

**Accessibility, Diversity
& Inclusion**
*It's Not Just About
Disability*

Cathy Warren
NC DIT Digital Solutions

May 21, 2019



About NC DIT Digital Solutions

What We Do

- Design and Build websites for state government agencies
 - ~60 websites and counting
- Use Drupal content management system (CMS) on a platform known as Digital Commons, an initiative to standardize state government websites look and feel and branding identity
- Strive to educate, design, and build with accessibility in mind



Web Content Accessibility Guidelines

(WCAG)

- Part of the series of web accessibility guidelines published by the Web Accessibility Initiative (WAI) of the World Wide Web Consortium (W3C), the main international standards organization for the Internet
- Set of recommendations for making Web content more accessible
 - Primarily for people with disabilities
 - Also for users of devices such as tablets and mobile/smart phones
- Currently at WCAG version 2.1

Web Content Accessibility Guidelines

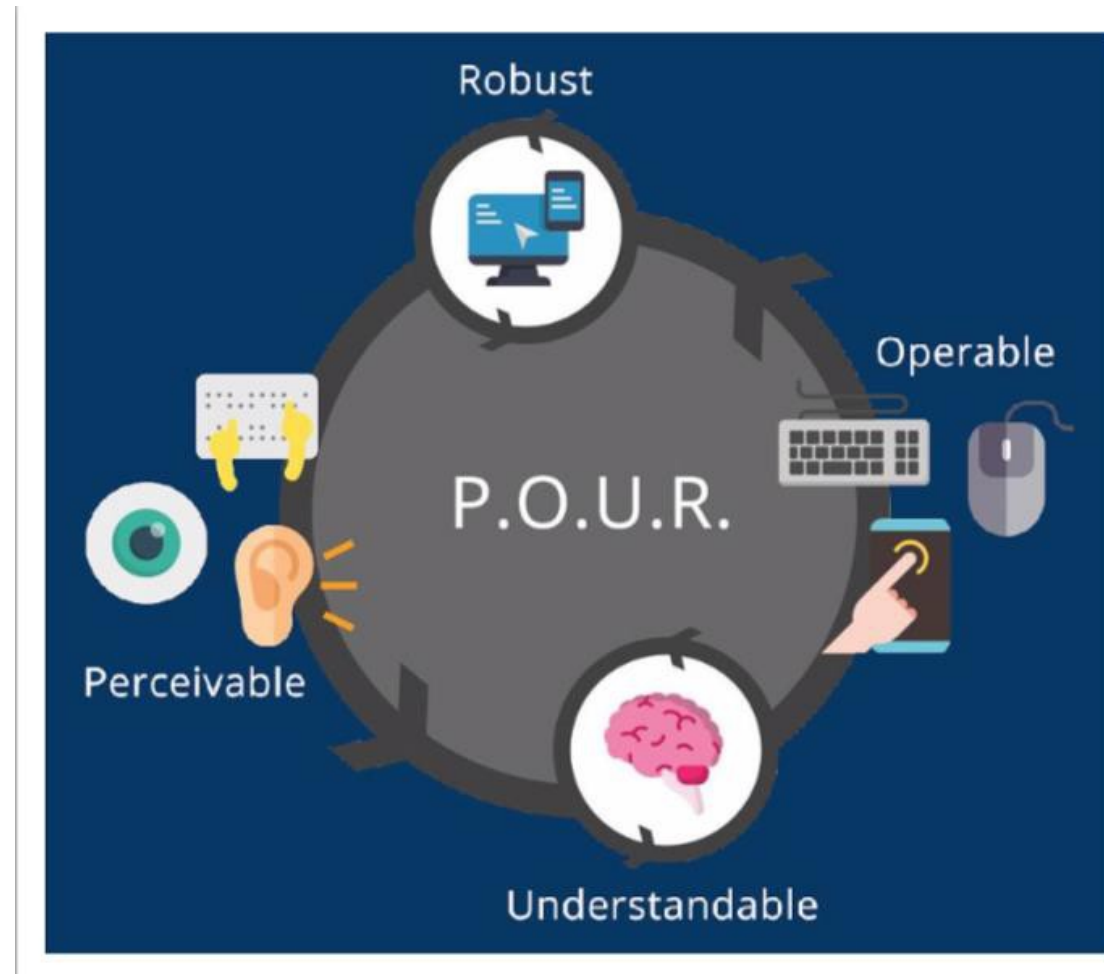
(WCAG)

