Jennifer:

Thank you all for joining us here today. We’re delighted to have such a terrific crowd with us to learn an important topic from Cristopher Broyles, who, as you heard is the web accessibility program manager for ASPA/DCD at HHS. It’s a program that encompasses nearly 2.5 million web pages, 30,000 files across 11 operating divisions. He has been working in accessibility in communications for nearly 10 years. You can find his full bio on the invitation that you all got, but I had the pleasure of hearing him speak at a major conference at the Department recently. I found that he was very very clear and that even me, somebody who's terrible at computers, could really understand what he was saying and can really find his tips very useful. So Cristopher, I turn it over to you and I want to say how grateful I am that you took a complicated topic and turned it into something simple that any of us can learn from, can follow and can use.

Cristopher:

Oh thank you for that warm introduction and hello everyone. This has already been said, I’m Cris Broyles and I'm actually a lead consultant with Acquilient and currently I'm on the HHS DCD project where I do serve as the web 508 program manager and today we are going to be talking about document accessibility. So I want to begin with an opening thought and this quote which I'll read shortly is captured in the lobby of the Hubert Humphrey building - the HHS building in Washington DC - and it's a good quote that I think really sets the tone for what the government needs to be doing and what people need to be doing and thinking about in terms of reaching different audiences. “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” and that's a quote by Hubert Humphrey. Working in electronic publications I've observed what I consider to be a problem and that sort of sparked this presentation. Digital content is generally vetted. There's all kinds of processes in place to ensure accuracy and relevance of information and for editing and sometimes there’s even attorneys involved making sure the words are just right so there's all these in-place quality control measures and checks, but I've observed that there's one thing that is a legal requirement-a quality control check that must be there-that's often overlooked. It has legal roots, it takes time and it is largely misunderstood and undervalued and that's making your publications accessible to individuals with disabilities. But before we really dig in and talk about how we're going to do this, I think it's important to understand sort of the why and the consequences of not doing it and the simple truth is not thinking about accessibility as you're preparing your document has consequences. For example, if your organization has a 508 check in place before they allow publications to go live, and the author hasn't thought about accessibility then it's going to lead to an incorrect belief that your content is distribution ready which can contribute to an end of cycle delay and possibly even miss deadlines. Because the content isn't accessible, it’s not ready for publication. Importantly, when publications or content goes live or is mailed out that is not accessible, there’s been actual lawsuits. In other words there are groups groups that are watching us: The Department of Justice, a lot of different accessibility groups, the office of management and budget, etc. In some of those lawsuits - Social Security Administration in 2009 for not providing accessible benefits statements, the Department of Education in 2009, the Government of Canada…just more recently in 2013 the Customs Border Patrol under the Department of Homeland Security was sued. So there's people watching and there's legal consequences. But all that aside I think there's a more important more pressing concern or consequence. Greater than the legal and project online consequences are the moral ones. If your content is not accessible, that means part of your audience is not getting your message and we know that individuals with disabilities can make up ten to twenty percent of the population and so that translates over into potentially ten to twenty percent of your audience that you're not reaching if you're not making your content accessible. And in my mind that's just bad business. You want your message in your content who has reach as many people as possible and to help and inform and persuade as many people as possible so it doesn't make sense to exclude ten to twenty percent of your population.

This sort of brings us to our main goals this presentation will help you to understand document accessibility at a very high level in terms of its roots in section 508 and WCAG 2.0, both of which we'll talk about very briefly in the upcoming slides, and to 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 projects workflow because it does take time, it does take money, and it does take resources. It's not usually something you can just naturally fix at the very end. It requires some forethought. But to facilitate those goals here's some of the trading topics that we'll be talking about we're going to first look at section 508 WCAG 2.0 and come to a common understanding of what we mean by a document accessibility within the context of this group in this presentation. Then we're going to transition into a discussion of the easy to check high-level things across three different major formats. That includes Word PowerPoint and PDF and I'm guessing that's what most of us are here today most of us are excited about is that second bullet and we're going to talk about why it matters which we've already alluded to. And we're going to round out the presentation by talking about where you can get additional help.

First, what is section 508? It's a 1998 amendment to the Rehabilitation Act of 1973 that, simply put, requires electronic content to be accessible to individuals with disabilities. Section 508 is divided into four sub parts: ABC and D. The one we're probably most familiar with is B - the technical standards - but we're going to go ahead and briefly chat about each one of these sub parts because it's kind of neat to see how they work together.

