

## FOREWORD

This *Communications Reference Guide* (CRG) provides you with tools, techniques, and timelines for effectively planning, scheduling, and producing your communication products, which include print materials, electronic information and technology (EIT), outreach materials, and events. It also links you with your communications and marketing resources in the Office of Research and Technology Services (HRTS). Previously known as the *Quick Reference Guide* and posted on the Internet at [www.tfsrc.gov](http://www.tfsrc.gov), this document replaces previous versions of the *Quick Reference Guide* under the new name, *Communications Reference Guide*.

This guide will be useful to the Federal Highway Administration (FHWA) Contracting Officer's Technical Representatives (COTR) and their contractors and support staff, who develop research and technology (R&T) communication products to FHWA standards and regulations referenced in this publication. The CRG is available on the Turner-Fairbank Highway Research Center (TFHRC) Web site, [www.tfsrc.gov](http://www.tfsrc.gov). This guide augments the *FHWA Publications and Printing Handbook*. Although this guide is available as a printed version upon request, the most recent and up-to-date version is posted on the [www.tfsrc.gov](http://www.tfsrc.gov) Web site.

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and Technology Services

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# SI\* (MODERN METRIC) CONVERSION FACTORS

## APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
<b>LENGTH</b>				
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
<b>AREA</b>				
in <sup>2</sup>	square inches	645.2	square millimeters	mm <sup>2</sup>
ft <sup>2</sup>	square feet	0.093	square meters	m <sup>2</sup>
yd <sup>2</sup>	square yard	0.836	square meters	m <sup>2</sup>
ac	acres	0.405	hectares	ha
mi <sup>2</sup>	square miles	2.59	square kilometers	km <sup>2</sup>
<b>VOLUME</b>				
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft <sup>3</sup>	cubic feet	0.028	cubic meters	m <sup>3</sup>
yd <sup>3</sup>	cubic yards	0.765	cubic meters	m <sup>3</sup>
NOTE: volumes greater than 1000 L shall be shown in m <sup>3</sup>				
<b>MASS</b>				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
<b>TEMPERATURE (exact degrees)</b>				
°F	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	°C
<b>ILLUMINATION</b>				
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m <sup>2</sup>	cd/m <sup>2</sup>
<b>FORCE and PRESSURE or STRESS</b>				
lbf	poundforce	4.45	newtons	N
lbf/in <sup>2</sup>	poundforce per square inch	6.89	kilopascals	kPa

## APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
<b>LENGTH</b>				
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
<b>AREA</b>				
mm <sup>2</sup>	square millimeters	0.0016	square inches	in <sup>2</sup>
m <sup>2</sup>	square meters	10.764	square feet	ft <sup>2</sup>
m <sup>2</sup>	square meters	1.195	square yards	yd <sup>2</sup>
ha	hectares	2.47	acres	ac
km <sup>2</sup>	square kilometers	0.386	square miles	mi <sup>2</sup>
<b>VOLUME</b>				
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m <sup>3</sup>	cubic meters	35.314	cubic feet	ft <sup>3</sup>
m <sup>3</sup>	cubic meters	1.307	cubic yards	yd <sup>3</sup>
<b>MASS</b>				
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
<b>TEMPERATURE (exact degrees)</b>				
°C	Celsius	1.8C+32	Fahrenheit	°F
<b>ILLUMINATION</b>				
lx	lux	0.0929	foot-candles	fc
cd/m <sup>2</sup>	candela/m <sup>2</sup>	0.2919	foot-Lamberts	fl
<b>FORCE and PRESSURE or STRESS</b>				
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in <sup>2</sup>

\*SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380.  
(Revised March 2003)

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## CHAPTER 1—INTRODUCTION

This *Communications Reference Guide* (CRG) provides you with tools, techniques, and timelines to effectively plan, schedule, and produce your print or electronic publications, marketing and outreach materials, and events. The CRG contains publication formatting requirements, editorial style preferences, printing/publishing policies and procedures, and examples. It also links you with communications and marketing resources in the Office of Research and Technology Services (HRTS), and alerts you to areas where expert guidance will make the publication process smoother, more efficient, more effective, and in compliance with Federal regulations. The CRG is available online on the Turner-Fairbank Highway Research Center (TFHRC) Web site at [www.tfhrc.gov](http://www.tfhrc.gov).

This CRG touches on the required editorial and formatting rules from the *FHWA Publications and Printing Handbook*<sup>(1)</sup> and the most recent versions of the *United States Government Printing Office Style Manual (GPO Style Manual)*,<sup>(2)</sup> *Merriam-Webster's Collegiate Dictionary*,<sup>(3)</sup> and *The Chicago Manual of Style*<sup>(4)</sup> by the University of Chicago Press—which are cited in current contracts as required style reference books—and it also contains details that are specific to RD&T products.

This guide is for Federal Highway Administration (FHWA) staff members and contractors who produce research, development, and technology (RD&T) reports, fact sheets, technical flyers (TechBriefs, Product Briefs, and Application Notes), brochures, booklets, Web pages, articles, other publications, events, and marketing outreach.

The CRG is not meant to take the place of consulting with HRTS staff, nor will this guide make you an expert. The purpose is to provide you with the information basics you need to comply with the policies and procedures you must follow for meeting legislative mandates and communication product requirements, and to get your message across to your primary audience. Read the CRG in its entirety before beginning to write and format a publication.



## CHAPTER 2—HRTS SERVICE AND SUBMISSION PROCESS

Communication products must present information clearly, concisely, and consistently in design, style, grammar, spelling, composition, and format. Many readers equate the quality of our research, the reliability of our innovations, and the competence of our research staff with the quality of FHWA’s communication products. Publications provide a permanent record of developments in technology, implementation, and research.

Our communication products represent FHWA. To present the most professional image of the Agency, FHWA products must be technically accurate and appropriately comprehensive. HRTS guides, oversees, manages, and produces a variety of communication materials to disseminate RD&T information to a wide range of customers in the transportation industry, legislators, scientists, associations, corporate America, and the public. The HRTS office supports this effort with editors, writers, designers, journalists, communication specialists, photographers, marketing professionals, Web programmers, and others.

Note: All communication products shall be edited.
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### PRODUCT CONSIDERATIONS

After identifying your audience(s) and defining your message(s), you must then determine the most effective way of reaching your audience.

- The first step in this process is to know your audience’s preference. Have you asked your audience(s) what they consider the most effective approach for communicating information about a specific type of knowledge, product, or service?
- What is the most appropriate mean(s) for transmitting the message(s)? A printed report may be best for one audience, an article for another audience, or a Microsoft® PowerPoint® presentation may be the most effective for yet another group.
- What resources are available for developing and distributing the product?
- What do you intend the audience to do with this communication product?

### OFFICE OF PUBLIC AFFAIRS

If the subject of a document is not strictly RD&T related, the Office of Public Affairs must be consulted before the publishing process is begun. See chapter 9, “Guidelines for Media Relations.” The only exception to this requirement is technical research reports, which must be

reviewed by the office director in lieu of public affairs. The Office of Public Affairs has delegated authority to the office directors for reviewing all other publications for policy implications.

### **TECHNICAL REVIEW**

A peer/technical review should be conducted before each document is submitted for editing and publishing. This review should contain the necessary checks and balances to ensure that FHWA continues to publish accurate and high-quality documents. The COTR, who is responsible for the technical accuracy of the material in a publication, may involve the principal investigator or Federal staff responsible for the technology or staff study. This peer/technical review group should include subject experts both internal and external to FHWA, as appropriate.

### **HRTS SERVICE REQUEST FORM**

Before submitting your communication product to HRTS, obtain support from your office director for moving forward on your job request. Make sure that technical experts and stakeholders already have given technical reviews and approvals, and that the copy you submit is *final*. RD&T staff must receive a hard copy HRTS Service Request Form that is signed by an office or technical director, or other delegate. Office directors also may submit the HRTS Service Request Form by e-mail.

The office director's endorsement or approval indicates several things, that he/she:

- Knows of and has awareness of this publication.
- Endorses its publication and is willing to commit office funds to publish it (if appropriate).
- Assures that it has had the proper review by all stakeholders (i.e., headquarters and field offices), and supports the plan pertaining to the publication media, intended audience, use of the document, and distribution.
- Confirms that it is fully compatible with U.S. Department of Transportation (USDOT) and FHWA policies and positions, and that all potential sensitivities have been appropriately addressed.

The HRTS Service Request Form is available in the HRTS administrative assistant's office or on the [www.tfhr.gov](http://www.tfhr.gov) Web site under "Services." See appendix A for a copy of the form.

## **PRINT DISTRIBUTION FORM**

When you submit your print job, you also must submit an electronic Print Distribution Form, available from HRTS. The electronic form contains office addresses for all FHWA headquarters and field offices. For external distribution, an electronic Microsoft Excel document or self-adhesive mailing labels must be submitted with the communication product. See chapter 10 for additional details about publication distribution.

## **PRODUCT DEVELOPMENT AND DELIVERY**

Use the following estimated times as a broad guideline for final HRTS communication product development and delivery:

- Job is received—This means intake form is completed and approved and that all submission requirements are met.
- First edit—14–30 days.
- COTR review—30 days or less.
- Second edit—14 days.
- COTR review—14–30 days.
- Third edit—7 days.
- COTR review—14–30 days.
- Layout/design—2–20 days.
- Final quality review—7 days.
- Printing—14–42 days (2 to 6 weeks depending on type of job).
- Distribution—7–14 days.
- Web files—7–28 days, depending on job and number of other jobs (this is done concurrently with printing).

<p>NOTE: Layout and design can go through additional steps depending on approvals. This adds time and expense to jobs.</p>
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## **THE EDITING PROCESS**

All communication products are edited electronically (using track changes) for consistency and adherence to acceptable style, punctuation, and grammar. COTRs must make a special request for hard copy edits. Edits normally will include checking sections for basic problems, grammar, and *GPO Style Manual* adherence. The process also includes analyzing, changing text to read well, and checking for organizational problems within the document (removing or indicating repetitive information, ensuring parallelism in headings and text, etc).

There are many variables that can affect the time and expense of communication products. You can avoid delays by submitting final text that does not need major rewrites or changes; providing quality, high-resolution photography or artwork if necessary; and providing original drawings or illustrations at the beginning of the cycle. (When submitting electronic files especially for layout, please submit high-resolution files at dpi 300 or greater for printing purposes.) Other factors that might delay a project include your availability for reviews and responses to questions, and whether or not your communication product needs black-and-white, two-color, or four-color processing.

### **Responsibility for Corrections**

The editor will provide a summary edit sheet that describes the edits in the document. In addition, the editor will contact the requestor before completing an edit if the job looks like it has major problems.

The COTR is responsible for reviewing all editorial changes and answering queries as requested by the editor. In the case of reports, the COTR who submitted the report or his/her contractor are responsible for reviewing all electronic edits or in the case of hard copy edits, reviewing and incorporating all changes into the document. This time should be built into a COTR's contract.

### **Expediting the Editing Process**

*You will save considerable time by submitting a final publication and 508 materials (explained in chapter 3) that already have gone through your peer/technical review process. Additionally, reviewing edited materials quickly after they have been edited by HRTS will expedite the process.*

Frequently, publications can be edited and returned to the COTR more quickly than the estimated timeframe. However, the publication process also relies on how quickly you and your contractor make the corrections indicated by the editor, and return the communication product back to HRTS with a corrected hard copy, electronic copy (CD-ROM), and the original, marked-up document (when applicable).

### **Standard Proofreading Marks Used in Editorial Reviews**

The following table provides a selection of the most commonly used proofreading marks. See the *GPO Style Manual* for a more complete list.

**Table 1. Editing symbols and their meanings.**

Symbol	Meaning	Symbol	Meaning
⎵	Insert 1 en dash	⏶	Move up
⎶	Insert 1 em dash	⏷	Move down
#	Insert space	☐	Center horizontally
sp	Spell out	w.f.	Change wrong font
<i>ital</i>	Italicize—used in margin	.....	Let it stand—used in text
—	Italicize—used in text	<i>stat</i>	Let it stand—used in margin
caps.	Capitalize—used in margin	^	Caret—general indicator used to mark position of error
≡	Capitalize—used in text	¶	Insert paragraph
↵	Delete	↷	Transpose—used in text
Ⓢ	Delete and close up space	∨	Superior
○	Close up	∧	Inferior
☐	Move right	⊙	Insert period
☐	Move left	↱	Insert comma





### CHAPTER 3—POLICIES AFFECTING ALL PUBLICATIONS

Any research, development, and technology publication, Web site, or other communication product—including published, printed, reprinted, electronic, and Internet material, and CD-ROMs sponsored or funded by FHWA RD&T offices—*must be published or posted through HRTS*. This ensures compliance with various publishing guidelines and Federal regulations, consistency across products, and high standards for both academic and general communications. (Refer to the *FHWA Publications and Printing Handbook*.) The HRTS office sets guidelines for publishing RD&T communication products and has coordinated with other offices involved in the process, including RD&T staff managers, FHWA Office of Public Affairs, and FHWA publishing services.

Note: The Office of Public Affairs must provide initial and final clearance approvals for all publications—even if the publication will be published only electronically or on the Internet. This includes CD-ROMs, multimedia documents, and Internet-only publications. The only exception to this is RD&T reports, which must go through the HRTS editorial process.

Recognizing the important role that information plays in Federal and non-Federal decisionmaking, Congress passed the Data Quality Act as part of the Treasury and General Government Appropriations Act for Fiscal Year 2001. In brief, the Data Quality Act (also known as the Information Quality Law) requires all Federal agencies to strive toward issuing the highest quality information that is accurate, timely, and responsive to the needs of the public. The act also requires agencies to provide a means for the public to “challenge” information that appears to be inaccurate, or that does not comply with the Office of Management and Budget (OMB) “Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies.”

In addition to the Freedom of Information Act, the Paperwork Reduction Act, the Paperwork Elimination Act, the Data Quality Act, and the Presidential Memorandum of June 1, 1998, about using *plain language*, products must comply with current policy requirements of Section 508 of the Rehabilitation Act (see below) for electronic information and technology dissemination.

Under Federal law (Title 44 of U.S. Code), all printing and duplicating must be done through the Government Printing Office (GPO). No more than 10 copies may be generated outside a GPO contract. In addition, a document published by USDOT must be prepared in accordance with the instructions and guidelines provided in the latest versions of the *GPO Style Manual*, USDOT and FHWA orders as summarized in the most recent version of the *FHWA Publications and Printing Handbook*, and the accessibility requirements in Section 508 of the 1998 amendments to the Rehabilitation Act of 1973.

## ELECTRONIC PUBLISHING OF COMMUNICATION PRODUCTS

Each time you prepare a publication for printing, you also must prepare an electronic version for online use on an FHWA Web site. All electronic and Internet publications must be compliant with Section 508 of the Rehabilitation Act. Electronic documents must be placed on an approved Web site URL or a Web address (such as [www.fhwa.dot.gov/](http://www.fhwa.dot.gov/)); please ensure that your electronic files are formatted correctly.

### SECTION 508 OF THE REHABILITATION ACT

Section 508 of the Rehabilitation Act states that all electronic products produced by Government agencies must be accessible to persons with disabilities, including those persons with vision, hearing, cognitive, and mobility impairments. The Paper Reduction Act and FHWA require that printed publications must be available in electronic format; final printed documents must provide minimum 508 Compliance requirements.

Section 508 affects *all* communication products published by FHWA in print or electronic format. All FHWA publications must conform to the requirements outlined in Section 508 of the Rehabilitation Act and the U.S. General Services Administration (GSA) Federal IT Accessibility Initiative ([www.section508.gov](http://www.section508.gov)). See [www.access-board.gov/508.htm](http://www.access-board.gov/508.htm) for more information about Section 508 guidelines. Section 508 affects the following research, development, and technology products:

- Electronic documents, reports, brochures, etc., which are the main final products of FHWA research and development (see [www.access-board.gov](http://www.access-board.gov), “Web-based Intranet and Internet Information and Applications (1194.22)”).
- CDs and any electronic files, databases, report databases, and applications housed on them or used to install them, such as an install shield program (see [www.access-board.gov](http://www.access-board.gov), “Software Applications and Operating Systems (1194.21),” and “Web-based Intranet and Internet Information and Applications (1194.22)”).
- PowerPoint presentations if they are distributed through CD, Web, etc.—and if they contain graphic elements that need a text-based alternative (such as hypertext markup language (HTML) or an ASCII text file).

Note: A PowerPoint presentation that is presented live by a speaker would be considered accessible, because the speaker is available for any questions about graphic content. However, that same presentation distributed on a CD-ROM, without the benefit of a speaker present, must have an accessible text version for any non-text element provided on the CD-ROM.

- Movies, videos, audio files and Web movies (see [www.access-board.gov](http://www.access-board.gov), “Video and Multimedia Products (1194.24),” “Software Applications and Operating Systems (1194.21),” and “Web-based Intranet and Internet Information and Applications (1194.22).” When a Web page requires that an applet, plug-in, see [http://www.access-board.gov/sec508/guide/1194.22.htm#\(m\)](http://www.access-board.gov/sec508/guide/1194.22.htm#(m))).
- Web files including database applications/research databases, search engines, and interactive tools (see [www.access-board.gov](http://www.access-board.gov), “Software Applications and Operating Systems (1194.21),” and “Web-based Intranet and Internet Information and Applications (1194.22)”).
- Stand-alone (or unmanned) kiosks such as a computer or television screen showing a presentation or video at a conference or trade show (see [www.access-board.gov](http://www.access-board.gov), “Video and Multimedia Products (1194.24)” and “Self Contained, Closed Products (1194.25)”).

