



**OFFICE OF THE
ASSISTANT SECRETARY FOR PUBLIC AFFAIRS
DIGITAL COMMUNICATIONS DIVISION**
DEPARTMENT OF HEALTH AND HUMAN SERVICES

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Overview of Document Accessibility

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Opening Thought

“The moral test of government is how that government treats those who are in the dawn of life, the children; those who are in the twilight of life, the elderly; and those who are in the shadows of life, the sick, the needy and the handicapped.”

- Hubert Humphrey



Main Problem


- Digital content is generally vetted for accuracy and relevance of information and for editing (like spelling and grammar), and there are in-place infrastructures and work flows to support those quality-control checks.
- But, there is an often overlooked quality-control measure that has legal roots, takes time, and is largely misunderstood and undervalued:

Document Accessibility



Consequences of Not Making Accessible Content

1

- Not thinking about accessibility has consequences...
 - An incorrect belief that your content is distribution ready
 - End-of-cycle delays and possibly missed deadlines because the content doesn't comply with Section 508 (or WCAG 2.0)
 - Actual lawsuits
 - SSA, 2009
 - Department of Education, 2009
 - Government of Canada, 2012
 - More at <http://www.karlgroves.com/2011/11/15/list-of-web-accessibility-related-litigation-and-settlements/> 



Consequences of Not Making Accessible Content

2

- Another important consequence
 - Greater than the legal and project timeline consequences are the moral ones:
 - If your content is not accessible, that means part of your audience is not getting your message.



Main Goals

This presentation will help you to

- understand document accessibility at a high-level in terms of its roots in 508 and WCAG 2.0, and
- understand that, like other quality-control steps in developing and publishing content, you must plan ahead and allow for accessible design as part of your project's workflow because it does take time.



Overview of Training Topics

- What is Section 508, WCAG 2.0, and Document Accessibility?
- What are some easy-to-check, high-level things across the major document formats?
- Why does this matter?
- Where can I get help?



What Section 508 is...

- A 1998 amendment to the Rehabilitation Act of 1973 that requires electronic content to be accessible to individuals with disabilities.
- It's divided into four subparts:
 - A, General/Overview/Intro
 - B, Technical Standards
 - C, Functional Performance Criteria
 - D, Information, Documentation, and Support



D—Information, Documentation, and Support

- Contains three technical requirements, a through c:
 - The gist is that multiple accessible formats for a single document must be available at no charge to those who need them.
 - An easy way to ensure that is met is to make the electronic copies accessible (and not having to worry about hard copy unless specifically requested), which then brings us to Subpart C and B.



C—Functional Performance Criteria

- Contains 6 technical requirements, a through f:
 - One mode of operation and information retrieval independent of sight.
 - One mode of operation and information retrieval independent of sound.
 - One mode of operation and information retrieval independent of speech
 - One more of operation and information retrievable independent of fine motor control.
- Subpart B helps to ensure Subpart C is met.



B—Technical Standards

- The technical standards are divided into 6 categories by technology-type:
 - 1194.21—Software
 - 1194.22—Web Content
 - 1194.23—Telecommunication Products
 - 1194.24—Video and Multimedia Products
 - 1194.25—Self-Contained, Closed Products
 - 1194.26—Desktop and Portable Computers



The Roots of Document Accessibility

- Subparts D and C both point to the need for accessible content and information.
- Subpart B provides the technical criteria to support Subpart D and C.
- Of Subpart B, the most relevant technical instruction comes from 1194.22 (Web Content), but, PowerPoints, for example, can contain videos, which calls in 1194.24 (Multimedia), and, sometimes Excel files can contain filters and other script-based features, which might tap into 1194.21 (Software).



What is WCAG 2.0?

- An updated set of accessibility guidelines that is anticipated to become the “new Section 508” at the conclusion of the Section 508 Refresh (perhaps sometime in 2015).
- Unlike current Section 508, which is divided up by technology type, WCAG 2.0 is divided up into four cognitive-aims based principles: Perceivability, Operability, Understandability, and Robustness.
- Each principle is further subdivided into specific technical requirements across three levels, Level A, Level AA, and Level AAA.
- <http://www.w3.org/TR/WCAG20/>



What is WCAG 2.0? (cont'd)

WCAG 2.0 Guidelines

This section is normative.

Principle 1: Perceivable - Information and user interface components must be presentable to users in ways they can perceive.

Guideline 1.1 Text Alternatives: Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language.

[Understanding Guideline 1.1](#)

1.1.1 Non-text Content: All non-text content that is presented to the user has a text alternative that serves the equivalent purpose, except for the situations listed below. (Level A)

[How to Meet 1.1.1](#)
[Understanding 1.1.1](#)

- **Controls, Input:** If non-text content is a control or accepts user input, then it has a name that describes its purpose. (Refer to [Guideline 4.1](#) for additional requirements for controls and content that accepts user input.)
- **Time-Based Media:** If non-text content is time-based media, then text alternatives at least provide descriptive identification of the non-text content. (Refer to [Guideline 1.2](#) for additional requirements for media.)
- **Test:** If non-text content is a test or exercise that would be invalid if presented in text, then text alternatives at least provide descriptive identification of the non-text content.
- **Sensory:** If non-text content is primarily intended to create a specific sensory experience, then text alternatives at least provide descriptive identification of the non-text content.
- **CAPTCHA:** If the purpose of non-text content is to confirm that content is being accessed by a person rather than a computer, then text alternatives that identify and describe the purpose of the non-text content are provided, and alternative forms of CAPTCHA using output modes for different types of sensory perception are provided to accommodate different disabilities.
- **Decoration, Formatting, Invisible:** If non-text content is pure decoration, is used only for visual formatting, or is not presented to users, then it is implemented in a way that it can be ignored by assistive technology.



What Does All That Mean?

- It means that making your digital content accessible is a legal requirement and there are actual technical guidelines that must be met to ensure accessibility.



What Does it Mean to be Accessible?

- Accessibility really is not merely about meeting technical requirements.
- Accessibility is really about ensuring that individuals with a disability can get the information, understand the information, and do something with the information.



What Are Some High-Level Things We Can Do...