So we're going to start looking at the last one - D - which is information documentation and support that contains three specific technical requirements and the gist is that multiple accessible formats for a single document must be available at no charge to those who need them. And an easy way to make sure that you're providing accessible content is to just make your electronic copies accessible. Then you only have to worry about hard copies if they're requested. So this brings us to subpart C. Subpart C is a functional performance criteria. This contains six technical requirements - a through f - and the gist of these is that there must be at least one mode of operation and information retrieval that is independent of sight independent of sound independent of speech and independent of fine motor control. That brings us then to subpart B. Subpart B are the actual technical standards; sort of the checklist items so to speak that you need to make sure you're actually doing to facilitate compliance with subpart C and compliance with subpart D. The technical standards in Section B are broken down by technology type- software, web content, etc. If we look at sub parts d and c, which we've just talked about, both point to the need for the accessible content information. It says you must have these things. Subpart B again is the actual technical criteria that tells you how to meet D&C. Now since we're talking about accessible documents and accessible files the most relevant technical instruction comes out of 1194.22 which is web content. But technology and software and stuff has advanced considerably since the section 508 guidelines were written so it's not enough just to look there. For example powerpoints can contain videos so you might want to look at 1194.24 which deals with multimedia. Sometimes excel files contain can contain filters or other script based features especially if they're supposed to be interactive templates that people can use and populate with data so in that case you might need to look to 1194.21 which is software. So that's section 508. Now we're going to talk about WCAG 2.0. WCAG stands for web content accessibility guidelines, and in short, the federal government is anticipating that WCAG 2.0 will become the new federal mandate-it will become the new section 508-and this has been in the works for some time and it goes by the name “the section 508 refresh” which I'm sure at least some of you have heard about previously. Based on my last discussions with the u.s. access board they have completed their response to OMB. OMB had reviewed the initial draft OMB had questions the access board responded to those questions and I think at this point the draft is now back with OMB for approval. And so sort of the next thing we're all watching for in this process I believe is the notice for proposed rulemaking. We believe it will come around 2015, but we'll wait and see.

Now unlike current section 508 which we just looked at which was divided up by technology type - remember we saw web we saw software we saw multimedia etc - WCAG 2.0 is technology agnostic. In other words it's divided up by the by cognitive game based principles. That includes things like perceiveability, operability, usability, and robustness and then each of those principles are further subdivided into specific technical requirements and guidelines across three different levels: level A level AA and level AAA and there's a web link there to the actual wcag 2.0 guidelines. What the federal government is watching for is level and level AAA that is what the US access board has proposed that the federal government adopt and so level AAA becomes sort of a a nice to have. If you want to go and above and beyond, you can do those things but the requirements are going to be Level A and level AAA. What we see on the screen now is a screenshot of one of the actual wcag 2.0 pages just so you can sort of have a mental model of how these guidelines are laid out. There’s a principle a guideline and then the technical requirement. And you can see that the technical requirement 1.1.1 at the end it's indicated that it's a level A requirement meaning the federal government will have to follow it. So cumulatively what does all this mean? Section 508, this WCAG 2.0, etc…Simply put, 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. Now when I say it's a legal requirement, I'm talking specifically about the federal government, contractors of the federal government, and those using federal funds to develop content. So it does not necessarily apply to private organizations in a legal sense, but it is great if private organizations are making their content accessible. It is encouraged and you know I think over time, just like there are legal requirements for architecture that apply whether it's a federal building or a public building or what have you, I think eventually that the digital content requirements are going to become legal for anything I think it's just a matter of time.

So, this brings us to an important question: what do we mean when we say something is accessible? For me, accessibility is not merely about meeting the technical requirements. The technical requirements are good because mentally it's a checklist. You can use it, you can have something to follow, it shows some attempt to due diligence. But taking a step back, for me, accessibility is really about ensuring that individuals with a disability can get the information, understand the information, and do something with the information. And if you think about it, isn’t that really the point of all the content that we're putting out? Don't we want people to read it and understand it and do something with it? Make decisions based on it? Take action based on it? So you know that that folds right into what I think accessibility speaks to. So the next series of slides will detail at the high level some quick check things we can all do to help ensure that our Word documents powerpoints and PDFs are all accessible. Importantly what we cover today is not going to be a comprehensive account of everything that it takes to make your files accessible. We could do a two-hour chat just on word documents alone, probably a four hour chat on PDFs, so we're going to be looking at a very high level just to sort of get help everyone get started and get everyone actively thinking about making their content reach the widest possible audience.

So specifically we're going to be looking at two items for each file type. We're going to start by talking about Word documents and there's two specific things we're going to look at in the context of Word documents. We're going to look to make sure that the document has logical consecutive headings which we map to 1194.22d in Section 508, and we're going to make sure there are no complex tables in our Word documents which we map to 1194.22h. And so now we're going to look at each one of those one by one.

What I have shown here is a screen capture of the top of Microsoft Word of ribbon and I think many of us are familiar with that we've seen the bold, the italics, the underlining, how to change the font; but if we look over to what I circled we might have seen these things before-these styles-and we might not be sure what they are or what they do. These Styles have heading levels and they create something that is akin to what developers do for HTML. For HTML, developers put in behind the scenes code that helps content to work with assistive technology. One thing that the web developers do is they designate heading levels. This is an h1, meaning it's the the most important the top level heading. This is an h2, it falls under it. We can do that same type of tagging in Word documents and it's really easy. It's just a matter of typing your document out and selecting and assigning the different heading levels structure to your document.

So what I have shown here is an example generally speaking the title of the document is what we want to call h1. Now that's a little tricky, because if you start scrolling through the different styles you'll see one that's actually called title and so it would make sense to call it title but assistive technology does not know how to make sense of that particular designation. So we call the title of our document h1 and then the first thing under that will be an h2. So generally in a general document your first section after the title might be your introduction and you might have a heading that says introduction. So you would just click anywhere in the word introduction and you go up here and you tag that you just click heading 2. And it would tag introduction as Heading 2. Then underneath your introduction maybe you have two sub headings. Maybe you've got background and you've got scope. You would tag each of those h3 and then maybe that's it for the introduction and now you're out into your body section. So whatever that is then you'd be back and tagging that in h2. So you can kind of mentally think about it as an outline.

