

**Preliminary
Requirements**



**Preliminary Program of Requirements for the
City of Westminster Archives**

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**Submitted to J.R. Clanton
City of Westminster, Colorado**

Preliminary Program of Requirements for the City of Westminster's Archival Facility

Sponsors

City of Westminster Parks, Recreation and Libraries

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I want to thank Jason Genck, Michelle Parker, J.R. Clanton, and Kira Kloser for their guidance and support with this important project. I sincerely thank the staffs of the City Departments for giving their time and input to assist in developing this report.

I am always happy to answer any questions about this report and about best practices in archives management, programs and facilities.

Best, *Michele Pacifico*

Table of Contents

Section 1: Executive Summary	3-4
• Project Overview	
• Project Findings	
• Recommendations and Next Steps	
Section 2: Considerations for a City Archives	5-13
Section 3: Preliminary Evaluation of City Holdings	14-26
Section 4: Storage Options for Archival Collections	27-33
Section 5: Archival Facility Requirements	34-51
Section 6: Archival Facility Design Standards	52-64
Section 7: Recommendations and Next Steps	65-67
Section 8: Appendices	68-80
• Appendix A: Citations for Archival Facility Standards	
• Appendix B Prohibited Materials List	
• Appendix C: Photographs – Examples of Research Rooms	
• Appendix D: Photographs – Examples of Processing Rooms	
• Appendix E: Photographs – Examples of Collections Storage/Shelving	

SECTION 1 Executive Summary

Project Overview

Westminster, Colorado has a long and rich history. Much of the records of its past can only be found in the City's official records and in other community organizations with archival holdings. Westminster's archival records span from early 1900's to the present, and they document the history of the City, its government, and its citizens. Included are its laws, agreements, land records, judicial records, maps, surveys, and governance documents.

Archival collections are permanent and irreplaceable and should be stored and accessed in a facility that provides them with the necessary care, security and storage that ensures their preservation and access. Without adequate housing these records are at risk of deterioration and may be difficult for researchers and citizens to find and use.

The City of Westminster, Colorado has taken the first steps to determine the requirements to establish a City Archives and evaluate the requirements and logistics to establish a shared archival facility for a city-wide repository for the City of Westminster's historical collections. The archival study is divided into two phases:

1. Report that details the quantitative and qualitative information about the City's archives current and future requirements.
2. Report that outlines the requirements and logistics to establish a shared archival facility for the city's records and the historical collections of community organizations.

In May 2018, the City of Westminster hired archival consultant Michele F. Pacifico to conduct the two archival studies. After background research, Michele made her first visit to Westminster from July 17 to July 19, 2018. She met with City Departments and managers, the Library leadership staff, the Library Director of the Front Range College Library, presented an overview of the project for the Westminster Historical Society at their monthly meeting, and met with a group of interested residents.

This is the first preliminary report of the project regarding the status of the city's records and future archival requirements. Many of the same requirements and considerations addressed in this report also apply to the development of a shared archival facility that would include both the city's records and the historical collections of community organizations.

Project Findings

The City of Westminster, Colorado is exploring the establishment of a city archives. City records that are still in physical format are currently held in department offices and in off-site storage. City departments follow the State of Colorado's records retention schedule and have an active digitization program for current records using Laserfiche.

This report outlines the additional information and decisions that are needed to determine the direction Westminster wants for its historical records. This report offers a draft preliminary program of requirements that is based on information received from Westminster leadership, City departments, and documentation provided by the city. Additionally, the report outlines the general requirements and design standards for a city archives.

Recommendations and Next Steps.

An appropriate archival program and facility for the City of Westminster would meet the ongoing storage needs for archival collections and ensure proper preservation and access to the City's historical records. A proper archival facility offers a climate controlled, secure environment that is necessary for the long-term preservation and access of the holdings of the City's historical records. An archival program provides greater operational efficiencies and the insurance that no archival collections are lost because of inadequate storage. An archival facility provides needed areas for the processing and digital work necessary for preservation. An archival facility is not necessary for the City to continue to meet Colorado's record retention policies.

SECTION 2 Considerations for a City Archives

The City of Westminster, Colorado is exploring the establishment of a city archives. City records that are still in physical format are currently held in department offices and in off-site storage. As mentioned in Section 1, City departments follow the State of Colorado's records retention schedule and have an active digitization program for current records using laser-fiche.

For establishing how the City of Westminster could move forward with an archives, it is useful to look at other city archives that are established and operational. Some city archives are established within the city's clerk office. Others are organizationally located within the city's library or are administratively a separate organization within the city manager or city administrator's office. It is up to each city to determine the best fit for its archives operation with the city's organizational and budget structure. Funding options or the budget may steer the city toward one type of management model.

Considerations include:

- Location
 - Organizational location with the city's government
 - Physical location
- Mission, Purpose and Duties
- Budget
- Staffing
- Policies and Procedures
- Collaborations with Front Range College Library, the Westminster Historical Society, and other community organizations.

Some of the planning and early operational activities of other city archives were completed with the assistance of grant money. Grant opportunities are discussed later in this section.

Case Studies

Below is information on existing city archives that can serve as models for Westminster. These examples provide insights into the organizational makeup of a different city archives and their missions and policies. As part of this early planning, Westminster should review these model city archives and consider conducting follow-up conversations to get a better understanding of the issues that must be addressed in developing a city archives. A great deal can be learned by visiting other city archives.

Seattle Municipal Archives

Seattle has a population of 704,000. While it is a larger city than Westminster with a population of 113,900, and its archives program is larger and established, the Seattle Municipal Archives offers a good model of a city archives. Below is a summary of its operation from its website. Note that it started with a 2-year grant. <https://www.seattle.gov/cityarchives/>

Location

The Seattle Municipal Archives is located on the third floor of [Seattle's City Hall](#) at 600 Fourth Avenue in downtown Seattle. The building is between Fourth and Fifth Avenues and James and Cherry Streets. The Archives is co-located with the Office of the City Clerk.

Hours

The Archives is an agency of City government and is open during regular business hours (8 a.m. to 5 p.m., Monday through Friday). The research room closes at 4:45 p.m. each day. The Archives is closed for all [City holidays](#).

Access Policy

The records held by the Seattle Municipal Archives are open to the public and available for research use during business hours. To ensure the most efficient use of the records and staff time, researchers are encouraged to make appointments when requesting access to the Archives. Please see [Visiting the Archives](#) for more information about doing research on-site at the SMA.

Mission Statement

The mission of the Archives is to support the goals of the City of Seattle and the citizens of the City by identifying, acquiring, arranging, describing, preserving, and making accessible - for the use of City agencies, scholars, students, and the general public - the records of enduring value created or received by City agencies and elected officials.

Archives Staff

- Anne Frantilla, City Archivist
- Jeanie Fisher, Reference Archivist
- Julie Irick, Photo Archivist
- Julie Kerssen, Processing Archivist
- Sarah Shipley, Digital Asset Manager

History of the Archives Program

The Seattle Municipal Archives was established in 1985 with a two-year grant from the National Historical Publications and Records Commission (NHPRC). The Archives was a program of the City Clerk Division of the Office of the Comptroller from 1985 through 1992. A City Charter amendment, which took effect January 1, 1993, transferred the City Clerk and the Municipal Archives to the Legislative Department.

In 1988, as part of the NHPRC grant, the Municipal Archives published A Guide to the Archives of the City of Seattle. The Guide was awarded the Society of American Archivists' C.F.W. Coker Prize as the year's outstanding work in the area of archival description. The Guide is available online with up-to-date information on holdings in the Archives.

In 2004, the Archives moved into a new facility in the new City Hall. Researchers have access to a large research area with a view of Elliott Bay. The large storage area, with moveable shelving for maximum storage space, enables the Archives to bring collections back to the Archives that previously were stored at different locations in the area due to lack of space. The new storage area also has a freezer, ensuring a stable environment for long-term preservation of film.

Holdings

The Municipal Archives holdings document the history, development, and activities of the agencies and elected officials of the City of Seattle. Strengths of the records include those documenting engineering, parks, urban planning, the legislative process and elected officials. Holdings include over 13,000 linear feet of textual records; 3,000 maps and drawings, 3,000 audiotapes; hundreds of hours of motion picture film; and over 1.5 million photographic images of City projects and personnel.

The Archives is open to the public. The holdings of the Archives are public records and are managed in accordance with the Revised Codes of Washington public records law and public disclosure law. For more information on holdings, please refer to the various indexes and guides.



Seattle Municipal Archives

City of San Antonio Archives

<https://www.sanantonio.gov/Municipal-Archives-Records/About-Archives-Records>

San Antonio has a population of over 1.4 million people and is historically older than Westminster. However, it offers lessons to Westminster in its clerk/library partnership and its partial-funding with grant money.

The Office of the City Clerk Archives Program is located at the Municipal Archives & Records Facility. The Archives Program began in 2005 in partnership with the San Antonio Public Library's Texana/Genealogy department and the San Antonio Public Library Foundation. The program aims to appropriately house, organize, and make available for research the history of the City of San Antonio.

The Archives Program has been funded by a grant from the National Historical Publications and Records Commission. The goal of the NHPRC is to promote the preservation and use of

America's documentary heritage essential to understanding our democracy, history, and culture. To that end, the Commission supports projects around the country through grant funding.

Town of Burlington, Massachusetts Archives

<http://www.burlington.org/residents/archives.php>

The Town of Burlington, MA has approximately 25,000 people that dates from 1799. It has an active archives program and its one archivist provides valuable records management support to the town clerk. The town made a conscious decision to remain strictly a town archives that reflects the town's government. It also serves as a records center for non-permanent records as needed. It decided that it would not merge town records with other historical records, although it does take in non-governmental records on a case-by-case basis with a deed of gift. The town clerk's records are the core of the Burlington town archives.

The purpose of the archives and records management program is to preserve and protect the town's history and to enable the town to fulfill its legal records management responsibilities. The archives organizes, preserves and provides easy access to records in a variety of media; administers information resources; transfers inactive and permanent records to the Archives; and disposes of obsolete records that do not have long-term value (Town of Burlington General Bylaw 7.1)

The functions and services of the town archives include retrieving and transferring records to the archives/records center; record surveys of town departments, records management assistance to the town clerk, reformatting and digitization, electronic records management, and preservation. These services are detailed at: http://www.burlington.org/residents/archives_services.php

There is a history of the Town of Burlington Archives that summarizes its development and growth. See: http://www.burlington.org/residents/history_of_the_town_of_burlington_archives.php

City of Milwaukee Archives

https://mpl.org/archives/city_of_milwaukee_archives.php

The City of Milwaukee Archives hold both the city's historical records and related historical collections on the Milwaukee Railroad, Wisconsin architecture, and local history collections documenting the history of the City. The collections are held in the Central Library. There is more information on their website.



Colorado Resources

Within the State of Colorado, there are resources that can assist the City of Westminster with the development of a city archives.

State Records Retention Manual

A resource that is already being used by the City of Westminster is the *Colorado State Municipal Records Retention Manual*, which offers guidance on permanent records, records retention, and records disposition.

CHRAB

The Colorado Historical Records Advisory Board (CHRAB), established by Executive order of the Governor in 1976, serves two primary roles. In partnership with the [National Historical Publications and Records Commission \(NHPRC\)](#):

1. Reviews NHPRC grant proposals from Colorado organizations and makes recommendations to the National Commission.
2. Serves as a central advisory body within Colorado for historical records planning and coordination. NHPRC mandates strategic planning as a primary function of state boards.

The State Archivist is the chair and a state archives staff member serve as the Deputy Coordinator. Unlike some other states, the CHRAB is currently an active organization that supports the State Archives mission. With grant funding, the CHRAB developed its own strategic plan in 2002 with many of the same goals repeated here in 2017 – better access, better records management, and better service. Since then it has developed its own training course for local government record repositories called “Archives 101.” Its most recent announcement appeared on its website and was sent to numerous email listings around the state and region.

