of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes-Vol 2 (March 2010)	Hard Copy	RM	**$40.00**
132043	Design of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes-Vol 1 (March 2010)	Hard Copy	RM	**$40.00**
132043	Design of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes-Vol 2 (March 2010)	Hard Copy	RM	**$40.00**
132069	Driven Pile Foundation Inspection - Participant Workbook (July 2006)	Hard Copy	PW	**$50.00**
132069	Plan Set Handout Driven Pile Foundation Inspection Course (October 2002)	Hard Copy	OM	**$60.00**
132070	Drilled Shaft Foundation Inspection - Participant Workbook (December 2002)	Hard Copy	PW	**$50.00**
132070	Drilled Shaft Inspector's Course - Plan Set Handout	Hard Copy	OM	**$50.00**
132070B	Drilled Shaft Foundation Inspection - Participant Workbook (December 2002)	Hard Copy	PW	**$50.00**
132070B	Drilled Shaft Inspector's Course - Plan Set Handout	Hard Copy	OM	**$50.00**
132078	Micropile Design and Construction Reference Manual (December 2005)	Hard Copy	RM	**$30.00**
132081	Highway Slope Maintenance and Slide Restoration -- Participant Workbook	Hard Copy	PW	**$50.00**
132081	Highway Slope Maintenance and Slide Restoration -- Reference Manual	Hard Copy	RM	**$50.00**
132082	LFRD for Highway Bridge Substructures and Earth Retaining Structures (Jan 2007)	Hard Copy	RM	**$50.00**
132082	LFRD for Highway Bridge Substructures and Earth Retaining Structures (Jan 2007)	Hard Copy	PW	**$50.00**
132082	LFRD for Highway Bridge Substructures and Earth Retaining Structures (Jan 2007)	Electronic Copy	RM	**Free**

Course Number	Material Name	Format	Type	Price
132083	Implementation of LRFD Geotechnical Design for Bridge Foundations (February 2011)	Hard Copy	RM	**$20.00**
132094	LRFD Seismic Analysis and Design of Transportation Structures, Features and Foundations(August 2011)	Hard Copy	PW	**$50.00**
132094	LRFD Seismic Analysis and Design of Transportation Structures, Features and Foundations(August 2011)	Hard Copy	RM	**$75.00**
133028	Traffic Signal Design and Operation - Workshop Solutions (Dec 2011)	Hard Copy	OM	**$50.00**
133028	Traffic Signal Design and Operation - Participant Workbook (Dec 2011)	Hard Copy	PW	**$50.00**
133028	Traffic Signal Design and Operation - Reference Manual (Dec 2011)	Hard Copy	RM	**$50.00**
133072	High Occupancy Vehicle Facilities	Hard Copy	PW	**$50.00**
133072A	HOV Facilities Training Course	Hard Copy	PW	**$50.00**
133075	Freeway Management And Operations - Participant Workbook (August 2005)	Hard Copy	PW	**$50.00**
133075A	Freeway Management And Operations - Participant Workbook (August 2005)	Hard Copy	PW	**$50.00**
133078	Access Management Location and Design (February 2007)	Hard Copy	PW	**$50.00**
133099	Managing Travel For Planned Events - CD (September 2005)	Hard Copy	OM	**$20.00**
133099	Managing Travel For Planned Events - Participant Workbook (September 2005)	Hard Copy	PW	**$50.00**
133099A	Managing Travel for Planned Special Events	Hard Copy	PW	**$50.00**
133108	Planning and Managing Successful Applications of Traffic Analysis Tools	Hard Copy	PW	**$50.00**
133111	Advancing Planning for Operations in Metropolitan Areas	Hard Copy	PW	**$50.00**
133120	WZ Traffic Analysis Applications and Decision Framework-PW	Hard Copy	PW	**$50.00**
134001	PRINCIPLES OF WRITING HIGHWAY CONSTRUCTION SPECIFICATIONS (MARCH 2003)	Hard Copy	PW	**$40.00**