- The next series of slides will detail high-level/quick-check things we can all do to ensure that Word documents, PowerPoints, and PDFs are all accessible.
- What we cover today is not a comprehensive account of what it takes to make accessible content; it's just a high-level overview to get everyone started on a good path. We're just looking at two items for each file type.



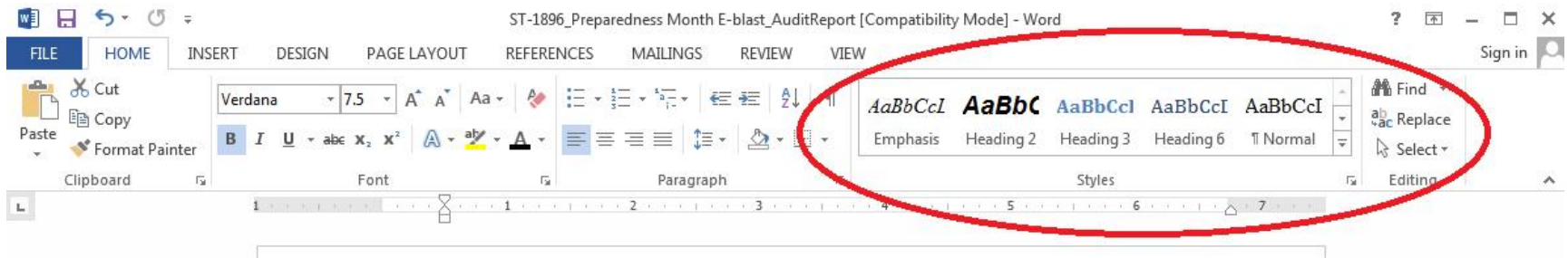
Accessible Word Documents 1

- Make sure the document has logical, consecutive headings (1194.22 d).
- Make sure there are no complex tables (1194.22 h).



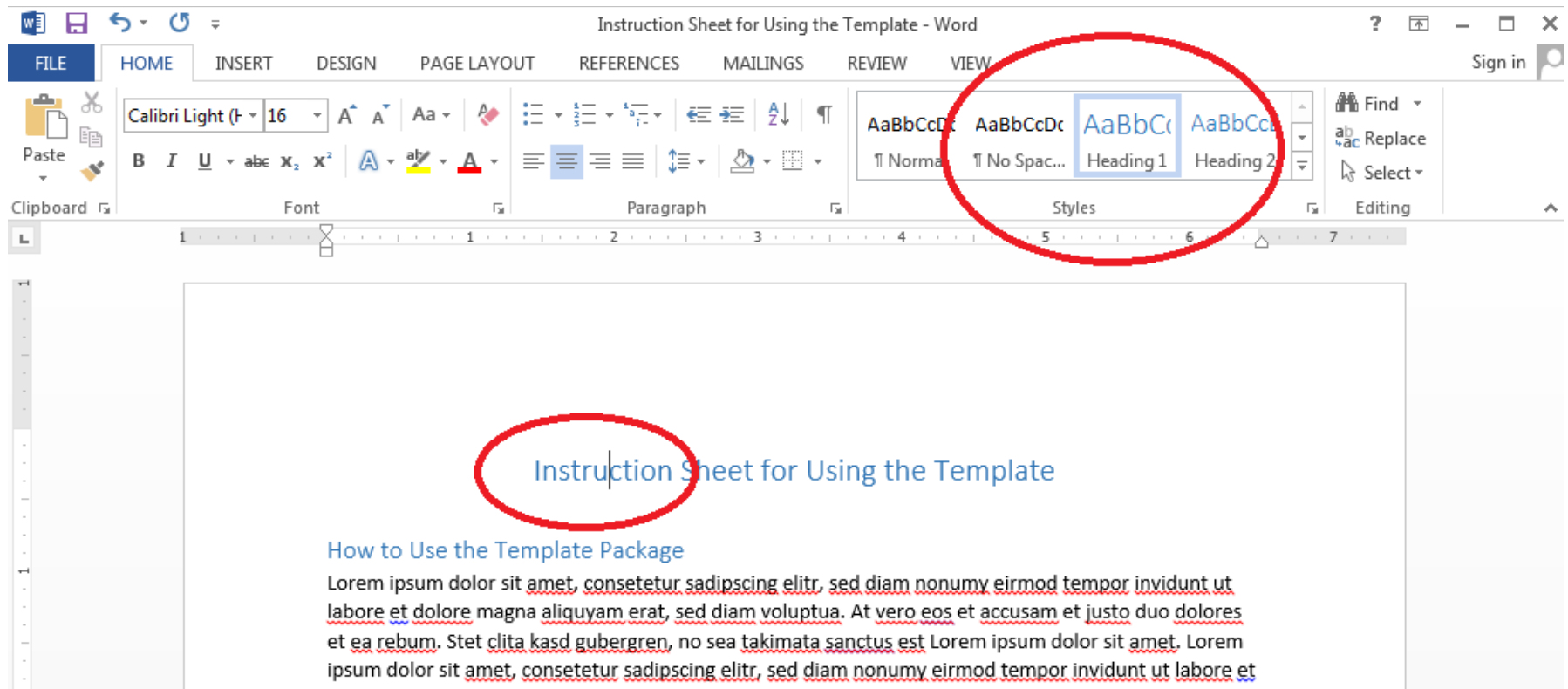
Accessible Word Documents 2

- Make sure the document has styled headings, and they are sequential.



Accessible Word Documents 3

- Make sure the document has styled headings and they are sequential.



Accessible Word Documents 4

Make sure there are no complex tables.

