2009 NHI Catalog

Improving the Performance of the Transportation Industry Through Training

NATIONAL HIGHWAY INSTITUTE

U.S. Department of Transportation
Federal Highway Administration

CATEGORY ICONS

These NHI category icons can assist users in identifying the course category or multiple course categories. The category icons are listed below for your reference.

Structures

Pavement and Materials

Geotechnical

Design and Traffic Operations

Construction and Maintenance

Hydraulics

Intelligent Transportation Systems (ITS)

Freight and Transportation Logistics

Real Estate

Environment

Transportation Planning

Business, Public Administration & Quality

Highway Safety

Communications

Asset Management

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 contact employees are housed within FHWA's Office of Professional and Corporate Development (OPCD).

What We Do

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 for the transportation workforce and sharing leading technologies and current policies in the United States and abroad. Incorporating current adult learning principles, NHI courses have clear learning outcomes to maximize knowledge and skills development. 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.

Customized Training

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 unites (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.
- So far in fiscal year 2008, NHI increased its number of sessions taught by 13 percent and is on track to directly train nearly 20,000 participants.
- Our training materials are used by State DOTs, 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.

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Courses highlighted in italics are listed in more than one category.

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HOST A COURSE

NHI Partners with Hosts to Deliver Training

NHI's unique business model allows the organization to stretch its training investment. NHI partners 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 – FHWA Divisions, State departments of transportation (DOTs), Consultants, metropolitan planning organizations (MPOs), professional associations, universities and more.

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 in the **HOST A COURSE** area under the Training tab (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

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**. To provide you better and timelier service, NHI has automated its Host Request form process.

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 our NHI Business Analyst for help by telephone at (703) 235-0556 or via e-mail at nhiwebmaster@dot.gov. The help service is available Monday to Friday from 9:30 a.m. to 4:00 p.m. Eastern.

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. At the request of hosts and other customers, NHI implemented a new enrollment option; hosts are now 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. This buying process is similar to most commercial Web sites. 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

Once the session is completed – and we receive the packet from the Instructor – you will be invoiced for the session. 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. Use the **CONTACT US** link on any NHI Web site page.

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.

Local Host/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 37 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 in the **HOST A COURSE** area under the Training tab (http://www.nhi.fhwa.dot.gov/training/HostCourse.aspx).

Fees

Course fees are listed with the individual course description and include course materials for each participant. 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 communicate this information to their participants.

Cancellation Policy/Refunds

The host of an NHI course must contact the NHI Training Manager 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 training team. In the event of cancellation for any reason, it is the hosts' responsibility to contact all participants via e-mail and telephone. 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) 235-0528 or nhitraining@dot.gov. For the most up-to-date information on NHI policies, please refer to the NHI Web site.

Audience

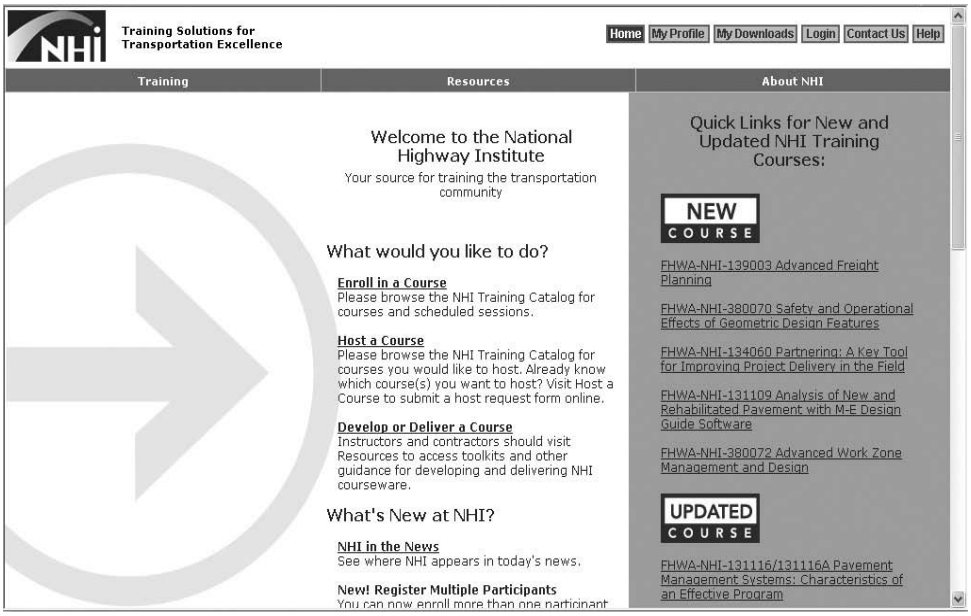
When assessing internal training needs, we encourage hosts of NHI course sessions to survey the training needs of entities outside their own organization. In some cases, the combined needs may warrant hosting a course for which there otherwise would not be sufficient interest. By attending training together, 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.

ENROLLING IN TRAINING

Scheduled Sessions

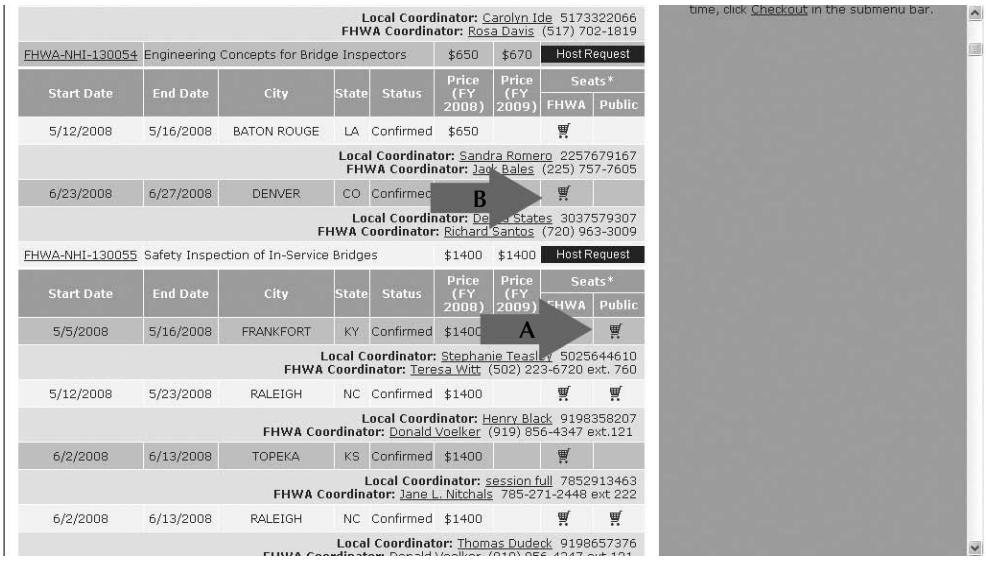
This catalog contains a listing of the NHI courses available. Because of our unique business model, sessions are requested by hosts and scheduled throughout the year – so we keep the most up-to-date list of scheduled sessions on the NHI Web site. You can search for a scheduled session at the NHI Web site (www.nhi.fhwa.dot.gov). Select "**Enroll in a Course**" on the **HOME** page to browse the catalog to review scheduled sessions.

Figure 1



The results of your search, depending upon your search criteria, will look like Figure 2.

Figure 2



Note the course listing, along with any scheduled sessions appear. This is an example of some sessions scheduled in 2008. Two types of scheduled sessions appear. The first type (A) with a shopping cart icon under the FHWA column indicates that seats are available for FHWA employees. The second type (B) has a shopping cart icon under the 'Public' column - this indicates that public participants can enroll and pay for the seat online - these are called public seats. The details to enroll in each type of session will be described in the ENROLLMENT section on page 11.

ENROLLMENT

Domestic Participants

The steps to enroll in an NHI session depends upon whether public seats are available for the session. If a shopping cart icon appears in the public seats column (as in Figure 2, labeled A), individuals should Login to the NHI Web site, add the session to their shopping cart, and proceed to checkout. If no shopping cart icon appears in the public seats column (as in Figure 2, Label B), participants should contact the individual listed as the Local Coordinator to enroll in a session. Your employer may have additional guidance for you to follow.

New! FHWA Employees

Beginning in 2008 NHI has made a change to the way FHWA employees enroll in NHI sessions. After obtaining approval from their supervisors, FHWA employees will now contact their FHWA Training Coordinator who will enroll them in the NHI session they choose to attend. FHWA Training Coordinators will now enroll trainees via the NHI Web site and have the option to enroll multiple participants.

New! Enroll Multiple Participants

Beginning in 2008 customers now have the option to enroll multiple participants on the NHI Web site. To enroll additional participants, or enroll someone other than yourself, follow the easy step-by-step instructions below:

1. Login to the NHI Web site
2. Search for a session by clicking on "Enroll in a Session" on the Home Page
3. When you find what you are looking for click on the Shopping Cart
4. Click on Checkout in the sub-menu bar
5. At checkout, enter the quantity of participants and enter each participant's information
6. Finish the checkout steps and you're done!

Once you have completed checkout, you will receive a confirmation e-mail with enrollment information. The participants who are enrolled will also be copied on the e-mail for their records. If you are an FHWA employee interested in NHI Training, contact your Training Coordinator to enroll you.

As in the past, three seats will continue to be reserved for FHWA employees until three weeks prior to the session start date. NHI courses are considered internal training for FHWA and consequently there is no charge for FHWA employee. If the FHWA spaces are not filled three weeks prior to the session start date, the hosting organization may fill these spaces with other participants. Hosts can contact the FHWA Training Coordinator in their State or the NHI Scheduler to obtain the list of FHWA enrolled participants. The NHI Web site scheduled session listing indicates the FHWA Training Coordinator for the State where training is being held. See Figure 3.

Figure 3

Course Number	Course Title				Price per Person (FY 2008)	Price per Person (FY 2009)	Host/Enroll	
FHWA-NHI-130053	Bridge Inspection Refresher Training				$400	$420	Host Request	
Start Date	**End Date**	**City**	**State**	**Status**	**Price (FY 2008)**	**Price (FY 2009)**	**Seats*** FHWA	**Seats*** Public
6/17/2008	6/19/2008	AUSTIN	TX	Confirmed	$636.17		🛒	
				Local Coordinator: Theresa Sykes 5124865409 **FHWA Coordinator:** Julia Cowan (512) 536-5900				
6/24/2008	6/26/2008	LINCOLN	NE	Confirmed	$400		🛒	🛒

International Customers

NHI will sometimes arrange the participation of international customers in training in the United States or abroad. In addition, NHI provides assistance to international organizations wishing to purchase standard NHI training on a variety of technical subjects. These courses can be tailored to the specific needs of the organization at an additional cost. For more information about training courses for international participants, please contact Roger Dean at (703) 235-0550 or by e-mail at roger.dean@fhwa.dot.gov.

Attending Training

After you have enrolled in a session, the Local Coordinator provides you with details about the start and end times, location, and logistical information regarding the session. Contact the individual listed as the Local Coordinator if you have questions about a training session.

Online enrollment For Distance learning

To help participants save time and money on travel, NHI now offers distance learning options. You can find out more about distance learning in the special insert, NHI Real Solutions, page XIV. NHI temporarily offers its Web-based training at no charge. Web-based training consists of self-study course modules that attendees complete via the Internet. Self-paced and available 24 hours a day, Web-based training offers attendees the freedom to complete the training whenever and wherever they choose.

Figure 4

Course Number	Course Title	Price per Person (FY 2007)	Price per Person (FY 2008)	Host/Enroll
FHWA-NHI-131110	Pavement Preservation Treatment Construction - WEB-BASED	$0	$0	
FHWA-NHI-135085	Plan of Action (POA) for Scour Critical Bridges - WEB-BASED	$0	$0	
FHWA-NHI-141045	Real Estate Acquisition Under the Uniform Act: An Overview - WEB-BASED	$0	$0	

To enroll in distance learning courses, follow these simple steps.

New! Domestic Participants

Step 1. Log into the NHI Web site. (Save your User ID and password in a safe location.)

Step 2. Search for and locate your desired course.

Step 3. Click the shopping cart icon and continue to checkout.

Step 4. Complete the checkout process by following the steps on the screen.

Step 5. You will receive an e-mail that provides directions for linking to NHI's distance learning platform (Adobe Connect). So that we can track your completion, that platform requires a separate User ID and password. (Save that User ID and password in a safe location.)

Step 6. Once you register an account through Adobe Connect, you will receive and e-mail with a link to your Web-based training. Click on this link and take your Web-based training.

Online registration for distance learning courses requires MS Internet Explorer (IE) 5.0 or higher.

As the transportation community becomes more familiar with Web-based training, NHI is temporarily providing those courses at no charge. Check out the NHI Web site for the most current information.

FHWA Employees should contact their FHWA Training Coordinator to enroll in NHI Web-based training.

International Customers

The NHI Web site currently does not accommodate international use of distance learning options. Please e-mail nhitraining@dot.gov if you have questions.

Need Help with the NHI Web Site?

If you run into any difficulty when you are logging in, enrolling in or taking a distance learning course, please contact our NHI Business Analyst for help by telephone at (703) 235-0556. The help service is available Monday to Friday from 9:30 a.m. to 4:00 p.m. Eastern.

NHI Accreditation and Course Credit

NHI earned its accreditation in January 2004. We include the number of Continuing Education Units (CEUs) that will be awarded to session participants who successfully complete NHI courses in the course description. Not all NHI courses offer credits.

According to the International Association for Continuing Education and Training (IACET): One Continuing Education Unit (CEU) is ten contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction.

The CEUs are based on a typical course presentation with 6 hours of actual instruction time (i.e., 0.6 CEUs) per day. CEUs will be awarded only to those participants who are present for the full session and successfully complete the end of course assessment. Some States and organizations use Professional Development Hours (PDHs) to track training. Each hour of instruction is worth one PDH.

To receive credit, participants in sessions must (1) fill out the participant registration form, (2) attend 100% of the session, and (3) receive at least a 70% on the final assessment/exam to pass the course.

Fees

Course fees are listed with the individual course description and include course materials for each participant. Prices are subject to change. Please reference the NHI Web site (www.nhi.fhwa.dot.gov) for the most current pricing information.

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. For additional information, please contact the NHI Training Team at (703) 235-0534, (703) 235-0577 fax, or nhitraining@dot.gov.

Cancellation Policy/Refunds

To receive a full refund for an ILT session, cancellation must be made at least seven days prior to the session start date. You must also notify the point of contact at the host organization. To receive a full refund for a distance learning course, cancellation must be made 72 hours after paying for the course. To cancel and request a refund, please contact the NHI Training Team at (703) 235-0528 or nhitraining@dot.gov.

Your refund will be processed as quickly as possible. Credit card refunds should appear within two billing cycles. A credit to attend another NHI course will be issued if payment was made by check. For the most up-to-date information on NHI policies, please refer to the NHI Web site.

NHI REAL SOLUTIONS

The National Highway Institute (NHI) is pleased to offer the second edition of NHI Real Solutions - a collection of articles that showcase real-world applications of NHI training and highlight the latest programs and partnerships related to transportation workforce development.

This edition features examples of how NHI partners such as the National Transportation Training Directors (NTTD) and the Transportation Curriculum Coordination Council (TCCC), and LTAP and TTAP centers nationwide are providing input to help shape NHI training to make it even more relevant to our customers. You will learn how States such as Minnesota and Louisiana are using NHI Training to improve construction on bridges and highways in *How Public Involvement Can Improve Highway Projects* and *Rebuilding from Katrina* You will see examples of how engineers and designers are better understanding strategies to ensure proper road water management.

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We hope the articles peak your interest in how NHI training can positively impact the valuable work you and your transportation colleagues do every day.

Course Number

FHWA-NHI-130053

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 for the Condition Evaluation of Bridges," 2000, with interims, the "FHWA Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges," 1995, including 2003/2004 eratta sheet, and the "AASHTO Guide for CoRe (Commonly Recognized) Structural Elements," 1998, with interims.

Core course topics include tri-axial constraint, inspector qualifications and duties, record keeping and documentation, structure inventory and appraisal overview, National Bridge Inventory (NBI) standard component ratings, element level ratings, safety, component case studies for decks, superstructures, substructures, and channels, and a virtual bridge inspection classroom exercise.

Optional topics include bridge mechanics, superstructure type identification, inspection techniques, fatigue and fracture in steel bridges, traffic safety features, bridge site signing, and culverts.

Host agencies desiring additional information on selection of optional topics and options for addressing NBI rating methods and element level data collection should contact Sean Patrick of Infrastructure Engineers at (412) 257-2898.

Outcomes

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

- Identify and document inspection observations using standard methods
- Evaluate defects based on the current AASHTO Manual for Condition Evaluation of Bridges
- Code NBI bridge components using the FHWA Recording and Coding Guide
- Code element level bridge data in accordance with the AASHTO Guide for CoRe (Commonly Recognized) Structural Elements

Target Audience

Federal, State, and local agencies and private sector personnel employed in inspecting bridges or managing bridge inspection programs. Participants must have completed prior comprehensive bridge inspection training, or meet the criteria for a bridge inspector under the State's procedures or requirements.

Training Level: Intermediate

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Thomas Everett • (202) 366-4675 • thomas.everett@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Course Number

FHWA-NHI-130054

Course Title

Engineering Concepts for Bridge Inspectors

This course provides knowledge of the elementary concepts in bridge engineering that are needed by bridge inspectors. Materials, material properties, bridge components and details, loadings, stresses and strains, and deterioration of bridge materials and members are covered. The course concludes with an examination reviewing key elements of bridge engineering.

This course prepares technicians and other personnel who have a limited knowledge of bridge engineering for a more intensive course in bridge inspection, such as the 2-week course FHWA-NHI-130055 Safety Inspection of In-Service Bridges.

Outcomes

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

- Identify common bridge types, recognize and name the typical major components and members of a highway bridge, and also the members and features unique to bridges such as trusses, arches, cable-stayed and suspension spans
- Name the common materials used in bridges and describe the basic properties, strengths, and weaknesses of each
- Discuss the basic concepts of elasticity of materials, response of materials and structural members to a variety of loadings, and the relationship between stresses and strains
- Describe the various types of deterioration of the common structural materials that result from weathering, loading, etc.
- Recognize the more common signs of material distress such as steel corrosion and cracking and concrete cracking, spalling and scaling
- Name the secondary elements and features of bridges such as joints, railings, scuppers, etc., and describe the proper role of each in the performance of a bridge
- Demonstrate knowledge of bridges, bridge components, material properties, and mechanics of materials to prepare to take a comprehensive course on bridge inspection

Target Audience

Federal, State, and local technicians, inspectors, and engineers with basic experience relating to highway bridges. 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: Beginner

Fee: $670 Per Person

Length: 5.0 Days (CEU: 3.0 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Thomas Everett • (202) 366-4675 • thomas.everett@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Get more from the NHI Web site!
Create your own NHI user account on the NHI Web site that will give you access to NHI's online services.

Course Number

FHWA-NHI-130055

Course Title

Safety Inspection of In-Service Bridges

This course is based on the "Bridge Inspector's Reference Manual" and provides training on the safety inspection of in-service highway bridges. Satisfactory completion of this course will fulfill the training requirements of the National Bridge Inspection Standards (NBIS) for a comprehensive training course.

Mid-term and final examinations based on course content will be administered to participants. The sponsoring agency/State may monitor the examinations and retain the scores to qualify or certify bridge inspectors. The sponsoring agency is responsible for grading the examinations. An answer key will be provided.

Outcomes

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

- Evaluate a variety of bridges and determine the critical areas for inspection, including fatigue-prone details, and common points of deterioration and/or distress
- Review as-built plans and previous inspection reports and, based on this review, plan and conduct an effective safety inspection for common bridge types and bridge-length culverts
- Provide documentation of defects in various materials and of bridge configurations
- Recognize the need to inspect the underwater portions of bridge structures, describe the types of deficiencies to look for (e.g., scour), determine when an inspection is necessary, and identify the procedures and types of equipment available and the advantages and limitations of each
- Evaluate the severity of material deterioration and member distress and assign ratings according to coding guidance as developed by FHWA and/or the State highway agency.
- Determine when it is necessary to close the bridge (or recommend closure) because of imminent danger
- Discuss the equipment requirements for a complete inspection and demonstrate proficiency
- Recognize when further inspection, such as nondestructive testing (NDT), is required beyond the usual visual and hand tool inspection and decide what type of further inspection should be conducted

Target Audience

Federal, State, and local highway agency employees involved in inspecting bridges or in charge of a bridge inspection unit. A background in bridge engineering or completion of NHI course FHWA-NHI-130054 Engineering Concepts for Bridge Inspectors is strongly recommended.

Training Level: Intermediate

Fee: $1,400 Per Person

Length: 10.0 Days (CEU: 6.0 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Thomas Everett • (202) 366-4675 • thomas.everett@fhwa.dot.gov

NHI Training Program Manager: Jerome A Dimaggio • (202) 366-1569 • jerry.dimaggio@fhwa.dot.gov

Course Number

FHWA-NHI-130069

Course Title

Hazardous Bridge Coatings: Design and Management of Maintenance and Removal Operations

The focus of this training course is on the maintenance or removal of bridge paint systems that contain lead or other potentially toxic materials. In compliance with applicable regulations, the course offers a step-by-step method for the design, specification, and management of bridge painting projects.

The classroom presentation includes a combination of lectures and discussions, demonstrations of key methods and procedures, and workshops. In addition, each participant receives a field guide containing a detailed project design checklist, a model/template specification, a suggested contractor pre-qualification package, and a pre-bid meeting agenda, a submittal review checklist, as well as an environmental, health, and safety checklist.

Outcomes

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

- Recognize the health hazards and legal risks associated with paint containing lead and the impacts on bridge painting programs
- Use coating assessment surveys to maximize the service life of individual coating systems and improve the cost-effectiveness of an overall bridge painting program
- Select appropriate combinations of removal methods and containment systems based upon the chosen painting strategy and the relative risks of the paint disturbance operation to workers, the public, and the environment
- Implement a monitoring program that adequately demonstrates that associated risks have been controlled
- Establish performance standards to protect workers, reduce long-term liabilities associated with hazardous wastes, and document successful clearance of project sites
- Prepare clear, well-organized, performance-based, project-specific specifications that establish objective goals for all areas of contract performance but leave the means and methods of construction to the contractor
- Use available tools to help pre-qualify contractors, conduct effective pre-bid meetings, review contractor submittals, and enforce project specifications

Target Audience

Highway and transportation agency employees and private industry personnel who are responsible for development of contract specifications and procurement requirements for the removal and/or maintenance of bridge paint systems. Training is also applicable to managers who are responsible for procurement approval and for other personnel involved in such operations.

Training Level: Intermediate

Fee: $550 Per Person

Length: 4.0 Days (CEU: 2.4 Units)

Class Size: Minimum: 20; Maximum: 28

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Larry O'Donnell • (708) 283-3502 • lodonnell@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Course Number

FHWA-NHI-130078

Course Title

Fracture Critical Inspection Techniques for Steel Bridges

The course curriculum reflects current practices and addresses new and emerging technologies available to bridge inspectors. In addition, the course includes exemplary training and hands-on workshops for popular types of nondestructive testing (NDT) equipment and a case study for the preparation of an inspection plan for a fracture critical bridge.

The first day of the course focuses on the concept of fracture critical members (FCMs), FCM identification, failure mechanics, and fatigue in metal. These fundamentals are followed by an overview of NDT methods. Day two provides demonstration sessions and hands-on applications of NDT techniques for dye penetrant, magnetic particle testing, Eddy current, 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. A case study of the preparation of an inspection plan of a fracture critical bridge closes out the presentation. The course includes daily participant assignments. The schedule can be tailored to specific agency requirements.

Outcomes

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

- Identify fracture critical bridges, fracture critical bridge members, and fatigue prone details
- Categorize contributing factors in the initiation and propagation of fatigue cracks
- Perform an intensive, in-depth, and thorough fracture critical member inspection
- Identify various crack types and access their impact on the performance of the member
- Evaluate, select, and facilitate the use of available NDT methods
- Recommend a necessary course of action based on inspection findings

Target Audience

Those benefiting most from this training will be public and private-sector bridge inspectors, supervisors, project engineers, maintenance engineers, shop inspectors, shop foreman, and others responsible for shop fabrication and field inspection of fracture critical steel bridge members. Participants should have completed NHI course FHWA-NHI-130054 Engineering Concepts for Bridge Inspectors and/or FHWA-NHI-130055 Safety Inspection of In-Service Bridges, or possess equivalent field experience relative to bridges to fully understand bridge mechanics and bridge safety inspection procedures as required by the National Bridge Inspection Standards.

Training Level: Intermediate

Fee: $480 Per Person

Length: 3.5 Days (CEU: 2.1 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Thomas Everett • (202) 366-4675 • thomas.everett@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

We'd love to hear from you! One way to submit feedback is by clicking "Contact Us" on any NHI Web site page.

Course Number

FHWA-NHI-130079

Course Title

Bridge Coatings Inspection

This training course focuses on inspection of surface preparation and application of protective coating systems for bridge and highway structures, including navigation through the State's painting specification. The course provides a basic overview of the theory of corrosion and its control, the characteristics of various bridge coating types, as well as surface preparation and coating application techniques and equipment. Sessions on understanding coating specifications and diagnosing premature coating failures are also included.

The classroom presentation includes a combination of lectures and discussions, demonstrations of surface preparation, coating application and inspection equipment, and hands-on workshops.

Outcomes

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

- Define the components of a corrosion cell and the methods in which protective coatings inhibit the corrosion process
- Describe the components of an industrial coating, the four basic curing mechanisms, and the advantages and limitations of protective coatings systems for bridge and highway structures
- Identify methods for surface preparation and describe the advantages and limitations of each
- Interpret SSPC and NACE surface preparation specifications
- Use coating manufacturers' product data sheets to ensure proper coating mixing, thinning, and application
- Identify methods of coating application and describe the advantages and limitations of each
- Describe the importance of quality assurance inspection of surface preparation and coating application operations on bridge structures
- Calibrate and use coatings inspection gauges and industry standards
- Describe the content of a pre-job conference
- Describe the basic format and content of a painting specification and identify the key items in the State's painting specification and/or special provisions
- Describe quality assurance documentation procedures
- Identify coating maintenance options and determine the overcoatability of an existing coating system
- Identify the causes of premature coating failures, methods of prevention, and resolution
- Recognize basic safety hazards associated with inspection of protective coatings
- Describe the basic controls used to help prevent environmental contamination during surface preparation and coating application operations

Target Audience

Highway and transportation agency employees and private industry personnel who are responsible for the onsite inspection of protective coating systems during their installation by outside painting contractors or by State personnel. Training is also applicable to management and bridge inspection supervisory personnel.

Training Level: Beginner

Fee: $550 Per Person

Length: 4.0 Days (CEU: 2.4 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Larry O'Donnell • (708) 283-3502 • lodonnell@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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: $320 Per Person

LENGTH: 2.0 DAYS (CEU: 1.2 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 40

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov
Subject Matter Contact: Firas Ibrahim • (202) 366-4598 • firas.ibrahim@dot.gov
NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

If you're interested in this course, you may also want to take advantage of other NHI structures courses.

FHWA-NHI-123012 Soil and Foundations Workshop - Geotechnical and Materials
FHWA-NHI-132014 Drilled Shafts
FHWA-NHI-132021 Driven Pile Foundations - Design and Construction
FHWA-NHI-132040 Geotechnical Aspects of Pavements - Geotechnical and Materials
FHWA-NHI-132042 Design of MSEW and RSS
FHWA-NHI-132078 Micropile Design and Construction

Course Number

FHWA-NHI-130081A

Course Title

LRFD for Highway Bridge Superstructures - Steel (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 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 training, 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: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 40

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Firas Ibrahim • (202) 366-4598 • firas.ibrahim@dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Course Number

FHWA-NHI-130081B

Course Title

LRFD for Highway Bridge Superstructures - Concrete (2.5-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. 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 training, 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: $395 Per Person

LENGTH: 2.5 DAYS (CEU: 1.5 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 40

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov
Subject Matter Contact: Firas Ibrahim • (202) 366-4598 • firas.ibrahim@dot.gov
NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

If you're interested in this course, you may also want to take advantage of other NHI structures courses.

FHWA-NHI-123012 Soil and Foundations Workshop - Geotechnical and Materials
FHWA-NHI-132014 Drilled Shafts
FHWA-NHI-132021 Driven Pile Foundations - Design and Construction
FHWA-NHI-132040 Geotechnical Aspects of Pavements - Geotechnical and Materials
FHWA-NHI-132042 Design of MSEW and RSS
FHWA-NHI-132078 Micropile Design and Construction

Course Number

FHWA-NHI-130081C

Course Title

LRFD for Highway Bridge Superstructures - Steel (2.5-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 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 training, 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: $395 Per Person

LENGTH: 2.5 DAYS (CEU: 1.5 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 40

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov
Subject Matter Contact: Firas Ibrahim • (202) 366-4598 • firas.ibrahim@dot.gov
NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Earn continuing education units (CEUs) with NHI courses.

Course Number

FHWA-NHI-130081D

Course Title

LRFD for Highway Bridge Superstructures - Steel and Concrete (4.5-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 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 training, 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: $695 Per Person

LENGTH: 4.5 DAYS (CEU: 2.7 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 40

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov
Subject Matter Contact: Firas Ibrahim • (202) 366-4598 • firas.ibrahim@dot.gov
NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

If you're interested in this course, you may also want to take advantage of other NHI structures courses.

FHWA-NHI-123012 Soil and Foundations Workshop - Geotechnical and Materials
FHWA-NHI-132014 Drilled Shafts
FHWA-NHI-132021 Driven Pile Foundations - Design and Construction
FHWA-NHI-132040 Geotechnical Aspects of Pavements - Geotechnical and Materials
FHWA-NHI-132042 Design of MSEW and RSS
FHWA-NHI-132078 Micropile Design and Construction

Course Number

FHWA-NHI-130082B

Course Title

LRFD for Highway Bridge Substructures and Earth Retaining Structures (4-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). However for geotechnical applications, the curriculum follows recent development work on AASHTO LRFD Section 10, Foundations, including the approved 2006 interim specifications.

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 through a series of detailed process flowcharts. 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 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 where meaningful.

