

# Creating Accessible Web Pages

- Terms to Know
- Text Headings
- Color Contrast
- Images (Charts, Graphs, and Diagrams)
- Video Captions



# Terms to Know

- **Text-to-Speech:** Sighted users
  - Reads text out loud and highlights each word as it is read.
- **Screen Reader:** Visually Impaired Users
  - Allows the user to interact with a computer .
  - Uses code (HTML) to convert text to speech.



# Headings

- **Visual Hierarchy:**  
Users with low vision can distinguish body text from headers.
- **Page Navigation System:**  
A very popular screen reader navigation tool.

## Lorem Ipsum

Dolor sit amet, consectetur adipiscing elit. Nullam facilisis elit non eros sodales ultricies. Aliquam vel sagitta risus. Donec sit vestibulum neque.

### Proin Augue Elit

Aliquet eu pretium eu, aliquet in urna. Etiam tellus turpis, imperdiet eu sem sit amet, pretium consequat purus. Nullam aliquet scelerisque nunc consectetur dignissim. Aliquam erat volutpat. Nulla vitae faucibus enim. Pellentesque rutrum lacus sit libero eleifend fribus.

### Donec Varius

Lectus fermentum, interdum et molestuada tames sit ante ipsum grims in faucibus, nam congue vestibulum ante, non bibendum libero euismod sodales. Nullam pellentesque id quam quis gravida. Quisque vel lectus ex. Nulla vulputate metus lacus, tempor venenatis nibh lobortis quis, Nam tempor lacus nisi, ut aliquam lectus dictum quis.

### Maecenas Auctor

Lectus id fringilla viverra, neque nibh eleifend urna, sed molestie est augue et diam, nulla sollicitudin mauris nec nibh fribus, vitae pellentesque justo dignissim. Morbi eget molestuada tortor. Proin lacinis suscipit tempus. Maecenas quis mollis ante. Fusce ut amare diam. Proin dapibus eros ipsum, sit varius eros varius sit.

# Use Headings Like a Table of Contents

## What sighted readers see:

- Page Heading ✓ **Visual Disabilities**
- Heading ✓ **Colorblindness**  
Unable to distinguish different color combinations.
- Sub-heading ✓ **Protanopia**  
Inability to see red. Red appears black.
- Sub-heading ✓ **Tritanopia**  
Inability to see blue. Blue appears green.
- Heading ✓ **Low Vision**  
When corrective lenses don't correct visual acuity.
- Sub-heading ✓ **Glaucoma**  
No peripheral vision.
- Sub-heading ✓ **Hemianopia**  
Half of field of vision is lost.

## What the screen reader reads:

- I. Visual Disabilities
  - A. Colorblindness
    - 1. Protanopia
    - 2. Tritanopia
  - B. Low Vision
    - 1. Glaucoma
    - 2. Hemianopia

# Don't Break the Heading Navigation System

## What sighted readers see:

Page Heading ✓ **Visual Disabilities**

Heading as Emphasis ✗ **THIS IS ON THE TEST!**

Heading ✓ **Colorblindness**

Unable to distinguish different color combinations.

Bold ✗ **Protanopia**

Inability to see red. Red appears black.

Bold ✗ **Tritanopia**

Inability to see blue. Blue appears green.

Heading ✓ **Low Vision**

When corrective lenses don't correct visual acuity.

Sub-heading ✓ **Glaucoma**

No peripheral vision.

Sub-heading ✓ **Hemianopia**

Half of field of vision is lost.