134001	PRINCIPLES OF WRITING HIGHWAY CONSTRUCTION SPECIFICATIONS (MARCH 2003)	Hard Copy	RM	**$40.00**
134001A	PRINCIPLES OF WRITING HIGHWAY CONSTRUCTION SPECIFICATIONS (MARCH 2003)	Hard Copy	PW	**$40.00**
134001A	PRINCIPLES OF WRITING HIGHWAY CONSTRUCTION SPECIFICATIONS (MARCH 2003)	Hard Copy	RM	**$40.00**
134001B	PRINCIPLES OF WRITING HIGHWAY CONSTRUCTION SPECIFICATIONS (MARCH 2003)	Hard Copy	PW	**$40.00**
134001B	PRINCIPLES OF WRITING HIGHWAY CONSTRUCTION SPECIFICATIONS (MARCH 2003)	Hard Copy	RM	**$40.00**
134005	VALUE ENGINEERING (AUGUST 2010)	Hard Copy	PW	**$30.00**
134005A	VALUE ENGINEERING (AUGUST 2010)	Hard Copy	PW	**$30.00**
134005B	VALUE ENGINEERING (AUGUST 2010)	Hard Copy	PW	**$30.00**
134005C	VALUE ENGINEERING (AUGUST 2010)	Hard Copy	PW	**$30.00**
134029	Bridge Maintenance Training - Participant's Manual (January 2003)	Hard Copy	PW	**$50.00**

Course Number	Material Name	Format	Type	Price
134029	Bridge Maintenance Training - Participant's Manual (January 2003)	Electronic Copy	PW	**Free**
134029	Bridge Maintenance Training - Reference Manual (March 2003)	Hard Copy	RM	**$50.00**
134029	Bridge Maintenance Training - Reference Manual (March 2003)	Electronic Copy	RM	**Free**
134037A	Managing Highway Contract Claims: Analysis And Avoidance - Participant Notes (September 2005)	Hard Copy	PW	**$50.00**
134042	MATERIALS CONTROL AND ACCEPTANCE QUALITY ASSURANCE (AUGUST 2009)	Electronic Copy	PW	**$60.00**
134042	MATERIALS CONTROL AND ACCEPTANCE QUALITY ASSURANCE (AUGUST 2009)	Hard Copy	PW	**$60.00**
134049	Use Of CPM For Estimating, Scheduling And Timely Completion - Participant Manual	Hard Copy	PW	**$50.00**
134055	Construction Inspection, Workmanship, and Quality (April 2007)	Hard Copy	PW	**$40.00**
134055	Construction Inspection, Workmanship, and Quality (April 2007)	Electronic Copy	PW	**$40.00**
134055	Construction Inspection, Workmanship, and Quality (September 2006)	Hard Copy	RM	**$40.00**
134055	Construction Inspection, Workmanship, and Quality (September 2006)	Electronic Copy	RM	**$40.00**
134058	Alternative Contracting - Participant Workbook / Reference Manual (September 2004)	Hard Copy	PW	**$50.00**
134060	Partnering: A Key Tool for Improving Project Delivery in the Field (PW) Spring 2007	Electronic Copy	PW	**$30.00**
134062A	Participant Workbook Volume 1	Hard Copy	PW	**$40.00**
134062A	Participant Workbook Volume II	Hard Copy	PW	**$40.00**
134064	Transportation Construction Quality Assurance (June 2011)	Hard Copy	PW	**$50.00**
134064	Transportation Construction Quality Assurance Reference Manual	Hard Copy	RM	**$50.00**
134064	Transportation Construction Quality Assurance Reference Manual	Electronic Copy	RM	**Free**
134064A	Transportation Construction Quality Assurance	Electronic Copy	RM	**Free**
134065A	Risk Management Participant Workbook (November 2006)	Hard Copy	PW	**$30.00**
134065A	Risk Management Participant Workbook (November 2006)	Electronic Copy	PW	**$30.00**
134068	ADDRESSSING UNCERTAINTY IN COST	Electronic Copy	PW	**$30.00**
135010	River Engineering For Highway Encroachments: Highways In The River Environment - Participant's Workb	Hard Copy	PW	**$50.00**
135010	River Engineering For Highway Encroachments: Highways In The River Environment (December 2001)	Hard Copy	OM	**$50.00**
135027	Urban Drainage Design Manual, HEC-22 (September 2009)	Hard Copy	RM	**$50.00**