Below is a description of its grant program:

The Colorado Historical Records Advisory Board (CHRAB) is happy to announce this year's funding opportunities from National Historical Publications and Records Commission (NHPRC) for Re-Grants. Six grants of \$5,000 will be awarded to eligible applicants around the State of Colorado. The grant period for these funds is August 1, 2018 - June 1, 2019. Applications are open from April 25, 2018 - June 29, 2018 at 11:59 PM.

Organizations are able to request funding for a wide variety of projects, including digitization, preservation needs, disaster planning, improving accessibility to collections and purchasing supplies. Some special consideration will be given to institutions in smaller, rural areas of the State and a preference will be given to projects with a strong focus on digital accessibility and preservation. Due to NHPRC guidelines, projects for digitizing newspapers will not be eligible for grant funding from CHRAB this year. For a list of the types of projects eligible for NHPRC funding, please see this link: <https://www.archives.gov/nhprc/apply/eligibility.html>

Below is a description of one of CHRAB's education programs:

Archives 101 Workshop

This workshop focuses on best practices for those working in smaller archival repositories and those who may not have had formal archival training. Participants are encouraged to bring questions and sample items from their collections that present specific challenges in processing.

CHRAB
COLORADO HISTORICAL RECORDS ADVISORY BOARD

Colorado
Historical Records Advisory Board

Hot Sulphur Springs First Winter Sports Carnival circa February 1912. Photo courtesy of Grand County Historical Association.

Washington Avenue, Golden, CO. Photo courtesy of Golden Landmarks Association.

Colorado State Capitol circa 1920s. Photo courtesy of Colorado State Archives.

This is what previous year's grant recipients have said:

CHRAB funds allowed us to purchase the necessary supplies and hourly labor to complete the project. The project has also provided much-needed preservation of the original items.

Mission Statement: The CHRAB will ensure understanding of our state's past by supporting statewide, the efforts to identify, preserve, and promote access to essential historical documentation.

Vision Statement: To be effective, CHRAB must encourage all users to access historical information. We also must find technologies, techniques and partners that can improve service and efficiency, and we must assist all repositories in expanding, continuously, their capability to meet basic and ideal expectations.

Grants

In partnership with the National Historical Publications and Records Commission (NHPRC), CHRAB reviews NHPRC grant proposals from Colorado organizations and makes recommendations to the National Commission.

In 2011, CHRAB developed a re-granting program designed to serve the needs of the state's diverse archival repositories. Organizations can request funding for a wide variety of projects, including digitization, preservation needs, disaster planning, improving accessibility to collections and purchasing supplies.

Trailhead Pass circa 1901. Photo courtesy of Grand County Historical Association.

Touring Colorado. Photo courtesy of Colorado State Archives.

COLORADO MUNICIPAL CLERKS ASSOCIATION (CMCA)

The Colorado Municipal Clerks Association offers educational opportunities that would benefit both the City Clerk's office and a future archives program. <https://cmca.wildapricot.org>. For example, below is information about a program held in September 2018:

MEET AND GREET WITH THE STATE ARCHIVIST AND TOUR OF STATE ARCHIVES #2

When: September 13, 2018 1:00 PM - 4:00 PM

Location: 1313 Sherman St., Suite 120, Denver CO 80203

CMCA Members – \$12.50: Limited to 15 registrants

Host: Barbara Setterlind, City Clerk, City of Centennial

Speakers: Aly Jabrocki, Director and State Archivist, Colorado State Archives and Paul Levit, Colorado State Archives

Description: Come and meet Aly Jabrocki and Paul Levit from the State Archives. They will provide a tour of the State Archives and discuss processes they utilize to manage the large volume of records of the State.

Outside Resources

There are numerous resources that can assist the City in its archival planning.

Consultations: There are a number of city archivists who would be willing to discuss their archival and records management operations by phone, including from the programs described above.

City Archives Document Reviews: In addition to the ones cited above, many city archives post their mission statements, their organizational structure, and their policies and procedures on their websites. These can be used as guidance for planning Westminster's archives.

Society of American Archivists' (SAA) Local Government Section: is a good resource for background materials and for contacts who operate city archives programs.

- <https://www2.archivists.org/groups/local-government-records-section>
- <https://www.facebook.com/saalgr>

The Council of State Archivists (CoSA): provides resources for city archives on its website.

- <https://www.statearchivists.org/programs/local-government/local-government-records-resources/>
 - Valuing and Protecting Local Government Records: Making the Case for Local Government Archives
 - A Call to Action: Doing Your Part for Records That Are Closest to Home and Closest to You

Society of Rocky Mountain Archivists (SRMA): provides educational resources and conferences for archivists. It currently offers classes in preserving digital archives and electronic records. Its next conference will be on Audiovisual Archives.

Managing Local Government Archives by John H. Slate and Kaye Lanning Minchew is an excellent guide for developing and sustaining a city archives program. A detailed description of this resource can be found at <https://saa.archivists.org/store/managing-local-government-archives/5412/>. Below is a brief description.

Local government records are the records that most directly touch the lives of U. S. residents: deeds and property records, marriage licenses, school transcripts, law suits, and more, yet these records are often the most neglected records in the country. This guide is

designed to appeal both to trained archivists as well as to those without formal training but find they are dealing with the administration of an archives program in a municipality, county, parish, township or borough, or a quasi-governmental entity such as a water district or a regional transportation authority.

Coverage encompasses the various domains of archival enterprise as practiced in a local government setting:

- *acquisition*
- *appraisal*
- *arrangement and description*
- *preservation*
- *access*
- *relationship to the records management profession, and other topics.*

*Published by Rowman and Littlefield Publishing Group (2016)
186pp, Soft cover
Product Code: BOOKRES-0626
ISBN: 978-1-4422-6395-6*

Funding Sources

Most city archives are supported with funding from their city administrations.

The city can also investigate foundation and government grants for planning and functional needs. While funding agencies often favor collaborative projects like a shared archival facility, there are grants available for city archives projects.

Federal Funding:

- The National Endowment for the Humanities provides funding for planning and installing equipment that improves the preservation of archival and library collections. Funding equipment can include shelving and heating and air conditioning (HVAC) equipment. Maximum planning grants are up to \$40,000 and implementation grants are up to \$400,000.
<http://www.neh.gov/grants/preservation/sustaining-cultural-heritage-collections>

State Funding:

- The Colorado Historical Records Advisory Board (CHRAB)'s grant program as described above is the state level review body for the grant proposals submitted to the National Historical Publications and Records Commission (NHPRC).
<https://www.colorado.gov/pacific/archives/CHRAB>
 - 2017/2018 grant to **City of Leadville** – To digitize early (1882-1910) city police records which capture the history of the American West with detailed accounts of the Colorado Gold Rush and the boom and bust of mining towns. The city is collaborating with the Leadville/Lake County Library for online hosting of the digitized images.

Private Funding:

Private foundations and other granting agencies also can offer support for archival facility projects. One example is:

- The Internet Archives will digitize bound volumes and other archival records for free if you allow them to post them on the internet.

- *“Internet Archive has regional digitization centers in 32 locations and 8 countries. Our teams digitize over 1500 eBooks per day. We also have the capability to digitize archival items, bound and single sheet items, thesis, periodicals, microform and other items with our non-destructive, color process. We have worked with over a thousand library partners who have allowed their content to be digitized.”*

Local Collaboration

Cooperation and collaborations among archival institutions have increased over the last several decades. A single shared archival facility offers cohesive preservation and access to the collections, energy efficiencies, an environmentally sustainable structure, and can result in a transformative collaboration among the city’s community organizations.

Front Range College Library and Archives

Front Range College stores its college archives in the College Hill Library. Library Director, Jeff Wahl provided an overview of their collection. Front Range’s archival records date back to the 1960’s and include administrative records, photographs, and some faculty papers. The college is in the process of digitizing its archival records.

With the city’s history of collaboration with Front Range College, it would be a natural progression to also cooperate on future archival programs. However, it’s important to note that the space dedicated to the FRCC archives is too small to accommodate any City records. Further details on the FRCC archives are discussed in a separate report outlining the opportunities for a shared archival facility for the City of Westminster.

Westminster Historical Society and other community organizations

The requirements and logistics to establish a shared archival facility for the city’s records and the historical collections of community organizations are discussed in report 2.

SECTION 3 PRELIMINARY EVALUATION OF HOLDINGS

As part of Phase I of the Westminster Archives Project, Consultant Michele Pacifico with J.R. Clanton and Kira Kloser of the Westminster Library began a preliminary evaluation of the historic and current records of the City of Westminster. Over three days in July 2018, they visited and reviewed the holdings of a selection of City departments, took photographs of storage areas holding city records, and began to establish estimates for the type and quantities of archival records that should be included in a future City Archives. There was not enough time or budget to visit with all City departments during this phase of the archives study. This section summarizes the information gathered to date about the City's historic records.

Overview

The City holds a variety of archival records types, some which require special storage equipment and environmental conditions. Ideally, archival records are stored in environmental conditions that match their media type. For example, black and white photographs will last longer in cooler conditions than is necessary for paper records, while color film can best be preserved in cold storage.

Archives use digitization as a tool to improve access and preservation of historical records. However, digitization does not eliminate the need to keep and store original archival records. Furthermore, the preparation complexities and the high costs to digitize allow only a small portion of records to be digitized in most archives. Both archival storage and digitization need to be considered for the Westminster City Archives.

Currently many City departments are actively engaged in using Laserfiche software to manage their current records. The future city archives must include the infrastructure for collecting and managing the City's born-digital materials. This electronic records initiative should be coordinated with the City's records management work and in conjunction with the City's IT department.

The Council of State Archivists (CoSA) in their 2015 comprehensive study of state archives noted that the need to care and administer electronic records is growing. Their message also applies to local government archives:

In a world where more and more records are created electronically – and older formats are digitized – the holdings of state and territorial archives are increasingly found on servers instead of in file drawers. In less than a decade, electronic records holdings have grown by 734%! Respondents to this survey now have 635 terabytes of permanent records in their possession. Despite this massive growth in the volume of material, the staffing for electronic records management remains relatively small, representing a little more than six percent of the total full-time workforce of state archives programs.

The potential collections of the City include a wide range of materials:

- Textual records
- Volumes and Ledgers
- Books and pamphlets
- Oversized records (maps, architectural drawings, blueprints, etc.)

- Black and white photographic prints, slides, film, glass plate negatives
- Magnetic tapes, DVDs, etc.
- Color photographic prints, slides, and film
- Digital/Electronic records
- Art/Framed materials/3D Artifacts

It is presumed that all of the City owned historical records will be housed in the city archives. It has not been determined whether the collection policies will include donated materials relating to the history of Westminster. A future study will discuss the development of a shared public/private archives and the implication for size and management of a larger and more diverse archival operation.

The City's management of its records is guided by the Colorado State's *Municipal Records Retention Manual*. <https://www.colorado.gov/pacific/archives/municipal-records-retention-manual>. Permanent records are to be retained for the life of the City and must be maintained in an accessible form.

Preliminary Estimate of Holdings

Below are preliminary estimates of the City's collections held by City Departments that the consultant was able to determine through provided estimates and on-site visits. The consultant did not have time to review all the departments of the city, but for the purpose of preliminary assessment of archival needs and determination of next steps, sufficient information was collected.

City Clerk Department

The City Clerk's office handles city elections, business licensing, liquor licensing, public records requests, and Council appointments to Boards and Commissions.

The City Clerk has a wide variety of duties including serving as the records office, the register of vital statistics, the public records officer, the licensing officer, and the chief election official. The City Clerk also oversees the City's record management operation, although some departments are autonomous. Records date from 1911 and include resolutions, ordinances, early agenda and meeting minutes, city contracts, water related records, and the record copy of the annual budget reports.