## What the screen reader reads:

I. Visual Disabilities

II. THIS IS ON THE TEST

A. Colorblindness

B. [Protanopia – missing]

C. [Tritanopia – missing]

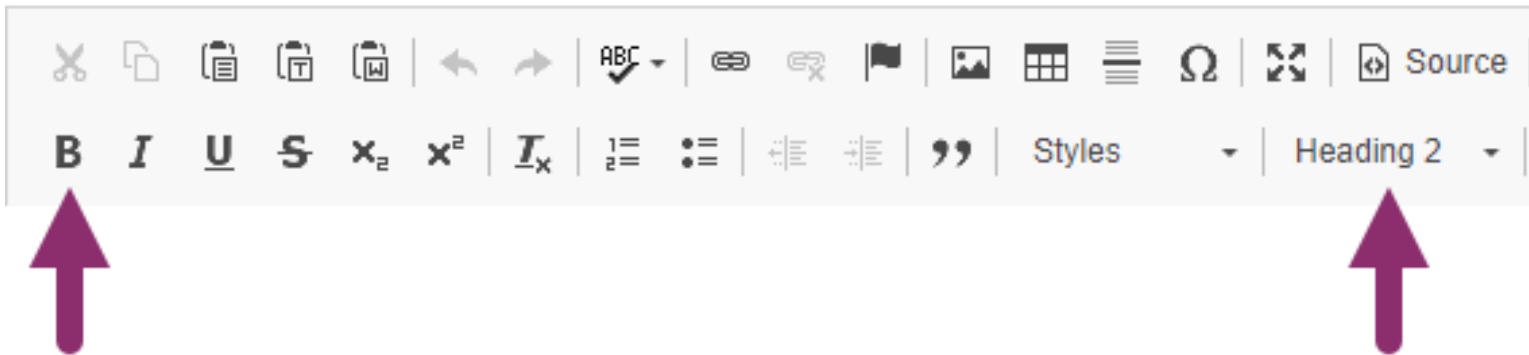
D. Low Vision

E. Glaucoma

F. Hemianopia

# Use Bold and Headings Strategically

- **Bold Formatting:** Hides text from heading navigation. (CTRL + B)
- **Heading Styles 1-6:** Adds text to the heading navigation.



# Color Contrast

✘ Not Accessible

Text color is too light  
against the white  
background color

✘ Not Accessible

**DID YOU KNOW? MANY PEOPLE  
HAVE TROUBLE DISTINGUISHING  
BETWEEN RED AND BLACK.**

# Use a Color Contrast Checker

Deque Color Contrast Analyzer - <https://dequeuniversity.com/color-contrast>

**Foreground Color**

Hex: #316FC9    RGB: 49, 111, 207    Choose: Name:

Adjust Lightness: 61%

**Background Color**

Hex: #FFFFFF    RGB: 255, 255, 255    Choose: Name: white

Adjust Lightness: 100%

Text Color

Background Color

If a color combination fails, you can adjust the colors until they pass.

**Result**

Small sample text.  
Large sample text.

Contrast Ratio = 4.94 : 1

WCAG Standard	Small Text	Large Text
AA	Pass	Pass
AAA	FAIL	Pass

Pass AA  
Small and  
Large



# Remediated Color Contrast

Accessible

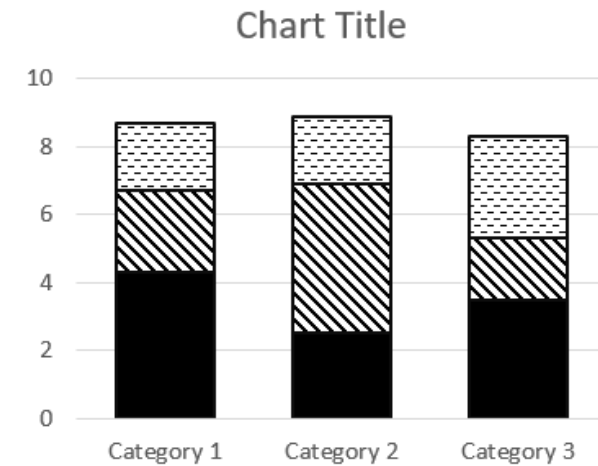
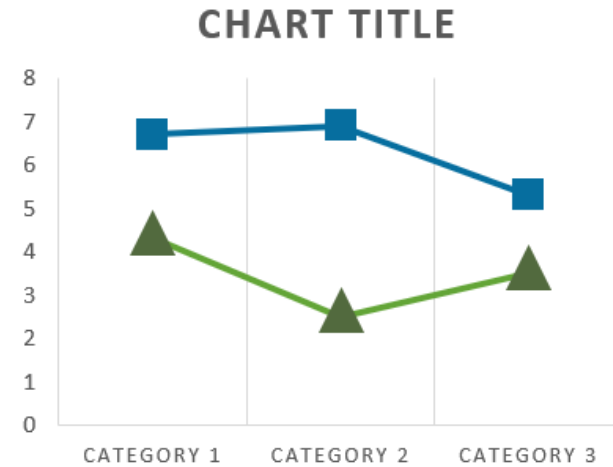
**This text color now has  
good contrast against  
the background color**