135028	Highway Stormwater Pump Station Design - Participant's Guide	Hard Copy	PW	**$50.00**
135028	Highway Stormwater Pump Station Design HEC-24	Hard Copy	OM	**$50.00**

Course Number	Material Name	Format	Type	Price
135041A	HEC-RAS, RIVER ANALYSIS SYSTEM-(JUNE 2008)	Hard Copy	PW	**$40.00**
135046	Evaluating Scour At Bridges, 5th Edition (HEC-18)	Hard Copy	OM	**$50.00**
135046	Stream Instability, Bridge Scour, and Countermeasures: A Field Guide for Bridge Inspectors (Feb2009)	Hard Copy	RM	**$10.00**
135046	Stream Stability and Scour at Highway Bridges	Hard Copy	PW	**$50.00**
135046	Stream Stability at Highway Structures, 4th Edition (HEC-20)	Hard Copy	OM	**$50.00**
135047	Stream Instability, Bridge Scour, and Countermeasures: A Field Guide for Bridge Inspectors (Feb2009)	Hard Copy	RM	**$10.00**
135047	Stream Stability and Scour at Highway Bridges for Bridge Inspectors (June 2009)	Hard Copy	PW	**$50.00**
135048	Countermeasure Design for Bridge Scour and Stream Instability	Hard Copy	PW	**$30.00**
135048	Countermeasure Design for Bridge Scour and Stream Instability	Hard Copy	OM	**$30.00**
135048	HEC-23 Bridge Scour And Stream Instability Countermeasures-Vol I	Hard Copy	RM	**$20.00**
135048	HEC-23 Bridge Scour And Stream Instability Countermeasures-Vol II	Hard Copy	RM	**$30.00**
135048	Stream Instability, Bridge Scour, and Countermeasures: A Field Guide for Bridge Inspectors (Feb2009)	Hard Copy	RM	**$10.00**
135056	Culvert Design for Aquatic Organism Passage: HEC-26, First Ed. (October 2010)	Hard Copy	OM	**$50.00**
135056	Hydraulic Design of Highway Culverts-HDS 5 (February 2012)	Hard Copy	RM	**$50.00**
135065	Introduction to Highway Hydraulics-(June 2008)	Hard Copy	PW	**$50.00**
135065	Introduction to Highway Hydraulics-(June 2008)	Hard Copy	OM	**$50.00**
135065	Introduction to Highway Hydraulics-HDS No. 4 (June 2008)	Hard Copy	OM	**$50.00**
135067	Highway Hydrology, Hydraulic Design Series No. 2, Second Edition - (October 2002)	Hard Copy	OM	**$50.00**
135067	Practical Highway Hydrology - Participant Workbook (January 2007)	Hard Copy	PW	**$30.00**
135067	Practical Highway Hydrology - Participant Workbook (January 2007)	Electronic Copy	PW	**$30.00**
135081	Introduction To Highway Hydraulics Software (March 2011)	Hard Copy	PW	**$50.00**
135082	Highways in the Coastal Environment - Participant Workbook (April 2008)	Hard Copy	PW	**$40.00**
135082	Highways in the Coastal Environment (HEC-25)	Hard Copy	RM	**$40.00**
135085	PLAN OF ACTION (POA) FOR SCOUR CRITICAL BRIDGES - CD (MAY 2007)	Hard Copy	PP	**Free**
137030	Principles and Tools for Road Weather Management	Hard Copy	RM	**$50.00**
137030	Principles And Tools For Road Weather Management - Case Study Handout (November 2005)	Hard Copy	OM	**$40.00**
137030	Principles And Tools For Road Weather Management - Participant Workbook (November 2005)	Hard Copy	PW	**$50.00**
137033	ITS/CVO Security Awareness	Hard Copy	PW	**$50.00**
137033	Quick Reference Guide	Hard Copy	OM	**Free**
137041	Using ITS Deployment analysis System (IDAS)	Hard Copy	PW	**$50.00**

Course Number	Material Name	Format	Type	Price
137044	Improving Highway Safety with ITS	Hard Copy	PW	**$50.00**
137044	Improving Highway Safety with ITS - RM	Hard Copy	RM	**$30.00**
137046	NHI Using IDAS Data	Electronic Copy	EF	**Free**
139003	Advanced Freight Planning	Hard Copy	PW	**$50.00**
139004	Principles of Effective Commerical Motor Vehicle (CMV) Size and Weight Enforcement (Nov 2010)	Hard Copy	PW	**$50.00**