Complex Table (Less Accessible)

Top Presidential Candidates 2008							
Democratic				Republican			
Name	Del	Name	Del	Name	Del	Name	Del
Barack Obama	1828.5	Hillary Rodham Clinton	1726.5	John McCain	1575	Mike Huckabee	278

Simple Table (More Accessible)

Top 2008 Presidential Candidates by Party
(num) = Primary Delegate Count

Democratic	Republican
1. Barack Obama (1828.5)	1. John McCain (1575)
2. Hillary Rodham Clinton (1726.5)	2. Mike Huckabee (278)
3. John Edwards (4.5)	3. Mitt Romney (271)

Examples borrowed from <http://accessibility.psu.edu/tableshtml>



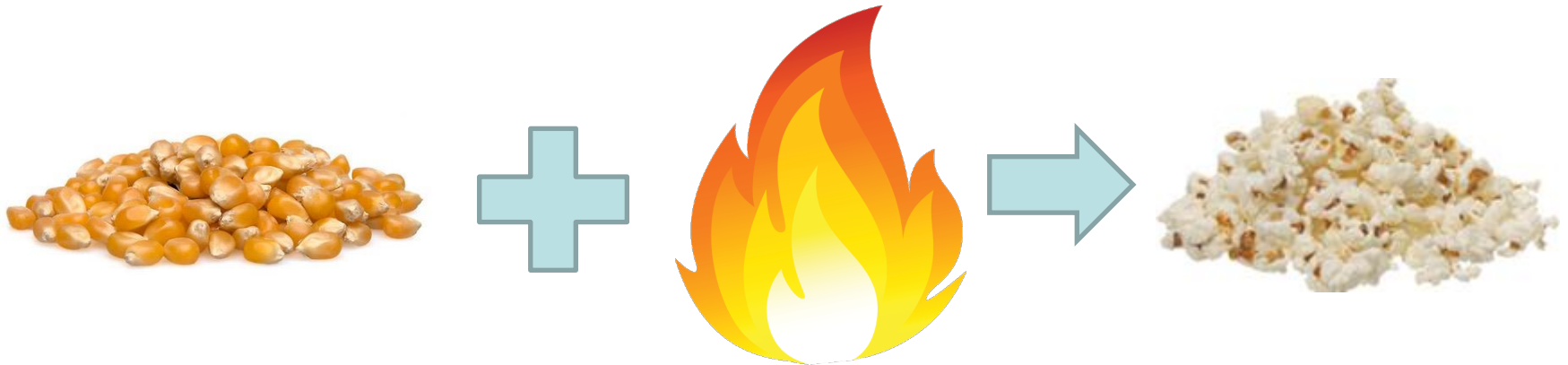
Accessible PowerPoint Presentations 1

- Make sure individual elements in a single process-type figure are grouped (1194.22 a).
- Make sure that each slide is titled and that the title is unique (WCAG 2.0, 2.4.2).



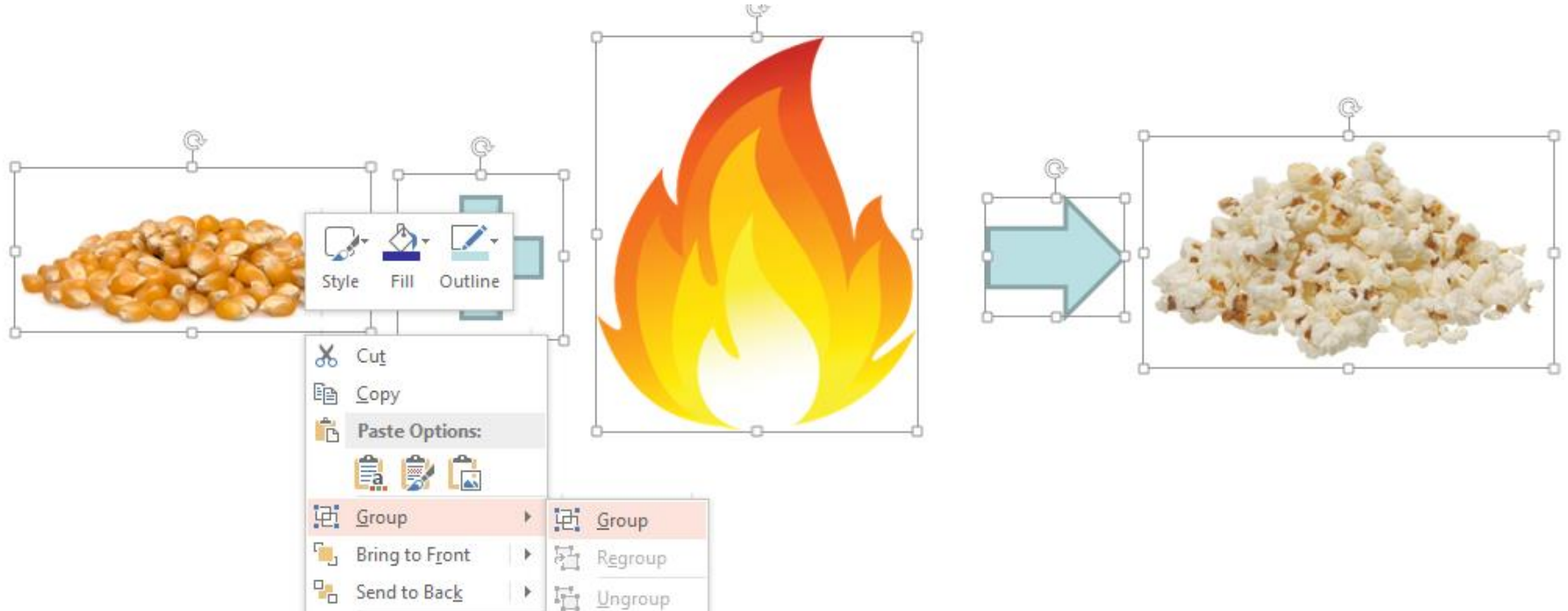
Accessible PowerPoint Presentations 2

- Make sure individual elements in a single figure are grouped.