The curriculum materials are comprised of a comprehensive reference manual, FHWA Publication No. FHWA NHI 05-094, 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. Loads, load distribution, and load combinations
2. Principles of limit state designs
3. Geotechnical spread footing design (soil and rock)
4. Driven pile and drilled shaft design (soil and rock)
5. Substructure design and detailing for a cantilever abutment and hammerhead pier
6. Mechanically stabilized earth walls
7. Precast modular walls
8. Ground anchor wall design

The following course delivery options are available in order to suit the varying levels of participant experience within a given agency.

FHWA-NHI-130082C: 5-Day delivery applicable to substructure and retaining wall design, complete with LRFD fundamentals. Fee $750 Per Participant (3.0 CEUs)

FHWA-NHI-130082B: 4-Day delivery applicable to substructure design only with no retaining wall design. Fee $600 Per Participant (2.4 CEUs)

FHWA-NHI-130082A: 3-Day delivery applicable to substructure design only with no LRFD fundamentals and no retaining wall design. Fee $450 Per Participant (1.8 CEUs)

FHWA-NHI-130082: 1-Day delivery applicable to retaining wall design only with no LRFD fundamentals. Fee $250 Per Participant (0.6 CEUs)

Outcomes

Upon completion of the training, 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

The primary target audience for the seminar is mid-level bridge and geotechnical journeymen or mid-level design engineers with one to five years of experience responsible for the structural and/or geotechnical design of bridge substructures and earth retaining structures. The course can accommodate a blend of entry-level designers with college LRFD experience and experienced designers with load factor design (LFD) experience but minimal or no LRFD experience.

Training Level: Intermediate

Fee: $620 Per Person

Length: 4.0 Days (CEU: 2.4 Units)

Class Size: Minimum: 20; Maximum: 40

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jerry DiMaggio • (202) 366-1569 • jerry.dimaggio@fhwa.dot.gov

Subject Matter Contact: Firas Ibrahim • (202) 366-4598 • firas.ibrahim@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

NHI training is led by top notch Instructors. See page 258 for more information about the Instructor Certification Program or contact our NHI Instructor Liaison at (703) 235-0010.

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 training, 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: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Tom Everett • (202) 366-4675 • thomas.everett@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Course Number

FHWA-NHI-131023

Updated Training

Course Title

Highway Materials Engineering Academy

NHI offers this annual academy as a series of six courses. Academy participation requires that potential participants complete an application and be approved for attendance. Please contact Michael.Rafalowski@fhwa.dot.gov for more information.

This course provides applied knowledge in highway engineering materials and quality control. Coverage includes:

1. Materials control and acceptance-quality assurance
2. Soil and foundations
3. Steels, welding, and coatings
4. Aggregates and unbound bases
5. Asphalt materials and paving mixtures
6. Portland cement concrete

Outcomes

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

- Identify and describe the characteristics and engineering properties of the materials utilized in highways
- Identify and describe the selection and important design properties of highway materials
- Describe the important steps and considerations in the mix design procedures
- Demonstrate an understanding of materials quality assurance and be able to develop an effective materials acceptance plan
- Describe the field and laboratory testing procedures and the significance of test results, along with their relationship to laboratory designs
- Describe the issues and trends of importance to State DOT materials engineering personnel

Target Audience

State DOT engineers who require a basic knowledge of highway materials. The typical participant will have an undergraduate degree in engineering or equivalent engineering experience in the highway field. These individuals typically will be staff professionals who either have been assigned or have the potential to be assigned to responsible positions in the highway materials field, such as district or regional materials engineer, or an engineer in the materials central office operations.

A prospective participant must have a solid academic background in mathematics and science.

Training Level: Intermediate

Fee: Check the NHI Web site for current pricing

Length: 30.0 Days (CEU: 16.0 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Michael Rafalowski • (202) 366-1571 • michael.rafalowski@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-131026

Updated Training

Course Title

Pavement Subsurface Drainage Design

Pavement Subsurface Drainage Design is a 2-day course aimed at teaching those involved in highway pavement design and construction how to design, build, and maintain subsurface drainage systems for new, existing, and reconstructed pavements. The information presented in this course about pavement subsurface drainage design is reinforced by hands-on training with the "Drainage Requirements in Pavements", Version 2.0 (DRIP2) Windows-based computer software. Workshop topics for this course cover an overview of pavement subsurface drainage, drainage considerations, drainage type selection, hydraulic design factors, permeable base systems, separator layers, longitudinal edgedrain design and construction, retrofit edgedrain design and construction, maintenance of subsurface drainage systems, and performance monitoring.

Outcomes

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

- Design subsurface drainage systems for new and existing portland cement concrete (PCC) and asphalt concrete (AC) pavements
- Assist in developing plans, specifications, and estimates for subsurface drainage system projects
- Develop monitoring and maintenance programs for pavements with subsurface drainage systems

Target Audience

The course is directed toward Federal, State, and local highway engineers, designers, and personnel involved in hydraulic design, materials control, pavements design, research, construction, and maintenance of pavement subsurface drainage systems.

Training Level: Intermediate

Fee: Check the NHI Web site for current pricing

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Angel Correa • (404) 562-3907 • angel.correa@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Private sector transportation partners are encouraged to host NHI training. For instructions on how to host a course, please see page 8 or visit the NHI Web site for more information.

Course Number

FHWA-NHI-131032

Course Title

TCCC 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 training, 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: $355 Per Person

Length: 2.5 Days (CEU: 1.5 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Matthew Corrigan • (202) 366-1549 • matthew.corrigan@fhwa.dot.gov

Subject Matter Contact: Chris Newman • (202) 366-2023 • christopher.newman@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

CHECK OUT THE FOLLOWING NHI TCCC TRAININGS

For more information about TCCC see the Real Solutions article on page XV.

Course Number	Title	Type	Page	Training Level
FHWA-NHI-131032	TCCC Hot-Mix Asphalt Construction	ILT	38	Intermediate
FHWA-NHI-131044	TCCC Hot-Mix Asphalt Production Facilities	ILT	40	Intermediate
FHWA-NHI-131045A	TCCC Hot-Mix Asphalt Materials, Characteristics, and Control	ILT	41	Intermediate
FHWA-NHI-131103A	TCCC Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments	ILT	48	Intermediate
FHWA-NHI-131103B	TCCC Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments	ILT	49	Intermediate
FHWA-NHI-131103C	TCCC Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments	ILT	50	Intermediate
FHWA-NHI-131104	TCCC Pavement Preservation: Integrating Pavement Preservation Practices and Pavement Management	ILT	51	Intermediate
FHWA-NHI-131107	TCCC Principles and Practices for Enhanced Maintenance Management Systems	ILT	54	Intermediate
FHWA-NHI-131110	TCCC Pavement Preservation Treatment Construction	WBT	57	Intermediate
FHWA-NHI-131114	TCCC Pavement Preservation: Optimal Timing of Pavement Preservation Treatments	WCT	59	Intermediate
FHWA=NHI-131115	TCCC Pavement Preservation: Preventive Maintenance Treatment, Timing, and Selection	ILT	60	Beginner
FHWA-NHI-131117	TCCC Basic Materials for Highway and Structure Construction and Maintenance	WBT	63	Beginner
FHWA-NHI-134001	TCCC Principles of Writing Highway Construction Specifications (2-Day)	ILT	105	Beginner
FHWA-NHI-134001A	TCCC Principles of Writing Highway Construction Specifications (3-Day)	ILT	106	Beginner
FHWA-NHI-134001B	TCCC Principles of Writing Highway Construction Specifications (4-Day)	ILT	107	Beginner
FHWA-NHI-134029	TCCC Bridge Maintenance Training	ILT	110	Intermediate
FHWA-NHI-134037A	TCCC Managing Highway Contract Claims: Analysis and Avoidance	ILT	111	Intermediate
FHWA-NHI-134042	TCCC Materials Control and Acceptance - Quality Assurance (4.5-Day)	ILT	113	Accomplished
FHWA-NHI-134042A	TCCC Materials Control and Acceptance - Quality Assurance (2-Day)	ILT	114	Accomplished
FHWA-NHI-134049	TCCC Use of Critical Path Method (CPM) for Estimating, Scheduling and Timely Completion	ILT	115	Beginner
FHWA-NHI-134055	TCCC Construction Inspection, Workmanship, and Quality	ILT	116	Intermediate
FHWA-NHI-134062	TCCC Bridge Evaluation for Rehabilitation Design Considerations (4.5-Day)	ILT	122	Intermediate
FHWA-NHI-134062A	TCCC Bridge Evaluation for Rehabilitation Design Considerations (5-Day)	ILT	123	Intermediate
FHWA-NHI-134069	TCCC Ethics Awareness for the Transportation Industry	WBT	129	Beginner
FHWA-NHI-134071	TCCC Basic Construction and Maintenance Documentation – Improving the Daily Diary	WBT	130	Beginner

Course Number

FHWA-NHI-131044

Course Title

TCCC Hot-Mix Asphalt Production Facilities

This training course combines lectures and workshop sessions to provide participants with a working knowledge of hot-mix asphalt (HMA) production facilities. The training program is the result of a partnership between the American Association of State Highway and Transportation Officials (AASHTO), the Transportation Curriculum Coordination Council (TCCC), the Federal Highway Administration (FHWA), and the HMA Industry. This course covers the entire HMA production facilities process and addresses the following topics: types of plants, drying and heating systems, emission control systems, feeders and conveyor systems, storage systems, plant operation and maintenance, quality control, and quality assurance. It concludes with an examination that emphasizes the key elements of HMA production facilities.

Participants are required to bring a calculator.

Outcomes

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

- Define the roles and responsibilities of each person at the HMA production facility
- Identify the different types of plants, the main components of each, and how these components interact
- Describe the materials control process and its effect on the quality of the final product
- Differentiate between acceptable and non-acceptable methods of plant operation and maintenance
- Explain the operation of the exhaust fan and emission control systems and discuss their importance
- Identify potential problems that may occur during production and develop specific solutions to those problems

Target Audience

This course is designed for project engineers, lead inspectors, plant supervisors, and all others involved with the HMA plant production. This course is designed for an audience that is a mix of contractor/producer personnel along with Federal, State, and local highway agency personnel.

Training Level: Intermediate

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Matthew Corrigan • (202) 366-1549 • matthew.corrigan@fhwa.dot.gov

Subject Matter Contact: Chris Newman • (202) 366-2023 • christopher.newman@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-131045

Course Title

TCCC Hot-Mix Asphalt Materials, Characteristics, and Control

This training course is the result of a partnership between the American Association of State Highway and Transportation Officials (AASHTO), Federal Highway Association (FHWA), and hot-mix asphalt (HMA) industry. It was developed through the cooperative efforts of the Joint AASHTO/FHWA/Industry Committee on Asphalt. It combines lectures and problem-solving workshop sessions to provide participants with a working knowledge of hot-mix asphalt materials, their characteristics, and controls. The course focuses on two areas. The first provides technical information on the material properties of HMA, the processes used to measure these properties, and the effect that these properties have on the final, compacted pavement. The second involves achieving these properties in the field, with discussions on quality management and analyzing the impact of segregation and density on HMA pavement performance. The course concludes with an examination that reviews the key elements of HMA materials, characteristics, and control.

Outcomes

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

- Identify the various and desirable properties of asphalt, aggregates, and mixtures
- Describe the proper procedures for handling, storing, sampling, and testing the materials
- Distinguish between desirable and undesirable results of tests used for controlling and analyzing the quality of HMA
- Select the processes and procedures that assure the quality of HMA pavements

Target Audience

Contractor personnel at both the production facility and on the pavement lay down site, owner/agency personnel involved with the inspection of HMA pavement construction, and others directly involved in the production and construction of hot-mix asphalt pavements. The course is designed for an audience that is a mix of contractor personnel and Federal, State, and local highway agency personnel.

Training Level: Intermediate

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Matthew Corrigan • (202) 366-1549 • matthew.corrigan@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Interested in best practice tips for hosting an NHI session?

Download the most current Host/Local Coordinator checklist from the NHI Web site at www.nhi.fhwa.dot.gov

Course Number

FHWA-NHI-131050

Course Title

Asphalt Pavement Recycling Technologies

This course is the result of a joint effort between the Federal Highway Administration (FHWA), the Asphalt Recycling and Reclamation Association (ARRA), and the National Center for Asphalt Technology (NCAT). The course provides in-depth technical knowledge of several recycling methods. It also offers training related to performance of recycled mixes, legislation/specification limits, selection of pavement for recycling and recycling strategies, economics of recycling, and structural design of recycled pavements. The ARRA publication "Basic Asphalt Recycling Manual" is used as a reference in this course.

Outcomes

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

- Describe the various methods (hot and cold) of recycling pavements
- Determine when asphalt recycling is a viable pavement rehabilitation alternative
- Select the most appropriate asphalt recycling method or technique
- Identify materials and mix design for recycled pavements
- Specify equipment, construction methods, and QC/QA involved in recycling
- Demonstrate design methods for hot and cold recycled pavements

Target Audience

This course is intended for State and local highway officials, administrators, pavement design engineers and technicians, and construction engineers and inspectors involved in the recycling of asphalt pavements.

Training Level: Intermediate

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jason Harrington • (202) 366-1576 • jason.harrington@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.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 training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Sam Tyson • (202) 366-1326 • sam.tyson@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Need an LTAP/TTAP contact? See the LTAP/TTAP contact list located on page 267.

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 training, 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: $355 Per Person

Length: 2.5 Days (CEU: 1.5 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Sam Tyson • (202) 366-1326 • sam.tyson@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

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Course Number

FHWA-NHI-131063

Course Title

Hot-Mix Asphalt Pavement Evaluation and Rehabilitation

The course presents 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 to those various types of distress.

Outcomes

Upon completion of the training, 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: Beginner

Fee: $355 Per Person

Length: 2.5 Days (CEU: 1.5 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jason Harrington • (202) 366-1576 • jason.harrington@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

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Simply go to the NHI Web site at www.nhi.fhwa.dot.gov and browe the NHI Store under the Training tab for available course materials.

Course Number

FHWA-NHI-131064

Course Title

Introduction to Mechanistic Design for New and Rehabilitated Pavements

The sponsoring agency must provide 15 computers with the following minimum requirements: Intel Pentium Processor, 8 MB RAM, 50 MB hard disk space, CD-ROM drive, Windows 95/NT 4.0 (or later version), VGA graphics card, and Microsoft Excel 5.0 (or later version). Some of the requirements are flexible and are a function of the software typically used in the class. Additional details can be obtained from NHI.

This course presents the theory and application of the most comprehensive, up-to-date mechanistic design concepts. The general framework of the mechanistic-empirical design procedure and the individual components are discussed in detail. The course includes several hands-on excercises pertaining to materials characterization, structural response calculations, pavement performance prediction, and mechanistic-empirical pavement design. These exercises use real-world problems and exercises that enhance future application of this design methodology. Some of the exercises involve computations using public-domain pavement software and simple spreadsheet-based programs, and all are customized to each course based on project data provided by the host agency.

The course also discusses ongoing research and the effects that current research activities might have on the state of the practice. Throughout the class, particular emphasis is placed on the mechanistic-empirical design concepts used in the Mechanistic-Empirical Pavement Design Guide (NCHRP Project 1-37A) and those that form the foundation of the Superpave pavement performance prediction models. The course will include detailed discussions about the data needs (materials, traffic, environment, etc.) for local/regional calibration of the Mechanistic-Empirical Pavement Design Guide and what steps agencies should begin to take before the guide is adopted and used on a day-to-day basis for design.

Outcomes

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

- List advantages of using M-E design
- Calculate structural responses for flexible, rigid, and overlaid pavements
- List major inputs to a mechanistic design procedure and how to obtain them
- Explain sensitivity of layer thickness, material properties, joint spacing, etc., to structural responses
- Back calculate layer moduli for flexible pavements
- Explain how layer thickness, material properties, joint spacing, etc., affect pavement distresses
- Construct a flowchart/outline for M-E design of flexible, rigid, and overlaid pavements

Target Audience

Pavement design engineers, materials engineers, and pavement management practitioners from government transportation agencies and the paving industry, and design consultants.

Training Level: Beginner

Fee: Check the NHI Web site for current pricing

Length: 4.0 Days (CEU: 2.4 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Gary Crawford • (202) 366-1286 • gary.crawford@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-131100

Course Title

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

This course presents a comprehensive overview of pavement smoothness and is designed for those directly involved in the use of inertial profilers and the application of the data obtained from inertial profilers. Participants will gain an understanding and knowledge of the different types of measurement techniques and indices used for reporting smoothness from profilers. The course is divided into units that introduce participants to the various components of roadway profiling, the operational requirements of most inertial profiling devices, and the analysis of data from most types of inertial profilers.

Outcomes

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

- Describe the data collection process and operation of the inertial profilers as pavement profile measurement devices
- Identify the basic elements of the inertial profiler, which include the profiler's components, how the equipment works, the raw data is being collected, outputs from the data collection process, and the filtering of the raw data itself
- Explain how the inertial profiler output is used to establish various smoothness indices, including data processing techniques and computational procedures of different smoothness, or ride quality indices, identification of outliers, and factors that have an effect on the variability of the measurements
- Explain the relationships between profiler results and the equipment used, the measurement surface conditions, the measurement environment, the profiler operation, and the profiler operators themselves
- Explain how data acquisition and computational methods can affect computed indices, including the filtering process, sample intervals, record intervals, variability in collecting the data, and factors that have an effect on that variability

Target Audience

This course is intended for an audience involved in the use of inertial profilers and in the application of the data obtained from inertial profilers. This primarily includes road profiler operators and individuals responsible for the data interpretation. Information may also be of interest to users of profiler output, engineers, and administrators.

Training Level: Intermediate

Fee: $255 Per Person

Length: 1.5 Days (CEU: 0.9 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Mark Swanlund • (202) 366-1323 • mark.swanlund@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-131103A

Course Title

TCCC 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 on the general subject of pavement preservation.

The 2-day version consists of Modules 1 and 4, with limited 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.

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.

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

Outcomes

Upon completion of the training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Joseph Gregory • (202) 366-1557 • joseph.gregory@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-131103B

Course Title

TCCC Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments

In preventive maintenance, t**he** 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 on the general subject of pavement preservation.

The 3-day version consists of Modules 1 and 4, with additional 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 topic for the target audience. The length of the course will be determined by the number of topics being discussed. The course modules are:

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.

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

Outcomes

Upon completion of the training, 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: Check the NHI Web site for current pricing

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Joseph Gregory • (202) 366-1557 • joseph.gregory@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-131103C

Course Title

TCCC 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 on the general subject of pavement preservation.

The 4-day version contains all modules including:

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.

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

Outcomes

Upon completion of the training, 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: Check the NHI Web site for current pricing

Length: 4.0 Days (CEU: 2.4 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Joseph Gregory • (202) 366-1557 • joseph.gregory@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-131104

Course Title

TCCC Pavement Preservation: Integrating Pavement Preservation Practices and Pavement Management

Obtaining optimum value from preventive maintenance treatments is only possible when preventive maintenance activities are fully linked to a pavement management system. There are many opportunities for such integration, from identifying and tracking the benefits of different treatments and timings to developing models that incorporate the effects of preventive maintenance. By using pavement management data for network-level analysis, an effective pavement strategy that utilizes reconstruction, rehabilitation, and preventive maintenance actions can be developed. When used at the project level, pavement management can assist the decisionmaker in selecting the best pavement preservation option to be designed and applied.

This course is intended to communicate to agencies the importance of integrating pavement preservation activities into pavement management. Presently many pavement management systems identify the "worst" case pavements. These pavements typically have conditions ratings far below those intended to be addressed by pavement preservation activities. This course identifies the process in which:

1. Management tools are adjusted to support a pavement preservation program
2. Pavement preservation activities are integrated into "enhanced" pavement management models
3. The use of these "enhanced" pavement management models to support decisions at the project, network, and systems levels

This course addresses integrating pavement preservation with pavement management in a logical sequence beginning with project-level performance issues and ending with the use of network-level information in making strategic system-level decisions. The course materials identify steps that agencies must take in order to develop an action plan to improve their integration efforts.

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

Outcomes

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

- Name several ways pavement management tools can support a pavement preservation program at the project, network, and strategic analysis levels
- List the reasons it is important for an agency to integrate pavement preservation into its pavement management activities
- Name the ways that pavement preservation techniques can be integrated into pavement management models
- Name some of the common obstacles to the successful integration of pavement preservation and pavement management programs and strategies for overcoming these obstacles

Target Audience

This course is primarily intended for pavement management engineers, district (or regional) maintenance engineers, local agency engineers, maintenance management engineers, and planning and programming personnel. This course is also recommended for asset management team members.

Training Level: Intermediate

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Joseph Gregory • (202) 366-1557 • joseph.gregory@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-131105

Course Title

Analysis of PMS Data for Engineering Applications

This course is a compilation of case studies from States that are using the years of condition data stored in their pavement management systems (PMS) to track the real-life performance of pavements, evaluate and analyze pavement overlay design, track performance of materials and construction, incorporate preventive maintenance actions, and evaluate maintenance or pavement performance.

Outcomes

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

- Analyze their agency's need to either add additional data to their PMS or electronically link databases so that engineering analysis can be done
- Describe the range of applications and the processes needed to do engineering analysis

Target Audience

Design engineers, materials engineers, maintenance engineers, QA/QC staff, and pavement management staff. This course is also recommended for asset management team members.

Training Level: Intermediate

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Nastaran Saadatmand • (202) 366-1337 • nastaran.saadatmand@dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Ready to host a course? Submit an online Host Request form through the NHI Web site at www.nhi.fhwa.dot.gov.

Course Number

FHWA-NHI-131106

Course Title

Transportation Asset Management

Transportation asset management is a strategic approach to managing physical transportation infrastructure. This introductory course covers the principles, concepts, components, techniques, and benefits of asset management. The materials are based on the AASHTO's "Transportation Asset Management Guide" that was produced under the National Cooperative Highway Research Program (NCHRP) Project 20-24(11).

This course supports, complements, and builds familiarity with using the guide and illustrates asset management "best practices" in key functions of a transportation agency's resource allocation and utilization: policy development, planning and programming, program delivery, operations, and use of information and analytic tools.

A self-assessment process is provided for transportation agencies to benchmark current asset management practices and identify potential areas for further enhancement and implementation.

Outcomes

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

- Identify the fundamentals of transportation asset management
- Recognize how the framework and principles of transportation asset management relate and fit into their agencies' business process
- Begin to visualize how the framework and principles of transportation asset management relate and fit into their agencies' business processes
- Use the self-assessment guide to assess and benchmark their agencies' transportation-asset-management program
- Begin to develop transportation-asset-management goals and objectives for their agencies

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. A 35-minute module at the beginning of the course provides a succinct overview of asset management that is suitable for executives. 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: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 40

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Stephen Gaj • (202) 366-1336 • stephen.gaj@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-131107

Course Title

TCCC Principles and Practices for Enhanced Maintenance Management Systems

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 this topic. The course materials will be supplemented with examples from State and local highway agencies to illustrate the application of the principles in transportation agencies.

Developed in partnership with the Transportation Curriculum Coordination Council.

Outcomes

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

- Compare and contrast a first generation MMS with an enhanced MMS of the 21st century
- 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 a MMS
- Identify the types of systems that should be integrated with a 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 the 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. This 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: Intermediate

Fee: $355 Per Person

Length: 2.5 Days (CEU: 1.5 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Celso Gatchalian • (202) 366-1342 • celso.gatchalian@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Compare and Save! Host this training and pay $335 each for 20 participants plus travel costs **OR** *Host 131112 and save.*

Course Number

FHWA-NHI-131109

New Training

Course Title

Analysis of New and Rehabilitated Pavement with M-E Design Guide Software

This course will provide an opportunity for State Highway Agencies to become familiar with the MEPDG documentation, the models and the methodology used in the software program. Modules on software inputs for materials (unbound, asphalt and concrete), as well as climatic and traffic inputs help participants understand how they are used in the design analysis. Other modules will require participants to use the software to complete exercises designed to demonstrate the iterative design process for new rigid pavements, new flexible pavements, and rehabilitated pavements. The last day of the course will focus on implementation and innovative features of the MEPDG as well as an end of course assessment to reinforce the course material.

The course will include detailed discussions about the data needs (materials, traffic, environment, etc.) for local/regional calibration of the Mechanistic-Empirical Pavement Design Guide and what steps agencies should begin to take before the guide is adopted and used on a day-to-day basis for design. The sponsoring agency must provide 20 computers with the following minimum requirements:

Pentium III or higher PC running at least 800 MHz or higher is recommended; at least 128 MB of Random Access Memory (256MB or more is recommended); 800 MB of free hard drive space; CD-ROM drive; Microsoft Windows 98, Windows ME, Windows 2000, Windows NT 4.0, or Windows XP.

The sponsoring agency must provide 20 computers with the following minimum requirements:

- Pentium III or higher PC running at least 800 MHz or higher is recommended
- At least 128 MB of Random Access Memory (256MB or more is recommended)
- 800 MB of free hard drive space
- CD-ROM drive
- Microsoft Windows 98, Windows ME, Windows 2000, Windows NT 4.0, or Windows XP

Outcomes

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

- Apply a flexible (new and rehabilitated) pavement analysis using Design Guide software
- Apply a rigid (new and rehabilitated) pavement analysis using Design Guide software
- Evaluate the predicted performance of a design
- Describe the relationship between the Design Guide inputs and predicted pavement performance
- Estimate the performance of a flexible pavement structure, new or rehabilitated
- Estimate the performance of a rigid pavement structure, new or rehabilitated
- Compare the predicted performance with the target performance criteria and determine if the design is acceptable or if additional software runs are necessary
- Describe the relationship between the Design Guide inputs and predicted pavement performance in general and for the specific analysis case in question

Target Audience

The target audience for this course is State DOT and local highway agency pavement design engineers. Additional participants may include: design consultants, university researchers, agency materials, pavement management, and traffic engineers. In addition, State Agency stakeholders may attend the implementation module (Module 6) to better understand the benefits of using the Guide and their role in the implementation process.

Assumed Pre-Training Competencies, participants should be familiar with:

- Personal computer operations and MS Windows environment
- Principles of structural pavement design

TRAINING LEVEL: Intermediate

FEE: Check the NHI Web site for current pricing

LENGTH: 3.5 DAYS (CEU: 2.1 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov
Subject Matter Contact: Gary Crawford • (202) 366-1286 • gary.crawford@fhwa.dot.gov
NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

The participant workbook is available for download at the NHI Store. Visit the NHI Web site at www.nhi.fhwa.dot.gov.

Course Number

FHWA-NHI-131110

Course Title

TCCC Pavement Preservation Treatment Construction

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. The guide covers basic pavement preservation concepts, as well as information on specific treatments to extend the life of asphalt pavements.

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 training course is primarily targeted at individuals unfamiliar with pavement preservation policy and technical information.

Outcomes

Upon completion of the training, 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.

Training Level: Intermediate

Fee: FREE

Length: 6.5 Hours (CEU: 0.6 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Chris Newman • (202) 366-2023 • christopher.newman@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

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Course Number

FHWA-NHI-131112

Course Title

Principles and Practices for Enhanced Maintenance Management Systems

The course consists of three live Web sessions with several self-study modules. NHI developed this course to save participants time and money on travel. It covers the same content as the Instructor-led training FHWA-NHI-131107 but because of the online delivery method, it is substantially less expensive.

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.

Outcomes

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

- Compare and contrast a first generation MMS with an enhanced MMS of the 21st century
- 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: Beginner

Fee: $275 Per Person

Length: 15.0 Hours (CEU: 1.5 Units)

Class Size: Minimum: 15; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Celso Gatchalian • (202) 366-1342 • celso.gatchalian@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Compare and Save! Host this training and pay $275 per participant **OR** *Host the same training in a classroom and pay for $335 each for 20 participants plus travel costs for FHWA-NHI-131107.*

Course Number

FHWA-NHI-131114

Course Title

TCCC Pavement Preservation: Optimal Timing of Pavement Preservation Treatments

Many agencies perform pavement preservation or preventive maintenance. An important issue facing such programs is identifying the best time to apply a preventive maintenance (PM) treatment. Applying PM treatments too soon or too late is just not effective from either a cost, performance, or managerial view. This four-hour seminar explores some of the work performed under NCHRP Project 14-14 and the OPTime tool that was developed as part of that project to help agencies determine the optimal time to apply a treatment. Topics range from defining goals, characteristics of good pavement preservation programs, collecting treatment performance relationship data, and key cost and benefit considerations. Taught online in a virtual classroom, the course is taught by a lead author of the report and includes access to the NCHRP 523 report and a download of the OPTime timing software add-on.

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

Outcomes

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

- Describe the methodology for determining the optimal timing of preventive maintenance treatments
- List the factors governing optimal timing of treatments
- Apply the methodology to their agency's pavement preservation program.
- Describe the effect of timing on pavement preservation treatment performance and program effect.

Target Audience

The target audience includes upper- and mid-level highway agency professionals who are responsible for pavement preservation and management. Pertaining to job tasks, participants may be responsible for choosing rehabilitation, reconstruction, preservation treatments for highways, surveying roads and determining which projects to schedule, program planning and charged with deciding which projects fall under a particular program, allotment of funds, and scheduling. Finally, possible attendees include those who may currently be using preservation methods, but may not be using the entire "toolbox" of preservation techniques.

In terms of education levels, those attending this course should, at a minimum, have completed high school and read at least at a 12th grade level. Their experience should include knowledge of the basics of pavement maintenance, pavement preservation, and how they differ.

Training Level: Intermediate

Fee: $100 Per Person

Length: 4.0 Hours (CEU: 0.0 Units)

Class Size: Minimum: 15; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Chris Newman • (202) 366-2023 • christopher.newman@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@dot.gov.

Course Number

FHWA-NHI-131115

New Training

Course Title

TCCC Pavement Preservation: Preventive Maintenance Treatment, Timing, and Selection

The purpose of this 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.

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

Outcomes

Upon completion of the training, 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. For example, this might include the following job titles within a State highway agency: pavement engineer, project manager/maintenance engineer, region director, materials lab personnel, planning/programming staff, pavement management engineer/manager, road superintendent.

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 could include the following: evaluating pavements, selecting pavements and treatments for preservation projects, making budget determinations for pavement preservation projects (preservation vs. reconstruction), and/or appropriating background information or prior knowledge which would be useful for the course participants includes the following:

1. Basic understanding of the information imported in a pavement condition report.
2. Ability to interpret the results of a pavement condition report.
3. Identify deterioration/distress using visual information and determine the causes of that deterioration/distress.

Training Level: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Chris Newman • (202) 366-2023 • christopher.newman@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

The participant workbook is available for download at the NHI Store.

