Sample Technical Specifications for Archival Masters

For Text (from CDP Digital Imaging Best Practices)

Text			
	Master	**Access**	**Thumbnail**
File Format	TIFF	JPEG	JPEG
Bit Depth	1 bit bitonal 8 to 16 bit grayscale 48 bit color	8 bit grayscale 24 bit color	8 bit grayscale 24 bit color
Spatial Resolution	Adjust scan resolution to produce a minimum pixel measurement across the long dimension of 6,000 lines for 1 bit files and 4,000 lines for 8 to 16 bit files	150 – 200 PPI	144 PPI
Spatial Dimensions	4000 to 6000 pixels across the long dimension	600 pixels across the long dimension	150 to 200 pixels across the long dimension

For Photographs (from CDP Digital Imaging Best Practices)

Photographs			
	Master	**Access**	**Thumbnail**
File Format	TIFF	JPEG	JPEG
Bit Depth	16 bit grayscale 48 bit color	8 bit grayscale 24 bit color	8 bit grayscale 24 bit color
Spatial Resolution	400 to 800 PPI	150 to 200 PPI	144 PPI
Spatial Dimensions	4000 to 8000 pixels across the long dimension, depending on size of original, excluding mounts and borders	600 pixels across the long dimension	150 to 200 pixels across the long dimension

For Film Photographs (from CDP Digital Imaging Best Practices)

Film			
	Master	**Access**	**Thumbnail**
File Format	TIFF	JPEG	JPEG
Bit Depth	16 bit grayscale 48 bit color	8 bit grayscale 24 bit color	8 bit grayscale 24 bit color
Spatial Resolution	Resolution to be calculated from actual image format and/or dimensions - approx. 2800 PPI for 35mm originals, ranging to approx. 600 PPI for 8x10 originals	150 to 200 PPI	144 PPI
Spatial Dimensions	4000 to 8000 pixels across long dimension of image area, depending on size of original and excluding mounts and borders	600 pixels across the long dimension	150 to 200 pixels across the long dimension

For Maps (from CDP Digital Imaging Best Practices)

Maps			
	Master	**Web**	**Thumbnail**
File Format	TIFF	JPEG	JPEG
Bit Depth	16 bit grayscale 48 bit color	8 bit grayscale 24 bit color	8 bit grayscale 24 bit color
Spatial Resolution	600 PPI 300 to 400 PPI for larger maps	150 to 200 PPI	144 PPI
Spatial Dimensions	6000 to 8000 pixels across the long dimension	1078 pixels across the long dimension	150 to 200 pixels across the long dimension

For Audio (from CDP Digital Audio Best Practices)

Sample Rate	**Bit Depth**	**Pros**	**Cons**
44.1 kHz	16 bit	No file format conversion needed for Audio CD. Maximizes storage space. Appropriate for lower quality source files. Lowest level of processing time. Ubiquitous home audio standard. International standard for Compact Disk (Red Book Standard).	Lowest frequency range acceptable. May not provide sufficient quality for future formats. May have limitations for publication or broadcast, and migration to future digital formats. Limits ability to enhance source file for delivery.

44.1 kHz	24 bit	More accurately reproduces sound of source material. Increased capability to enhance source file for delivery. Increased dynamic range. Acceptable for publication and broadcast. Reflects current professional audio standards.	
96 kHz	24 bit	Standard for DVD/HD Audio. Increased frequency range. More accurately reproduces sound of high frequency, high quality source material, such as musical recordings. Increased potential for enhancement of source file for delivery. More potential for future applications. Potential recommended benchmark for future. Highest recommended current quality. Rapidly growing acceptance. Reflects emerging professional audio standards.	Increased storage space. Increased processing time. No perceptible improvement in sound quality for some source files. Requires conversion to 16 bit and 44.1kHz for delivery on Red Book Audio CD. May require frequency compression for delivery.

For Film and Video (CARLI Digitization Best Practices for Moving Images)

Best practice:

For each program of moving image material, the initial digitization should strive to create an uncompressed, high-quality archival master wherever possible. Uncompressed video requires an enormous amount of storage space, but an uncompressed master is crucial to preserving the integrity of the content over the long term.

- Uncompressed YCbCr or JPEG2000 lossless encoding (codec)
- 640 x 480 resolution (assuming 4:3 original aspect ratio)
- 30 bit sample size
- progressive scanning
- 30 MiB/s data rate
- MXF (.mxf) file format

Acceptable practice:

Archival masters created using lossy compression are not ideal, but may be used when sufficient storage space is unavailable or the material is deemed of less historical importance.

- MPEG-4 AVC (H.264) or DV encoding (codec)
- 640 x 480 resolution (assuming 4:3 original aspect ratio)
- 30 bit sample size
- progressive scanning
- 30 MiB/s data rate
- AVI (.avi) or QuickTime (.mov) file format

Specifications and Standards

FADGI Guidelines (multiple formats)
http://www.digitizationguidelines.gov/guidelines/

BCR's CDP Digital Imaging Best Practices (images and text)
http://mwdl.org/docs/digital-imaging-bp_2.0.pdf

BCR's CDP Digital Audio Best Practices
http://www.mndigital.org/digitizing/standards/audio.pdf

CARLI Digitization Best Practices for Moving Images
http://www.carli.illinois.edu/sites/files/digital_collections/documentation/guidelines_for_video.pdf

ALCTS Minimum Digitization Capture Recommendations (multiple formats)
http://www.ala.org/alcts/resources/preserv/minimum-digitization-capture-recommendations#photographic_processes