Accessible

**Remember!** If your body text is black, choose a **red** that passes AA level contrast against black.

# Use Pattern and Shape

- Use shapes to distinguish items.
- Use pattern instead of color.



# Images

- **Informational images**  
An image that supports your topic.
- **Charts, graphs, and diagrams**  
Research or flows that support your topic.
- **Infographics – Not covered today!**  
Sharable infographics don't support your content; **it is the content.**  
Best used on blogs and social media sharing sites.

# Don't Use an Image Instead of Text



- Screen Reader can't read text in an image.
- Text-to-speech software may have trouble extracting the text.



- Ads and promos the most common form of image text.
- Keep image text brief. Limit of 150 – 200 characters so it can be used as alt text.



# Write Descriptive Image Alternative (alt) Text

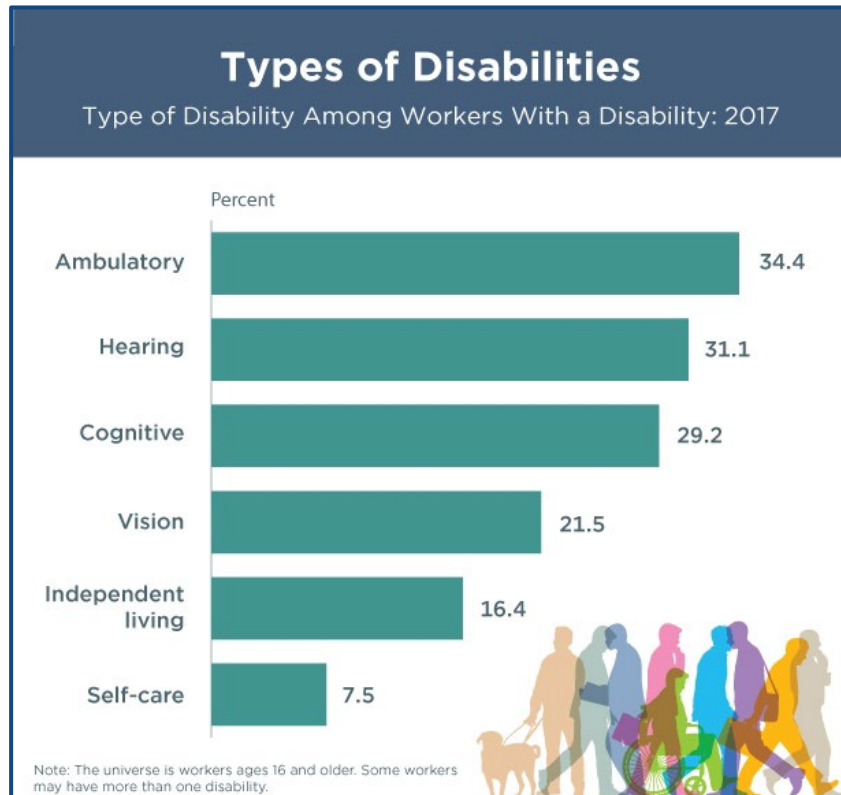


“Poisonous Gas Sign”  
verses

“This poisonous gas sign from Belgrade depicts a dead bird lying on its back.”