Course Number

FHWA-NHI-131116

New Training

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 one of the three lessons, Lesson 4-1, will be covered during this 1-day version of the course, which introduces 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 training, 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: Beginner

Fee: $FREE

Length: 1.0 Day (CEU: 0.0 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Nastaran Saadatmand • (202) 366-1337 • nastaran.saadatmand@dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-131116A

New Training

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 one and a half 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 course includes five modules. Module 4 has been divided into three lessons. This one-and-a-half day version of the course allows for a State to receive Lesson 4-1 (strategies to improve the effectiveness of the agency's pavement management program), as well as 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 training, 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: Beginner

Fee: FREE

Length: 1.5 Days (CEU: 0.0 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Nastaran Saadatmand • (202) 366-1337 • nastaran.saadatmand@dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-131117

New Training WBT

Course Title

TCCC Basic Materials for Highway and Structure Construction and Maintenance

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

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

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

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

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

Outcomes

Upon completion of the training, 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: Beginner

Fee: FREE

Length: 4.0 Hours (CEU: 0.0 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Chris Newman • (202) 366-2023 • christopher.newman@dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@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 training, 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: Beginner

Fee: $550 Per Person

Length: 4.0 Days (CEU: 2.4 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Ben Rivers • (404) 562-3926 • benjamin.rivers@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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: Beginner

Fee: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jerry DiMaggio • (202) 366-1569 • jerry.dimaggio@fhwa.dot.gov

Subject Matter Contact: Daniel Alzamora • (720) 963-3214 • daniel.alzamora@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Use advanced search features on the NHI Web site to find beginner, intermediate, and accomplished level courses.

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 training, 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: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Daniel Alzamora • (720) 963-3214 • daniel.alzamora@fhwa.dot.gov

Subject Matter Contact: Jerry DiMaggio • (202) 366-1569 • jerry.dimaggio@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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: Beginner

Fee: $270 Per Person

Length: 1.5 Days (CEU: 0.9 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jerry DiMaggio • (202) 366-1569 • jerry.dimaggio@fhwa.dot.gov

Subject Matter Contact: Daniel Alzamora • (720) 963-3214 • daniel.alzamora@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

View the new and updated courses on the NHI Web site home page.

Course Number

FHWA-NHI-132013C

Course Title

Geosynthetics Engineering Workshop - Roadways (1.5-Day)

This course (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 training, 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: Beginner

Fee: $270 Per Person

Length: 1.5 Days (CEU: 0.9 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jerry DiMaggio • (202) 366-1569 • jerry.dimaggio@fhwa.dot.gov

Subject Matter Contact: Daniel Alzamora • (720) 963-3214 • daniel.alzamora@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Have questions about training and scheduling?

Contact the NHI Training Team for more information.

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 training, 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: Beginner

Fee: $270 Per Person

Length: 1.5 Days (CEU: 0.9 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Daniel Alzamora • (720) 963-3214 • daniel.alzamora@fhwa.dot.gov

Subject Matter Contact: Jerry DiMaggio • (202) 366-1569 • jerry.dimaggio@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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
- 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. This course is intended for field or laboratory personnel with a background in engineering.

Training Level: Intermediate

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Justice Maswoswe • (410) 962-2460 • justice.maswoswe@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Course Number

FHWA-NHI-132021

Course Title

Driven Pile Foundations - Design and Construction

This course covers the practical application of driven pile technology, with an emphasis on data interpretation and decisionmaking issues common to real-life construction projects. The course addresses subsurface investigation, pile selection, economic analysis, static design analysis (single pile and pile group behavior under compression, tension and lateral loading, pile settlement, negative skin friction) specifications and contracting documents, construction monitoring (pile inspection, dynamic driving formulas, wave equation analysis, dynamic testing), static methods of pile load testing, driven pile installation equipment, and accessories. The course also covers design procedures for subsurface conditions; the computer program for calculating static pile capacity; design procedures for downdrag, scour, squeeze, and heave; plugging of open pile sections; group design for lateral and uplift loads; and the economics of pile selection. Instructional methods include workshops, participant exercises, and sample problems to transfer the necessary knowledge and skills to plan and design driven pile foundation projects and to implement QA/QC procedures during construction.

Outcomes

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

- Implement a systematic plan for the design and construction of driven pile foundations
- Select appropriate subsurface exploration procedures and laboratory tests to provide design soil parameters for pile foundation design
- Choose the appropriate pile type in a given soil profile based on the advantages and disadvantages of common driven pile types
- Use appropriate methods of pile foundation design in application subsurface conditions
- Calculate single and group capacities of driven piles to resist compression, tension, and lateral loads
- Use time-dependent soil strength changes in pile foundation design and construction control
- Identify the project influence and significance of pile driveability, pile refusal, and minimum and estimated pile toe elevations
- Calculate allowable design and allowable driving stresses for common pile types
- Explain the key differences between allowable stress design and load and resistance factor design methods
- Define key components of driven pile specifications
- Identify the format and minimum content in an adequate foundation report for driven pile foundations
- Use dynamic formulas, wave equation analyses, dynamic pile testing and static load testing correctly and effectively
- Identify pile hammer types, their operational characteristics, and key pile hammer and pile hammer accessory inspection issues
- Select pile toe accessories, pile splicing methods, and pile installation aids applicable to the pile type and subsurface conditions
- Explain appropriate methods of pile installation inspection

Target Audience

The target audience includes geotechnical specialists, bridge engineers, construction engineers, and consultant review specialists. This course is suitable for attendance by entry-level and experienced engineers and advanced-level technicians. Attendees should have a basic knowledge of subsurface investigation methods and the general aspects of foundation design and construction.

TRAINING LEVEL: Intermediate

FEE: $550 Per Person

LENGTH: 4.0 DAYS (CEU: 2.4 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov
Subject Matter Contact: Justice Maswoswe • (410) 962-2460 • justice.maswoswe@fhwa.dot.gov
NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

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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 training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Justice Maswoswe • (410) 962-2460 • justice.maswoswe@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Ben Rivers • (404) 562-3926 • benjamin.rivers@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

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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. It is important for all participants to attend all lessons, not just those in their immediate areas of interest.

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 training, 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 for this course includes FHWA, State, and local highway agency employees; college and university faculty; and consultant engineers/geologists who are involved in the analysis, design, construction, maintenance, and remediation of soil slopes and embankments on surface transportation facilities. An undergraduate degree in civil engineering or equivalent engineering experience in the highway/transportation field is desirable.

Training Level: Intermediate

Fee: $355 Per Person

Length: 2.5 Days (CEU: 1.5 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Peter Osborn • (410) 962-0702 • peter.osborn@fhwa.dot.gov

Subject Matter Contact: Jerry DiMaggio • (202) 366-1569 • jerry.dimaggio@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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 for this course includes FHWA, State, and local highway agency employees; college and university faculty; and consultant engineers who are or will be involved in planning, designing, and/or constructing ground improvement systems for transportation features involving earthwork, bridges, and earth retaining structures. An undergraduate degree in geology, engineering geology, civil engineering, or equivalent engineering experience in the highway/transportation field is desirable.

Training Level: Intermediate

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Silas Nichols • (202) 366-1554 • silas.nichols@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Barry Siel • (720) 963-3208 • barry.siel@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Daniel Alzamora • (720) 963-3214 • daniel.alzamora@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

If you're interested in this course, you may also want to take advantage of another NHI structures course.

FHWA-NHI-130082B LRFD for Highway Bridge Substructures and Earth Retaining Structures.

Course Number

FHWA-NHI-132037

Course Title

Shallow Foundations

This course provides transportation earthwork professionals with the necessary skills to design shallow foundations for transportation applications and to consider the construction and inspection implications of the design. The participants will receive a comprehensive reference manual on investigation, design, and construction of shallow foundations used by highway and geotechnical engineers that will be referred to during the course, so participants will become familiar with its contents. The exercises book is an interactive teaching tool for the course, enabling participants to be actively involved in the learning experience.

Outcomes

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

- Recognize potential failure modes or deformation types for soil slopes and embankments
- Develop the ability to judge when shallow foundations should be considered
- List the failure modes of shallow foundations
- Determine the bearing capacity of shallow foundations on soils and rocks
- Calculate vertical stress distribution below shallow foundations
- Determine the primary consolidation settlement of shallow foundations on cohesive soils
- Determine the settlement of shallow foundations on cohesionless soils
- Identify problematic soils that may be encountered
- List soil and ground improvement techniques that may be used to improve the performance of shallow foundations
- Describe procedures for construction inspection and performance monitoring of shallow foundations

Target Audience

The target audience for this course includes FHWA, State, and local highway agency employees; college and university faculty; and consultant engineers and geologists who are involved in the analysis, design, construction, maintenance, and remediation of soil slopes and embankments on surface transportation facilities. An undergraduate degree in civil engineering or equivalent engineering experience in the highway/transportation field is desirable.The course will be most beneficial to geotechnical engineers, engineering geologists, foundation designers, project engineers, and highway/bridge engineers who are involved in the design and construction of foundations for surface transportation projects.

Training Level: Intermediate

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jerry DiMaggio • (202) 366-1569 • jerry.dimaggio@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 (e.g., road widening) pavement projects. The course content includes geotechnical exploration and characterization of in-place and constructed subgrades; designing and constructing pavement subgrades and unbounded materials for paved and unpaved roads, with emphasis on the current AASHTO 1993 design guidelines and on the mechanistic-empirical design approach, including the three levels of design inputs; the overall geotechnical and drainage aspects of bases, subbases, and subgrades (for a safe, cost-effective, and durable pavement); and construction and inspection of pavement projects.

The goal of the course is to have each participant recognize the importance of the geotechnical aspects relevant to the design, construction, and performance of a pavement system. Participants will develop an appreciation for adequate subsurface exploration and laboratory characterization of subgrade soils as well as the requisite design parameters for unbound base layers and drainage features in relation to pavement design. 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 training, participants will be able to:

- Explain the geotechnical parameters of interest in pavement design and their effect 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
- 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, 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: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jerry DiMaggio • (202) 366-1569 • jerry.dimaggio@fhwa.dot.gov

Subject Matter Contact: Daniel Alzamora • (720) 963-3214 • daniel.alzamora@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Special room set up and materials are required. Check the NHI Web site for more details.

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 training, 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 the need to follow a systematic approach when planning, selecting, and executing an instrumentation program and identify the components of a systematic approach
- 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 for this course includes FHWA, State, and local highway agency employees; college and university faculty; and consultant engineers and geologists who are or will be involved in the design, evaluation, and construction of pavements. An undergraduate degree in civil engineering, geology or equivalent engineering experience in the highway/transportation field is desirable.

Training Level: Intermediate

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Silas Nichols • (202) 366-1554 • silas.nichols@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Course Number

FHWA-NHI-132042

Course Title

Design of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes

Mechanically stabilized earth walls (MSEWs) and reinforced soil slopes (RSS) are two modern methods of earth-fill construction that are extremely cost effective and aesthetically pleasing. The basic concept behind these related methods is to combine soil, reinforcing materials made of steel or polymers, and appropriate facing to produce a composite material with improved engineering properties. Both MSEWs and RSS structures provide substantial savings in construction time and costs when compared with other conventional types of earth retaining systems.

The goal of the course is to educate agencies about state-of-the-practice design tools and construction practices to promote implementation of mechanically stabilized earth technology in cost effective earth retention structures. This course would be of most benefit to persons who are involved in the design and construction of earth retention structures for surface transportation projects.

The host agency/Local Coordinator is required to provide about 25 lbs. of dry sand (about 1/2 bag of play sand from a home improvement store, or concrete sand) for use in the demonstrations.

Outcomes

Upon completion of the training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Rich Barrows • (360) 619-7704 • rich.barrows@fhwa.dot.gov

Subject Matter Contact: Daniel Alzamora • (720) 963-3214 • daniel.alzamora@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Course Number

FHWA-NHI-132043

Course Title

Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes

Mechanically stabilized earth walls (MSEWs) and reinforced soil slopes (RSS) are two modern methods of earth-fill construction that are extremely cost effective and aesthetically pleasing. The basic concept behind these related methods is to combine soil, reinforcing materials made of steel or polymers, and appropriate facing to produce a composite material with improved engineering properties. Both MSEWs and RSS structures provide substantial savings in construction time and costs when compared with other conventional types of earth retaining systems.

The goal of this course is to educate agencies about current construction practices for implementing mechanically stabilized earth technology into cost-effective earth retention structures. This course is most beneficial to persons who are involved in the construction of earth retention structures for surface transportation projects.

The host agency/Local Coordinator is required to provide about 25 lbs. of dry sand (about 1/2 bag of play sand from a home improvement store, or concrete sand) for use in the demonstrations.

Outcomes

Upon completion of the training, 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

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: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Rich Barrows • (360) 619-7704 • rich.barrows@fhwa.dot.gov

Subject Matter Contact: Daniel Alzamora • (720) 963-3214 • daniel.alzamora@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Special arrangements are required for this course by the Host/Local Coordinator. Check the NHI Web site for details.

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.

Outcomes

Upon completion of the training, 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: $355 Per Person

Length: 2.5 Days (CEU: 1.5 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Justice Maswoswe • (410) 962-2460 • justice.maswoswe@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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.

All participants should be advised by the Local Coordinator/session host that they are encouraged to complete the FHWA Drilled Shaft Construction online tutorial. This will enhance the overall learning process and enhance performance on the end of course comprehensive exam. The tutorial is located at: http://www.fhwa.dot.gov/infrastructure/tccc/tutorial/index.htm

Outcomes

Upon completion of the training, 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 SCL requirements
- 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: $355 Per Person

Length: 2.5 Days (CEU: 1.5 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Justice Maswoswe • (410) 962-2460 • justice.maswoswe@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Barry Siel • (720) 963-3208 • barry.siel@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Ben Rivers • (404) 562-3926 • benjamin.rivers@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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.

The host/Local Coordinator is requested to provide about 50lbs. of sand (about 1 bag of play sand from a home improvement store, or concrete sand) for use in the demonstrations. About 25lbs. needs to be dry and the other half moist.

Outcomes

Upon completion of the training, 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

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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Rich Barrows • (360) 619-7704 • rich.barrows@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Special arrangements are required for this course by the Host/Local Coordinator. Check the NHI Web site for details.

Course Number

FHWA-NHI-133005

Course Title

Highway Capacity and Quality of Flow (1-Day)

This course provides basic instruction in the use of the 2000 "Highway Capacity Manual" (HCM). Software is employed in most of the capacity analyses performed in the course. Approximately one-half of the course is dedicated to sessions on interrupted flow facilities (i.e., signalized intersections, unsignalized intersections and arterials). The remainder of the course covers freeways, weaving sections, ramps, multilane, and two-lane rural facilities. The course includes lectures describing the procedures for performing capacity analyses on each type of highway facility. Demonstrations and hands-on application of the highway capacity software are used to solve example and workshop problems.

The hosting organization is responsible for providing computers with 133 MHz Intel Pentium III or faster processors with Windows 95, NT or better, color monitors, 20 MB of available disk space, and a minimum of 16 MB RAM. IMPORTANT - Maximum of two participants per computer.

Outcomes

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

- Explain facility characteristics and their limits as used in the HCM 2000 English
- Explain analytical procedures and how to apply them
- Use formulas by inputting data, reviewing and adjusting default values or adjusting factors, as necessary, for project and local conditions
- Determine LOS from results

Target Audience

State, local, FHWA, contractors, and MPOs who design and analyze intersections, interface with freeways, deal with signal time issues, design and manage operations of urban streets, plan for type of intersections for future needs, work with system(s) monitoring and management of arterial systems; or who conduct operational analysis to determine needs of highway facility, estimate the level of service for new/proposed and existing operations, and manage freeway systems.

Training Level: Beginner

Fee: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: John Halkias • (202) 366-2183 • john.halkias@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

This course is offered in multiple versions. Check the NHI Web site for more information.

Course Number

FHWA-NHI-133005A

Course Title

Highway Capacity and Quality of Flow (1.5-Day)

This course provides basic instruction in the use of the 2000 "Highway Capacity Manual" (HCM). Software is employed in most of the capacity analyses performed in the course. Approximately one-half of the course is dedicated to sessions on interrupted flow facilities (i.e., signalized intersections, unsignalized intersections and arterials). The remainder of the course covers freeways, weaving sections, ramps, multilane, and two-lane rural facilities. The course includes lectures describing the procedures for performing capacity analyses on each type of highway facility. Demonstrations and hands-on application of the highway capacity software are used to solve example and workshop problems.

The hosting organization is responsible for providing computers with 133 MHz Intel Pentium III or faster processors with Windows 95, NT or better, color monitors, 20 MB of available disk space, and a minimum of 16 MB RAM. IMPORTANT - Maximum of two participants per computer.

Outcomes

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

- Explain facility characteristics and their limits as used in the HCM 2000 English
- Explain analytical procedures and how to apply them
- Use formulas by inputting data, reviewing and adjusting default values or adjusting factors, as necessary, for project and local conditions
- Determine LOS from results

Target Audience

State, local, FHWA, contractors, and MPOs who design and analyze intersections, interface with freeways, deal with signal time issues, design and manage operations of urban streets, plan for type of intersections for future needs, work with system(s) monitoring and management of arterial systems; or who conduct operational analysis to determine needs of highway facility, estimate the level of service for new/proposed and existing operations, and manage freeway systems.

Training Level: Beginner

Fee: $255 Per Person

Length: 1.5 Days (CEU: 0.9 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: John Halkias • (202) 366-2183 • john.halkias@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

This course is offered in multiple versions. Check the NHI Web site for more information.

Course Number

FHWA-NHI-133005B

Course Title

Highway Capacity and Quality of Flow (2-Day)

This course provides basic instruction in the use of the 2000 "Highway Capacity Manual" (HCM). Software is employed in most of the capacity analyses performed in the course. Approximately one-half of the course is dedicated to sessions on interrupted flow facilities (i.e., signalized intersections, unsignalized intersections and arterials). The remainder of the course covers freeways, weaving sections, ramps, multilane, and two-lane rural facilities. The course includes lectures describing the procedures for performing capacity analyses on each type of highway facility. Demonstrations and hands-on application of the highway capacity software are used to solve example and workshop problems.

The hosting organization is responsible for providing computers with 133 MHz Intel Pentium III or faster processors with Windows 95, NT or better, color monitors, 20 MB of available disk space, and a minimum of 16 MB RAM. IMPORTANT - Maximum of two participants per computer.

Outcomes

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

- Explain facility characteristics and their limits as used in the HCM 2000 English
- Explain analytical procedures and how to apply them
- Use formulas by inputting data, reviewing and adjusting default values or adjusting factors, as necessary, for project and local conditions
- Determine LOS from results

Target Audience

State, local, FHWA, contractors, and MPOs who design and analyze intersections, interface with freeways, deal with signal time issues, design and manage operations of urban streets, plan for type of intersections for future needs, work with system(s) monitoring and management of arterial systems; or who conduct operational analysis to determine needs of highway facility, estimate the level of service for new/proposed and existing operations, and manage freeway systems.

Training Level: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: John Halkias • (202) 366-2183 • john.halkias@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Course Number

FHWA-NHI-133005C

Course Title

Highway Capacity and Quality of Flow (3-Day)

This course provides basic instruction in the use of the 2000 "Highway Capacity Manual" (HCM). Software is employed in most of the capacity analyses performed in the course. Approximately one-half of the course is dedicated to sessions on interrupted flow facilities (i.e., signalized intersections, unsignalized intersections and arterials). The remainder of the course covers freeways, weaving sections, ramps, multilane, and two-lane rural facilities. The course includes lectures describing the procedures for performing capacity analyses on each type of highway facility. Demonstrations and hands-on application of the highway capacity software are used to solve example and workshop problems.

The hosting organization is responsible for providing computers with 133 MHz Intel Pentium III or faster processors with Windows 95, NT or better, color monitors, 20 MB of available disk space, and a minimum of 16 MB RAM.

IMPORTANT - Maximum of two participants per computer.

Outcomes

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

- Explain facility characteristics and their limits as used in the HCM 2000 English
- Explain analytical procedures and how to apply them
- Use formulas by inputting data, reviewing and adjusting default values or adjusting factors, as necessary, for project and local conditions
- Determine LOS from results

Target Audience

State, local, FHWA, contractors, and MPOs who design and analyze intersections, interface with freeways, deal with signal time issues, design and manage operations of urban streets, plan for type of intersections for future needs, work with system(s) monitoring and management of arterial systems; or who conduct operational analysis to determine needs of highway facility, estimate the level of service for new/proposed and existing operations, and manage freeway systems.

Training Level: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: John Halkias • (202) 366-2183 • john.halkias@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

This course is offered in multiple versions. Check the NHI Web site for more information.

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 training, 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: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Eddie Curtis • (404) 562-3920 • eddie.curtis@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

With e-learning train without traveling. Go to the NHI Web site for more information on Web-based and Web-conference training.

Course Number

FHWA-NHI-133048

Course Title

Managing Traffic Incident and Roadway Emergencies (1-Day)

This course is part of the core ITS curriculum established by the ITS Professional Capacity Building (PCB) program. For more information on the core curriculum, go to http://www.pcb.its.dot.gov/Catalogs/ITSCurriculum.htm#section2. This course addresses institutional and technical aspects of safe and efficient resolutions of traffic incidents and other roadway emergencies. In addition, the course focuses on practices to obtain effective interagency and interdisciplinary understanding and cooperation.

Outcomes

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

- Describe the program elements needed for a formalized multi-agency program to manage traffic incidents and roadway emergencies
- List techniques for effective onsite management of incidents

Target Audience

Persons at mid- or upper-management levels in various agencies who direct the resources of their agencies at the scene of a traffic incident or in response to an incident. Agencies that should be represented at workshops include law enforcement, fire and rescue (including emergency medical), emergency communications, transportation (including traffic management and highway maintenance), planning, towing and recovery, traffic reporting media, hazardous materials contractors, and other emergency management personnel responding to traffic emergencies on freeways and arterial streets.

Training Level: Intermediate

Fee: $300 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 35

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: David Helman • (202) 366-8042 • david.helman@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Use advanced search features on the NHI Web site to find beginner, intermediate, and accomplished level courses.

Course Number

FHWA-NHI-133048A

Course Title

Managing Traffic Incident and Roadway Emergencies (2-Day)

This course is part of the core ITS curriculum established by the ITS Professional Capacity Building (PCB) program. For more information on the core curriculum, go to www.pcb.its.dot.gov/Catalogs/ITSCurriculum.htm#section2.

This course addresses institutional and technical aspects of safe and efficient resolution of traffic incidents and other roadway emergencies. In addition, the course focuses on practices to obtain effective interagency and interdisciplinary understanding and cooperation.

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.

Maximum number of participants for 1 and 2 day course can be increased with prior approval by NHI Training Program Manager. Per session course fees will adjust accordingly, dependent upon number of participants.

Outcomes

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

- Apply the program elements needed for a formalized multi-agency program to manage traffic incidents and roadway emergencies
- Compare and contrast techniques for effective onsite management of incidents
- Identify technological solutions to facilitate the management of incidents
- Construct a short-term list of 'next step' actions to improve multi-agency response to both major and minor traffic incidents

Target Audience

Persons at mid- or upper-management levels in various agencies who direct the resources of their agencies at the scene of a traffic incident or in response to an incident. Agencies that should be represented at workshops include law enforcement, fire and rescue (including emergency medical), emergency communications, transportation (including traffic management and highway maintenance), planning, towing and recovery, traffic reporting media, hazardous materials contractors, and other emergency management personnel responding to traffic emergencies on freeways and arterial streets.

Training Level: Intermediate

Fee: $400 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 35

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: David Helman • (202) 366-8042 • david.helman@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

This course is part of the Incident Management NHI Certificate of Accomplishment Program. Successfully complete and pass these NHI courses to enhance your depth and breadth of knowledge and expertise in this discipline.

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

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 9 core sessions and 3 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 training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jessie Yung • (202) 366-4672 • jessie.yung@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Interested in NHI course materials? Use the NHI Store to purchase course materials online at www.nhi.fhwa.dot.gov. Special instructions are provided for FHWA employees.

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 training, 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: $420 Per Person

LENGTH: 3.0 DAYS (CEU: 1.8 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov
Subject Matter Contact: Jessie Yung • (202) 366-4672 • jessie.yung@fhwa.dot.gov
NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

To host a course complete the online Host Request form on the NHI Web site at www.nhi.fhwa.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 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 training, 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: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Neil Spiller • (202) 366-2188 • neil.spiller@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Course Number

FHWA-NHI-133098

Course Title

Advancing Transportation Systems Management and Operations

The transportation challenges of the 21st century require a significant cultural shift in the way transportation systems are managed and operated. This means moving from limited interactions between planners and operators to a solid linkage that facilitates data sharing, joint development of regional operations opportunities, resource sharing, and supportive institutional arrangements.

From an operations perspective, this cultural shift requires anticipating user needs 24/7, focusing on customers, and changing policies and procedures to be performance based. To be successful, the new norm requires a cross-jurisdictional, multiagency, and multimodal perspective. From a planning standpoint, this cultural shift means bringing "operations thinking" into the planning process. Smart planning requires that ongoing operations be considered in regional planning and investment decisions.

This course provides an understanding of Transportation Systems Management and Operations (TSM&O) in a regional context. It explores 21st century transportation challenges and how to advance TSM&O through a cultural shift in operations and planning. Throughout the course, collaboration and coordination among transportation professionals and related stakeholders are emphasized as key components to reshaping the culture and enabling the advancement of TSM&O. The course presents a five-part framework for collaboration and coordination to assist transportation professionals and related stakeholders in working together in a meaningful and sustained way.

NOTE: There is a 2-hour Executive Summary Seminar available to State and local elected and appointed officials. Please contact your FHWA Division office for more information about this seminar.

Outcomes

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

- State the importance of a regional perspective in TSM&O
- Describe the cultural shift needed among operators, planners, and decisionmakers to affect TSM&O
- Identify the opportunities to link planning and operations
- Formulate a regional concept for transportation operations
- Describe a framework for enabling the advancement of TSM&O

Target Audience

This 1-day course is intended for transportation operators (e.g., agency managers/operations deputies, public works directors, transportation management center directors), transportation planners (at State DOT, MPO and local levels), public safety managers (e.g., chiefs/deputy chiefs of police/fire, directors of operations in large departments), freight/shipper community managers, business sector interests (e.g., economic development, tourism), and other key stakeholders that are significant within a region or across adjoining regions of interest. It is very important for a successful course to have a mix of decision-making managers that includes operators, planners, and key stakeholders from States, cities, counties and metropolitan planning organizations (MPOs). Agencies/organizations considering hosting this course are encouraged to consult with the technical point of contact listed for assistance or background.

Training Level: Intermediate

Fee: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Wayne Berman • (202) 366-4069 • wayne.berman@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.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 training, 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: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Laurie Radow • (202) 366-2855 • laurel.radow@dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

This course is part of the Incident Management NHI Certificate of Accomplishment Program. Successfully complete and pass these NHI courses to enhance your depth and breadth of knowledge and expertise in this discipline.

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

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 training, 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: Beginner

Fee: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Laurie Radow • (202) 366-2855 • laurel.radow@dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Course Number

FHWA-NHI-134001

Course Title

TCCC Principles of Writing Highway Construction Specifications (2-Day)

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

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

Included:

Module 1: Definitions, Forms, and Purpose of Specifications

Module 2: Specification Writing Principles

Select one additional module from among these options:

Module 3: In-Depth Practical Writing Exercise

Module 4: Method and End-Result Specifying

Module 5: Ensuring Specification Work in the Field

Module 6: General Provisions

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

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

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

Outcomes

Upon completion of the training, 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: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Ken Jacoby • (202) 366-6503 • ken.jacoby@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-134001A

Course Title

TCCC Principles of Writing Highway Construction Specifications (3-Day)

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

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

Includes:

Module 1: Definitions, Forms, and Purpose of Specifications

Module 2: Specification Writing Principles

Select three additional modules from among the following options:

Module 3: In-Depth Practical Writing Exercise

Module 4: Method and End-Result Specifying

Module 5: Ensuring Specification Work in the Field

Module 6: General Provisions

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

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

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

Outcomes

Upon completion of the training, 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: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Ken Jacoby • (202) 366-6503 • ken.jacoby@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-134001B

Course Title

TCCC Principles of Writing Highway Construction Specifications (4-Day)

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

The course is available in a 2-day, 3-day and 4-day version, and can be tailored to meet the needs of the host organization. The 4-day version covers all seven modules. The Instructor will assist the host in selecting the most appropriate modules for the target audience. 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 training, 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: Beginner

Fee: Check the NHI Web site for current pricing

Length: 4.0 Days (CEU: 2.4 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Ken Jacoby • (202) 366-6503 • ken.jacoby@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-134005

Course Title

Value Engineering Workshop

Value engineering is the systematic application of recognized techniques by a multi-disciplined team which identifies the function of a product or service; establishes a worth for that function; generates alternatives through the use of creative thinking; and provides the needed functions, reliably, at the lowest overall cost. Once a project has been identified for study, this systematic approach includes:

1. Investigating the project and analyzing project functions and costs
2. Creatively speculating on alternative ways to perform the various functions
3. Evaluating the best and/or least effective life-cycle alternatives
4. Developing acceptable alternatives into fully supported recommendations
5. Presenting the recommendations to the project owner and agency management

This workshop involves conducting a value engineering study in an interactive team environment on actual projects furnished by the host agency. The course also includes lecture and class discussion and some home study. Upon successful completion, course attendees will have the training necessary to successfully participate in future value engineering studies for their agencies.

Outcomes

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

- Recognize the difference between value engineering and other cost-reduction or problem-solving techniques
- Understand the systematic value engineering process and identify areas where the techniques have potential for savings in financial or material resources
- Support and further promote the use of value engineering as an effective management tool for product improvement and cost reduction

Target Audience

FHWA and State highway agency/transportation department personnel. A class mix of management, administrative, and engineering disciplines, and representatives of all function areas from planning through design, construction, and operations is desirable.

Training Level: Accomplished

Fee: Check the NHI Web site for current pricing

Length: 5.0 Days (CEU: 3.0 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jeffrey Zaharewicz • (202) 493-0520 • jeffrey.zaharewicz@dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-134006

Course Title

Highway/Utility Issues

This course is designed to include participants from highway agencies and from utilities. To maximize the effectiveness of the course, hosting agencies are encouraged to include participants from both communities.

