



D60A
Maryland State Archives

Joint Chairmen's Report
Information Request

Alternative Archival Storage, including Cost-Benefit Analysis

Page 15 of the 2011 *Joint Chairmen's Report* contains the following reporting requirement:

Alternatives for Warehouse Storage of State's Permanent Record Collection: Currently, more than 50% of the State's permanent historical records are kept in substandard warehouses lacking environmental and security controls. The committees are concerned about the condition in which the State's archival property is maintained and requests that the Maryland State Archives (MSA) and the Department of Budget and Management (DBM) work collectively to determine alternatives. In particular, these agencies should evaluate:

- 1) A review of the space requirements for the storage of permanent record material and recommendations for the short- and long-term funding of these requirements;
- 2) The feasibility of funding the records management and archival program for the State and local government, including both capital and operating budgets, through the application of a surcharge to permanent records as contemplated in Section 9-1007 of the State Government Article of the Annotated Code of Maryland; and
- 3) A cost-benefit analysis of storing records in privately owned facilities versus operating State-owned temporary and archival storage facilities.

Overview

The Maryland State Archives (MSA) is the central depository for government records of permanent value. As populations and recordable events increase, the documents maintained by MSA have grown accordingly over the last 30 years. In addition, the MSA has taken on greater numbers of documents as a result of increased government activities and the inclusion of county and local records as part of their collections. The ever increasing volume of records being deposited with MSA has outpaced the ability of the State to provide and maintain adequate space for the proper storage of these records.

State Archives materials are stored in five main facilities: the State-owned Dr. Edward C. Popenfuse State Archives Building in Annapolis, the State-owned warehouse in Cheltenham, and three rented warehouses, located at Hammonds Ferry, Ordnance Road, and Candlewood Road. Altogether, the facilities store 362,386 cubic feet of permanent record material. More than 50% of the total collection resides in the rented warehouses, where the materials are difficult to access and cannot be kept in secure temperature and humidity-controlled environments.

Because the MSA collection is among the largest in the country, with nearly 400 years of history, including Colonial-era paintings, keepsakes of the State governors, and thousands of land, court and genealogy records, it is prudent to provide facilities with the necessary environmental conditions to properly maintain these historically significant assets. However, in assessing the long-term storage needs of the MSA, additional attention needs to be given to the improvement of records management in state and local government agencies. This would result in greater scrutiny being given to the historical significance of the increasing number of documents being received and stored. In addition, as technology has advanced over the years, the reliance on paper documents has significantly decreased. Further evaluation needs to be given the efficacy of providing actual physical storage for the increasing numbers of paper documents being received that could more appropriately be stored in an electronic format.

In performing the cost benefit analysis requested by the budget committees, the following four options were evaluated:

1. Leasing additional non-climate controlled space
2. Leasing climate-controlled space
3. Construction of a new State-owned purpose built Archives
4. State purchase and renovation of existing space

According to the analysis, it appears that the most cost-effective alternative would be for the State to lease (possibly with an option to buy) a privately owned existing facility that could be modified to accommodate the Archives current storage needs. Current market analyses indicate that suitable space is readily available on the open market that could be modified to adhere to most of the rigorous standards required for the storage of archival material. This alternative should be pursued once sufficient resources are available and an additional evaluation is conducted in conjunction with the State's overall capital program.

To assist in meeting these needs, the MSA should pursue the possibility implementing the provisions of § 9-1007 of the State Government Article, which provides the authority to establish reasonable fees that could be used to fund the operational costs for the care and preservation of records, in addition to other services provided by MSA. In addition to addressing the operating needs of MSA, further investigation is needed to address the fiscal questions regarding the uniform surcharge assessment and the use of revenue from the surcharge for capital expenditures.

Section I

A review of the space requirements for the storage of permanent record material and recommendations for the short- and long-term funding of these requirements.

Review of Space Requirements and MSA's long-term capital proposal

In addition to the antique art, maps, photographs and other special collections maintained by the MSA, the majority of Maryland's more than 340,000 cubic feet of holdings is composed of paper records. This represents a small percentage (5% to 10%) of the total records created by government that should be preserved for posterity. Records worthy of this designation require proper storage and care and must be accessible to the public.

Each year, a steady flow of permanent record material comes to the MSA. The chart below indicates by fiscal year how much record material in cubic feet has been transferred to the Archives since 2001, as well as the Archives' total holdings.