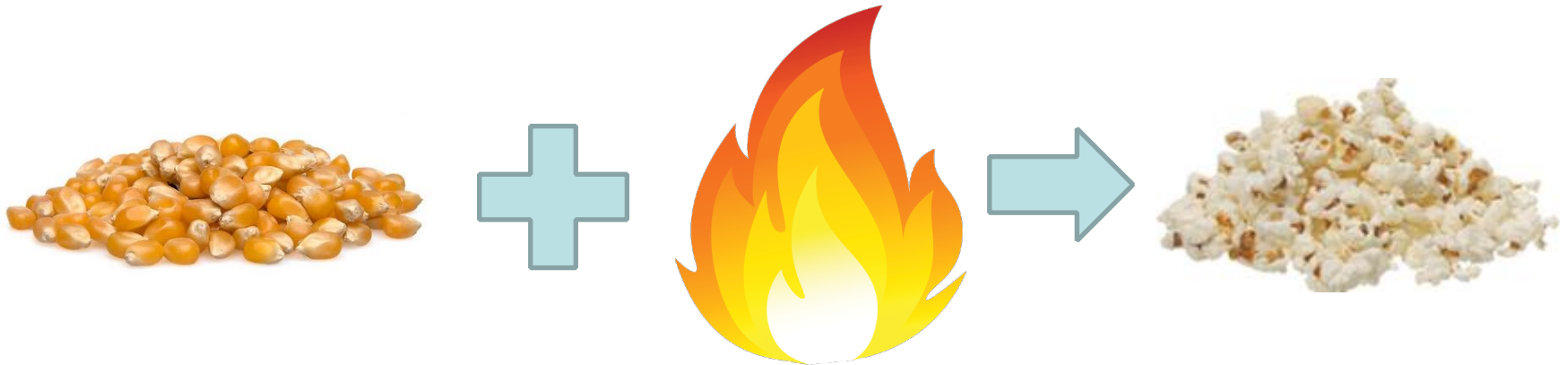
Accessible PowerPoint Presentations 3

- Make sure individual elements in a single figure are grouped.



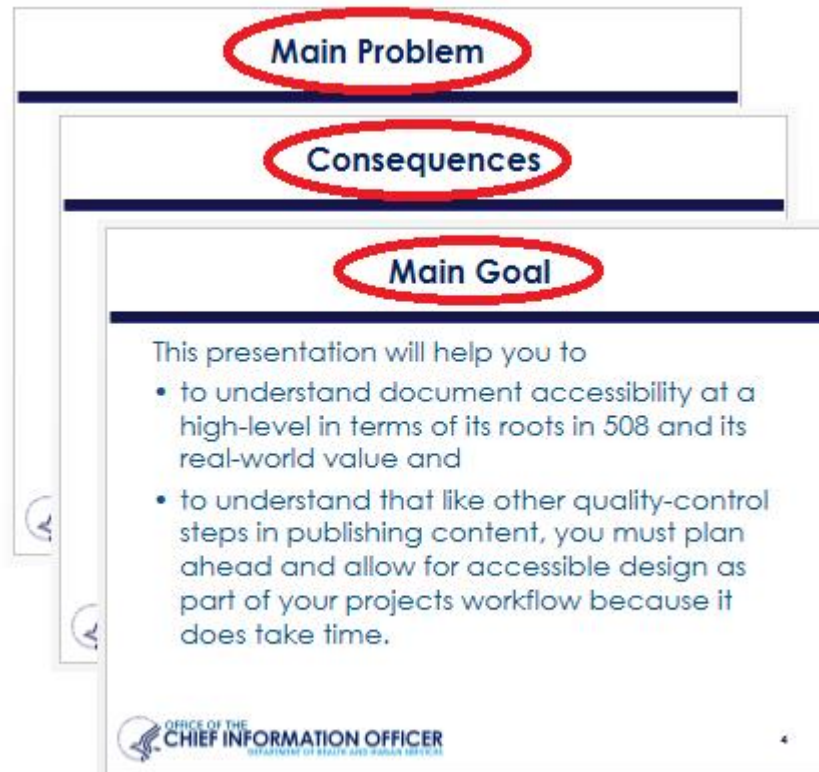
Accessible PowerPoint Presentations 4

- Make sure individual elements in a single figure are grouped.



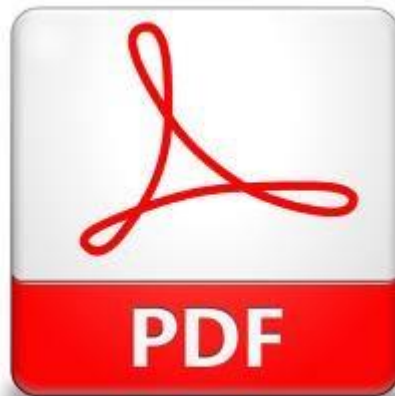
Accessible PowerPoint Presentations 5

- Make sure that each slide is titled and that the title is unique.



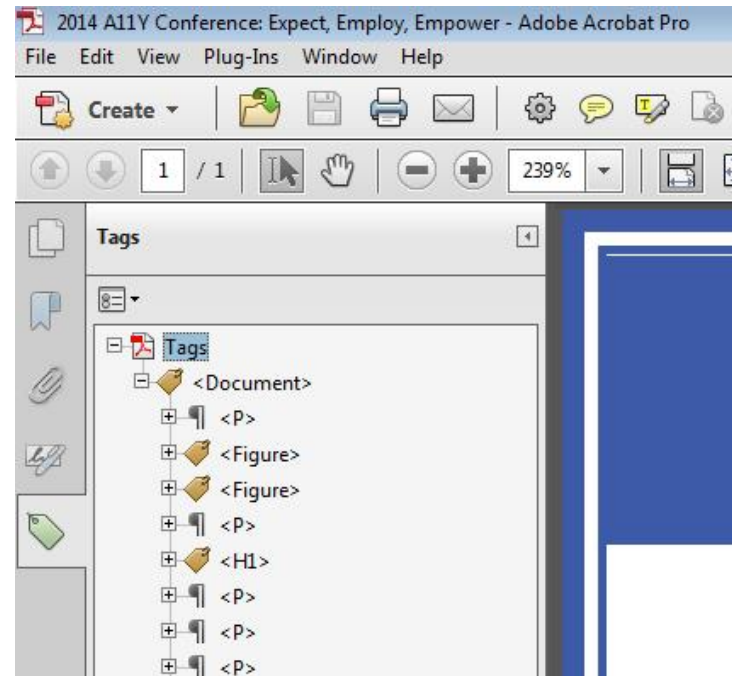
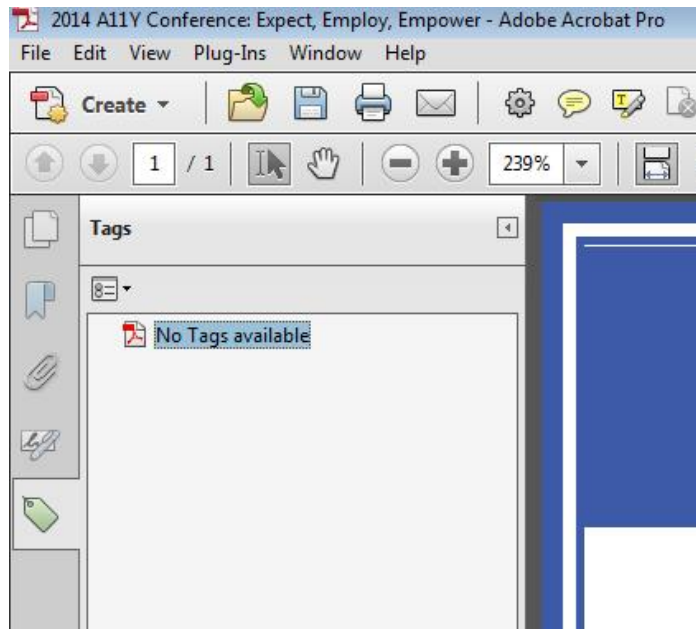
Accessible PDFs 1

