



U.S. Department of Transportation
Federal Highway Administration



Office of Technical Services

NHI WEB-BASED TRAINING STANDARDS GUIDE

Updated 11/23/2016

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0. INTRODUCTION

The purpose of this document is to provide a high-level overview of the National Highway Institute (NHI) standards for web-based training (WBT) deliverables.

*Note: all final deliverables, as specified in the contract or task order (TO), must be Section 508 compliant. Please refer back to the contract and/or task order for specific 508 compliant guidelines/requirements on every project. Any deviations or modifications that do not adhere and/or align to the following WBT standards must be addressed and approved with the NHI Contracting Officer's Representative (COR) before performing work or delivering a product

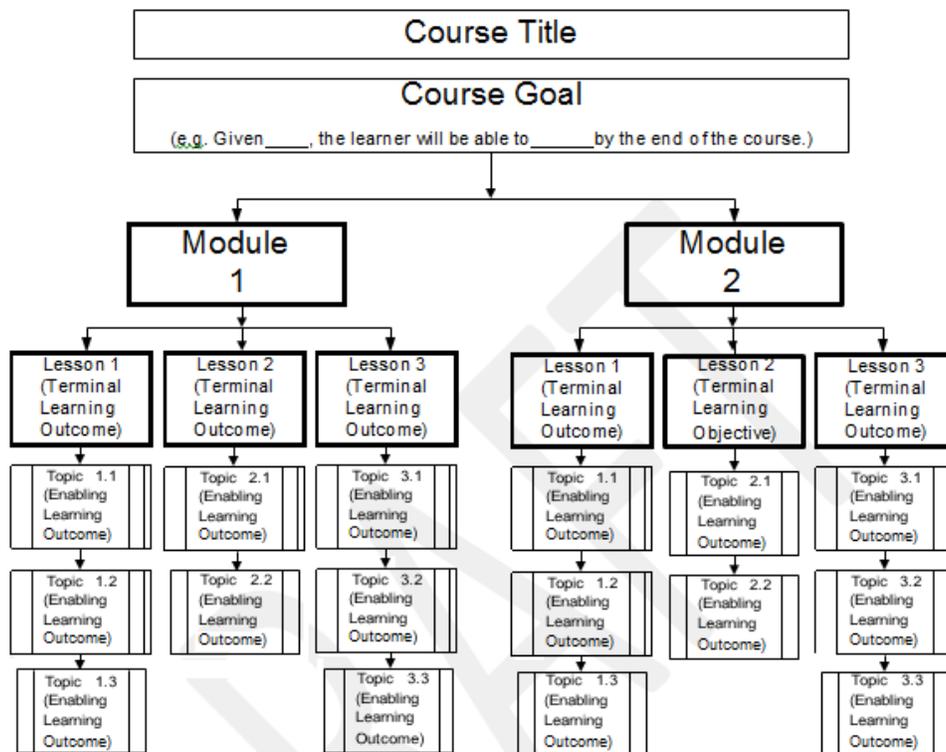
1. TAXONOMY AND COURSE STRUCTURE

1.1 Learning Taxonomy

NHI courseware for web-based training should be developed using the following taxonomy:

- Course-Lesson, or
- Course-Module-Lesson

Segment the course into lessons only or into modules with associated lessons. Use the most appropriate structure for logical sequencing of course content. Provided below is a sample.



Find more guidance on course structure in the course design plan example at <https://www.nhi.fhwa.dot.gov>.

The learning taxonomy is best illustrated as follows:

- Course Title
- Course Goal(s)
- Module(s) (grouping of lessons)
 - Terminal Learning Outcomes (TLO)
- Topics
 - Enabling Learning Outcomes (ELO)

I. Course Goal

A course goal indicates a **broad** learning outcome learners will acquire at the end of the course and *aims* at providing a good overview about the course.

A goal must be both **realistic** and **achievable**, but is not usually measurable. The following are examples of criteria that help in determining if the goal is realistically achievable in one setting as compared to others:

- Time
- Expertise, and
- Resources

Examples of course goals are:

- The learners will work effectively as a team leader.
- The learners will learn effective management strategies to build teams.

These goals indicate broad learning outcomes because many skills need to be learned within each goal. If a goal is not measurable, how would we know when it is achieved? That's why we need course outcomes that are measurable to inform when the course goal is obtained.