Now a common concern I hear is that people once they know how to use these heading styles, they don't like to use them because they don't like the color or the size or what have you. What people sometimes don't realize is that you can completely customize what each heading level looks like and all you have to do is just right click on the particular heading level and choose customize. Then you can tell it what color you want it to be, what font size you want it to be, etc. And that works beautifully because then visual users get the aesthetics that they want, but because you've tagged the structure with the different heading levels, assisted technology users then get the information that they need to make sense of the document so it's a win-win for everyone.

The second item talk about in terms of word documents is ensuring that there are no complex tables. Now, first we have to understand what a complex table is versus a simple table. So I'm actually going to explain what a simple table is first. And a simple table is just a table in which the column structure is identical from row to row to row. So if we look at this simple table that I have shown here, we can see that the first row is divided into two columns, the second row is divided into two columns, so it's got a consistent cell count between the rows - 2 and 2. Let's compare that to what we have classified as a complex table. A complex table simply put is a table that has non-identical cells-cell counts from row to row. So if you look in this first row which says top presidential candidates 2008, that's just one really big column, and then underneath that we see Democrat and Republican so that's two columns that that has been broken into, and then if we come down another row we can see that it's further divided out into seven cells. So this is a complex table. It has inconsistent cell counts row by row and the term that we would sometimes use is what we call a merged cell so this is a merged cell - top presidential candidates 2008 is a merged cell because it encompasses two cells below it which are democratic and republican, and each of those are merged cells because, for example Democratic encompasses Name, DEL, Name, DEL, delegate I think is what DEL stands for there. So that's the difference between a simple table and a complex table.

Assistive technology requires certain coding attributes to be present in order to render the table in a way that makes sense to users of assistive technology. Word does not necessarily support all those needed codes. So in Word, you can have a simple table and assistive technology will read it in any way that for the most part can make sense to assistive technology users. But a complex table definitely cannot make sense in a word document and be processed in a correct fashion by assistive technology because there's a bunch of codes that needs to be present in order for relationships to be made. So for example going back to the complex table- top presidential candidates 2008 needs some sort of code to associate it with Democratic. Democratic needs code to associate it with name, delegate, name and delegate. So visually, users who are not using assistive technology can make those connections visually. Otherwise if you're using assistive technology you need that behind the scenes code to help a user make those different connections.

So if you're working on a word document and it has a complex table you have two options. You can take that complex table and convert it to a simple table which is what the figure shows here and that was accomplished by pulling out some of the cell material and making that table titles. Or alternatively, if the table has to stay a complex table, then you're going to need to make your final format a format that can can be processed by assistive technology. And the two most common things are HTML and PDF. Both of those have the necessary tagging components to make a complex table makes sense to assistive technology and users of assistive technology.

That was Word. Now we're going to talk about PowerPoint. The two specific items we're going to look at for PowerPoint are…the first one is making sure that single images are grouped when it makes sense, especially for like process type figures, and we map that to 1194.22A in 508. And then make sure that each slide is titled and that the slide title is unique from one slide to the next and we map that to WCAG 2.0 2.4.2. And we're going to look at each of these one by one.

What I have on the screen now is an image, and the image is supposed to show the process of making popcorn. The image consists of corn kernels, a plus symbol, fire to represent heat, a yields symbol and popcorn. And each one of these images I put into my powerpoint one by one. If we were in Microsoft PowerPoint right now I could click on any one image, and there would be a box that comes around each image individually showing me that each image is its own thing. And so I'm going to go to the next slide here, If you can see now each one of those boxes I was talking about. What you want to do is you want to draw a big box that encompasses all of them, so all of your little boxes, all of your individual images are selected. And then you right click on them and you choose group and group. And what that does is it turns all those little images into one big image. This is important because as we’ll talk about later each image has to have alt text. So it makes sense to write one piece of alt text for the for the image holistically than it does to make to write individual alt text for each individual image.

Something to keep in mind why this is important to assistive technology users is an assistive technology screen readers will announce when there's an image. They'll say something like image or figure, and then they'll read the alt text. So if I wanted to write alt text for each image individually instead of grouping them this is what a user might hear: Image corn kernels image plus symbol image fire image yield image popcorn. That's just not a good experience-that's just annoying! If you combine them all into one, a screen reader user will hear the word image once and then you can put some nice alt text in there to describe the process. And if we were in PowerPoint right now, this is where I would click on the image, and you can see that there's one big box around the whole image indicating that it's grouped and that assistive technology will process it as only one image.

The next item we're going to talk about for Powerpoints is ensuring that each slide has a title and then each slide’s title is unique. And I think this is important for all users. I think this is one of those neat instances where accessible design bleeds into universal design and it's something that benefits everyone. Me as a critical reader: whenever I'm given a PowerPoint and I see immediately that two slides have the same title, the very first thing that goes through my mind as a critical reader is was that on purpose? Was it accidental? Is it just duplicated content? So then I have to go and look at those slides and be like oh no it's okay there's different content or yep it's an error. So if you give your slides unique titles right off the bat, I think that that helps me and a lot of other critical readers, but it also helps assistive technology users too, because assistive technology users (just like individuals who do not use assistive technology) can choose to browse the slides by titles. And then just focus in on the slide that's relevant to them, that they want to hear. So adding slide titles making them unique is very easy to do, and it's something that we should be doing.