P: Perceivable – Users can perceive the content regardless of their limitation

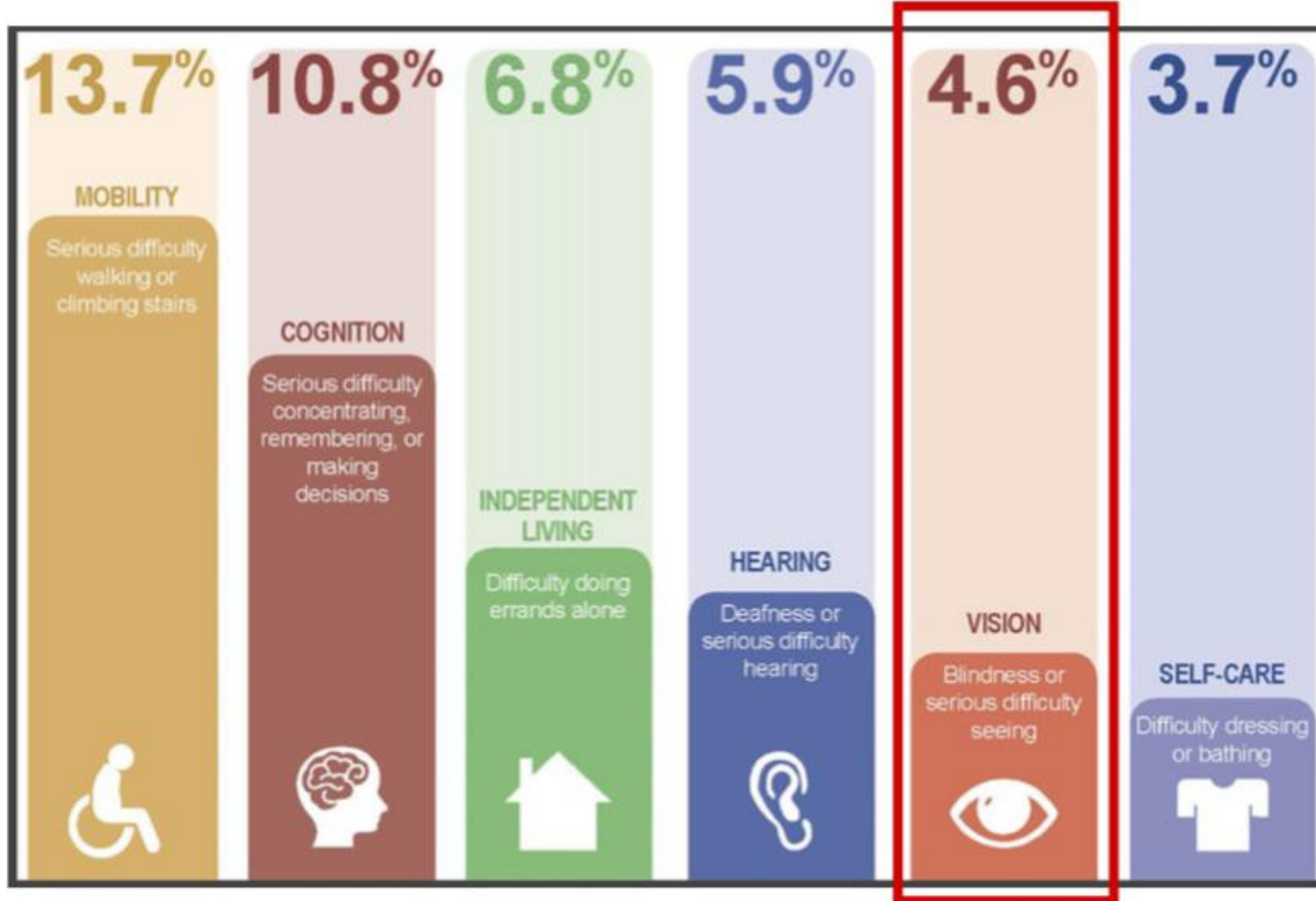
O: Operable – Users can operate the site using keyboard, touch, mouse, or assistive device

U: Understandable – Users can easily comprehend content

R: Robust – Site supports modern browsers, e.g.



Disabilities



Disabilities

Not Just Vision Impairment

- Autism
- Dementia
- Dyslexia
- Hearing loss
- Multiple Sclerosis
- Cerebral Palsy
- PTSD
- Paralysis/loss of mobility
- Seizures/epilepsy

3 Modes of Disability

Permanent Disability

- A complete disability that is constant and will not go away
- Examples: Blindness, deafness

Temporary Disability

- A physical or mental disability that hinders your ability to do things for a short period
- Examples: Broken arm, migraine

Conditional or Situational Disability

- When you are not able to do things because of your situation
- Example: Slow internet connection

Accessibility

Not Just About Disability

- People with low literacy
 - Content should be written in **Plain Language**
 - Clear, concise, simple sentences
 - Written at a 6th-8th grade level
- People whose first language is not English
 - Provide translation, if possible
 - **Clear, simple writing can help them too**
- Tools like <http://www.hemingwayapp.com/>

Accessibility

Write in Plain Language

Hemingway App makes your writing bold and clear.

The app highlights lengthy, complex sentences and common errors; if you see a yellow sentence, shorten or split it. If you see a red highlight, your sentence is so dense and complicated that your readers will get lost trying to follow its meandering, splitting logic — try editing this sentence to remove the red.

You can utilize a shorter word in place of a purple one. Mouse over them for hints.

Adverbs and weakening phrases are helpfully shown in blue. Get rid of them and pick words with force, perhaps.

Phrases in green have been marked to show passive voice.

You can format your *text* with the toolbar.

Paste in something you're working on and edit away. Or, click the Write button and compose something new.

Hemingway Editor

Readability

Grade 6

Good

Words: 133

Show More ▾

2 adverbs, meeting the goal of 2 or fewer.

1 use of passive voice, meeting the goal of 2 or fewer.

1 phrase has a simpler alternative.

1 of 11 sentences is hard to read.

1 of 11 sentences is very hard to read.