### **ENSURING CONTRACTOR PUBLICATION COMPLIANCE**

Communicate the importance of contractors preparing documents and provide the Web site addresses listed above. The information should be attached to all statements of work and contracts for preparing publications, Web sites, multimedia presentations, and other electronic communication products. While Section 508 currently does not apply to one-time purchases of \$2,500 or less, you are strongly encouraged to comply with the applicable accessibility standards. Please note that if your intent is to print or publish the final product on a Web site, it must meet the 508 accessibility requirements for electronic posting regardless of the dollar value of the purchased product.

If your contract calls for HTML file delivery in addition to a Microsoft Word file, see chapters 4 and 8, “Guidelines and Styles for All Publications,” and “Electronic Publishing,” and coordinate with HAIM-40, HAIM-20, or HRTS-2 for additional guidance. Before being HTML-coded and deployed, any new RD&T Web publication or Web site must be edited in Microsoft Word format by the HRTS editors.

<p>Note: Contract deliverable schedules shall include sufficient time for editing and the editorial process through HRTS.</p>
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## CHAPTER 4—GUIDELINES AND STYLES FOR ALL PUBLICATIONS

All Agency publications must be prepared in an accessible, electronic format for online use on an appropriate FHWA Web site (such as [www.fhwa.dot.gov/](http://www.fhwa.dot.gov/) or [www.tfhr.gov](http://www.tfhr.gov)). Even if a printed version is prepared, an electronic version of the document **MUST BE PREPARED** and must meet the accessibility requirements of Section 508 of the Rehabilitation Act.

### **TWO-COLOR VERSUS FOUR-COLOR PRINT**

The use of multiple colors increases both the cost and the production time for a publication; therefore, additional color should be used only when it is necessary to ensure that the publication achieves its communication goal. Most reports and other publications whose sole goal is to disseminate information can easily convey the information with the use of a single color (almost always, but not necessarily, black ink). A second color of ink can considerably enhance the appearance of a publication and increase the design options available to the graphic designer. The creative use of two colors often negates the need for additional colors. Four-color printing should be used only when the supporting visual elements (e.g., photographs, graphs) require full color to accurately convey the message, or when there are other special considerations. The office director's approval is required to authorize the additional cost.

### **CHOOSING THE INTERNET INSTEAD OF PRINT**

To avoid duplicate production costs, program offices can have publications designed for Web site display only. Keep in mind that a high-quality Web design can be just as costly as a printed design. Internet publishing is especially useful for documents containing information that needs to be issued quickly, that may change rapidly, or that is of interest but is seldom used. You also may want to consider Internet publishing if you have a small audience, for example, fewer than 500 readers. If your document fits any of these categories, it may be most appropriate to create an HTML-coded, Web-only document for an FHWA Web site.

You should expect an electronic HTML file to have a different look and layout from that of a printed document for two reasons. Duplication of a print design on a Web page will increase file size, which will subsequently increase the amount of seconds it takes for a viewer to see your Web page. See chapter 8, "Minimum Requirements for FHWA Web Pages."

### **Print and Web Designs**

In some instances, a communication product will need extensive design for both print and Web media. Consider taking one or two graphic elements from your print document and having your graphic artist apply those elements into a Web page design.

This will ensure consistency between the print and electronic publications, and will help reduce graphic design costs.

Make sure you let your designer know from the start that you would like a few graphic elements that you can include on an Internet or CD-ROM version.

Note: Web sites require a template so that the FHWA Web site style is consistent. (See Web site details in chapter 8.)

### **Internet Newsletters**

The Agency recommends that program offices prepare newsletters strictly as electronic documents or Internet publications.

### **SECTION 508 AND PUBLICATION CONTENT**

Normally, there are two distinct components necessary to post an electronic publication on a Web site—the written portion (i.e., content) and the HTML programming portion. Both must provide compliance with Section 508, however, each has a different role. There are two reviews that will take place before posting a Web page on the Internet—an editorial review by HRTS-2 or HAIM-20 and a technical review by HAIM-40.

Writing content, gathering information, creating visuals, and collecting photos for a publication or Web site is normally the function of a program specialist or writer. The person who performs this function is usually referred to as a content producer/writer or publication writer. A content producer/writer is normally responsible for fulfilling the information content portion of Section 508. Research and development information and publications that are written and posted on a Web site should be edited by HAIM-20 or HRTS-2. Because the information falls under the jurisdiction of “public information,” the Office of Public Affairs also must review it.

### **Publication Writers/Web Content Producers**

Whether you are writing a report or publication, or writing text specifically for a Web page, you should use the following Section 508 guidelines when creating material that will be posted on a Web site:

- 1) Write the content in plain language.
- 2) Write 508 captions or text for non-text elements in plain language. Be specific.
- 3) Select colors and include graphics, charts, photos, etc., that have high contrast.

- 4) Design Web pages so that all information conveyed with color is also available without color. For example:
  - a. Label each line in a graph or make each line a distinct pattern such as dashes, exes, dots, thin lines, thick lines.
  - b. Label or number each bar in a bar graph.
  - c. Do not refer to color alone as a differentiator within text, such as, “the red line,” “the blue text,” “the green button.” Instead of saying, “The red sign on this page...,” use, “The red stop sign shown in figure 1 ...”
- 5) Create simple tables whenever possible containing one vertical header column and one horizontal header row, rather than nested tables with multiple subheadings.
- 6) Ensure that a text equivalent, such as a transcript, is provided for audio files that will be included with an electronic publication or highlighted on a Web page. Audio is considered a non-text element.
- 7) Similarly, a (silent) Web slide show presentation does not need to have an audio description accompanying it, but does require text alternatives to be associated with the graphics. See below for 508 captions or “text for non-text elements.”
- 8) When deciding what text and the order of text to include on an electronic or Web form, place labels adjacent to data input fields, not in separate cells of a table. Label each data field. Whenever possible, write any detailed instructions for completing a specific field before that field. Instead of this:

Name:  (Use only upper case letters)

Label your form in this manner:

Name (Use only upper case letters):

### **Web Site Technical Coders/Programmers**

The programming portion of posting a publication on the Web consists of HTML coding (or other types of programming such as Java™, JavaScript™, Visual Basic®, etc.). It is normally a technical function carried out by a technical programmer under the auspices of an information technology office. A programmer must program a Web site using specific standards and programming language rules in accordance to FHWA requirements and Section 508. The programming portion of a publication or Web site also will undergo a review by a technical group (HAIM-40), for adherence to Section 508 and FHWA programming standards.



COTRs and technical programmers who will work on a Web site or who will provide HTML files or a Web site as a final deliverable should see chapter 8 for more specific guidelines on programming an FHWA Web site.

### **508 CAPTION REQUIREMENT**

The HAIM-20 and HRTS-2 publication groups now require that anyone who submits a report or publication for print or electronic posting also must submit an electronic “508 captions” file in addition to the final publication file.

The separate 508 captions file should contain a listing of all the descriptions of “non-text elements” within a publication—including but not limited to every photo, chart, graph, pie chart, flowchart, diagram, and equation.

### **What to Include in 508 Text for Non-Text Elements**

To write a 508 caption (text equivalent), writers may find it easiest to cover a figure with a hand and to describe what the relevance of the non-text element is within a document. The Access Board (the governing body responsible for enforcing accessibility standards) defines text equivalent:<sup>(5)</sup>

#### ***What is meant by a text equivalent?***

*A text equivalent means adding words to represent the purpose of a non-text element. This provision requires that when an image indicates a navigational action such as “move to the next screen” or “go back to the top of the page,” the image must be accompanied by actual text that states the purpose of the image. This provision also requires that when an image is used to represent page content, the image must have a text description accompanying it that explains the meaning of the image.*

#### ***How much information actually needs to be in the text equivalent?***

*The text information associated with a non-text element should, when possible, communicate the same information as its associated element. For example, when an image indicates an action, the action must be described in the text. The types of non-text elements requiring actual text descriptions are limited to those elements that provide information required for comprehension of content.*

### Format for 508 Text for Non-Text Elements

For every figure, graph, photo, formula, equation, chart, etc., shown in a publication or Web document, use the following FHWA format for the 508 caption:

- Figure 1. Graph. Name of graph. [Insert 508 caption for graph.]
- Figure 2. Photo. Name of photo. [Insert 508 caption for photo.]
- Figure 3. Formula. Name of formula. [Insert 508 caption for formula.]
- Figure 4. Chart. Name of chart. [Insert 508 caption for chart.]
- Figure 5. Equation. Name of equation. [Insert 508 caption for equation.]

### Examples of 508 Text for Non-Text Elements

These examples show 508 captions that were used in actual FHWA reports:

Figure 1. Photo. Participants in showcase. More than 40 participants in the Arkansas Interstate Rubblization and Rehabilitation Showcase stare down at and take photographs of the huge pit of “rubblized concrete” during a field exercise on I-40.

Figure 2. Pie Chart. Percent of respondents by truck volume corridor categories. Pie chart depicts the following distribution of respondents: 23 percent from corridors with fewer than 5,000 trucks per day, 24 percent from corridors with 5,001 to 10,000 trucks per day, 15 percent from corridors with 10,001 to 15,000 trucks per day, and 38 percent from corridors with 15,001 to 20,000 trucks per day.

Figure 3. Histogram. Frequency with which drivers find available parking at truck stops and rest areas. Histogram depicts the following frequencies for truck stops (9 percent almost always, 25 percent frequently, 51 percent sometimes, 12 percent rarely, and 4 percent almost never) and rest areas (2 percent almost always, 9 percent frequently, 41 percent sometimes, 34 percent rarely, and 14 percent almost never).

Figure 4. Equation. PR subscript LH. PR subscript LH equals the sum of the following: 8 days times 24 hours per day minus T subscript driving minus T subscript home minus T subscript load/unload minus T subscript shipper/receiver, end of sum, that sum divided by T subscript driving, to that quotient add the quotient of 5 minutes divided by 60 minutes, the sum of which equals 0.7833.

## GRAPHICS

Do not submit second generation or previously printed materials as graphics. Do not use tape; correction fluid; photocopies; or fuzzy, dark, or faded artwork.

When submitting electronic files especially for layout, please submit high-resolution files at dpi

300 or greater for printing purposes. See “Designing and Formatting Your FHWA Publication” in the *FHWA Publications and Printing Handbook*.

## EDITORIAL STYLES FOR ALL PUBLICATIONS

All FHWA publications follow the style guidelines in the following order: *FHWA Publications and Printing Handbook*<sup>(1)</sup> and the most recent versions of the *United States Government Printing Office Style Manual (GPO Style Manual)*,<sup>(2)</sup> *Merriam-Webster’s Collegiate Dictionary*,<sup>(3)</sup> and *The Chicago Manual of Style*<sup>(4)</sup> by the University of Chicago Press. Therefore, when looking up a particular style, use the above order for prioritizing conflicting styles.

### Metric

According to the U.S. Code of Federal Regulations (23 CFR 420.121(p)), Federal research reports shall provide units of measurement using the SI (metric) system. (The American Society for Testing and Materials publication, *Standard Practice for Use of the SI International System of Units: The Modernized Metric System* (ASTM E380-89a or later) should be followed.)

Research reports prepared under FHWA planning and research grants must contain metric units, however, they may contain dual units with metric units first and English units in parentheses.

Contact the Strategic Communications Team (HRTS-2) if you have questions. Section 205(c) of the National Highway System Designation Act of 1995 was amended to give the State transportation officials sufficient flexibility to decide whether to prepare all reports and documents using the English units, metric measurements, or dual measurements. Section 121(d) of the Transportation Equity Act for the 21<sup>st</sup> Century made this exception permanent. See the Update on Metric Use Requirements June 1, 2001 memo at

<http://www.fhwa.dot.gov/programadmin/contracts/0601metr.htm>. **Punctuation**

- Use a hyphen between the elements of compound numbers from twenty-one to ninety-nine (when they must be spelled out) and in compound adjectives with a numerical first element (see *GPO Style Manual*). For example:

24-inch ruler	four-lane highway
8- by 12-inch page	3-to-1 ratio
3-m-wide screen	

For further guidance in hyphenation and compounding, see *GPO Style Manual*.

- Use an em dash—instead of a hyphen—as shown here to set off a particular phrase. There should be no spaces around the em dash.

- When parentheses or brackets are used to enclose an independent sentence, the period falls inside as in the following example. (See sample here.) If the enclosed matter is part of a sentence, the period falls outside (when the enclosed matter completes the sentence).
- Periods and commas should be placed inside quotation marks; semicolons fall outside quotation marks.
- Use a comma after each member within a series of three or more words, phrases, letters, or figures used with “and,” “or,” or “nor.”
- Use semicolons to separate groups of items only when commas are already used within each group. For example, “He checked the streets, highways, and lanes; the subways, bus routes, and airlines; and the theaters, museums, and art galleries.” In other instances in which intervening commas are used and confusion may result, use semicolons to separate elements containing commas.

### Numbers and Measurements

- Any number that begins a sentence is spelled out. Numbers from one through nine are spelled out. Use numerals for numbers 10 and above.
- However, if a number 10 or above is in the same sentence with a lower number, use numerals for all.
- Units of money, measurement, and time (actual or implied) are expressed in numerals. These do not affect, and are unaffected by, other numbers in a sentence. Therefore, when using a monetary, measurement, or time reference in the sentence, only use a numeral to depict other numbers if the number is 10 or greater.
- Numbers and their units of measurement should not be separated on two lines. Also, keep words that depend on each other for meaning together on the same line of type by using non-breaking spaces (in Microsoft Word, go to insert, symbol, special characters). (For example: chapter 5, 25 millimeters (mm), and 31 percent.)

### Abbreviations

Use *GPO Style Manual* abbreviations for units of measurement. Abbreviations used for units of measurement are the same for both singular and plural. However, for Section 508 compliance and to avoid confusion with the word, “in,” do not abbreviate “inch,” except where it is necessary for space in tables and figures. Do not use periods after these abbreviations, except for “in.” in place of inch or inches (again, only where it is necessary for space in tables and figures). Examples of some commonly used units are the following (see *GPO Style Manual*):

mi for mile(s)	in <sup>3</sup> for cubic inch(es)
mi <sup>2</sup> for square mile(s)	m for meter(s)
mi/h for miles per hour (not mph)	ft for foot (feet)

km/h for kilometers per hour	ft <sup>3</sup> for cubic foot (feet)
in. for inch(es)	lb for pound(s)
in <sup>2</sup> for square inch(es)	lbf/in <sup>2</sup> (not psi)
ft /s for square foot (feet) per second	s for second(s)

“Percent” and most other symbols such as \$, &, #, etc., should be spelled out in the text. Some symbols may be used in figures, tables, and references (see *GPO Style Manual*).

See appendix J, “List of Preferred Terminology and Abbreviations,” for terms that are unique to FHWA.

### Some Unique GPO Styles

Some common *GPO Style Manual* rules are listed below to aid in the writing process.

- Common nouns such as table 1, chapter 2, sample A, reference 4, appendix A, etc., should not be capitalized within the text.
- The word “State” should be capitalized when referring to a geographic or governmental entity.
- The words “Federal” and “Government” are capitalized, whether they appear together or alone, when referring to the Federal Government. The word “Nation” is capitalized when used as a synonym for the United States.
- Acronyms should be established by spelling out the term the first time it is used followed by the acronym in parentheses, such as Federal Highway Administration (FHWA). If the publication or report has many acronyms, a list of acronyms may be included after the list of tables.
- The prefixes and suffixes listed below generally do not require a hyphen when joined with other words:

multi	super	pre
micro	under	re
like	post	semi

### TIME AND MONEY SAVINGS

You can save time and money by:

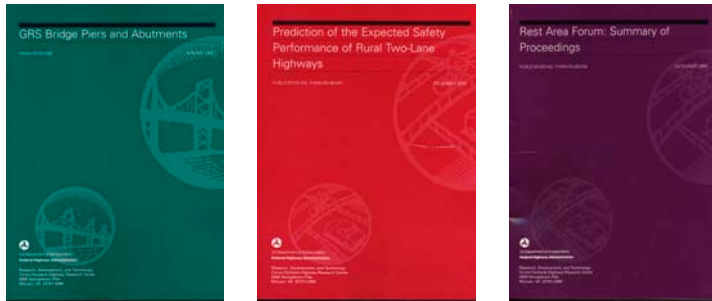
- Submitting your 508 compliance captions file when you submit the first draft of your communication product, reports, brochures, technical flyers, etc. Both the draft and the 508 captions can go through the editorial process at the same time.

- Ensuring that employees and contractors working on your publications are familiar with the Section 508 Web sites and the specific rules that apply to each of your projects.
- Communicating the “simple table” concept to your employees and contractors. (A simple table contains only one row of horizontal and one row of vertical headers). Complex tables with more than a single row of headers can add a tremendous amount of time to converting a document into HTML.
- Planning a project from the start with Section 508 in mind to save money and time in the long run.



## CHAPTER 5—PREPARING A RESEARCH REPORT

### RESEARCH REPORTS



#### Purpose

To communicate the full details of an experiment or research project, its results, data collected from analysis, or findings and recommendations.

#### Audience

Transportation technical staff.

#### Style

- Usually more than 30 pages.
- One-color cover (appropriate color indicates the FHWA RD&T team that generated the research and report) prepared by HRTS with a standard cover design graphically depicting the area of research. HRTS uses 12 different woodcuts to represent different areas of research: Environment, Human Factors, International, ITS, Motor Carrier/Freight, Pavement, Planning, Policy, Right-of-Way, Safety, Structural/Bridges, and Training.