This brings us to our third file type which is accessible PDFs. There's a question I see about alt text. we're going to be talking about alt text a little bit later and I will address that then.

PDFs are really challenging. They're challenging in the sense not that they're really hard to make compliant. It just takes a lot of time and it can be mind numbing, but in the end it's always worth it. So the two specific things that we're going to talk about: number one is assuring that there are tags for the PDF which we map to 1194.22 d in section 508; and confirming that the tag order matches the visual order of what you see which we're going to map to 1194.21 c and 1194.22 d both in Section 508.

Now, my team uses adobe acrobat professional to remediate the PDFs that we remediate. We also use the common look plugin. When you open up Adobe Acrobat professional, what you would want to do is you want to select a little tags icon which is over here on the left. When you do that one of two scenarios is going to happen. Either you're going to see a simple statement - no tags are available or you're going to see stuff. And what we want to see is stuff. If we see the phrase no tags are available, that means that assistive technology is not going to be able to interpret anything that is in that PDF, so it's just like handing someone a blank sheet of paper. Instead what we want to see is stuff - actual tagging that is done to make the content accessible. This tagging can be pretty complex at times, but it makes use of a lot of tags that those who have worked in HTML are familiar with. The P tag, the h1 tag which is for heading level one tag, p means it's a paragraph of text, figure means it's a figure that sort of thing.

So once you've confirmed there are tags, what you want to do is try to see if the tags sort of match up with what you're seeing visually. So visually when I look at a PDF the first thing I see is save the date which is some sort of text. Then I see two images, and then I see what what the title of the document is: US Department of Health and Human Services and collaboration blah blah blah blah. So then, when I open the tag structure I want to see something that talks about text. So there's a P tag right off the bat for save the date. Then I see my two figure tags so things are starting to match up right up front and that's good and that's what we want. So the terms that we sometimes get to this and that you might have heard are the visual reading order, which again is what a user who's not using assistive technology sees and processes with his or her eyes, and the programmatic reading order, which is the tagged reading order and that's the reading order that assistive technology renders the information in. So if the two are out of sync, you could be giving a message that looks great visually, but if it's out of order in the tags, then the screen reader is going to be hopping around to different locations on the PDF and it's going to be presenting information in a way that might be nonsensical and that's what we want to avoid. To get to those tags in a PDF which was just asked, again when you're in Adobe Acrobat professional, you select the tags icon which is on the left - let me see if I get my little laser pointer to come up here. okay there hopefully you guys can see the laser pointer but I'm circling it that little symbol that looks like a tag you just click on that and then that brings up this tags window here and I'm going to try to hide that.

So here's a PDF where the tag order and visual reading order do not match. Again when I look at the PDF visually I see those images so when I look at the tag order I expect to see those images somewhere near the top. And I'm looking and I'm looking and I’m not seeing...oh, there they are, way down here at the bottom. So that's a clue to me that something probably isn't right with this PDF and I would go ahead and send it to a PDF technical specialist who can double check things and fine-tune things.

Alright so to recap what we've chatted about thus far. We've talked about three different file types Word, PowerPoint and PDF; and for each of those file types we talked about two high-level easy to check things. For Word we talked about ensuring that there's logical consecutive headings and that there are no complex tables. For PowerPoint we talked about grouping images and we talked about ensuring that each slide is titled and has a unique title. And for PDFs we talked about ensuring the tags are present and the tags match the visual order. And someone just asked about the PDF specialist so you can turn things into. The PDF specialists are people that are within your team who's ever been designated to have that role and has had that training. There's not some central body that you can just send stuff to in the federal government and have things be converted to 508.

All right so those were the six things that we talked about that were file specific. Now we're going to talk about three additional things that are common to all files. So when you walk away today you'll have heard about nine things that you can check with relative ease to help ensure that you're putting out accessible content and to ensure that your content is reaching this broad of audience as possible. So the three things we're going to talk about next are ensuring that your figures have alternative text, which we map to 1194.22 a unless the figure is classified as decorative. The second thing we're going to talk about is ensuring that information is not conveyed by color alone which we map to 1194.22 c. And interestingly WCAG 2.0 has a requirement that's going to take this a step further - you cannot communicate information by color alone, shape alone, or location alone. So this is going to become really important when people are actually writing their content and designing their figures and figure legends. Then, we're going to talk about color contrast and there's a WCAG 2.0 requirement 1.4.3 that requires there be at least a 4.5:1 luminosity color contrast ratio between your foreground text and your background color, and we're going to talk about a free easy to use tool that you can use to ensure your meeting that regulation.

First, alt text - and this gets at a question that was asked earlier about how do you actually add in alt text. The office programs are pretty consistent like Word and PowerPoint. You can right click on the image and when you do a menu will pop up and you want to go to format picture and when you do that that brings up another menu over here to the right and then from that you want to select alt text and then there's a description field which is circled. That description field is where you can type in your actual alt text whatever you want the alt text to be and I'm going to give you some strategies about how to write meaningful off text that I have borrowed from my in-progress dissertation research.