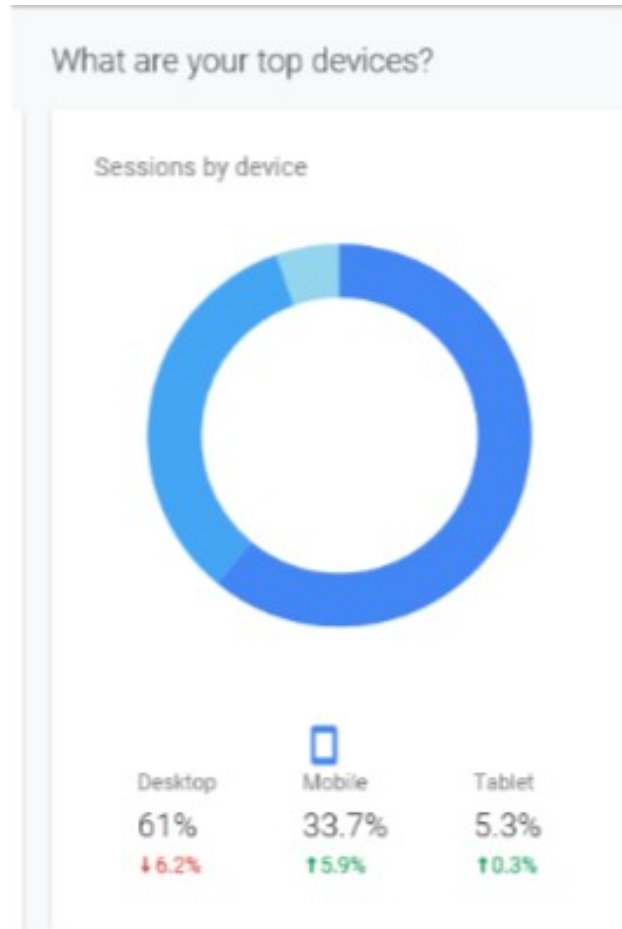
Mobile Accessibility

- Just as important as any other type of accessibility
- Mobile users are not impaired
- Need to engage with websites using something other than a desktop
- WCAG2.1 improves on mobile accessibility guidelines, but still does not cover all aspects

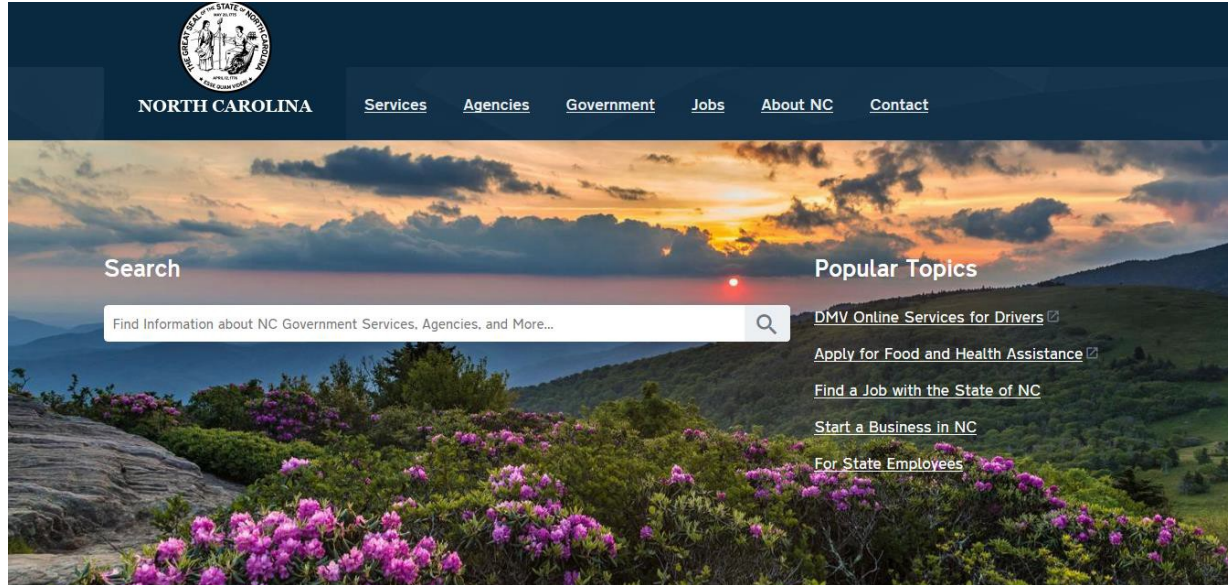


Mobile Traffic on NC.gov

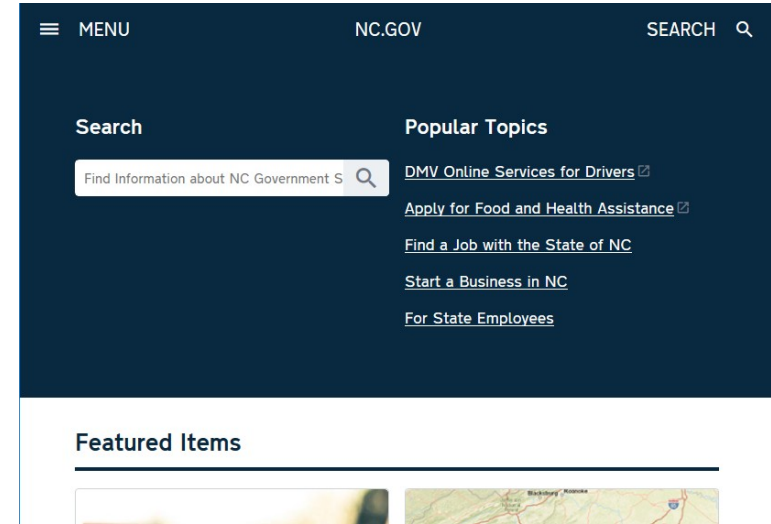
- Over the past 12 months:
 - Desktop users = 61%
 - -6.2%
 - Mobile users = 33.7%
 - +5.9%
 - Tablet users = 5.3%
 - +0.3%



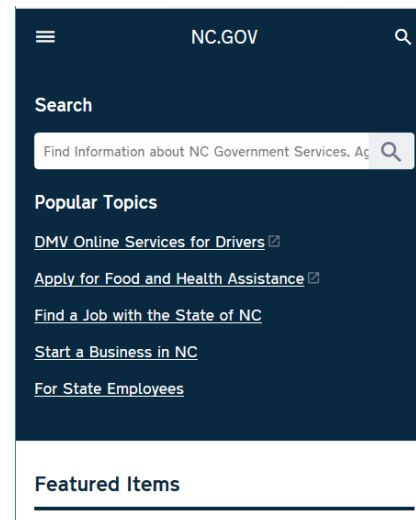
Websites Should be Responsive



Desktop



Tablet



Phone



How to Make Mobile Accessibility Better

- Ensure mobile users can accomplish top tasks – Test!
- Test all the “things”
 - Menus/navigation
 - Pinch/zoom/resize
 - Hover – not functional on a touch screen
 - Stacking – ensure there are no overlays
 - Webforms – can you submit?
- Test on **real devices** with **different browsers**