This course presents the fundamentals of effective coordination of utility relocation and accommodation issues throughout the planning, design, construction, and maintenance phases of a highway project. Participants from both highway and utility communities will be involved throughout the course, sharing their knowledge and expertise, and collaborating in workshops, exercises, and other activities. The course includes methods for measuring the attainment of learning objectives. Two instructors will facilitate the course, one experienced in highway matters, the other in utility matters.

Outcomes

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

- Locate utility issues and concerns during the project development process and flag opportunities for early coordination
- Identify the critical processes related to utilities for permits, relocation, and project construction
- Assess a plan and profile sheet
- Use templates for creating a simple plan for establishing the proper traffic control plan (TCP)
- Describe successful practices that might be considered as options for each phase of a project

Target Audience

Federal, State, and local highway agencies, and public/private utility companies responsible for highway/utility coordination.

Training Level: Intermediate

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jeffrey Zaharewicz • (202) 493-0520 • jeffrey.zaharewicz@dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Create your own NHI Web site User ID and account to get access to NHI's online services.

Course Number

FHWA-NHI-134029

Course Title

TCCC 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.

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

Outcomes

Upon completion of the training, 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. Understand 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: Check the NHI Web site for current pricing

Length: 4.0 Days (CEU: 2.4 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Wade Casey • (202) 366-4606 • wade.casey@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

If you're interested in this course, you may also want to take advantage of another NHI construction and maintenance course.

FHWA-NHI-130088 Bridge Construction Inspection

Course Number

FHWA-NHI-134037A

Course Title

TCCC Managing Highway Contract Claims: Analysis and Avoidance

In partnership with the Transportation Curriculum Coordination Council (TCCC), this 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 such that emphasis can be give to scheduling (using CPM) or to documentation and preparation of legal actions caused by claims. This option 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 clauses 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)
7. Documentation and record keeping bid documents, periodic reports, schedules, internal and external correspondence, photographs; use as evidence
8. Managing claims identification, procedures, preparation/claim defense plan strategy, claim presentation
9. Negotiation timing, strategy, team approach (workshop)
10. Design consultant liability
11. Disputes resolution litigation, arbitration, administrative procedures alternate disputes resolution
12. How to prepare for trial/arbitration depositions, trial, preparation of exhibits/consultants working with attorneys

Outcomes

Upon completion of the training, 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: $355 Per Person

LENGTH: 2.5 DAYS (CEU: 1.5 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov
Subject Matter Contact: Chris Newman • (202) 366-2023 • christopher.newman@fhwa.dot.gov
NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

NHI courses can be hosted by any organization - including transportation professional associations. Instructions for hosting a course can be found on page 8 or visit the NHI Web site at www.nhi.fhwa.dot.gov for more information.

Course Number

FHWA-NHI-134042

Course Title

TCCC Materials Control and Acceptance - Quality Assurance (4.5-Day)

This course was developed in partnership with the Transportation Curriculum Coordination Council (TCCC). It provides participants with an understanding of the basic elements of a statistically based quality assurance program. 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.

To accommodate varying needs, this course is available in a 4.5-day (FHWA-NHI-134042) or a 2-day (FHWA-NHI-134042A) format. The 4.5-day course sessions include: Introduction, Sampling Theory, Organization of Data, Analysis of Data, The Normal Distribution, Sources of Variability, Process Control, Acceptance Plans and Risks, Percent within Limits Acceptance Plans, Implementation and Summary.

Outcomes

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

- Identify the importance of organizing data, necessary forms of data organization, and how to plot frequency histograms
- Explain how a sample relates to the population, including the myth of a single representative sample, and establish and use random stratified sampling plans
- Calculate population and sample means, standard deviation, and coefficient of variation
- Explain the relationship between single and multiple samples
- Describe basic probability concepts, illustrate the relationship of histograms to probability density functions, and calculate areas under normal distribution curves
- Explain the meaning of the terms precision, accuracy, and bias
- Identify sources of variability and how to use precision and bias statements
- Formulate and apply process control plans, including how to calculate control chart limits and plot and interpret statistical process control charts
- Explain the strengths and weaknesses of acceptance plans based on sample means and percent within limits
- Compare the different types of specifications and how they work, including the inputs to specifications and requirements for the use of contractors
- Identify the elements of acceptance plans, including buyer and seller risks
- Identify and employ procedures for verification of contractor tests used in the acceptance decision
- Indicate the importance of a sound, comprehensive program implementation plan

Target Audience

Federal, State, and local highway agency engineers in materials, construction, research and other highway fields and technicians involved in specification development, laboratory, and field testing of highway materials.

Training Level: Accomplished

Fee: Check the NHI Web site for current pricing

Length: 4.5 Days (CEU: 2.7 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Michael Rafalowski • (202) 366-1571 • michael.rafalowski@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-134042A

Course Title

TCCC Materials Control and Acceptance - Quality Assurance (2-Day)

This course was developed in partnership with the Transportation Curriculum Coordination Council. It provides participants with an understanding of the basic elements of a statistically based quality assurance program. 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.

The 2-day format is a condensed version of the course that uses excerpts from the 4.5-day course session. A number of presentations and workshops are omitted in order to present the material in this shorter time frame.

Outcomes

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

- Describe the importance of organizing data, necessary forms of data organization, and how to plot frequency histograms
- State how a sample relates to the population, including the myth of a single representative sample, and establish and use random stratified sampling plans
- Identify population and sample means, standard deviation, and coefficient of variation
- Explain the relationship between single and multiple samples
- Describe basic probability concepts, illustrate the relationship of histograms to probability density functions, and calculate areas under normal distribution curves
- Describe the meaning of the terms precision, accuracy, and bias
- Indicate sources of variability and how to use precision and bias statements
- Explain process control plans, including how to calculate control chart limits and plot and interpret statistical control charts
- Describe the strengths and weaknesses of acceptance plans based on sample means and percent within limits
- Classify the different types of specifications and how they work, including the inputs to specifications and requirements for the use of contractors
- Identify the elements of acceptance plans, including buyer and seller risks
- Identify procedures for verification of contractor tests used in the acceptance decision

Target Audience

Federal, State, and local highway agency engineers in materials, construction, research and other highway fields, and technicians involved in specification development, laboratory, and field testing of highway materials.

Training Level: Accomplished

Fee: Check the NHI Web site for current pricing

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Michael Rafalowski • (202) 366-1571 • michael.rafalowski@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-134049

Course Title

TCCC Use of Critical Path Method (CPM) for Estimating, Scheduling and Timely Completion

This course was developed in partnership with the Transportation Curriculum Coordination Council (TCCC). It 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 training, 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: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Celso Gatchalian • (202) 366-1342 • celso.gatchalian@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

NHI is fully acredited. See page 272 to read about the International Association for Continuing Education and Training (IACET).

Course Number

FHWA-NHI-134055

Course Title

TCCC Construction Inspection, Workmanship, and Quality

This course was developed in partnership with the Transportation Curriculum Coordination Council (TCCC). It 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 the legal, liability, and risk issues, and quality assurance topics related to construction projects. Emphasizing stewardship and oversight roles, the course discusses the importance of fostering partnership, cooperations, 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 training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Chris Newman • (202) 366-2023 • christopher.newman@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-134056

Updated Training

Course Title

Pontis Bridge Management

Pontis is a computer software program, owned and licensed by AASHTO, designed to assist bridge managers and practitioners in analyzing bridge data to predict future bridge conditions and needs, determine optimal policies, and recommend projects and schedules within budget and policy limitations. The course covers entering and editing inspection data, developing a bridge preservation policy, performing bridge network level analyses, developing bridge projects, running Pontis and InfoMaker reports, and refining Pontis results. The course focuses on an agency's business process steps, key concepts of bridge management and their application to Pontis, using the software, instructor demonstration exercises, and practical student exercises. Each participant will receive a participant notebook. Six laptop computers containing the PONTIS 4.3 software and sample training database are furnished by the NHI for use in the training course. A 2-hour session has been developed as part of the course to serve as an introduction to the attributes and benefits of the Pontis program. This introduction is designed for Federal, State, and local executives and upper- and mid-level highway agency professionals responsible for an agency's bridge/highway program.

Outcomes

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

- Use Pontis to support bridge management
- View, enter, and edit bridge inspection and inventory data
- Develop, update, optimize, and interpret a preservation policy
- Enter program simulation inputs, run network analyses and interpret results
- Create and rank bridge projects
- Generate and interpret reports
- Customize Pontis to support agency business practices

Target Audience

This course is designed for bridge program managers, bridge management engineers, bridge maintenance engineers, bridge inspectors, and project planning and programming personnel. This course is also recommended for asset management team members.

Training Level: Intermediate

Fee: $355 Per Person

Length: 2.5 Days (CEU: 1.5 Units)

Class Size: Minimum: 10; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Wade Casey • (202) 366-4606 • wade.casey@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Find an FHWA Division or State Highway Agency representative on the contact list on page 257.

Course Number

FHWA-NHI-134056A

New Training

Course Title

Pontis Bridge Management and InfoMaker Module

This version of the course covers the 2.5-day Pontis material as well as the 1-day InfoMaker module. Pontis is a computer software program, owned and licensed by AASHTO, designed to assist bridge managers and practitioners in analyzing bridge data to predict future bridge conditions and needs, determine optimal policies, and recommend projects and schedules within budget and policy limitations. The course covers entering and editing inspection data, developing a bridge preservation policy, performing bridge network level analyses, developing bridge projects, running Pontis and InfoMaker reports, and refining Pontis results. The course focuses on an agency's business process steps, key concepts of bridge management and their application to Pontis, using the software, instructor demonstration exercises, and practical student exercises. Each participant will receive a participant notebook. Six laptop computers containing the PONTIS 4.3 software and sample training database are furnished by the NHI for use in the training course.

This 3.5-day version of the course includes an optional 1-day module which presents an overview of InfoMaker 9.0 as it relates to the Pontis bridge management system. It covers those aspects of InfoMaker that are most useful to and used by the Pontis user community in producing custom reports. Other aspects of the software that are introduced include the ability to query data, create a new report library, modify an existing Pontis structure list layout, and modify an existing Pontis report. This module is designed to be added to the end of the NHI training course on Pontis.

The InfoMaker module includes a mixture of lectures, software demonstrations and class exercises that give participants hands-on experience in using InfoMaker 9.0. The module can be added to the 2.5 day Pontis course for a total of 3.5 days of training. The training materials assume that participants have experience using the Pontis bridge management and understand general bridge management practices. Familiarity with the content and structure of the Pontis database and with Structured Query Language (SQL) is not required but is helpful.

Outcomes

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

- Use Pontis to support bridge management
- View, enter, and edit bridge inspection and inventory data
- Develop, update, optimize, and interpret a preservation policy
- Enter program simulation inputs, run network analyses and interpret results
- Create and rank bridge projects
- Generate and interpret reports
- Customize Pontis to support agency business practices

Target Audience

Designed for bridge program managers, bridge management engineers, bridge maintenance engineers, bridge inspectors, and project planning and programming personnel; it is also recommended for asset management team members.

Training Level: Intermediate

Fee: $420 Per Person

Length: 3.5 Days (CEU: 2.1 Units)

Class Size: Minimum: 10; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Wade Casey • (202) 366-4606 • wade.casey@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-134056B

New Training

Course Title

Pontis Bridge Management InfoMaker Module

If you have already taken Pontis Bridge Management, consider taking this new module. This 1-day version of the course offers the InfoMaker module only, which presents an overview of InfoMaker 9.0 as it relates to the Pontis bridge management system. It covers those aspects of InfoMaker that are most useful to and used by the Pontis user community in producing custom reports. Other aspects of the software that are introduced include the ability to query data, create a new report library, modify an existing Pontis structure list layout, and modify an existing Pontis report. This module is designed to be added to the end of the NHI training course on Pontis or act as a stand-alone training for those States that have already participated in the 2.5-day Pontis course and only want to train their employees on InfoMaker.

The InfoMaker module includes a mixture of lectures, software demonstrations and class exercises that give participants hands-on experience in using InfoMaker 9.0. The target audience represents a subset of the audience for the Pontis training course, and includes: bridge program managers, bridge management engineers, project planning and programming personnel, and asset management team members. The training materials assume that participants have experience using the Pontis bridge management and understand general bridge management practices. Familiarity with the content and structure of the Pontis database and with Structured Query Language (SQL) is not required but is helpful.

Outcomes

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

- Use Pontis to support bridge management
- View, enter, and edit bridge inspection and inventory data
- Develop, update, optimize, and interpret a preservation policy
- Enter program simulation inputs, run network analyses and interpret results
- Create and rank bridge projects
- Generate and interpret reports
- Customize Pontis to support agency business practices

Target Audience

This course is designed for bridge program managers, bridge management engineers, bridge maintenance engineers, bridge inspectors, and project planning and programming personnel. This course is also recommended for asset management team members.

Training Level: Intermediate

Fee: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 10; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Wade Casey • (202) 366-4606 • wade.casey@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.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 training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jennifer Balis • (202) 493-7302 • jennifer.balis@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Submit feedback through the NHI Web site at www.nhi.fhwa.dot.gov by selecting the Contact Us button at the top of each page.

Course Number

FHWA-NHI-134060

Course Title

Partnering: A Key Tool for Improving Project Delivery in the Field

This training 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; as well as communicate to others the value of partnering.

Outcomes

Upon completion of the training, 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 decisionmaking 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; and invited individuals from specific States representing utilities, State and local partners, key permitting agencies, key local agencies, emergency services, and other stakeholders.

Training Level: Beginner

Fee: Check the NHI Web site for current pricing

Length: 1.5 Days (CEU: 0.9 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Ken Jacoby • (202) 366-6503 • ken.jacoby@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-134062

New Training

Course Title

TCCC Bridge Evaluation for Rehabilitation Design Considerations

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.

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

Outcomes

Upon completion of the training, 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: Check the NHI Web site for current pricing

Length: 4.5 Days (CEU: 2.7 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Wade Casey • (202) 366-4606 • wade.casey@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Get low-cost online training. Go to the NHI Web site to learn more about Web-based and Web-conference training solutions!

Course Number

FHWA-NHI-134062A

New Training

Course Title

TCCC Bridge Evaluation for Rehabilitation Design Considerations

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, rehabilitation of Timber and Masonry structures.

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

Outcomes

Upon completion of the training, 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: Check NHI Web site for current pricing

Length: 5.0 Days (CEU: 3.0 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Wade Casey • (202) 366-4606 • wade.casey@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-134064

New Training

Course Title

Transportation Construction Quality Assurance

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 1.5-day version of the course covers Chapters 1 through 6 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 training, 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 would be making decisions based on the data gathered from a QA program. Necessary background knowledge for participants includes: 3-5 years minimum in transportation construction specifications inspections; basic statistical knowledge/training; and some usage of tools necessary to the Quality Assurance process (contractor test results). The following is a suggested list of personnel that may consider attending, if they have the requisite background knowledge: Contractor/Consultant personnel: QC managers/QC plan administrators, senior production facility QC technician/inspectors, senior QC laboratory personnel, senior field QC technicians/inspectors; 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: Check the NHI Web site for current pricing

Length: Check the NHI Web site for current information

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Ken Jacoby • (202) 366-6503 • ken.jacoby@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-134065

New Training

Course Title

Risk Management

The Risk Management Framework (RMF) will situate FHWA in a risk context by identifying program area risks, clarifying the interdependence of risks, separating risk causes/effects, and facilitating the development of organizational controls. The RMF goal is to identify a consistent process that leads to effective allocation of resources, strategic planning and management of FHWA's risks at all organizational levels. The RMF should provide a consistent and uniform process to advance unit offices risk management practices. The Framework should enable division administrator's to make progressive, well-informed decisions based on local programs and non-prescribed areas of risk.

This course provides an understanding of Risk Management concepts and processes, to include terminology, benefits of use, risk management planning, and a framework for implementation. The course presents the cyclic risk management framework in a series of modules: information gathering; risk identification; risk event analysis; risk documentation; risk prioritization; identification of risk response strategies; incorporation of response strategies into a plan; and monitoring, evaluation, and adjustment to strategies. Tools and methods used in each step of the framework are explained. Participants will complete exercises intended to provide realistic, job-relevant practice in each of these areas.

Outcomes

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

- At the end of this course, participants will be able to:
- Explain the overall organizational context, importance of risk management, and risk framework to others
- Follow a consistent process for managing risk
- Utilize standard risk terminology, tools and methods
- Implement appropriate risk identification techniques
- Write an effective and meaningful risk statement
- Accurately estimate likelihood and impact of each risk event
- Implement appropriate methods of documentation
- Create a consistent matrix to prioritize risk
- Determine the most important risk events
- Describe all possible "risk responses" and illustrate how to respond effectively to risks
- Work the overall process within 60 minutes
- Develop effective plans for dealing with risk events
- Develop a process for responding to unidentified risk events
- Develop a risk assessment report

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/projects such as planning, environment, project development, design, construction, operations, maintenance, and finance. In addition to its FHWA audience, the Risk Management course may also serve a number of audiences under the auspices of any agency that handles Federal monies and is tasked with infrastructure support. Audience experience, background, knowledge, skills and abilities are expected to vary widely.

TRAINING LEVEL: Beginner

FEE: Check NHI Web site for current pricing

LENGTH: 2.5 DAYS (CEU: 1.5 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov
Subject Matter Contact: Connie Yew • (202) 366-1078 • connie.yew@fhwa.dot.gov
NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Have some time to attend training?

Use the advanced search features on the NHI Web site to find scheduled sessions in a specific date range.

Course Number

FHWA-NHI-134065A

New Training

Course Title

Risk Management Executive Summary

This training is an overview of FHWA-NHI-134065 and covers principles of risk management.

Outcomes

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

- Explain the overall organizational context, importance of risk management, and risk framework to others
- Follow a consistent process for managing risk
- Utilize standard risk terminology, tools and methods
- Implement appropriate risk identification techniques
- Write an effective and meaningful risk statement
- Accurately estimate likelihood and impact of each risk event
- Create a consistent matrix to prioritize risk

Target Audience

The target audience for this course includes Federal, State and local highway managers and executives who are responsible for directing and managing all aspects of highway related programs/projects such as planning, environment, project development, design, construction, operations, maintenance, and finance.

Training Level: Beginner

Fee: Check the NHI Web site for current pricing

Length: 1.0 Day (CEU: 0.0 Units)

Class Size: Minimum: 18; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Connie Yew • (202) 366-1078 • connie.yew@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Course Number

FHWA-NHI-134068

New Training

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 training, participants will be able to:

- Explain the principles of Probabilistic estimating
- List appropriate stages of estimating for using deterministic and 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/or 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. This training is valuable for both new and existing employees.

Training Level: Beginner

Fee: Check the NHI Web site for current pricing

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jim Sinnette • (202) 366-0479 • james.sinnette@fhwa.dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

The participant workbook is available for download from the NHI Store.

Course Number

FHWA-NHI-134069

New Training WBT

Course Title

TCCC Ethics Awareness for the Transportation Industry

This training was developed 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. 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.

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 e-mail NHIMarketing@dot.gov with your feedback.

Outcomes

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

- Introduce participants to agency expectations on ethics
- Give an example of a current code of conduct policy
- Understand and practice good ethics as an employee in the transportation industry
- Realize 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: Beginner

Fee: FREE

Length: 1.0 Hours (CEU: 0.0 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Chris Newman • (202) 366-2023 • christopher.newman@dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@dot.gov.

Course Number

FHWA-NHI-134071

New Training WBT

Course Title

TCCC Basic Construction and Maintenance Documentation - Improving the Daily Diary

This training was developed 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 is the first training of its kind offered by NHI, and we would like to give special recognition to the TCCC for their efforts.

It contains good practices from various agencies. 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 e-mail NHIMarketing@dot.gov with your feedback.

Outcomes

Upon completion of the training, 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: Beginner

Fee: FREE

Length: 1.0 Hours (CEU: 0.0 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Chris Newman • (202) 366-2023 • christopher.newman@dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@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.

Outcomes

Upon completion of the training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Larry Arneson • (720) 963-3200 • larry.arneson@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Dan Ghere • (708) 283-3557 • dan.ghere@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

With e-learning train without traveling. Go to the NHI Web site for more information on Web-based and Web-conference training.

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 training, 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: $550 Per Person

Length: 4.0 Days (CEU: 2.4 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Dan Ghere • (708) 283-3557 • dan.ghere@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

NHI's contact list is located on the inside back cover of this catalog.

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 training, 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: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Dan Ghere • (708) 283-3557 • dan.ghere@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Looking for our new and updated courses?

Go to the NHI Web site home page at the NHI Web site to view the new and updated courses.

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.

Outcomes

Upon completion of the training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Larry Arneson • (720) 963-3200 • larry.arneson@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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.

Outcomes

Upon completion of the training, 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: $480 Per Person

Length: 3.5 Days (CEU: 2.1 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Larry Arneson • (720) 963-3200 • larry.arneson@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Course Number

FHWA-NHI-135046

Course Title

Stream Stability and Scour at Highway Bridges

This course provides comprehensive training in the prevention of hydraulic-related failures of highway bridges. The effects of stream instability, scour, erosion, and stream aggradation and degradation are covered. Material for the 3-day course comes primarily from two Hydraulic Engineering Circulars (HEC), "Evaluating Scour at Bridges" (HEC-18), and "Stream Stability at Highway Structures" (HEC-20).

The course provides training in conducting a stream stability classification and qualitative analysis of stream response. Quantitative techniques are provided for estimating long-term degradation, and calculating the magnitude of general and local scour at bridge piers and abutments for simple and complex substructures. A comprehensive workshop integrates qualitative analysis and analytical techniques to determine the need for a plan of action for correcting stream instability and scour problems.

FHWA-NHI-135048 Countermeasure Design for Bridge Scour and Stream Instability is a recommended subsequent course that provides training in the selection and design of countermeasures for stream instability and scour problems, including development of a plan of action and an introduction to fixed and portable instrumentation for scour monitoring.

See the listing for FHWA-NHI-135047 Stream Stability and Scour at Highway Bridges for Bridge Inspectors for a description of the 1-day course for bridge inspectors.

Outcomes

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

- Identify stream instability and scour problems at bridges
- Define problems caused by stream instability and scour
- Estimate the magnitude of scour at bridge piers and abutments and in the bridge reach

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 encouraged to attend.

Training Level: Intermediate

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jorge Pagan • (202) 366-4604 • jorge.pagan@dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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.

Outcomes

Upon completion of the training, 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: Beginner

Fee: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jorge Pagan • (202) 366-4604 • jorge.pagan@dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Looking for good practice tips on preparing to teach an NHI session?

Download the most current instructor checklist from the NHI Web site at www.nhi.fhwa.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.

Outcomes

Upon completion of the training, 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: $355 Per Person

Length: 2.5 Days (CEU: 1.5 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jorge Pagan • (202) 366-4604 • jorge.pagan@dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Course Number

FHWA-NHI-135056

Course Title

Culvert Design

This course provides participants with the recommended design procedures for the hydraulic design of culverts. Material for the 3-day course comes primarily from "Hydraulic Design of Highway Culverts," Hydraulic Design Series No. 5 (HDS-5), which is provided to participants. "Hydraulic Design of Energy Dissipators for Culverts and Channels" (HEC-14) is discussed, but not provided. Culvert Hydraulic Design/Analysis Computer Program (HY-8) is discussed and demonstrated. However, this is not a "hands-on" computer course. A portable hydraulic flume is set up in the classroom for the participants to observe hydraulic principles and the hydraulic effects of culverts, improved inlets, pipe slope, material roughness, and various end treatments. The participants measure velocity, discharge, and headwater in the flume under various conditions and use the information to make actual design calculations.

Outcomes

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

- Identify design alternatives based on culvert type, material, shape, and service-life considerations
- Describe the factors that govern inlet and outlet control and describe how each factor influences culvert performance
- Calculate tailwater depth and velocity and describe how tailwater affects culvert performance
- Design conventional culverts using HDS-5
- Improve culvert performance for inlet control culverts by designing an improved inlet using HDS-5
- Evaluate culvert outlet velocity and the need for energy dissipators, and select alternative energy dissipators using HEC-14
- Identify appropriate computer programs for culvert and energy dissipator design

Target Audience

The course is suitable for entry-level personnel who have some drainage design experience or have taken FHWA-NHI-135065A. The course is valuable as a refresher course for those with previous culvert design training or experience.

Training Level: Intermediate

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Eric Brown • (410) 962-3743 • eric.brown@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

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Go to the NHI Web site at www.nhi.fhwa.dot.gov. for more information.

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 training, 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: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Veronica Ghelardi • (720) 963-3240 • veronica.ghelardi@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Joseph Krolak • (202) 366-4611 • joseph.krolak@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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.

Outcomes

Upon completion of the training, 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: $550 Per Person

Length: 4.0 Days (CEU: 2.4 Units)

Class Size: Minimum: 20; Maximum: 26

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Larry Arneson • (720) 963-3200 • larry.arneson@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 25

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Larry Arneson • (720) 963-3200 • larry.arneson@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@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 training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 14; Maximum: 24

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Joseph Krolak • (202) 366-4611 • joseph.krolak@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Course Number

FHWA-NHI-135082

New Training

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 training, 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: $400 Per Person

Length: 3.0 Hours (CEU: 1.8 Units)

Class Size: Minimum: 14; Maximum: 24

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Joseph Krolak • (202) 366-4611 • joseph.krolak@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Course Number

FHWA-NHI-135085

WBT

Course Title

Plan of Action (POA) for Scour Critical Bridges

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.

This seminar is available online or on CD-ROM. Please order a copy through the NHI Store.

Outcomes

Upon completion of the training, 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: Beginner

Fee: FREE

Length: 1.0 Hours (CEU: 0.0 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jorge Pagan • (202) 366-4604 • jorge.pagan@fhwa.dot.gov

NHI Training Program Manager: Louisa Ward • (703) 235-0523 • louisa.ward@dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@dot.gov.

Course Number

FHWA-NHI-137002

Course Title

Deploying Integrated ITS - Metropolitan

This course supports integrated intelligent transportation system (ITS) infrastructure deployment with consideration of the National ITS Architecture. Combining the technical and institutional components of integrated ITS infrastructure, the course emphasizes the regional context in which the public components of ITS infrastructure will be implemented and integrated. The importance of each component is discussed and placed in context with the regional decision that must be made by State and local agencies.The course provides transportation program managers with an understanding of the technical and institutional implications for deploying integrated infrastructure within the framework of a regional architecture.

This course is part of the core ITS curriculum established by the ITS Professional Capacity Building (PCB) program. For more information on the core curriculum, go to http://www.pcb.its.dot.gov/Catalogs/ITSCurriculum.htm#section2.

Outcomes

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

- Identify the needs that can be addressed by ITS strategies
- Select the best practices for planning and programming integrated ITS in a metropolitan area
- Relate the need for a regional architecture and use of standards to ensure integrated ITS deployment
- Select the best practices for ITS project planning, design, construction, and implementation
- Explain the systems engineering approach to ITS project implementation
- Describe the use of a "concept of operations" to plan for integrated systems
- Identify typical costs and benefits of different types of ITS deployments

Target Audience

This course is intended for State agencies, metropolitan planning organizations (MPOs) and city/local/county transportation professionals who implement ITS deployment schedules as part of the planning process, deal with public safety, and plan for highway and transit; ITS specialists who provide information or recommendations in operations; those who fulfill regulations (oversight), manage ITS or operations providers, coordinate projects and programs, review specifications, develop regulations and specifications, and design systems; engineers; regional architecture developers; systems integrators; and private sector people associated with these tasks.

Training Level: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Linda Dodge • (202) 366-8034 • linda.dodge@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Course Number

FHWA-NHI-137005

Course Title

ITS Telecommunications Overview

This course provides a broad introduction to telecommunications technologies, the associated issues, and practical lessons learned in the applications for such technologies of intelligent transportation systems (ITS).

This course is part of the core ITS curriculum established by the ITS Professional Capacity Building (PCB) program. For more information on the core curriculum, go to www.pcb.its.dot.gov/Catalogs/ITSCurriculum.htm#section2.

Outcomes

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

- Recognize and deal with the current issues associated with the deployment and application of telecommunications infrastructure within the context of transportation project development, design, operations, and management
- Plan and conduct a requirements analysis to match devices and components to telecommunications technologies
- Make use of regional ITS architectures for telecommunications planning
- Explain the fundamentals of telecommunications at a basic level
- Define some of the key terminology and concepts used in transportation telecommunications
- Generalize a frame of reference to help in identifying and defining the institutional and organizational issues associated with the effective use of telecommunications technology in an advanced transportation context

Target Audience

Public and private sector transportation professionals, including project planners, engineers, managers, and senior technicians, involved in ITS transportation planning and ITS deployment, such as MPOs transit agencies, municipalities, State highway agencies, FHWA Division and Resource Center offices, FTA personnel, and systems integrators.

Training Level: Beginner

Fee: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Emiliano Lopez • (202) 366-2199 • emiliano.lopez@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

NHI and the Consortium for ITS Training and Education (CITE) now offer a reciprocal certificate program. CITE offers credit for successful completion of NHI courses toward participants' ITS Project Management Certificate Program. Contact Training Program Manager Bud Cribbs at bud.cribbs@fhwa.dot.gov for more information

Course Number

FHWA-NHI-137007

Course Title

Rural ITS Toolbox

This course describes many practices and techniques related to intelligent transportation systems (ITS) that have been successfully applied to rural transportation problems. These successes are documented in the Rural ITS Toolbox (Toolbox). The course goes further than what is provided in the Toolbox and includes problem-solving techniques and training that prepare participant to describe the contents of the Toolbox to their stakeholders. Toolbox training helps to identify ITS solutions that can have a low-cost/high-return impact on rural transportation.

This course is part of the core ITS curriculum established by the ITS Professional Capacity Building (PCB) program. For more information on the core curriculum, go to http://www.pcb.its.dot.gov/Catalogs/ITSCurriculum.htm#section2.

Outcomes

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

- Define ITS by discussing the elements and functions of ITS
- Comprehend the value of the Rural ITS Toolbox for articulating rural ITS deployment strategies
- Discuss local examples of regional ITS projects
- Explain the benefits of rural ITS
- Recognize the need to identify stakeholders and the importance of fostering interaction among them
- Identify information resources, such as Web sites, other training, data libraries, etc., for more information on ITS
- Tailor portions of the Rural ITS Toolbox for presentation/discussion with other rural stakeholders so that they recognize their roles in rural ITS deployment

Target Audience

County, municipal, and town executives; traffic engineers; State, Federal, and local transportation planners; transit and highway operators of MPOs; public safety responders including enforcement, fire, EMS, towing, public works; transportation management center (TMC) operators; motor carrier managers; environmental groups; IT personnel; college and university faculty and students; and consultants and contractors.