II. **Terminal Learning Outcomes (TLOs)** are the objectives for LESSONS and are a statement of the course developer's expectations of the Learner's performance at the end of a specific module. The Terminal Learning Outcome is written from the perspective of what the Learner will do and consists of three parts:

1. Condition – under what conditions (setting, supplies, equipment, etc.) will the learner be required to perform the task?
2. Task – what will the learner be able to do as a result of completing this module/lesson?
3. Standard – how well must the learner perform the task to pass?

TLO's are written from the perspective of what the learner will do, not what the instructor will do and target the performance required when the learners are evaluated, not what they will do as part of the module. TLOs are precise, observable and measurable, and are stated using active verbs (refer to Bloom's Taxonomy for additional guidance).

III. **Enabling Learning Outcomes (ELOs)** state the course developer's expectations of the Learner's performance and the steps in accomplishing the Terminal Learning Outcome (TLO) and are written from the perspective of the Learner. ELOs:

- Specify a detailed sequence of learner activities and typically generate the outline for the instructional phase of a lesson plan,
- Cover all of the cognitive, affective, and psychomotor skills learners need to master and/or meet the TLO, and
- Are concise and state the requirement in clear, direct language and are unambiguous.

ELOs may require:

- Recall or recognition of facts
- Explanations or descriptions of procedures
- Paraphrasing of principles, theories, rules, concepts, or standards of conduct
- Demonstration of psychomotor skills
- Any other performance required to support the TLO

The following is an example of a well written TLO with ELOs:

Example TLO: At the end of this module, the learner will be able to balance his or her checkbook.

Example ELOs:

1. The learner will be able to distinguish a credit from a debit
2. The learner will be able to identify the correct columns for each entry
3. The learner will be able to enter the data in the correct columns

In the above example, the TLO "*balance his or her checkbook*" is the end result, and the ELOs list the skills, knowledge and/or behavior the learner will need to accomplish the TLO.

1.2 General WBT Development Information

This section covers general development guidance for NHI Web-based training.

- Use the NHI General Style and Standards Guide. Provide learners with information in the fewest steps and shortest time possible.
- Duration is measured by the amount of time it takes an average learner to read through all the presented material, access provided options, answer knowledge checks, and listen to all included audio. Convey the content in simple and direct language using simple terms. Maintain module consistency.
 - Develop module welcome screens that illustrate the relevance of

- the content to the learner.
- End each module with a summary that recaps the content and ties it to the learning outcomes.
- Create a desire to learn by beginning each module with something compelling.
- Include transitions to ensure coherent flow between screens.
- Address one concept, procedure, or item of instruction on each page.
- Correlate information on the screen to the slide title.

1.2.1 Platform Standards

NHI's default development tool for WBT is Adobe Presenter 11. Developers should refer to Adobe's technical guidance for Presenter to determine the minimum platform configurations required to develop courseware. See <http://www.adobe.com/products/presenter/tech-specs.html>.

Refer to the contract or task order (TO) for specific guidance on which version of Adobe Presenter is to be used.

1.2.2 Hosting

All NHI WBT courseware reside on the FHWA Adobe Connect server at the following URL: <https://connectdot.connectsolutions.com>.

1.2.3 Development Tools

All WBT developed for NHI **must** use Adobe Presenter 11, a PowerPoint to Flash/HTML5 conversion tool. Developers must purchase a developer's license for Adobe Presenter 11 in order to acquire the Presenter plug-in for PowerPoint.

The following tools, such as those listed below, may be used in conjunction with FHWA's Adobe Connect Learning Management System.

- Adobe Flash
- JavaScript
- Adobe Photoshop
- Adobe Premiere
- Adobe Captivate
- Adobe Acrobat
- Any other tools that the developer may wish to use in the WBT development will

require approval from the Contracting Officers' Representative (COR). This tool must be capable of creating WBT content that is Section 508 compliant. Refer to the contract or task order (TO) for any specific guidance on other tools that are acceptable for use by NHI.

1.3 Courseware Testing

The developer must ensure compliance with NHI standards, SCORM, and Section 508. To support compliance and confirm an acceptable product, NHI developed the following testing process. Among other things, the testing process requires:

- Alpha tests on all supported operating systems and browsers
- LMS integration testing
- Quality control testing on published versions of alpha, beta (pilot), and final (soft launch) courseware

A listing of sample duties assigned to the contracted developer is found in the Appendix. Developers should refer to the contract or task order (TO) for any specific testing requirements or modifications to this process.