How to Make Mobile Accessibility Better

- Size/compress images & files appropriately
 - **Respect people's data plans**
- Avoid PDFs and Word documents
 - Present content as webpages where possible
 - Burying content in documents makes it hard to find

Document Clutter is an Accessibility Issue

In general, documents are the greatest source of clutter on a website

- Most are not accessible
- Some state agencies have documents dating back to the 1980s – really!
- Cull the herd!
- If content is really that important, present it as a webpage



MS Word Files

- Are proprietary
- Aren't compressed – file sizes can be huge
- Don't open in (most) browsers – have to download to access
- Eat into people's data plans – costs \$ to access
- Have settings for accessibility, but most writers don't know about/how to use them
- Are often used for basic forms when online webforms can replace them
- Are often used for forms that require a signature
 - The State has alternatives that use digital signatures



PDF Files

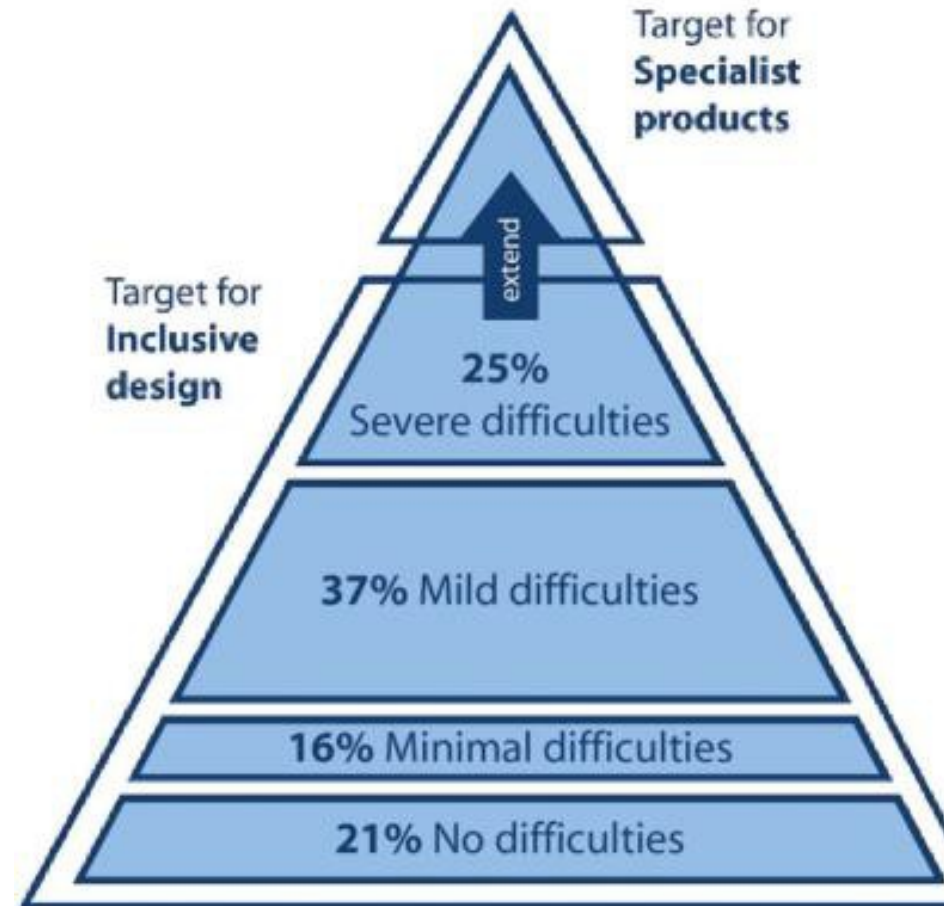
- Can access via free Adobe reader
- Are compressed
- Open in most browsers – don't have to download to access
- Have settings for accessibility
- If content must be presented as a document file, consider PDF over Word



Design for Accessibility

Consider that only **21%** of site visitors have no difficulties:

- Includes visitors whose limitation may be temporary or situational



Design: Fonts and Formats

- Use legible, inclusive fonts
- Avoid styles where there is ambiguity between certain characters – especially important for people with dyslexia and some vision impairments
 - 8 and uppercase B
 - Capital I, lowercase l and 1
 - Number 0 and uppercase letter O

Sample Fonts

Calibri	1			0	O	8	B
Century Gothic	1			0	O	8	B
Courier	1	I	1	0	O	8	B
Gil Sans Nova	1			0	O	8	B
North Carolina	1			0	O	8	B
Rockwell	1	I	1	0	O	8	B
Tahoma	1	I		0	O	8	B
Verdana	1	I		0	O	8	B



Design: Fonts & Formats

- Use appropriate heading tags
 - Don't use **bold**, *italics* or **color** to indicate heading levels
 - Use H1, H2 , H3 etc., so screen readers can follow the outline of the webpage content
- Use meaningful link text



Design: Fonts and Formats

- Break text up into smaller paragraphs
- Use bullets or numbered lists
- Provide adequate white space around text
- Avoid using underlines for emphasis
- AVOID ALL CAPS



Design: Color and Contrast

Some people with visual impairments require high contrast between text and background