FY	Transfers in cubic Feet	Records in Custody in cubic feet
2001	7,005	213,303
2002	12,664	225,967
2003	9,810	235,777
2004	15,671	251,448
2005	9,775	261,223
2006	16,017	277,240
2007	18,013	295,253
2008	28,136	323,389
2009	17,852	341,241
2010	12,124	353,365
2011	9,021	362,386
Total	156,088	362,386

Table 1. Cubic feet of record material transferred to Archives with cumulative total in all facilities. In the years when amount of material transferred dipped below 10,000 cubic feet, transfers were halted due to lack of storage space.

The MSA's main facility in Annapolis, *the Edward C. Papenfuse State Archives Building*, which was opened in 1986 at a cost of \$7.7 million, has been full to capacity for a number of years. In preparing the recent MSA Facilities Program documents for capital budget requests, the MSA conducted considerable research and developed a good understanding of space requirements. As part of this process, the MSA consulted with Bruce Rich (the architect of the existing *Archives Building*), Purple Cherry Architects, the Regional Economic Studies Institute (RESI) of Towson University and real estate experts CBRE (under contract with Department of General Services).

In performing background research for the capital budget documents, the MSA reviewed the measurement methodology and analyzed all records transfer receipts for the past ten years. Interestingly, the documents used to justify the Old Hall of Records Building in the 1930s, and the documents supporting the construction of the current *Edward C. Papenfuse State Archives Building* from the early 1980s convey arguments very similar to those advocating a new adjunct facility today. Little has changed over time.

Annual reports, 1980 – 1996, and information derived from databases which track holdings of the Archives down to the box level were reviewed. Each record container (clamshell, bound book/volume, record center box, etc.), has a known space requirement. For example, a standard record center box takes up 1 cubic foot of space. An analysis of record transfers to the Archives reveals a long-term steady increase in the amount of permanent record material being created. From 1980 to the mid-1990s, the average quantity of material transferred to the Archives was a bit over 6,500 cubic feet per year. From the mid-1990s to the present, the average amount transferred doubled to over 13,000 cubic feet per year.

Based on the analysis of data relating to record transfers over time, the MSA developed an estimate of its space requirements and recommended a capital project to construct a 115,000 net assignable square foot / 167,000 gross square foot (NSF/GSF) Archives facility to house the State's permanent records and artistic property not on display. The space would consist of 86,000 square feet of records storage and accommodate records currently housed at warehouse facilities as well as anticipated records transfers through FY2022.

The proposed facility would include the following elements:

	Square Feet
Records Storage	85,929
Artistic Property	10,000
Large Object Storage	5,000
Electronic Archives	5,000
Records Processing	2,500
Cold Storage	2,000
Staff	1,426
Research Room	1,000
Scanning Storage	600
Conference Space	500
Loading Dock	300
kitchen / lunchroom	200
Reception Area	195

Calculations for the NSF/ GSF of this proposed facility were based on known records in custody by cubic feet, and the estimated accretion of 15,000 cubic feet of record material per year for ten years. With the same type of compact/movable shelving found at the archives, a density of roughly 4 cubic feet of storage per square foot of space can be achieved. (The square footage of other elements was largely determined by the office space standards promulgated by the Department of Budget and Management.)

Proposed Shelving and Storage Applications

MSA proposed that stack areas be constructed of the same type of compact shelving as found at the existing facility. By eliminating aisle space, these mobile, high-density units double storage capacity. Space conservation should be a consideration not just for its economic benefit, but also for environmental reasons. By reducing ongoing energy requirements, mobile shelving offers cost savings now and in the future. More importantly, the tightness with which records are stored actually helps maintain their stability. Moreover, mobile shelving also aids in retrieval since less energy is expended to reach the record material.

In place for nearly 30 years, the current modular shelving in Annapolis has stood the test of time. Its simple construction has allowed Archives staff to maintain and repair shelving units. In addition, this shelving offers a great deal of flexibility and versatility. See below images of current compact shelving within the Archives Building.



1 Deck 1 storage



2 Map Collection

A viable alternative to compact shelving, (shown above), is the “high-bay” automated retrieval system in place at many archival and other institutions ranging from the Federal Reserve (storage of money) to food distribution centers. The high-bay, or Harvard model (attributed to Harvard Depository Library, Southborough, Massachusetts) achieves a very high density of material per square foot by using very tall storage structures that are accessed with a highly automated retrieval system. The Harvard model also relies on a “modular” construction approach. When more archival storage space is required, additional units are built next to the original structure using the same design specifications (updated as needed by changes in the building code). While *automated* retrieval may add to the cost of construction, the high-bay concept impacts favorably on other construction costs and allows for future savings in energy consumption. Utah has implemented this model with great success.