2. STANDARDS FOR DESIGN PLANS

A design plan serves as the framework for developing course content. One purpose of the design plan is to establish that the finished training product will meet the training needs of the target audience and be designed in accordance with accepted instructional systems design practices.

Consult the [design plan example](#) in the NHI Developer Toolkit for more information on design plan requirements.

Design NHI WBTs to:

- Provide interactive and creative training that adheres to the course learning outcomes
- Provide modules/lessons that are chunked logically and do not exceed 60 minutes per SCO.

In general, a design plan is developed based on the findings and recommendations from the training needs analysis.

Design plans ensure the course is instructionally sound, which means it is job-relevant, task-based, problem-centered, interactive, engaging, and well organized.

Depending on the project, the design plan may be completed in a series of iterations. This may begin with a high-level plan that details basic course content and a course overview. Following, a more detailed plan may include an extensive content outline, explanation of instructional activities, information on graphics and resources to be used, and an overview of the assessment. Refer to the development contract and NHI TPM for additional clarification on what should be included in all plans.

Design plans typically contain the following information:

- 1 Introduction
- 2 Course Information
 - 2.1 Title
 - 2.2 Course Type
 - 2.3 Statement of Need
 - 2.4 Description
 - 2.5 Course Level
 - 2.6 Target Audience
 - 2.7 Related Courses
 - 2.8 Estimated Course Time
 - 2.9 Course Goal
 - 2.10 Learning Outcomes
- 3 Course Design
 - 3.1 Structure
 - 3.2 Learning Taxonomy
 - 3.3 Learner Progression

- 3.3.1 Sequencing Description
- 3.3.2 Progression Flowchart
- 3.4 Course Look and Feel
 - 3.4.1 Environment
 - 3.4.2 Theme
- 3.5 Instructional Strategies
- 3.6 Assessment Strategy
 - 3.6.1 Techniques
 - 3.6.2 Format
 - 3.6.3 Alignment
- 3.7 Accessibility Compliance Strategy
 - 3.7.1 Section 508 strategy
- 4 Instructional Plans
- 5 Course Development
 - 5.1 Development Tool
 - 5.2 Development Process
 - 5.3 Prototype
 - 5.4 Courseware
- 6 Testing and Implementation
- 7 Course Evaluation

3. STANDARDS FOR ASSESSMENTS

NHI uses formative and summative assessments for Web-based training. The types of assessments are as follows:

- Knowledge checks (formative assessment) will:
 - Provide practice opportunities to reinforce each concept or skill
 - Be evaluated, but the scores are typically not sent to the learning management system

- End-of-course assessment or exam (summative assessment) will:
 - Evaluate participants' mastery of the content
 - Will be loaded to the online curriculum
 - Provide instructions to participants to complete the exam at the end of the training
 - Provide instructions on completion requirements can be provided in the final training module as needed

- Course evaluation (summative assessment) will:
 - Measure the participants' training experience
 - Be accessible via the NHI My Training page at the end of the training

3.1. Test Methods

Adobe Presenter supports the following test question formats.

- Multiple choice
- Matching
- True or False
- Completion or "fill in the blank"
- Short answer
- Likert
- Sequence
- Hot spot (user identification)

Other testing types, including performance testing (skill demonstrations) and critical thinking (case studies), can be accommodated using Adobe Presenter in conjunction with other compatible software.

3.2. Standards for End-of-Course Assessments (EOCA)

An end-of-course assessment is created as a separate courseware item, and is published and added to the curriculum as stand-alone content.

Please note the end-of-course assessment is not and should never be titled and/or saved as a “lesson.”

In order for students to qualify for Continuing Education Credits (CEU), the exams must have the following settings:

- Every question is required
- There is no feedback
- Each answer is communicated back to the LMS and tallied
- The final score must be provided to the student
- A 70% or better must be achieved in order to pass

Developer Note

Given the constraints listed above, the end-of-course assessment (exam) in Adobe Presenter is not Section 508 compliant.

Any qualified learner who cannot complete the exam should contact NHI Training (NHITraining@dot.gov), and an NHI representative will provide a verbal equivalent to the exam.