- Why does the image need to be there?
- What would the reader miss if there was no description?
- 150 characters or less.

# Provide Alt Text for Simple Charts, Graphs, and Diagrams



- **200 characters or less**

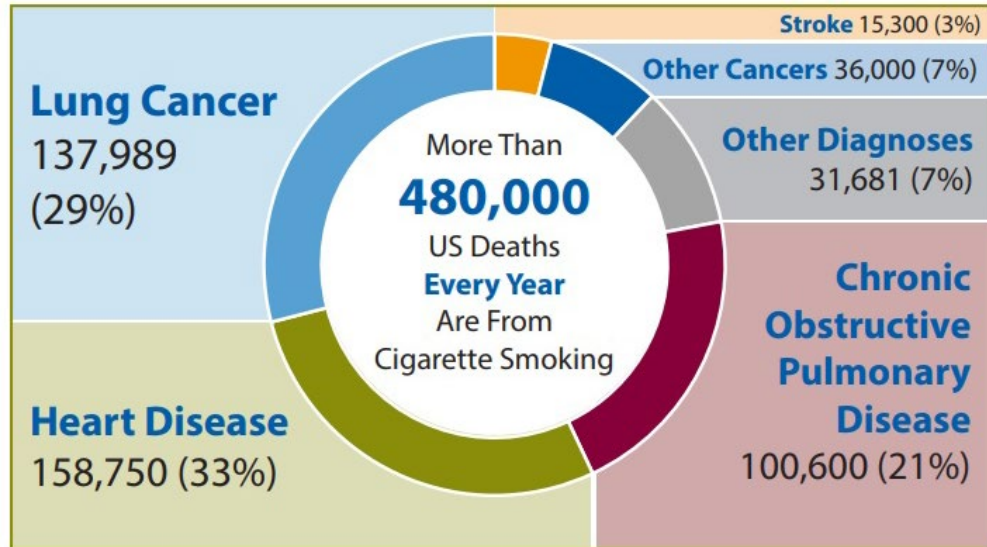
alt="Type of Disability Among Workers With a Disability: 2017. Ambulatory 34.4%, Hearing 31.1%, Cognitive 29.2%, Vision 21.5%, Independent living Self-care 7.5 % Note: The universe is workers ages 16 and older. Some workers may have more than one disability. "

- **Image Source**

Place as text below the image.

Image Source: [2017 American Community Survey, 1-Year Estimates.](#)

# Add Captions to Charts, Graphs, and Diagrams



**Annual Deaths from Smoking, United States**  
Adults 35 or Older, 2005-2009

More than 480,000 US deaths, every year, are from Cigarette Smoking; Lung cancer: 137,989 deaths; Other cancers: 36,000 deaths; Heart Disease: 158,750 deaths; Chronic Obstructive Pulmonary Disease: 100,600 deaths; Stroke: 15,300 deaths; Other diagnoses: 31,681 deaths.

Image Source: [2014 Surgeon General's Report, Table 12.4, page 660](#)

- **Alt Text**

Chart Type + Chart Title + “The text description follows this image.”

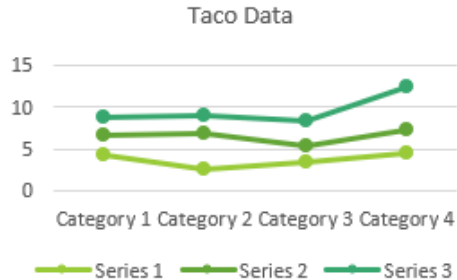
- **Caption**

- **Most Accessible:** Use the `<figure>` and `<figcaption>` tags if possible.
- **Less Accessible:** Place the caption in a paragraph below the image.