- Confirm there are document tags (1194.22 d).
- Confirm the tag order matches the visual order of what you see (1194.21 c / 1194.22 d).



Accessible PDFs 2

- Confirm there are document tags.



Accessible PDFs 3

- Confirm the tag order matches the visual order of what you see.
 - Two Types of Reading Order: Visual and Programmatic



Accessible PDFs 4

- Confirm the tag order matches the visual order of what you see.



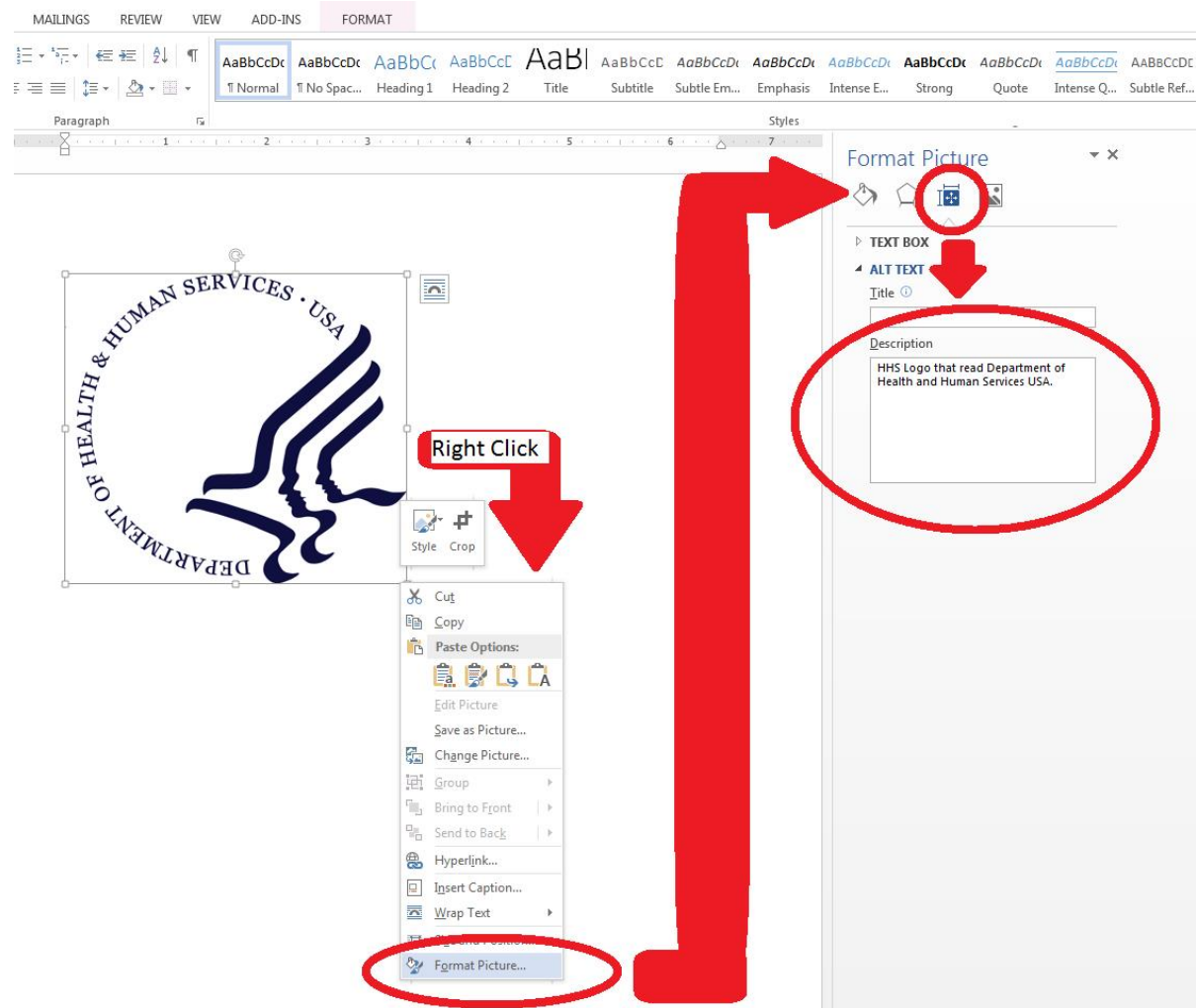
Three Common Things to Check in All Files

- Figures must always have Alt-Text (unless they are decorative) (1194.22 a).
- Information can not be conveyed by color alone (1194.22 c).
- There must be color-contrast ratio of at least 4.5:1 between the foreground text and the background color (WCAG 2.0, 1.4.3 and HHS Guidelines).