This version is not Section 508 compliant for several reasons. Some of those reasons are because a learner using:

- The keyboard to navigate cannot select the different multiple choice options and the **Submit** button (the mouse must be used)
- A screen reader will not know what option has been selected, and
- Either a screen reader or the keyboard (or both) to navigate will not be able to obtain a score.

4. STANDARDS FOR STORYBOARDS

A storyboard is a draft version of Web-based courseware created for the purpose of review which presents content: sequentially and segmented in accordance with the design plan. The storyboard allows reviewers to confirm that technically accurate and sufficient content is being presented via text, narration, on-screen graphics, or another medium. It also allows NHI to confirm that the developer is correctly applying Section 508 guidance and other programmatic settings to the courseware.

The development of storyboards is project-dependent. The development contract dictates whether storyboards are required as part of courseware development.

The designer or developer creates draft storyboards for each module that can include any or all of the following:

- On-screen text
- Visuals, such as royalty-free photos, diagrams, or descriptions of planned Flash animation
- Narration script
- Video
- Script for new video
- Captivate demonstrations
- Knowledge checks and debrief slides
- Embedded links
- Rough cut (scratch) audio
- End-of-course assessment questions and answers

Storyboards are delivered as unpublished content, typically as a PowerPoint file. The developer should confirm with the NHI TPM that this is the preferred delivery method.

A sample of a storyboard is provided in the Appendix.

5. STANDARDS FOR PROTOTYPES

Developers designate a specific module as the prototype in the design plan. A prototype usually contains an average of 15-20 screens. Rationale for selection of the prototype provides a fully functional sample of the content designed and developed in accordance with the WBT standards, screen design, and instructional strategies identified in the course design plan. A prototype of a module or content segment allows reviewers an opportunity to verify that the presentation of the content coincides with the course design plan. Changes at this stage are considerably less time and cost-intensive than later in the development process.

Prototype content may include:

- Content for the section is the most stable or best documented in the material
- All course functionality that is present in the course

Note: Submitting Module 0 or 1 for the prototype review is not acceptable.

The prototype must be delivered to NHI as a published, SCORM-conformant file for upload to the FHWA Adobe Server. The purpose of the prototype is to illustrate the presence of the following:

- Creativity
- Level of interactivity
- Opportunities for practice
- Writing style
- Understanding of adult learning principles
- Adherence to standards
- Accuracy of content
- Resources, such as:
 - Cited documents
 - A bibliography
 - Relevant web resources
 - Similar items

Depending on the project, the course content and/or the intended target audience, a series of prototypes may be appropriate. Examples of other prototypes may include, but are not limited to:

- Course content that may contain simulations or
- Course content that may contain customized video and/or multimedia

6. STANDARDS FOR DRAFT COURSEWARE

Once the contractor receives final written approval of the prototype, the contractor may begin the process of creating the draft WBT content for review.

The delivery of the draft content may be divided into a few and/or several modules. The decision on how these "chunks" of draft WBT content are submitted may be defined and determined in a number of ways:

- Defined in the task order
- At the kickoff meeting
- Determined by the contractor (with approval of the COR)

Refer to the contract or task order (TO) for details on standards for the submittal(s) of draft WBT courseware. The draft content provides a functional sample of the training, without recorded audio narration, that is designed and developed in accordance with the WBT standards, screen design, and instructional strategies identified in the course design plan.

The review of this draft courseware allows reviewers an opportunity to verify that the presentation of the content coincides with the design plan.

The draft material must be delivered to NHI as a published SCORM-conformant file for upload to the FHWA Adobe Connect Server.

The purpose of the draft courseware is to illustrate the presence of the following:

- On-screen content
- Text narration and how it relates to the on-screen content
- Navigation
- Access to associated attachments or ancillary files
- General content flow and pace
- Adherence to the learning outcomes
- Embedded multimedia
- Knowledge checks
- End-of-course assessment questions and answers

Draft courseware is intended to be developed to 100% completion. However, refer to the contract or task order (TO) for details on standards for the submittal(s) of draft WBT courseware.

The submittal of the draft courseware for review includes:

- Source PowerPoint Slides with embedded Adobe Presenter programming
- Published SCORM-conformant .zip Files

- Printer-Friendly, 508 Accessible WBT Lessons in PDF format
- Image Use Authorization for each image that requires copyright permission
- Completed Course Information Standards Form
- Other Ancillary Files and their associated source files (if any)

Refer to the contract or task order (TO) for specific guidance on every project. Discuss any deviations from this document with the NHI Contracting Officer's Representative (COR) performing work or delivering a product.