### FORMAT FOR RESEARCH REPORTS

Standard research reports must follow the guidance in this CRG regarding formatting and font, type size, symbols, margins, page numbering, bullets, columns, and other elements as the preferred style. The report must be consistent throughout in format and style. The author of a research report should adhere to these preferences unless there is a clear, compelling reason to deviate.



Any deviation from the specified standards must be accompanied by a written explanation that specifies the reason that a format requirement was not followed. (An author may need to reformat a document if the HRTS office determines that the standard format or style is preferred.)

Submit all reports as a Microsoft Word file. The document will be printed in black ink unless otherwise specified. Should a report need to be printed in color, FHWA must receive a justification in writing indicating why color is necessary. After special permission, the author must layout the document in an acceptable graphic format.

### **ORDER OF ELEMENTS IN REPORTS**

As discussed earlier, documentation adheres to both *GPO Style Manual* standards and FHWA-specific style requirements as outlined in this guide. All of the components of a document are listed in this section in the order in which they should appear. However, please note that it is not necessary to use all elements in all reports. (For example, if a report does not contain references, there would be no need for a reference section in the report.)

<b>COVERS</b>	Front Cover Inside Front Cover (R&D Foreword and Disclaimer Notice) <sup>1</sup>
<b>FRONT MATTER</b>	Technical Report Documentation Page (Form DOT F 1700.7) Preface (if any) Metric Conversion Chart Table of Contents List of Figures (including equations) List of Tables List of Abbreviations and Symbols
<b>BODY OF REPORT</b>	Page 1 Introduction Main text separated into chapters Conclusions Recommendations
<b>BACK MATTER</b>	Appendices (Use consecutive pagination, do not use A-1, etc.) Glossary Acknowledgements

<sup>1</sup> Use the statement shown on the inside front cover of this guide in all research reports.

References  
Bibliography  
Index

**BACK COVERS**

Cover 3 (blank)  
Cover 4 (blank)

Note: Contractors' names may not appear in the report, except in block 9 of the Technical Report Documentation Page (form DOT F 1700.7). Contractor logos may not appear at all. Paid consultants should not be acknowledged anywhere else in FHWA publications.

If an acknowledgement page must be used, it must be part of the appendix; however, it should not contain contractor, author, or company names. See appendix I for a sample.

**The Foreword**

Publications containing technical material must have a foreword on the inside front cover. The foreword, signed by the office director, should contain information useful to readers:

- Purpose of the report, manual, or study.
- Content summary.
- Interested audience.
- Previous printings of the publication.
- Publication status: preliminary, interim, or final.

Every FHWA report must contain the standard disclaimer notice and quality assurance statement below:

**Notice**

This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The U.S. Government assumes no liability for the use of the information contained in this document.

The U.S. Government does not endorse products or manufacturers. Trademarks or manufacturers' names appear in this report only because they are considered essential to the objective of the document.

**Quality Assurance Statement**

The Federal Highway Administration (FHWA) provides high-quality information to serve Government, industry, and the public in a manner that promotes public understanding. Standards and policies are used to ensure and maximize the quality, objectivity, utility, and integrity of its information. FHWA periodically reviews quality issues and adjusts its programs and processes to ensure continuous quality improvement.

**Type Arrangement and Typefaces**

- The preferred font is Times New Roman, sized at 12 point for both headings and text.
- Type styles in the text must match those in the front matter and table of contents for all headings and subheadings. This includes font, capitalization, punctuation, bolding, italics, and other attributes.
- Margins must be at least 25 mm (1 inch) on all sides, including on pages with figures and tables.
- Single-spacing is preferred if superscript and subscript do not touch the next line of type. Use the superscript and subscript features in Microsoft Word.<sup>(sample superscript)</sup>
- Paragraphs are not indented. There should be two returns (i.e., one blank line) between paragraphs.
- Right margins should not be justified because type with ragged margins is easier to read and edit.
- Use a laser or letter-quality printer.
- Ensure that words are correctly divided, mathematical symbols or formulas are not divided between lines, and spacing is not excessive or erratic.

- Widows and orphans should be avoided. Please do not leave a single line of text at the top or bottom of a page.

Note: When using special math or scientific fonts in equations and formulas, create a .jpg, .bmp, or .gif graphic file of the equation and insert it into the document as a figure. Not all computers, printers, and operating systems can interpret special math and scientific fonts.

### Volume Format

Volume designates an individually bound book. When a report exceeds 400 pages of reproduction copy (including figures, tables, appendices, and front matter), it should be divided into two or more individual volumes, with each containing a separate publication number and Roman numeral (Volume I, Volume II, etc.) as part of the subtitle. It should also be listed on the Technical Report Documentation Page (form DOT F 1700.7) in the abstract portion of the form. Indicate the following information within the abstract:

This volume is the first in a series. The other volume in the series is:  
FHWA-HRT-##-### Volume II: *Name of Publication*

### References and Bibliography

- References and citations in the text should use superscript numbers enclosed in parentheses or brackets. Place them after the end punctuation. If there is more than one reference, separate them with commas, but no spaces. Example:

“This guide contains many references.<sup>(1,5,7)</sup>”

For more than three references, use a separate sentence in parentheses. Example:

“This guide contains many references. (See references 1, 5, 7, and 18.)”

- In the list of references in the appendix and in the bibliography, any style may be used as long as it is consistent and all reference elements are included (authors, title, publication number, publisher’s name and city, publication date).
- References must be consistent in punctuation, the order of elements, and the amount of information supplied. When chapters or articles in larger volumes are referenced, please be mindful to provide inclusive page numbers, which can shorten the time it takes a reader to track down a particular reference. If the editors find that the reference style in the document is inconsistent, FHWA’s standard style will be required.

- Use a single series of Arabic numbers beginning with 1 and continuing through the document and appendices.
- Each reference must be cited. Materials not cited may be listed in a bibliography placed at the end of the volume on the page(s) following the references.

### **Pagination**

- The Technical Report Documentation Page (form DOT F 1700.7) is always unnumbered page i. (See sample form in appendix D.)
- Include front matter in the page count in the number of pages (block 21) of the form 1700.7.
- Front matter should use lower case Roman numerals such as ii, iii, etc. Start numbering with Arabic “1” at the introduction or, if there is no introduction, at the start of chapter 1.
- Use only one series of Arabic numbers from the first page of the report to the last. *Do not number appendix pages as A-1, B-1, etc.*
- Decimal numbers, hyphenated numbers, or numbers combined with letters for chapters, sections, or subsections should not be used as page numbers. Minimize the use of paragraph and subparagraph numbers.
- Page numbers should be centered 12.7 mm (0.5 inches) up from the bottom edge of each page and should stand alone with no dash on either side of the number. Page numbers are centered for consistent appearance in single- and double-sided printing.
- Chapters must begin on the right-hand page (i.e., an odd-numbered page). Insert blank pages to achieve this effect. Blank pages are counted in the page number sequence, but no number is printed on the page. Do not label “this page intentionally left blank” when adding a blank page to start a new chapter on a right-hand page. Individual chapters, appendices, etc., should not have title pages.

### **Table of Contents**

- A table of contents is useful in most reports of more than 10 pages and is required in all reports of 30 or more pages.
- At a minimum, chapter headings and first level headings should be included in the table of contents, and the text and punctuation in the table of contents must reflect the exact text used in the body of the document. The idea is to create a section that is useful to the reader. See the table of contents sample in appendix F.
- Do not list front matter on the table of contents. List only the body of the text from page 1 through the appendices.

- Type styles in the table of contents should match those used in the report. Like the headings in text, each level of subordination must consistently use a particular type treatment, such as all capitals, bold, etc.

## Headings

- To delineate different parts of a lengthy document, material is separated into chapters, and lengthy chapters are separated internally with subheadings. Because the titles of chapters and the next level of heading will be presented in the table of contents, it is important to use headings that will be most useful to readers.
- Do not number subheadings. There are four levels of headings; each is a subset of the level above it. See the following box for preferred heading styles.

### CHAPTER 1. MAJOR SECTION HEADING

The chapter headings are all caps, bold, and centered. Chapter numbers, when used, may be Arabic or Roman and may be followed by a period and one or two spaces (please be consistent throughout all chapter heads). There should be three returns (i.e., two blank lines) after a chapter heading.

#### FIRST LEVEL HEADING

All caps, bold, and flush left (i.e., at the left margin). No numbering is required. There are only two returns (i.e., only one blank line) after this and all subordinate headings.

#### Second Level Heading

Initial caps, bold, and flush left. Follow with two returns.

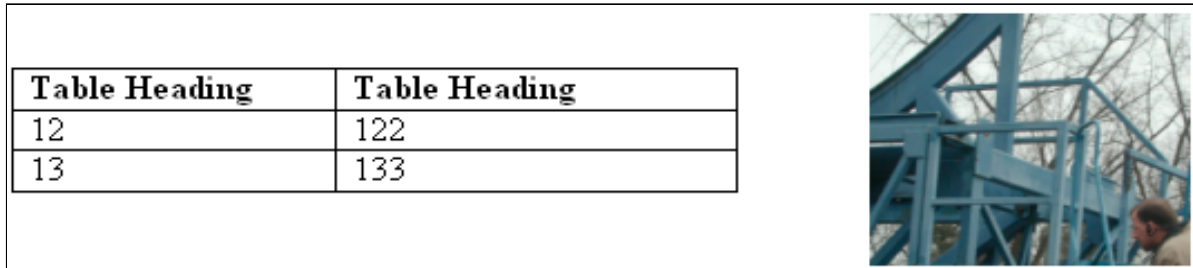
#### *Third Level Heading*

Initial caps, bold, italics, and flush left. Follow with two returns.

**Fourth Level Heading:** Initial caps, bold, followed by a colon, and flush left. Follow with two returns. This subhead level is not often required.

**Figures and Tables**

A figure is a non-text visual element shown as a graph, photo, formula, equation, chart, diagram, illustration, etc. Each visual element must be separate and must have its own figure number and caption. Do not combine multiple graphic elements into one large figure. In addition, text elements should not be grouped as part of the figure. See figure 1.



**Figure 1. Unacceptable graphic. Sample of table depicted as part of the graphic.**

Merriam-Webster’s Dictionary defines a table as “a systematic arrangement of data usually in rows and columns for ready reference.”<sup>(3)</sup> Do not incorporate a table and table information into a figure (picture). A table should be depicted in a Microsoft Word or Excel text table format rather than as part of a figure or graphic. See table 2 and figure 2 below.

Text such as notes or tables should be included in the body as text rather than as part of a figure. For example, figure 1 and the combination of table 2 and figure 2 look similar, however, when a user clicks on figure 1 in Microsoft Word, it shows that the table and photograph are combined into a single figure. Instead, the figure and the table should be separate—one as a Microsoft Word table, and the other as a graphic (picture) as shown in table 2 and figure 2. (The easiest way to determine if a table or text is formatted correctly is to try to change information. A Microsoft Word table or text will allow someone to change information, while a picture format will not.)

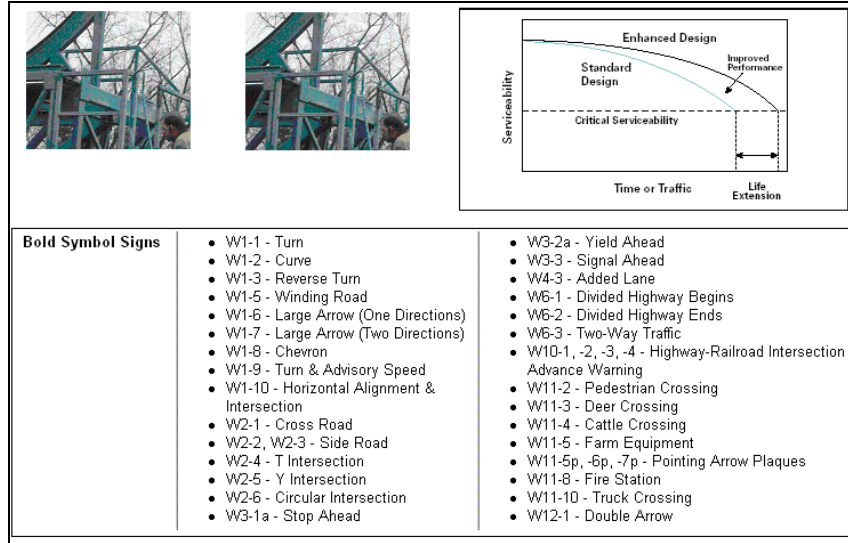
**Table 2. Sample of separate table.**

Table Heading	Table Heading
12	122
13	133



**Figure 2. Photo. Sample of separate graphic.**

Do not combine more than one graphic element such as a photo, an illustration, and graph. Each element must be separated with its own figure number and caption. For example, do not do this:



**Figure 3. Multiple elements. Do not merge multiple elements as one figure.**

The correct method to depict multiple elements is as separate figures, each with its own figure number and caption as in these examples:

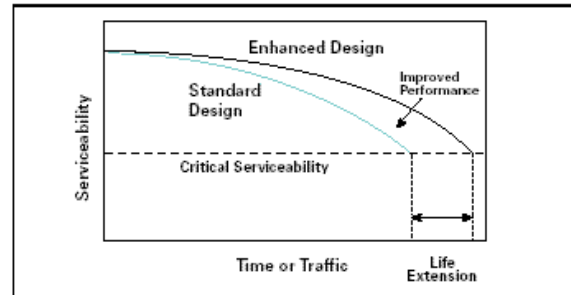


**Figure 4. Photo. Correct Format 1.**



**Figure 5. Photo. Correct Format 2.**

**Figure 6. Chart. Sample of correct chart.**



**Table 3. Correct way to depict table from figure 3.**

<b>Bold Symbol Signs</b>	<ul style="list-style-type: none"> <li>• W1-1 - Turn</li> <li>• W1-2 - Curve</li> <li>• W1-3 - Reverse Turn</li> <li>• W1-5 - Winding Road</li> </ul>	<ul style="list-style-type: none"> <li>• W3-2a - Yield Ahead</li> <li>• W3-3 - Signal Ahead</li> <li>• W4-3 - Added Lane</li> <li>• W6-1 - Divided Highway Begins</li> </ul>
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- **Every table must have a unique caption *centered at the top*.** All tables must be numbered in a single sequence from the beginning of the volume through the appendices. Use this format for writing, punctuating, capitalizing, and centering table captions:

Table 1. [Insert caption for table.]

- All captions must be in the same type style and font size.
- A figure or table should be placed near the first mention in the text.
- Spacing before and after captions should be consistent throughout the document.
- For reports of 30 pages or more, lists of figures and tables are required and are placed immediately following the table of contents. Lists of figures and tables can be on the same page if both fit completely.
- Entries in the list of figures and the list of tables (in the front matter) must match the captions within the document, exactly (i.e., same wording, capitalization, punctuation, and type style).
- **Every figure must have a unique caption *centered at the bottom*.** All figures must be numbered in a single sequence from the beginning of the volume through the appendices. Figures include graphs, photos, formulas, equations, charts, etc. Use this format for writing, punctuating, capitalizing, and centering figure captions:

Figure 1. Graph. [Insert caption for graph.]

Figure 2. Photo. [Insert caption for photo.]

Figure 3. Formula. [Insert caption for formula.]

Figure 4. Chart. [Insert caption for chart.]

Figure 5. Equation. [Insert caption for equation.]

Note: Do not use special symbol, math, or scientific fonts for equations. Instead, insert an equation as a figure (.jpg format) and number the equation as a figure, instead of at the right-hand side as in older report formats.

Notice the similarity between the abbreviated figure captions and the 508 captions (text for non-text elements). The only difference between the two is the additional description of the figure.

### Equations and Formulas

When using special symbol, math, or scientific fonts in equations and formulas, create a .jpg graphic file of the equation and insert it into the document as a graphic/picture.

Keep in mind that not all computers, printers, and operating systems can interpret special math

and scientific fonts. All equations must be numbered and captioned as a figure. See the following example:

$$PR_{LH} = \frac{8days \cdot 24hr/day - T_{DRIVING} - T_{HOME} - T_{LOAD/UNLOAD} - T_{SHIPPER/RECEIVER} + \frac{5min}{60min}}{T_{DRIVING}} = 0.7833$$

**Figure 7. Equation. PR subscript LH.**

Notice that the equation was created as a graphic object (figure) and pasted into this document as a picture. It was not created as “text” or a “text box” using a special font through Microsoft Word. The caption above shows the normal equation and caption, which would be reflected in a report.

On the other hand, the 508 caption for the above equation would show the exact same information, but it would be more detailed than simply providing the name of the type of figure depicted and the name of the equation. The 508 caption (which would be deliverable in a separate Microsoft Word file) would be the following:

Figure 7. Equation. PR subscript LH. PR subscript LH equals the sum of the following: 8 days times 24 hours per day minus T subscript driving minus T subscript home minus T subscript load/unload minus T subscript shipper/receiver, end of sum, that sum divided by T subscript driving, to that quotient add the quotient of 5 minutes divided by 60 minutes, the sum of which equals 0.7833.

### Lists

Lists should be bulleted unless the sequence of items is critical; in which case Arabic (1, 2, 3, etc.) numerals followed by periods and one space may be substituted for bullets. In either case:

- Place a colon at the end of the text sentence preceding the list.
- Use the standard (Microsoft Word) round bullets.
- Use parallel rhetorical and grammatical structure, as in this list. Begin each entry with a verb.
- Begin each entry with a capital letter.
- End each entry with a period even if it does not form a complete sentence.
- Do not end the next-to-last item with “and” or “or.”

