

**IT Project Proposal Report - Detail**  
**Agency: 054 - STATE HISTORICAL SOCIETY**  
**Budget Cycle: 2017-2019 Biennium**                      **Version: AF - AGENCY FINAL REQUEST**

**IT Project : Storage and Preservation of 12 TB Historical Data**

**General Section**

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<b>City :</b> Lincoln		<b>NITC Score :</b>
<b>State :</b> Nebraska	<b>Zip :</b> 68501	

**Expenditures**

<b>IT Project Costs</b>	<b>Total</b>	<b>Prior Exp</b>	<b>FY16 Appr/Reappr</b>	<b>FY18 Request</b>	<b>FY19 Request</b>	<b>Future Add</b>
<b>Contractual Services</b>						
Design	0	0	0	0	0	0
Programming	0	0	0	0	0	0
Project Management	0	0	0	0	0	0
Data Conversion	0	0	0	0	0	0
Other	270,000	0	0	90,000	90,000	90,000
<b>Subtotal Contractual Services</b>	<b>270,000</b>	<b>0</b>	<b>0</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>
<b>Telecommunications</b>						
Data	0	0	0	0	0	0
Video	0	0	0	0	0	0
Voice	0	0	0	0	0	0
Wireless	0	0	0	0	0	0
<b>Subtotal Telecommunications</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Training</b>						
Technical Staff	0	0	0	0	0	0
End-user Staff	0	0	0	0	0	0
<b>Subtotal Training</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

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**Expenditures**

<b>IT Project Costs</b>	<b>Total</b>	<b>Prior Exp</b>	<b>FY16 Appr/Reappr</b>	<b>FY18 Request</b>	<b>FY19 Request</b>	<b>Future Add</b>
<b>Other Operating Costs</b>						
Personnel Cost	0	0	0	0	0	0
Supplies & Materials	0	0	0	0	0	0
Travel	0	0	0	0	0	0
Other	0	0	0	0	0	0
<b>Subtotal Other Operating Costs</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Capital Expenditures</b>						
Hardware	0	0	0	0	0	0
Software	0	0	0	0	0	0
Network	0	0	0	0	0	0
Other	0	0	0	0	0	0
<b>Subtotal Capital Expenditures</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TOTAL PROJECT COST</b>	<b>270,000</b>	<b>0</b>	<b>0</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>

**Funding**

<b>Fund Type</b>	<b>Total</b>	<b>Prior Exp</b>	<b>FY16 Appr/Reappr</b>	<b>FY18 Request</b>	<b>FY19 Request</b>	<b>Future Add</b>
General Fund	270,000	0	0	90,000	90,000	90,000
Cash Fund	0	0	0	0	0	0
Federal Fund	0	0	0	0	0	0
Revolving Fund	0	0	0	0	0	0
Other Fund	0	0	0	0	0	0
<b>TOTAL FUNDING</b>	<b>270,000</b>	<b>0</b>	<b>0</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>
<b>VARIANCE</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

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**IT Project: Storage and Preservation of 12 TB Historical Data**

**EXECUTIVE SUMMARY:**

Establishing a basic level of digital preservation functionality via cloud storage is the first step in addressing the two critical challenges NSHS faces: (1) preservation of and (2) access to an increasing volume of data (currently ~12 TB). Statute requires NSHS to collect and preserve government records, now mostly digital-born. NSHS must make historic resources accessible, increasingly online. Aging servers show data at risk. Cloud storage and access will cost ~\$90,000/year is not currently funded.

NSHS is challenged by existing ad hoc digital storage and management. Born digital materials are increasingly generated by staff and state agencies. Planning for the long-term preservation and access of digitized historic materials and digital born records is underway. Preservation of digital data is the first step in a larger strategic effort.