# Create an Image Transcript for Complex Charts, Graphs, and Diagrams

## About Tacos

Taco Ipsum. Every day is taco ipsum tuesday. Pico de gallo, on the side please. Give me tacos, or give me death. Does guac cost extra? Can you put some peppers and onions on that? I've been following that taco truck around all day. CARNITAS!! Side of rice and beans, please.



### [Taco Data Text Version](#)

They left the money but took the tacos. Add in a few el Pastor with guac and diced onions. You see, the refried beans are really just the adhesive necessary to apply the soft tortilla to the hard taco shell. Carne asada on corn tortillas.

**Image Transcript:** A **web page** that provides a full explanation of a chart, graph, or diagram.

## Taco Data

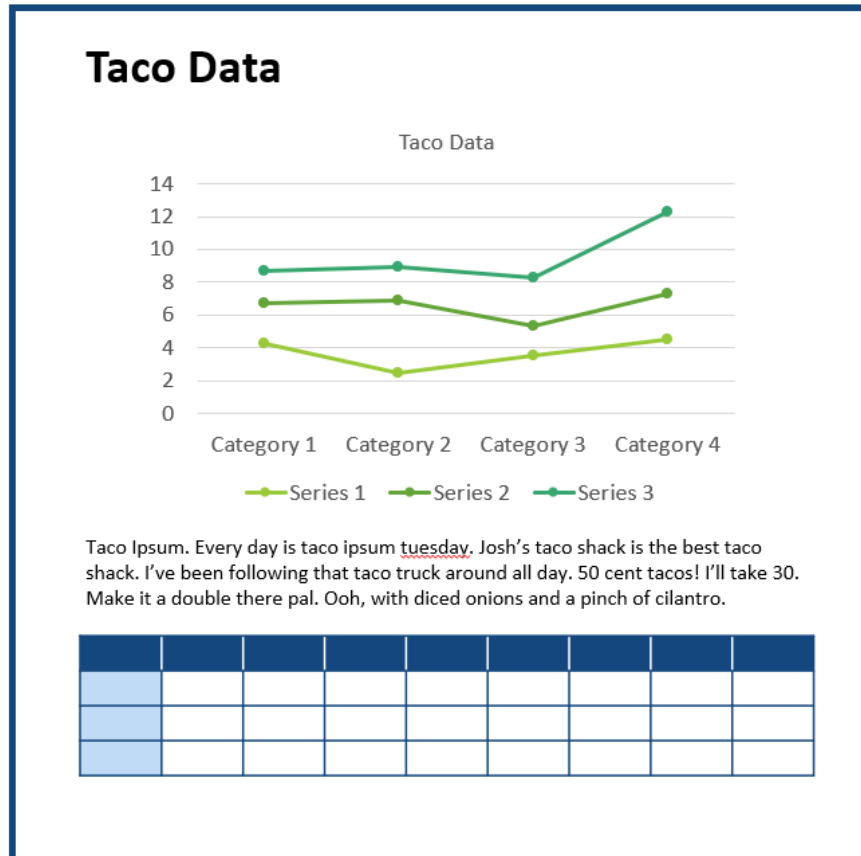


Taco Ipsum. Every day is taco ipsum tuesday. Josh's taco shack is the best taco shack. I've been following that taco truck around all day. 50 cent tacos! I'll take 30. Make it a double there pal. Ooh, with diced onions and a pinch of cilantro.



# Anatomy of an Image Transcript (Web Page)

Never use a Word Document or a PDF for an image transcript.



- **Page Title**
- **Image Alt Text**  
Chart Type + Chart Title + “The text description follows this image.”
- **Text Description**
- **Data Table (optional)**

# Link to an Image Transcript

**About Tacos**

Taco ipsum. Every day is taco ipsum tuesday. Pico de gallo, on the side please. Give me tacos, or give me death. Does guac cost extra? Can you put some peppers and onions on that? I've been following that taco truck around all day. CARNITAS!! Side of rice and beans, please.