Training Level: Beginner

Fee: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Linda Dodge • (202) 366-8039 • linda.dodge@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

NHI and the Consortium for ITS Training and Education (CITE) now offer a reciprocal certificate program. CITE offers credit for successful completion of NHI courses toward participants' ITS Project Management Certificate Program. Contact Training Program Manager Bud Cribbs at bud.cribbs@fhwa.dot.gov for more information

Course Number

FHWA-NHI-137013

Course Title

Using the National ITS Architecture for Deployment

This course is designed to be an interactive workshop that demonstrates how to apply National ITS Architecture tools and methodologies to the development of regional and project ITS architecture. A copy of the National ITS Architecture 4.0 on CD-ROM is provided in the course.

This course is part of the core ITS curriculum established by the ITS Professional Capacity Building (PCB) program. For more information on the core curriculum, go to http://www.pcb.its.dot.gov/Catalogs/ITSCurriculum.htm#section2.

Outcomes

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

- Use the National ITS Architecture as a tool when developing regional and project ITS architectures
- Identify integration opportunities while developing regional and project ITS architectures
- Use the National ITS Architecture CD-ROM to find definitions
- Identify the difference between user service and user service requirements, and describe how these relate to the National ITS Architecture
- Identify the types of projects that must comply with USDOT policies regarding consistency with ITS architecture and standards, and describe the key requirement for compliance
- Define the systems engineering process as it is used with the National ITS Architecture

Target Audience

Public-sector audiences involved in ITS transportation planning and ITS deployment, as well as system integrators and private-sector transportation professionals who develop ITS solutions.

Training Level: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Emiliano Lopez • (202) 366-2199 • emiliano.lopez@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Course Number

FHWA-NHI-137015

Course Title

Introduction to National ITS Architecture

The course provides broad overview of the National ITS Architecture and the role it plays in ITS planning, designing, and implementation processes. The course presents background on the National ITS Architecture and introduces the notion of user service. The physical architecture is explained using examples of local implementations of the National ITS Architecture. Specific elements of the physical architecture, such as subsystems and terminators, are presented in some detail.

Computer Requirements: Recent version of a Web browser, such as Internet Explorer 4 or 5 or Netscape 4 with Javascript enabled; the latest versions of Macromedia Shockwave and Flash (available for download at http://www.macromedia.com/shockwave/download); and an Internet connection using at least 56K modem.

Outcomes

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

- Define the systems engineering process, as it is used with the National ITS Architecture
- Develop an understanding of the context within which the architecture is to be applied to the ITS planning, design, and implementation process
- Disseminate updated information on the evolving standards and protocols being developed to support the architecture
- Recognize the content and procedures associated with the National ITS Architecture

Target Audience

Public-sector audiences involved in ITS transportation planning and ITS deployment, as well as system integrators and private-sector transportation professionals who develop ITS solutions.

Training Level: Beginner

Fee: $75 Per Person

Length: 6.0 Hours (CEU: 0.6 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Emiliano Lopez • (202) 366-2199 • emiliano.lopez @fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Online courses are interactive training in Web-based format that can be accessed from any computer with an Internet connection.

Course Number

FHWA-NHI-137019

Course Title

ITS Software Acquisition

This course provides a general understanding of the many issues involved in intelligent transportation system (ITS) software development and acquisition processes. The course is focused specifically on ITS software issues.

This course is part of the core ITS curriculum established by the ITS Professional Capacity Building (PCB) program. For more information on the core curriculum, go to www.pcb.its.dot.gov/Catalogs/ITSCurriculum.htm#section2.

This course is a companion course to FHWA-NHI-137020 Intelligent Transportation System (ITS) Procurement.

Outcomes

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

- Describe the basic technologies used in software development
- Describe the private-sector view of software development
- Describe the intellectual property rights and how they must be considered
- Manage the procurement of ITS software
- Write a Request for Proposal for software procurement
- Describe quality assurance issues

Target Audience

Federal, State, and local transportation professionals who are involved in the planning, decisionmaking, and implementation of ITS projects which have a significant software component, or who are involved in coordinating these ITS projects.

Training Level: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Emiliano Lopez • (202) 366-2199 • emiliano.lopez@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Browse the NHI course catalog by a specific category or topic. Go to the Browse Catalog area under the Training tab at the NHI Web site.

Course Number

FHWA-NHI-137020

Course Title

Intelligent Transportation System (ITS) Procurement

Deployment of ITS introduces new challenges to State and local transportation agencies that operate under traditional procurement practices developed to support the design and construction of roads and bridges or to design and construct rail projects. The traditional practices do not readily accommodate the special needs of ITS procurement that is focused on operations. For this reason, the transportation professional must recognize the special considerations required in ITS procurements, and understand how they can be accommodated.

This course is intended to heighten awareness of the challenges in procuring ITS within the traditional construction project environment. It combines lectures with presentations of case studies to describe the lessons learned from past ITS projects and to help ensure successful ITS procurement.

This course is a companion course to, but not a prerequisite for, FHWA-NHI-137019 ITS Software Acquisition. This course is also part of the core ITS curriculum established by the ITS Professional Capacity Building (PCB) program. For more information on the core curriculum, go to http://www.pcb.its.dot.gov/Catalogs/ITSCurriculum.htm#section2.

Outcomes

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

- Describe the nature of intelligent transportation systems and explain why procuring intelligent transportation systems is different from traditional construction procurements
- Describe the potential barriers that may arise from procuring intelligent transportation systems within the traditional construction-oriented environment
- Describe lessons learned from previous ITS projects
- Apply innovative contracting mechanisms and flexibilities in existing regulations to mitigate barriers
- Apply lessons learned to existing policies and procedures to achieve improvements in procuring intelligent transportation systems

Target Audience

Federal, State, and local transportation professionals who are directly involved in procuring ITS systems, specifically personnel responsible for developing and reviewing statements of work for ITS procurement, including program managers, contracting officers, and attorneys.

Training Level: Beginner

Fee: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Emiliano Lopez • (202) 366-2199 • emiliano.lopez@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

We'd love to hear from you! One way to submit feedback is by clicking "Contact Us" on any Web site page.

Course Number

FHWA-NHI-137022

Course Title

CORSIM Traffic Simulation Model Training

This course provides an understanding of CORSIM, the simulation package within the Traffic Software Integrated System (TSIS) suite of tools, which simulates traffic and traffic control conditions on combined surface street and freeway networks. CORSIM is a powerful tool that can be applied to wide areas of interest including:

1. Practical traffic engineering activities such as signal retiming, traffic impact studies, analysis of major traffic events, stadium operations, corridor traffic operations, and freeway incident impacts
2. Evaluating ITS technologies, such as real time traffic adaptive control, real time traveler information and route guidance, and network-wide dynamic traffic assignment

CORSIM determines the impact of traffic engineering and control strategies on a prescribed network's operational performance expressed in terms of various measures of effectiveness (MOEs). The MOEs, such as speed, travel time, volume, and delay, provide insights into the effects of the applied strategy on traffic operations and provide the basis for optimizing the applied strategy.

The hosting organization is responsible for providing computers with the following recommended requirements: 200 MHz Intel Pentium II Processor or equivalent with 128 MB RAM, Windows 2000, Windows NT or Windows XP, color monitors, 50 MB of available disk space. NOTE: Maximum of two participants per terminal.

Outcomes

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

- Describe CORSIM features, including advantages and disadvantages
- Determine appropriate uses for CORSIM
- Identify types and sources of data
- Given real-world data, prepare a link-node diagram, then code for input to CORSIM
- Input data, run CORSIM, and interpret output for arterial, freeway, and combined networks
- Identify circumstances and procedures for calibrating models
- Interpret and fix common error messages
- Use CORSIM to simulate traffic improvements

Target Audience

Traffic engineers in the public and private sectors, as well as in academia, who are involved in ITS planning and deployment.

Training Level: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: John Halkias • (202) 366-2183 • john.halkias@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Course Number

FHWA-NHI-137024

Course Title

Introduction to Systems Engineering for Advanced Transportation

This course is an introduction to systems engineering for intelligent transportation system (ITS) project managers and project staff. It provides a high-level view of a broad and rich topic area, introducing basic system engineering concepts in the context of ITS projects. The course helps participants understand the benefits of applying systems engineering approaches as a means of developing quality systems. The course covers technical practices such as modeling, prototyping, trade-off analysis and testing, and management practices such as risk assessment and mitigation, which make up best practices in the systems engineering arena. A combination of lecture and classroom exercises, with transportation systems examples, is used to illustrate the basic concepts and to introduce the topics.

This course is available as a Web-based course at the Consortium for ITS Training and Education (CITE) located at http://www.citeconsortium.org/registration.html.

This course is also part of the core ITS curriculum established by the ITS Professional Capacity Building (PCB) program. For more information on the core curriculum, go to http://www.pcb.its.dot.gov/Catalogs/ITSCurriculum.htm#section2.

Outcomes

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

- Define systems engineering and its application to ITS
- Describe the system's life cycle and its relationship to systems engineering
- Develop, derive, and validate requirements for a system
- List the systems engineering tools available to mitigate risk
- Define and apply the concept of earned value as a tracking mechanism
- List three alternative strategies that may be applied to decisionmaking under uncertainty
- Identify where to find appropriate standards for developing ITS projects
- Identify resources that may help project personnel to look at systems as a whole

Target Audience

Transportation engineers and other practicing ITS professionals or technical persons at all levels of government and in the private sector. ITS project managers, technical team members, contractors, and staff are all appropriate participants. Project managers would particularly benefit from it since they direct the efforts of many people. Professionals involved in ITS at any level may attend to broaden their understanding of complex systems beyond current technical knowledge.

Training Level: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Emiliano Lopez • (202) 366-2199 • emiliano.lopez@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Course Number

FHWA-NHI-137026

Course Title

Managing High Technology Projects in Transportation

The course is designed to improve project management skills of both public and private-sector personnel responsible for managing the implementation of technology-intensive transportation projects. Itprovides training related to the fundamental principles and practices of good project management; the steps to be taken for the planning, design, procurement, and implementation of transportation systems projects; the types of project management tools available for managing transportation systems projects; and the basic skills required to be a good project manager. This course also covers project management techniques associated with all phases of system acquisition from planning through acceptance. This course is also part of the core Intelligent Transportation Systems (ITS) curriculum established by the ITS Professional Capacity Building (PCB) program. For more information on the core curriculum, go to http://www.pcb.its.dot.gov/Catalogs/ITSCurriculum.htm#section2.

Outcomes

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

- Describe why tailored project management techniques are critical to success in managing advanced transportation projects
- Define key components in planning the project
- Identify the primary participants that need to be involved throughout the development of a project
- Identify the stages of the process and the management tools that are applicable at each stage
- Identify and describe key general management skills that are applicable to managing projects for advanced transportation systems

Target Audience

Current and prospective project managers, project engineers, and designers from State DOTs and State and local transportation agencies, as well as those in the private sector who support the lifecycle implementation of advanced transportation projects.

Training Level: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Emiliano Lopez • (202) 366-2199 • emiliano.lopez@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

NHI and the Consortium for ITS Training and Education (CITE) now offer a reciprocal certificate program. CITE offers credit for successful completion of NHI courses toward participants' ITS Project Management Certificate Program. Contact Training Program Manager Bud Cribbs at bud.cribbs@fhwa.dot.gov for more information

Course Number

FHWA-NHI-137029A

Course Title

Turbo Architecture Software Training

This course provides training on the Turbo Architecture tool, which is a high-level, interactive software training program to assist transportation planners and systems integrators in the development of regional and project architectures using the National Intelligent Transportation Systems (ITS) Architecture as a starting point. Turbo Architecture helps users integrate multiple project architectures with each other and with a regional architecture. In addition, Turbo Architecture provides an initial start toward both architecture development and consistency with the National ITS Architecture. Turbo Architecture software can be used to support project level activities.

Prerequisites:

1. Windows skills-The ability to traverse directories, open/close/resize/minimize windows, switch between open windows, and launch and navigate browser
2. ITS knowledge-Knowledge of common ITS concepts and terminology
3. Architecture knowledge-The ability to translate all ITS elements in their region into architecture entities (subsystems, terminators, architecture flows), and to translate their region's transportation services into market packages
4. National ITS Architecture CD-ROM skills-Proficiency in using the Architecture CD to find information on subsystems, terminators, architecture flows and market packages

System Requirements:

The hosting organization is responsible for providing computers with the following minimum requirements: at least 400MHz CPU, 64 MB of RAM, 150MB hard-disk space available, external mouse, CD-ROM drive, and Diskette Drive (1.44MB); Windows 98SE, 2000, or XP; and Workstation monitors configured for 1024x768 resolution. NOTE: Maximum of two participants per terminal.

Outcomes

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

- List the preparatory decisions and assembly of information needed to create a Regional Architecture or a Project Architecture
- Describe the six steps in the process used by Turbo Architecture to create a Regional Architecture or Project Architecture
- Use Turbo Architecture software to create and modify a simple Regional Architecture or Project Architecture, including: entering inventory data, selecting Market Packages, reconciling inventory inconsistencies, building the architecture, customizing interconnects and architecture flows, and printing reports and diagrams
- Merge a Project Architecture with a Regional Architecture database
- Describe in general terms how to extend the Regional or Project Architecture by adding architecture flows, subsystems and terminators beyond those defined by the National ITS Architecture

Target Audience

State DOT and local agency staff from metropolitan planning organizations (MPOs) and city/county transportation agencies, as well as private sector consultants who are developing regional and project architectures, and transportation personnel who are responsible for assembling ITS inventory data for a region or project and who use Turbo to build and customize their regional or project architecture.

Training Level: Intermediate

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Emiliano Lopez • (202) 366-2199 • emiliano.lopez@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.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 training, 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: Beginner

Fee: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Roemer Alfelor • (202) 366-9242 • roemer.alfelor@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

To view the new Executive Summary go to the NHI Web site at www.nhi.fhwa.dot.gov or go directly to the URL https://admin.acrobat.com/_a55098539/n137030execsummary/

Course Number

FHWA-NHI-137042

Course Title

Configuration Management (CM) for Traffic Management Systems

Configuration management (CM) is the practice of handling changes systematically, so that a system maintains its integrity over time. CM involves the policies, procedures, techniques, and tools to manage, evaluate proposed changes, track the status of changes, and maintain an inventory of system and support documents as the system changes. The need for and use of CM plans has increased significantly as a result of the rapid deployment of ITS projects and the development of traffic management systems. Many agencies are unaware of the need for and importance and value of CM programs and plans to the continued operation and maintenance of their systems.

Outcomes

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

- Discuss the potential benefits and value of CM
- Describe how CM supports the management and operation of traffic management systems
- Identify the role and potential CM applications have in relation to traffic management systems
- Explain the differences between maintenance, testing and acceptance procedures, and CM
- Discuss the key CM issues to consider for field devices, traffic control software, agency, and regional applications
- Identify the types of CM tools that are available and their potential applications

Target Audience

Public and private sector transportation professionals (project planners, engineers, managers, and senior technicians) involved in ITS transportation planning and ITS deployment, such as MPOs transit agencies, municipalities, State highway agencies, FHWA Division and Resource Center offices, FTA personnel, and systems integrators. The course is designed for any individual who is directly involved in documenting a project baseline, lifecycle, and changes for the duration of the project.

Training Level: Intermediate

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Emiliano Lopez • (202) 366-2199 • emiliano.lopez@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

NHI and the Consortium for ITS Training and Education (CITE) now offer a reciprocal certificate program. CITE offers credit for successful completion of NHI courses toward participants' ITS Project Management Certificate Program. Contact Training Program Manager Bud Cribbs at bud.cribbs@fhwa.dot.gov for more information

Course Number

FHWA-NHI-137043

Course Title

Integrated Transportation Management for Small- and Medium-Sized Communities

This is a 1-day introductory course aimed at helping those involved in the planning, design, implementation, and operation of ITS in small- and medium-sized communities. This course introduces the use of Advanced Transportation Management Systems (ATMS) and Advanced Traveler Information Systems (ATIS) when deployed in small- and medium-sized communities.

This course covers ITS strategies for transportation management and traveler information in smaller communities and the issues associated with them. Participants are stepped through selecting an ITS strategy and defining ITS projects within that strategy. Information is presented on the ITS planning and development process, deployment issues, and operations and maintenance issues. The course concludes by covering the resources available and, additionally, the course materials serve as excellent reference material for course participants upon completion of the day.

Outcomes

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

- Identify specific areas in which Advanced Transportation Management Systems (ATMSs) and Advanced Traveler Information Systems (ATISs) can benefit small- and medium-sized communities
- Describe the impact of Intelligent Transportation System (ITS) initiatives on small- and medium-sized communities
- Discuss the value of, and barriers to, several integrated traffic management strategies
- List the steps in the ITS planning and development process for small- and medium-sized communities

Target Audience

This course is designed to assist a wide range of stakeholders who may be involved in the planning, design, implementation, and operation of ITS in small- and medium-sized communities. These stakeholders include: State and local transportation planners, metropolitan planning organizations (MPO) coordinators and directors, city engineers, traffic engineers, public works employees, local signal technicians, State DOT engineers (e.g., local resident engineer, district traffic engineer), city managers, transit/paratransit operators, local police/fire/EMS, and representatives of information technology (IT) departments.

Training Level: Beginner

Fee: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Linda Dodge • (202) 366-8034 • linda.dodge@dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

See page 8 in the front of the catalog to learn how to enroll in an NHI session.

Course Number

FHWA-NHI-137044

Course Title

Improving Highway Safety with Intelligent Transportation Systems (ITS)

This is a 2-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 training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Ewa Flom • (202) 366-2169 • ewa.flom@dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Course Number

FHWA-NHI-139002

Course Title

Uses of Multimodal Freight Forecasting in Transportation Planning

Freight forecasting requires an understanding of many factors, including economic trends, the distribution of traffic, and the operational characteristics of freight carriers. This course provides participants with an overview of freight forecasting and describes different forecasting techniques for facility-specific, metropolitan, and statewide needs. The course identifies freight planning questions that are commonly addressed by transportation planners, demonstrates the use and value of different freight forecasting techniques to answer those questions, and reviews notable practices of freight forecasting techniques used by metropolitan and State transportation agencies. It also provides participants with a basic understanding of freight transportation practices, the key parameters that influence economic growth and distribution of freight traffic, and currently available tools and data used to forecast future freight traffic.

Outcomes

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

- Explain why freight forecasting is important in the transportation planning process
- Discuss the roles of different freight transportation modes
- Describe the economic trends that influence freight growth
- Describe the role of intermodal terminals and their impacts on local traffic
- Identify the impacts of freight on travel demand forecasts
- Identify publicly and privately available sources of key freight data and understand the data sources' strengths and limitations as they relate to freight forecasting and planning

Target Audience

State and metropolitan planning organization (MPO) officials who are involved in transportation planning and/or forecasting; staff of State and local agencies, including DOTs, MPOs, port authorities, and local jurisdictions, who are involved in the development and management of freight projects and plans; and staff of Federal agencies, including FHWA, FRA, FAA, and other modal agencies that assist State and local agencies involved in transportation and/or freight planning and funding.

Training Level: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Carol Keenan • (202) 366-6993 • carol.keenan@dot.gov

Subject Matter Contact: Lisa Randall • (720) 963-3209 • lisa.randall@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

This course is part of the Freight Management and Operations Certificate of Accomplishment now offered by NHI.

FHWA-NHI-139002 Uses of Multimodal Freight Forecasting in Transportation Planning
FHWA-NHI-139003 Advanced Freight Planning
FHWA-NHI-139005 Freight Planning and Environmental Considerations
FHWA-NHI-139006 Integrating Freight in the Transportation Planning Process - WBT

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.

Outcomes

Upon completion of the training, 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 performances 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Carol Keenan • (202) 366-6993 • carol.keenan@fhwa.dot.gov

Subject Matter Contact: Lisa Randall • (720) 963-3209 • lisa.randall@fhwa.dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.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 2-day course targeting 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.

Outcomes

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

- Demonstrate the importance of Commerical 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

FHWA Division Office Staff, 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: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Carol Keenan • (202) 366-6993 • carol.keenan@dot.gov

Subject Matter Contact: Diana Turchetta • (202) 493-0158 • diana.turchetta@dot.gov.

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Course Number

FHWA-NHI-139005

Course Title

Freight Planning and Environmental Considerations

This new course will help 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 SDOTs, as well as exercises on analysis techniques and tool application.

Prerequisite - Participants must have a working knowledge of either transportation planning and/or environmental planning.

Outcomes

Upon completion of the training, 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: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Carol Keenan • (202) 366-6993 • carol.keenan@dot.gov

Subject Matter Contact: Diana Turchetta • (202) 493-0158 • diana.turchetta@dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Course Number

FHWA-NHI-139006 and FHWA-NHI-139006W

New Training WBT

Course Title

Integrating Freight in the Transportation Planning Process

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 training 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 test lead instructor on the first day of class. You are able to print out your certificate after you complete your online exam. If you need help enrolling in this Web-based training, contact Lexi Buscaglia at (703) 235-0556.

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 training, 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: Beginner

Fee: FREE

Length: 6.0 Hours (CEU: 0.6 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Carol Keenan • (202) 366-6993 • carol.keenan@dot.gov

NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

This training replaces the Instructor-led version (FHWA-NHI-139001). See page 15 in the catalog for more information on this course as part of the Freight Management and Operations Certificate of Accomplishment.

Course Number

FHWA-NHI-141029

Updated Training

Course Title

Basic Relocation under the Uniform Act

Basic Relocation was recently updated to reflect current Federal regulations and policies. Prior to enrolling in this course, we recommend participants register for NHI 141045 Real Estate Acquisition under the Uniform Act a Web-based training (WBT) course. FHWA-NHI-141045 is FREE. Please contact Lexi Buscaglia at 703-235-0556 if you need help registering.

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 training, 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
- Compute residential and non-residential moving costs
- Explain replacement housing of last resort

Target Audience

Federal, State, and local public agencies, FHWA personnel, and other interested persons.

Training Level: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Marshall Wainright • (202) 366-4842 • marshall.wainright@dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

This course is part of the Relocation under the Uniform Act NHI Certificate of Accomplishment Program. Successfully complete and pass these NHI courses to enhance your depth of knowledge in this discipline.

FHWA-NHI-141029 Basic Relocation Under the Uniform Act
FHWA-NHI-141030 Advanced Relocation Under the Uniform Act
FHWA-NHI-141031 Business Relocation Under the Unif

Course Number

FHWA-NHI-141030

Course Title

Advanced Relocation under the Uniform Act

Updated to reflect current Federal regulations, this training has significant adult-learning enhancements, as well as an updated video on Business Relocation. Additionally, this course counts toward IRWA's Senior Rights of Way Agent SR/WA designation and re-certification for the Right of Way Relocation Assistance Certification (R/W-RAC).

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 training material 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 training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Marshall Wainright • (202) 366-4842 • marshall.wainright@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.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.

This course has been updated to reflect current Federal regulations; course materials are in compliance with the Uniform Act. This extensive course update includes several interactive group exercises, as well as new case studies designed to enhance the learning experience. Additionally, this course counts toward IRWA's SR/WA designation and R/W-RAC re-certification.

Outcomes

Upon completion of the training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Marshall Wainwright • (202) 366-4842 • marshall.wainwright@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

This course is part of the Relocation under the Uniform Act NHI Certificate of Accomplishment Program. Successfully complete and pass these NHI courses to enhance your depth of knowledge in this discipline.

FHWA-NHI-141029 Basic Relocation Under the Uniform Act
FHWA-NHI-141030 Advanced Relocation Under the Uniform Act
FHWA-NHI-141031 Business Relocation Under the Unif

Course Number

FHWA-NHI-141043

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 training, participants will be able to:

- Explain how and why the appraisal is used as the basis for just compensation
- Apply Federal-Aid appraisal requirements (e.g., tenant-owned improvements, uneconomic remnants, realty and personalty, and compensable items)
- Use partial acquisition appraisal techniques
- Explain the proper use and application of the waiver of appraisal process
- Apply appraisal techniques to problems unique to highway programs
- Describe the role of the appraiser in the land acquisition process

Target Audience

This training targets State departments of transportation (DOTs), local public agencies (LPAs), consultants, and FHWA 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 35

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: John Turpin • (202) 366-5853 • john.turpin@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Course Number

FHWA-NHI-141044

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 training, participants will be able to:

- Explain how and why the appraisal review is used in establishing just compensation
- Apply Federal-aid appraisal review requirements, including tenant-owned improvements, uneconomic remnant, and Uniform Standards of Professional Appraisal Practice (USPAP)
- Apply appraisal review techniques to Federal-aid highway program, including quality assurance, review changes, divergent values, valuation consistency, noncompensable items, appraisal review report, property owner appraisals, and appraisal updating
- 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, and FHWA staff involved in the appraisal review 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: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 35

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: John Turpin • (202) 366-5853 • john.turpin@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

This course and FHWA-NHI-141043 have been approved for continuing education credits in several States by their respective appraisal licensing boards and also counts toward recertification of IRWA's SR/WA designation and the Right of Way Appraisal Certification (R/W-AC). As part of our course delivery, NHI will assist with preparing the application package for the State licensing boards. However, any fees associated with the application process are the responsibility of the requestor.

Course Number

FHWA-NHI-141045

Course Title

Real Estate Acquisition Under the Uniform Act: An Overview

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), is the basis for Federally-funded real estate acquisition programs. The goal of this Web-based training is to help participants recognize what they need to know when acquiring real estate for a Federally-funded project.

Outcomes

Upon completion of the training, 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 or serve as program or project managers, grant administrators, or grant recipients. This includes acquisition and relocation agents, appraisers, realty specialists, attorneys, engineers, planners, and others.

Training Level: Beginner

Fee: FREE

Length: 6.0 Hours (CEU: 0.6 Units)

Class Size: Minimum: ; Maximum:

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Arnold Feldman • (202) 366-2028 • arnold.feldman@dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@dot.gov.

Course Number

FHWA-NHI-141047

Course Title

Local Public Agency Real Estate Acquisition

This Web-based seminar is designed for Local Public Agency staff who are unfamiliar with Federal requirements when acquiring real property for Federally-assisted projects. Comprised of seven distinct learning modules, this self-paced seminar provides basic information on relevant laws and regulations especially the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended. This training provides participants with a working knowledge of the Federal requirements for acquiring real property and relocating displaced persons and businesses when Federal funds are used in any part of the project.

Outcomes

Upon completion of the training, 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: Beginner

Fee: FREE

Length: 1.0 Hours (CEU: 0.1 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Ed Kosola• (202) 493-0350 • edward.kosola@dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@dot.gov.

Course Number

FHWA-NHI-141048

Course Title

Outdoor Advertising Control: Bonus States

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 training, 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: Beginner

Fee: FREE

Length: 6.0 Hours (CEU: 0.6 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Catherine O'Hara • (202) 366-9901 • catherine.o'hara@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@dot.gov.

Course Number

FHWA-NHI-141049

WBT

Course Title

Outdoor Advertising Control: Non-Bonus States

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 training, 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/or consultants assisting governmental entities with their OAC program,

Training Level: Beginner

Fee: FREE

Length: 6.0 Hours (CEU: 0.6 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Catherine O'Hara • (202) 366-9901 • catherine.o'hara@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@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.

We recommend participants take the Web-based FHWA-NHI-142052 Introduction to NEPA and Transportation Decisionmaking course in advance of this offering. While not a prerequisite, the Web-based training is offered at no cost and provides a general overview of NEPA that would be helpful to those taking FHWA-NHI-142005.

Outcomes

Upon completion of the training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 35

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Keith Moore • (202) 366-0524 • keith.moore@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.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 training, 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: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Brenda Kragh • (202) 366-2064 • brenda.kragh@dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Earn continuing education units (CEUs) with NHI courses.

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 training, 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: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jocelyn Jones • (410) 962-2486 • jocelyn.jones@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

This course can be taught via video-conferencing. Contact Mila Plosky for more details.

Course Number

FHWA-NHI-142044

Course Title

Implications of Air Quality Planning for Transportation

The Clean Air Act (CAA), as amended, the Intermodal Transportation Efficiency Act of 1991 (ISTEA), the Transportation Equity Act for the 21st Century (TEA-21), and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) reinforced the close linkage between clean air goals and transportation investments. These statutes also specify requirements that apply to transportation and air quality agencies throughout the United States. However, after more than ten years of implementation, it is clear that more educational opportunities are needed to explain how clean air, transportation rules, and regulations interrelate. In particular, this training was developed to explain the linkages to transportation in the air quality planning process.

The training goes beyond the statutes to explain how the integrated transportation and air quality planning process has been defined and reinforced over the past decade by regulations, guidance, and litigation. It provides a context for the various statutory and regulatory requirements, including a comprehensive review of the CAA requirements, Environmental Protection Agency (EPA) policies related to transportation, and the process of developing State Implementation Plans (SIPs). It also provides information on emission trends, forecasting techniques, technology improvements, emerging issues, and demonstrates how transportation planning and air quality planning fit together under the Transportation Conformity Rule. Finally, it includes hands-on information based upon practitioners' experiences, a review of key court cases, and practical exercises which enable participants to reinforce the classroom instructional materials by addressing real-life challenges they may face within their organizations or agencies.

This training was recently updated to conform with SAFETEA-LU and the implementation of the 8-hour ozone and PM2.5 National Ambient Air Quality Standards.

Outcomes

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

- Explain to agency officials, elected officials, and others why clean air requirements exist
- Identify key Federal laws, regulations, and policies related to transportation and air quality planning activities in order to collaborate effectively with State and local transportation and air quality agencies
- Describe how vehicle emission budgets and transportation control strategies are developed and their relationship to the SIP
- Identify how to contribute to the development of realistic motor vehicle emissions, budgets, and transportation control strategies
- Identify agency conformity responsibilities
- Explain how key conformity objectives relate to other transportation and air quality planning processes
- Describe key components of the transportation planning and project development processes related to air quality planning
- Describe how stakeholder interactions affect transportation and air quality planning

Target Audience

The training is intended for 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 (Clean Cities, environmental organizations, chambers of commerce, fleet managers, etc.).