139005	Linking Freight to Planning and the Environment (PW)	Hard Copy	PW	**$50.00**
141029	Basic Relocation under the Uniform Act, Participant Workbook (September 2011)	Hard Copy	PW	**$40.00**
141030	Advanced Relocation (June 2006)	Hard Copy	PW	**$40.00**
141031	Business Relocation, Participant Workbook (January 2007)	Hard Copy	PW	**$30.00**
141031	Business Relocation, Participant Workbook (January 2007)	Electronic Copy	PW	**$30.00**
141043	Appraisal for Federal-Aid Highway Programs (May 2012)	Hard Copy	PW	**$40.00**
141044	Appraisal Review for Federal-Aid Highway Programs (August 2011)	Hard Copy	PW	**$40.00**
141050	Introduction to Federal-Aid Right-of-Way Requirements for Local Public Agencies (August 2010)	Hard Copy	PW	**$50.00**
142005	NEPA And The Transportation Decision Making Process (July 2011)	Hard Copy	PW	**$50.00**
142042	Fundamentals Of Title VI / Environmental Justice PW (February 2007)	Hard Copy	PW	**$50.00**
142045	Pedestrian Facility Design (May 2009)	Hard Copy	PW	**$50.00**
142046	Bicycle Facility Design (May 2009)	Hard Copy	PW	**$50.00**
142047	Water Quality Management of Highway Runoff PW/RM	Hard Copy	PW	**$50.00**
142049	Beyond Compliance: Historic Preservation In Transporation Project Development - Exercise 4 (July 07)	Hard Copy	OM	**$20.00**
142049	Beyond Compliance: Historic Preservation In Transporation Project Development (July 2012)	Hard Copy	PW	**$50.00**
142049	Beyond Compliance: Historic Preservation In Transportation Project Development - Exercise 3(July 07)	Hard Copy	OM	**$20.00**
142049	Beyond Compliance: Historic Preservation In Transportation Project Development -Exercise 2 (July 07)	Hard Copy	OM	**$20.00**
142054	Design And Implementation Of Erosion And Sediment Control - Participant Workbook (December 2006)	Hard Copy	PW	**$30.00**
142054	Design And Implementation Of Erosion And Sediment Control - Reference Manual (December 2006)	Hard Copy	RM	**$30.00**
142055	Advanced Seminar on Transportation Project Development: Navigating the NEPA Maze (December 2008)	Hard Copy	PW	**$40.00**
151018	Application of FHWA Traffic Monitoring Guide, Handouts Part 2 (November 2006)	Hard Copy	OM	**$10.00**
151018	Application Of The FHWA Traffic Monitoring Guide - Handouts (March 2004)	Hard Copy	OM	**$50.00**

Course Number	Material Name	Format	Type	Price
151018	Application Of The FHWA Traffic Monitoring Guide - Participant Workbook (November 2006)	Hard Copy	PW	**$50.00**
151018	Traffic Monitoring Guide (March 2004)	Hard Copy	OM	**$50.00**
151021	Administration Of FHWA Planning & Research Grants (June 2006)	Hard Copy	PW	**$30.00**
151021	Administration Of FHWA Planning & Research Grants (June 2006)	Hard Copy	RM	**$50.00**
151038	Introduction To Statewide Transportation Planning (February 2008)	Hard Copy	PW	**$50.00**
151039	Applying Gis Spatial Data Technologies To Transportation - PW/RM CD (December 2003)	Hard Copy	OM	**$20.00**
151039	Applying Spatial Data Technologies To Transportation (December 2003)	Hard Copy	PW	**$50.00**
151043	Transportation and Land Use (March 2008)	Hard Copy	PW	**$50.00**
152054	INTRODUCTION TO URBAN TRAVEL DEMAND FORECASTING (February 2012)	Hard Copy	PW	**$50.00**
152054	Introduction to Urban Travel Demand Forecasting-Course Prerequisite (Compact Disc)	Hard Copy	OM	**Free**