The Clerk's office is in the process of converting some microfiche records to Laserfiche, but will not discard the original fiche. The fiche pre-date 1990 and are critical records. There is a disaster plan in place for the city's records, with the majority of the records stored off site on Laserfiche.

- Current records are being managed electronically by the Laserfiche software. Some of the historical paper records are stored in a file room within the Clerk's office suite.
 - Also included are one box of historic VHS tapes, several boxes of slides from the 1990's and an old ballot box. See photos below.
- Other Clerk records are stored at the Pump House. (Consultant did not review off-site records.)
- Some finance records are stored in the Ambulance Building, although some of them are temporary records and can be destroyed. (Consultant did not review these records.)

Other Known Records by the Clerk:

- The Community Development and Public Works Departments maintain building and planning records that include maps/drawings in their “map room.”
 - Records are located at the MSC and are discussed below.
- Many City artifacts are now in the possession of the Westminster Historical Society.,

****Estimated size of archival records in Clerk’s file room: 200 CF + objects**

****Total Estimated size of off-site archival records/other records: TBD**



Clerk’s Records



Clerk's Records

Community Development and Public Works/Utilities Departments

The Department of Community Development has the overall responsibility of assuring the proper planning and development of high quality residential and business neighborhoods, as well as designing the transportation system to serve them. The department provides "one-stop-shopping" for residents and businesses by consolidating project review, permit and inspection functions within one city department.

The Department of Public Works and Utilities maintains and enhances the safety and well-being of the community by providing exceptional water and wastewater service and maintaining the city's extensive network of street infrastructure.

Community Development Department

- Transferred the historic preservation records to the Parks, Recreation and Libraries Department.

Planning Division:

- Most of its records area on Laserfiche.
- The record copies, the "mylars," go to Jefferson and Adams County.
 - Adams County is now returning the mylars to the City
- There are paper physical plans stored at the Hydro Pillar – most are working documents, resubmittals and there are electronic copies available.

Engineering Division:

- Has some paper records.
- Historical records are the working copies.

Map Room: The consultant reviewed the "Map Room" that holds the oversized maps and drawings for the Community Development Department and the Public Works Capital Improvement Projects.

- Most of the maps/drawings have been scanned but the paper records are considered permanent records and are stored in flat files.
- There were also some file cabinets in the "map room."
- The "map room" is scheduled to be renovated and a mezzanine is planned be built to house the flat files.

The consultant did not review all the records of these departments.

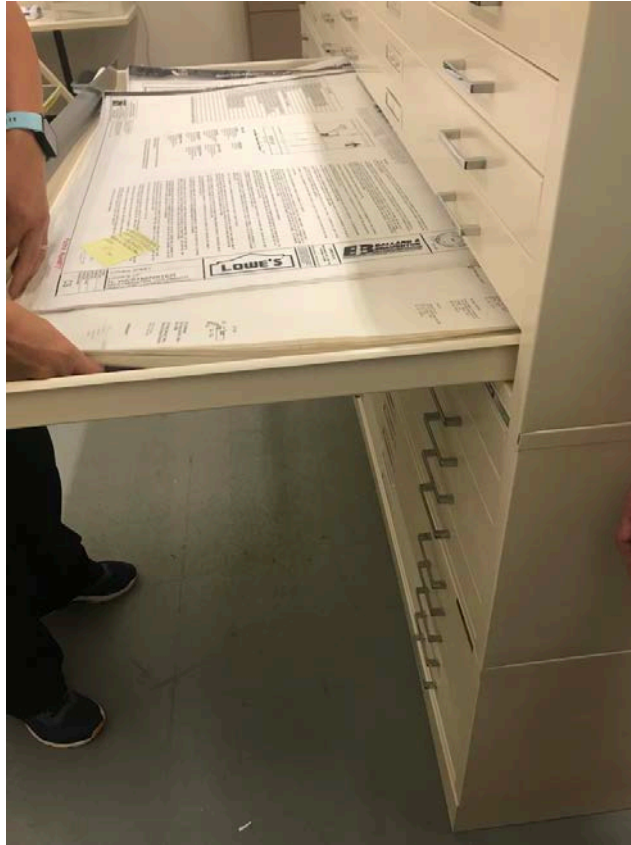
**** Total Estimated size of archival records: TBD**

****Estimated size of archival records in map room: 40 Flat files (stacked 4 high – each with 5-2" drawers)**

- Community Development: 24 flat files
- Capital Improvement Project: 16 flat files



Map Room



Fire Department

Founded in 1934 as a one-station, volunteer department, the Westminster Fire Department has grown to over 135 career firefighters, paramedics and support staff who serve the city from six fire stations and the Public Safety Center.

The early records dating from approximately 1975 are on microfiche and have not yet been scanned to Laserfiche. After the Fire Department stopped using fiche, the records were stored on Canon diskettes that were then converted to digital records. The Fire Department is in the process of scanning its records from 1998 into Laserfiche.

Records are stored in the Fire Department's headquarters administrative office space and at the Hydro Station. The consultant did not review all the records.

Many of the records of the Fire Department are permanent. Historical records include:

- Early records of the Department
 - Microfiche – approximately 2 CF of fiche
- Fire Investigations – sensitive records
 - Locked room

- Records have not been scanned
- Arson files – 5 lateral file cabinets = approx. 50 CF
- EMS and transport related records
 - 10 lateral files = approx.100 CF
- Building plans (permanent for standing structures)
 - Building plans are obtained from the city’s Building Division
 - Approximately 6000 sheets in 8 flat files
 - Building plans are being scanned
 - See photos below.
- Photographs
 - Sensitive photos are secure and locked
 - Photos are duplicated on CD, M:\ Drive and thumb drive
- Headquarters and the six fire stations have display cases with memorabilia including:
 - Hats
 - Badges
 - Patches
 - Uniforms
 - Equipment
- Historical records and photographs relating to the department were used by retired fire fighter Jeff Heineman to write and publish a commemorative book on the Department, *Westminster Fire Department 1934-2014, 80 Years of Service*. <http://westminsterwindow.com/stories/book-looks-at-the-history-of-the-westminster-fire-department,170812>
 - Mr. Heineman may still hold those Fire Department records relating to his research. If he is willing, those records and photographs should be included in the City Archives.
 - The Library and City Archives should each have a copy of Heineman’s book.
 - The Westminster Historical Society holds historical materials on the Fire Department.

**** Total Estimated size of archival records: TBD**

****Estimated size of archival records at HQ: 152 CF + 8 flat files (stored 2 high) + objects**



Fire Department Records



Fire Department Records

Parks, Recreation and Libraries

Westminster Parks, Recreation & Libraries manages 2,910 acres of parks; 3,100 acres of open space; more than 150 miles of trails; seven recreation facilities; two championship golf courses; two libraries; numerous community events; and a multitude of programs for individuals of all ages, abilities, and interests.

Historic Preservation:

- The historic preservation records were recently transferred to the Parks, Recreation and Libraries Department from the Community Development Department and consist of paper records and photos, although there may be electronic records too.
- The paper records total approximately 30 CF.
- There may be other records relating to historic preservation in the Planning Division or in the Finance Department.



Historic Preservation Records

Landscape Architect:

- The records have been mostly digitized, although some of the paper records are stored in the Ranch Barn.
- Some records relating to the Parks' surveys and master plans are stored in plastic tubes in unconditioned space – they mostly consist of 3 ring binders.
- Some of these records are also on Laserfiche and the contracts were sent to the City Clerk.

Community Outreach/Marketing:

- Has photographs dating back 15 years in their office space.
- They are investigating software to inventory their records.

Library:

- Paper archival records:
 - History Files: 3 lateral file cabinets drawers that includes materials pre-2013. (10 CF)
 - Photographs
 - Public program records
 - Technology reports
 - Library building drawings – in a closet. See photo
 - Summer Reading albums – on shelves in a closet (5 CF). See photo
 - Westminster Historical Publications - on shelves in the library (6 LF)
 - A non-circulating archival copy should be kept in the City Archives
 - All books on Westminster history should be in the City Archives collection
 - 2 lateral files cabinets in Library Services Manager's office (5 CF)
 - Master plan
 - Correspondence
 - Budgets
- Electronic records:
 - Has both digitized and electronic records

Other Known Records:

- The Westminster Historical Society occupies city-owned properties and is in possession of many of the city's historical documents and artifacts.

The consultant did not review all the records of these departments.

****Total estimated size of archival holdings in Library: TBD**

****Estimated size of known archival holdings in Library: 26 CF + drawings**

****Estimated size of Historic Preservation records: 30 CF**



Library - Summer Reading Program Albums



Library Building Drawings

Police Department

The Westminster Police Department was established in 1955. Prior to 1955, law enforcement was conducted by a Town Marshal and a volunteer police association. The Police Department has three divisions: Police Administration, Patrol Services, and Special Services.

At Police Headquarters, there is a collection of historical records and artifacts maintained by Deputy Chief Todd Reeves. The collection includes:

- Exhibit cases in the Lobby with photos, uniforms, badges, etc.
- Framed photographic commemorative displays on HQ walls.
- Room with records and artifacts including:
 - Department manuals from the 1990's
 - Ledgers -police docket
 - Court docket, 1963-68
 - Photographs and negatives
 - Historic uniforms, riot helmets, badges, equipment etc.
 - Historic cameras
 - Model police car
 - Chief Towne's shadow box

The consultant did not review the administrative records of the Police Department.

****Estimated size of archival records:** TBD

****Estimated size of displays:** TBD

**** Estimated size of historic records and artifacts collected by Reeves:** 40 CF

Conclusion

There is not yet enough information to determine the optimum size for the current and future historical records of the City of Westminster. The consultant was not able to speak to every Department about their records or appraise for historical value the records in departments and in off-site storage. Additionally, decisions regarding the future storage of sensitive records in the Fire and Police Departments and the future placement of the artifacts still need to be determined.

However, some preliminary planning can be considered. Of the records reviewed, there are approximately 458 CF of records/material, 48 flat files, and various 3-dimensional objects that require archival storage. This is a low estimate as we know that there is additional archival material to consider.

- City Clerks' office 200 CF + objects
- Fire Dept. 152 CF + 8 flat files + objects
- Library 26 CF + drawings
- Preservation 40 CF
- Police 40 CF + objects
- Comm Devl./PW 40 flat files

One room within the Library that is being considered for archival storage is the Rocky Flats Reading Room. It is approximately a 30' x 25' room or 750 SF. It is air conditioned for human comfort, which is at

the upper range of conditions for archival records. It does not meet all the requirements for archival storage but with some modifications to security and the purchase of shelving, it will be acceptable for archival storage.

Even if it was just used as archival storage, without processing or research room space, it is not large enough house both the paper records and the flat files identified thus far. However, it can be considered for the storage of paper records and some of the objects. The paper records at 500 CF would require at least 250 to 400 square feet of space for necessary aisles and fixed shelving that is 84-90" in height. Mobile shelving would create greater efficiencies and could almost double the storage per square foot and perhaps allow for some flat file storage. See shelving options discussed in section 4.

If the City wishes to consider the Rocky Flats room and use it as a temporary or partial archives facility until a larger space is located, it would be helpful to obtain a shelving layout to determine the room's total capacity for paper storage.

SECTION 4 STORAGE OPTIONS FOR ARCHIVAL COLLECTIONS

The majority of space in an archival facility is dedicated to the safe storage of the collections. The challenge is to store and protect the collections while still making the records accessible to the City and to researchers. A key component in this strategy is careful planning of the shelving and accompanying storage equipment, which can include flat files, cabinets, racks, and other equipment that supports the collections.

Note: Many of the same considerations addressed in this section also apply to the development of a shared archival facility that would include both the city’s records and the historical collections of community organizations.