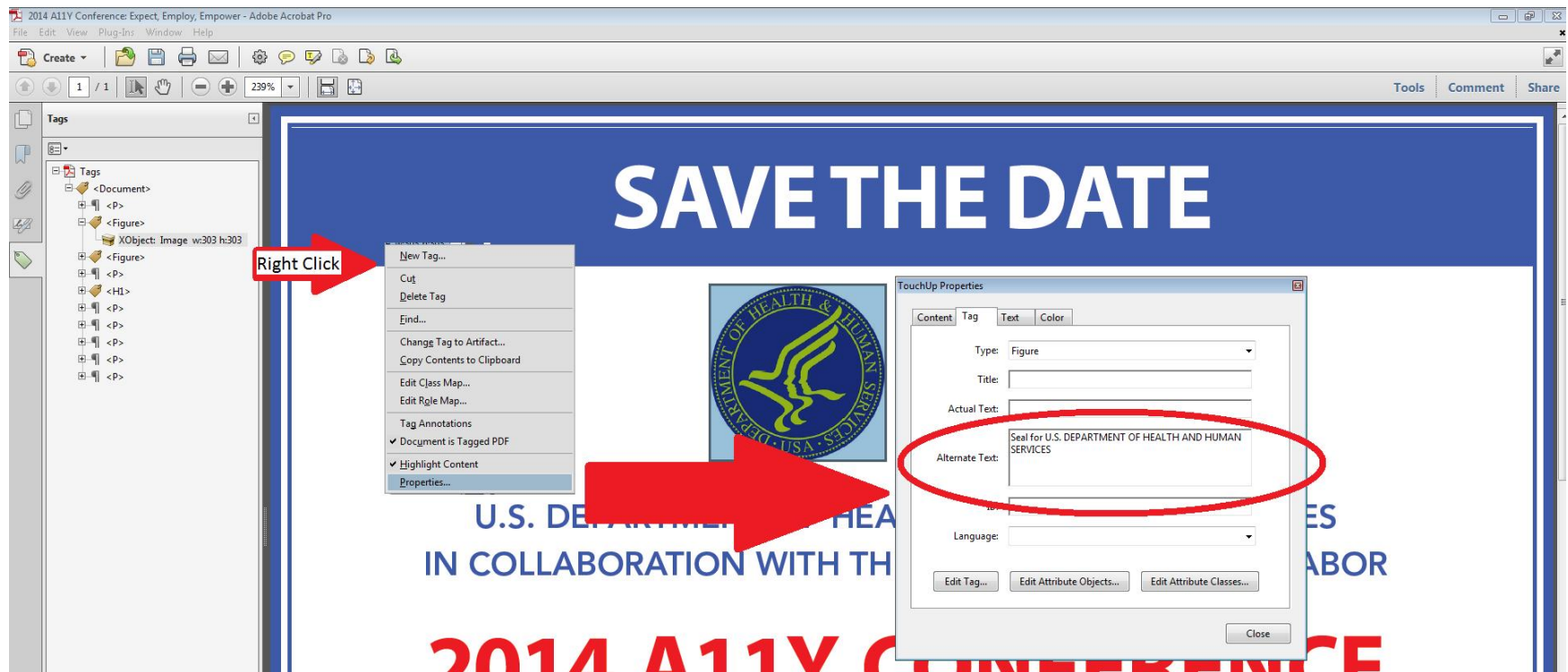
Three Common Things to Check in All Files—Alt Text 1

- Figures must always have alt-text (unless they are decorative).



Three Common Things to Check in All Files—Alt Text 2

- Figures must always have Alt-Text (unless they are decorative).



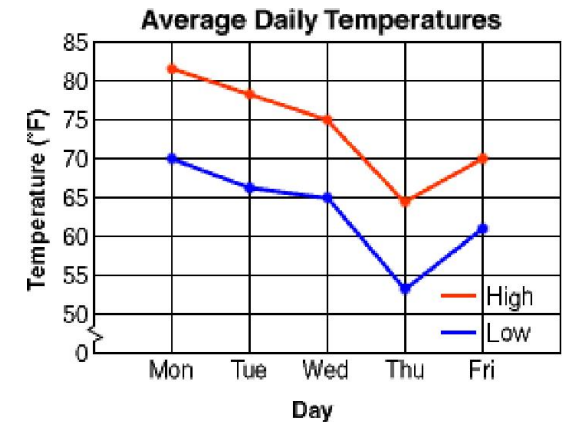
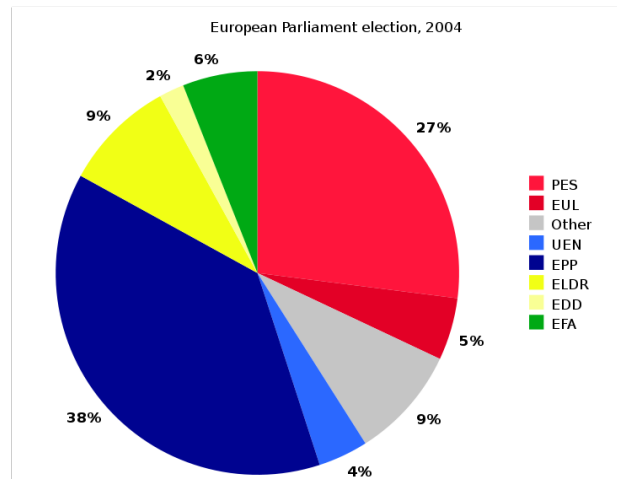
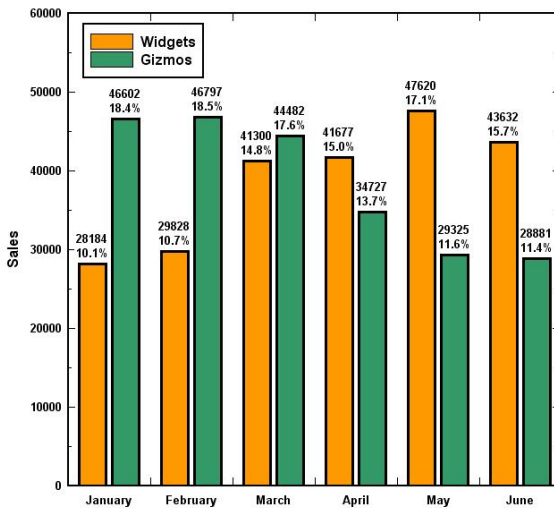
Three Common Things to Check in All Files—Alt Text 3

- Good alternative text does the following:
 - It identifies the figure type (bar graph, pie chart, etc.)
 - It gives the take-home message/purpose of the figure
 - If there are images of text in the figure, that text is captured in the alternative text
 - If there is a source for the figure, that source information is captured in the alternative text
 - It can (and should) refer to the longer in-text description or caption (if the image is complex)
- Two things to avoid:
 - Avoid useless phrases like “image of”; be specific (e.g., bar chart showing; screen shot illustrating...)
 - Don’t be verbose; keep it short---longer explanations should appear elsewhere (like in the body text or as the caption)



