NOTE FROM OHIOERC: As the use of digital alternatives has increased, reliance and support for microfilm has declined. However, this guidance remains available to support archival research and access to legacy collections that are still preserved on microfilm. Please check back with OhioERC for updated resources and expanded guidance as we continue to evolve our support in this area.

Tips for Hybrid Microfilm

SCOPE:

This document provides guidance for Ohio public sector agencies for the conversion of records to microfilm, which were either born-digital or converted via image processing, for the purpose of maintaining official records in an eye-readable, micrographic format and/or as a redundancy or back-up copy.

INTENT:

This guidance is intended to assist Ohio state agencies, local governments, and public educational institutions with ensuring that the records they convert from a digital format to microfilm are authentic, reliable, have integrity, and are usable. The ultimate criteria are that the records be legible and accessible for their intended use.

EQUIPMENT BASICS:

There are two basic types of equipment that are used to create hybrid microfilm:

- **Archive-writer:** a device that converts digital images to microfilm; while typically more expensive, the agency has the ability to make sure a quality digital image has been captured prior to committing it to microfilm.
- **Scanner/filmer:** an imaging device with two cameras, one that scans a digital image and one that images the document to microfilm; while less expensive, this equipment type is not recommended as it is more complex to correct documents that are scanned poorly.

FILM BASICS:

- **Original Master:** The master microfilm for permanent records should be 16mm, 35mm, or 105mm negative non-perforated silver-gelatin on a polyester base, as described in ANSI IT9.1. The film should have an LE-500 rating (Life Expectancy of 500 years).
- **Duplicate:** If the film is expected to be handled more than 10 times during its lifetime, a duplicate copy should be made. The use copy may be silver-gelatin film, diazo film or vesicular film. Diazo film is the recommended and preferred type for usage film.

THE STANDARD OPERATING PROCEDURES:

SOPs should define the basic processes involved in the production of microfilm from a digital or digitized format. Types of functions or processes may include, but may not be limited to:

- A discussion of the role of hybrid microfilm within your organization's records management program
- Equipment testing requirements and frequency
- Required technical specifications
- Document preparation functions common to all jobs
- Pre-production testing
- Index data and film backup
- Production Quality Control
- Access and security
- Administration and maintenance
- Audit trails
- Disaster recovery
- Employee safety

TECHNICAL SPECIFICATION RECOMMENDATIONS:

There are various technical specifications that an organization needs to consider in the production of hybrid microfilm.

Digital Image Resolution: The resolution of digital images should be a minimum of 300dpi

Reduction Ratio: A reduction ratio should be selected that is capable of producing legible images and is dependent upon the size of film one is creating: 16mm, 35mm, or 105mm.

Image Sequencing: Images on the microfilm should be organized so the records can be accessed in the same way they would if the microfilm had been created from paper systems.

Indexing: It is preferable for the content of all index fields associated with the images on individual rolls to be provided in a microfilm format.

Blip: Image marks or blips that are used to identify the frame number of each frame on a roll of film and may aid your organization in the future migration.

Targets:

At FRONT of Roll of microfilm before images: Background Density, Resolution Test, Certificate of Authenticity, and Title Target

At END of Roll of microfilm after images: Equipment Operator Certificate, Resolution Test, Background Density

Film Leader/Trailer: **Its recommended that each** roll of microfilm should have a leader of no less than a 3-foot of film before the first target and after the last target.

Silver Film Processing: Film produced for purposes of managing public records should be processed in accordance with ISO 18901:2002 – *Imaging materials - Processed silver-gelatin type black-and-white films - Specifications for stability* (as amended or replaced) and ANSI/AIIM MS23-1998 – *Practice for Operational Procedures / Inspection and Quality Control of First-Generation Silver-Gelatin Microfilm of_Documents* (as amended or replaced).

Residual Thiosulfate: It is recommended that testing for residual thiosulfates (commonly known as methylene-blue testing) be performed not less than once per month. LE-500 films should contain no more than 0.014 g of thiosulfate ion per in^2.

Quality Control/Inspection of Newly Processed Film: Quality control processes should be implemented for each application to be microfilmed. Criteria may include, but may not be limited to:

- Overall legibility
- Smallest detail legibility captured
- Completeness of detail
- Dimensional accuracy compared with the original
- Completeness of overall image area
- Density
- Image skew
- Image orientation
- Index data accuracy
- Image and index format compliance

Splicing and Retakes: The standards do not allow a roll of film produced from digital images to contain splicing or retakes.