Shelving is a long-term investment for an archives facility and must be planned to meet the specific needs of the facility and reflect the size and quantity of its collections. The choice of a shelving system or combination of systems depends on a number of factors, including:

- Size and quantity of the collections
- Building’s size and structure
- Shelving costs and budget
- Archival operations
- Technical considerations

Archival collections are expected to grow for the foreseeable future. Generally, with any archives facility, as more storage space is made available more materials are sent to the archives for proper processing and storage.

Archives use digitization as a tool to improve access. However, digitization does not eliminate the need to keep and store original archival records. Furthermore, the preparation complexities and the high costs to digitize allow only a small portion of records to be digitized.

Until the quantity of materials is determined, the amount and types of storage equipment required for the Westminster City Archives is unknown.

Shelving Types

Archival storage systems consist of fixed or mobile shelving of various densities, with mobile systems being either manual or electrically operated. Static or fixed shelving is less expensive to purchase and install but requires a larger floor area than mobile shelving. Mobile shelving can store more records in a smaller space resulting in cost savings on land, construction, and building operations.¹ Mobile shelving requires a heavier floor load than fixed shelving and may not be feasible in existing buildings.

An advantage of electrically operated mobile shelving is its ability to connect directly to the fire protection system and automatically move the shelves into “fire mode” upon alarm or when the

¹ Mobile shelving is alternatively known as compact shelving or mobile high-density shelving. It is designed so that shelving is mounted on track-guided carriages to form a compact storage system. Rows of shelving sit next to each other, with no intervening aisle, to provide dense storage. Eliminating fixed aisles, rows of mobile shelving are manually or electrically moved on tracks to provide access aisles.

building is closed.² Electric mobile shelving can also enhance security by allowing lockable mobile units where one or more modules of sensitive or valuable records are locked using keypad access or other security methods.

Other shelving types include flat files or map cases and cabinet storage. Both types can be fixed or put on mobile carriages. The new City Archives facility will require flat files for records such as drawings, maps, posters, large photos, and smaller objects. If furniture or large 3D objects are to be stored in the City Archives, then some oversized shelving should be included in the storage room(s).

Shelving Heights

The height of the shelving can vary depending on the desired retrieval method of the records along with the building's structure, footprint and ceiling height. Traditionally the standard shelving height has been 84 to 90 inches providing 7 shelves that are 12 inches apart. This allows access to all the shelves without a ladder. However higher shelving systems and increased density heights are increasingly common to offset the increased costs for archival storage.³

Shelving taller than 8 feet/7 shelves high requires the use of rolling ladders, lifts, or a mechanical retrieval system. However, when using taller shelving units or high bay shelving, careful planning of the records locations can ameliorate the retrieval issues. For example, by locating the most heavily retrieved collections on the lowest shelves the records can be accessed without using a ladder or lifts. See Appendix E for examples of shelving and shelving heights.

Shelving Aisles

The maximum length of the storage area aisles is dictated by the footprint of the room, the location of columns and doors, the type of shelving system, preferred type of retrieval, access time, and building and life safety standards.

The widths of the aisles between ranges of shelving are different depending on the footprint of the room, the shelving system, and if ladders or lifts are needed. In general, aisles between rows of shelving should be a minimum of 36 inches wide, although 42 inches is preferable and that distance will increase if lifts are required. Wider aisles are preferred for flat files and furniture storage.

Often a main aisle is provided for each room that can range in size from 4 feet to 8 feet wide depending on cart, ladder and lift use requirements.

² Mobile shelving systems that use electrically operated shelving can automatically go into "fire mode." Upon activation of the smoke detector, water flow alarm, or manual alarm, fire mode allows the shelving rows to automatically separate to create minimum 5-inch aisles. This allows the smoke to escape to the detectors and the water to effectively put out the fire, reducing loss of records. Electric mobile shelving systems also can be programmed to go into fire mode when the archival facility is closed for business.

³ The fire protection standards dictated by the National Fire Protection Association (NFPA 232) and by the National Archives (NARA 151) for the protection of records allow mobile electric high bay shelving to go as high as 30 feet without in-rack sprinkler installations, as long as the materials are stored in boxes. See Appendix A for applicable fire protection citations.

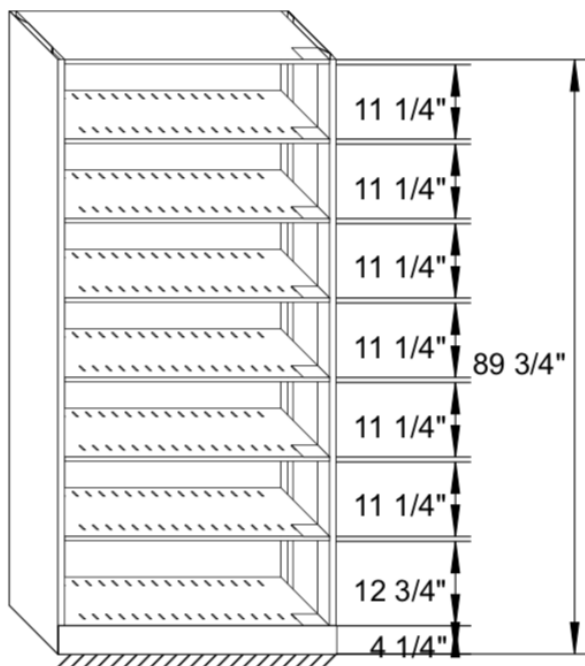
Shelf Size

Archives should maximize their storage capacity by using a standard sized shelf that accommodates the use of archives boxes, cubic foot boxes, oversized boxes, and special media records.⁴ Specialized shelving sizes should be provided for books, oversized materials, art and special-sized collections.

Storage can be designed using single or double-sided deep shelving units. Generally, archives shelves use single-sided shelving units. Standard archival shelves measure 16 inches x 40 inches or 16" x 42". Shelving can be designed with a single "pass through" shelf of 32 inches by 40 inches allowing the storage of standard boxes as well as oversized items. However, there are other effective shelf size options, depending on the sizes of the materials and the needs of the program. In all cases, the bottom shelf should be at least three to four inches off the floor to mitigate damage from water incursion.

Below is a standard archival shelving unit with 7 shelves.

H89 3/4"
89 3/4"x42" d16"



42x16 6H



42"W x 16"D - 6H @ 12"H

⁴ An archives box, also known as a flip-top box or Hollinger box, holds paper documents stored vertically. It comes in letter size (12 1/4" W x 10 3/4" H x 5" D) and legal size (15 1/2" W x 10 3/4" H x 5" D). A cubic foot box, also known as a records center box, holds approximately one cubic foot of records and is designed to hold either legal or letter size files, books, and some 3D materials (12" W x 15" L x 10" H).

Oversized and Object Collections

Oversized and three-dimensional materials require the use of specially-sized shelving, flat files, cabinets art bins, and vertical art racks.

There are several options for maps and plan storage:

- Storing flat in oversized folders that are held in flat files
- Storing rolled plans in bags or tubes on open shelving
- Storing rolled plans fastened to the wall with brackets or specialized roll storage equipment

Some Westminster departments already have some of their records in flat files that can be transferred to the new archives facility. Other departments and organizations have rolled drawings. It would assist the planning process to make some preliminary decisions on how these records will be stored in new facility.

Shelving Materials

All shelving should be all steel construction and finished with an electrostatically applied powder coated finish. Each shelving unit must have solid steel shelves. Open chrome-plated stainless-steel wire racks are recommended for cold storage rooms.

Shelving Density Analysis

Section 3, Evaluation of Holdings, offers very preliminary estimates for the City's historical collections. These materials are to be stored in controlled conditions on a shelving system that best suits the needs of each material type. The primary concerns for selecting a storage option are:

- Storage efficiency
- Collections access and retrieval requirements
- Shelving and building construction costs
- Operating costs
- Restrictions of existing building structure and ceiling heights (for a renovated building)
- Desirability to reuse existing equipment

Storage efficiency is determined by the type of shelving and the number of shelves per unit. Mobile shelving units house records more efficiently than fixed shelving types.

This analysis considers fixed and compact mobile shelving types at three storage densities. Other shelving densities can be considered after a site is selected for the archives

- Low density with 7 shelves
- Medium density with 11 shelves
- Medium/high density with 15 shelves

Based on previous experience, these shelving types result in a ratio of cubic feet of records to the number of square feet required for storage, considering standard shelving and aisle sizes. The total cubic

feet of required storage have been divided by the shelving type density factor to determine an estimated room square footage.

Table 3.1 shows the estimated square footage of storage needed to store 10,000 cubic feet of textual records or boxed collections. It is provided as planning tool and the actual square footage for the City Archives facility will be determined after final programming, site selection and design.

Table 3.1: Example - Storage Footprint Comparisons Between Shelving Types

CF to SF Ratios for Shelving Types	CF: SF*	CF of Storage	Estimated SF Footprint Needed for Storage
Ratio for 7 High Fixed Shelving	2:1	10,000 CF	5,000 SF
Ratio for 7 High Mobile Shelving	3.8:1	10,000 CF	2,632 SF
Ratio for 10 High Fixed Shelving	Est. 2.9:1	10,000 CF	3,448 SF
Ratio for 10 High Mobile Shelving	Est. 5.5	10,000 CF	1,819 SF
Ratio for 11 High Fixed Shelving	Est. 3.2:1	10,00 CF	3,125 SF
Ratio for 11 High Mobile Shelving	Est. 6:1	10,000 CF	1,667 SF
Ratio for 15 High Fixed Shelving	4.4:1	10,000 CF	2,273 SF
Ratio for 15 High Mobile Shelving	8:1	10,000 CF	1,234 SF

*Uses 80% efficiency allowing for shelving superstructure and voids.

*This does not include the extra SF required for oversized materials, map cases, special cabinets, artifacts, art, vault, pallet racks, etc.

*This does not include space needed to store the collections into separate environmentally controlled storage rooms.

Cost and Operations Implications

Efficient shelving systems are costly, but the reduction in building footprint more than offsets this expense. Using low density fixed shelving, even in an existing building, will most likely be the most expensive option because of the larger footprint required.

It is important to note that an efficient building using high-density compact shelving could have higher operational costs due to the staffing and equipment required to retrieve records from 15-foot-high shelving. Lifts operated by trained personnel are required for pulling records in higher shelving systems and this normally prohibits using interns or volunteers to retrieve records above a certain height.

However, operational and software solutions could be used to offset the challenges of high-density retrieval. For example, based on a system that is 15 shelves high one recommended solution is:

- Locate the most frequently retrieved records on the lower 7 shelves that can be retrieved without a ladder or lift.

- Locate less frequently used records on the middle tiers (shelves 8-11) that require a rolling ladder.
- Locate the least frequently used records on the upper tiers of shelves (shelves 12-15) for retrieval with a lift.

A records location register program could be implemented before or during the move of the records to the new archives facility that would assist in the quick location of all “records” (box, volume, drawing, etc.). This provides the staff with aisle and shelf locations and could also indicate retrieval time for the requested record. For example, barcode programs using acid-free bar code labels are commonly used with new shelving installations and when relocating archives. Being able to track the locations of boxes, books, and other records from old locations, onto trucks, and into a new facility provides for a better move with more control and improved services for the future.

In many storage applications, radio frequency identification (RFID) tags are replacing barcodes. RFID tags are intelligent bar codes that can talk to a networked system to track materials.



Ex: Barcode System

Shelving Evaluation Criteria

Any future facility should be flexible with space for the future growth of collections. Options include:

- Select a site or building that has space to add collection storage rooms as needed in the future.
- Construct “growth” collections storage areas at the start of the project. For example, install the mobile shelving rails, but do not install the shelving units until they are needed. These future records storage spaces can be used in the interim as swing space, for pallet and oversized object storage, and/or as additional processing space.
- Provide courtesy temporary records center storage for City departments until the shelving is needed for archival records.