PDF-ensuring alt text is a little bit different. You need to find the actual figure in the tagging structure and you need to click on it - it's an object - and then right-click, choose properties, when you choose that, that will give you a popup menu that says touch up properties, and then there's a tab structure and then that tab structure you want to select the tag TAG Tab and in doing so you'll see there's the field for alternative text and so that's where you would type in your alternative text there.

Good alternative text is really text that is written for the user that thinks about the user and considers what the what the user would need or what. And in my research and talking with actual users of assistive technology specifically blind users in what they want in alt text, I've sort of reached the following conclusions. Number one: overall good alt text needs to stand on its own and there's an important reason for that. Users of assistive technology can browse a document by images by alt text. Just like a user who doesn't use assistive technology can visually scan a document in hone in on graphics and figure out take-home messages, users of assistive technology want and deserve that same ability to skim and that same freedom. So you need to make sure that your alt text is sufficient enough to sort of stand on its own to represent the figure. And as part of that it's a good idea to identify a figure type like bar graphs, pie chart, etc. This seems to be especially important to users who could once see but are now blind, because knowing the type of chart or type of figure helps them to get sort of a mental picture in their minds.

The figure alt text needs to get the take home message or the purpose of the figure. If there are images of text in the figure, that text needs to be captured in the alternative text. Now the drawback is, sometimes that can create really long alt text, and I'm going to come back to that in just a second. If there is a source for the figure, embedded text like copyright 2012 US access or whatever, that source information-if it's not already captured in the text-should be captured in the alternative text. Importantly a lot of the figures that I see especially in scientific publications are really complex figures. So I encourage the subject matter expert to write a meaningful description for that figure and to go ahead and work it right into the text so that everyone can benefit from it. And if they do that and I see it when I'm writing alt text I will make reference to that longer description. I’ll still try to give what I feel is enough description for the figure to stand on its own, but then I also make reference to that longer description, so users who want access to that know right where to go, and I think that's helpful and courteous and just shows good attention to user design.

There are really two things you want to avoid when writing alt text. You want to avoid meaningless phrases like image of. Image of is different than saying bar chart of or pie chart of. Image of does not foster that development of a mental model, whereas bar chart in and line graph of do. Importantly you don't want to be verbose. Alt-text is really meant to be short explanations. Generally speaking all longer explanations should appear elsewhere like in the body of the text or as a caption maybe as a D-Link type of thing that links to the end of the PDF-there's different ways to do it. But oftentimes subject matter experts or clearance officials don't want those long descriptions, so you don't have a choice. You have to give long alt text. And when you take a step back and think about it and what I think I've come to realize, and what I think the Department of Health and Human Services has come to realize, is at the end of the day I would rather have somebody reading the alt text and say boy that is long alt text. That frustrated me. I'm not happy. I would rather have that and have all the information be there then have the alternative option- somebody walking away saying [grunt] this alternative text is meaningless. I don't know what's going on, I don't feel like I'm getting information, I feel cheated. That’s not what we want. We don't want users to ever feel short-changed or like they're being excluded.

So those are the things to think about for alt text and I'm just reading the questions here. There's a question here about quotes: how do quotes fit into this? If the quote is rendered as actual text, meaning in Microsoft Word, you can type characters over it delete it whatever you don't need to worry about it. If the quote is actually an image, like an image of a thought bubble and there's text inside it so the text is actually embedded in the image, then the alt text would need to capture whatever that quote says.

The next thing that we're going to talk about that's common to all files a common consideration to think about is ensuring that you're not communicating information by color alone. This is really problematic for graphics designers because they're so used to using color alone. And here's three different graphics shown on the screen: a bar chart, a pie graph and a line graph. And they all have the same critical pitfall - they all communicate information in a way that is tied exclusively to color. So for example looking at the bar chart there's widgets and there's gizmos. Widgets are represented by an orange color, Gizmo's are represented by a green color. If an individual is unable to distinguish between orange and green due to some color blindness well then they can't make sense of that chart. Same thing with that line graph - if an individual can't distinguish between red and blue, they're not going to be able to make sense of that chart. So you've got to always have a secondary means to communicate information.

So this slide shows the same charts but with that secondary means added. So with the bar chart for the orange color we've added in a diagonal shading pattern, so even if an individual for some reason can't distinguish between the orange and green hopefully they'll be able to distinguish between no fill pattern versus a diagonal fill pattern. Moving to the pie chart, we've actually put in the actual letters that each pie slice represents, so at this point really that legend to the right of the pie chart is actually useless and can be deleted and then that leaves more room so you could even make the pie chart a little bit bigger if you wanted. For the line graph, there's different ways you can handle line graphs. I've seen people signify one line has got circled indicators on it little circles, another line will have like triangles, a third line might have little boxes, and that works fine. Another way is you can actually label your lines which is what I've done here high and low, so again we've got that secondary means of distinguishing information.