TRAINING LEVEL: Intermediate

FEE: $420 Per Person

LENGTH: 3.0 DAYS (CEU: 1.8 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov
Subject Matter Contact: Kathy Daniel • (202) 366-6276 • kathy.daniel@fhwa.dot.gov
NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

NHI courses can be hosted by any organization - including transportation professional associations. Instructions for hosting a course can be found on page 8. Or visit the NHI Web site for more information.

Course Number

FHWA-NHI-142045

Course Title

Pedestrian Facility Design

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. 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.

The training fee includes a copy of the AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities for each participant.

Outcomes

Upon completion of the training, 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: $330 Per Person

Length: 1.5 Days (CEU: 0.9 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Gabe Rousseau • (202) 366-8044 • gabe.rousseau@dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

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Course Number

FHWA-NHI-142046

Course Title

Bicycle Facility Design

Bicycle facility design is an emerging subject in the transportation industry. 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 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. However, designing bicycle facilities often requires not only the use of the AASHTO guide and other documents, but designers also need to apply engineering judgment where specific information is not provided. 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 training fee includes a copy of the AASHTO Guide for the Development of Bicycle Facilities.

Outcomes

Upon completion of the training, 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: Intermediate

Fee: $280 Per Person

Length: 1.5 Days (CEU: 0.9 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Gabe Rousseau • (202) 366-8044 • gabe.rousseau@dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.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.

Participants need to bring a calculator to class.

Outcomes

Upon completion of the training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Patricia Cazenas • (202) 366-4085 • patricia.cazenas@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.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 3-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 training, participants will be able to:

- Describe the characteristics and functions of a stream ecosystem
- Describe and evaluate how roads interact with and impact stream ecosystems
- Describe and recognize restoration techniques (e.g., tool box, case studies, etc.), and identify appropriate tools and techniques for stream restoration and mitigation
- List major State and Federal requirements that apply to roadway impacts on stream ecosystems
- Develop monitoring protocols
- Identify and involve stakeholders in a project environmental review process
- Describe the benefits of collaboration among disciplines in assessing and mitigating road impacts to stream ecosystems

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: $400 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Carol Adkins • (202) 366-2054 • carol.adkins@dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Course Number

FHWA-NHI-142049

Course Title

Beyond Compliance: Historic Preservation in Transportation Project Development

A series of revisions to the regulations implementing Section 106 of the National Historic Preservation Act (NHPA) has fundamentally changed the way in which Federal agencies consider and address the potential effects of transportation planning and project development on places of historical and cultural importance. The current Section 106 regulation strongly encourages close coordination between Section 106 activities and National Environmental Policy Act (NEPA) requirements, as well as consultation with Native Americans, local communities, and the public. It also gives agencies greater flexibility and streamlines the Section 106 consultation process.

This training is designed to help transportation professionals meet the requirements of Section 106 and take advantage of the greater flexibility and autonomy offered by the recent revisions. The training focuses on the fundamentals of Section 106, placing it in the context of NEPA, and Section 4(f) of the Department of Transportation Act, and provides techniques for coordinating transportation planning, project development, and compliance with these three laws. The emphasis is on practical approaches for real-world situations and the importance of balancing stewardship and project delivery, and coordinating environmental review with project planning.

This highly rated NHI course was developed in partnership with the Advisory Council on Historic Preservation and representatives from State departments of transportation.

Outcomes

Upon completion of the training, 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: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: MaryAnn Naber • (202) 366-2060 • maryann.naber@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Course Number

FHWA-NHI-142050

Course Title

Introduction to Context Sensitive Solutions

Among the Federal Highway Administration's (FHWA) key strategies, is working with partners to ensure that highway facilities balance local, regional and national concerns with the scenic, aesthetic, historic, and natural environment. Context Sensitive Solutions (CSS) or Context Sensitive Design is a collaborative, interdisciplinary approach to a transportation project, involving stakeholders in the development of a transportation facility that equally addresses safety; mobility; and the preservation of scenic, aesthetic, historic, and environmental resources, while respecting community values.

This introductory training covers the principles of CSS; design and environmental considerations; collaborative stakeholder involvement; group facilitation and conflict resolution; risk management and tort liability; as well as structured decisionmaking and alternatives development.

Outcomes

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

- Explain the philosophy of CSS and its associated benefits
- Discuss why aesthetics and community values are an integral part of a good transportation project design
- Explain the linkages among transportation planning, safety, design, operations in relation to CSS
- Identify stakeholders and their role in the CSS process
- Describe the tools and techniques available to obtain consensus among stakeholders

Target Audience

This is an introductory course and those seeking an overall explanation of the philosophy and principles inherent in Context Sensitive Solutions are encouraged to attend. The target audience is broad and includes staff from Federal, State, and local highway and transportation agencies; consulting firms, private industry, universities, and other national and international entities engaged in any aspect of the planning, design, construction or management of transportation projects. Specific disciplines include transportation planners; environmental specialists; highway, bridge, construction and design engineers; as well as agency managers and supervisors.

Training Level: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 40

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Keith Harrison • (415) 744-2657 • keith.harrison@fhwa.dot.gov

Subject Matter Contact: Keith Moore • (202) 366-0524 • keith.moore@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

NHI Training is available 24/7 with online Web-based trainings. Go to the NHI Web site for more information.

Course Number

FHWA-NHI-142051

Course Title

Highway Traffic Noise

This comprehensive, introductory training incorporates a customized version of the FHWA Interactive Sound Information System (ISIS) into the training presentation. Additionally, this course was designed to address State highway traffic noise policies, procedures and practices. Therefore, it is imperative that the State transportation department Traffic Noise Specialist is involved in a scheduled session. Please contact your FHWA Division office or FHWA Noise Team Leader Mark Ferroni (Mark.Ferroni@dot.gov) for the Noise specialist's contact information.

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, 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, and typical strategies to mitigate noise in highway projects. The training also provides an overview of the FHWA Traffic Noise Model (FHWA TNM), which was developed to predict noise levels and evaluate mitigation options.

In addition to a presentation on Federal noise regulations and policies, the noise specialist from the host State is invited to present his or her State's policies and procedures to ensure that this training is relevant to those attending. Participants also will learn about noise-compatible planning, which encourages State and local governments to prohibit noise-sensitive land uses adjacent to highways.

And NHI commissioned a customized version of the Interactive Sound Information System (ISIS) as part of the training design. ISIS is a noise simulation software program that employs high-quality digital recordings, precise sound control, and graphic imagery to present noise from various traffic loads, and demonstrates the noise-reducing impacts of various barriers.

Outcomes

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

- Explain the basic principles of acoustics
- Describe/review all necessary documentation to fulfill FHWA noise requirements, as codified in 23 CFR 772
- Explain applicable State noise policies
- Determine when a noise study is required
- Explain applicable Federal noise abatement policies/regulations

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: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Mark Ferroni • (202) 366-3233 • mark.ferroni@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Course Number

FHWA-NHI-142052

Course Title

Introduction to NEPA and Transportation Decisionmaking

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 training, 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: Beginner

Fee: FREE

Length: 6.5 Hours (CEU: 0.6 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Lamar Smith • (202) 366-8994 • lamar.smith@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@dot.gov.

Course Number

FHWA-NHI-142054

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 training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Patricia Cazenas • (202) 366-4085 • patricia.cazenes@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Create your own NHI Web site User ID and password to get access to NHI's online services at www.nhi.fhwa.dot.gov.

Course Number

FHWA-NHI-142055

New Training

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 training, 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
- Identify solutions to emerging issues
- 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: Intermediate

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Lamar Smith • (202) 366-8994 • lamar.smith@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Course Number

FHWA-NHI-142059

Course Title

Effective Communications in Public Involvement

New Training WBT WCT

This training presents learners with an introduction to the strategies and techniques for planning and conducting effective public meetings and their associated campaign activities. Topics include: why public involvement campaigns tend to be emotionally charged; strategies to gain public trust and credibility; how to integrate a communications plan into overall public involvement campaigns; ways to improve communications at public meetings.

Outcomes

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

- Explain the key factors that contribute to public involvement campaigns becoming emotionally charged
- Construct strategies for gaining public trust and credibility
- Specify how to integrate a communications plan
- Identify at least three techniques for improving communications at public meetings

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 the public involvement process. Other target job titles are: engineers, planners and environmental specialists.

Training Level: Beginner

Fee: FREE

Length: 6.0 hours (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Katiann Wong-Murillo • (415) 744-2612 • katiann.wong-murillo@fhwa.dot.gov

Subject Matter Contact: Steve Moler • (415) 744-3103 • steve.moler@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

See the inside back cover of the catalog for a list of NHI contacts.

Course Number

FHWA-NHI-151018

Course Title

Application of the FHWA Traffic Monitoring Guide

This training covers the application of procedures used as published in the FHWA's "Traffic Monitoring Guide" (TMG) and other recent developments in traffic monitoring, including:

- An overview of the application of the TMG procedures to develop data and information needed to support State and national programs including the Highway Performance Monitoring System (HPMS), pavement management, safety management, congestion management, and environmental management
- Discussion between users and producers of traffic information from users perspective
- Discussion with attendees on specific issues that impact the application of the TMG procedure in traffic counting, vehicle weighing, etc.
- Discussion of automated procedures for data collection and analysis and presentation of examples
- Discussion of the AASHTO guidelines for traffic monitoring and the coordination of data collection to other Federal and national programs
- Discussion of Traffic Monitoring System required in Intermodal Surface Transportation Efficiency Act (ISTEA)

Outcomes

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

- Describe the purpose and appropriate use of the TMG procedures
- Use the procedures for obtaining data for Federal and State programs
- Apply the data obtained to answer specific questions on Federal and State issues regarding traffic monitoring

Target Audience

FHWA field office planners and State transportation or planning personnel responsible for or interested in traffic counting, vehicle classification, or truck weight data programs, and the users of the traffic information including the Highway Performance Monitoring System (HPMS), pavement management, safety management, congestion management, and environmental management.

Training Level: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Harshad Desai • (202) 366-5047 • harshad.desai@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Course Number

FHWA-NHI-151021

Course Title

Administration of FHWA Planning and Research Grants

This training covers the responsibilities of and relationships among Federal, State, and local agencies involved in the administration of FHWA planning and research funds to States and State subgrants to metropolitan planning organizations (MPO) and local governments. It provides a forum for discussion of the Federal requirements associated with the administration of FHWA planning and research funds.

Included among the topics are current relevant regulations and administrative directives; Office of Management and Budget Circulars; 49 Code of Federal Regulations Part 18, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments (USDOT's implementation of the Common Grant Rule); and 23 Code of Federal Regulations Part 420 (FHWA's Planning and Research Program Administration). In addition, the training touches on allowable costs, cost allocation plans, and audit requirements.

Outcomes

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

- Identify basic principles of grant administration
- Explain terminology associated with grant administration
- Define the roles and responsibilities of those involved in grant administration
- Define the basic principles of Federalism in the Common Grant Rules
- Describe the hierarchy of laws, regulations, requirements, and the relationships among them
- Identify laws and regulations for administration of FHWA planning and research funds
- Apply Federal laws and regulations to administer grant funds
- Identify basic cost principles
- Identify basic audit requirements
- Locate the most current resource materials

Target Audience

FHWA, State departments of transportation, MPOs, and other agency staff, including planning and fiscal staff who expend or administer FHWA planning and research funds. To foster the objective of cooperation among all affected parties, we strongly encourage participation by staff from multiple agencies.

Training Level: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Kenneth Petty • (202) 366-6654 • kenneth.petty@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Course Number

FHWA-NHI-151038

Course Title

Statewide Transportation Planning

The training is a collaborative effort among the Federal Highway Administration (FHWA) Office of Planning, the National Highway Institute (NHI), the Federal Transit Administration, the National Transit Institute, and various statewide planning, transit, and industry representatives to develop a basic, yet comprehensive training that will serve as an introduction to statewide transportation planning. The overall training objective is to provide participants with the necessary knowledge and skills for them to participate constructively in the statewide transportation planning process.

Outcomes

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

- Explain how Federal laws and regulations shape the statewide planning process and how they relate to differing State and local requirements
- Describe the major elements of a statewide transportation plan
- List the players, their roles, and the issues involved in the statewide transportation planning process
- List the required products of the statewide transportation planning process
- Discuss the variety of methods, techniques, and strategies used to implement a transportation plan
- Recognize how evaluation methods and performance measures are used in the statewide transportation planning process
- Recognize noteworthy statewide planning processes

Target Audience

New planners (recent graduates without a transportation background); urban planners; State departments of transportation staff who are actively involved in statewide planning; engineers who are assigned planning duties but lack academic background in planning; metropolitan planning organization staff; rural/regional planning organization staff; regional development commissions staff; transit agency staff; Federal resource or regulatory agencies, such as the U.S. Environmental Protection Agency; the FHWA Federal Lands Highway Division; tribal governments; college graduates without planning degrees; and consultants involved in transportation planning activities.

Training Level: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jody McCullough • (202) 493-2825 • jody.mccullough@dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

View the new and updated courses on the NHI Web site home page.

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 training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Mark Sarmiento • (202) 366-4828 • mark.sarmiento@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Course Number

FHWA-NHI-151043

New Training

Course Title

Transportation and Land Use

The training 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.

This is a new NHI training, developed in cooperation with the FHWA and FTA Offices of Planning, EPA and the National Transit Institute. Representatives from academia, the transit industry, metropolitan planning organizations and State departments of transportation served on the technical panel.

Outcomes

Upon completion of the training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jody McCullough • (202) 366-2825 • jody.mccullough@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Course Number

FHWA-NHI-151044

Course Title

Traffic Monitoring and Pavement Design Programs

NHI and The Office of Highway Policy Information provide this online presentation, at no cost, as part of a broadbrush effort to increase collaboration between Traffic Monitoring Program staff and Pavement Program staff.

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 training, 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: Beginner

Fee: FREE

Length: 1.0 Hours (CEU: 0.0 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Harshad Desai • (202) 366-5047 • harshad.desai@dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@dot.gov.

Course Number

FHWA-NHI-151045

Course Title

Highway Performance Monitoring System: An Introduction

The Office of Highway Policy Information and NHI provide this online presentation as part of a broadbrush effort to promote interaction and collaboration between Traffic Monitoring Program staff and HPMS coordinators.

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 training, 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: Beginner

Fee: FREE

Length: 1.0 Hours (CEU: 0.0 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Harshad Desai • (202) 366-5047 • harshad.desai@dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Course Number

FHWA-NHI-152054

Updated Training

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 training, 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: $550 Per Person

Length: 4.0 Days (CEU: 2.4 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Sarah Sun • (202) 493-0071 • sarah.sun@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Course Number

FHWA-NHI-152069

Course Title

Metropolitan Transportation Planning

The development of this introductory training was a collaboration among NHI, the FHWA and FTA Offices of Planning and the National Transit Institute (NTI). This course is offered by both NHI and NTI.

This course provides a general introduction and overview of the metropolitan transportation planning process, underscoring its relationship to informed decisionmaking. 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-139006 Integrating Freight in the Transportation Planning Process Web-based training.

Outcomes

Upon completion of the training, 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: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 35

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Jody McCullough • (202) 366-2825 • jody.mccullough@dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Course Number

FHWA-NHI-152071

Course Title

Estimating Regional Mobile Source Emissions

The transportation conformity provisions of the 1990 Clean Air Act Amendments (CAAA) require areas that violate the National Ambient Air Quality Standards (NAAQS) to demonstrate that through the transportation conformity process, transportation investments have air quality impacts consistent with the clean air goal of the State Implementation Plan (SIP). Estimating the amount of mobile source emissions is a crucial part of this process. Metropolitan planning organizations (MPOs) and State departments of transportation (DOTs) have the responsibility of creating mobile source emissions estimates to support transportation conformity determinations in areas that violate NAAQS. These emissions estimates are based on travel demand models, highway performance monitoring system (HPMS) data, and emissions rate models. In addition, planners from air agencies are responsible for developing mobile source emissions inventories based on a similar set of assumptions and techniques. It is in the interest of the MPOs and DOTs, as well as air agencies, to perform this analysis using best practice analysis techniques. The focus of this training course is to assist planners and practitioners responsible for estimating mobile source emissions in developing the necessary skills to incorporate best practice techniques into their areas of practice. The course was developed in coordination with the U.S. Environmental Protection Agency (EPA).

Outcomes

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

- Develop estimates of vehicle miles traveled by speed
- Develop MOBILE 6 emissions factors
- Develop regional emissions estimates
- Describe techniques to estimate emissions benefits of selected transportation control measures

Target Audience

This training is targeted to transportation planning staff from State departments of transportation and metropolitan planning organizations; staff from other governmental agencies who are responsible for developing mobile source emissions estimates to support conformity determinations; Federal Highway Administration, Federal Transit Administration, and EPA staff involved in the conformity process as it relates to travel demand forecasting and mobile source emissions estimates; transit operators who participate in developing mobile source emissions estimates; and consultants who are involved in this field.

Prerequisites: Participants should have 1 to 3 years of experience in travel demand forecasting, conformity, or air quality analysis, or have completed FHWA-NHI-152054, Introduction to Travel Demand Forecasting, and/or the National Transit Institute's Introduction to Transportation Conformity course.

Training Level: Accomplished

Fee: $480 Per Person

Length: 3.5 Days (CEU: 2.1 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Cecilia Ho • (202) 366-9862 • cecilia.ho@dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.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. Please note that the course number also has changed, and this training is now listed under the Planning category.

Outcomes

Upon completion of the training, 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: Beginner

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 40

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Bob Meredith • (202) 366-6786 • robert.meredith@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Never hosted an NHI session?

Check out page 8 in the front of the catalog for more information.

Course Number

FHWA-NHI-152072A

Course Title

Highway Program Financing- Executive Session

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 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. This course has been updated to complement the new Federal-Aid authorization bill.

NHI has customized the FHWA-NHI-152072 training into an Executive Session format, 5 hours in length, and tailored for Executives, Consultants and Senior Managers whose time is limited.

Outcomes

Upon completion of the training, 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

Executives, Consultants and Senior Managers who work for and with governmental agencies and seek a broad understanding of the framework for Federal-aid Highway Financing.

Training Level: Intermediate

Fee: $200 Per Person

Length: 5.0 Hours (CEU: 0.5 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Bob Meredith • (202) 366-6786 • robert.meredith@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Use advanced search features on the NHI Web site to find beginner, intermediate, and accomplished level courses.

Course Number

FHWA-NHI-152074

Course Title

TRANSIMS Basics

The TRansportation ANalysis and SIMulation System (TRANSIMS) is a set of travel modeling procedures designed to meet the State DOTs' and MPOs' need for more accurate and more sensitive travel forecasts for transportation planning and emissions analysis.

The goal of this training is to allow participants to obtain the skills and knowledge to understand the workings of TRANSIMS. This Web-based training is designed as a stand alone basic overview of TRANSIMS, as well as a prerequisite for future TRANSIMS training courses.

Researchers at the Los Alamos National designed and developed the TRANSIMS algorithms and software, based on requirements in the Intermodal Surface Transportation Efficiency Act, the Transportation Equity Act for the 21st Century and Clean Air Act Amendments. The development of TRANSIMS was a cooperative venture among the Federal Highway Administration, the Federal Transit Administration, the Office of the Assistant Secretary for Transportation Policy of the United States Department of Transportation, and the Environmental Protection Agency.

Outcomes

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

- Describe the application of TRANSIMS to transportation modeling
- Compare and contrast TRANSIMS methods to existing planning models
- Identify the various components of the TRANSIMS framework
- List the functions and capabilities of TRANSIMS
- Identify the input needs and information required to run TRANSIMS
- Describe the structure of the algorithms that support each module of TRANSIMS

Target Audience

Practicing transportation modelers are the primary audience for this course which will become a prerequisite for the 3-day, Instructor-led training (to be available in the near future). And since the TRANSIMS program has gained international interest among researchers, consultants, and planning agencies, this WBT is also intended to provide a basic understanding of concepts and terms for anyone interested in working with TRANSIMS.

Training Level: Intermediate

Fee: FREE

Length: 6.0 Hours (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Brian Gardner • (202) 366-4061 • brian.gardner@fhwa.dot.gov

NHI Training Program Manager: Mila Plosky • (703) 235-0527 • mila.plosky@fhwa.dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@dot.gov.

Course Number

FHWA-NHI-310108

Course Title

Federal Lands 101

During these times of economic expansion and growth, there are dramatic workforce changes taking place. With the passage of TEA-21, the program for Federal Lands Highway (FLH) nearly doubled and there is the prospect that it will again increase under pending transportation reauthorization. Due to this change, coupled with the increasing demand by our partners and customers for more technical assistance, FLH needs to develop the knowledge of their new/mid-career hires in the area of FLH operations and regulations.

Therefore, the overall course goal is to provide FLH employees with an overview of how FLH operates in order to administer programs, deliver projects, develop and transfer technology, and provide external training.

Outcomes

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

- Identify the role and authorities of FLH within the FHWA and its interactions with Federal-aid divisions
- Describe unique aspects of FLH customers and programs
- Describe how FLH delivers projects
- Describe how FLH conducts business, including processes and resources

Target Audience

New hires to FLH in all positions and grades and Federal-aid (particularly new employees) and Federal Lands Management Agency employees upon request.

Training Level: Beginner

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Don Tuggle • (703) 404-6276 • donald.tuggle@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Private sector transportation partners are encouraged to host NHI courses. For instructions on how to host a course, please see page 8 or visit the NHI Web site for more information.

Course Number

FHWA-NHI-310109

Course Title

Federal-Aid 101 (FHWA Employee Session)

During this time of economic expansion and growth, there are dramatic workforce changes taking place. Given the increasing demand by our partners and customers for more technical assistance, FHWA needs to develop the knowledge of their new/mid-career hires in the area of the Federal-aid processes and regulations.

Therefore, the overall course goal is to provide FHWA employees, particularly mid-career hires, with an overview of the key elements of the Federal-Aid Highway Program. Specifically, this course focuses on general requirements and laws that govern the Federal-Aid Highway Program, processes and procedures followed in the project development, and identifying flexibility inherent in the Federal-Aid Program.

Outcomes

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

- Identify the key elements of the overall project development process
- Identify 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
- Integrate environmental justice into 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 ways used for public involvement early in the process
- Learn the fundamentals of several innovative financing techniques that will maximize the use of Federal-Aid funds
- Develop a network of professionals that can be contacted for help
- Discuss how the Federal-Aid laws and regulations relate to 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).

Training Level: Intermediate

Fee: $480 Per Person

Length: 3.5 Days (CEU: 2.1 Units)

Class Size: Minimum: 25; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Carolyn Eberhard • (703) 235-0010 • carolyn.eberhard@dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Course Number

FHWA-NHI-310110

Course Title

Federal-Aid Highways - 101 (State Version)

During this time of economic expansion and growth, there are dramatic workforce changes taking place. Given the increasing demand by our partners and customers, it is critical to develop the knowledge of State DOT employees in the area of the Federal-aid highway development processes and regulations.

Therefore, the overall course goal is to provide participants with an overview of the key elements of the Federal-Aid Highway Program. Specifically, this course focuses on general requirements and laws that govern the Federal-Aid Highway Program; processes and procedures followed in the entire project development process, including financing, planning, environment, right of way, highway and bridge design, construction, operations/ITS, maintenance, and technology; and identifying flexibility inherent in the Federal-Aid Program.

Outcomes

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

- Identify the key elements of the overall highway project development process
- Identify the elements and requirements of the Federal-Aid Highway Program and the associated Federal/State relationships
- Develop a flowchart of the project development process from the initial planning concept through the environmental and right-of-way processes, on through design, construction, and opening to traffic
- Identify the roles of safety, intelligent transportation systems, operations, research, and development in the Federal-aid process
- Identify the need for public involvement early in the process, opportunities for application of the principles of environmental justice/civil rights, context sensitive solutions, etc
- Learn the fundamentals of Federal-aid financing, including several innovative financing techniques that will maximize the use of Federal-aid funds
- Develop a network of professionals that can be contacted for help
- Discuss how the Federal-aid laws and regulations relate to other laws (i.e., NEPA, Uniform Act, the Davis Bacon Act, OMB Circular A-87, 49 CFR Part 18 (Common Rule)) and the application of FHWA regulations, policies, technical guidance, etc.

Target Audience

State and local government employees and private-sector participants interested in the process by which the Federal-Aid Highway Program is carried out.

Training Level: Intermediate

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Carolyn Eberhard • (703) 235-0010 • carolyn.eberhard@dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Course Number

FHWA-NHI-310111

Course Title

Conducting Reviews that Get Results

A limited number of sessions are being sponsored by the Office of Professional and Corporate Development with no participant fee charged to the hosting Division Office. This is a hands on workshop, 1.5 days in length (can be tailored from 0.5 to 2.0 days), covering the plan, design and tools needed to make the review have the maximum impact. Contact denise.saunders@fhwa.dot.gov for additional information.

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 PR/PE's, 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, focused on your reviews, in the form of consultation, training and hands on assistance in the methodology and tools for conducting successful reviews.

Outcomes

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

- Use the Team Charter to build partnerships and confidence in the review approach
- Explain the methods of review planning to identify desired results and needed information
- Describe effective data collection methodology
- Describe effective data analysis methodology
- Describe effective presentation and marketing methodology
- Describe how to formulate recommendations that can be implemented

Target Audience

Division offices looking to charge up their review programs and Review Teams established and charged with conducting unit process or program reviews, compliance verification reviews, improvement reviews, and/or National Program Reviews. The workshop can be conducted at any critical stage of the review, from planning to implementation.

Training Level: Beginner

Fee: FREE

Length: 1.5 Days (CEU: 0.9 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Chris Newman • (202) 366-2023 • christopher.newman@fhwa.dot.gov

Subject Matter Contact: Denise Saunders • (202) 366-0438 • denise.saunders@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Course Number

FHWA-NHI-310115 and FHWA-NHI-310115W

Course Title

Introducing Highway Federal-Aid

Based upon customer feedback, NHI has summarized portions of FHWA-NHI-310109 Federal-Aid 101 into this self-paced Web-based format. We still encourage participants 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 Web-based training provides a good short-term option.

The overall goal of this WBT is to provide participants, particularly mid-career hires, with an overview of the key elements of the Federal-Aid Highway Program. Specifically, this course 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. We 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 course number FHWA-NHI-310115W for more information.

Outcomes

Upon completion of the training, 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: Beginner

Fee: FREE

Length: 8.0 Hours (CEU: 0.6 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Carolyn Eberhard • (703) 235-0010 • carolyn.eberhard@dot.gov

NHI Training Program Manager: Ann Gretter • (703) 235-1260 • ann.gretter@fhwa.dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@dot.gov.

Course Number

FHWA-NHI-380003

Course Title

Design and Operation of Work Zone Traffic Control (1-Day)

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.

Outcomes

Upon completion of the training, 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: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Morris Oliver • (202) 366-2251 • morris.oliver@dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

This course is part of the Work Zone Safety NHI Certificate of Accomplishment Program. Successfully complete and pass these NHI courses to enhance your depth and breadth of knowledge and expertise in this discipline.

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

Course Number

FHWA-NHI-380003A

Course Title

Design and Operation of Work Zone Traffic Control (3-Day)

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.

Outcomes

Upon completion of the training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Morris Oliver • (202) 366-2251 • morris.oliver@dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Course Number

FHWA-NHI-380005

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 training, participants will be able to:

- Develop and implement improvements to railroad-highway grade crossings
- Identify and evaluate techniques and engineering principles used for all 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Guan Xu • (202) 366-5892 • guan.xu@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

If you're interested in this course, you may also want to take advantage of other NHI safety courses.

FHWA-NHI-151042 Safety Conscious Planning: Planning it Safe
FHWA-NHI-142045 Pedestrian Facility Design
FHWA-NHI-142045 Bicycle Facility Design
FHWA-NHI-137030 Road Weather Management
FHWA-NHI-137044 Improving Highway Safety with Intelligent Transportation Systems (ITS)
FHWA-NHI-133078 Access Management, Location, and Design

Course Number

FHWA-NHI-380032A

Course Title

Roadside Safety Design (3-Day)

This course has been expanded and updated to provide 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.

Outcomes

Upon completion of the training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Frank Julian • (404) 562-3689 • frank.julian@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Looking for safety courses about lane departure?

FHWA-NHI-380032A AASHTON Roadside Design Guide
FHWA-NHI-380034 (1-Day) Design, Construction, and Maintenance of Highway Safety Appurtenances and Features
FHWA-NHI-380034A (2-Day) Design, Construction, and Maintenance of Highway Safety Appurtenances and Features
FHWA-NHI-380034A (2-Day) Design, Construction, and Maintenance of Highway Safety Appurtenances and Features
FHWA-NHI-380070 Safety and Operational Effects of Geometric Design Features

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 training, 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: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Frank Julian • (404) 562-3689 • frank.julian@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.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 training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Frank Julian • (404) 562-3689 • frank.julian@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.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 training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Frank Julian • (404) 562-3689 • frank.julian@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Course Number

FHWA-NHI-380060

Course Title

Work Zone Traffic Control for Maintenance Operations (Short Term)

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.

Outcomes

Upon completion of the training, 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
- Minimize liability exposure for agencies performing utility and maintenance operations

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: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Morris Oliver • (202) 366-2251 • morris.oliver@dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

This course is part of the Work Zone Safety NHI Certificate of Accomplishment Program. Successfully complete and pass these NHI courses to enhance your depth and breadth of knowledge and expertise in this discipline.

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

Course Number

FHWA-NHI-380063

Course Title

Construction Zone Safety Inspection (1-Day)

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.

Outcomes

Upon completion of the training, 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: Accomplished

Fee: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Morris Oliver • (202) 366-2251 • morris.oliver@dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

This course is part of the Work Zone Safety NHI Certificate of Accomplishment Program. Successfully complete and pass these NHI courses to enhance your depth and breadth of knowledge and expertise in this discipline.

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

Course Number

FHWA-NHI-380063A

Course Title

Construction Zone Safety Inspection (1.5-Day)

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.

Outcomes

Upon completion of the training, 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: Accomplished

Fee: $255 Per Person

Length: 1.5 Days (CEU: 0.9 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Morris Oliver • (202) 366-2251 • morris.oliver@dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

If you're interested in this course, you may also want to take advantage of other NHI safety courses.