- Install shelving uprights for 11 to 15 high shelving, but do not purchase and install the top 2 or 3 shelves until needed.
- Install fixed shelving that is designed for conversion to mobile shelving, as additional space is needed. The rails for future mobile shelving should be installed during construction and covered until needed.

Once a site has been selected for the City Archives project and the quantity of collections has been determined, shelving options can be offered for discussion and planning. Storage efficiency is determined by the type of shelving and the number of shelves per unit. Mobile shelving units house records more efficiently than fixed shelving types. See Appendix E for sample shelving configurations.

In order to evaluate the storage options that are best suited for the City Archives' facility, the following criteria should be considered when making decisions regarding storage and the shelving for the collections.

- Building footprint size – how critical is minimizing the building size and/or the collections storage size?
- Building structure and ceiling height restrictions – what does the selected site offer for optimal collections storage?
 - The ceiling heights of an existing building will determine and may limit shelving selection.
- Building cost – what is the available funding for construction and equipment costs?
- Shelving costs – minimize shelving costs but consider footprint issues.
- Ease of access and retrieval – optimize records retrieval time; are collections readily accessible and is ease of access and retrieval a critical factor?
 - Ready access (7 shelves), ladder access (8-10); ladder/lift access (11-15 shelves); or lift access (25 shelves).
- User preference – what option best meets the City Archives' requirements for storage and operations?

The City should compare several desirable shelving options in conjunction with developing the site evaluations, operational policies, and the budget for the City Archives.

SECTION 5 ARCHIVAL FACILITY REQUIREMENTS

Summary

This proposed facility will serve as the City's primary archival facility and will provide storage and some standard archival support services. Below are the desired components for the City Archives. It is conceptual and will be refined as collections policy decisions and the final requirements are determined.

Not all of the components of an archival facility may be required for the City of Westminster's Archives and other areas will be sized and combined according to their support function. For example, it is not expected that the City Archives will include a Preservation Laboratory. If located within the City Library, the Research Room area could be located in an existing public space. Other areas such as a multi-purpose meeting room and exhibit area are outlined for consideration but may not be feasible with the selected site, or they may be shared/combined with other City departments.

Note regarding a Shared Facility: Many of the same requirements addressed in this section also apply to the development of a shared archival facility that would include both the city's records and the historical collections of community organizations. A shared archival facility would require larger archival storage areas, a dedicated Research Room as described in this section, larger support areas and additional staff. Other desirable areas for a shared facility include a multi-purpose room for training and education and a dedicated exhibit area.

When appropriate, the consultant has proposed estimated square footages based on the preliminary projected requirements, standard archival facility requirements, best practices, and a review of peer institutions. **The estimated square footages provided in this report should not be considered the final programming requirements for a new facility.** They serve as a starting point for discussion and review. A range of sizes is provided for some facility areas until further analysis and site selection are completed.

The recommended next steps are outlined in Section 7. After review of this preliminary requirements report, policy decisions and further discussions of the City's requirements for the archives are needed to reconcile and finalize the facility's requirements before determining its best location.

Staffing Considerations

The staff requirements for a City Archives are based on a projected staff of 1 full time archivist. In addition, it can be expected that part time professionals, interns, and volunteers may work at the City Archives.

The City may also consider hiring an archivist who also can serve or support the city's records manager and Clerk's office.

City Records Management

While not part of this project, the City's record management program should also be considered when developing a City Archives. Records management primarily serves the City government while archives

serves both the City and the wider cultural interests. The mission of records management is to service all City departments. The Council of State Archivists promotes records management as follows:

Sound records and information management practices are fundamental to the efficient and economical operations of any government agency. When disasters strike, state and local governments with effective records and information management programs are more likely to be able to access essential records and re-establish critical business operations quickly.

Records management goes beyond records retention schedules. It includes:

- Records center storage
- Disaster planning
- Digital files management
- Education and training

A sound records management program ensures that historical records are not lost, especially as the city transitions to a digital government. Electronic records management has changed the nature of government records and requires continuous management throughout their lifecycle because of the potential for lost or unreadable data. Staff, training and a central digital repository should be considered as the city moves forward with its archives program.

Proposed Building Spaces/Requirements

The primary spaces and their general requirements for the City Archives are detailed below. Sizes and more detailed requirements for each area can be determined after further discussion, refinement of the archives requirements, and selection of a location.

Lobby/Reception: TBD

The lobby is the main transitional point to the facilities' secure spaces. It is the primary entry into the facility for visitors and also may be the primary entrance for staff. Until a site is selected, it is not known whether a "lobby" is needed for this facility.

Generally, the lobby is the least secure area of the facility. The lobby should provide:

- Security/reception desk (can also serve as the registration desk for the research room)
- Small seating area for staff and visitors
- Wall space/floor space for announcements and information brochures
- Public restrooms

The lobby may also provide space for:

- Visitor Center/Gift Shop
- Exhibit area (floor and/or wall space)
- Multi-purpose meeting room

Security/Reception Desk: estimated 50 – 100 SF

The lobby (or entry) of the City Archives should have security. Depending on the location and operations, this could be manned as needed by security personnel or by a staff receptionist/volunteer

The desk could have security devices such as a panic button to be used in emergencies, closed-circuit television monitors, and camera/scanning equipment linked to other areas of the building.

Depending on security procedures, visitors could be asked to sign in and obtain a visitor's badge at the security desk. See the security requirements in Section 6.

Depending on the facility's design and operational requirements, this desk could also serve as the registration area for researchers as described in "Research Area." It could also be used by staff for processing and data entry work.

Research Room: TBD

The Research Room, sometimes called the Reading Room, is a secure area used by the public to review the collections in the archives facility. It should be located close to the lobby and be furnished and equipped to provide researchers with a welcoming space for research and to provide staff with the necessary spaces to provide help, deliver records, and insure the security of the collections. See Appendix C for examples of research rooms.

After storing their belongings in lockers outside the research room, researchers register, are briefed on archives' rules, make requests for records, review paper and computer finding aids and reference materials, check computers for digital records, and consult with staff on their research.

The core of the research area is a monitored research room that is used by patrons to review records that have been retrieved from the collection storage area(s). It consists of desks for reviewing paper and oversized documents and an area for audio-visual research.

From a central desk or workstation, staff monitors the room and ensure that records are properly handled and not removed from the room. Researchers can receive assistance with questions and make duplication requests at the staffed central desk. Depending on the Archives' duplication policies, staff serviced or monitored duplication can also take place at the central desk.

If needed, a secure copying area for staff use can be located at or adjacent to the central desk, or in another secure room in the facility. If space permits, the staff copy area can also serve as a secure refile/holding that is used to store records for delivery to the research room or until they can be returned to the records storage area.

The Research Room may include:

- Lockers –adjacent to the research room
- Research room
 - Registration/Consultation
 - Finding Aids/Public Computers/Reference Library shelving
 - Central Desk
 - Research Duplication area
 - Researcher seating
- Copying area – depending on duplication policies, can be located adjacent to central desk or in refile/hold room or in the processing or imaging lab (depending on operation and policies).
- Refile/Holding Area – adjacent to collection storage areas and near the copy area.

Locker Area: TBD

Lockers are necessary for researcher belongings. As a security measure, researchers are not allowed to bring their coats, hats, briefcases, purses, backpacks, or personal belongings into the research room. Lockers must be located adjacent to the research room that are large enough to hold coats and oversized belongings. Archival facilities often use coin return or digital key lockers, which allow for self-service and provide an incentive for users to remove all their belongings from the locker. Staff are not required to hand out keys or receipts with self-serve lockers.

If space permits, provide:

- Lockers
- Bench
- Flat counter or table for organizing belongings.
- Trash receptacles
- Bulletin Board
- Wi-Fi



Example: Research Room Lockers

Registration/Consultation/Reference Library: TBD

This is the first checkpoint for the research area. Patrons register and are briefed on the rules, consult paper and computer finding aids, and consult with staff on individual research requirements. This area should also contain at least one public computer that can be used for online registration and to request records and to consult finding aids and digital records. The computer also can be used to show orientation materials to new researchers.

Provide:

- Registration/consultation workstation
 - Depending on space considerations, this workstation can be used as the security/reception desk or be combined with the Central Desk operation.
- Shelving for reference library materials
- 1 public computer with Internet access to assist researchers with registration, locating records, or viewing digital records.

Research Room: TBD: sized for 4 researchers (larger if a shared facility)

The main research room will be the designated space for viewing archival collections. While security and records preservation are paramount, the room should also be an inviting space with good lighting. This room will serve all types of records, including boxed records, bound volumes and ledgers, photographs, maps, oversized records, microfilm records, audio-visual records, 3D objects and electronic records.

Records are brought to the research room from their location in the records storage area or from the refile/holding area. Records delivered can be one box or volume, or a number of records on a library cart.

There should be enough circulation surrounding the researcher desks to provide each researcher with some privacy while working and to accommodate a cart of records.

See Appendix C for photographs of sample research rooms.

Research Room Tables:

- Can be sized for 1, 2 or 4 researchers depending on the requirements of the Archives.
 - Note: 2 and 4-person tables can provide another level of security as researchers watch each other.
- At a minimum, there should be one 4-person tables that can seat up to 4 researchers.
 - This table should be large enough to be used by 1 researcher viewing oversized maps and drawings.
 - The table should be ADA compliant for wheelchair height.
- Tables should be a flexible design to reconfigure room as needed.
- There should be space between tables to allow researchers privacy while working.
- Outlets at tables should be available for patrons to plug in their own laptops (and other equipment such as phones and scanners if allowed).
- Task lighting at tables, if needed, must not block sight of central desk staff. Lights must be LED or UV filtered and not exceed recommended light levels for archival research.



Example: Research Room Table

Special Considerations:

- Daylight is desirable in the room but it must be UV filtered
- All lighting should be LED or UV filtered
- Security – in addition to staff security, consider installing research room security cameras
- Security – all desks should be visible to the central desk and room monitor
- Double doors - automatic double doors are desirable
- Wi-Fi

Microfilm/AV Research:

- Specialized equipment is used to view and copy microfilm and audio-visual records
- If possible, area should have dimmable lighting
- Visible to central desk/monitoring staff
- Space can include:
 - Microfilm/fiche reader/printer/scanner workstation
 - Audiovisual workstation with headphones
 - Microfilm/fiche cabinets for duplicate copies
 - Original film must be stored in secure collections storage

Research Room Central Desk: 50-100 SF - sized for 1 staff member

The central desk is the staff-operated reference desk centrally located in the room so that the staff monitor has a clear sight line to all areas where researchers are using archival materials. The central desk should have few or no visual barriers between the staff and the research room. It should have circulation space around it to accommodate patrons asking questions and for a few carts holding records for immediate use by researchers. See Appendix C for photographs of sample research room central desks.

In smaller archives, the central desk is also a staff workstation. It can serve multiple functions, including patron registration, consultation, and records requests, circulation and duplication.

A photocopier/scanner can be located near the central desk and may be operated by staff or researchers depending on duplication policies.

Special Considerations:

- Should be sized to accommodate 1 employee, with a computer terminal, workspace, and storage space.
- Room for small scanner/printer.
- Desirable to have a central alarm that links it to security. It may include closed circuit television monitors depending on security operations.
- Consider locating on an elevated platform to provide staff a clear view of researchers in all monitored rooms.
 - Elevated platform should be a minimum of 6"
- Must comply with ADA regulations. If elevated, the central desktop should have two levels, with one level at wheelchair height.
- Locate in area of room with best sight lines for monitoring.

Copying Area: Scanners & Photocopiers: TBD

Copying policies are changing in archival research rooms as researchers more frequently request scanned copies or permission to take photos with their cell phones.