**GOALS, OBJECTIVES, AND OUTCOMES (15 PTS):**

Goal: Preservation of data required by statute, both digital-born materials and digitized historic images, documents, and artifacts created over almost two decades of digitization activity

Expected outcomes:

- Less vulnerable data preserved via cloud storage that offers redundancy and decreased risk of data destruction due to natural, technological, or human-caused disasters
- Protection of data concurrent with planning for applications to expand access to public

Beneficiaries will be:

- the people of Nebraska
- Nebraska students and teachers
- family historians and researchers
- publishers and media producers
- state, county, and local government and legal representatives

NSHS is expected to preserve in perpetuity historical materials and to make them accessible. It is also statutorily required to collect and preserve the digital born records of local, county and state government in Nebraska. Protection of vulnerable data currently residing on aging servers is the first step in a larger plan to make more information both secure and accessible to more users.

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**Agency: 054 - STATE HISTORICAL SOCIETY**  
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Although server costs are declining, the ever-growing amount of data NSHS is compelled to preserve makes a cloud storage solution advisable. Once data is securely migrated and redundancy is assured, NSHS staff can work with OCIO and other vendors to determine the most cost-effective and user-appropriate applications for data access, searching, and retrieval. It may be possible to find third-party cloud storage options at costs less than the \$.55/GB rate cited by OCIO for this biennium.

Nebraska citizens and researchers around the world have growing expectations of online data access for business, legal, and personal purposes. Digitizing historical analog materials and preserving digital born records will make more information available that people can use to inform their decision making in the present and shape their futures. Specific use of these materials may range from classroom projects that grow students' understanding of Nebraska's role in our nation's history and its potential future contributions to developers' plans to rehabilitate historic structures for income-producing purposes. State agencies including the Nebraska Department of Roads, the Game and Parks Commission, the Department of Environmental Quality and others will continue and expand their present uses of historical data needed for project review and compliance.

Expected beneficiaries of the project are

- o the people of Nebraska, who are at the core of NSHS's mission to collect, preserve, and open to all the histories we share
- o Nebraska students and teachers, who can use digital historical information to create personal identity, build community, and invest their futures in Nebraska
- o family historians and researchers
- o publishers and media producers who mine NSHS collections for images and information and share Nebraska stories through their work
- o state, county, and local government and legal representatives whose work requires access to government records

**PROJECT JUSTIFICATION / BUSINESS CASE (25 PTS):**

This project is fundamental to the Nebraska State Historical Society's comprehensive information technology plan in that it addresses the two critical and unique features NSHS faces: preservation of and access to an ever-increasing volume of data. Unlike many state agencies with short-term data retention needs, the NSHS is statutorily obligated to preserve and make available a wide array of materials both analog and digital-born.

Preservation: Replicating historic materials in digital forms supports preservation by providing facsimiles for public access

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**Budget Cycle: 2017-2019 Biennium**                      **Version: AF - AGENCY FINAL REQUEST**

Access: NSHS maintains collections of historic photographs, manuscripts, publications, moving images, audio, recordings, maps, and artifacts numbering in the millions. Information technology provides discovery of these resources and the option of digital replication of analog forms.

NSHS servers continue to age and fail. Rather than approving purchase of additional servers which would leave data preservation and management with NSHS staff in locations in Lincoln, the OCIO has recommended cloud storage to ensure the redundancy critical to ultimate data preservation.

NSHS staff has also researched solutions implemented by other historical societies, libraries and archives, including commercial and open source applications. Review of options offered by two commercial vendors used by other similar agencies. NSHS' research shows that there is no one size fits all option that will perfectly meet both external and internal needs. NSHS provides information using a variety of OCIO and vendor supported platforms. We envision that this mixed model of data access and preservation will continue as we continue to strive to meet both our statutory obligations and our users' needs.

**TECHNICAL IMPACT (20 PTS):**

NSHS maintains aging servers that require frequent maintenance, switch replacement, and both internal and outside trouble-shooting. Most recently power surges from electrical storms have made data vulnerable and have caused time-consuming retrieval of data from other backup sources.