FHWA-NHI-151042 Safety Conscious Planning: Planning it Safe
FHWA-NHI-142045 Pedestrian Facility Design
FHWA-NHI-142045 Bicycle Facility Design
FHWA-NHI-137030 Road Weather Management
FHWA-NHI-137044 Improving Highway Safety with Intelligent Transportation Systems (ITS)
FHWA-NHI-133078 Access Management, Location, and Design

Course Number

FHWA-NHI-380069

Course Title

Road Safety Audits/Assessments

Course is currently under revision to incorporate better context for local host conditions, discussion of low-cost improvements, and issues of speed management.

Performing effective road safety audits (RSAs) improves safety and demonstrates to the public an agency's dedication to crash reduction. This course provides practical information on how to conduct a road safety audit, location selection, building independent, multi-disciplinary teams and the steps to successful RSAs. Discussions on costs, time, liability and benefits, focus on the common myths and concerns surrounding RSAs. Participants learn how to improve transportation safety by applying a new proactive approach to RSAs. This approach includes examination of a future or existing roadway by an independent, qualified audit team.

The course includes hands-on application of the training materials, which include information on the history and definition of RSAs, the importance of safety, the stages of a road safety audit, how to conduct a road safety audit, easy-to-use-checklists, and legal considerations. A copy of "FHWA Road Safety Audit Guidelines" is provided.

Outcomes

Upon completion of the training, 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

Federal, State, and local transportation personnel who are likely to serve on a road safety audit team. Consultants who conduct highway safety studies should also attend.

Training Level: Accomplished

Fee: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Craig Allred • (720) 963-3236 • craig.allred@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Course Number

FHWA-NHI-380070

Course Title

Safety and Operational Effects of Geometric Design Features

This 2-day 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.

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 training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Gene Amparano • (816) 329-3909 • gene.amparano@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Looking for safety courses about lane departure?

FHWA-NHI-380032A AASHTON Roadside Design Guide
FHWA-NHI-380034 (1-Day) Design, Construction, and Maintenance of Highway Safety Appurtenances and Features
FHWA-NHI-380034A (2-Day) Design, Construction, and Maintenance of Highway Safety Appurtenances and Features
FHWA-NHI-380034A (2-Day) Design, Construction, and Maintenance of Highway Safety Appurtenances and Features
FHWA-NHI-380070 Safety and Operational Effects of Geometric Design Features

Course Number

FHWA-NHI-380070A

Course Title

Safety Effects of Geometric Design Features for Two-Lane Rural Highways

This 1-day 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.

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 training, 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: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Gene Amparano • (816) 329-3909 • gene.amparano@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Course Number

FHWA-NHI-380070B

Course Title

Safety Effects of Geometric Design Features 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.

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 training, 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: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Gene Amparano • (816) 329-3909 • gene.amparano@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

If you're interested in this course, you may also want to take advantage of other NHI safety courses.

FHWA-NHI-151042 Safety Conscious Planning: Planning it Safe
FHWA-NHI-142045 Pedestrian Facility Design
FHWA-NHI-142045 Bicycle Facility Design
FHWA-NHI-137030 Road Weather Management
FHWA-NHI-137044 Improving Highway Safety with Intelligent Transportation Systems (ITS)
FHWA-NHI-133078 Access Management, Location, and Design

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 training, 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: $320 Per Person

Length: 2.0 Days (CEU: 1.2 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Clayton Chen • (202) 493-3054 • clayton.chen@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Course Number

FHWA-NHI-380072

Course Title

Advanced Work Zone Management and Design

This 3-day training 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 designed to provide maximum flexibility by including core, recommended, and optional lessons. The default course consists of the core and recommended 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.

Outcomes

Upon completion of the training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Morris Oliver • (202) 366-2251 • morris.oliver@dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.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 a basic 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 training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Mark Doctor • (404) 562-3732 • mark.doctor@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Looking for safety related courses for intersections?

FHWA-NHI-133078 Access Management, Location and Design
FHWA-NHI-380005 Railroad-Highway Grade Crossing Improvement Program
FHWA-NHI-380073 Fundamentals of Planning, Design, and Approval of Interchange Improvements to the Interstate System
FHWA-NHI-380074 Designing and Operating Intersections for Safety

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 training, 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 engineers and transportation professionals with one to five years of work experience.

Training Level: Accomplished

Fee: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Christopher Webster • (404) 562-3915 • cwebster@dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Looking for safety courses about bicycles and pedestrians?

FHWA-NHI-142045 Pedestrian Facility Design
FHWA-NHI-142046 Bicycle Facility Design

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 training, 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: $420 Per Person

Length: 3.0 Days (CEU: 1.8 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Karen Yunk • (609) 637-4207 • karen.yunk@dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

NHI training is led by top notch Instructors. See page 258 for more information about the Instructor Certification Program or contact our NHI Instructor Liaison at (703) 235-0010.

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 training, 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: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 35

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: John McFadden • (410) 962-2482 • john.mcfadden@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.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 training, 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: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Fred Ranck • (708) 283-3545 • fred.ranck@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Looking for safety related courses for intersections?

FHWA-NHI-133078 Access Management, Location and Design
FHWA-NHI-380005 Railroad-Highway Grade Crossing Improvement Program
FHWA-NHI-380073 Fundamentals of Planning, Design, and Approval of Interchange Improvements to the Interstate System
FHWA-NHI-380074 Designing and Operating Intersections for Safety

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 training, 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: $220 Per Person

Length: 1.0 Day (CEU: 0.6 Units)

Class Size: Minimum: 20; Maximum: 30

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Fred Ranck • (708) 283-3545 • fred.ranck@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Looking for safety courses about bicycles and pedestrians?

FHWA-NHI-142045 Pedestrian Facility Design
FHWA-NHI-142046 Bicycle Facility Design

Course Number

FHWA-NHI-380079

Course Title

AASHTO Roadside Design Guide

Get an overview of the AASHTO Roadside Design Guide. Emphasis is on current highway agency policies and practices. At the end of the course, you will be able to apply the clear zone concept to all classes of roadways and learn and apply other core competencies. This is a Web-based course. Participant must register online through the NHI Web site.

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. Directions on how to obtain a copy of this book can be found on the NHI Web site.

Outcomes

Upon completion of the training, 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: FREE

Length: 14.0 Hours (CEU: 1.2 Units)

Class Size: Minimum: 1; Maximum: 1

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov

Subject Matter Contact: Frank Julian • (404) 562-3689 • frank.julian@fhwa.dot.gov

NHI Training Program Manager: Tom Elliott • (703) 235-0319 • thomas.elliott@fhwa.dot.gov

Need help with the NHI Web site or enrolling in a Web-based training? Call (703) 235-0556 or e-mail nhiwebmaster@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
- Click on Quick Start link that appears in the blue bar on the right side of the home page
- Type 420018 in the Course Number Location
- Click Search
- Click on the course number (FHWA-NHI-420018) to view the course description
- Scroll down to the Prerequisite area

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 training, 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: Beginner

Fee: $620 Per Person

Length: 3.5 Days (CEU: 2.1 Units)

Class Size: Minimum: 6; Maximum: 12

NHI Training Information: (703) 235-0534 • nhitraining@dot.gov
Subject Matter Contact: Carolyn Eberhard • (703) 235-0010 • carolyn.eberhard@fhwa.dot.gov
NHI Training Program Manager: Bud Cribbs • (703) 235-0526 • bud.cribbs@fhwa.dot.gov

Check out page IV of the special insert, NHI Real Solutions *for more information in Instructor Development and the Instructors of Excellence Award*

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
- Click on Quick Start link that appears in the blue bar on the right side of the home page
- Type 420018A in the Course Number Location
- Click Search
- Click on the course number (FHWA-NHI-420018A) to view the course description
- Scroll down to the Prerequisite area

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 training, participants will be able to:

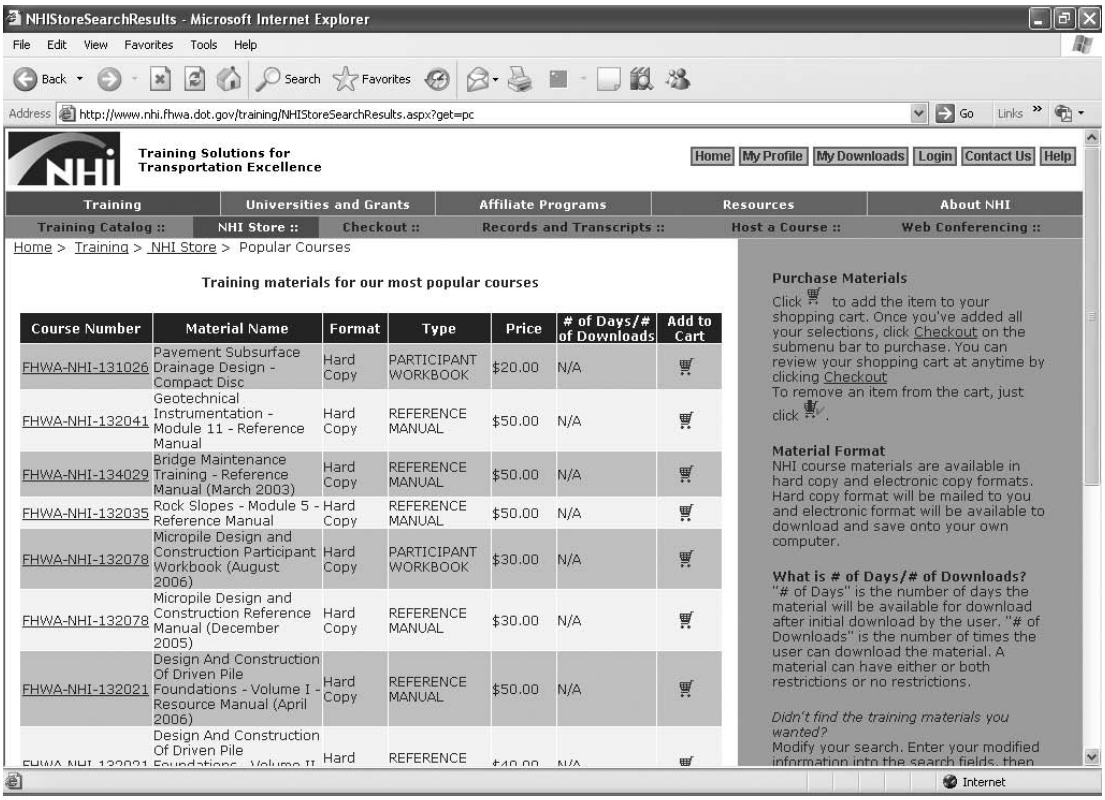
- Explain the five steps in the ISD system
- Write a behavioral learning outcome
- Develop various types of visual aids
- Present, measure, and review a learning outcome
- Demonstrate at least two forms of interactivity and positive interpersonal skills
- List five training techniques (e.g., Do not talk to the flip chart; do not stand in front of the projector; and do not stand in one place)

CHECK OUT THE NHI STORE!

The NHI Store is an online option that allows visitors to browse and buy NHI training materials such as CDs, reference manuals, workbooks, and PowerPoint presentations. Created based on customer feedback, the NHI Store is has proved to be a success!

NHI course materials are available in hard copy and electronic copy formats. Hard copy format will be mailed to you and electronic format will be available to download and save onto your own computer.

To search for and purchase NHI course training materials, please visit the NHI Store at www.nhi.fhwa.dot.gov/training/nhistore.aspx. Easy directions are provided at the Web site for ordering and payment; special instructions are provided for FHWA employees. See reviews of the NHI store in the *NHI Real Solutions* insert on page XVI.



The following pages list the electronic materials available for purchase at the time this catalog was published. For our entire up-to-date listing, including hard copy materials, visit the NHI Store at www.nhi.fhwa.dot.gov/training/nhistore.aspx. Credit card payment is accepted.

NHI STORE LISTING

Course Number	Material Name	Format	Type	Price
FHWA-NHI-130053	Bridge Inspection Refresher Training	Electronic Copy	Participant Workbook	$40.00
FHWA-NHI-130053	Bridge Inspector's Reference Manual Volume I (December 2006)	Electronic Copy	Reference Manual	$10.00
FHWA-NHI-130053	Bridge Inspector's Reference Manual Volume II (December 2006)	Electronic Copy	Reference Manual	$10.00
FHWA-NHI-130053	Bridge Inspection Refresher Training	Electronic Copy	Participant Workbook	$40.00
FHWA-NHI-130053	Bridge Inspector's Reference Manual - Compact Disc (December 2006)	Electronic Copy	Reference Manual	$20.00
FHWA-NHI-130054	Engineering Concepts For Bridge Inspectors - Participant Notebook	Electronic Copy	Participant Workbook	$40.00
FHWA-NHI-130054	Bridge Inspector's Reference Manual - Compact Disc (December 2006)	Electronic Copy	Reference Manual	$20.00
FHWA-NHI-130055	Bridge Inspector's Reference Manual - Compact Disc (October 2002)	Electronic Copy	Reference Manual	$20.00
FHWA-NHI-130055	Safety Inspection Of In-Service Bridges - Participant's Workbook (October 2004)	Electronic Copy	Participant Workbook	$40.00
FHWA-NHI-130069	Hazardous Bridge Coatings: Design And Management Of Maintenance And Removal Operations - Field Guide	Electronic Copy	Other Materials	$60.00
FHWA-NHI-130069	Hazardous Bridge Coatings: Design And Management Of Maintenance And Removal Operations - Participant Workbook	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-130078	Fracture Critical Inspection Techniques For Steel Bridges - PW - Compact Disc (August 2003)	Electronic Copy	Other Materials	$20.00
FHWA-NHI-130078	Fracture Critical Inspection Techniques For Steel Bridges - Participant's Workbook (March 2006)	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-130079	Bridge Coatings Inspection - Participant Workbook	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-130079	Bridge Coatings Inspection - Reference Manual	Electronic Copy	Reference Manual	$50.00
FHWA-NHI-130082B	LFRD for Highway Bridge Substructures and Earth Retaining Structures (Jan 2007)	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-130087	Guidelines For The Installation, Inspection, Maintenance And Repair Of Structural Supports For Highway Signs, Luminaires, And Traffic Signalls (March 2005)	Electronic Copy	Other Materials	$50.00
FHWA-NHI-130087	Inspection And Maintenance Of Ancillary Highway Structures - Participant Workbook (March 2005)	Electronic Copy	Participant Workbook	$50.00

Course Number	Material Name	Format	Type	Price
FHWA-NHI-130088	Bridge Construction Inspection - Participant Workbook Volume 1 (February 2007)	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-130088	Bridge Construction Inspection - Participant Workbook Volume 2 (February 2007)	Electronic Copy	Participant Workbook	$40.00
FHWA-NHI-130091	Underwater Bridge Inspection (November 2006)	Electronic Copy	Participant Workbook	$30.00
FHWA-NHI-131032	Hot Mix Asphalt Construction - Participant Workbook (July 2002)	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-131044	Hot Mix Asphalt Production Facilities - Reference Manual (July 2002)	Electronic Copy	Reference Manual	$50.00
FHWA-NHI-131044	Hot Mix Asphalt Production Facilities - Participant Workbook (July 2002)	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-131045	Hot Mix Asphalt Materials, Characteristics And Control - Participant Workbook (November 2002)	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-131050	Asphalt Pavement Recycling Technologies - Participant Workbook (June 2002)	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-131050	Basic Asphalt Recycling Manual	Electronic Copy	Other Materials	$50.00
FHWA-NHI-131060	Design Details For High-Performance Concrete Pavements: An Interactive CD-ROM	Electronic Copy	Other Materials	$20.00
FHWA-NHI-131060	Concrete Pavement Design Details And Construction Practices - Participant's Workbook	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-131060	Concrete Pavement Design Details And Construction Practices - Reference Manual	Electronic Copy	Reference Manual	$50.00
FHWA-NHI-131062	PCC Pavement Evaluation And Rehabilitation - Participant Workbook	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-131062	PCC Pavement Evaluation And Rehabilitation - Reference Manual	Electronic Copy	Reference Manual	$50.00
FHWA-NHI-131063	Hot Mix Asphalt Pavement Evaluation And Rehabilitation - Participant's Workbook	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-131063	Hot Mix Asphalt Pavement Evaluation And Rehabilitation - Reference Manual	Electronic Copy	Reference Manual	$50.00
FHWA-NHI-131064	Introduction To Mechanistic-Empirical Pavement Design - Participant Workbook	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-131064	Introduction To Mechanistic-Empirical Pavement Design - Reference Manual	Electronic Copy	Reference Manual	$50.00
FHWA-NHI-131064	Introduction To Mechanistic-Empirical Pavement Design - Workshop Problems	Electronic Copy	Other Materials	$50.00
FHWA-NHI-131100	Pavement Smoothness: Factors Affecting Inertial Profile Measurements Used For Construction Quality Control - Participant's Workbook (April 2001) Revised September 2003	Electronic Copy	Participant Workbook	$50.00

Course Number	Material Name	Format	Type	Price
FHWA-NHI-131100	Pavement Smoothness: Factors Affecting Inertial Profiler Measurements Used For Construction Control - Compact Disc (December 2001)	Electronic Copy	Other Materials	$20.00
FHWA-NHI-131100	Pavement Smoothness: Factors Affecting Inertial Profiler Measurements Used For Construction Quality Control - Reference Manual (April 2001)	Electronic Copy	Reference Manual	$50.00
FHWA-NHI-131103A	Pavement Preservation Design and Construction of Quality Preventive Maintenance Treatments - PW	Electronic Copy	Participant Workbook	$40.00
FHWA-NHI-131103A	Pavement Preservation Design and Construction of Quality Preventive Maintenance Treatments - RM	Electronic Copy	Reference Manual	$40.00
FHWA-NHI-131103B	Pavement Preservation Design and Construction of Quality Preventive Maintenance Treatments - PW	Electronic Copy	Participant Workbook	$40.00
FHWA-NHI-131103B	Pavement Preservation Design and Construction of Quality Preventive Maintenance Treatments - RM	Electronic Copy	Reference Manual	$40.00
FHWA-NHI-131103C	Pavement Preservation Design and Construction of Quality Preventive Maintenance Treatments - PW	Electronic Copy	Participant Workbook	$40.00
FHWA-NHI-131103C	Pavement Preservation Design and Construction of Quality Preventive Maintenance Treatments - RM	Electronic Copy	Reference Manual	$40.00
FHWA-NHI-131104	Pavement Preservation: Integrating Pavement Preservation Practices And Pavement Management - Participant's Workbook (December 2003)	Electronic Copy	Participant Workbook	$50.00
FHWA-NHI-131104	Pavement Preservation: Integrating Pavement Preservation Practices And Pavement Management - Reference Manual (December 2003)	Electronic Copy	Reference Manual	$50.00
FHWA-NHI-131105	Analysis Of PMS Data For Engineering Applications - Reference Manual	Electronic Copy	Reference Manual	$0.00

OTHER FHWA COURSES

The following FHWA courses are listed as a courtesy by NHI. For more information about the courses in this section please call the technical information specialist listed with each course.

Applied MOBILE6.2 Workshop

This workshop provides an in-depth examination of the MOBILE6.2 model and its use in preparing emission inventories for SIPs and transportation conformity determinations. The workshop will concentrate on those commands where locally derived input data is desired or recommended for regulatory applications. A review of the relevant parameters and associated MOBILE6.2 commands and data requirements will be presented, including descriptions and example command structure. The focus will be on external conditions, vehicle fleet characteristics, vehicle activity, and vehicle fuel specification parameters. EPA's technical guidance for implementing the pertinent commands will be explained. Emission estimation methodologies that can be applied in rural areas will be provided. Several case studies of locally-derived input data prepared by MPOs will be examined and compared to the national defaults built into MOBILE6.2. Modeling of particulate matter and mobile source air toxics with MOBILE6.2 will also be presented. As a prerequisite, participants should have a basic understanding of the MOBILE6.2 model and its execution.

TARGET AUDIENCE:

This course is for all State and local government agencies and private consultants actively working on public projects.

LENGTH: 2 DAYS

CLASS SIZE: 15

Subject Matter Contact: Michael Claggett (505)820-2047; e-mail: michael.claggett@fhwa.dot.gov or Jeff Houk (720) 963-3203; e-mail: jeff.houk@fhwa.dot.gov

Activity and Tour-Based Forecasting Seminar

This seminar is designed for travel demand modelers with several years of practical experience. The development of activity and tour-based models is a result of recent research into travel demand forecasting procedures and advances in computing technology, which enable more detailed and disaggregate travel demand analysis. The seminar communicates to travel modeling professionals some of the activity and tour based modeling procedures developed by their colleagues around the U.S. and abroad, as well as promising techniques that have been or are being researched.

TARGET AUDIENCE:

MPO, DOT, transit agency planners

LENGTH: 1 DAY

CLASS SIZE: MINIMUM: 30

Subject Matter Contact: Sarah Sun (202) 493-0071; e-mail: sarah.sun@dot.gov

Best Practices for PCC Pavements: Long-Life PCCP Design and Construction Features Workshop

This is the first in a series of three workshops currently under development. The workshop covers a range of topics, including pavement design, concrete materials and mix designs, construction process and management aides, alternate design and bid approaches, and maintenance, repair, and rehabilitation. The workshop is available upon request.

TARGET AUDIENCE:

The workshop can be tailored for State DOT pavement and materials engineers, consulting design engineers, paving contractors, and independent testing/inspection laboratories.

LENGTH: 1–2 DAYS

CLASS SIZE: 30

Subject Matter Contact: Sam Tyson (202) 366-1326; e-mail sam.tyson@dot.gov

Census Transportation Planning Products and Data Mining Workshop

Tailored to audience requirements (length and topics), ranges from an overview of the Census Transportation Planning Products program (CTPP) 2000, to hands on exercises with the use and application of census data for transportation planning, the American Community Survey and the National Household Travel Survey, its special tabulations from the decennial census survey, and its uses and applications for transportation planning.

Target Audience:

Staff involved in the metropolitan or statewide transportation planning process. This includes 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.).

Length: 2 Hours to 2 Days

Class Size: Minimum 10; Maximum 30

Subject Matter Contact: ed.christopher@fhwa.dot.gov; e-mail: elaine.murakami@fhwa.dot.gov

Congestion Management Process Workshop

Tailored to audience requirements (length and topics) to provide an overview of the requirements and components of a Congestion Management Process, including the development of performance measures, identifying alternative solutions to manage congestion, prioritizing funding strategies, and highlighting noteworthy practices.

Target Audience:

Staff involved in the metropolitan or statewide transportation planning process. This includes 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.).

Length: 1 Day

Class Size: Minimum 10; Maximum 30

Subject Matter Contact: ben.williams@dot.gov; e-mail: brian.betlyon@fhwa.dot.gov

Construction of Pavement Subsurface Drainage Systems

This workshop provides participants with techniques for quality construction and maintenance of pavement drainage systems. It provides good guidance for the construction of permeable bases, aggregate separator layer, and edge drain systems. Inspection and maintenance of the system are also covered in the workshop.

Target Audience:

Pavement design engineers, construction, and maintenance personnel.

Length: 1 Day

Class Size: 35

Subject Matter Contact: Angel Correa (404) 562-3907; e-mail: angel.correa@dot.gov

Designing Pedestrian Facilities for Accessibility

This training, developed jointly by the Federal Highway Administration (FHWA), the United States Access Board (the Access Board) and the Association of Pedestrian and Bicycle Professionals (APBP), provides an overview of the Americans with Disabilities Act (ADA) Section 504 of the Rehabilitation Act (Section 504) as well as accessibility guidelines, policies, and best practices, and teaches participants how to apply appropriate guidelines and policies to the public rights-of way to construct or alter pedestrian facilities to be usable by and accessible to individuals with disabilities. The following areas are covered:

1. Characteristics of pedestrians, the pedestrian environment, and the range of disabilities
2. Legal requirements - Americans with Disabilities Act and Section 504 of the Rehabilitation Act
3. USDOT and FHWA policies and funding opportunities
4. Accessible design elements – sidewalk corridor, frontage corridor, and pedestrian zone
5. Curb ramps
6. Crosswalks
7. Medians & islands
8. Roundabouts
9. Overpasses and underpasses
10. Temporary facilities and construction site safety
11. Pedestrian signs and signals

In addition to the instruction, the 1.5- and 2-day versions include a field exercise in which participants use wheelchairs to navigate and evaluate several sidewalk and street crossing locations and examine these public rights-of-way facilities for accessible features.

Target Audience:

Local, State, and Federal engineers and planners with responsibility for designing and/or building pedestrian facilities; urban designers; public officials; and interested citizens. Note: This course is being taught by the Association of Pedestrian and Bicycle Professionals (APBP).

Fee: $3250/$4000

Length: 1 or 1.5 Days

Class Size: 30

Subject Matter Contact Bob Cosgrove (410) 962-0089; e-mail: bob.cosgrove@fhwa.dot.gov

Economic Analysis for Highway Decision-Makers Workshop

This workshop consists of instruction on the application of economic analysis methods to highway project decision-making. It begins with an explanation of the fundamental concepts used in the economic analysis of highway projects (e.g., inflation and the opportunity cost of money) and proceeds to explanations of economic analysis methods, especially life-cycle cost analysis and benefit-cost analysis. The workshop also briefly reviews the use of traffic forecasts, risk analysis, and economic impact analysis in the economic analysis process. The workshop concludes with two and a half hours of interactive training on the BCA.Net benefit-cost analysis tool. This Internet-based tool can be readily applied to a broad range of highway investments. The recipients provide the training facility. The facility should enable access to the Internet, either through desktop computers or a wireless network to which students can connect with their laptop computers.

Target Audience:

The workshop is appropriate for anyone interested in the application of economic analysis to the planning, design, and implementation of highway projects. Potential participants include the managers and staff of the State highway agency, the FHWA Division Office, metropolitan planning organizations, private industry, and academia.

Length: 7 Hours

Class Size: Minimum 12; Maximum 30

Subject Matter Contact: Francine Shaw-Whitson, (202) 366-8028; e-mail: francine.shaw-whitson@dot.gov

Engaging the Private Sector in Freight Planning Workshop and Executive Summary

This free 1-day workshop is designed for professionals tackling freight issues at metropolitan planning organizations, State departments of transportation, local governments, and economic development agencies. The workshop focuses on building a better understanding of the value of freight stakeholder input to the public sector planning process, identifying freight stakeholders, and engaging freight stakeholders in the planning process. A 30+ minute executive summary is also available that is generally delivered through a webcast session (1-2 hours).

Target Audience:

Participants should be familiar with freight terminology, issues, and trends before taking this workshop. Participants may consider taking FHWA-NHI-139006, Integrating Freight in the Transportation Planning Process WBT to prepare for the workshop.

Subject Matter Contact: Jocelyn Jones (410) 962-2486; e-mail: jocelyn.jones@dot.gov

Environmental Justice for MPOs Seminar

Tailored to audience requirements (length and topics) to provide an overview of Title VI and Executive Order 12898 requirements and environmental justice objectives with particular focus on MPO issues and analytical approaches to assess compliance in metropolitan plans and programs.

Target Audience:

Staff involved in the metropolitan or statewide transportation planning process. This includes 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.).

Length: 2-8 Hours

Class Size: Minimum 10; Maximum 30

Subject Matter Contact: Brian Betlyon e-mail: brian.betlyon@fhwa.dot.gov

Fiber Optic Installation on Freeway Right-of-Way Workshop

This 2-day workshop walks participants through project development, design and approval. Participants work with a scale model to see how and why project concepts and principals work together. The workshop is based on the "Design Guide for Fiber Optic Installation on Freeway Right-of-Way," a copy of which is provided to each participant.

Outcomes :

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

- Recognize the importance of shared resource agreements for installing fiber
- Describe the issues associated with creating and administering a shared resource project
- Appreciate the perspective of the telecommunication providers
- Describe the impacts of fiber installation on corridor quality
- Discuss the methods of installation
- Delineate the steps and sequence in a fiber optics installation from project development through operations and maintenance
- Navigate the "Design Guide for Fiber Optic Installation on Freeway Right-of-Way"

Target Audience:

The workshop is designed for both State DOT practitioners and telecommunication providers, and welcomes local transportation agency personnel.

Length: 2 Days

Class Size: 20

Subject Matter Contact: William Jones (202) 366-2128; e-mail: william.jones@dot.gov

FHWA Basic Civil Rights Program Training

A basic overview of the major FHWA civil rights programs and authorities, as well as how to administer the programs at the Division Office and the State DOT levels, including development, monitoring, implementation, and approval of State program documents. The course is divided into six separate modules for the following program areas: State DOT Internal EEO/Affirmative Action, EEO Contractor Compliance, Investigation of Discrimination Complaints, Title VI/Environmental Justice, Disadvantaged Business Enterprise, and Americans with Disabilities Act.

Target Audience:

All FHWA, State DOT, and other recipient personnel assigned civil rights responsibilities on either a full or part-time basis. In addition, FHWA division administrators, assistant division administrators, team leaders and State DOT management personnel in any discipline with significant civil rights implications (e.g., planning, contract administration, legal, environment, safety, right-of-way and relocation, and research). A minimum of 15, not to exceed 30, participants is required to hold a session.

Length: 4.5 Days

Class Size: 30

Subject Matter Contact: Teresa Banks (404) 562-3592; e-mail: teresa.banks@dot.gov

Freight Planning Technical Assistance

Tailored to customer requirements (length and topics), Resource Center specialists provide freight planning technical assistance on a range of issues from freight studies, to private-sector involvement, to data and forecasting.

Length: Depends on customer needs

Subject Matter Contact: Lisa Randall e-mail: lisa.randall@dot.gov; Fawn Thompson e-mail: fawn.thompson@dot.gov; or Jocelyn Jones e-mail: jocelyn.jones@dot.gov

Freight Security Awareness Web-based Primer

Self-paced computer product that provides an overview of security initiatives and focuses on how transportation agencies can incorporate security-related issues and programs within their traditional, day-to-day transportation planning activities. This is a primer to a complementary freight security awareness workshop.

Length: Self-paced 1 to 2 Hours; Now Available

Subject Matter Contact: Crystal Jones (202) 366-2976; e-mail crystal.jones@dot.gov or Fawn Thompson (404) 562-3917; e-mail: fawn.thompson@dot.gov

Freight Security Awareness Workshop

Tailored to audience requirements (topics and length), provides an overview of FHWA intermodal freight technology and freight security initiatives. Can be offered via nettraining.

Length: 2-8 Hours

Subject Matter Contact: Crystal Jones e-mail: crystal.jones@dot.gov; or Lisa Randall e-mail: lisa.randall@dot.gov

For more information about the courses in this section, please call the technical information specialist listed with each course.