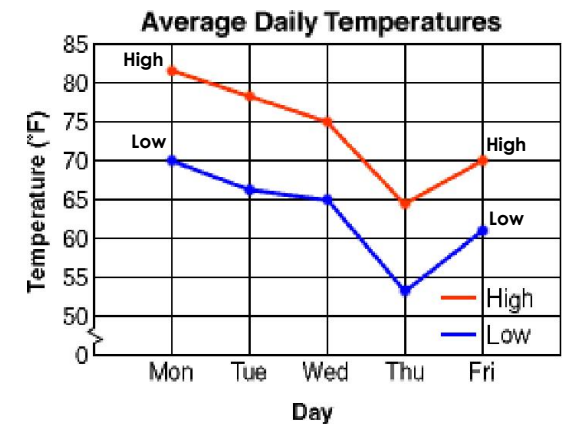
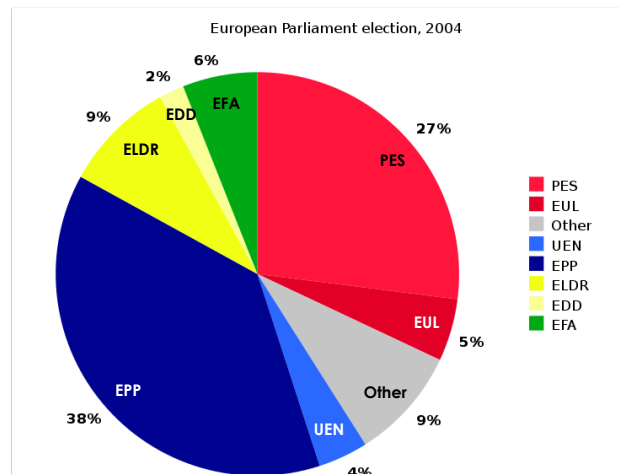
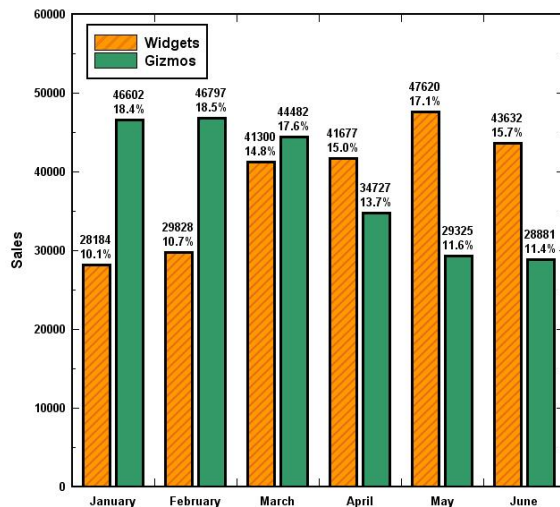
Three Common Things to Check in All Files—Color Alone 1

- Information can not be conveyed by color alone.



Three Common Things to Check in All Files—Color Alone 2

- Notice how secondary means of identification have been added.



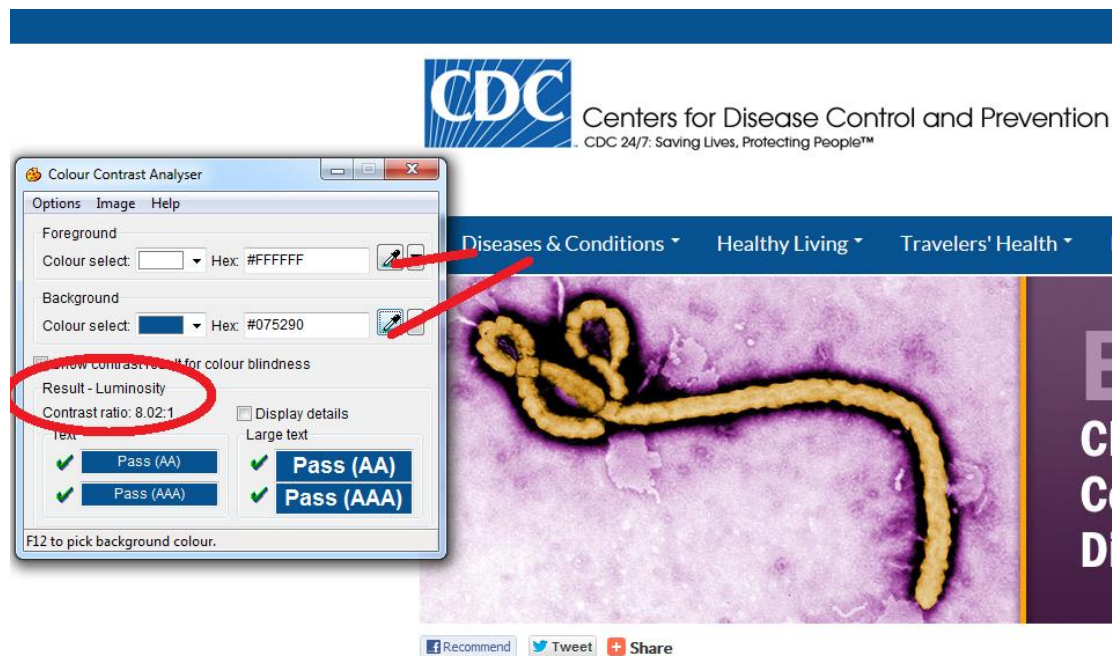
Three Common Things to Check in All Files—Color Alone 3

- Deuteranopy (Inability to see Green)



Three Common Things to Check in All Files— Sufficient Color Contrast 1

- There must be color-contrast ratio of 4.5:1 between the foreground text and the background color.
- Free Tool—Colour-Contrast Analyser:
<http://www.paciellogroup.com/resources/contrastanalyser/>



Three Common Things to Check in All Files— Sufficient Color Contrast 2

- There must be color-contrast ratio of 4.5:1 between the foreground text and the background color.

The screenshot shows the MentalHealth.gov website with three instances of the Colour Contrast Analyser tool overlaid to demonstrate contrast checks for different text elements.