7. STANDARDS FOR ALPHA COURSEWARE

The Alpha courseware provides a more detailed treatment of the content designed and developed to completion. The Alpha courseware reflects all content that has been revised by the vendor that incorporates comments from the technical panel and NHI. In this phase, the courseware does not include audio-recorded narration.

The submittal of the Alpha courseware provides the technical panel a final opportunity to review the updated content and text narration, for technical treatment and accuracy prior to the Pilot phase.

The submittal of the alpha courseware for review includes:

- Source PowerPoint Slides with embedded Adobe Presenter programming
- Published SCORM-conformant .zip Files
- Printer-Friendly, 508 Accessible WBT Lessons in PDF format
- Image Use Authorization for each image that required permission to use
- Completed Course Information Standards Form
- Other Ancillary Files and their associated source files (if any)

Refer to the contract or task order (TO) for specific guidance on every project. Discuss any deviations from this document with the NHI Contracting Officer's Representative (COR) before performing work or delivering a product.

8. STANDARDS FOR BETA (PILOT) COURSEWARE

The Beta (pilot) courseware provides a 100% fully functional version of the content including all alpha related edits/corrections as identified by NHI and includes audio-recorded narration. This “pilot-ready” courseware will be released to a sample of participants that reflect the stated target audience identified in the course design plan.

The submittal of the Beta (pilot) courseware provides the technical panel a final opportunity to review the updated content, including narration, for technical treatment and accuracy prior to the submittal of the final deliverable.

The submittal of the Beta (Pilot) courseware for review includes:

- Source PowerPoint Slides with embedded Adobe Presenter programming
- Published SCORM-conformant .zip Files
- Printer-Friendly, 508 Accessible WBT Lessons in PDF format
- Image Use Authorization for each image that required permission to use
- Completed Course Information Standards Form
- Other Ancillary Files and their associated source files (if any)

The contractor is expected to run the pilot, in cooperation with NHI. All pilot comments from participants are to be collected, processed, organized, and analyzed by the contractor.

Refer to the contract or task order (TO) for specific guidance on every project. Discuss any deviations from this document with the NHI Contracting Officer's Representative (COR) before performing work or delivering a product.

9. STANDARDS FOR THE SOFT LAUNCH/FINAL SUBMITTAL

The soft launch/final courseware provides a 100% fully functional courseware that has been updated based on comments and edits from the pilot phase. This “production-ready” courseware will be released to the NHI Website upon final approval from the COR.

The courseware must be tested for functionality on the FHWA Adobe Connect Server. It will be tested by the designated NHI ISD and technical lead. If the soft launch courseware passes the soft launch test, the COR will provide formal acceptance of the deliverable. If not, the requested changes must be made by the contractor and the updated final courseware must be resubmitted for a second round of testing. Once the courseware passes the soft launch test and formal acceptance is received by the contractor, the courseware is deemed final.

The submittal of the final courseware for soft launch/final review includes:

- Source PowerPoint Slides with embedded Adobe Presenter programming
- Published SCORM-conformant .zip Files
- Printer-Friendly, 508 Accessible WBT Lessons in PDF format
- Image Use Authorization for each image that required permission to use
- Completed Course Information Standards Form
- Other Ancillary Files and their associated source files (if any)

Refer to the contract or task order (TO) for specific guidance on every project. Discuss any deviations from this document with the NHI Contracting Officer's Representative (COR) before performing work or delivering a product.

10. STANDARDS FOR COURSE EVALUATIONS

NHI assesses the participant’s overall training experience using a standardized, online evaluation.

- The course evaluation is accessible to participants via the NHI My Training page once the training is complete.
 - Direct participants to the course evaluation link on one of the final screens of the training module.

A text example of directions to participants for accessing the course evaluation is shown below. This example “pass” slide would be viewed by the participant at the end of the end-of-course assessment after receiving a passing score of 70% or better.

Conclusion

Congratulations! You have completed NHI-1341090 Base and Subbase Stabilization and Repair WBT.

Return to the “My Training” page, as shown below, to complete a course evaluation and print a certificate of completion.

