

## **10. Long Term Retention and Preservation of Digital Records.**

The permanent or long-term preservation of digital records should comply with the following standards:

- **Maintain multiple copies of the record.**
- **Maintain the original, unchanged, recorded file in the original file format throughout the life of the record.**
- **Perform periodic audits on the records and the system to ensure long-term accessibility to the records.**
- **On a continuing basis, develop planning and implementation procedures for conversion and migration (the preservation of access over time) of permanent or archival digital records, and the systems that support them, to new formats, storage media, and technologies.**
- **Assure that digital information can be managed, authenticated by currently acceptable technologies and accessed over time by creating and maintaining metadata.**
- **When digital technology is used for recording permanent, archival or legal records, the original record should be transferred to microfilm for permanent preservation.**

**The NCERC also recommends the additional policies and procedures outlined in Addendum E, "Archival Process of Data and Image Preservation", as well as the statutes that govern these measures, be followed to assure protection and access of digital information.**

### **Comments**

Rapid changes in technology make it difficult to predict future technological alternatives. Thus, no universal solution exists today for the permanent or long-term preservation of digital records. Successful digital preservation requires a variety of different strategies. These strategies may include migration of file formats, emulation of computer hardware and software, and "normalization" of file formats from one file format to another (for example, converting a Microsoft Word© file to an XML document).

Trustworthy records can conclusively demonstrate their authenticity and integrity. Standard 10 lists components critical to assuring the integrity of digital records and preserving them in perpetuity.

Regularly scheduled migration of archival digital objects to new media, based upon a continuing assessment of developments in digital technology, should be part of a digital risk management plan. Such a plan will also include maintaining hardware and software that will migrate archival data to new media and the creation of documentation that will

record information about all data formats, each type of media, required environmental conditions, processes for maintaining archival characteristics, and efforts to reduce risk. Specifically, hardware should be evaluated, and migrated and possibly upgraded at regular intervals as established by industry standards. Digital media, hardware, and files should be annually audited, tested, and sampled for corruption, deterioration, and continued accessibility. Documents should be hashed at every migration of software and hardware and the hash maintained with the document. As with every aspect of using digital technologies, all actions should be documented. Digital data will not be readable or useable, or legally acceptable, in the future without active management.

Metadata creation and management are integral to the long-term retention of electronic records. Metadata provides meaning, context, and chain-of-custody for digital information. Assuring the association of metadata with data is necessary since metadata may be stored separately or embedded in digital objects. One example of metadata is the current Indexing Standards of Land Records.

Digital technology is not currently suitable for the storage of records possessing permanent archival or legal value. The preservation of these records, especially in the event of a human-made or natural disaster, requires properly processed and stored microfilm. Microfilm is also legally acceptable as evidence according to *North Carolina General Statutes* § 8-45.1 (Photographic reproductions admissible; destruction of originals) and § 153A-436 (Photographic reproduction of county records). *North Carolina General Statutes* § 8-45.1 (b) and § 153A-436 (f) specifically prohibit the use of “computer-readable storage media...for preservation duplicates, as defined in G.S. 132-8.2, or for the preservation of permanently valuable records as provided in G.S. 121-5(d), except to the extent expressly approved by the Department of Cultural Resources...”