Section II

The feasibility of funding the records management and archival program for the State and local government, including both capital and operating budgets, through the application of a surcharge to permanent records as contemplated in Section 9-1007 of the State Government Article of the Annotated Code of Maryland.

Existing Fee Authority

Existing statutory authority (State Government Article § 9-1007(c)) authorizes the State Archivist to establish reasonable fees for the care and preservation of records and other services provided by the Archives. These fees may not exceed 2% of any existing fee charged for the creation of a record. MSA may also charge a flat rate subscription charge for a publication of the Archives. The statute further requires that 7% of the fees collected go into the Archives Endowment Account of the State Archives Fund. It appears that the statute, as currently written, would only authorize the assessment of this additional surcharge on those records that already have a fee associated with them. This restriction would, however, make the additional fee easier to assess and collect in that there is already an administrative process for collection of the fees.

In looking at the permanent record series, it was further discovered that many records series that generate revenue do not have the fee associated with the creation of a record. Rather, there is a fee associated with the dissemination of a record. An example of this would be birth certificates of the Department of Health and Mental Hygiene, where there is no charge to create a birth record, only when a copy is obtained. Thus, MSA would not have the authority to assess a surcharge against this record fee.

One example where the fee could be assessed would be Register of Wills estate files. Each year, some 28,000 estate files are opened and there is a fee associated with opening up an estate file. Adding a small fee on top of that fee would generate a known amount of revenue. A surcharge of \$5, for example, multiplied by 28,000 estate files would generate \$140,000.

Estimated Revenue

To develop an estimate of the potential revenue that could be generated by implementing the existing fee authority, the MSA compiled estimates of the total number of newly created discrete permanent records for targeted agencies from 2001 to 2010. Specifically, we looked at the number of discrete land record instruments (notice records) recorded in Maryland, the number of case files initiated in Circuit Courts, and the number of estate files opened by the Registers of Wills.

Estimates for the creation of new land record instruments and opening of new estate files are derived from data made available by the Circuit Courts and the Registers of Wills. Between 2001 and 2010, some 13,636,050 land record instruments were recorded in the Circuit Courts. This

works out to an annual average of 1,363,605 instruments. During that same 10-year period, 277,686 new estate files were opened by Registers of Wills, an annual average of 27,769.

Estimates for the number of new case files instituted from 2001 to 2010 are harder to come by and therefore less precise. A court official estimated that, in round numbers, about 600,000 new cases were filed between 2001 and 2010, an annual average of about 60,000.

The table below demonstrates the potential annual income stream that could be generated from instituting a \$2, \$3, \$4, or \$5 surcharge on each land record instrument recorded, case file instituted, and estate opened.

	Records created 2001-2010	Annual average	X \$2 surcharge	X \$3 surcharge	X \$4 surcharge	X \$5 surcharge
Circuit Court land Record Instruments	13,636,050	1,363,605	\$2,727,210	\$4,090,815	\$5,454,420	\$6,818,025
Circuit Court Case Files	600,000	60,000	\$120,000	\$180,000	\$240,000	\$300,000
Register of Wills Estate Files	277,686	27,769	\$55,538	\$83,307	\$111,076	\$138,845
Sub-Total			\$2,902,748	\$4,354,122	\$5,805,496	\$7,256,870
Minus 7% to the Archives Endowment Account			\$203,192	\$304,789	\$406,385	\$507,981
Total Projected Revenue			\$2,699,446	\$4,049,333	\$5,399,111	\$6,748,889

Potential Uses for Fee Revenue

The MSA has proposed that this new revenue stream be used to fund the following annual operating expenses:

- \$2,000,000 to offset the current General Fund appropriation to the MSA; and
- \$500,000 to fund an archives grant program to help local and municipal governments with records management.

It is further proposed that the fiscal policy issues surrounding the uniform assessment of these surcharges and the utilization of this proposed funding stream for capital expenditures, lease payments or one-time expenditures, such as the development of a revitalized and enhanced records management program, be further studied to identify the most feasible and responsible approach. The State should pursue the implementation of this existing fee authority once these

fiscal issues have been addressed and more reliable cost projections for these expenditures have been developed.