Fundamentals of Life-Cycle Cost Analysis (LCCA) WBT

This blended training, provides participants with an introduction to the techniques used in evaluating life-cycle costs of competing project alternatives. This training presents the materials in a series of online lessons, with each module focused on a different aspect of life-cycle cost analysis.

Target Audience:

Agency planners, engineers, financial descionmakers, project selection deciders.

Length: 9 Hours

Class size: Minimum 10

Subject Matter Contact: Nathaniel Coley (202) 366-1271; e-mail: nathaniel.coley@dot.gov

GIS (Use of) Within Environmental Streamlining and Stewardship

Tailored to audience requirements (topics and length) to provide a general overview of spatial data technologies and how these can be used to enhance environmental decision-making and streamlining.

Target Audience:

Staff involved in the metropolitan or statewide transportation planning process, including participants from MPOs, 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.)

Length: 2 Hours to 1.5 Days

Class size: Minimum 10; Maximum 30

Subject Matter Contact: Ben Williams e-mail: ben.williams@dot.gov

Highway Economic Requirements System – State Version (HERS-ST) Software Workshop

The Highway Economic Requirements System – State Version (HERS-ST) is a decision tool used to analyze highway "needs" for programming and planning. This tool is excellent for long-range planning, scenario evaluation, corridor analysis, congestion management and highway program evaluation. The free workshop provides instruction on the application of the HERS-ST software and how the software is used as highway investment decision tool. It begins with an overview and an explanation of some of the fundamental concepts (life-cycle cost analysis and benefit-cost ratio) used in the economic analysis of highways. The workshop includes five hours of interactive training on the HERS-ST software. The recipients provide the training facility/computer lab.

Target Audience:

Appropriate for anyone interested in the application of economic-engineering analysis in determing highway infrastructure needs for programming & planning. Potential participants include managers and staff of the State departments of transportation, MPOs, the FHWA Division Office, private industry, and academia.

Length: 7 Hours

Class Size: Minimum 4; Maximum 30

Subject Matter Contact: Francine Shaw-Whitson (202) 366-8028; e-mail: francine.shaw-whitson@dot.gov

Highway Performance Monitoring System (HPMS) Software Workshop

This workshop provides hands-on instruction on using the newest HPMS software package and is offered as-needed.

Target Audience:

State and FHWA field personnel working with the HPMS data program and responsible for preparing or evaluating a State's HPMS submittal package.

Length: 2 Days

Subject Matter Contact: Thomas Roff (202) 366-5035; e-mail: thomas.roff@dot.gov

HIPERPAV Workshop

HIPERPAV is a software program that models early-age development of concrete strength and stresses that result from moisture and temperature changes within the pavement. In this workshop the participants will become familiar with using the software and its capabilities to extend the useful life of concrete pavements.

Target Audience:

Pavement engineers, construction and maintenance personnel.

Length: 1 Day

Class Size: 35

Subject Matter Contact: Angel Correa (404) 562-3907; e-mail: angel.correa@dot.gov

Land Use and Transportation Planning Seminar

Provides an overview of key issues related to the interaction of transportation planning and land use and the integration of transportation plans with local and State land use plans, with focus on innovative techniques, approaches and applications.

Target Audience:

Staff involved in the metropolitan or statewide transportation planning process, including participants from MPOs, 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.).

Length: 6 Hours

Class Size: Minimum 10; Maximum 30

Subject Matter Contact: Jim Thorne e-mail: jim.thorne@dot.gov

Metropolitan Planning 101 Seminar

Tailored to audience requirements (topics and length) to provide an overview of the basic concepts, components, and participants in the metropolitan planning process. Also highlights innovative and noteworthy practices.

Target Audience:

Staff involved in the metropolitan or statewide transportation planning process. This includes 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.).

Length: 4-8 Hours

Class Size: Minimum 10; Maximum 30

Subject Matter Contact: Brian Betlyon e-mail: brian.betlyon@dot.gov

MOBILE6.2: Motor Vehicle Emission Factor Modeling

This course is intended to familiarize individual with the mechanics of EPA's MOBILE6.2 emissions factor model. Training will cover theory, history and scope of emissions modeling. Model structure, hardware/software and data requirements needed to execute the model will be covered as well as creating/editing input and data files needed to execute the model. There will be a review of emission sources and how they are affected by user inputs. Commonly used and essential commands will also be highlighted. The course will cover the modeling of ozone precursors, particulates and air toxics. The training included hands-on exercises and culminates with an intensive final case study. This course is interactive throughout and gives the participant hands-on experience.

Target Audience:

This course is for all State and local government agencies and private consultants actively working on public projects.

Length: 2 Days

Class Size: 20

Subject Matter Contact: Michael Roberts (404) 562-3928; e-mail: michael.roberts@fhwa.dot.gov; or
Joon Byun (410) 962-0069; e-mail: joon.byun@fhwa.dot.gov

Nondestructive and Innovative Testing Workshop for Concrete

The workshop provides participants an overview and theory of the most commonly used nondestructive techniques for measuring the early age properties of concrete. The workshop includes several hands-on modules where the participants will have an opportunity to use the equipment on concrete specimens to gain a better understanding on its operation and how to analyze the results. The workshop also discusses some emerging technologies and current research activities that might have an effect on the state-of-the-practice.

Target Audience:

Pavement engineers, research engineers, senior technicians, construction and maintenance personnel, contractors, consultants, and academia responsible for the conduct of materials testing to assess concrete performance.

Length: 2 Days

Class Size: 35

Subject Matter Contact: Gary Crawford (202) 366-1286; e-mail: gary.crawford@dot.gov

Performance Measurement in Transportation Planning

This is an introduction to performance measurement in transportation planning. It provides a basis for understanding the benefits of a performance-based planning approach for State and MPOs. General concepts related to the development and implementation of performance measures are discussed, along with sample performance measures supporting various transportation goals and objectives. Noteworthy State DOT and MPO case studies are illustrated as examples of good practice.

Target Audience:

FHWA/FTA planners, MPO, State DOT, transit agencies

Length: 1 Day

Class Size: 30

Subject Matter Contact: Brian Betlyon (410) 962-0086; e-mail: brian.betlyon@fhwa.dot.gov

Preventing Discrimination in the Federal-Aid Program: A Systematic Interdisciplinary Approach

A presentation on the creation of a preventive, proactive and inter-disciplinary team strategy to implementing Title VI and Environmental Justice requirements. The inter-relationship between Title VI and Environmental Justice, as well as roles and responsibilities of program and civil rights officials are also covered. A comprehensive reference manual is provided to all participants. Note: In order for the course to be delivered effectively, an inter-disciplinary audience must be guaranteed, and a 1 to 2 hour Executive Session with the State DOT's Chief Administrative Officer and immediate staff must be scheduled on the day prior to the course.

Target Audience:

FHWA, State DOT, MPOs and other recipient personnel involved in the following fields: Civil Rights; Planning; Environment; Engineering and Construction; Right of Way and Relocation; Legal; Research; Contract Administration; or Social Science. In order to schedule a session, a minimum of 15, not to exceed 30, participants are required.

Length: 1.5 - 2 Days

Class Size: 15

Subject Matter Contact: Teresa Banks (404) 562-3592; e-mail: teresa.banks@fhwa.dot.gov; Toney Dixon (708) 283-3522; e-mail: toney.dixon@fhwa.dot.gov; or Peter Running Deer Silva (410) 962-0629; e-mail: peter.silva@fhwa.dot.gov

Principles and Practices of Data Integration for Transportation Asset Management Workshop

This workshop focuses on the basic concepts and steps involved in the process of data integration. and consists of lecture sessions and hands-on exercises. Examples of new techniques, data collection methods and reference systems involved are provided in the workshop. The lecture session introduces the importance, role, and the need for DI for better asset management. The group exercises allow participants to discuss a wide range of issues pertaining to data integration and to work together to plan a data integration strategy and implementation plan. Application areas may include highway pavement condition forecasting management, highway safety and incident management, and highway investment needs.

Agenda:

- Introduction
- Asset Management Basics
- Data Integration
- Case Studies
- Group Workshop
- Workshop Summary

Target Audience:

Appropriate for anyone interested in the application of data management and integration to the planning, design, and implementation of highway databases and consolidation processes. Potential participants include the managers and staff of the State and local highway agencies, the FHWA Division Offices, MPOs, private industry, and academia.

Length: 8 hours

Class Size: Minimum: 12; Maximum: 15

Subject Matter Contact: Vicki Miller (202) 366-2023; e-mail: vicki.miller@dot.gov

Project-Level Mobile Source Air Toxics (MSATs) Workshop

This workshop provides background information on MSATs, including a description of these pollutants and some discussion of how they became an issue for highway projects. On February 3, 2006, FHWA issued its Interim Guidance on Air Toxics Analysis in NEPA Documents. The workshop presents a discussion of two principals built into the guidance: analyze projects that are located in areas where they might impact human health and match the level of analysis to the scope of the project. Even before the FHWA interim guidance was issued, quantitative and qualitative MSAT analyses had been conducted for several projects around the country. The results of a "white paper" analysis of a hypothetical highway widening project are given along with examples of MSAT analysis in four recent NEPA documents. The workshop also offers a session on the uncertainties associated with MSAT analyses. FHWA's view is that the limitations and inherent uncertainties in the available tools preclude advanced analysis that would be meaningful in evaluating project alternatives for decisionmaking purposes. Currently, FHWA does not plan to issue formal technical guidance for MSAT analysis; however, a session describing FHWA's recommended technical approach, including traffic analysis and the use of the Environmental Protection Agency's MOBILE6.2 model is provided. The resources that FHWA offers or is planning to offer to assist with MSAT analysis is described. These include research papers on various aspects of MAST analysis; an FHWA review of roadside health studies; an MSAT analysis handbook; and an MSAT "quick-start" guide, which includes all the workshop and class exercise materials, and walks the reader through each of the steps of an example.

Target Audience:

This course is for all State and local government agencies and private consultants actively working on public projects.

Length: 2 Days

Class Size: 20

Subject Matter Contact: Michael Claggett (505) 820-2047; e-mail: michael.claggett@fhwa.dot.gov; or
Kevin Black (410) 962-2177; e-mail: kevin.n.black@fhwa.dot.gov

Real Cost Life-Cycle Cost Analysis (LCCA) Software Workshop

The recipients provide the training facility. This workshop provides instruction on life-cycle cost analysis for pavement design and on the FHWA's pavement Life-Cycle Cost (LCCA) software product. Attendees learn about LCCA, user costs, and probability and risk analysis. Several exercises provide hands-on instruction in how to use the software.

Target Audience:

State DOT pavement design and materials engineers and those who make pavement materials selection decisions.

Length: 12 Hours

Class Size: 10

Subject Matter Contact: Francine Shaw-Whitson (202) 366-8028; e-mail: francine.shaw-whitson@dot.gov

Regional ITS Architecture: Planning Perspective

Provides an overview of the requirements for the establishment and maintenance of Regional ITS Architectures, the role of MPOs, and the links to the planning process.

Target Audience:

Staff involved in the metropolitan or statewide transportation planning process including participants from MPOs, 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.).

Length: 2-4 Hours

Class Size: Minimum 10; Maximum 30

Subject Matter Contact: Ben Williams e-mail: ben.williams@dot.gov

Safety Conscious/Transportation Safety Planning Seminar

Tailored to audience requirements (topics and length) to provide an overview of innovative techniques and approaches for successfully integrating safety in the transportation planning process.

Target Audience:

Staff involved in the metropolitan or statewide transportation planning process, including participants from MPOs, 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.).

Length: 2-8 Hours

Class Size: Minimum 10; Maximum 30

Subject Matter Contact: Jim Thorne e-mail: jim.thorne@dot.gov

Scenario Planning Workshop

Scenario planning is a process in which transportation professionals and citizens work together to analyze and shape the long-term future of their communities. Using a variety of tools and techniques, participants in scenario planning assess trends in key factors such as transportation and congestion, land use, safety, demographics, health, economic development, and the environment. Workshop presenters include Peers who provide participants with an overview of the scenario planning process and share examples of scenario planning efforts. Headquarters and the Resource Center provide an overview of current methods and tools, and information about practices around the country.

Target Audience:

Staff involved in the metropolitan or statewide transportation planning process, including participants from MPOs, 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.).

Length: Varies

Class Size: Minimum 10; Maximum 30

Subject Matter Contact: Jody McCullough e-mail: jody.mccullough@dot.gov; or
Brian Betlyon e-mail: brian.betlyon@dot.gov

Statewide Travel Forecasting Workshop

Provides State DOT, MPO, and other transportation planning practitioners an overview of statewide travel demand forecasting models, how these models are used to analyze transportation issues and policies at the State level and the interaction with MPO travel demand models. This workshop also provides information and insight to State DOTs that are considering the development or revision of these models.

Target Audience:

Staff involved in the metropolitan or statewide transportation planning process, including participants from MPOs, 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.).

Length: 1 Day

Class Size: Minimum 10; Maximum 30

Subject Matter Contact: Supin Yoder e-mail: supin.yoder@dot.gov; or Eric Pihl e-mail: eric.pihl@dot.gov

TMIP Land Use Forecasting Seminar

This course will be sponsored by the Travel Model Improvement Program (TMIP). The focus of the seminar is to discuss different methods used in socioeconomic and demographic forecasting, potential data sources and data reliability. A minimum of 30 participants are required to hold a session.

Target Audience:

MPO, DOT, transit agency planners.

Length: 1 Day

Class Size: Minimum: 30

Subject Matter Contact: Sarah Sun (202) 493-0071; e-mail: sarah.sun@dot.gov

TMIP Travel Model Calibration and Validation Seminar

Sponsored by the Travel Model Improvement Program (TMIP) and be based on the new TMIP publication, Model Validation and Reasonableness Checking Manual. The focus will be on step-by-step fundamentals of calibrating and validating base year models and reasonableness checks for forecasts. A minimum of 30 participants are required to hold a session.

Target Audience:

MPO, DOT, transit agency planners.

Length: 1 Day

Class Size: 30 Min

Subject Matter Contact: Sarah Sun (202) 493-0071; e-mail: sarah.sun@dot.gov

Transportation Air Quality (Project Level-Hot Spot) Modeling and Analysis

This course covers both the fundamental aspects and practices of CAL3QHC dispersion modeling program used in SIP/ Conformity and NEPA project development processes. In module A, both dispersion and traffic movement theories are taught. There are 7 sections in module B. These sections cover materials ranging from data collection, data compilation, program runs, result interpretation and regulatory guidance; methods to code various intersection/interchange links are covered as well as signal timing and phasing. There are 8 hands-on exercises in module B. By successfully completing of the course, participants shall be able to conduct air quality dispersion modeling and analysis independently.

Target Audience:

The course is for all State and local government agencies and private consultants actively working on public projects.

Length: 2 Days

Class Size: 30

Subject Matter Contact: Joon Byun e-mail: joon.byun@dot.gov

For more information about the courses in this section, please call the technical information specialist listed with each course.

Transportation Air Quality Dispersion Modeling Workshop

This course covers the theory and practice of using the CAL3QHC CALINE4 (in California) dispersion model to predict pollutant concentrations adjacent to highway facilities (project level hot spots) and includes "hands-on" computer lab work. Participants will be instructed on the use of CAL3QHC CALINE 4 (in California) as required for air quality analyses in accordance with NEPA and for the requirements of the SIP/Conformity processes. Traffic movement and queuing theory required for modeling inputs will be covered. Participants will be instructed on data collection, intersection/interchange/link analysis, signal timing, regulatory guidance and the interpretation of modeling results. In addition, the CALINE dispersion model will also be covered.

Target Audience:

This course is for all State and local government agencies and private consultants actively working on public projects.

Length: 2 Days

Class Size: 15

Subject Matter Contact: Joon Byun e-mail: joon.byun@dot.gov

Transportation Air Quality Fundamental (AQ101)

This course provides a comprehensive overview and analysis on related scientific principle, law/regulation, and current practices in transportation air quality. Its breadth-and-depth coverage will benefit both policy makers and technical practitioners. Thirteen chapters give a complete picture of air quality, as well ass detailed step-by-step real world project/program practices. The material can be also used as references and guides for practicing professional. Over 100 exercises with answers are provided to enhance participant's understanding of the material. The course includes the following topics: (1) Atmospheric Physics; (2) Atmospheric Chemistry; (3) Meteorology; (4) Emission/Pollutant; (5) Federal Air Quality Legislation History; (6) Legal Obligation: NAAQS, air monitoring, and non-attainment designation; (7) Legal Obligation: State Implementation Plan; (8) Legal Obligation: Transportation Conformity; (9) Tools Required: Emission factor (EF) modeling; (10) Tools Required: Regional Transportation Modeling and Analysis; (11) Tools Required: Project level concentration modeling and methodology; (12) Congestion Mitigation and Air Quality Improvement Program; and (13) Mobile Source Air Toxic.

Target Audience:

The course is for all State and local government agencies and private consultants actively working on public projects.

Length: 2 Days

Class Size: 30

Subject Matter Contact: Joon Byun e-mail: joon.byun@dot.gov

Transportation Conformity

This course is designed to be a short course in Transportation Conformity, and provide the fundamentals of transportation conformity while offering the flexibility to satisfy the particular needs given to the uniqueness of each area of the country. The course will cover the major components of conformity, air quality and transportation planning, region emissions analysis, SIPs and interagency consultation. The course is interactive throughout and has numerous exercises and activities. The course also contains modules that the requestor can add to tailor the objectives of the course to their local needs.

Target Audience:

This course is for all State and local government agencies and private consultants actively working on public projects in nonattainment and maintenance areas.

Length: 1 Day

Class Size: 20

Subject Matter Contact: Karen Perritt (410) 920-0720; karen.perritt@fhwa.dot.gov or
Mike Roberts (404) 562-3928; e-mail: michael.roberts@fhwa.dot.gov

Travel Demand Forecasting Seminar

Tailored to audience requirements (topics and length) to provide an introductory overview of travel demand forecasting, especially the traditional four-step model. Reviews the uses and applications of forecasts for planning purposes and highlights noteworthy practices and techniques.

TARGET AUDIENCE:

Staff involved in the metropolitan or statewide transportation planning process. This includes 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.).

LENGTH: 1 DAY

CLASS SIZE: MINIMUM 10; MAXIMUM 30

Subject Matter Contact: Brian Betlyon e-mail: brian.betlyon@fhwa.dot.gov; or Eric Pihl e-mail: eric.pihl@dot.gov

Vehicle Travel Information System (VTRIS) Workshop

This workshop provides hands-on instruction on the use of the stand-alone VTRIS software and the Web version of the VTRIS application, which is used for processing automatic vehicle classification (AVC) and weigh-in-motion (WIM) data for the Truck Weight Study (TWS). Principles of the Traffic Monitoring Guide (TMG) are covered that relate to AVC and WIM programs. Workshops are offered on an as-needed basis.

TARGET AUDIENCE:

State, Federal, local and private companies working the State agencies to analyze and submit AVC and WIM data for the TWS.

LENGTH: 1 DAY

CLASS SIZE: 20

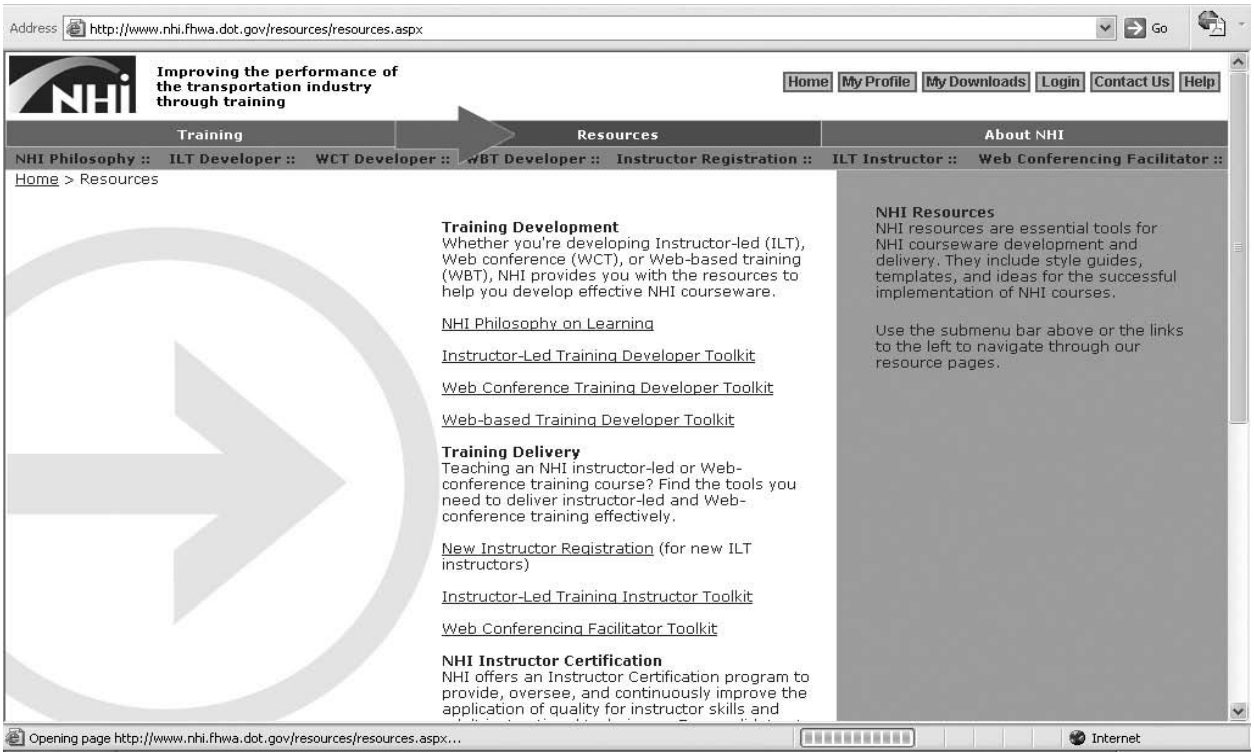
Subject Matter Contact: David Jones, Sr. (202) 366-5053; e-mail: david.jones@dot.gov

For more information about the courses in this section, please call the technical information specialist listed with each course.

NHI'S POPULAR DEVELOPMENT AND DELIVERY TOOL KITS AND RESOURCES ARE NOW ONLINE

In its 37 years of serving the transportation community, NHI and our development and delivery partners learned what works when it comes to training. NHI shares those valuable resources and the latest NHI updates via the NHI Web site.

Figure 5

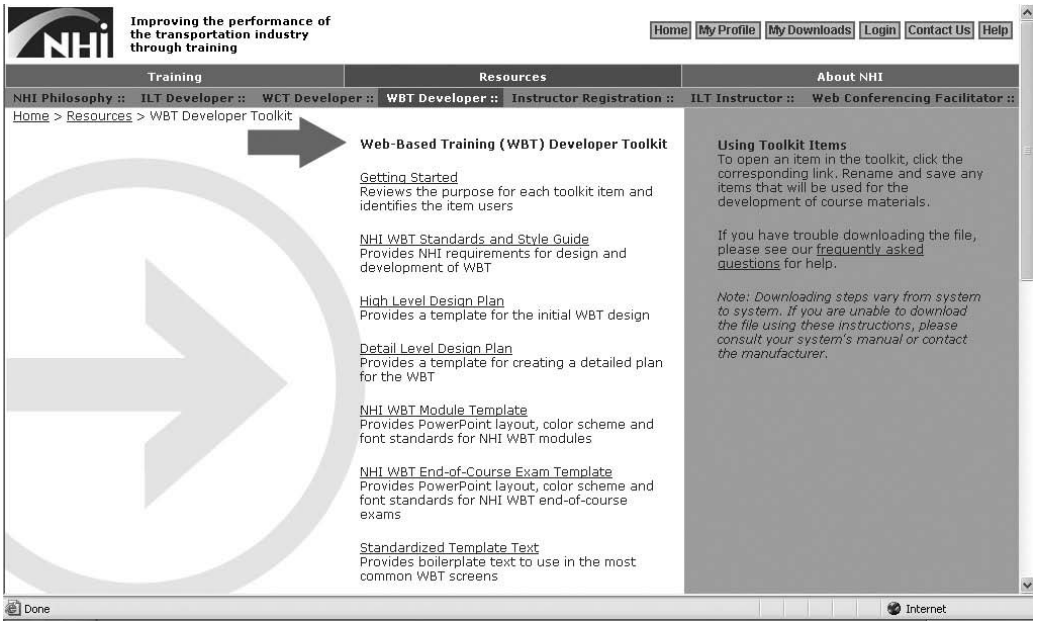


Check out the **RESOURCES** tab at the NHI Web site. For developers we offer the latest guidance on NHI standards for Instructor-led classroom training (ILT), as well as our Web-conference training (WCT) and Web-based training (WBT) guidance. The information provided presents NHI standards—but several other organizations have adopted NHI's approach.

Web-based Training

As NHI and its partners grow the use of Web-based training—to save customers travel costs and make training available 24X7—our WBT resources have become one of our most popular downloads. NHI implemented Adobe Connect (formerly Macromedia Breeze) over a year ago. The site provides tips for preparing NHI WBTs as shown in Figure 6 on page 263.

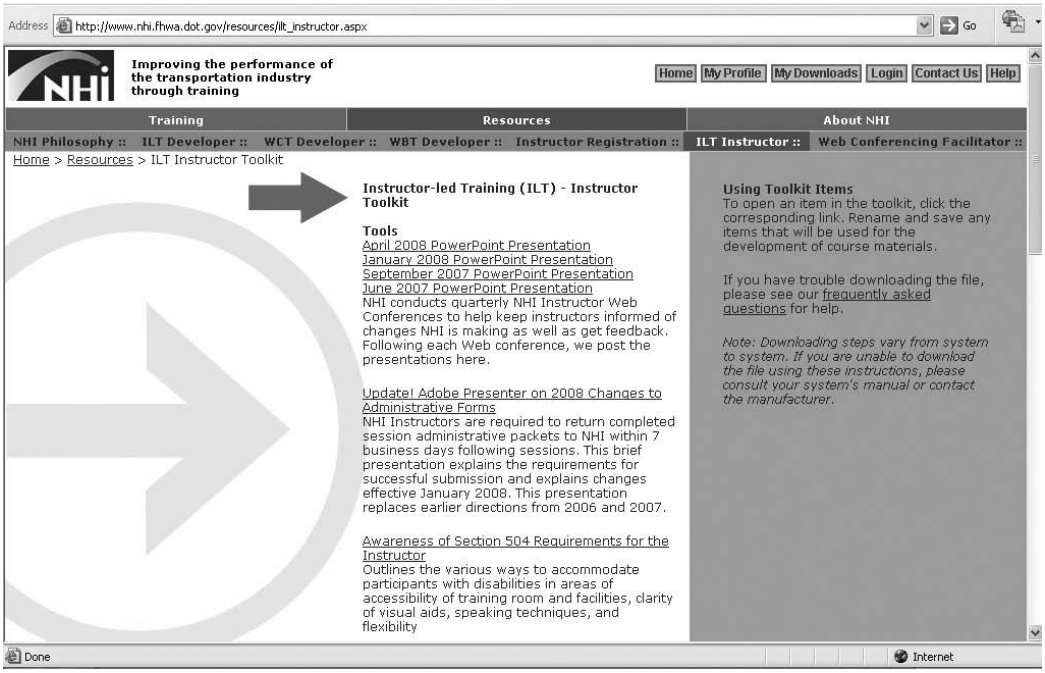
Figure 6



Instructor-led Training

For instructors delivering our courses, the Web site contains information on Instructor Certification, instruction on how NHI uses its session administrative packets to get feedback from participants and to make sure they get course credit. NHI also provides the notes and presentations from our quarterly Web conferences with over 500 NHI instructors.

Figure 7



Check out the latest at the NHI Web site!

INSTRUCTOR CERTIFICATION AND REGISTRATION

The National Highway Institute offers a certification program to provide, oversee, and continuously improve the application of minimum standards for instructor skills and adult instructional techniques. For candidates to be afforded the privilege to facilitate NHI training courses in their technical area of expertise, they must become certified instructors through the NHI's certification process.

Instructor Certification Eligibility

The NHI Instructor Certification Program is only open to FHWA employees and FHWA contract employees who have been approved for technical competency and subject matter expertise by the appropriate FHWA HQ Program Office and Resource Center Technical Managers, and who are actively, or will be teaching NHI courses.

Instructor Certification Process

To achieve NHI instructor certification, instructors must successfully complete the three-step certification process listed below.

Step 1: Instructor Development Training

Step 2: Obtain Approval of Subject Matter Technical Expertise or Resource Center Technical Manager from the Appropriate FHWA Program Office in Headquarters and possibly an Instructor audition.

Step 3: Pass Observation for Certification by a Master Trainer

Certificate of Accomplishment

Upon completion of the instructor certification process instructors are eligible for a Certificate of Accomplishment titled Instructor Certification Program. For more detailed information about the Certificates of Accomplishments, please go to the NHI Web site in the Training Catalog area under the Training tab (www.nhi.fhwa.dot.gov/training/cert_programs.aspx). NHI will soon be introducing other instructor development courses: Instructor Development Course for Web-Conference Training and High-Impact Training.

Instructor Online Registration

As NHI's program grows, we are fortunate to have a growing number of instructors teaching for us. Expanding our team requires more coordination to maintain the delivery of high-quality training.

If you are a new NHI instructor and you have not registered for your four-digit NHI instructor code please go the NHI Web site in the Instructor Registration area under the Resources tab to register (www.nhi.fhwa.dot.gov/resources/InstructorReg.aspx). Instructors will need to keep the four-digit instructor code handy. You will need to provide it to course participants for use with the NHI forms during NHI training.

Instructor Checklist

NHI has developed some good practice tips for instructors conducting NHI training. The most current instructor checklist is available on the NHI Web site under the **RESOURCES** tab (http://www.nhi.fhwa.dot.gov/resources/ilt_instructor.aspx). NHI recommends that NHI instructors review this checklist and use it as a guideline for NHI training.

Contact Information

NHI Instructor Liaison at (703) 235-0010 or e-mail at nhiintructorliaison@dot.gov.

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INTERNATIONAL ASSOCIATION FOR CONTINUING EDUCATION AND TRAINING

The International Association of Continuing Education and Training (IACET) recently approved the National Highway Institute (NHI) to award IACET continuing education units (CEUs). Courses successfully completed after January 1, 2004 are eligible for IACET CEUs.

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 provider, it must demonstrate that it designs and develops 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. 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. That 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 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.

NATIONAL HIGHWAY INSTITUTE (NHI)

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