	Course Title	Course Number	Type	Start Date	Progress	Launch	Evaluation / Certificate
Show Additional Information	Base and Subbase Stabilization and Repair - WEB-BASED	1341090	WBT	5/3/2011	Completed	Launch	Take Evaluation View Certificate Download Certificate

Select the “X” in the upper right corner of your browser to close this module.

Developer Note: NHI manages the collection and analysis of course evaluation data. The developer can request copies of this data from NHI.

If a participant were to fail the end-of-course assessment, the developer should develop, within the assessment, a “fail” slide indicating that the participant did not pass the end-of-course assessment.

You did not pass the end-of-course assessment

Please return to “My Training” to re-take this assessment. You have a maximum of X attempts to pass this assessment.

If this is your final attempt, please contact NHI to reset your access to this course so that you can attempt the course again, from start to finish.

Select the “X” in the upper right corner of your browser to close this module.

11. STANDARDS FOR PUBLISHING

The output resulting from publishing a given module or lesson is a SCORM-conformant .zip file. This resultant .zip file will be uploaded to the FHWA Adobe Connect server once delivered from the contractor to NHI. When uploaded, the technical panel will be notified by the COR on the availability of the published files up for review.

For details on creating a SCORM-conformant .zip file, refer to the development software's technical manual.

12. STANDARDS FOR DELIVERABLES

12.1 Delivery Formats

NHI shall hold ownership of the final courseware (source files), including the PowerPoint files and all final and raw audio, video, graphic files, and other media files.

Deliverables for WBT courses are electronic files. Deliver the products required by the contract as final deliverables in the following formats:

- Source Microsoft PowerPoint Presentation Slides with embedded Adobe Presenter programming
- Published SCORM-conformant .zip Files
- Printer-Friendly, 508 Accessible WBT Lessons in PDF format
- Graphics as compressed, processed files and .PSD with layers preserved (if created from scratch)
- Completed Course Information Standards Form
- Other Ancillary Files and their associated source files (if any)
- Other resource materials such as spreadsheets or tables that are accessed via external links
- Copies of all copyright releases and letters granting permission for use from the authors or artist, if applicable (Image Use Authorization)
- Any written approvals for modifications

12.2 Standards for Electronic File Submissions

The U.S. Department of Transportation (DOT) Standard indicates that all printed materials, including visual aids, must be developed using Microsoft Office 2010 format. This requirement allows NHI to edit all documents delivered by the developer.

- NHI currently accepts Microsoft Office 2010 versions.
- Documents should not be delivered in read-only, presentation-only, or password-protected format.
- Keep the use of macros and other complex formatting to a minimum.

Use the requirements below to create folders for files delivered to NHI.

12.2.1. Source Files Folder

- Presentation materials
- Reference manual
- Test materials
- Supplemental materials

12.2.2. PDF Files Folder

- Presentation materials
- Reference manual
- Supplemental materials

12.2.3. Readme Files

- Included Readme.txt file with directions and/or notes on how to navigate through the submittal
- If a course shares materials with another course, document that need in the readme file
- Additional information on use of materials, if any

12.2.4 Other Files

- Other files that cannot be classified in any of the three file folders can be added in this folder

12.2.5. File Naming Convention

Following are file naming conventions for each deliverable. Separate each item in the file name with an underscore (_).

- Course number
 - Example: 130101
- Submittal type
 - MOD (module)
 - LESSON (lesson)
 - PDF (PDF)
 - PPT (PowerPoint presentation)
 - EXAM KEY (exam answer key)
 - EXAM (exam)
 - RM (reference manual)
 - SM (simulation)
 - VD (video)
 - AU (audio)
 - OM (other materials-specify short description in ALL CAPS)

- Publication number with included (if applicable)
 - Obtain from NHI (XX-XXX)
- Revision or submittal date formatted in a two-digit month, date, and year
 - 05122016
 - 12122016
- File description (short description of the file, if necessary)
 - ExamA
 - ExamB
- Application Extension
 - PDF (Adobe Acrobat)
 - DOCX (Microsoft Word)
 - PPTX (Microsoft PowerPoint)
 - WAV or MP3 (Audio file)
 - If use of other software or other file formats has been approved, use standard application extensions

Following are two examples of file names using the convention *Course Number_Type_Pub #_Date_Desc.*

- 148000_PDF_FHWA-NHI-09-116_05122016.PDF
- 148001301_OM_12122016_Job_Aid.DOC (where no publication number is assigned)

APPENDIX A: DEVELOPER DUTIES DURING TESTING PROCESSES

Note: the following notations are provided in parenthesis for each step below to identify the responsible party who completes each numbered item.