Section III

A cost-benefit analysis of storing records in privately owned facilities versus operating State-owned temporary and archival storage facilities.

Current Operating and Lease Costs

Total operating costs for the *Edward C. Papenfuse State Archives* building is \$18.49 per square foot (\$14.09 general maintenance and utilities plus \$4.40 for security). The records storage area within the Edward C. Papenfuse State Archives Building measures 115,000 square feet resulting in a total operating cost of \$2,126,000.00 annually.

The State pays a market rate at rented warehouses but inadequate conditions persist. Archives data shows that due to the poor environmental controls, the "expected materials lifespan" for the materials stored at the current facilities ranges from 5 to 51 years (15 to 44, 15 to 51, and 5 to 35 years for Hammonds Ferry, Ordnance Road, and Candlewood Road facilities, respectively). The contracted lease price for the three non-climate controlled storage spaces averages \$7.49 per square foot. The total cost for leasing and operating privately owned archival space is \$515,221.00 per year. This includes \$404,000 in lease costs and \$111,221 in operating costs for the rented warehouses. Operating costs include archives staff and transportation expenses. They do not include other important services such as trash removal, housekeeping, pest control, and security.

Digitizing Archival Records to Mitigate Current and Future Capital and Operating Costs

While future operating and capital needs could be addressed by digitizing records, there are several requirements that must be met before this process can occur, thus extending the timeline for addressing current conditions.

First, a survey is needed to identify potential candidates for the scan and destroy approach, analyze any legal strictures that might apply to the records, and define necessary processing and document preparation requirements for scanning. The Archives estimates that it would take nearly 7,800 man hours to complete such an analysis and cost more than \$194,000. Based on the current availability of skilled human resources that can be devoted to this task (4 hours weekly from 12 people), this would take more than three years just to complete this initial analysis.

Second, selected records will have to be prepared for scanning. The cost and required labor for this preparation would vary widely, based on the current condition of the record. Document preparation may be necessary so that the material can be fed through a scanner without damage. Records may require preparation such as dis-binding, staple removal, and/or pagination before it

could be put through a scanner. The cost for document preparation is an average of \$100 per cubic foot.

Third, the storage of electronic records requires specialized hardware and software, consumes vast amounts of electricity, and requires environmental controls which are, if anything, at least as stringent as a purpose-built archival space for paper. The Archives would also have the added expense and difficulty of migrating data forward as electronic formats change so as to ensure the records remain accessible in perpetuity.

The archives should continue to explore and identify appropriate records for digitization and develop a plan to reduce the amount of space needed in leased, renovated, or new archival space by digitizing eligible records.

Analysis of Storage Alternatives

In its analysis, MSA and DBM considered the following alternatives for warehouse space:

1. Leasing additional non-climate controlled space
2. Leasing climate-controlled space
3. New construction of archival climate-controlled space
4. Purchase and renovation of existing space

The cost-benefit analysis assumes each alternative will provide 115,000 square feet of archival storage space and that leased, new or purchased facilities will be located in the Baltimore-Annapolis region.

The chart below summarizes each alternative for archival record storage.

**Alternatives for Warehouse Storage of State's Permanent Record Collection:
Operating and Capital Costs
(in millions of \$)**