- Put two returns (i.e., one blank line) after the bulleted list. Short bulleted items (words, phrases, sentences) should be followed by a single return. Long bulleted items (paragraphs) should be followed by two returns.

**Footnotes**

- Use superscript figures without parentheses or brackets for footnote references (see *GPO Style Manual*).
- In each chapter, footnotes to text are numbered starting with “1” (see *GPO Style Manual*). Footnotes to tables or figures begin with 1 for each table or figure. Use superscript numbers (see *GPO Style Manual*).
- Footnotes must begin on the page carrying the footnote number. Avoid breaking a footnote between pages (see *GPO Style Manual*).
- Footnotes should be single-spaced. Indent the first line of each footnote four spaces.
- Asterisks, daggers, or italic superior letters may be used only when a numeral in a table or figure might cause confusion, such as being mistaken for an exponent (see *GPO Style Manual*).

**Table 4. Research report—what to submit.**

<b>Black/White Print (.doc)</b>	<b>Two- or Four-Color Print (.doc and .qxd)</b>	<b>Web Site Only (.doc)</b>	<b>Deliverables for Research Reports</b>
X	X	X	HRTS Service Request Form
X	X	X	Microsoft Word file of report and printed copy of report
X	X	X	Microsoft Word file of 508 captions and printed copy of captions
X	X	X	Completed Form DOT F 1700.7 (Technical Report Documentation Page)
X	X	X	Metric chart
X	X	X	Foreword (signed by office director) and Disclaimer
X	X		FWHA Distribution Form and either labels or a Microsoft Excel file with names and complete addresses
X	X	X	Tables, charts, graphs in separate native file formats (Microsoft Excel files for tables and .jpg or .tif files for graphic and computer-aided design (CAD) files)
X	X	X	Illustrations, equations, photos, figures in .jpg or .bmp file format
	X		GPO Form 952 (if you provide graphic layout of any files)
X	X	X	PDF file of the document after final edit

Black/White Print (.doc)	Two- or Four-Color Print (.doc and .qxd)	Web Site Only (.doc)	Deliverables for Research Reports
	X		Adobe® Quark®, Adobe Illustrator,™ or Adobe PageMaker® file after the files have been edited. Include all text, font files, graphic files

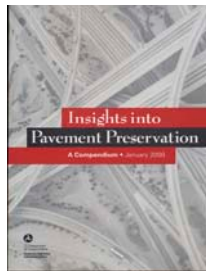
Do not submit second-generation or previously printed materials as graphics. Do not use correction fluid, tape, photocopies, or artwork that is fuzzy, dark, or faded. Refer to “Attachment 3—Designing and Formatting Your FHWA Publication,” in the *FHWA Publications and Printing Handbook*. Do not submit CAD drawings; export them to a .jpg or .tif format.



## CHAPTER 6—OTHER PUBLICATIONS

There are a variety of documents that each office may use to communicate with a specific audience, including booklets, technical flyers (TechBriefs, report summaries, and product application notes), brochures, and fact sheets. Refer to chapter 4 and the *GPO Style Manual* for additional editing and style requirements.

### BOOKLETS



#### Purpose

To communicate detailed summaries, achievements, and/or recommendations from research projects and programs.

#### Target Audience

Transportation managers, decisionmakers, and executives.

#### Style

- Usually fewer than 40 pages.
- Publication types include guidebooks, executive summaries, and annual reports.
- Full- or two-color cover with up to two-color text pages.
- Design should include eye-catching graphics that illustrate the project.
- Foreword signed by the office director and a standard disclaimer notice at the bottom.

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## TECHNICAL FLYERS



There are several types of flyers, including TechBriefs, Application/Technical Notes, and Product Briefs.

### **Purpose of a TechBrief**

To summarize an experiment, TechBriefs provide results, data collected from analysis, or findings and recommendations.

### **Purpose of Application/Technical Notes**

To provide technical information and benefits about an FHWA product or research findings used by an FHWA customer.

### **Purpose of a Product Brief**

To provide additional information on the availability of a product, product briefs provide concise technical information about the product.

### **Audience**

Transportation managers and technical staff.

### **Style**

- Two-color publication.
- Usually two to six pages.
- Signature colors assigned to RD&T offices and teams.
- Standard information about the research program area and key resources.
- Back matter information about availability, keywords, and distribution.

## MARKETING BROCHURES



### Purpose

To create awareness or attract interest in a specific project or program, brochures communicate the benefits of a research, technology, or service.

### Audience

Transportation decisionmakers, senior executives, managers, and technical staff.

### Style

- Two-color or full-color publication.
- Visually appealing graphics and layout attract awareness and interest in a subject area.
- Brochure may provide information or a call to action that asks the reader to act in some manner for additional information, a service, or participation in a program.

## FACT SHEETS





**Purpose**

To provide concise, factual information about a specific topic such as a facility, laboratory, technology, or expertise.

**Audience**

Transportation decisionmakers, managers, technical staff, and students.

**Style**

- Concise, informative, two pages (one page back and front).
- Usually one or two colors.
- Text and graphic layout have a similar design, if part of a series.

**Table 5. Booklets, flyers, brochures, and fact sheets—what to submit.**

<b>One Color Print (.doc)</b>	<b>Two- or Four-Color Print (.doc and .qxd)</b>	<b>Web Site Only (.doc)</b>	<b>Submission Requirements for Booklets, Technical Flyers, Brochures, and Fact Sheets from COTR</b>
X	X	X	HRTS Service Request Form
X	X	X	Microsoft Word file of document
X	X	X	Microsoft Word file of 508 captions
X	X		FWHA Distribution Form and either labels or a Microsoft Excel file with names and complete addresses
X	X	X	Tables, charts, graphs in separate native file formats (Microsoft Excel files for tables and .jpg or .tif files for graphic and CAD files)
X	X	X	Equations in .jpg file formats
		X	Low-resolution illustrations and figures in .jpg, .tif, or .bmp file formats
X	X		Photos—35mm slides or prints OR Original drawings, illustrations, renderings, graphics, etc. OR Digital graphics with high resolution (300 to 1260 dpi or greater), and at least 4 by 6 inches or equivalent pixel sizes in separate native file formats
X	X		If you provide graphic layout, provide GPO Form 952
X	X	X	PDF file of the document after final edit

One Color Print (.doc)	Two- or Four-Color Print (.doc and .qxd)	Web Site Only (.doc)	Submission Requirements for Booklets, Technical Flyers, Brochures, and Fact Sheets from COTR
X	X		If you provide graphic layout, submit the Adobe Quark, Adobe Illustrator, or Adobe PageMaker file after the files have been edited. Include all text, font files, graphic files

Do not submit second-generation or previously printed materials as graphics. Do not use correction fluid, tape, photocopies, or artwork that is fuzzy, dark, or faded. Refer to “Attachment 3—Designing and Formatting Your FHWA Publication,” in the *FHWA Publications and Printing Handbook*. Do not submit CAD drawings; export them to a .jpg or .tif format.



## CHAPTER 7—GUIDELINES FOR PERIODICALS

*Public Roads*, *R&T Transporter*, *FOCUS*, and several other FHWA periodicals provide unique vehicles for presenting the latest news on your program to the transportation community. The following descriptions give details on the purpose, audience, format, circulation, submission guidelines, technical review, style, policies, and schedule of each periodical.

### **PUBLIC ROADS MAGAZINE**

#### **Purpose**

To inform and promote advances and innovations in transportation research and technology, critical national transportation issues, important activities and achievements of FHWA and others in the highway community, specific FHWA program areas, and subjects of interest to highway industry professionals.

#### **Audience**

Federal, State, municipal, and foreign transportation officials, planners, and researchers; association leaders; engineering professors and students; transportation reporters and trade media representatives; and members of Congress.

#### **Format and Issue**

64-page magazine published bimonthly by FHWA.

#### **Circulation**

6,000 copies.

#### **Submission Guidelines**

Contributors to *Public Roads* include Federal, State, and local governments; transportation industry organizations; associations; and academic institutions. To publish your proposed article in *Public Roads*:

- Contact the managing editor before you begin writing to discuss the concept and scope of the article.

- Focus articles on the significance of the project or subject, results of research and/or lessons learned, and the applicability of these lessons learned to other States and agencies.
- Incorporate between 2,000 and 2,400 words with about 10 photographs per article.
- Include each author's name, professional title, employer/organization/office, mailing address, telephone number, fax number, and e-mail address.
- Include a biographical paragraph (100 words or less) for each author. See a recent copy of *Public Roads* for examples.
- Submit high-quality photographs (35 mm prints preferred), electronic images (300 dpi or higher at a minimum of 4 by 6 inches), or illustrations with proper captions and photo/source credits. Generally, submit 2 graphics, photos, or illustrations for every 600 words (about 10 per article).
- Include names of approving officials (office director or supervisor) for the technical and policy content of your article.

### **Reviews**

- For article submissions by employees or contractors for USDOT, office directors must endorse the article for technical accuracy and policy requirements (i.e., the article is consistent with USDOT policies and positions, it addresses possible sensitivities, and it is appropriate for mass dissemination).
- Articles submitted by authors outside FHWA will be reviewed by FHWA experts to evaluate merit and technical accuracy.
- After edits, all articles will go through the following final reviews: author, technical and policy, and Office of Public Affairs/Office of the Secretary of Transportation.

### **Style**

- *Public Roads* uses plain English and follows the *GPO Style Manual* and *The Chicago Manual of Style*.
- *Public Roads* contains six regular departmental segments that provide information on topics of general interest, abstracts of new FHWA-sponsored research projects, notices of recent publications in RD&T, Internet-related information of interest to transportation professionals, and a calendar of major conferences and special events in the transportation industry.
- *Public Roads* communicates through a balance of text and visual elements—photographs, charts, graphs, and other illustrations. Electronic images should be high-resolution (300 dpi at 4 by 6 inches or greater); the preferred electronic formats are .tif, .jpg, or .eps. Photographs and graphics should not be embedded in the text file. Save them on a disk as separate files.

Include a signed model release form for photos of children, adults, or contractors not employed by a Federal or State agency. Ask HRTS for a model release form if your agency does not provide one.

- Submissions should include captions for photographs, tables, figures, and other illustrations.
- Authors should cite the sources for all tables and figures and place a description of their content within the text (close to the area that the table or figure will appear in the article).
- *Public Roads* does not use footnotes or endnotes. Use an abbreviated citation for references to quoted materials and publications within the text and include the name of the organization that published the material (e.g., “FHWA’s *Corporate Management Plan*” or “the Indiana DOT *How to Construct a Highway in 20 Days* report”).
- Facts should be credited to appropriate agencies, preferably government agencies, or credible industry sources. For example, “The Federal Highway Administration indicates that...” or “According to the Missouri Department of Transportation, ...”
- Please check the spellings of the names and titles of people, organizations, companies, products, and publications. Also, check company and product names for appropriate trademark and service marks. Use private company and/or contractor names only if they are necessary (discuss the technology/innovations, instead) to avoid the appearance of endorsing a private company or product.
- Measurements shall be expressed in metric units, which may be followed by English units in parentheses (for example, 3 meters (9.5 feet) long).

### **Schedule**

The magazine is distributed every other month with submissions due approximately 4.5 months before publication date: July (deadline: February 15); September (deadline: April 15); November (deadline: June 15); January (deadline: August 15); March (deadline: October 15); and May (deadline: December 15).

### **Key Contact**

Dawn Vanlandingham, managing editor, 202–493–3198, dawn.vanlandingham@fhwa.dot.gov.

### ***R&T TRANSPORTER NEWSLETTER***

### **Purpose**

To promote, showcase, and share FHWA R&T program information and report on projects, activities, accomplishments, technology transfer, training, and technical assistance.

### **Audience**

FHWA (divisions, Resource Center, and offices), State highway agencies, local governments, academia, and others in the transportation community.

### **Format and Issue**

Eight-page newsletter, issued monthly by FHWA's Office of RD&T.

### **Circulation**

3,200 copies.

### **Submission Guidelines**

- The *R&T Transporter* accepts articles from FHWA employees and contract employees (under an FHWA employee byline) about 6 to 8 weeks before publication.
- Submit a brief article, three to seven paragraphs long (about one page and one-third of a page in Microsoft Word format).
- Articles should be accompanied by supporting visuals such as photographs, line art, and drawings (black-and-white photographs preferred over color). Include a photo or graphic (electronic files resolution must be 300 dpi or greater) with corresponding caption and photo credit. Include a signed model release form for photos of children, adults, or contractors not employed by a Federal or State agency. Ask HRTS for a model release form if your agency does not provide one.
- Submit the complete manuscript/illustration package to: *R&T Transporter* Managing Editor (HRTS), Turner-Fairbank Highway Research Center, Room F-204, 6300 Georgetown Pike, McLean, VA 22101-2296. Text and electronic images can be e-mailed to [martha.soneira@fhwa.dot.gov](mailto:martha.soneira@fhwa.dot.gov).

### **Technical Review**

Every article in the newsletter must be technically accurate, contain information that “adds to the body of knowledge,” be consistent with Agency policies and positions, and be accompanied by an FHWA contact name. Every article also must be endorsed by the author's supervisor and reviewed by the applicable office director.

## Style

The *R&T Transporter* follows the *GPO Style Manual* to present information on technical topics in a brief, readable format. Articles should be no more than 500 words.

The specifications for manuscripts include:

- After you have your readers' attention with the title, the first paragraph of an *R&T Transporter* article introduces a recognized transportation problem, safety issue, etc. In a few sentences, it sets the stage for why specific research or a study is necessary and lets readers know how the solution might benefit the transportation community and/or society. The first and second paragraphs should list enough information that a manager or administrator can get the gist of the research or event without having to read the rest of the article.
- Subsequent paragraphs can include, in plain English, technical discussions, a history of the project or program, etc.
- Concluding paragraph should state how readers can get further information, or what action they should take to participate.
- The article text may be submitted on an 88.9-mm (3.5-inch) computer disk using an IBM®-compatible Microsoft Word file format (97 or higher version), on a CD-ROM, or via an e-mail to the managing editor.
- Authors should cite the sources for all tables and figures and place a description of their content within the text (close to the area that the table or figure will appear in the article).
- Normally, *R&T Transporter* does not use footnotes or endnotes. Use an abbreviated citation for references to quoted materials and publications within the text and include the name of the organization that published the material (e.g., "FHWA's *Corporate Management Plan*" or "the Indiana DOT *How to Construct a Highway in 20 Days* report").
- Facts should be credited to appropriate agencies, preferably government agencies, or credible industry sources. For example, "The Federal Highway Administration indicates that..." or "According to the Missouri Department of Transportation, ..."
- Authors/writers should check the spellings of names or titles of people, organizations, companies, products, and publications. Also, check company and product names for appropriate trademark and service marks. Use private company and/or contractor names only if they are necessary (discuss the technology/innovations, instead) to avoid the appearance of endorsing a private company or product.
- Measurements shall be expressed in metric units, which may be followed by English units in parentheses. For figures and tables, if the English equivalent units are necessary, provide them in the legend.



- Text must include an FHWA contact name for further information, telephone number, and e-mail address. (If the information on who to contact for further information is the same as the FHWA contact information, the article can conclude with “For further information, please contact....”).

### **Policies**

Because the review process includes article endorsement by the author’s supervisor and review by office directors, any policy issues should be noted and handled at that point. HRTS forwards articles to FHWA’s Office of Public Affairs for review.

### **Schedule**

The newsletter is distributed on or about the 10th of each month. The deadline for manuscripts and illustrations is generally the first Friday of each month. For example, the June 2001 newsletter was distributed on June 7, and articles were due May 4.

### **Key Contact**

Martha Soneira, managing editor, 202–493–3468, martha.soneira@fhwa.dot.gov.

## ***FOCUS NEWSLETTER***

### **Purpose**

To accelerate implementation of FHWA infrastructure innovations. By promoting these programs and projects, *FOCUS* can help advance the strategic goals and overall communication strategies to improve quality, safety, and service.

### **Audience**

Managers or technical experts from State, Federal, and local agencies; consulting firms; academia; and material supply firms.

### **Format and Issue**

Eight-page newsletter published monthly by FHWA’s Office of Infrastructure.

### **Circulation**

10,000 copies.

### **Submission Guidelines**

- Submit an article idea involving infrastructure-related topics of interest to a national audience. Topics may include bridge technology, pavement technology, asset management, and program administration; and technologies developed under the Strategic Highway Research Program, such as Superpave,<sup>®</sup> anti-icing/road weather information system strategies, and work zone safety products. Background notes or technical papers also may be submitted to write the story.
- Provide contact information for a technical expert who can be interviewed by the editor to develop the idea into a story.
- Provide a photo or graphic (electronic files at greater than 300 dpi) with corresponding caption.
- Submit the complete manuscript/illustration package to: *FOCUS* Managing Editor (HRTS), Turner-Fairbank Highway Research Center, Room F-204, 6300 Georgetown Pike, McLean, VA 22101-2296. Text and electronic images can be e-mailed to [zac.ellis@fhwa.dot.gov](mailto:zac.ellis@fhwa.dot.gov).

### **Technical Review**

An editorial board was established to develop editorial policy, review articles, guide the content, and champion infrastructure technology communications across FHWA. The editorial board meets monthly, and members include a technical representative from each program area in the Office of Infrastructure, several technical representatives from the Office of Infrastructure R&D, and a publishing specialist from HRTS.