Top Left Window: Foreground: White (#FFFFFF), Background: Dark Purple (#7C4D5D). Contrast ratio: 6.83:1. Results: Pass (AA) for Text, Pass (AA) for Large text, Pass (AAA) for Large text.

Top Right Window: Foreground: Black (#333333), Background: Yellow (#FEEC66). Contrast ratio: 8.45:1. Results: Pass (AA) for Text, Pass (AA) for Large text, Pass (AAA) for Large text.

Bottom Left Window: Foreground: Black (#333238), Background: Light Yellow (#FFFAEE). Contrast ratio: 12.19:1. Results: Pass (AA) for Text, Pass (AA) for Large text, Pass (AAA) for Large text.

Bottom Right Window: Foreground: White (#FFFFFF), Background: Teal (#147F85). Contrast ratio: 4.77:1. Results: Pass (AA) for Text, Fail (AAA) for Large text, Pass (AAA) for Large text.

The website content includes the MentalHealth.gov logo, navigation links (Home, Newsroom, Connect, Blog, Español), a search bar, a main heading "Resources in Spanish", a sidebar with "Features" (Suicide Prevention, Coping with Trauma, Resources in Spanish, Veterans), a "Featured Topics" section for "Eating Disorders", and a "Get Immediate Help" button.



Three Common Things to Check in All Files— Sufficient Color Contrast 3

The screenshot shows the MentalHealth.gov website in a web browser. A 'Colour Contrast Analyser' tool window is open, displaying contrast ratios for various types of color blindness. The tool shows a foreground color of white (#FFFFFF) and a background color of red (#C2505C). The contrast ratios are as follows:

Condition	Contrast Ratio
Normal	4.57:1
Protanopia	6.35:1
Deuteranopia	4.85:1
Tritanopia	4.58:1

The website content includes the MentalHealth.gov logo, a search bar, and a main banner titled 'Recognize the Warning Signs' with the text 'Do you know the behaviors that might suggest someone is thinking about suicide?' and a 'Learn more' link. A sidebar on the right lists 'Features' such as 'Suicide Prevention', 'Coping with Trauma', 'Resources in Spanish', and 'Veterans'. At the bottom, there are sections for 'What To Look For', 'Talk About Mental Health', 'How To Get Help', 'Featured Topics' (including 'Eating Disorders'), and a 'Get Immediate Help' button.



Things We Haven't Talked About 1

- Table Formatting and Tagging
 - TH/TD
 - Scoping
 - What to do about blank cells
 - Ensuring Table Headers repeat across rows
 - Dynamic functionality---like sortable tables
- Watermarks/background images
 - How to hide from AT
 - Importance of Repeating Information
- Form Fields
 - Labels
 - Tab Order
 - Visual and Programmatic Focus
- Video/Audio
 - Accessible controls
 - Captioning
 - Transcripts



Things We Haven't Talked About 2

- PowerPoint
 - Not using smart art
 - Correct reading order
- PDFs
 - Correct use and selection of tags
 - Bullet tagging
 - Footnote tagging
- Upcoming Changes based on WCAG 2.0
 - Not using color, location, or shape alone
 - Rules for visual focus
 - Rules for dynamic content



Formal Testing

- To really ensure accessibility, you do need to conduct formal testing that makes use of manual inspection, automated tools, and, as needed, testing with assistive technology, such as screen readers and voice-control systems.
- Often people rely on the built-in checkers within a piece of software as their measuring stick. Those tools, by themselves, are not enough.



Problems with Automatic Checkers 1

The built-in accessibility checkers in Office and Acrobat cannot...

- tell you if the table tagging is correct;
- tell you if the color-contrast is sufficient;
- tell you if information is being communicated by color, shape, or position alone; or
- tell you if captions are present and whether they are appropriate;
- tell you if the alt-text that is present is appropriate;
- tell you if background images are appropriately selected and hidden;
- tell you if the tag order (programmatic reading order) and visual reading order match one another
- tell you if the visual focus and programmatic focus match one another
- tell you if drop downs or interactive elements work correctly
- and the list goes on and on...



Problems with Automatic Checkers 2

The bottom line is that accessibility checkers are too often thought of as being the end-all-be-all for accessibility. They are not. You must understand their limits and be prepared to supplement their findings with both manual inspection and additional automated tools (like the contrast analyzer we just talked about).



Where to Get Help

- HHS has a comprehensive 508 web site containing tutorials and checklists:
 - <http://www.hhs.gov/web/508>
- DHS has a trusted-tester certification program individuals can enroll in. For more information, please contact Matt Herman at matthew.harmon@hq.dhs.gov.
- The CIO Council Best-Practice Committee has developed some resources to guide the testing of Word documents for accessibility. For more information, please contact Don Barrett at don.barrett@ed.gov.



Accessible Design Benefits Everyone

- Often, accessible design blends into universal design:
 - Captioning
 - Curb Cutouts
 - Pencil/Pen grippers
 - SIRI
- The same is true in accessible document design:
 - Ensuring appropriate color contrast benefits everyone.
 - Ensuring a secondary designation beyond color benefits everyone.
 - Ensuring a movie is captioned benefits everyone.
 - Having a tagged PDF can benefit everyone (everyone has access to the free text reader in Acrobat)
 - Ensuring logical headings and unique slide titles benefits everyone
 - and the list goes on (many things we didn't talk about today)....



Take-Away Messages

- You now know that there is current legal guidance and upcoming legal guidance mandating accessible design.
- You now know of 9 easy-to-check things across all three major files types: Word, PowerPoint, and PDF
- You now know 3 common easy-to-check things across all three files types.
- You now know that accessibility checkers are insufficient for ensuring accessibility or compliance with Section 508.
- In looking at the list of topics we didn't cover, it should be clear that there is a lot one must do to ensure document accessibility and that ensuring accessibility does take time and must be baked into your project timeline.



Revisiting Our Opening Thought

“The moral test of government is how that government treats those who are in the dawn of life, the children; those who are in the twilight of life, the elderly; and those who are in the shadows of life, the sick, the needy and the handicapped.”

- Hubert Humphrey



Closing Thought

“Bake accessibility in from the beginning rather than bolting it on at the end.”

-Richard Stapleton (and likely others)



About the Images in this Presentation

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Contact Info and Questions

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