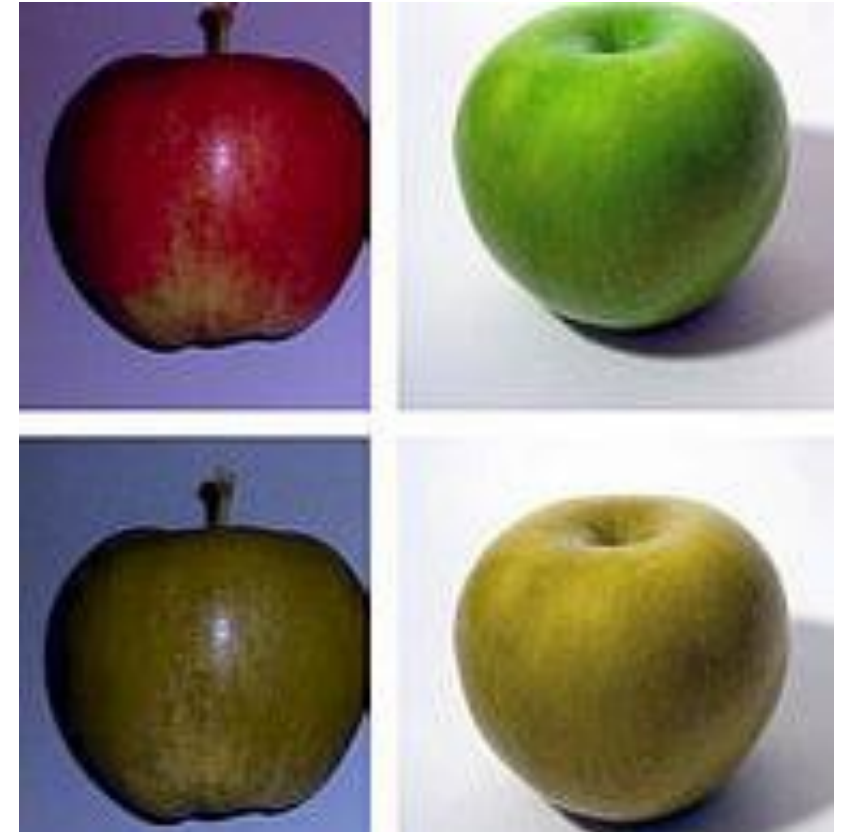
Per NIH:

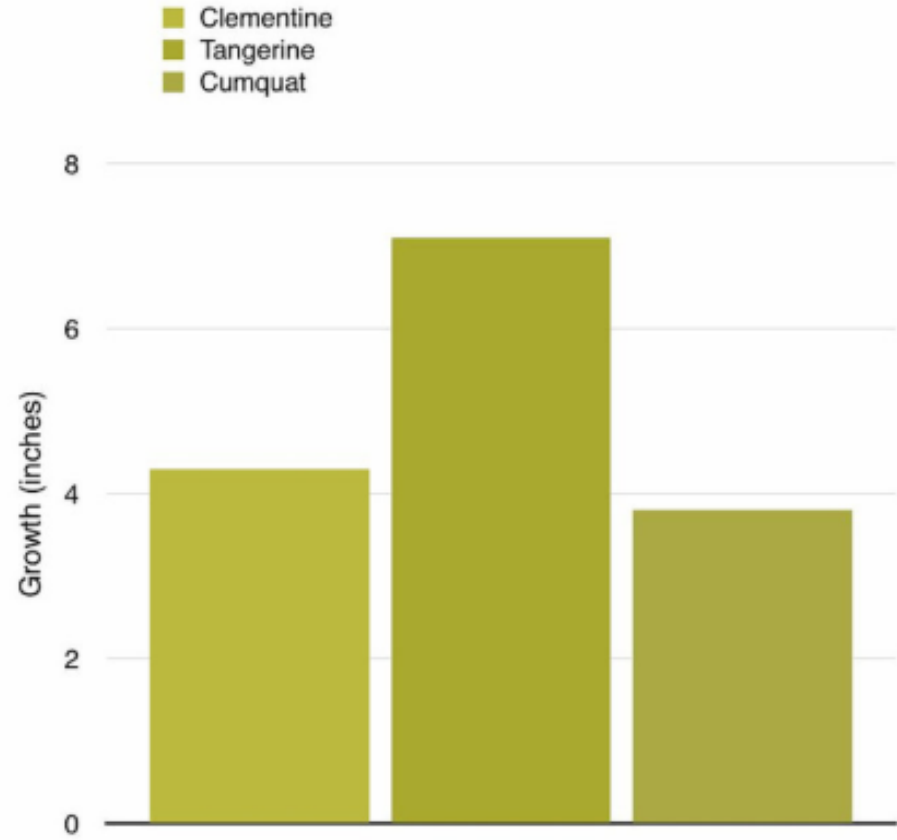
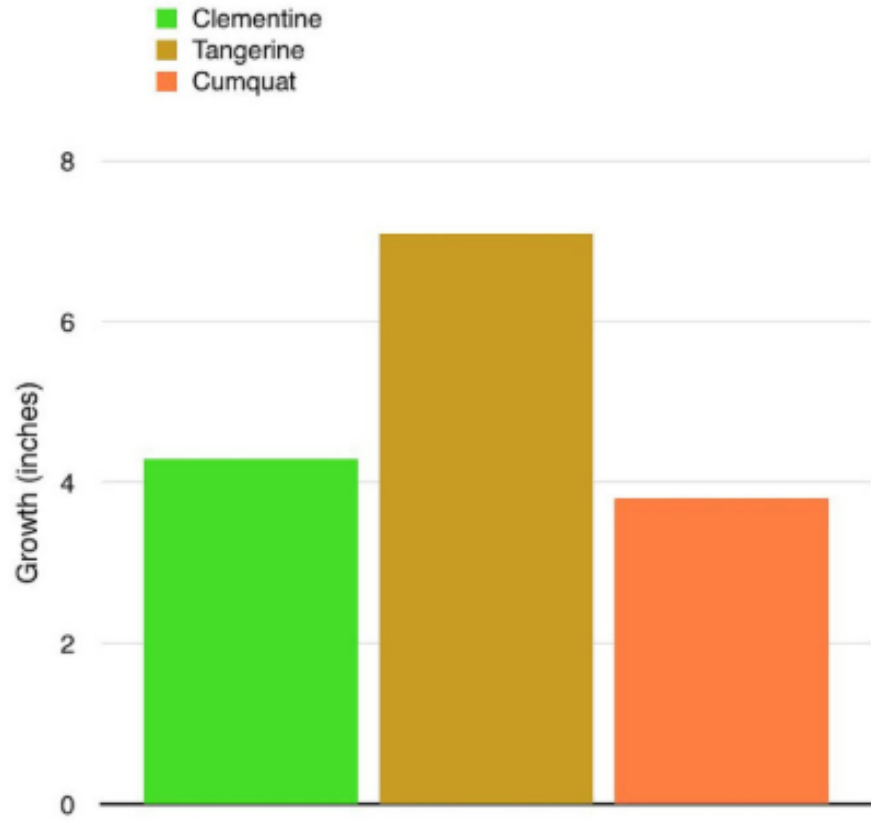
- **2.9 million** Americans have low vision
- Most are 65 or older
- Expected to increase **72%** by 2030