Reviews are performed for technical accuracy and policy adherence by the editorial board, article contact, and an FHWA technical expert. Depending on the topic, others also might review an article.

### **Style**

- The article topics are targeted to tie in with regularly scheduled events, such as the American Association of State Highway and Transportation Officials' (AASHTO) annual, regional, and subcommittee meetings; the Transportation Research Board's (TRB) annual meetings; and special events, such as training courses, workshops, and conferences. Some newsletter issues are designated as "special issues" to cover other important activities and concerns within the transportation community.
- Articles are usually no more than 700 words (approximately 3 double-spaced typed pages). Supporting photographs and illustrations are important, and most articles have at least one.
- The newsletter regularly features "In Brief," which is a monthly column about various infrastructure products, news, and technology innovations that are important to the readers. Also printed in every issue is the "Highway Technology Calendar," which lists important upcoming events.

- Facts should be credited to appropriate agencies, preferably government agencies, or credible industry sources. For example, “The Federal Highway Administration indicates that...” or “According to the Missouri Department of Transportation, ...”
- Authors/writers should check the spellings of names and titles of people, organizations, companies, products, and publications. Also, check company and product names for appropriate trademark and service marks. Use private company and/or contractor names only if they are necessary (discuss the technology/innovations, instead) to avoid the appearance of endorsing a private company or product.
- Measurements shall be expressed in metric units, which may be followed by English units in parentheses. For figures and tables, if English equivalent units are necessary, provide them in the legend.
- Each article should mention at least one contact person so that the reader can get additional information as needed.

### **Policies**

The endorsing office director should identify any issues regarding adherence to USDOT policies. The article may be forwarded to FHWA’s Office of Public Affairs for review.

### **Schedule**

The newsletter is distributed and posted on or about the 15th of each month. Story ideas should be submitted to the editor 3 months in advance of the target issue. For example, if you would like an article published in the August issue of the newsletter, submit your story idea to the editor in May.

### **Key Contact**

Zachary Ellis, managing editor, 202–493–3193, [zac.ellis@fhwa.dot.gov](mailto:zac.ellis@fhwa.dot.gov).

## **WEEKLY REPORT TO THE SECRETARY**

### **Purpose**

A weekly electronic compilation of brief news stories on national, significant, and controversial events happening within FHWA.

**Audience**

FHWA, Secretary of Transportation, Congress, and White House. The full version is released FHWA-wide via e-mail, and a shorter version is sent to the Secretary, Congress, and the White House.

**Format**

Articles should be timely, brief, and written in paragraph format. They should include a date to enable placement of items in the “Key News,” “Week Ahead,” or “Week in Review” categories.

**Deadline**

The deadline for the *Weekly Report to the Secretary* is 12 p.m. every Wednesday.

**Key Contact**

E-mail: Zachary Ellis, [zac.ellis@fhwa.dot.gov](mailto:zac.ellis@fhwa.dot.gov), with a copy to [martha.soneira@fhwa.dot.gov](mailto:martha.soneira@fhwa.dot.gov).



## CHAPTER 8—ELECTRONIC PUBLISHING

Electronic publishing refers to any document or published item that is not printed on paper. Examples are CD-ROMs, Web pages, Web sites, publications, and multimedia presentations (such as Microsoft PowerPoint presentations containing slides, sounds, and movies/videos such as .avi or .mov files).

### FILE FORMATS

**Multimedia options** that provide special graphic enhancement, multimedia effects, or interactive applications can also be prepared. If you need special video or audio effects for a presentation, video wall, or other item, contact HAIM-20 or HRTS-2 for assistance. Keep in mind that multimedia presentations such as Microsoft PowerPoint, videos, and .mov files must also be compliant with Section 508, and they follow a different set of rules than those used for Web page or database software applications. See the Access Board's Section 508 Web site for more information.

**Hypertext markup language (HTML) format is the required electronic format for all FHWA publications.** It can be used to create a range of document styles, from simple, text-only items to those with elaborate graphics. Documents in HTML format adapt to different screen sizes and computer characteristics. In addition, HTML documents are easily searchable by Internet search engines and can be used by assistive devices, such as screen readers that “read” the code on a Web page and translate it into audio format for people who have vision disabilities. See information about CD-ROMs below and for Web site publishing.

**Portable document format (PDF)** can be prepared for a publication in addition to HTML format. If you want users to be able to print your document on their desktop printers so that it looks exactly like the original, consider also providing a PDF choice. However, PDF does not adapt as readily to individual computer formats, nor is it considered an “accessible” format for complying with Section 508 of the Rehabilitation Act.

For every publication created as an Adobe Acrobat<sup>®</sup> PDF file there also must be a Section 508 compliant HTML document. This is a requirement for files on the Internet, CD-ROMs, or StaffNet. If a PDF or other format is desired, it may be prepared and posted on an FHWA Web site along with the HTML version of the publication.

HRTS will work with HAIM to convert your file to PDF format. However, you still must provide Section 508 text for non-text elements, and must review the final PDF document very carefully. The automated conversion process can add unexpected errors to a document.

- Compare page breaks with original file. Make necessary adjustments so that the PDF is a mirror image of the print version and the original electronic version.
- Compare figures and tables with the original file. Make necessary adjustments to the figures and tables so that the PDF is a mirror image of the print version and the original electronic version.
- Verify that the figures and tables are readable and printable.
- Reduce file size, if necessary. The general rule of thumb is to divide anything 1 megabyte (MB) or larger into smaller files to help reduce download time. Divide the document into “thinner” increments by extracting chapters and saving them as separate files. Be sure to delete the extracted files from the original. Make the division logical (i.e., by individual chapters or a small grouping of chapters).
- Use the correct publication cover. Have one created by HRTS, if required.
- Submit an abstract of the publication in electronic format along with the PDF files.
- Do not create Adobe Acrobat PDF documents from scanned “originals.”

### **Zip Files**

Zip files are preferred for large file downloads of 1 MB or larger. The group responsible for submitting the material should prepare the zip file to ensure proper integrity of its contents. A “read me” file with information regarding the material contained in the zip file, instructions (if needed), and contact information must be included. All files that are “zipped” into a zip file must individually be Section 508 compliant, including documents, presentations, multimedia, videos, movies, software, and software install shield programs.

<p>Note: HRTS works with the Office of Public Affairs to provide initial and final clearance approvals for all publications—even if the publication will be published only electronically or on the Internet. This includes CD-ROMs, multimedia documents, and Internet-only publications. The only exception to this is research and technology technical reports, which must go through the HRTS editorial process.</p>
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### **PRESENTATIONS**

Overhead transparencies, slide shows, Microsoft PowerPoint presentations, flipcharts, and similar visual aids are used to enhance and support a presentation and highlight and reinforce the important points of a presentation. Hard copies of the visual aids can be made as handouts to accompany a presentation. However, any CD-ROMs or electronic documents that are distributed at a presentation must be Section 508 compliant. PowerPoint presentations that are distributed from a Web site or CD-ROM also must be Section 508 compliant.

### **Technical Review**

The technical expert/presenter is responsible for developing the material and ensuring that the information presented is factually accurate and in agreement with FHWA policy. At a minimum, a technical review by at least one peer within a division or program work group is recommended. In addition, it is recommended that the division chief approve the presentation.

### **Style**

HRTS offers editorial and graphic design services, or administrative assistants in your office may develop presentations using current presentation software. The presenter is responsible for the appropriate technical reviews and for ensuring that a presentation is proofread for spelling and calculation errors. Either an HRTS contractor or a task order contractor with a private vendor (budgeted at the office level) can be coordinated through HRTS and is another source for presentation development.

When using PowerPoint presentations or overhead transparencies, the USDOT/FHWA logo must be used as an identifying factor. A sample of the logo is contained in appendix M.

It is best to include a headline and use only one idea for each visual. Ideas and relationships should be simple. A balance of words, charts, and graphics should be used to make presentations visually appealing. For readability, the type should be san serif (for example, Arial font style) and no smaller than 24 point.

### **Policy Implications**

If the presentation deals with policy issues, the office director or designate is responsible for making sure the implications are in agreement with management policies.

### **Schedule**

Timeframes for presentations developed in-house are the responsibility of the requesting office. When using HRTS services, expect about 2 weeks for turnaround, depending on length and scope of presentation.



**Table 6. PowerPoint presentations, movies, videos—what to submit.**

<b>PowerPoint Presentation (PPT)</b>	<b>Movies (MPEG, AVI)</b>	<b>Audio (MP3, MIDI)</b>	<b>Photos (JPG)</b>	<b>Multimedia (PPT, MPEG, AVI)</b>	<b>Deliverables for PowerPoint Presentations, Movies, Videos, Video Clips, etc.</b>
X	X	X	X	X	HRTS Service Request Form
X	X	X	X	X	Originating File Format (i.e., PPT, AVI, etc.)
X	X	X	X	X	Section 508 text for non-text elements in Microsoft Word file
If distributed via CD	If distributed via CD	If distributed via CD		If distributed via CD	FHWA Distribution Form
X	X	X	X	X	Accessibility according to Section 508

Notes: In addition to the above submission requirements and depending on the product and distribution of that product, other Section 508 guidelines may apply. For example: a video or movie in a presentation may fall under the “Video and Multimedia Products (1194.24)” under the Access Board’s Guide to the Section 508 Standards for Electronic and Information Technology in the Technical Standards section. See <http://www.access-board.gov/sec508/guide/1194.24.htm>.

Any multimedia file also must include software applications to run or view it (i.e., movie or media players, browsers, Adobe Acrobat Readers,<sup>®</sup> PowerPoint readers, Microsoft Word readers, etc.) as executable zipped download files on the Web site and/or the CD-ROM and the software also must follow the “Software Applications and Operating Systems (1194.21)” under the Access Board’s Guide to the Section 508 Standards for Electronic and Information Technology in the Technical Standards section. See <http://www.access-board.gov/sec508/guide/1194.21.htm>.

Presentations, movies, etc., accessible through an HTML or other Web interface must follow the “Web-based Intranet and Internet Information and Applications (1194.22)” under the Access Board’s Guide to the Section 508 Standards for Electronic and Information Technology in the Technical Standards section. See [www.access-board.gov/sec508/guide/1194.22.htm](http://www.access-board.gov/sec508/guide/1194.22.htm)

CD-ROMs or zip files will need a readme.txt ASCII file with file structure breakdown, information about install shield program for software applications to run or view the media information (i.e., movie or media players, browsers, Adobe Acrobat Readers, PowerPoint readers, Microsoft Word readers, etc.)

If the electronic information or multimedia is presented on an unmanned kiosk such as at a trade show or event, the equipment may be considered a “stand-alone kiosk” and as such may fall under the “Self Contained, Closed Products (1194.25)” under the Access Board’s Guide to the Section 508 Standards for Electronic and Information Technology in the Technical Standards section. See <http://www.access-board.gov/sec508/guide/1194.25.htm>

## **CD-ROM**

CD-ROM publishing provides a multimedia communications solution that may contain components of audio, video, text, and animation. CD-ROM publishing either may supplement existing print material or be used as a stand-alone product. CD-ROMs will store up to 650 MB of information.

All files copied on CD-ROMs must be Section 508 accessible, including software, install shield programs, database models, PDF files, HTML files, Microsoft Word documents, PowerPoint presentations, plug-ins (i.e., reader programs, and other audio and visual programs). Refer to chapter 3 of this manual for information about Section 508 of the Rehabilitation Act. Contact HRTS before moving forward with duplicating and disseminating any CD-ROM product.

### **Technical Review**

All text, data, and CD-ROM production specifications should undergo a technical review to ensure accuracy and policy compliance. Slipcover text and artwork, and “read me” or help text, should be reviewed by HRTS.

Testing and quality control of any CD-ROM product is necessary and important. Before the final press of the CD-ROM, a copy of the CD-ROM should be reviewed and tested by the originating office. This testing should involve:

- A thorough review of links, graphics, and functionality of the CD-ROM.
- Proofreading of the text.
- An operational test to ensure that the CD-ROM operates on all intended platforms (Microsoft Windows<sup>®</sup> 95, 98, 2000, XP and Windows NT<sup>®</sup>), that all files are included, and that the product is complete.

In addition, you must work with the Section 508 group, HAIM, and the HAIM Web manager to test and verify Section 508 compliance of any software product.

### **Policies Affecting CD-ROM Creation**

All policies listed in this guide, except for those affecting printing, apply to information posted on CD-ROMs, including the need to edit documents for distribution outside the Agency. Sign-offs will be required verifying the material to be published on the CD-ROM has met *GPO Style Manual* and FHWA style guidelines, policy guidelines, and is technically accurate.

Consult HRTS before moving forward on your CD-ROM project. Section 508 of the Rehabilitation Act states that agencies can only create or purchase CD-ROMs that people using assistive technology can access. Section 508 outlines specific requirements for software and information technology.

### **Style**

Actual content style of the CD-ROM will vary based on the authoring program used by the contractor. However, the duplicated CD-ROM should include:

- An appropriate FHWA publication number and the USDOT/FHWA logo displayed on the cover and label.
- A complete “readme.txt” and help file that has been proofread and tested. Include installation instructions for the CD-ROM, any additional software needed, and any potential troubleshooting.
- Include all intended operating system platforms (Microsoft Windows 95, 98, 2000, Windows XP, and Windows NT). Technical details about file size and other information should be included in the installation instructions.
- Text on the slipcover should include minimum hardware system requirements (i.e., Intel® Pentium® II, with at least 56 MB of random access memory (RAM), color monitor, and Windows 2000). This information in a more detailed format also should be included in the “read me” text file.
- The “about.txt” file should give a general overview of the purpose and content of the CD-ROM (including the file structure with a listing of files and their contents) as well as any copyright, software, trademark, and patent information. This information also should be included in the “About” section of the help file if the CD-ROM contains software.

### **Schedule**

CD-ROM publishing, like other publishing formats, requires ample time for drafts, revisions, and testing. Because each RD&T office is currently contracting out most CD-ROM duplications, the contractor should be able to provide the best time estimate based on the work, scope, and effort.

Generally, HRTS provides a resource list for duplication services.

**Table 7. CD-ROM—what to submit.**

<b>CD-ROM Requirements</b>
HRTS Service Request Form
CD-ROM with electronic file(s) including any additional files to make the CD-ROM compliant with Section 508
A “readme.txt” ASCII file with file structure breakdown, information about install shield program for software applications to run or view the media information (i.e., movie or media players, browsers, Adobe Acrobat Readers, PowerPoint readers, Microsoft Word readers, etc.)
Software that needs to be included to install or view the information (i.e., movie or media players, videos, browsers, Adobe Acrobat Readers, etc.) must be included as executable zipped download files on the Web site and/or the CD-ROM and also must follow the “Software Applications and Operating Systems (1194.21)” under the Access Board’s Guide to the Section 508 Standards for Electronic and Information Technology in the Technical Standards section. See <a href="http://www.accessboard.gov/sec508/guide/1194.21.htm">http://www.accessboard.gov/sec508/guide/1194.21.htm</a>

Notes: Software and database models fall under the “Software Applications and Operating Systems (1194.21)” under the Access Board’s Guide to the Section 508 Standards for Electronic and Information Technology in the Technical Standards section. See <http://www.access-board.gov/sec508/guide/1194.21.htm>.

Models, model databases, and software applications that also will be accessible through an HTML or other Web interface also must follow the “Web-based Intranet and Internet Information and Applications (1194.22)” under the Access Board’s Guide to the Section 508 Standards for Electronic and Information Technology in the Technical Standards section. See [www.access-board.gov/sec508/guide/1194.22.htm](http://www.access-board.gov/sec508/guide/1194.22.htm).

Any self-extracting executable program or installation/install shield program must be 508 compliant and follow the software guidelines listed above.

**WEB SITE PUBLISHING**

Web site publishing can be used as a primary route of publication, a secondary source of publication, or as a supplemental source of information. The Web provides an electronic medium that offers graphical interface, instantaneous transmission, and multimedia presentation materials. Web site publishing is especially useful for documents containing information that needs to be issued quickly, that may change rapidly, or that is of interest but is seldom used. You also may want to consider Web site publishing if you have a small audience, for example, fewer than 500 readers. If your document fits any of these categories, it may be most appropriate to

create an HTML-coded, Web-only document for an FHWA Web site. Again, make sure that your specifications for your electronic publication include Section 508 guidelines.

To avoid duplicate production costs, program offices provide publications for Web site display only. Keep in mind that a high-quality Web design can be just as costly as a printed design. You should expect an electronic HTML file to have a different look and layout from that of a printed document for two reasons:

1. Duplication of a print design on a Web page will increase file size, which will subsequently increase the number of seconds it takes for a viewer to see your Web page. A Web page design includes a fast and easy way to navigate within a site (or document).
2. If HTML files are going to be provided, they must follow the requirements in FHWA's *WWW Best Practices and Style Guide for Web Site Publishing*.<sup>(6)</sup> In some instances, a communication product will need extensive design for both print and Web media. Consider taking one or two graphic elements from your print document and having your graphic artist apply those elements into a Web page design. This will ensure consistency between the print and electronic publications, and also will help reduce graphic design costs. Make sure to let the designer know from the start that you would like to include a few graphic elements for an electronic CD-ROM or Internet version.

Web projects may face posting delays from the following: number of complex tables, equations, and figures; number of pages; missing 508 captions; COTR final review; and other jobs in the queue at the same time.