Taco Data

Category	Series 1	Series 2	Series 3
Category 1	5	7	9
Category 2	3	7	9
Category 3	4	6	8
Category 4	5	8	13

[Taco Data Text Version](#)

They left the money but took the tacos. Add in a few el Pastor with guac and diced onions. You see, the refried beans are really just the adhesive necessary to apply the soft tortilla to the hard taco shell. Carne asada on corn tortillas.

- **Give the image alt text**  
Chart Type + Chart Title
- **Link to Image Transcript**  
Chart Title + “Text Version”

# Video Captions

- All videos posted on AU related websites must include
  - Captions
  - Audio descriptions
- All AU related live web videos must include Live Captioning.



# Create Your Captions

- Live Captioning
  - Hire a Transcription Service  
Home Team Captions – Fee
  - Get both .srt and .webvtt files.
- Auto Generate
  - Kaltura / Media Space - Free
  - YouTube - Free
  - Hire a Transcription Service  
3 Play Media – Fee
  - Get both .srt and .webvtt files.

```
WEBVTT Kind: captions; Language: en

00:09.000 --> 00:11.000
<v Roger Bingham>We are in New York City

00:11.000 --> 00:13.000
<v Roger Bingham>We are in New York City

00:13.000 --> 00:16.000
<v Roger Bingham>We're actually at the Lucern Hotel, just down the street

00:16.000 --> 00:18.000
<v Roger Bingham>from the American Museum of Natural History

00:18.000 --> 00:20.000
<v Roger Bingham>And with me is Neil deGrasse Tyson

00:20.000 --> 00:22.000
<v Roger Bingham>Astrophysicist, Director of the Hayden Planetarium

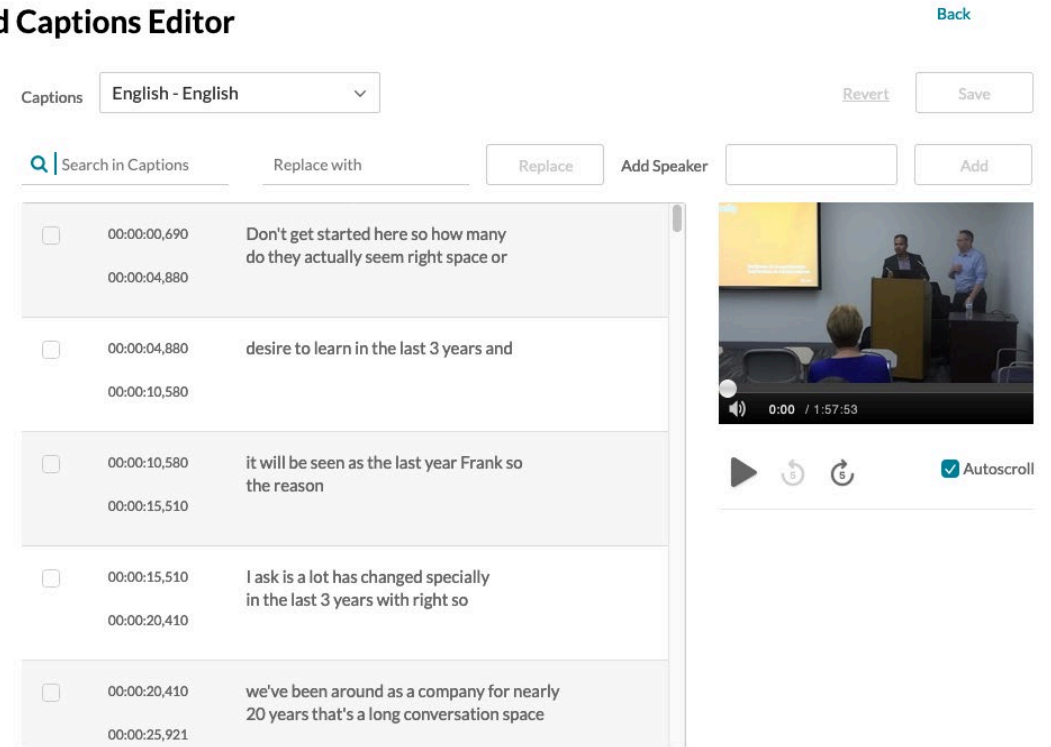
00:22.000 --> 00:24.000
<v Roger Bingham>at the AMNH.
```