What I'm showing now is an actual screenshot of my cell phone and what’s on my cell phone is a free app that anyone can download by Seewald solutions and it's a color blindness simulator app. And it has three different color blindness settings built in so that you can simulate what those colorblindness deficits do to your design. It uses the camera of your phone and you can hold it up and you can look at a digital design that's on your monitor and it will work. You can look at a print out design like if you've got a paper copy in front of you, a hard copy, and it will work. So the specific screenshot I’ve shown here shows a rainbow of colors: red yellow green and blue on one side, and then on the left side it has a particular color vision deficit demonstrated. And so this particular color vision deficit is an inability to see green which means there's also an inability to see red. There's a question about what is the name of the app. Again it is the Seewald solutions color blindness simulator and I found it on my play store for my Android. Now of course my one concern with this app is I'm not a fan of them using the term “normal” there on the right. I would much rather see it be like something like no color vision deficit or something like that but still, that concern aside, this is a great handy tool that individuals can use right up front when they're designing their graphics and their visuals and their content to get a sense of what it will look like to an individual with color blindness. And it's free.

The next thing I want to talk about is ensuring appropriate color contrast WCAG and HHS have a color contrast standard of 4.5:1. And again that means that the foreground text has to be sufficiently different from the background color. And the free tool that I use and my team uses is the color contrast analyzer and there's the download URL there, and it's by the Paciello group and it's free. Importantly it does not require anything to be installed on your computer, so if you're working in a federal workspace and you've got a group that has all your settings and stuff locked down, it's okay because you're not installing anything, you're not doing any registry entries you can just run the program instantly. And when you run the program this window opens up and the window has foreground and background, and you use an eyedropper. So for the foreground, let's say I want to test this white diseases and conditions against that blue background. So the foreground which is my text - I’ll grab that light color using the eyedropper and it populates the value. Then I want to grab that blue background using the eye dropper and it grabs that blue value. And down here where I circled it, it spits out a luminosity ratio. I apologize if it's hard to read but the luminosity ratio is 8.02:1 which exceeds the four point five to one color contrast ratio that WCAG 2.0 requires so we're in great shape. It’s a real easy tool and it's kind of fun to use. And here's something else that's pretty neat about it- you can be watching a movie like when you own your computer and maybe that movie has text that displays, like for example FDA did some materials go on not smoking and so they have a video and they've got some statistics that show up in the video, you can pause the video and you can actually use this tool to take samples right from your video screen. Anything you can display on your monitor, the eye droppers will work on- it's pretty cool.

What I’m showing now is mentalhealth.gov which is a website that my group built for HHS.gov and you can see there's a lot of neat colors here that's supposed to be warm and inviting and not threatening and we make sure each and every one of these different color combinations met with that 4.5:1 color contrast requirement. So you can see and I've shown four sample ones here. I’ve shown the purple on white, the black on orange, the white on the teal, etc. But what you can do is you can get a sense of- hey, you can make your site colorful and inviting and engaging and still have it be accessible and comply it with WCAG 2.0. And that's really why I wanted to share this. I like this site a lot.

Now if we merge the two ideas we've just talked about color blindness and color contrast we again see a really neat benefit from this free tool. This free tool has a checkbox that says show contrast results for color blindness. If you check that box you can instantly see the three major types of colorblindness. You can see a visual representation of what that does to the colors that have been sampled. So, for example with the first one it turns the pink color to sort of a grey green color and the white stayed white. So I can get a sense of what that's going to do to my design but it also gives me the color contrast ratios for each one of those color blindness situations. So even though there's not a WCAG 2.0 requirement that expressly requires color contrast to be met for each of the different color blindness it's something I still encourage. It's something that my team and I do. And you know with the ease of the tool it's not that difficult to really check.

So there's a question about: is the color contrast tool currently compliance regulation for 508 or is it WCAG 2.0. It is not in current 508, it is not a law mandate currently. HHS as a department made a decision to go ahead and adopt it and use it to help us get ahead of the curve because it is an important consideration for people with vision disabilities that just was not addressed in 508. We decided there was a need for it, and we've done it. So to figure out what we should do about it, what that magic number should be, we then looked to the WCAG 2.0 guidelines which has that 4.5: 1 value and we use that as our standard. Again when the section 508 refresh happens sometimes in 2015, then at that point this will become a legal requirement across all federal sites.

All right what I want to show now or explain now are some things we didn't talk about, just to sort of illustrate that there's a whole bunch of things that still go into making content accessible and what we've done here today has really just scratched the surface. For example there's a lot of things that go into table formatting and tagging, whether it's HTML or PDF you've got to assign your THs and your TDs, scoping there's best practices for what to do about blank cells. Skipping on down- form fields have to be labeled, they have to have a predictable tab order. There's things you have to do to ensure proper visual and programmatic focus. Video and audio: you have to make sure that the controls are accessible, that the the video is captioned. If there’s appreciable action happening in the video, you're going to need audio description. So there's a whole bunch of things and here's another slide about things we haven't talked about. And again that's just to help illustrate the point that what we've covered today is again just a high level, scratch the surface type of thing.

At the end after you've given it your best shot to make things accessible and to comply with 508, I cannot stress enough the importance of formal testing. This is where you can really ensure that accessibility is happening. You need to conduct formal testing that makes use of manual inspection, automated tools, and as needed even testing with assistive technology such as screen readers and voice control systems. And that's what my 508 king does anytime we do a review. And I realize in theory this is great and I realize that there's groups that don't always have the budget to enact this kind of testing, but this is the kind of testing you should be fighting for. This is the kind of testing you should be making the business cases for, so as budgets are renewed these types of considerations can be built in.