### **Web Site Requirements**

The FHWA Chief Information Officer (CIO) must approve new FHWA Web sites, in addition to purchase and use of new Web site domain names (i.e., [www.webname.org](http://www.webname.org), [www.webname.com](http://www.webname.com), [www.webname.gov](http://www.webname.gov), etc.), and the Office of Information and Management Services' Information Technology Division (HAIM-40) must approve the final HTML code and design before any Web sites are posted "live."

Note: Contractors and FHWA personnel who will perform HTML coding or will accept a final deliverable comprised of "HTML files" shall ensure that, after editing, all HTML files are coded according to both FHWA requirements and the requirements put forth by the Access Board (see Access Board's "Guide to the Section 508 Standards for Electronic and Information Technology" and FHWA's "Minimum Requirements" for additional information). Contact HRTS-2 or HAIM for an HTML template with standard HTML header and footer codes to use for reports and new Web sites that will be posted on the TFHRC or FHWA Web site.

### **Minimum Requirements for FHWA Web Pages**

Please contact HRTS for specific requirements before creating or preparing material for the TFHRC Web site. Electronic publishing guidelines frequently evolve or change as a result of legislation and the dynamic development of electronic communications technologies. The Office of Public Affairs and HAIM's Web group must review all new materials.

In an effort to achieve greater quality, usability, and consistency, FHWA's Information Technology Division (HAIM-40) has established these minimum technical standards that must be met by all FHWA Web pages. Web documents that do not meet these standards will not be posted:

1. FHWA Web Pages will be encoded to conform to HTML 4.01 Transitional or higher, as defined by the World Wide Web Consortium.
2. File names will not exceed 20 characters in length. File names will be lower case, consist solely of letters, numbers and underscores, and will not contain slashes, spaces, tildes, or hyphens. File extensions are to be three characters or less whenever possible (i.e., .htm instead of .html).
3. All Web pages will have a title in the head section of HTML documents. The title should be unique (to the server), brief, and descriptive, not to exceed 150 characters in length.
4. Web pages must be free of broken links or missing images. All links to pages within the server will be relative.
5. Web pages posted on the public Internet will have a standard header and footer. Web pages posted on StaffNet must have a standard footer.
6. FHWA Web pages will comply with Section 508 Web accessibility standards as established by the Architectural Transportation Barriers Compliance Board.
7. All textual files posted on the FHWA Internet server will be available in HTML format. All other formats (PDF, Word, Excel, PowerPoint, etc.) will have HTML equivalents.
8. The bodies of Web pages will use sans-serif fonts (e.g., Arial or Helvetica).
9. All non-USDOT external links on Internet Web pages will feature exit doors.
10. All entry point Web pages on the Internet will feature a privacy policy statement (or a link to the Agency privacy policy statement on the main server).

11. The OMB, in accordance with the Paperwork Reduction Act, must approve Web pages that collect survey information from the public.
12. Before posting, the FHWA CIO must approve new FHWA Web sites.
13. The use of “persistent” cookies on FHWA Web sites is forbidden. “Sessions” cookies are permitted, subject to approval on a case-by-case basis.

HRTS also will assist you with your request and work with you and HAIM to process your Web site request. If a contractor is preparing the material for Web publishing, the COTR must ensure that the contractor has received the most current set of guidelines from HRTS or HAIM before starting the HTML programming phase.

**Technical Review**

In addition to being edited by HRTS, all material posted on the Web must be reviewed, including a technical (accuracy and policy) review, and the appropriate office director must provide written endorsement to publish/post the material on the TFHRC or FHWA Web site. Each office should establish its own process for reviewing documents for technical soundness, accuracy, and adherence to policy; this process should contain the necessary checks and balances, and coordination with other appropriate offices and individuals, to ensure that FHWA continues to publish high-quality materials. The office director is responsible for all content related to his/her office and functional areas for which he/she is responsible.

**Table 8. Web-only communication products—what to submit.**

<b>Reports</b>	<b>Other Communication Products</b>	<b>Deliverables for Web-Only Technical Reports/Booklets</b>
X	X	HRTS Service Request Form
X	X	Microsoft Word file of document(s) and printed copy (for editorial purposes)
X	X	Microsoft Word file of 508 captions and printed copy of captions
X		Foreword and disclaimer
X		Completed Technical Report Documentation Page (Form DOT F 1700.7)
X		Metric chart
X	X	Tables, charts, graphs in separate native file formats (Microsoft Excel files for tables and .jpg or .tif files for graphic and CAD files)
X	X	Illustrations, figures, and equations in .jpg or .bmp file formats
X		FHWA’s HTML coding template with proper headers and footers for reports. Reports must be coded using these HTML headers and footers

<b>Reports</b>	<b>Other Communication Products</b>	<b>Deliverables for Web-Only Technical Reports/Booklets</b>
X	X	PDF file of the document after final edit
X	X	Document falls under the “Web-based Intranet and Internet Information and Applications (1194.22)” under the Access Board’s Guide to the Section 508 Standards for Electronic and Information Technology in the Technical Standards section. See <a href="http://www.access-board.gov/sec508/guide/1194.22.htm">www.access-board.gov/sec508/guide/1194.22.htm</a>





## **CHAPTER 9—GUIDELINES FOR MEDIA RELATIONS**

In addition to the standard research reports, technical flyers, and brochures, there are many other ways to disseminate research results and information about the activities and accomplishments of FHWA research and technology. Researchers should look first to our own periodical publications: *Public Roads*, *R&T Transporter*, and *FOCUS*. These periodicals are distributed to audiences both within and outside FHWA.

When a manager or researcher needs to reach a more specific audience or the general public, it may be appropriate to seek further outreach—in a press release, an interview, or through publication in trade journals. Conversely, members of the press often contact researchers directly for technical commentary. Establishing and conducting media relations, writing news releases, participating in interviews, and publishing in trade journals are activities requiring participation of FHWA’s Office of Public Affairs.

Note: If a reporter contacts you, contact the Office of Public Affairs immediately.
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### **TRADE PUBLICATION ARTICLES**

Any R&T technical articles submitted for publication in journals and magazines outside FHWA must be edited by HRTS. Upon final edit and review, HRTS will submit the article to the Office of Public Affairs for final review and submission to the magazine or journal. HRTS also is available to write magazine articles from scratch. A trade publication may be an appropriate vehicle to provide information to your intended audience. If so, please contact HRTS for writing or editing articles for trade publications. HRTS will work with the Office of Public Affairs for review after editing. To publish articles in trade publications:

- Provide guidance to HRTS regarding the trade publication style, deadlines, and editorial office contacts.
- Provide HRTS with your article idea and substantial background information from which to draft the article, or provide a draft version of the article for HRTS to edit.
- Include illustrations (print, slides, or electronic images) to support the text. Generally, a minimum of one illustration for every 600 words is required.
- Include the author’s name, professional title, employer/organization/office, mailing address, telephone number, fax number, and e-mail address. Also attach a short biographical paragraph of every author, including previous positions relevant to the subject of the article, and educational background/degrees received. If applicable, also include the State(s) where an author is licensed as a professional engineer.

## **TECHNICAL REVIEW**

All articles for external periodicals (e.g., trade journals) and direct media contact must be reported to the Office of Public Affairs for review, possible editing, and distribution by FHWA's Office of Public Affairs. Before submission to the Office of Public Affairs, the draft release or external trade journal article must have the written endorsement of the appropriate office director, indicating that the release or article is accurate, is consistent with USDOT policies and positions, addresses sensitive or timely issues, and is appropriate for mass dissemination.

Because publication in periodicals requires a longer leadtime than placement in newspapers or broadcast media, authors should contact the journal editorial staff for publishing deadlines.

## **RESPONDING TO THE MEDIA**

When the Office of Public Affairs asks you to respond to a member of the media, please observe the following 12 rules:

1. You work for FHWA, not the media.
2. A reporter's deadline is not necessarily your deadline. You do not necessarily have to respond immediately to a request for information. Make sure you are prepared before you respond to the media (or any other public group or organization).
3. Determine whether FHWA is the proper Agency for the inquiry. Often, other Federal agencies, State DOTs, local agencies, or others are the appropriate sources for responses to many inquiries.
4. Establish or confirm ground rules (e.g., on the record, on background, off the record) and the conditions (live or taped, on camera or not, etc.) before any interview starts. The Office of Public Affairs can explain these options and counsel you about the most appropriate choices.
5. Find out as much as you can about the news organization and reporter with whom you are dealing. You may find it helpful to know if the reporter has covered transportation issues before, or whether the news organization has printed or aired stories about the subject you are talking about. The Office of Public Affairs can assist you.
6. Stress two or three main points that you want to get across. Stress them at the beginning and the end of the interview, and remain on them throughout. Other information you may provide should support one or more of your main message points.
7. Provide the information (in your expertise area) for which you are asked—no less, no more. Avoid commenting on subjects in which you have little or no expertise.
8. Avoid speculation. Never answer a question that begins, "What do you think..." Go with what you know.
9. Decline answers to hypothetical questions. Never answer any question that begins, "What if..." Again, go with what you know.

10. Respond to questions and provide information as a representative of FHWA, adhering to the FHWA perspective and not offering your individual perspective or personal opinion. Never answer a question that begins, “That’s the Agency’s position, but what do you think about...” (See #1.)
11. Avoid questions involving legal matters. A standard response to any question on an issue or a subject that involves previous, ongoing, or pending litigation is: “This matter is (or will be) the subject of legal action; I have no comment.” Refer the reporter to the Office of Public Affairs.
12. The media is not simply another “customer.” The media is a means of mass communication—one of several the Agency uses in its outreach and communication efforts and activities. The media’s message can either help or hinder FHWA’s mission. HRTS wants our participation in this process of disseminating information to the public and other audiences to be as helpful to FHWA as possible.



## **CHAPTER 10—DISTRIBUTING YOUR COMMUNICATION PRODUCTS**

### **TARGET YOUR AUDIENCE**

You may customize your own distribution plan by identifying the audience you want to reach and providing a Microsoft Excel file with addresses in electronic format or submitting preprinted mailing labels.

Regardless of how you choose to disseminate your communication product, Federal law requires that all publications must be available for public distribution through the National Technical Information Service (NTIS). When you process your communication product through HRTS for editorial review and publication, the appropriate numbers of copies are provided to NTIS. When the distribution is “by request only,” it will be disseminated solely through NTIS.

### **REPORT AND TECHBRIEF MAILING LISTS**

HRTS maintains report and TechBrief mailing lists to reach targeted technical audiences. The mailing lists include entities that requested printed copies of all our products. They are generally libraries, researchers, State DOTs, and academic institutions such as the TRB Library, Texas Transportation Institute, and the National Network of Transportation Research Information Services (TRISNET) Repositories at Northwestern University. HRTS automatically adds these mailing labels to your distribution requirements.

### **PERIODICAL MAILING LISTS**

The periodical mailing lists for *R&T Transporter*, *FOCUS*, and *Public Roads* maintained at TFHRC can be used to reach a large, broad technical audience of transportation public groups. The lists include:

- *FOCUS*: about 11,000 copies to the infrastructure and work zone safety community.
- *R&T Transporter*: about 3,200 copies to engineers and professionals in the transportation community.
- *Public Roads*: about 6,000 copies distributed to Federal, State, municipal, and foreign transportation officials, planners, and researchers; transportation industry officials; association leaders; engineering professors and students; transportation reporters and trade media representatives; some members of Congress; and others interested in highway research and technology and/or in FHWA policies and programs.

**FHWA INTERNAL DISTRIBUTION**

For internal distribution, FHWA maintains a list of headquarters and field office addresses in a Microsoft Excel spreadsheet. You may distribute your products to individual offices, teams, or field offices by specifying the number of copies for each on this spreadsheet. Target those offices that would benefit from your R&T product and identify copies needed. Obtain the spreadsheet from the HRTS team.

**FHWA EXTERNAL MAIL LISTS**

There are about a dozen official FHWA mailing lists that can be added to your distribution plans to reach yet another audience of highway transportation associations. The FHWA publishing office (HAIM-20) maintains and updates these official lists. As a standard practice, HRTS automatically adds list FHWA-16 (see list information below) to your distribution plans for the Local Technical Assistance Program (LTAP) Centers. The mailing lists follow; let HRTS know your preference for each communication product.

**Table 9. FHWA mailing lists.**

<b>List No.</b>	<b>Recipients</b>	<b># Copies</b>
FHWA-1	Division environmental managers	63
FHWA-2	Transportation librarians	196
FHWA-3	Metropolitan planning organizations (MPOs)	338
FHWA-4	Government agencies (motor fuel related)	718
FHWA-5	<i>Greener Roadsides</i> (publication)	2,475
FHWA-9	Government agencies (price trends related)	504
FHWA-10	Government agencies (highway construction usage factors)	154
FHWA-16	Technology transfer (T <sup>2</sup> ) centers (LTAP)	58
FHWA-21A	FHWA retirees	1,174
FHWA-24	Mixed audience (government, association, and individuals)	1,469
FHWA-31	Mixed audience interested in FHWA’s Traffic Control Program	10,221
FHWA-44	State highway agencies	53
FHWA-50A	National Highway Institute’s (NHI) university contacts	323
FHWA-50B	Historically black colleges and universities	128
FHWA-50C	NHI FWHA field contacts	64
FWHA-50D	NHI State highway department contacts	69
FWHA-50E	Hispanic-serving institutions	44
FHWA-50F	NHI programs	65
FHWA-50G	County engineers	376
FHWA-50H	American Public Works Association	516
FHWA-50I	Tribal colleges	30
FHWA-53	Private concerns and Government agencies	369

## CUSTOMIZED MAILING LIST

If you would like to submit your own mailing list for distribution, please provide mailing labels or a Microsoft Excel file containing the names and addresses of recipients. Please include the following field names for the headers in the Excel document:

**Table 10. Format for customized mailing list.**

Use this Field Name as the Excel Header	Enter This Type of Data in the Field
COMPANY_1	Company name or name of person (if desired)
COMPANY_2	Company name
STREET_1	Street address
STREET_2	Addition street address
CITY	City
STATE	State
ZIP	First 5 digits of zip code
ZIP_4	Last 4 digits of zip code
COUNTRY	Country code
Number of copies	Total copies to the person/company at the address

## ELECTRONIC DATABASE SUBMISSIONS

As information managers for TFHRC R&T documents, HRTS will submit your products in print or electronic form for distribution through the appropriate transportation databases.

## LIMITED DISTRIBUTION

Sometimes it is necessary to have only a published record of a research document with a very limited distribution. In this case, HRTS has an NTIS-only distribution that consists of as few copies as possible to only those mandatory entities, including NTIS, R&T Product Distribution Center, the National Transportation Library, and Sweden.

## RECORDS ARCHIVES

Under the disposition authority granted by NC1-406-80-9, RD&T is responsible for transferring its technical report files, which have been determined by the National Archives and Records Administration to be permanent records, to the Federal Records Center 3 years after the cutoff date. Complying with this authority, HRTS is working with the TFHRC Technical Reference Center and the FHWA Records Officer to transfer a copy of all FHWA RD&T technical reports produced by TFHRC to the National Archives according to the disposition schedule detailed in FHWA Order M 1324.1, dated June 29, 1990.





**REFERENCES**

1. *FHWA Publications and Printing Handbook*, Federal Highway Administration, Washington, DC, 2004.
2. *United States Government Printing Office Style Manual 2000*, 29<sup>th</sup> edition, U.S. Government Printing Office, Washington, DC, 2004.
3. *Merriam-Webster's Collegiate<sup>®</sup> Dictionary*, Merriam-Webster, Incorporated, Springfield, MA, 2004 ([www.m-w.com](http://www.m-w.com)).
4. *The Chicago Manual of Style*, 15<sup>th</sup> edition, The University of Chicago Press, 2003.
5. "Guide to the Section 508 Standards for Electronic and Information Technology," Access Board, Washington, DC, June 21, 2001 (<http://www.access-board.gov/sec508/guide/index.htm>).
6. *WWW Best Practices and Style Guide for Web Site Publishing*, Department of Transportation, Federal Highway Administration, Washington, DC, January 8, 2001.