# Use a Caption Editor

- Edit your captions before you post them online.
  - Correct errors
  - Adjust synchronization
  - Apply Formatting
  - Audio Descriptions
- Caption Editors.
  - Use the editor provided by the video service, e.g. , Kaltura & YouTube
  - AMARA – Free editor. Captions created by volunteers.

## Closed Captions Editor



The screenshot displays a 'Closed Captions Editor' interface. At the top right, there is a 'Back' link. Below it, a 'Captions' dropdown menu is set to 'English - English', with 'Revert' and 'Save' buttons to its right. A search bar labeled 'Search in Captions' is followed by a 'Replace with' input field, a 'Replace' button, and an 'Add Speaker' button. To the right of these are an empty text input field and an 'Add' button. The main area contains a list of captions, each with a checkbox, a start and end time, and the caption text. The video player on the right shows a video with a yellow slide, a speaker at a podium, and a person in the foreground. The video player includes a play button, a refresh button, a volume icon, a progress bar showing '0:00 / 1:57:53', and an 'Autoscroll' checkbox that is checked.

Start Time	End Time	Caption Text
00:00:00,690	00:00:04,880	Don't get started here so how many do they actually seem right space or
00:00:04,880	00:00:10,580	desire to learn in the last 3 years and
00:00:10,580	00:00:15,510	it will be seen as the last year Frank so the reason
00:00:15,510	00:00:20,410	I ask is a lot has changed specially in the last 3 years with right so
00:00:20,410	00:00:25,921	we've been around as a company for nearly 20 years that's a long conversation space

# Format Captions

- Refer to the Described and Captioned Media Program (DCMR) Guidelines for handling unusual captioning situations.
  - [www.keystoaccess.org](http://www.keystoaccess.org)
- Use a Caption Formatting Cheat Sheet.
  - [Captioning Tip Sheet](#) – From DCRM



The screenshot shows the header of the DCMP's Keys to Access website. The header features a blue background with a white speech bubble containing a 'D', the text 'keys to access' in white, and a white square containing a 'C'. Below the header is a dark blue bar with the DCMP logo and the text 'Described and Captioned Media Program'. The main content area has a white background with the title 'DCMP's Keys to Access' in bold. Below the title is a list of three items: '1. A Message From the DCMP Project Director', '2. The Captioning Key', and '3. The Description Key'. The text below the list explains that the 'Keys to Access' guidelines were developed by the DCMP to ensure high-quality accessibility features. It also mentions that millions of Americans need equal access, citing statistics from the National Institute on Deafness and Other Communication Disorders, the American Foundation for the Blind, and the Gallaudet University Library.

**DCMP's Keys to Access**

1. A Message From the DCMP Project Director
2. The Captioning Key
3. The Description Key

The **Keys to Access** guidelines for captioning and description were developed by the Described and Captioned Media Program (DCMP) to ensure that the accessibility features of its media were of the high quality required to provide equal access. These guidelines are based on recorded research findings, the input and guidance of consumers and experts in the field of accessible media, and decades of experience by DCMP staff.

Millions of Americans need equal access. For example, the National Institute on Deafness and Other Communication Disorders reports that there are over 37,000,000 Americans who are deaf or hard of hearing. The American Foundation for the Blind reports that there are over 25,000,000 Americans who experience significant vision loss, and the Gallaudet University Library reports there are approximately 45,000 to 50,000 individuals in the U.S. who are deaf-blind.