231028	Using the AASHTO Audit Guide for the Procurement and Administration of A/E Contracts (Feb 2012)	Hard Copy	PW	**$35.00**
231029	Using AASHTO Audit Guide for Development of A/E Consultant Indirect Cost Rates (Feb 2012)	Hard Copy	PW	**$50.00**
231030	Using AASHTO Audit Guide for Auditing and Oversight of A/E Consultant Indirect Cost Rate (Feb2012)	Hard Copy	PW	**$50.00**
380005	Railroad-Highway Grade Crossing Improvement Program - Participant Workbook (July 2011)	Hard Copy	PW	**$50.00**
380034	Design Construction And Maintenance Of Highway Safety Features And Appurtenances - Participant Workb	Hard Copy	PW	**$60.00**
380034A	Design Construction And Maintenance Of Highway Safety Features And Appurtenances - Participant Workb	Hard Copy	PW	**$60.00**
380034B	Design Construction And Maintenance Of Highway Safety Features And Appurtenances - Participant Workb	Hard Copy	PW	**$60.00**
380069	Desktop Reference for Crash Reduction Factors (September 2007)	Electronic Copy	OM	**Free**
380069	FHWA Road Safety Audit Guidelines (June 2006)	Electronic Copy	OM	**Free**
380069	Road Safety Audits/Assessements Participant Workbook (August 2008)	Hard Copy	PW	**$50.00**
380069	Road Safety Audits: Case Studies (December 2006)	Electronic Copy	OM	**Free**
380069	Toolbox of Countermeasures & Their Potential Effectiveness for Intersection Crashes (September 2007)	Electronic Copy	OM	**Free**
380069	Toolbox of Countermeasures & Their Potential Effectiveness for Pedestrian Crashes (September 2007)	Electronic Copy	OM	**Free**
380069	Toolbox of Countermeasures & Their Potential Effectiveness for Roadway Departure Crashes (Sept 2007)	Electronic Copy	OM	**Free**
380069	Traffic Signals (September 2007)	Electronic Copy	OM	**Free**

Course Number	Material Name	Format	Type	Price
380070	HSM Practitioner's Guide for Geometric Design Features Participant Workbook (May 2011)	Hard Copy	PW	**$50.00**
380071	Interactive Highway Safety Design Model - Participant Workbook (November 2008)	Hard Copy	PW	**$50.00**
380073	Fundamentals of Planning, Design and Approval of Interchange Improvements...(February 2010)	Hard Copy	PW	**$50.00**
380074	Designing And Operating Intersections For Safety - Participant Workbook (September 2010)	Hard Copy	PW	**$50.00**
380074	Desktop Reference for Crash Reduction Factors (September 2007)	Electronic Copy	OM	**Free**
380074	Toolbox of Countermeasures & Their Potential Effectiveness for Intersection Crashes (September 2007)	Electronic Copy	OM	**Free**
380074	Toolbox of Countermeasures & Their Potential Effectiveness for Intersection Crashes (September 2007)	Electronic Copy	OM	**Free**
380074	Toolbox of Countermeasures & Their Potential Effectiveness for Roadway Departure Crashes (Sept 2007)	Electronic Copy	OM	**Free**
380074	Traffic Signals (September 2007)	Electronic Copy	OM	**Free**
380075	Desktop Reference for Crash Reduction Factors (September 2007)	Electronic Copy	OM	**Free**
380075	New Approaches To Highway Safety Analysis - Reference Manual (February 2006)	Hard Copy	RM	**$50.00**
380075	New Approaches to Highway Safety Analysis Participant Workbook (April 2011)	Hard Copy	PW	**$50.00**
380075	Toolbox of Countermeasures & Their Potential Effectives for Intersection Crashes (September 2007)	Electronic Copy	OM	**Free**
380075	Toolbox of Countermeasures & Their Potential Effectives for Pedestrian Crashes (September 2007)	Electronic Copy	OM	**Free**