APPENDIX A—HRTS SERVICE REQUEST FORM

April 28, 2004

HRTS Job# \_\_\_\_\_  
 Publication # HRT- \_\_\_\_\_

**HRTS Service Request**

Date Submitted: \_\_\_\_\_ Date Needed: \_\_\_\_\_

Subject/Title: \_\_\_\_\_

Requestor/Contact: \_\_\_\_\_ Tel: \_\_\_\_\_

Office/Team \_\_\_\_\_ Print Quantity: \_\_\_\_\_

**Publication Submission Requirements:**

- Service Request Form (Signed or emailed by director)
- Microsoft Word document/publication file and printed copy of document
- Distribution Form (Electronic) and Labels (if document will be printed)
- MS Word file and printed copy containing 508 captions for non-text elements

Reports must include:

- Foreword and Disclaimer Notice
- Completed Doc Page (DOT F 1700.7 Form)
- Metric Chart

**Services:**

- Writing (articles, brochures, etc.)
- Writing 508 captions
- Editing (All jobs will be edited)**
  - Perform Electronic Edit with "Track Changes"
- Layout/Design
- Printing
- Distribution (include FHWA Distribution Form)
- Web (check boxes below)
- PDF
- CD Cover Development
- Presentation
- Exhibit Design or Production
- Exhibit/Display Shipping
- Event/Meeting
- Marketing Plan
- Photography/Video/Movie
- Research/Consultation
- Tour
- Other: \_\_\_\_\_

- Web
  - Add new content or Web site to Internet
  - Update existing content on Web
  - Delete existing content off Web
  - Test 508 Compliance/Upload HTML file(s)

**Required for all Web Work: Web URL or section (e.g., [www.tfhrc.gov/safety](http://www.tfhrc.gov/safety)):**

\_\_\_\_\_

Describe Work on Project: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Special Instructions for this Project: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

I concur:

\_\_\_\_\_  
**Director's Signature**

\_\_\_\_\_  
**Date**

K:\FHWA\CRG\CRG final\HRTS Intake form final4.doc

**Figure 8. Illustration. HRTS service request form.**

APPENDIX B—SAMPLE OF REPORT FRONT COVER

# Materials and Methods for Corrosion Control of Reinforced and Prestressed Concrete Structures in New Construction

Publication No. FHWA-HRT-04-001

August 2004



U.S. Department of Transportation  
**Federal Highway Administration**

## APPENDIX C—SAMPLE INSIDE FRONT COVER

### Foreword

Salt-induced reinforcing steel corrosion in concrete bridges has undoubtedly become a considerable economic burden to many State and local transportation agencies. Because the iron in the steel has a natural tendency to revert eventually to its most stable oxide state, this problem will, unfortunately, still be with us, but to a much lesser degree due to the use of various corrosion protection strategies currently used in new construction. The adoption of corrosion protection measures in new construction, such as the use of good design and construction practices, adequate concrete cover depth, low-permeability concrete, corrosion inhibitors, and coated reinforcing steel, is significantly reducing the occurrence of reinforcing steel corrosion in new bridges. This report summarizes the results of various research investigations in developing and evaluating the performance of various corrosion protection systems. This report describes materials and measures that can be used for corrosion control in reinforced and prestressed concrete bridge structures in new construction.

This report will be of interest to materials and bridge engineers, reinforced concrete corrosion specialists, and those concerned with the performance of reinforced and prestressed concrete bridges.

T. Paul Teng, P.E.  
Director, Office of Infrastructure  
Research and Development

### Notice

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APPENDIX D—TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. FHWA-HRT- -	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle		5. Report Date	
		6. Performing Organization Code	
7. Author(s)		8. Performing Organization Report No.	
9. Performing Organization Name and Address		10. Work Unit No.	
		11. Contract or Grant No.	
12. Sponsoring Agency Name and Address Office of Federal Highway Administration 6300 Georgetown Pike McLean, VA 22101-2296		13. Type of Report and Period Covered	
		14. Sponsoring Agency Code	
15. Supplementary Notes			
16. Abstract			
17. Key Words		18. Distribution Statement No restrictions. This document is available to the public through the National Technical Information Service, Springfield, VA 22161.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages	22. Price

APPENDIX E—SAMPLE METRIC CONVERSION FACTORS PAGES

<b>SI* (MODERN METRIC) CONVERSION FACTORS</b>				
<b>APPROXIMATE CONVERSIONS TO SI UNITS</b>				
<b>Symbol</b>	<b>When You Know</b>	<b>Multiply By</b>	<b>To Find</b>	<b>Symbol</b>
<b>LENGTH</b>				
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
<b>AREA</b>				
in <sup>2</sup>	square inches	645.2	square millimeters	mm <sup>2</sup>
ft <sup>2</sup>	square feet	0.093	square meters	m <sup>2</sup>
yd <sup>2</sup>	square yard	0.836	square meters	m <sup>2</sup>
ac	acres	0.405	hectares	ha
mi <sup>2</sup>	square miles	2.59	square kilometers	km <sup>2</sup>
<b>VOLUME</b>				
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft <sup>3</sup>	cubic feet	0.028	cubic meters	m <sup>3</sup>
yd <sup>3</sup>	cubic yards	0.765	cubic meters	m <sup>3</sup>
NOTE: volumes greater than 1000 L shall be shown in m <sup>3</sup>				
<b>MASS</b>				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
<b>TEMPERATURE (exact degrees)</b>				
°F	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	°C
<b>ILLUMINATION</b>				
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m <sup>2</sup>	cd/m <sup>2</sup>
<b>FORCE and PRESSURE or STRESS</b>				
lbf	poundforce	4.45	newtons	N
lbf/in <sup>2</sup>	poundforce per square inch	6.89	kilopascals	kPa
<b>APPROXIMATE CONVERSIONS FROM SI UNITS</b>				
<b>Symbol</b>	<b>When You Know</b>	<b>Multiply By</b>	<b>To Find</b>	<b>Symbol</b>
<b>LENGTH</b>				
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
<b>AREA</b>				
mm <sup>2</sup>	square millimeters	0.0016	square inches	in <sup>2</sup>
m <sup>2</sup>	square meters	10.764	square feet	ft <sup>2</sup>
m <sup>2</sup>	square meters	1.195	square yards	yd <sup>2</sup>
ha	hectares	2.47	acres	ac
km <sup>2</sup>	square kilometers	0.386	square miles	mi <sup>2</sup>
<b>VOLUME</b>				
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m <sup>3</sup>	cubic meters	35.314	cubic feet	ft <sup>3</sup>
m <sup>3</sup>	cubic meters	1.307	cubic yards	yd <sup>3</sup>
<b>MASS</b>				
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
<b>TEMPERATURE (exact degrees)</b>				
°C	Celsius	1.8C+32	Fahrenheit	°F
<b>ILLUMINATION</b>				
lx	lux	0.0929	foot-candles	fc
cd/m <sup>2</sup>	candela/m <sup>2</sup>	0.2919	foot-Lamberts	fl
<b>FORCE and PRESSURE or STRESS</b>				
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in <sup>2</sup>

\*SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380. (Revised March 2003)



**SI\* (MODERN METRIC) CONVERSION FACTORS**

Symbol	When You Know	Multiply By	To Find	Symbol	When You Know	Multiply By	To Find	Symbol
in	inches	25.4	millimeters	mm	millimeters	0.039	inches	in
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yd	yards	0.914	meters	m	meters	1.09	yards	yd
mi	miles	1.61	kilometers	km	kilometers	0.621	miles	mi
in <sup>2</sup>	square inches	645.2	square millimeters	mm <sup>2</sup>	square millimeters	0.0016	square inches	in <sup>2</sup>
ft <sup>2</sup>	square feet	0.093	square meters	m <sup>2</sup>	square meters	10.764	square feet	ft <sup>2</sup>
yd <sup>2</sup>	square yard	0.836	square meters	m <sup>2</sup>	square meters	1.195	square yards	yd <sup>2</sup>
ac	acres	0.405	hectares	ha	hectares	2.47	acres	ac
mi <sup>2</sup>	square miles	2.59	square kilometers	km <sup>2</sup>	square kilometers	0.386	square miles	mi <sup>2</sup>
fl oz	fluid ounces	29.57	milliliters	mL	milliliters	0.034	fluid ounces	fl oz
gal	gallons	3.785	liters	L	liters	0.264	gallons	gal
ft <sup>3</sup>	cubic feet	0.028	cubic meters	m <sup>3</sup>	cubic meters	35.314	cubic feet	ft <sup>3</sup>
yd <sup>3</sup>	cubic yards	0.765	cubic meters	m <sup>3</sup>	cubic meters	1.307	cubic yards	yd <sup>3</sup>
NOTE: volumes greater than 1000 L shall be shown in m <sup>3</sup>								
oz	ounces	28.35	grams	g	grams	0.035	ounces	oz
lb	pounds	0.454	kilograms	kg	kilograms	2.202	pounds	lb
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
°F	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	°C	Celsius	1.8C+32	Fahrenheit	°F
fc	foot-candles	10.76	lux	lx	lux	0.0929	foot-candles	fc
fl	foot-Lamberts	3.426	candela/m <sup>2</sup>	cd/m <sup>2</sup>	candela/m <sup>2</sup>	0.2919	foot-Lamberts	fl
lbf	poundforce	4.45	newtons	N	newtons	0.225	poundforce	lbf
lbf/in <sup>2</sup>	poundforce per square inch	6.89	kilopascals	kPa	kilopascals	0.145	poundforce per square inch	lbf/in <sup>2</sup>

(Revised March 2003)

\*SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380.

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**Acknowledgments**

We would like to express appreciation to the following organizations for granting permission to copy publications and for providing information used in developing this training program:

The American Association of State Highway and Transportation Officials  
The American Society for Testing and Materials

We would also like to acknowledge the following State Departments of Transportation for the same courtesy:

Connecticut  
Idaho  
Maryland  
Massachusetts  
Michigan  
New York

Complete copies of publications can be obtained by contacting these organizations and offices directly.

Note: Under no circumstances should a contractor name be added to this page. The contractor acknowledgement for FHWA research reports is on DOT Form 1700.7.

**APPENDIX J—LIST OF PREFERRED TERMINOLOGY**

Please use the following preferred terminology when writing a document.

backcalculation	online
clear-cut	offsite
coleader (codirector)	onsite
co-op	pooled fund
cost effective	prequalify
cross section	preregister
day-to-day	prerequisite
decisionmaking	preset
Federal	prestressed
Federal aid (as a noun)	post-stressed
Federal-Aid Highway Program (official)	reenact
Federal-aid program (generic)	regrade
federally recognized (as an adverb)	retest
fine-tune	reinstitute
free flowing	reengineer
hands-on	right-of-way
indepth	self-contained
in-place	short-term (as adjective)
in-house	State
long-range (as adjective)	statewide
long-term (as adjective)	thought-out
misstate	time-consuming
multiagency	two-sided
multiyear	ultrawide band
multidimensional	underestimate
nondestructive (nonattainment, noncohesive, nonconforming, nonresponsive, etc.)	Web page
offsite	Web site
ongoing	workgroup

**APPENDIX K—LIST OF PREFERRED ACRONYMS**

Please use the following organization names and acronyms. Note that terms such as AADT (annual average daily traffic), PCC (portland cement concrete), SHA (State highway administration), and many more are common nouns, and are thus lowercase when spelled out (except for the “State” part of SHA). Keep common nouns in mind when deciding whether to use uppercase or lowercase.

Acronym	Definition
AAA	– American Automobile Association
AAAE	– American Association of Airport Executives
AAAM	– American Association of Automotive Medicine
AADT	– annual average daily traffic
AAMVA	– American Association of Motor Vehicle Administrators
AAPA	– American Association of Port Authorities
AAR	– American Association of Railroads
AASHTO	– American Association of State Highway and Transportation Officials
ABA	– American Bus Association
AC	– asphalt concrete
ACI	– American Concrete Institute
ACIR	– Advisory Commission on Intergovernmental Relations
ACPA	– American Concrete Pavement Association
ACTS	– Automotive Coalition for Traffic Safety, Inc. (formerly American Coalition for Traffic Safety, Inc.)
ADA	– Americans with Disabilities Act
AGCA	– Associated General Contractors of America
AHUA	– Association of Heads of University Administration
AISC	– American Institute of Steel Construction
AISI	– American Iron and Steel Institute
ALF	– Accelerated Loading Facility
AMPO	– Association of Metropolitan Planning Organizations
AMTRAK	– National Railroad Passenger Corporation (Amtrak is not a governmental agency; it is a private company called the National Railroad Passenger Corporation)
ANSI	– American National Standards Institute
AOPA	– Aircraft Owners and Pilots Association

Acronym	Definition
APA	– American Planning Association
API	– American Petroleum Institute
APTA	– American Public Transportation Association
APWA	– American Public Works Association
ARTBA	– American Road and Transportation Builders Association
ASBI	– American Sequential Bridge Institute
ASCE	– American Society of Civil Engineers
ASQ	– American Society for Quality
ASTM	– American Society for Testing and Materials
ATA	– American Trucking Association OR Air Transport Association
ATPA	– American Technology Preeminence Act
AVC	– Automatic Vehicle Classification
AWS	– automated weather station
BAC	– blood alcohol concentration
BESTEAA	– Building Efficient Surface Transportation and Equity Act of 1997
BMS	– Bridge Management Systems
BPR	– Bureau of Public Roads
BRR	– Bridge Rehabilitation and Replacement
BTS	– Bureau of Transportation Statistics
C SHRP	– Canadian Strategic Highway Research Program
CAAA	– Clean Air Act Amendments
CAFE	– Corporate Average Fuel Economy
CBO	– Congressional Budget Office
CBSSE	– Commission on Behavioral and Social Sciences and Education (NRC)
CD	– Compact Disk
CERF	– Civil Engineering Research Foundation
CETS	– Commission on Engineering and Technical Systems (NRC)
CFLHD	– Central Federal Lands Highway Division
CFR	– Code of Federal Regulations
CIMA	– Construction Industries Manufacturers Association
CMAQ	– Congestion Mitigation and Air Quality
CMS	– Corporate Management Strategy
COMTO	– Conference of Minority Transportation Officials



Acronym	Definition
CoP	– Communities of Practice
COST	– Cooperation on Science and Technology (program)
COTA	– Congressional Office of Technology Assessment
COTR	– Contracting Officer’s Technical Representative
CPI	– Continuous Process Improvement
CRG	– <i>Communications Reference Guide</i>
CRP	– Cooperative Research Program (TRB)
CRS	– Congressional Research Service
CSD	– context sensitive design
CUTC	– Council of University Transportation Centers
CVISN	– Commercial Vehicle Information Systems and Networks
CVO	– commercial vehicle operations
DAFIS	– Departmental Accounting and Financial Information System
DARPA	– Defense Advanced Research Projects Agency (DOD)
DOD	– Department of Defense (U.S. Department of Defense)
DOT	– department of transportation
dpi	– dots per inch
EAP	– Employee Assistance Program
ECMT	– European Conference of Ministers of Transportation
EDL	– Electronic Document Library
EEOC	– Equal Employment Opportunity Commission
EFLHD	– Eastern Federal Lands Highway Division
EIS	– Environmental Impact Statement
EIT	– Electronic information and technology
EPA	– Environmental Protection Agency (U.S. Environmental Protection Agency)
EPS	– Encapsulated PostScript file
ESAL	– equivalent single axle load
ETTM	– Electronic Toll and Traffic Management
EU	– European Union
EUREKA	– European Research Coordination Agency
F SHRP	– Future Strategic Highway Research Program
FAA	– Federal Aviation Administration
FAQs	– Frequently Asked Questions

Acronym	Definition
FARS	– Fatality Analysis Reporting System
FEHB	– Federal Employee Health Benefits
FHWA	– Federal Highway Administration
FIFO	– first in, first out
FIMS	– Fiscal Information Management System
FMCSA	– Federal Motor Carrier Safety Administration
FRA	– Federal Railroad Administration
FRC	– Federal Records Center
FRP	– fiber reinforced polymer
FTA	– Federal Transit Administration
FWD	– Falling Weight Deflectometer
FY	– fiscal year
GAO	– General Accounting Office
GIF	– Graphic Interchange Format
GIS	– Geographic Information System
GOE	– general operating expenses
GPO	– Government Printing Office
GPR	– ground penetrating radar
GPRA	– Government Performance and Results Act
GPS	– Global Positioning System OR General Pavement Studies
GSA	– U.S. General Services Administration
HBRRP	– Highway Bridge Replacement and Rehabilitation Program
HIPERPAV™	– High Performance Pavement
HITEC	– Highway Innovative Technology Evaluation Center
HMA	– hot mix asphalt
HP&R	– Highway Planning and Research
HP&R	– Highway Planning and Research
HPMS	– Highway Performance Monitoring System (FHWA)
HR	– human resources
HRTS	– Office of Research and Technology Services
HSGT	– high speed ground transportation
HSIP	– Highway Safety Improvement Program
HTF	– Highway Trust Fund

Acronym	Definition
HTML	– HyperText Markup Language
HUFSAM	– Highway Users Federation for Safety and Mobility, now called American Highway Users Alliance
IACP	– International Association of Chiefs of Police
IAHR	– International Association for Hydraulic Research
IANA	– Intermodal Association of North America
IATA	– International Air Transport Association
IBTTA	– International Bridge, Tunnel and Turnpike Association (no serial comma according to IBTTA’s usage)
ICAO	– International Civil Aviation Organization
IDEA	– Innovations Deserving Exploratory Analysis
IDP	– Individual Development Program
IEEE	– Institute of Electrical and Electronics Engineers
IHSDM	– Interactive Highway Safety Design Module
IIHS	– Insurance Institute for Highway Safety
INA	– International Navigation Association (formerly called PIANC, Permanent International Association of Navigation Congresses)
IOM	– Institute of Medicine
IPP	– individual performance plan
IRF	– International Road Federation
IRI	– International Roughness Index
ISO	– International Organization for Standardization (correct even though it looks incorrect)
ISTEA	– Intermodal Surface Transportation Efficiency Act of 1991
ITE	– Institute for Transportation Engineers
ITS	– intelligent transportation system
ITS America	– Intelligent Transportation Society of America
ITS/JPO	– Intelligent Transportation Systems Joint Program Office
IUPT	– International Union of Public Transport
IVHS	– intelligent vehicle highway systems
IVI	– Intelligent Vehicle Initiative
JPEG	– Joint Photographic Experts Group
KM	– Knowledge Management
KSAs	– knowledge, skills, and abilities