A common mistake I see, and it's probably a daily conversation I have with people doing digital content and HHS, is that often people will rely on built in checkers within a piece of software as their measuring stick for accessibility. And I'm encouraged and and happy that they're thinking about accessibility and thinking to use those checkers, but at the same time those checkers lead to a false sense of security because there's so many things they can't check for. So it's good to use the checker, but you need to be aware of the limitations in the checker so you know what you're going to still have to look at manually. And these are all the limitations I came up with off the top of my head. An automated checker can tell you if a table is tagged, but it can't tell you if the tagging is correct- if the right cell is associated with the right heading. An automated checker can't tell you if color contrast is insufficient. Likewise, I don't think it's something that individuals can determine visually either, so you need to make use of that third party tool like the one I demonstrated. There's no automatic checker that can tell you if information is being communicated by color, shape or position alone. That's something you have to read and make a determination for. Automated checkers can sometimes tell you if captions are present, but they can't always tell you if the captions are appropriate just like alt text. And the list goes on and on and on.

There's a question: is there software to turn documents into easy-to-read formats? That's a loaded question, the short answer is yes. You can turn things in easy read formats like you can run it through an Adobe PDF conversion but that doesn't always guarantee accessibility. You still have to make sure it's tagged and so the tagging makes sense, etc. If you're looking to get out something quickly and you don't want to have to do a bunch of checks and you want to know that it's going to be accessible, you can put out an actual like RTF file or a paragraph of text. That type of thing where there's not images or a bunch of headings or things that really give the thing structure.

All right so the bottom line is that accessibility checkers are too often thought of as the end-all be-all for accessibility. Simply put-they are not. They are good to use, but you must understand the limits of what they can check for and be prepared to supplement their findings with manual inspection and additional automated tools just like we talked about with the color contrast analyzer tool.

So this brings us to now that we've talked about all these things and we're going to go home we're going to try all these things where can I get additional help if I need it? Well, HHS has a comprehensive 508 website containing tutorials and checklists at HHS.gov/web/508. There's all kinds of presentations there and they're available in different formats to accommodate different learning styles it's all free and it’s all public facing. And some of the content is a little outdated because it speaks to like older versions of word, but beyond that everything that's there is very solid. It’s been vetted across HHS and it's received on kudos from u.s. access board, GSA, etc, so we feel very confident in its ability to help users make their content accessible. If you're a member of the federal government, you could look into DHS's trusted tester certification program. It's a really intense really detailed program, multiple days long, that really teaches people how to thoroughly test for 508. And Matthew Harmon is the contact point for that. The CIO council / best practices has developed some resources to further guide the testing of Word documents for accessibility. If you want to find out more about that you can reach out to Don Barrett and his email address is listed there.

Okay it looks like got a question here. Okay it says that federal pleadings are typically filed as PDF. Are there any special issues that we should keep in mind regarding accessibility of pleadings? That's something I'm going to have to sort of think about and ponder on because I’m not sure what the nature of the pleading is, how it was funded, where it came from, that sort of thing, so if you want to email me we can have an offline discussion with that particular question.

Okay so let's go ahead and start to wrap things up I've been talking for a while and I'm anxious to get to more questions. The bottom line here is that accessible design can benefit everyone and it can bleed over into universal design like I alluded to earlier. And we can see real world examples of this today like captioning. I've been to a sports bar, I've watched the game, I haven't been able to hear the game, I read the captions. I ride my bike and I’m thankful there are curve cutouts. Pencil grippers, another example, Siri, another example. The same is true with document design. Ensuring that there's appropriate color contrast can benefit everyone. Ensuring that there's a secondary designation beyond color can benefit everyone. I mean think about this: what if somebody prints out your publication in black and white and distributes it at a meeting, and they did that because they wanted to save money on the color ink. Now all of a sudden the graphs are somewhat useless. So everyone can benefit if you add in that extra secondary designation. Ensuring a movie is captioned benefits everyone. Even having a tagged PDF can benefit everyone. One of the things I like to do, I used to be a technical writer editor, and I used to like having the screen reader read my document aloud to me. because when I read it silently to myself I would miss things, when I read aloud to myself I would miss things especially articles, a, and and the. I'm horrible at that I miss those and I can read a sentence and my brain would automatically put that word in so I wouldn't see it. but if I have the computer read it to me and I can hear it, I can hear the computer read what's actually there versus what my brain thought was there, that's a tremendous help to me. It's a great editorial skill. Ensuring logical headings and unique slide titles benefits everyone, and the list goes on and on.

Let's talk about taking takeaway messages now. You now know that there are current legal guidance and upcoming legal guidance that mandates accessible file design. We talked about nine easy to check things across all three major file types. Again for Word, we talked about logical consecutive headings and no complex tables. For PowerPoint, grouping images ensuring unique slide titles. For PDF, ensuring tags are present and assuring tags match visual order. And then we talked about our three things to check across all three file types: color alone, color contrast, and alt text. So all together that's nine things. You now know that accessibility checkers are insufficient for ensuring accessibility or compliance with section 508. And hopefully, by looking at the list of topics that we didn't cover, it should be clear that there's a lot one must do to ensure accessibility, and that does mean planning accessibility in as part of your project timeline and allocating resources for it.