Option	Capital Costs	Operating Costs	Advantages	Disadvantages
Leasing Non-climate controlled space	N/A	15-yr: \$18.7 30-yr: \$35.1	<ul style="list-style-type: none"> o Readily Available o No capital costs o Transfers can be accommodated immediately 	<ul style="list-style-type: none"> o No constancy of temperature and relative humidity; High potential for records loss over time due to o Higher leasehold costs over time o Lack of single facility of suitable size o Costs associated with consolidating current record holdings into a leased facility. o Space does not meet any standards for archival space o No security
Leasing climate-controlled space	N/A	15-yr: \$28.3 30-yr: \$54.2	<ul style="list-style-type: none"> o Constancy of temperature and relative humidity. o Air filtration to remove pollution and contaminants such as mold o Near-Archival standard minimum for number of windows and doors. o Transfers can be accommodated immediately 	<ul style="list-style-type: none"> o Lack of availability o Higher leasehold costs over time o Lack of single facility of suitable size. o Space does not meet any standards for archival space o No security o Costs associated with consolidating current record holdings into a leased facility.
New construction of archival climate-controlled space	\$44.2	15-yr: \$32 30-yr: \$64 Debt Service: \$62.6	<ul style="list-style-type: none"> o Constancy of temperature and relative humidity. o Air filtration o Vapor barriers and insulation to inhibit moisture infiltration and reduce thermal gain or loss. 	<ul style="list-style-type: none"> o High up-front costs, but this would be offset over time by the fact that, as a state owned building, there would be no lease cost o Continued storage of archival material in inappropriate space while waiting for capital funds o Costs associated with consolidating current record holdings into a new facility o Security
Purchase and renovation of existing facility to near-archival standards	\$12.0	15-yr: \$33 30-yr: \$66 Debt Service: \$17.8	<ul style="list-style-type: none"> o Constancy of temperature and relative humidity. o Air filtration o Specialized fire detection and protection for storage areas. o Near-Archival quality vapor barriers and insulation to inhibit moisture infiltration and reduce thermal gain or loss. 	<ul style="list-style-type: none"> o Continued storage of archival material in inappropriate space while waiting for capital funds o Costs associated with consolidating current record holdings into renovated facility o Security

- **Leasing additional non-climate controlled space**

Additional privately owned non-climate controlled space is readily available in the open market. The cost per square foot of space would be equivalent, if not less than, the current lease arrangements. At the current low rate of \$9.49 per square foot, and yearly retrieval costs of \$72,000, the cost for 115,000 square feet of privately owned non-climate controlled space would total \$1,171,400 per year. To provide shelving in such a facility would require a one-time operating expense of \$1,150,000. Calculated using current market value, the total operating cost over 15 years is \$18,721,000. This would come to \$35,142,000 over 30 years.

- **Leasing climate-controlled space**

The primary obstacle in pursuing this option is the lack of suitable archival space available in the open market. The Archives is not aware of any adequately-sized facility suitable for archival storage that is available for lease. However, the Department of General Services (DGS) estimates a rental rate of \$15.09 per square foot for climate- controlled warehouse space. Assuming yearly retrieval costs of \$72,000, the operating cost for 115,000 square feet of privately rented space would total \$1,807,350 per year.

Calculated at current market value, the total operating cost over 15 years is \$28,260,250, which includes the \$1,150,000 for shelving in first year of construction.

- **Construction of a new state-owned purpose-built Archives**

The projected cost to build a new adjunct Archives building is \$44,188,000.00 as reflected in the Cost Estimate Worksheet submitted with the MSA capital program documentation. Operating costs, as currently calculated by DGS and verified for FY 2012 by the DBM Office of Budget Analysis total \$2,126,000 per year. The operating cost estimate assumes \$14.09 per square foot for general maintenance and utilities and \$4.40 per square foot for security. Including the payment of debt service on the cost of building construction, the total operating cost over 15 years is \$31,890,000.

- **State purchase and renovation of existing space**

Real estate consultant CBRE's analysis of the current market indicates that there are numerous vacant or partially leased buildings in Maryland that meet the Archives' current and future space requirements. The consultant's rough estimate based on an evaluation of three candidate properties is as follows:

Estimated purchase price:	\$7,000,000
Costs for renovation:	\$5,000,000

Yearly operating expenses calculated at the same rate as a new facility show a total operating cost of \$32,988,495 over 15 years.

Conclusion

The 15-year cost to the State to build or lease and to operate a new 115,000 square foot facility to provide for the storage of archival documents and materials would be as follows for the options that were evaluated in our study:

1. Leasing additional non-climate controlled space	\$18,721,000
2. Leasing climate-controlled space	\$28,260,250
3. Construction of a new State-owned purpose built Archives	\$31,890,000
4. State purchase and renovation of existing space	\$32,988,495

The Department of Budget and Management and MSA acknowledge that there is a need to provide additional, appropriate storage space for archival materials. However, given the existing economic climate, this need will have to be further considered in the context of other demands for state operating and capital funding and overall statewide budget priorities. Given the significant amount of space required to store archival material and the cost to operate and maintain that space, MSA should evaluate the feasibility and cost effectiveness of digitizing targeted record series. The optimal digitization of eligible records in conjunction with the leasing and renovation of an existing building may not meet all of the requirements that a state-of-the-art purpose-built archives may envision. However, this option appears to be the most practical and cost-effective alternative to address the immediate storage needs of the MSA.