Acronym	Definition
L&D	– learning and development
LADS	– Learning and Development System
LAN	– Local Area Network
LCCA	– life cycle cost analysis
LRFD	– load and resistance factor design
LTAP	– Local Technical Assistance Program
LTP	– Leave Transfer Program
LTPP	– Long Term Pavement Performance (program)
MARAD	– Maritime Administration (USDOT)
MB	– Marine Board (TRB)
MBNQA	– Malcolm Baldrige National Quality Award
MMS	– Minerals Management Service
MPO	– metropolitan planning organization
MSPB	– Merit Systems Protection Board
MTMC	– Military Traffic Management Command
MUTCD	– Manual on Uniform Traffic Control Devices
MYAEP	– Multi Year Affirmative Employment Program
NACE	– National Association of County Engineers
NACO	– National Association of Counties
NAE	– National Academy of Engineering
NAGHSR	– National Association of Governors’ Highway Safety Representatives
NAPA	– National Asphalt Pavement Association
NARA	– National Archives and Records Administration
NARC	– National Association of Regional Councils
NAS	– National Academy of Sciences
NASAO	– National Association of State Aviation Officials
NASS	– National Automotive Sampling System (NHTSA)
NBIS	– National Bridge Inventory System
NCAT	– National Center for Asphalt Technology
NCHRP	– National Cooperative Highway Research Program
NCP	– National Coordinated Program (of Highway Research, Development, and Technology)
NCSL	– National Conference of State Legislatures
NCSRO	– National Conference of State Railway Officials

Acronym	Definition
NDE	– nondestructive evaluation
NDR	– National Driver Register
NEPA	– National Environmental Policy Act
NEXTEA	– National Economic Crossroads Transportation Efficiency Act of 1997
NGA	– National Governors’ Association
NHI	– National Highway Institute
NHS	– National Highway System
NHTSA	– National Highway Traffic Safety Administration
NIST	– National Institute of Standards and Technology
NIT League	– National Industrial Transportation League
NPR	– National Performance Review
NPTS	– Nationwide Personal Transportation Survey
NQI	– National Quality Initiative
NRC	– National Research Council
NSC	– National Safety Council
NSF	– National Science Foundation
NSPE	– National Society of Professional Engineers
NSTC	– National Science and Technology Council
NTI	– National Transit Institute
NTIS	– National Technical Information Service
NTL	– National Transportation Library
NTSB	– National Transportation Safety Board
OECD	– Organisation for Economic Cooperation and Development
OIG	– Office of the Inspector General
OMB	– Office of Management and Budget
ONR	– Office of Naval Research
OPM	– Office of Personnel Management
ORI	– Office of Road Inquiry
OSHA	– Occupational Safety and Health Administration
OST	– Office of the Secretary of Transportation
OSTP	– Office of Science and Technology Policy (White House)
PBCAT	– Pedestrian and Bicycle Crash Analysis Tool
PCA	– Portland Cement Association

Acronym	Definition
PCC	– portland cement concrete (“portland” is lowercase when used in text)
PCI	– Precast/Prestressed Concrete Institute
PDF	– Portable Document Format
PDP	– professional development program
PI	– Principal Investigator
PIANC	– Permanent International Association of Navigation Congresses (now called International Navigation Association)
PIARC	– Permanent International Association of Road Congresses
PICRI	– Pavement Industry Cooperative Research Initiative
PIH	– Pan American Institute of Highways
PQA	– President’s Quality Award
PROMETHEUS	– Program for European Traffic with Highest Efficiency and Unprecedented Safety
PTRC	– Planning and Transport Research and Computation
QC/QA	– quality control/quality assurance
R&D	– research and development
R&T	– research and technology
RABA	– Revenue Aligned Budget Authority
RAC	– Research Advisory Committee
RCCC	– Regular Common Carrier Conference (ATA)
RD&T	– research, development, and technology
RFP	– Request for Proposal
RIDER	– Research and Information Databases and Electronic Resources
ROSAN	– Roadway Surface Analyzer
RSF	– Roadway Safety Foundation (AHUA)
RSPA	– Research and Special Programs Administration (USDOT)
RTAP	– Rural Transportation Assistance Program (FHWA)
RTCC	– Research and Technology Coordinating Committee
SAE	– Society of Automotive Engineers
SAFETEA	– Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003
SCOH	– Standing Committee on Highways (AASHTO)
SCOQ	– Standing Committee on Quality
SCOR	– Standing Committee on Research (AASHTO)
SFLHD	– Southern Federal Lands Highway Division

Acronym	Definition
SHA	– State highway administration
SHRP	– Strategic Highway Research Program
SIP	– State implementation plan
SMARTS	– Site Management and Retroreflective Tracking System
SMS	– safety management system
SMSA	– standard metropolitan statistical area
SNO	– Subcommittee for NRC Oversight (TRB)
SOW	– statement of work
SPC	– statistical process control
SPPR	– Subcommittee on Planning and Policy Review (TRB)
SPR	– State planning and research
SPS	– Specific Pavement Studies
STB	– Surface Transportation Board
STIPDG	– Summer Transportation Internship Program for Diverse Groups
STP	– Surface Transportation Program
STPP	– Surface Transportation Policy Project
STRAHNET	– Strategic Highway Network
SUPPS	– Shared United Performance Plan System
SWE	– Society of Women Engineers
T&I	– technology and innovation
T2	– technology transfer
TASC	– Transportation Administrative Service Center
TCRP	– Transit Cooperative Research Program (TRB)
TCSP	– Transportation and Community and Systems Preservation
TCT	– Technical Career Track
TDC	– Transit Development Corporation (APTA)
TDIP	– Technology Deployment Initiatives and Preservation
TEA	– 21 Transportation Equity Act for the 21 <sup>st</sup> Century
TFHRC	– Turner-Fairbank Highway Research Center
TIFF	– Tagged Image File Format
TIFIA	– Transportation Infrastructure Finance and Innovation Act
TIN	– Technology Innovation Network
TIP	– Transportation Improvement Program

Acronym	Definition
TMA	– Transportation Management Association
TMC	– Transportation Management Center
TNM	– Traffic Noise Model
TQM	– Total Quality Management
TRB	– Transportation Research Board
TRF	– Transportation Research Forum
TRI	– Trucking Research Institute (ATA)
TRIP	– The Road Information Program
TRIS	– Transportation Research Information Services (TRB)
TRL	– Transportation Research Laboratory
TReL	– Traffic Research Laboratory
TRRL	– Transportation and Road Research Laboratory (United Kingdom)
TSM	– Transportation System Management
UPACS	– User Profile and Access Control System
USACE	– U.S. Army Corps of Engineers
USCG	– U.S. Coast Guard (USDOT)
USDOT	– U.S. Department of Transportation
UTC	– University Transportation Center
UTCP	– University Transportation Centers Program (USDOT)
VMT	– vehicle miles traveled
VNTSC	– Volpe National Transportation Systems Center (USDOT)
VTI	– Road and Traffic Research Institute of Sweden
VWS	– virtual weather station
WFLHD	– Western Federal Lands Highway Division
WIM	– weigh in motion
WRA	– World Road Association (formerly PIARC, Permanent International Association of Road Congresses)
WSCG	– Western States Concrete Group



APPENDIX L—SAMPLE PAGE OF A RESEARCH WEB REPORT

In addition to adhering to the HAIM Web guidelines listed in chapter 8 and the Section 508 guidelines on [www.access-board.gov/508.htm](http://www.access-board.gov/508.htm) for HTML development and programming, FHWA research report Web pages contain the top blue banner on each page, and the bottom footer to brand the report as an FHWA report.

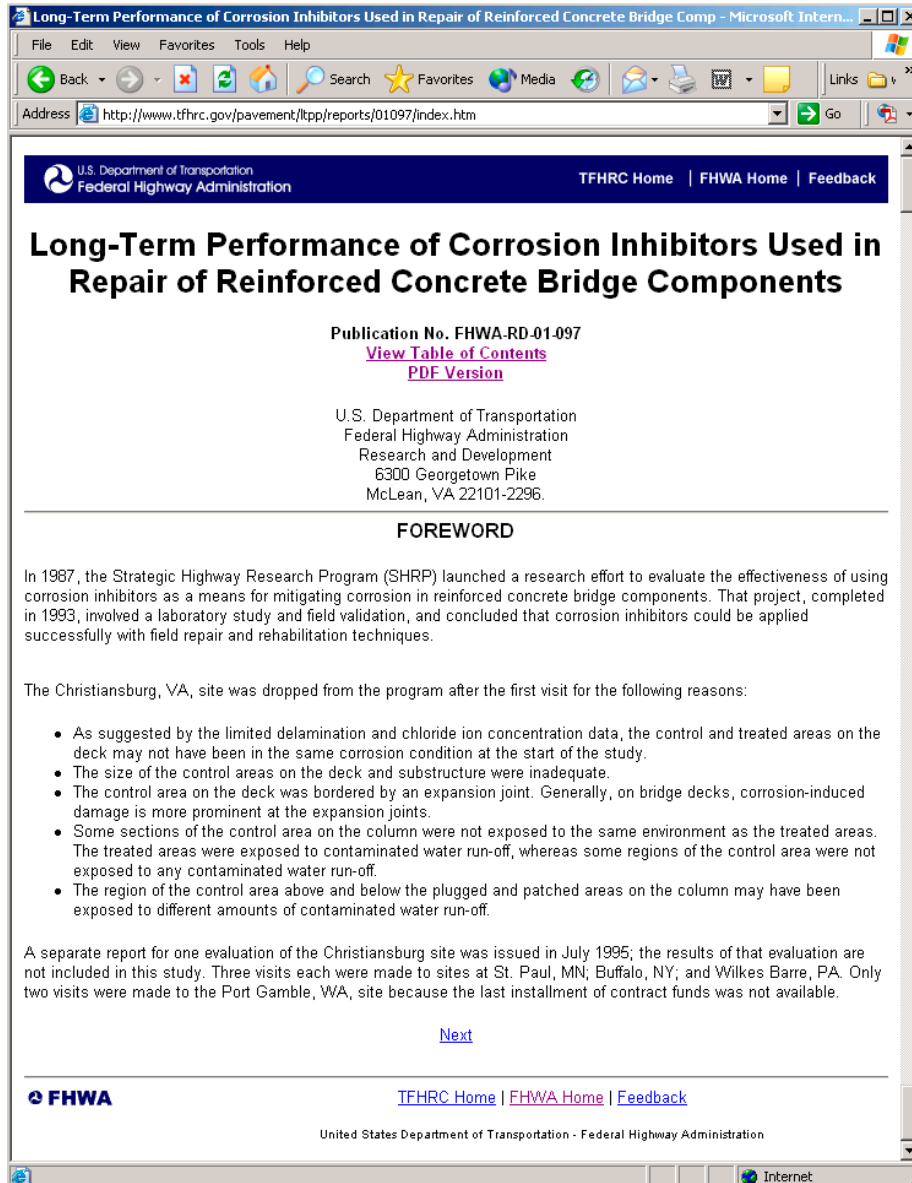


Figure 9. Screen shot. Research report Web page.

## APPENDIX M—FHWA LOGO

Use one of the following two FHWA logos on publications, PowerPoint presentations, and other communication products you prepare.

The logo can be printed or depicted in any color, but **the entire logo must be in the same color**. You can enlarge or shrink the size of the logo, but you must **keep the same design proportions** shown below. (For example, don't move the triskelion symbol, enlarge the symbol, or reduce the size of the type.) Consult with the Management Services Division (HAIM-20), the Strategic Communications Team (HRTS-2), or a graphic designer for help deciding how large to make the mark and signature in proportion to the other information on your cover.

If you have any questions on the use of the FHWA logo, please contact HRTS-2 or HAIM-20.



U.S. Department of Transportation  
**Federal Highway Administration**

**Figure 10. Illustration. This is the correct two-line version of the FHWA logo.**



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Figure 11. Illustration. This is the correct four-line version of the FHWA logo.**



**Page 2**

**7. File Information - List information for all files (including graphics) used in the document to be output or attach a file directory printout which includes: File name; size, and format; and program**

**List files here:**

**8. Color Identification Information**  
 Color System Used:  PANTONE  Toyo  TRUMATCH  RGB  
 CMYK (process colors)  Other \_\_\_\_\_  
 Trapping:  Supplied  Do not trap  Create traps as necessary

**9. Miscellaneous Checklist**  
 Do the files provide for bleeds (if any)?  Yes  No  
 Are all graphics linked properly (no cutting & pasting or "store in pub")?  Yes  No  
 Are all graphic elements "up-to-date"?  Yes  No  
 Were changes made to any file(s) after the visual was made?  Yes  No  
 If yes, explain \_\_\_\_\_

**10. Notes/Special Instructions**

**Recommendations for submitting "Electronic Mechanicals"**

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• If you are providing files in PostScript format only, remember these are printer driver files and usually cannot be manipulated or changed by GPO or the contractor. Therefore, if any author's alterations are required you will have to provide updated files.</li> <li>• If any file has been changed for the benefit of the printout (e.g., making an image smaller to show bleeds on a printout) be sure to change the file back before making the disk you are submitting.</li> <li>• After making the printout, remove any "for position only" images in the files and replace them with an ID number (referenced to the printout and supplied copy) to speed up film output and thus hold down costs.</li> <li>• If any holding lines (keylines) are used in the file to indicate illustration size and position, indicate on the printout whether these lines print or not.</li> </ul> | <ul style="list-style-type: none"> <li>• On the supplied printout, clearly identify any halftones or other copy being supplied as separate camera-ready copy.</li> <li>• Clearly mark any miscellaneous instructions that would have been on an overlay (e.g., folding and perforating marks), on the printout or by other means.</li> <li>• Label all disks with the agency name, project name, the date the disk was made and the requisition or SF-1 number. In addition, show a disk number and total number of disks sent (e.g., 1/5).</li> <li>• Keep an exact duplicate of all disks and visuals submitted to GPO.</li> <li>• To avoid false expectations, any requested enhancements to data supplied (e.g., added trapping) should be discussed with GPO ahead of time.</li> </ul> |
|--|---|

For additional assistance in completing this form and submitting electronic mechanicals, see GPO Circular Letter No. 354 and Technical Report No. 31, or call your Customer Service Representative or Regional Printing Procurement Office.

*Mention of any brand name product as an example is not meant as an endorsement of that product nor of its manufacturer.*

**APPENDIX O— FHWA MULTIMEDIA MODEL RELEASE FORM**

U.S. Department of Transportation  
Federal Highway Administration (FHWA)

**Name:** \_\_\_\_\_ **Location:** \_\_\_\_\_ **Date:** \_\_\_\_\_

I hereby grant to FHWA the absolute and irrevocable right and permission, in respect of the photographs or audio or videotape recording and their transcripts, that it has taken or has had taken of me or in which I may be included with others, to copyright the same, in its own name or otherwise (and assign my rights throughout the world in such photograph and audio and video recordings and their transcripts), to use, reuse, publish, and republish, and otherwise reproduce, modify and display the same, in whole or in part, individually or with other photographs, and with any copyrighted matter, in any and all media now or hereafter known, for illustration, promotion, art, advertising and trade, or any other purpose whatsoever; and to use my name in connection therewith if it so chooses.

I hereby release and discharge FHWA from any and all claims and demands arising out of, or in connection to, the use of the photographs, including without limitation any and all claims for libel or invasion of privacy. FHWA may sell, assign license, or otherwise transfer all rights granted to it hereunder.

This authorization and release shall also inure to the benefit of the specific legal representatives, licensees, and assigns of FHWA, as well as the staff representative(s) (if any) for whom it took the photographs.

I am of full age and have the right to contract in my own name. I have read the foregoing and fully understand the contents thereof. This release shall be binding upon me and my heirs, legal representatives and assigns. I further release FHWA from any responsibility for injury incurred during the photography or audio or videotaping session.

**Signed:** \_\_\_\_\_

*(If minor, parent or legal guardian must sign.)*

**Printed Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**City, State, Zip:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**Fax Number:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**APPENDIX P—FHWA MULTIMEDIA CHILD MODEL RELEASE FORM**

U.S. Department of Transportation  
Federal Highway Administration (FHWA)

**Name:** \_\_\_\_\_ **Location:** \_\_\_\_\_ **Date:** \_\_\_\_\_

I hereby grant to FHWA the absolute and irrevocable right and permission, in respect of the photographs or audio or videotape recording and their transcripts, that it has taken or has had taken of me or my child, \_\_\_\_\_, or in which I or my child may be included with others, to copyright the same, in its own name or otherwise (and assign my rights throughout the world in such photograph and audio and video recordings and their transcripts), to use, reuse, publish, and republish, and otherwise reproduce, modify and display the same, in whole or in part, individually or with other photographs, and with any copyrighted matter, in any and all media now or hereafter known, for illustration, promotion, art, advertising and trade, or any other purpose whatsoever; and to use my name in connection therewith if it so chooses.

I hereby release on behalf of myself and my child and discharge FHWA from any and all claims and demands arising out of, or in connection to, the use of the photographs of my child and me, including without limitation any and all claims for libel or invasion of privacy. FHWA may sell, assign license, or otherwise transfer all rights granted to it hereunder.

This authorization and release shall also inure to the benefit of the specific legal representatives, licensees, and assigns of FHWA, as well as the staff representative(s) (if any) for whom it took the photographs.

I am of full age and have the right to contract in my own name and in the name of my child. I have read the foregoing and fully understand the contents thereof. This release shall be binding upon my child, and my heirs, legal representatives, assigns, and me. I further release FHWA from any responsibility for injury incurred during the photography or audio or videotaping session.

**Signed:** \_\_\_\_\_

*(If minor, parent or legal guardian must sign.)*

**Signer's Name** \_\_\_\_\_

**Child's Name and Age:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**City, State, Zip:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**Fax Number:** \_\_\_\_\_

**Date:** \_\_\_\_\_