STAGE 1 -- PROTOTYPE, DRAFT AND ALPHA

1. Publish WBT courseware to the NHI server. (NHI)
 - a. Publish ancillary files to generate URLs; use those URLs to create hyperlinks within the courseware (NHI)
2. Notify panel and developer when courseware is ready for review and provide links for accessing courseware. (NHI)
3. Review courseware comments received from NHI (Developer)
4. Revise courseware based on comments (Developer)
5. Document resolution of all comments (Developer)
6. Submit "Final Resolution of Comments" form to NHI and Technical Panel lead (Developer)

STAGE 2 -- PILOT (BETA)

1. Publish pilot-ready courseware to NHI server as User Content and test (NHI)
2. Notify NHI TPM with a written, signed report that the product complies with NHI's "pilot-ready" criteria. (NHI)
3. Resend links for accessing courseware (Developer)

Following Pilot

4. Review comments received from NHI following pilot (Developer)
5. Revise courseware based on pilot comments (Developer)
6. Document resolution of all pilot comments (Developer)
7. Submit "Final Resolution of Pilot Comments" form to NHI and Technical Panel lead (Developer)

STAGE 3 -- SOFT LAUNCH

1. Publish post-pilot revised courseware to NHI server as User Content and test(NHI)
2. Notify NHI TPM & ISD once courseware is ready for internal NHI testing(NHI)

Following Soft Launch

1. Review comments submitted by NHI tester (Developer).
2. Revise courseware based on soft launch comments, and republish courseware to NHI server as User Content (Developer)

3. Document resolution of soft launch comments (Developer)
4. Conduct second soft launch (NHI)
5. Review comments from second soft launch submitted by NHI (Developer)
 - This is an iterative process until all issues have been addressed and reflected on the server through testing
6. Submit “Final Resolution of Soft Launch Comments” form to NHI TPM, ISD, and Systems Support (Developer)
7. Submit source files to NHI TPM & ISD following guidelines provided in the NHI WBT Standards Guide. (Pay particular attention to file naming conventions.) (Developer)

APPENDIX B: SCREEN LAYOUT STANDARDS

Media standards are used to maintain style consistency within the following areas.

SCREEN DESIGN

- Establish a specific location for the presentation of instructions, completion times, and prompts
- Provide recurring information in consistent locations
- Use white space to separate blocks of text
- Create the shortest module titles needed to convey meaning
- Used varied layouts to present text and images in order to add visual interest

TEXT LAYOUT

- Present information in a top down, left to right instructional format
- Layout content so a screen reader will read the text and alt tags in the correct order
- Select a layout for each slide and insert text or graphical elements into a placeholder on the layout
- Design text layout in short segments or phrases
- Break up blocks of text to make it easier for the learner to scan the content
- Use bullets, numbered lists, tables, and charts to break up lengthy sentences

NAVIGATION

- Use consistent navigation standards to promote learner satisfaction and retention. The following standards apply to all Web-based courseware.
- Add Back and Next buttons directly to each slide in order to activate hyperlinks.
 - Ensure intuitive, learner controlled navigation.
 - Buttons should have text description labels (alt tags) that include the URL or slide number.
 - Navigation buttons must display in the same position on every page.
 - Mouse cursor changes and rollover highlights must be consistent within a course.
 - Other navigational buttons may be added, as appropriate. However, the location of navigational buttons is specified in the template. Make buttons, such as Submit and Clear, consistent within each course.
- Navigation elements provide one-click access to learners. Examples include Resources, Help, and Glossary.
- Provide clear instructions or cues for all required learner activities.
- Allow modules to be completed in any order unless the instructional design

requires sequential accomplishment. If sequential accomplishment is required, provide instructions to the learners.

- Document links to other pages within the course or to external Web pages or other sites.
- Describe internal links in the narration. For example: “For more information, please navigate to slide 38.” Otherwise, place linked slides directly after the slide that references it so that a user navigating with only the keyboard can access the information in a logical way.
- Document external links in the outline and include the link description in the narration.
- Use external links sparingly so learners are not distracted from existing content.