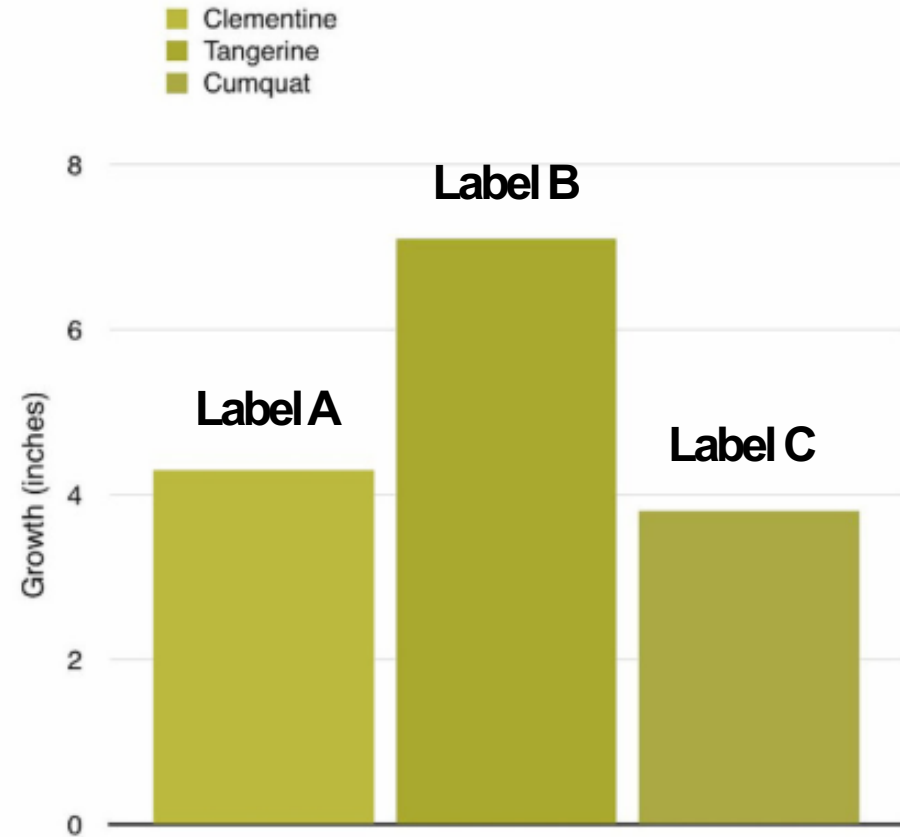
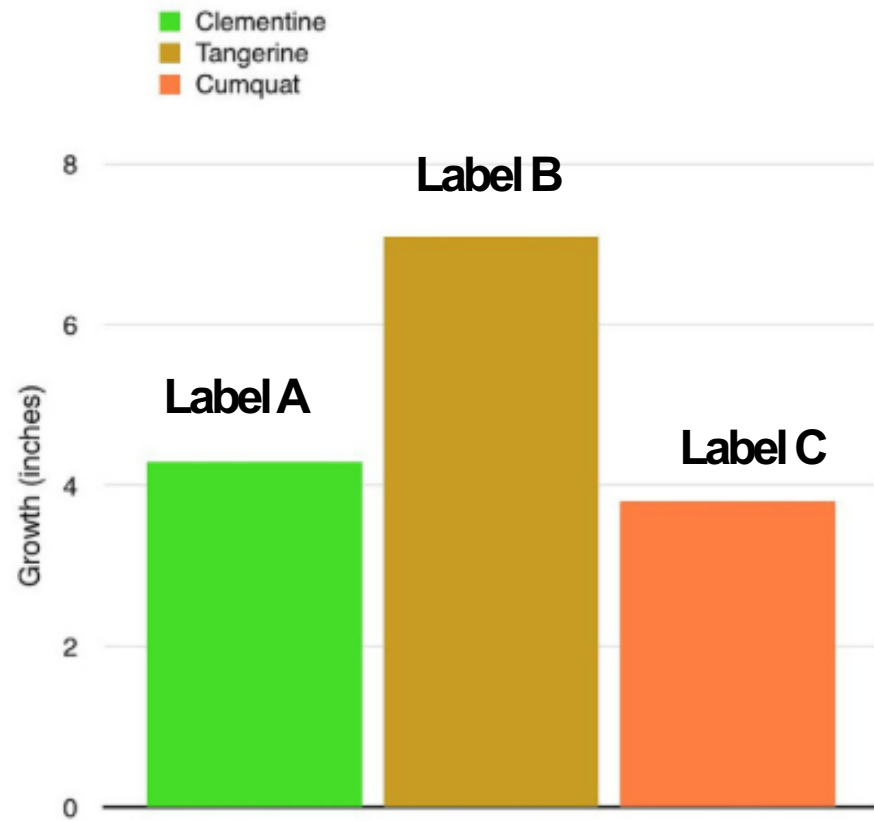
Black on White	Text to background ratio: 21:1 Large text: AA - Pass AAA - Pass Small text: AA - Pass AAA - Pass
Gray on White	Text to background ratio: 7.46:1 Large text: AA - Pass AAA - Pass Small text: AA - Pass AAA - Pass
White on Green	Text to background ratio: 3.24:1 Large text: AA - Pass AAA - Fail Small text: AA - Fail AAA - Fail
White on Blue	Text to background ratio: 5.08:1 Large text: AA - Pass AAA - Pass Small text: AA - Pass AAA - Fail
White on Orange	Text to background ratio: 3.13:1 Large text: AA - Pass AAA - Fail Small text: AA - Fail AAA - Fail
White on Red	Text to background ratio: 4.62:1 Large text: AA - Pass AAA - Pass Small text: AA - Pass AAA - Fail
White on Pink	Text to background ratio: 4.54:1 Large text: AA - Pass AAA - Pass Small text: AA - Pass AAA - Fail