Depending on operations, the research room staff may elect to handle all duplication requests for both paper and scanned copies. A small scanner/printer should be located at the central desk in the research room for small orders. Researchers may bring their own scanners but normally use them in the central desk area with staff supervision.

All other copying and duplication for researchers and staff may be completed in the staff-only copy area located adjacent to the research area (combined with a refile/hold area), within a processing room, or in the imaging lab.

Special Considerations:

- Copier and scanner/printer equipment
 - Consider a book cradle scanner for ledger and volume duplication.
- Shelving
- Trash and recycle bins
- Room for carts
- Located adjacent to the research area
- Appropriate ventilation for equipment
- Automatic double doors are preferable

Refile/Holding Area: Optional TBD

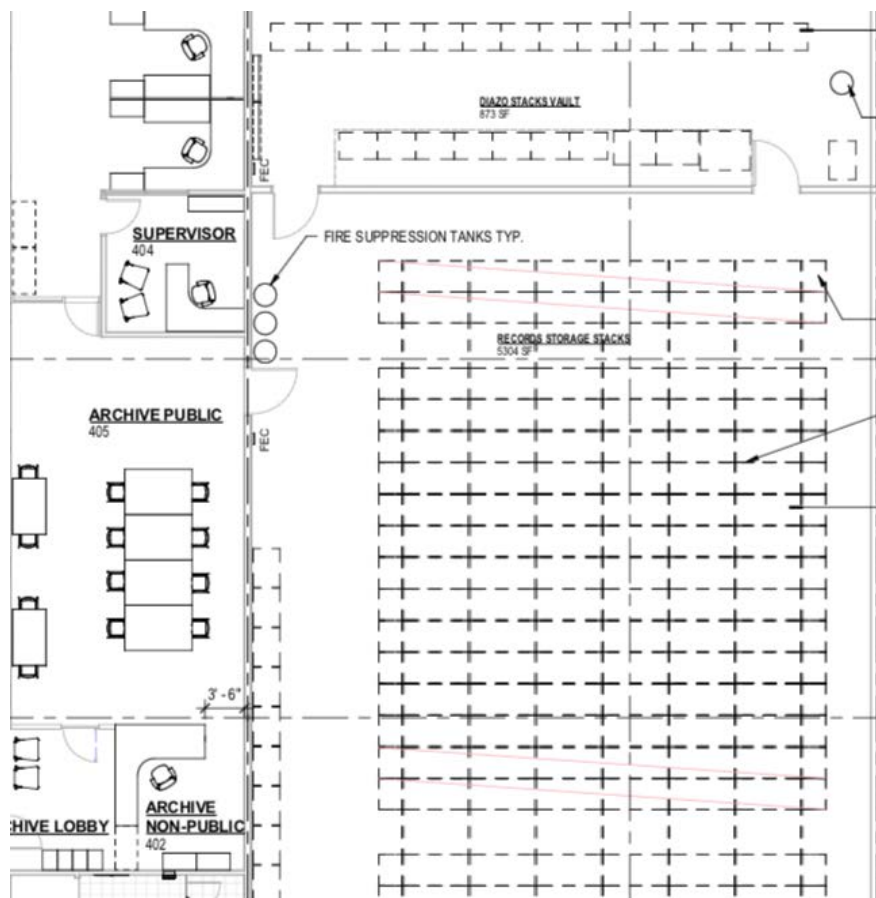
This secure space serves as hold/staging area for records ordered in advance or that need to be stored overnight during a researcher's extended visit and for records that need to be refiled or re-shelved in the stacks. Records are on carts or are in individual boxes, files or volumes stored on shelves in the holding area. This room holds copy supply materials. It can also serve as the secure copy room.

Special Considerations:

- Same security as collections storage areas and processing. It is a secure holding space only accessible to archives staff. It must be within the research area or separate room that is secure from the outside corridor and locked at night.
- Double doors for easy cart access - automatic double doors are preferable.
- Provide shelving for individual boxes/volumes that are not transported via cart and for supplies. It can be wall mounted shelving that is high enough off the floor for carts to be parked underneath the shelves.
- Provide 1 large table for organizing requests, collating documents, and administrative tasks.
- Locate adjacent to Research Room and/or collections storage.
- Locate near the copy area (if separate room).

Concept for a combined Lobby/Research Room/Administrative Offices – approximately 2,000 SF

Below is a concept of an entrance to an archival facility. It illustrates a reception/security workstation in the Lobby that can monitor the research room and also serves as a staff workstation. On the other side of the research room/multipurpose meeting room are the staff offices and workstations. The Supervisor's office can also view the research room thru a glass partition. This concept also shows some collections storage. It does not show the processing room, which is located south of the collections storage rooms. **This is not meant to be a proposed design or convey size. It is a concept shown for discussion purposes.**



Collections Processing Area(s): TBD

The processing area provides secure separate workspaces separate from the collections storage and office areas. Staff and volunteers can work individually or in groups to examine, sort, arrange, describe and rehouse archival materials. The area should be a flexible space that can be rearranged depending on project size and complexity, and that is easily adapted for processing needs. Processing areas typically include moveable and adjustable height tables, shelving for the temporary storage of collections, and a large number of widely spaced electrical outlets. See Appendix D for examples of processing rooms.

Furniture includes:

- Moveable and adjustable height tables
- Shelving for records and supplies
- File cabinets
- 2 Computer workstations
- Trash and recycle bins
- Scanner/printer and copier equipment with tables or counters
- Special Media processing has equipment for special format materials
 - Example: light tables, CD player, etc.

Special Considerations:

- Secure room - same security as records storage areas
- Automatic double doors are desirable for moving oversized materials
- Environmental conditions should match or closely approximate records storage areas
- Separate air handling systems from records storage areas (if possible)
- Appropriate electrical power and outlets
- Materials and finishes equal to archival storage standards
- LED or UV filtering for lights
 - Dimmable lighting if all processing takes place in one room
 - Task lighting
- Prefer no windows; UV filter indirect daylight
- WiFi
- Room for carts

Imaging Lab Area: TBD

The Imaging Lab, or Digital Lab, provides space for staff to reproduce records for preservation and researcher access. Digital imaging has largely supplanted micrographics for duplication of archival records. Having an imaging lab in the facility will eliminate the need to transfer collections to a contractor. Imaging services include:

- Make records accessible in digital format
- Fulfill requests for copies of records
- Prepare reference copies of records for frequently used records or those in fragile condition
- Create facsimiles for exhibits

Digitization ≠ preservation

- What is **digitization**? The process of transforming analog material into binary electronic (digital) form, especially for storage and use in a computer. (SAA)
- What is **preservation**? The professional discipline of protecting materials by minimizing chemical and physical deterioration and damage to minimize the loss of information and to extend the life of cultural property. (SAA)
- These are two very different terms; i.e. just because you digitized that VHS tape, and backed it up on your hard drive, does not mean that VHS will be preserved. The VHS must then be physically stored in a controlled, safe environment.

The imaging lab area should accommodate 1 -3 people and should be sized for digital equipment, which includes digitizing/scanning equipment. There may be a variety of scanning equipment, including a flatbed scanner and/or a book scanner. It may include a copy stand with digital planetary camera, an overhead scanner, and oversize printer. The type of scanning room or workstation will be determined by the type of equipment deemed necessary to Westminster's archives.

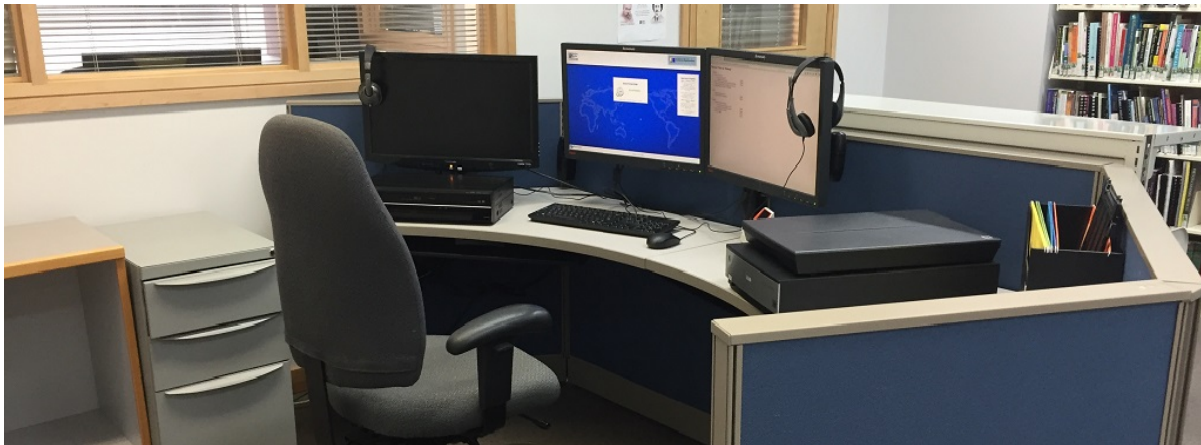
Furniture includes:

- Digital/scanning workstation
- Moveable tables
- Shelving for short term storage of records and supplies
- Room for a cart of records

Special Considerations:

- Designed to ensure preservation of the collections
- Can be a workstation within the processing area or a separate room
- Furniture, supports or braces that reduce vibrations from adjacent areas
- Moveable partitions or screens if needed for light control.
- 4' door or double doors are desirable for moving oversized materials (can be automatic and tied into security system)
- Anti-static flooring
- Soundproofing for audio work
- Secure room - same security as collection storage areas
- Environmental conditions should match or closely approximate collection storage areas
- Separate air handling systems from collections storage areas (if possible)
- Appropriate electrical power and outlets for equipment
- Materials and finishes equal to archival storage standards

- If a separate room, paint a standard neutral gray color that is formatted to have a flat spectral response without any color bias, per ISO 3664:2009⁵
- LED or UV filtering for lights
 - Dimmable lighting if all processing takes place in one room
 - Task lighting
- Prefer no windows; UV filter indirect daylight
- Room for carts



Sample: Workstation with digital imaging equipment



Example: Imaging Workstation

⁵ ISO 3664:2009 outlines the viewing conditions necessary for reflective and transmissive media, including prints and digital images. These are the optimal conditions to ensure that digitized images and their subsequent prints display color and image integrity as close to the original records as possible.

Conservation Laboratory: 0 SF

A dedicated Conservation Laboratory is not being considered for this project. Items needing complex conservation should be sent to a certified lab. Basic in-house conservation can take place in the processing area(s).

Archival Supply Storage: TBD

There should be an archival supply storage room that provides secure space for storing additional boxes, containers, folders, carts, and processing supplies. This room should have open shelving large enough to store supplies and floor space to store large boxes of paper/box supplies.

This supply storage area can also house the supplies needed for disaster preparedness. Backup supplies should be stored on-site so that staff can respond quickly during an emergency to limit damage to collections.

Emergency supplies include:

- Plastic sheeting/tarps
- Plastic bags
- Plastic milk crates (to temporarily store and move wet records)
- Foam padding
- Absorbent pads
- Mops, buckets, large brooms
- Flashlights and batteries
- Protective Aprons, hard hats, rubber boots
- Waterproof gloves, dust masks, goggles
- First Aid Kit
- Clipboards, pencils, scissors
- Fans, Vacuums, Dehumidifiers

Special Considerations:

- Secure room – same security as record storage areas
- Desirable to have automatic double doors wide enough for moving materials
- Open floor space for storage of archives boxes and supplies
- Shelving for supplies

Administration/Office Area: TBD

The staff for the City archives is estimated to be 1 staff with potential additional part-time professional or intern staff. The nature of archival work requires the staff to work in other areas of the facility, such as in processing area and the imaging lab. However, the City may want to consider providing a separate office area for administrative work, telephone calls, meetings, and eating/drinking at a desk. Staff working in areas with archival collections should not be permitted to eat at in areas where records are stored or processed, and must eat in a provided break room or separate office.