Cloud storage would create redundancy and ensure preservation of an ever-growing body of historical and government record data.

Once data is safely preserved in cloud storage, NSHS staff will continue to investigate advantages of implementing access systems that will offer industry and data-type specific platforms at a cost savings for the state.

Regardless of vendor, NSHS will require for all platforms and services:

1. Dedicated support for platforms and services. 24/7 response to critical issues. Contractual obligations for responsive support and maintenance. Opt out clauses if those obligations are not met.

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2. A clear exit strategy when a replacement system is required. NSHS needs to own, manage, and have full access to the data accessed through commercial applications.
3. Effective management and preservation strategies for born-digital content and digitized video, both key growth areas for the agency.
4. Upfront time commitments for NSHS' small IT staff for system adjustments and changes. NSHS does not have programmers on site and time spent on server maintenance is currently slowing down critical projects.

Cloud-based storage systems made available through the OCIO are designed for growth and technical adaptation as future needs require. NITC standards and guidelines compliance is inherent in OCIO offerings. A variety of history industry-specific applications are used to access data in library, archives, image, audio-visual and museum artifact collections, archeology and historic site surveys, and GIS resources. How these applications will align with cloud-storage system will be reviewed and adapted as circumstances require.

**PRELIMINARY PLAN FOR IMPLEMENTATION (10 PTS):**

In anticipation of funding NSHS will conduct a digital assessment and prepare appropriate data for migration. NSHS will work with OCIO to create server space and create a link or portal to ensure secure access to cloud storage. NSHS IT staff would create trust between NSHS servers and cloud storage. Data migration is expected to take 3-4 weeks. Once data is preserved via cloud storage, NSHS staff will continue to plan strategies to ensure long-term preservation/access to our digital assets.

After data is stable, planning for access implementation will continue across agency, coordinated by IT staff. Digital access is a key plank in NSHS' strategic plan, and is actively supported by CEO and Board.

July 2017: NSHS Staff will assess current data and prepare data for cloud storage

OCIO staff will ensure cloud storage availability and create portal for data migration

August 2017: NSHS IT staff will create trust for data migration

September 2017: Data ingest complete

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October-December 2017: NSHS staff will assess data management and access needs and expand public access

NSHS staff will need to be trained in mechanisms for data migration and preservation.

The move to cloud storage will require ongoing support for data preservation and security. Stabilization and preservation of these materials is projected to increase public demand for online access.

**RISK ASSESSMENT (10 PTS):**

Timeframe: Our aging servers are at significant risk of failure. While backups exist, there is the potential for enormous data loss in case of natural or human-caused disasters. Delays in implementation will increase the risk to vulnerable data. Failure to properly migrate data could result in lost or damaged information. NSHS has worked to mitigate risks by backing up server data in multiple locations, removing redundant information from servers, and keeping data and databases up to date. NSHS is creating plans for data migration, integration, and new access platforms. We acknowledge that creating a stable platform for preserving data is only the first step – providing access to this information is equally important.

Maintenance model: Maintenance of cloud storage creates new concerns for the agency. Staff training on the vulnerabilities of cloud-hosted data must occur concurrently with migration. Vendor agreements must offer maintenance and access guarantees that meet NSHS requirements. Costs for these services must be competitive. NSHS has talked to peer organizations around the country and researched vendor agreements, staffing and training models. We have a clear idea of our requirements and competitive pricing models.

**FINANCIAL ANALYSIS AND BUDGET (20 PTS):**

Cost estimate provided by OCIO proposal and rate sheet provides cloud storage at \$.52/GB/month. This translates into +\$70,000 per year for storage of data currently in NSHS holdings, without costs of access and user-friendly document retrieval included. Acquiring more servers at NSHS sites could be an option, but the long-term preservation, redundancy, and security issues suggest that cloud storage is a more viable long-term foundation for evolving preservation and public access needs.