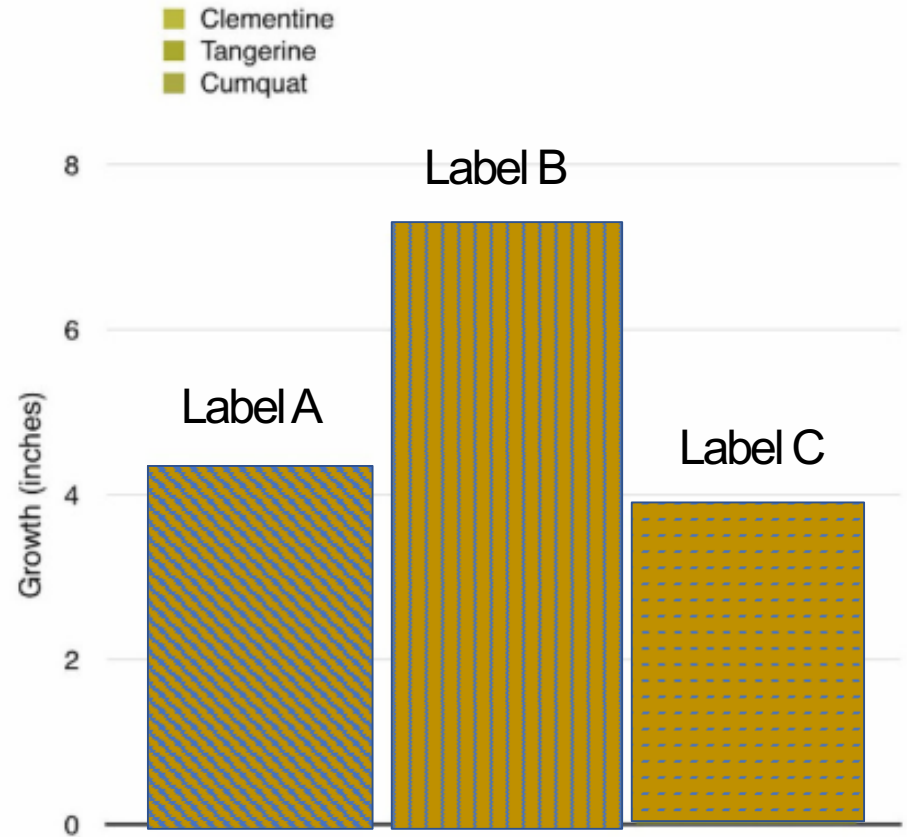
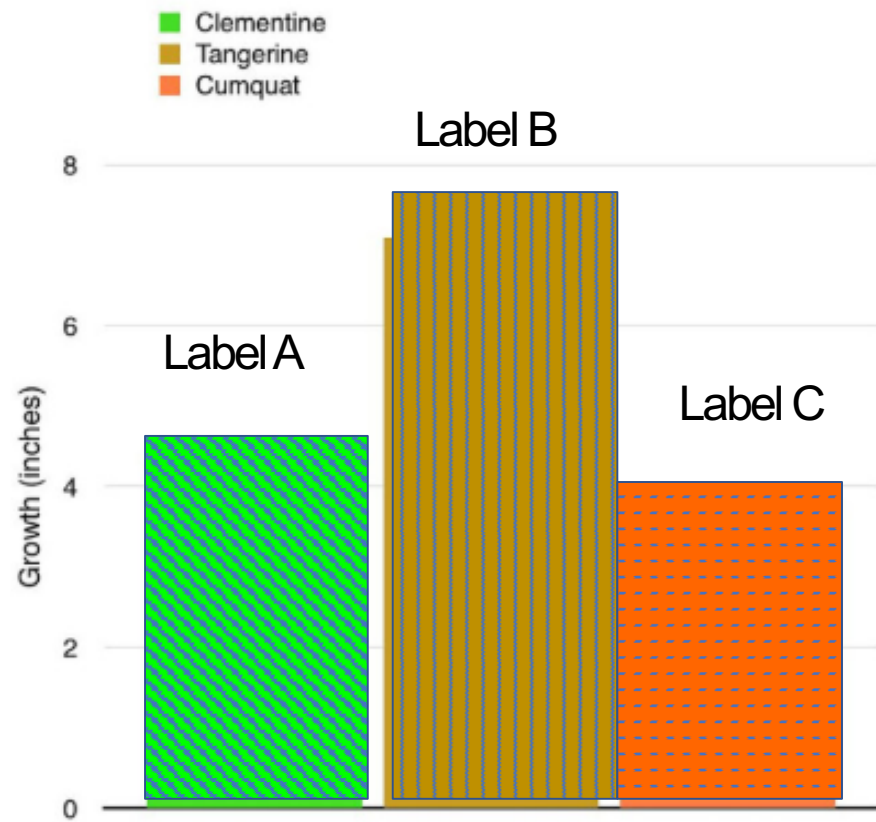
Design: Color & Contrast