Depending on the layout, a conference/meeting room can be located in or adjacent to the Archives office area and used for training, orientation and meetings.

Break Room: TBD

A staff/volunteer lounge should not be located near the storage, processing and digital lab areas. Staff working in areas with archival collections should not be permitted to eat at their desks and must eat in a provided break room or separate office.

Break Room furniture and equipment includes:

- Table and chairs
- Counters and storage
- Sink
- Refrigerator
- Microwave

Collections Storage: TBD

The most important preservation measure for archival materials is to provide the best possible storage conditions. Ideally, collections should be stored according to their media type and the environmental conditions recommended for each kind of record.

Controlling access to collections storage areas and restricting them to the storage of records further aids in the preservation of archival materials. Collections storage areas must only be used for the storage of archival records. Staff work areas must be located outside the storage rooms to reduce fluctuations in climate conditions and pollutants.

The City Archives facility should be designed to accommodate a variety of collection types of varying sizes and media types. The collections will be stored on standard sized and oversized shelves, in flat files and cabinets, and possibly on art racks. See Appendix E for examples of storage equipment and configurations.

Section 6 discusses in more detail the archival standards for collections storage. Special considerations include:

- No windows
- Floor load designed for shelving equipment or heavy collections
- Temperature, relative humidity and air filtration requirements
- Materials and finishes
- Fire protection
- Security
- Lighting

Collections that need to be stored include:

Textual records

- Records in boxes – uniform-sized shelving for boxes
- Scrapbooks and books of various sizes
 - large/fragile volumes should be stored horizontally and require extra shelves

Oversized textual records

- Requires different sized shelving
- Can be stored in same stack as textual records
- Includes collections in flat files

Special Media Records

- Black and white photographic prints and film, magnetic tapes, CD's DVD, etc.
- Different sizes of materials
- Generally, requires cooler storage conditions than textual records, but may opt to store in one storage room with a selected environmental system that serve both paper and special media records. The selection of the site and facility HVAC system(s) may impact this decision.

Color Photographic Prints, Slides and Film

- The color film materials should be stored in cold conditions. They can be stored in prefabricated cold storage units (freezers) located within the larger collections storage area.

Artifacts

- Storage for 3D objects and furniture on open shelving and in lockable cabinets.

Art

- Framed art is best stored on art racks or in flat file drawer.
- Unframed art should be stored in acid-free folders in flat files.



Example: Art Racks/Flat files/Mobile shelving

High Security Vault Storage

The City Archives (especially if it is a shared facility) may require a secure “vault” for its most valuable and rare collections. Archival vaults typically include:

- Steel vault door and state-of-the-art vault locks. Locks can range from mechanical combination locks to digital electronic locks that can include fingerprint readers, remote locking and RFID technology.
- Controlled access.
- Fire Suppression should be a clean agent system; a wet-pipe sprinkler system can be considered as a back-up or secondary system. See section 6 for discussion of fire suppression systems.
- An additional security solution for high value or confidential records can be achieved using electric powered mobile shelving. Individual shelving modules can be locked and accessed using the facility's security access system (ex. card readers) or a more restrictive security access system that is designed for specific shelving modules.



Example: High Security Vault

Receiving Area: TBD

It is not known whether the new facility will have a dedicated loading dock or share with other tenants in the building.

It is desirable for the receiving area to providing a secure environment for receiving and inspecting archival materials and for deliveries of non-archival materials into the building. It should also contain areas for trash, storage of building supplies, and other building maintenance equipment. Trash and recycle should be segregated from archival storage and processing areas.

Archival collections moving through the receiving area must be protected from theft and unauthorized access, inclement weather, pests, and accidental disposal.

Special considerations include:

- Covered loading dock
- Covered concrete platform
- Covers or canopies over the platform that extend out at least 4 feet
- Sloped ramp that drains to prevent water pooling or migration into building
- Negative air pressure in relation to adjacent spaces
- Separate air handling system, vented to the outside
- Secure doors
- Security cameras or other monitoring equipment
- Doorbell, intercom or phone to alert staff to deliveries
- Brush sweeps to keep out insects, vermin, dust, etc.
- Bird netting
- Dock leveler to accommodate different height trucks

Isolation Area or Room: 50 – 300 NSF

The isolation area or quarantine room is used to quarantine materials that need treatment before entering the archival facility. Any incoming materials that are contaminated with mold spores, insects, or other vermin must be isolated and treated separately from all other materials. Generally, the contaminated materials are freeze-dried to de-infest them in a clean, safe manner.

For smaller sized treatments, an alternative to a room is to provide a freezer or freeze/dryer located off the loading dock in the receiving area.



Example: Smaller Freeze-Drying Equipment located off of the loading dock

For larger facilities, the isolation room has the same security and finishes specifications collections storage. It should be located adjacent to the loading dock and receiving area, have its own secure entrance and air handling system, and must be separate from all other collections areas. This should be considered for a shared facility.

Furniture includes:

- Shelving
- Adjustable height moveable tables

- Trash and recycle bins
- Freezer for freeze-drying records

Special Considerations:

- Secure room – same security as record storage areas
- Automatic double doors wide enough for pallets of records
- Open space for pallets of records
- Sink
- Floor drain
- No windows
- Fire protection similar to stack areas
- Separate air handling system from records storage areas
- Insulation to prevent migration of pests and mold
- Safety shower
- Wi-Fi



Example: Large Capacity Isolation Room with freezer

Telecommunications

The telecommunications system must provide network wireless access (Wi-Fi) for the staff and visitors via wireless access point (WAP) and cellular voice coverage for the entire facility. Staff needs to have coverage available in all office areas, processing areas, imaging lab, and collections storage areas.

Due to the rapid changes in technology, consult with information technology (IT) experts to determine the most current technical specifications, including network, hardware and software specifications.

Building Systems and Support

Building support spaces will be required for the proper functioning of the building.

Spaces may include:

- Central plant – may include redundant systems for archives' HVAC
- Generator
- Facilities management spaces (if not a shared facility)
- Janitorial spaces
- Fire control room/closet
- Security room/closet
- Restrooms: desirable to have one bathroom with a shower
- Washer/dryer to wash dirty gloves, smocks, aprons, cleaning towels, etc.

Parking: TBD

Parking for staff and visitors is desirable.

Section 6 Archival Facility Design Standards

An archival facility for the City of Westminster should be designed to meet recognized archival facility standards. Whether a new building or a renovation to an existing building, the technical criteria for the design of an archival facility is based on the archival facility standards and guidelines established by the Society of American Archivists (SAA) and National Archives and Records Administration (NARA), and international standards in combination with best industry practices and the past experiences of the archival facility consultant. Please consult the published archival facility standards for extensive specifications and explanations.

This report draws from the standards and codes for archival facilities in the United States that are cited in Appendix A. These standards include extensive bibliographies that cite the specialized standards and codes that relate to archival facilities. All city staff working on the Westminster archives project should familiarize themselves with these standards and requirements.

This section summarizes the design standards for an archival facility. Criteria are given for the major design disciplines: sustainability; landscaping; building site; building structure; building exterior; building interiors; materials and finishes; plumbing systems; heating air conditioning and ventilation systems; archival environments (temperature, relative humidity and air filtration); fire protection; building security; and electrical and lighting systems. All criteria may not be applicable for the Westminster City Archives. After selection of a site and a determination of the Westminster City's requirements, these standards should be adapted to meet the project's scope and size.

Sustainability

At the beginning of the design phase, the planners should identify appropriate measures that support sustainability objectives. With green building action plans, many projects are reducing their environmental footprint through sustainable operations and practices, including energy efficient design, construction and operations.

If a particular sustainability goal runs contrary to an archival design guideline or standard, priority should be given to adhering to the archival design standards. The designers should identify alternative approaches that will achieve the sustainability project goals without negatively impacting the archival functions of the project.

Landscape

An archival facility site should be designed for water control, integrated pest management, and low maintenance. General requirements for the landscape design include:

- Omit vegetation within 18 inches of the exterior wall
- Vegetation free zone must be sloped away from the foundation and consist of gravel or decorative aggregate with appropriate drainage.
- Trees and shrubs should not obstruct pedestrian lighting
 - Include under story plants no higher than 3 feet.
 - Include a tree canopy with limbs at least 7 feet above the ground.
 - Maintain a minimum of 15 feet between building and the drip-line of trees at full maturity.
- Omit pools, fountains and their related equipment

- If pools or fountains are present, additional protection must be taken. Locate a minimum of 75 feet from the facility and 10 feet below the lowest level where archival records are stored.

Site

General Requirements

The facility should be located in or around Westminster, Colorado. Driving factors in site selection include location, cost and availability. It is particularly important to select a site that is not liable to subsidence or flooding, whether from a natural or man-made source. The entire site and ancillary structures on the site should be a minimum of 5 feet above and 100 feet away from any 100-year floodplain area.

Many of the dangers that threaten an archival facility can be avoided by careful site selection and site development. In addition to location, cost, and availability, the site selection must consider other potential risks, including the threats of:

- Flooding from natural sources or water mains
- Natural disasters, such as earthquakes, landslides, etc.
- Vandalism, terrorism, and intrusion
- Fire and explosions
- Hazardous locations or materials
- Ground and air pollution
- Rodents and insects

Specific criteria for site selection for the archival facility include:

- Located within short response time for emergency services
- Allows for quick evacuation
- Protection from dangers from neighboring spaces and building
- Accessible to related departments and other cultural institutions
- Accessible to visitors
- Adequate parking for staff and visitors

Site Size

The site for an archives facility must be large enough to accommodate:

- Proposed building footprint (if new construction)
- Future expansion
- Site access and service roads
 - Roads, fire lanes and parking areas should be designed to permit unrestricted access for emergency vehicles.
- Sufficient parking
- Space for storm water management
- Separation between drop off areas, parking, loading and the building
- Turning radii for large delivery and trash vehicles

Site Evaluation

Conduct a site survey and consider the adequacy of the site using the above listed criteria. Also complete a geotechnical investigation and a security risk assessment. If needed, conduct an archeological assessment.

Special Utility Requirements

The water supply, sewer, and storm drainage systems should all be readily available and meet the requirements outlined by codes and archival facility standards. The primary electric power from the network to the building must run underground in conduit. All conduits for the primary power must have at least 50% spare conduit capacity. Consideration should be given to a redundant primary feeder.

Structural

Archival facilities must be designed with long life expectancies. Structural systems must be designed with a high level of durability and longevity. Proper slab and floor loads are based on the storage and shelving requirements. Collection storage areas may require long spans with column free zones.

Archival storage spaces may include shelving that ranges from low density fixed shelving to high-density mobile shelving. Slabs and floor loads must be sized to withstand the heavy loads of the shelving and archival materials. Typical open stack floor loads are 150 pounds per square foot. Mobile shelving system floor loads can range between 250 and 350 pounds per square foot depending on the height of the shelving. Slabs for moving shelving units need to meet more stringent flatness and level specifications than other parts of the building.

Mobile shelving rails can be recessed or top-mounted onto concrete floors. Floors are leveled so that carts, ladders and lifts can move easily within the mobile shelving system. Facilities without concrete floors require the installation of top mounted rails with a raised floor and ramping for access and may not have the necessary floor load for lifts.

Exterior

The Westminster archival facility should be constructed of long-lasting materials that are economical to build and easily maintained. Should an existing building be selected that requires a partial or complete retrofit, the additions should be complimentary and coordinated with the site and any adjacent uses.