SECTION 508 CONSIDERATIONS

- Meet all Section 508 requirements.
- Refer to Style and General Standards Guide for NHI Section 508 Checklists.
- Access the most current government guidance at <http://www.section508.gov>.

FONT

Follow NHI general standards for readability as found in the NHI Style and General Standards Guide. The PowerPoint template for WBTs is preset with approved colors and styles. Use of other font type, size, or color must be approved by the NHI TPM.

APPENDIX C: STANDARDS FOR MEDIA

Media standards provide a consistent look and feel to courses. They also increase the likelihood that the media will function as intended on the training platform.

For each module, utilize the most suitable medium to support and reinforce the subject material or interactive components. Media include computer graphics, photographs, video, animation, and graphs or tables.

GRAPHICS

Refer to the NHI Style and General Standards Guide for general graphics requirements.

- Use custom illustrations and interactions to teach complex concepts.
- Recreate tables and graphs wherever possible instead of inserting as an image. Scanned graphics should be avoided entirely.
- Use the most modern technology generally available to generate visuals, including computer-generated graphics.
 - Be aware that any computer software required for the visual aids must be readily available to any facilitator; do not use proprietary software.
- Alt tags for charts and other complex graphics should reflect their complexity. A sentence or two is not always sufficient.
- Data that is presented in a table must be included in the general narration or provided as a table description.
 - The information or data must make sense when presented in a narrative format. Redundant or repeated information should be presented logically and not simply repeated.

AUDIO

- Avoid phrases that are not meaningful on their own or apply only to a select group of users.
- Include a semi-colon after each item in a narrated list, add the word “and” after the penultimate item, and place a period after the last item. This ensures that a screen reader can identify the items as a list.
- Avoid special characters in the narration (notes) section; they do not publish properly in Adobe Presenter.
- Ensure audio volume levels are consistent throughout the course.
- Use one audio talent to narrate all modules within the same course. If role-playing, multiple voice talent may be used, but roles must be consistent.
- Include the following audio edits.
 - Place 1.0 second of silence at the beginning of every slide.

- Place 1.0 second of silence at the end of every slide.

VIDEO

- Avoid techniques such as zooming, panning, transitional wipes, dissolves, and fast motion subjects.

ANIMATION

- Allow user to control the animation to include start, stop, and replay.

APPENDIX D: STANDARDS FOR INTERACTIVITY

Exercises, calculations, skill practice, and other experiential work provide an opportunity to test understanding and relate training content to work-related scenarios.

It may be appropriate to design modules within the same course for different levels of interactivity.

Table 1: Level of Interactivity Descriptions

Level of Interactivity	Description
Level I—Passive	<p>The learner acts solely as a receiver of information.</p> <p>The learner progresses linearly through course reading text from the screen, viewing video, or listening to audio.</p>
Level II—Limited Interaction	<p>The learner makes simple responses to instructional cues.</p> <p>The responses may include answering multiple choice or true/false questions.</p> <p>Example: Knowledge Checks</p>
Level III—Complex Interaction	<p>The learner actively engages with the content using technically complex activities that support challenging instructional methods.</p> <p>Example: Building a model or diagram</p>

APPENDIX E: SAMPLE STORYBOARDS

Below are sample storyboards.

Course Name:			
Module Name:			
Dropdown Menu Title: Click to add text		Rev. Date: xx/xx/xx	Slide: 1
[Splash Screen]			
Directions to Graphics:	Alt tag:	Directions to Developer:	SME Comments:
Click to add text	Click to add text		

Course Name:		Module Name:	
Dropdown Menu Title: Click to add text.		Rev. Date: xx/xx/xx.	Slide: ... 2.
Click to edit [Page-Title]			
Click to edit content			
		Click loon to add picture 	
Directions to Graphics: Click to add text	Ait tag: Click to add text	Directions to Developer: Click to add text	SME Comments: Click to add text

Course Name:		Module Name:	
Dropdown Menu Title: Click to add text.		Rev. Date: xx/xx/xx.	Slide: ... 3.
Click to edit [Page-Title]			
Click to edit content			
			
Directions to Graphics: Click to add text	Ait tag: Click to add text	Directions to Developer: Click to add text	SME Comments: Click to add text