380075	Toolbox of Countermeasures & Their Potential Effectives for Roadway Departure Crashes (Sept 2007)	Electronic Copy	OM	**Free**
380075	Traffic Signals (September 2007)	Electronic Copy	OM	**Free**
380076	Desktop Reference for Crash Reduction Factors (September 2007)	Electronic Copy	OM	**Free**
380076	Low Cost Safety Improvements Workshop - Participant Workbook (February 2010)	Hard Copy	PW	**$50.00**
380076	Toolbox of Countermeasures & Their Potential Effectiveness for Intersection Crashes (September 2007)	Electronic Copy	OM	**Free**
380076	Toolbox of Countermeasures & Their Potential Effectiveness for Pedestrian Crashes (September 2007)	Electronic Copy	OM	**Free**
380076	Toolbox of Countermeasures & Their Potential Effectiveness for Roadway Departure Crashes (Sept 2007)	Electronic Copy	OM	**Free**
380076	Traffic Signals (September 2007)	Electronic Copy	OM	**Free**

Course Number	Material Name	Format	Type	Price
380077	Desktop Reference for Crash Reduction Factors (September 2007)	Electronic Copy	OM	**Free**
380077	Intersection Safety Workshop - Participant Workbook (April 2012)	Hard Copy	PW	**$50.00**
380077	Intersection Safety Workshop - Participant Workbook (May 2011)	Hard Copy	PW	**$50.00**
380077	Toolbox of Countermeasures & Their Potential Effectiveness for Intersection Crashes (September 2007)	Electronic Copy	OM	**Free**
380077	Toolbox of Countermeasures & Their Potential Effectiveness for Pedestrian Crashes (September 2007)	Electronic Copy	OM	**Free**
380077	Toolbox of Countermeasures & Their Potential Effectiveness for Roadway Departure Crashes (Sept 2007)	Electronic Copy	OM	**Free**
380077	Traffic Signals (September 2007)	Electronic Copy	OM	**Free**
380078	Desktop Reference for Crash Reduction Factors (September 2007)	Electronic Copy	OM	**Free**
380078	Signalized Intersections: A Guidebook Workshop - Participant Workbook (April 2009)	Hard Copy	PW	**$50.00**
380078	Toolbox of Countermeasures & Their Potential Effectiveness for Intersection Crashes (September 2007)	Electronic Copy	OM	**Free**
380078	Toolbox of Countermeasures & Their Potential Effectiveness for Pedestrian Crashes (September 2007)	Electronic Copy	OM	**Free**
380078	Toolbox of Countermeasures & Their Potential Effectiveness for Roadway Departure Crashes (Sept 2007)	Electronic Copy	OM	**Free**
380078	Traffic Signals (September 2007)	Electronic Copy	OM	**Free**
380089	Designing for Pedestrian Safety - Participant Workbook (April 2012)	Hard Copy	PW	**$50.00**
380090	Developing a Pedestrian Safety Action Plan Participant Workbook (January 2009)	Hard Copy	PW	**$50.00**
380095	Highway Design: Applying Flexibility & Risk Management (Participant Workbook Guide April 2011)	Hard Copy	PW	**$50.00**
380095	Highway Design: Applying Flexibility & Risk Management (Participant Workbook Guide August 2011)	Hard Copy	PW	**$50.00**
380095	Highway Design: Applying Flexibility & Risk Management (Participant Workbook Guide June 2010)	Hard Copy	PW	**$50.00**
380100	Interactive Highway Safety Design Model - Web-based course-Participant Workbook	Electronic Copy	PW	**$50.00**
420018A	Instructor Development Course 4.5 Day - Participant Workbook & Reference Manual (June 2006)	Hard Copy	PW	**$40.00**
420050	How to Create and Deliver a Dynamic Presentation (April 2010)	Hard Copy	PW	**$30.00**
N/A	FHWA-NHI-132037 Shallow Foundations	Hard Copy	RM	**$50.00**