- As many as **8% of men** and **0.5% of women** have the common form of red-green color blindness
- Make sure color is not the only identifier/differentiator
 - Includes visual items like charts/graphs and links









Design: Images and Videos

Images

- Is the image necessary for the content or is it just decorative?
- Size/compress images appropriately
 - Larger file sizes and slower internet connections increase download time and increase user data usage
 - **Respect people's data plans**
- Be careful of gifs & animations that can trigger vertigo or seizures
- Include alt text descriptions for images that are pertinent to the content

Alt Text Examples

Better than nothing:

```

```



Better:

```

```



Alt Text Examples

- If image is decorative and not pertinent to the content, use “null” (empty) alt text:
``
- Screen readers will ignore it
- Don't leave the alt text field blank



Design: Images & Videos

Videos

- Make sure videos have captions and/or transcripts so people with hearing loss can perceive the content
- Use YouTube's free transcription and captioning services (if nothing else)
- Never autoplay videos
 - Can trigger seizures/vertigo/migraines
 - Allow site visitors to control video or media play



Design: Personas



- Personas are a tool to help focus decisions about a website's design
- A summary of the characteristics, needs, motivations and environment of an actual key type of website user
- Each one represents a key audience segment, expressing their needs and expectations
- **Create diverse personas**
- **Create personas with limitations**





Stakeholder Hank

Citizen/Hunter

“As an avid hunter, I like to keep up with hunting regulations and have a voice in influencing those regulations.”

TOP TASKS

- **Find proposed rule information (NC Register)**
- **Understand the rulemaking process**
- Find administrative rules on hunting (NC Administrative Code - NCAC)
- Find rulemaking coordinator information
- Learn how to comment and object to a proposed rule
- Learn more about the Rules Review Commission and its meetings

PERSONA DEMOGRAPHICS

Dimension

45 Years Old



Married



Lives in
Hickory, NC

Demographics



Moderately tech savvy



\$50,000



Employee at area motor
speedway

SITUATION & SOLUTION

SITUATION & NEEDS

- Need to know hunting regulations and proposed changes to existing regulations
- Need to know how to object to hunting rules
- Need to ask questions about what a rule/change means

SOLUTIONS

- Quick access to rulemaking coordinator list, specifically for Wildlife Resources Commission
- Calendar of proposed rules/agency public hearings
- Quick reference guide on rulemaking process, FAQs



Community Organizer Jane

Hispanic Activist

“I’m out there everyday advocating for my community. I know the Census is coming up and it’s important for everyone to be counted. I need accurate information that I can share, especially information or materials in Spanish.”

TASKS ON SITE

- **Download Spanish language handouts**
- **Learn about latest information regarding the ‘citizenship question’ and privacy**
- **Obtain contact information for other folks working with Hispanic community**
- **Learn from others about how to advocate for Census**

ABOUT

Dimension

29 Years Old



Single, College education



Lives in Fayetteville, NC

Demographics



Highly tech savvy



Income is \$15,000 - \$20,000 per year

NEEDS & SOLUTIONS

NEEDS

- Find out more information about Census
- Resources in Spanish
- Official information about privacy to reassure community

SOLUTIONS

- Information in Spanish
- PDF download for handouts in Spanish and English
- Directory of CCCs by targeted group
- Data visualizations

Design: Persona with Limitations

Morgan is hearing-impaired and wants to watch a video on how to file his state taxes online.

How can we ensure he can complete this task?



Design: Persona with Limitations

Anna is a county social worker who suffers from vertigo and frequently uses a state website to find services to help her clients.

How can we ensure nothing triggers an event for her?



Design: Persona with Limitations

George is color blind and needs to look at charts and graphs of demographic data on a state website.

How can we present that information so he can perceive it?



Design: Persona with Limitations

Fatima has low vision and needs to get information about public schools before she enrolls her daughter.

How can we present that information so she/her screen reader can perceive it?



Design: Persona with Limitations

Tom is a farmer with low literacy who wants to get information online about an upcoming statewide agricultural festival. He doesn't have access to broadband.

How can we help ensure he's able to access the information easily?



And Finally: Design for Inclusivity

- Think about **everyone** who visits your website
- Site users are diverse by:
 - Age
 - Race
 - Gender
 - Ethnicity
 - Orientation
- Imagery should reflect user diversity
- Do site webforms ask about gender? If so, how? Why? Is it necessary?
- Government websites should be welcoming
- Site visitors should not feel different or excluded
- No one is an “other”

Take-aways

- **Accessibility** is not just about *disability*
- **Disability** is not just about *vision impairment*
- **Mobile accessibility** is just as important
- **Accessibility** also means being *inclusive*

Let's Connect!



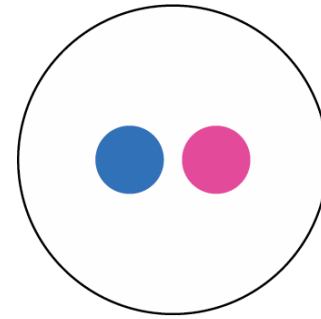
@NCDIT
@BroadbandIO
@ncicenter



**NC Department
of Information
Technology**



NCDIT



NC DIT



@NCDIT

#WeAreNCgov

it.nc.gov/ncgov3

it.nc.gov