And to quote Dick Stapleton-and I know that he didn't originate this quote but it is a quote that we often hear him make. Dick Stapleton's the deputy director of DCD just for context, and he has to make the same business cases I have to make about 508. “Bake accessibility in from the beginning rather than bolting it on at the end.” It just makes life so much easier and it'll save you time and money on the back end and it will help ensure that your project meets its deadlines.

Ok so this brings us to the questions portion of the presentation. What I’m showing on the screen now is my email address, if you want to email me something after the presentation and now I will look and see what's in the comment section.

Jennifer:

That was fabulous Cristopher, and operator, before you start looking at the online questions operator can you explain to us how people from the phone can also get in line.

Operator:

if you have dialed in you can press seven pound on the top on now the cue for verbal questions or submit them by chat.

Cris:

Ok I want to address one chat question that I see that just popped up, and then we'll go to verbal questions I guess. And we can hop back to typed questions as we need to. Can you talk more about what kinds of manual inspection are necessary? Sure. Manual inspection includes things like the color contrast using that tool to make sure there's that sufficient contrast between foreground text and background color. Another popular thing that can only really be achieved manually is there's a requirement that content must be accessible and navigable to via keyboard, and this is extremely important both to screen reader users and to users with fine motor control issues and those users have to make use of usually have to make use of Dragon. So visual focus needs to be able to move and you need to be able to see that rectangle move from option to option. And you need to be able to use your your arrows and your tab keys, and you need to watch it move, and make sure that that that box that visual focus indicator is moving in a way that makes sense-in a way that has all the different actionable items, so that's probably the biggest one. Manual inspection for alt text & captioning what we mean by that you have to read you have to go into the alt text and look and read it and see it in your professional judgment: does that alt text align with what you're seeing in the image? And you'll be surprised-I’ve seen alt text where the alt text is just the files name, you know image 1.jpg. So an auto checker will tell you: hey you've got alt text, you’re in good shape! But the manual inspection-you reading that alt text - will tell you: hey, that alt text does not make sense. So those are a few things. Let's go ahead and see who's on the line and has got verbal questions.

Operator:

We’ve got no verbal questions.

Cris:

Okay we'll go back to the chat. There's some questions about the court filings have been moving on to online filings and how that works with 508. That's something I'm going to have to do a little digging on, and so if you want to engage me for an offline chat about that I'm happy to see what I can find on that.

Jennifer:

Do you know if there are private sector companies that will convert documents for you because you said that in the government there's not a one-stop solution for you that that a team needs to have somebody really become expert in this but is there a private sector solution is there the kinkos of this?

Cris:

There are, and they're contracting groups, really any group that provides support via Federal contract is aware of 508 and that's supposed to be one of their shops. Not all shops are created the same, so I’ll use this opportunity to give a a plug for the company I work for, which is Acculin. Acculin is a contracting company based out of Laurel, MD, we take 508 extremely seriously. It's one of our solutions and we actually employ individuals with disabilities as part of our testing program. And to date I'm very proud to say out of the some five thousand individual 508 reviews that my team has done for HHS in the last two years - out of all of those - only one time if we ever had something come back where we had passed it and we had made a mistake. We figured out exactly what happened in our process and the short of it is we in our process we missed the test with dragon, we have it as part of our process, it was just skipped and we remedied it, but we're very proud of the work we do and so Acculin is one company there are others. I think SS Bart group might do some of this work. There's a company called Actuate that does this work so those are companies that can all be reached out to. I really appreciate your time and appreciate you coming to this conference. Again if you go off and you try these things and you have questions feel free to email me and please do look at the web resources that HHS offers. It’s a great site with lots of good information.

Jennifer:

Cristopher Broyles this has been absolutely fantastic. I want to thank you for doing this with us. I want to let everybody know who's on the call or on via the web that this was recorded including the captions and it will be posted on the web in the next few days. Additionally on Monday we're releasing a brand-new, first of its kind national poll of how voters with disabilities and without disabilities voted in the presidential election and how they felt about disability issues and accesses to the polls. That, like this, is a for the free webinar and you can sign up on our website: respectability.org in our events section. We also have one coming up on disability etiquette that's going to be happening towards the beginning of December, and this is really to teach people who are working with or just relating to people with disabilities how to do so in a respectful, dignified and appropriate way. All of these are a public service to enable people with disabilities to be valued and equally respected in society. We're a non-profit nonpartisan and this is a public service. So Cristopher Broyles who did this for us for free as a volunteer, I think that your work is really quite extraordinary, extremely helpful so I want to thank you from the bottom of my heart for sharing this wisdom with us. I want to encourage people if you want to follow up with him, he's given you graciously his contact information, but moreover you can just go through this webinar again and you can use these slides to be helpful to you in your work. So Cristopher, thanks again and thanks to all who joined us today.

Cris:

Real quick- just to piggyback off that - in addition, wherever these are posted, there will be an accessible PDF version of this presentation posted there as well. And I've already provided that to the organization. That was it.

Jennifer:

Thank you very much. Thank You operator, this concludes our call.