The external building materials for an archival facility should ensure the permanence of the collections and meet the storage and operational demands of the building. Materials must be durable, provide appropriate protection from fire, heat, cold, humidity and moisture, be easy to maintain and keep clean, and meet the facility's program requirements. Whenever possible, the external building materials should be limited to those known to be stable and inert, and that will minimize the emission of harmful substances such as smoke and soot in the event of a fire. Particular attention should be paid to insulation, adhesives, epoxy materials and caulks. All exposed concrete walls and slabs, including spaces beneath raised floor systems, should be sealed or coated to prevent moisture migration and dust.

The exterior design should contain the following key features:

- Wall and insulation systems should be optimized to minimize air infiltration and be designed in conjunction with an energy analysis to provide energy efficiency and temperature stability.
- The vapor barrier and insulation system must maintain the individual climate requirements in the archival storage areas without producing condensation.
- Must use building materials that reduce the off-gassing of volatile organic compounds (VOC's), especially for the materials that are used in the archival storage areas.
- Formaldehyde-based insulation and foam in place insulation are not acceptable for collection storage and processing spaces.
- All exposed concrete slabs should be sealed or coated to prevent moisture migration and dust.
- The roofing system must be designed so that roofing penetrations over the archival areas are minimized and roof drains do not run over or through archival spaces.
- Equipment should not be placed on the roof, especially over collections storage and processing.
- Expansion capabilities should be incorporated into the design of the archival storage areas.

Interiors

Internal building materials also must be selected with care. The interior construction should include the following features:

- Archival storage areas require low VOC content and their floors should be constructed of hard, durable material such as concrete using low VOC sealers with an epoxy finish.
- Other special spaces such as processing rooms and the imaging lab should have finishes conducive to the function, such as low VOC paint/flooring and easy to clean flooring, walls and ceilings.
- In general, office spaces and the research area should have low pile carpet flooring and painted walls.
- Loading dock areas should have sealed concrete floors.
- Windows and lights in any areas where collections are stored, processed, viewed, or displayed must be LED or UV filtered.
 - Blinds or shades control sunlight and assist with temperature control.
- Doorways for all collections storage and work areas ideally should be automatic and wide enough for moving carts (and in some cases pallets) of materials.
- Hallway flooring should be constructed of hard, durable material that is easy to clean and conducive to the transporting records on pallets and carts.
 - Hallways should not have carpet.
 - Hallways should be wide enough to accommodate the movement of carts and pallets.
 - There should be guardrail or protective material on hallway walls to prevent damage to the walls from carts and/or pallets.

Materials and Finishes

Archival storage and work areas should be designed with materials and finishes that minimize the off gassing of volatile organic compounds (VOC) and other chemicals that can contaminate the air and degrade the collections. Materials that contain biological contaminants or that might invite mold must be avoided in collections storage and processing areas. All materials and finishes used in archival facilities must meet the requirements of the building life safety and fire codes. Furthermore, because archival facilities are usually constructed for a long life, the materials and finishes selected should be of the highest quality and extremely durable.

Certain materials must be prohibited from archival storage. Prohibited materials should also be avoided in processing spaces. Materials and finishes deemed “prohibited” have been identified by conservators, chemists and archivists as such because of their deleterious properties that are known to rapidly degrade records. Prohibited materials include asbestos, formaldehyde, PVC, and adhesives. Appendix B provides a list of prohibited materials for archival facilities.

The collections storage areas should have the highest level of cleanliness, the best environmental conditions, and be limited to the storage of the archival collections. Consequently, they should contain only the components necessary to house and store the collections. Equipment typically used in collections storage rooms include shelving, cabinets, boxes or containers housing the collections, and carts used to move and transport records. Staff workstations, copiers, excess equipment, and unnecessary furniture must never be located in collections storage areas.

Below are the recommendations for the Collections Storage areas. These same finishes are also recommended for the processing/digital rooms, but some clients prefer NO VOC/low pile carpet for the flooring.

- Walls - latex paint. Can be concrete block or drywall.
- Ceilings - Exposed ceilings; Or gyp board ceiling to encase insulation or fireproofing. No drop ceilings
 - Water based latex paint
 - No spray on fireproofing - drops particles and dust
 - Eliminate all water pipes over collections storage and processing (except fire suppression piping)
- Concrete floors are covered with an epoxy coating. Epoxy is preferred over just a sealed concrete floor because the epoxy is more durability and long lasting. It is not safe for the collections to re-apply a sealer once the collections are shelved in the clean storage rooms.
 - The preferred coating is Sherwin Williams Trafficote 105 or equivalent. <https://www.generalpolymers.com/drop/traf105.pdf>
 - A light color epoxy is recommended so that you can see dirt and know where to clean. A light color floor also helps with the low lighting levels in collection storage rooms. The usual color is a light gray, but there are other color options.
 - The epoxy tested and approved by National Archives for its stacks for its durability and inert properties and now cited by conservators for as a “standard” was developed by General Polymers Brand - The Sherwin Williams Company. The formula is 3505S Special Epoxy Floor Coating. It was formulated to eliminate toluene and xylene, and reduced the levels ethylbenzene. Sherwin Williams has recently developed the Trafficote 105 with the same properties.
- Wall base: No wood or rubber bases. If a wall base is needed, use an epoxy cove base or an aluminum base.
- Doors: No wood. Must be metal doors.

Plumbing

The design of the plumbing systems should ensure that no roof drains, storm drainage piping, sanitary drainage piping, or natural gas distribution or vent piping is located above or within spaces containing archival collections.

Heating, Ventilating, & Air Conditioning Systems (HVAC)

The mechanical systems for an archival facility should provide a clean, comfortable, and healthy environment for the occupants and ensure the preservation of the collections.

Maintaining an effective preservation environment for archival collections depends on the building's basic architectural design (e.g., windows, vapor retardants), use of appropriate building materials, and the building's operation (e.g., hours of operation, availability of tempering sources). Appropriate and robust temperature, relative humidity, and air filtration systems are critical to protecting the collections and offering a safe and healthy environment for the staff and visitors.

The design criteria for HVAC include:

- Collection storage areas should be served from a separate HVAC system.
- Collection storage areas, processing rooms, and labs must be isolated from sources of pollutants.
- The entire building should be under positive air pressure.
- The building envelope should be airtight with air controlled through the mechanical system.
- Mechanical spaces should not be located above or adjacent to collections storage areas or special precautions must be taken to avoid water leaks.
- HVAC system redundancy should be considered for archival facilities.
- The HVAC system for collections storage needs to have flexibility to meet current environmental standards and to adapt to future sustainability initiatives.

Archival Environments: Temperature, Relative Humidity and Air Filtration

All archival materials are subject to deterioration over time due to heat, humidity, harmful particulates, fumes, and frequency of handling. Materials are fragile and subject to biological, chemical and physical damage. It is critical to provide stable and constant levels of temperature and relative humidity (RH), and remove damaging particulates and gases from the air.⁶

There are currently a variety of storage preservation standards and guidelines for archival collections. Some of these standards speak to mixed collections while others specify different storage conditions for each type of media. Ongoing research into the effects of environment on these fragile materials continually leads to new information and revised recommendations.

Increasingly archival institutions are seeking the best preservation conditions at the lowest energy costs that use operations and strategies that are sustainable over time. Recent studies have shown that broadening the range of permissible temperature and relative humidity and adjusting them seasonally can reduce energy consumption and, therefore, operating costs. The Image Permanence Institute has developed analytical tools that aid in determining optimal climate management for individual facilities and in finding the best balance between collection preservation, sustainable practices, and energy costs.⁷ These should be considered for the City's archival facility.

⁶ Relative humidity is expressed as a percentage and is the ratio of the actual amount of water vapor present in the air at a given temperature to the maximum amount that the air could hold at that temperature.

⁷ The Image Permanence Institute is a non-profit, university-based laboratory devoted to preservation research. IPI has provided cultural institutions with significant research, publications, and tools to enable the preservation of image collections and material culture. <https://www.imagepermanenceinstitute.org>.

Air Filtration

Particulate and gaseous pollutants are detrimental to archival materials and should be filtered. Filtration is accomplished by introducing filter media into the HVAC system air handler that serves the collections storage areas. It is important to note that filtration technology is complex and continues to evolve. Designers must consider the archival facility's location, size, design, and budget when planning an air filtration system for the preservation of archival materials.

All archival facilities should have particulate filtration. Filtration to remove gaseous pollutants from collection storage areas is especially important in dense urban locations. The majority of the gaseous pollutants are emissions from vehicle exhausts, stationary combustion sources, and other pollution-generating sources consisting of unburned hydrocarbons, elemental carbon, ozone, sulphur dioxide, and nitrogen dioxide. Other gaseous pollutants are a result of the off gassing of building construction materials, furniture, carpeting, and the collections themselves. All gaseous pollutants are very damaging to records and when appropriate they should be filtered.

Special filtration systems are required for collections that off gas volatile organic compounds (VOC) such as cellulose nitrate, cellulose acetate microfilm, negatives or film, and some types of paper and plastics. Often these kinds of collections are isolated or stored off site. If collections off-gassing VOCs are stored in an archival facility, the air filtration system must be designed to manage the measured quantities of VOCs produced by these records.

Below are the current filtration standards for particulate and gaseous in archival storage rooms, processing rooms, and labs:

- Particulates: MERV 14 or higher
- Sulfur Dioxide: 1 ppb; 2.7 micrograms per cubic meter
- Nitrogen Dioxide: 2.6 ppb; 5.0 micrograms per cubic meter
- Ozone: 2.0 ppb; 4.0 micrograms per cubic meter
- Formaldehyde: 4.0 ppb; 5.0 micrograms per cubic meter
- Acetic Acid: 4.0 ppb; 10.0 micrograms per cubic meter

Fire Protection

Archival facilities, because of their unique holdings, require a higher level of fire safety than is normally required for commercial buildings. Construction requirements must comply with the Colorado Fire Code and the National Fire Protection Association (NFPA) standards for archival facilities. See Appendix A for pertinent codes.

Critical fire safety aspects of the facility must include:

- Adequate and uninterrupted water supply to the site and building
- Fire detection, fire suppression and fire alarm systems
- Properly rated and non-combustible construction and roof materials
- Fire rated doors comparable to fire wall ratings
- Prevention of fire ignition from building systems, furniture, and finishes
- Compartmentalized building spaces
- Prevention of fire migration

Collections storage areas must have the highest level of fire safety and consider the high level of content combustibility. Collections storage areas design criteria include:

- Fire rated walls with no penetrations except required for essential systems.
 - minimum is 2-hour
- Spray on fire proofing materials must not be used.
- Fire rated doors.
- Automatic wet-pipe or pre-action sprinkler protection and/or clean agent system.⁸
 - Performance goal is to limit loss to 300 cubic feet maximum per the National Archives standard
- Electric mobile shelving requires wet pipe sprinkler systems with 165° F quick response sprinklers, but consideration should be given to using lower temperature (135° or 155° F) sprinkler heads.
- Electric mobile shelving must have the ability to automatically separate to create minimum 5-inch aisle between each shelving row upon activation of a smoke detector, water flow alarm, or manual alarm.
- Fire Alarm: Automatic fire alarm system should be installed throughout the storage area with manual activation devices, sprinkler flow monitoring, and audible/visible notification.
- Fire Detection: Automatic smoke detection throughout the building.
 - High-sensitivity smoke detection for archival storage areas
 - Duct fire detectors in all supply / return ducts of air handling systems with controls at central fire panel
- Hose Systems: Fire department hose connections located outside of stack areas.
- Smoke Exhaust: Engineered smoke control system for archival storage areas greater than 500 SF.
- Secure Vault: Prefer a clean agent system.
 - A wet-pipe sprinkler system can be considered as a back-up or secondary system.
- Cold Storage Rooms: Pre-action sprinkler systems or clean agent systems for storage areas below 40°F.
- Dry-pipe systems must only be used for spaces subject to freezing.
- Optional Features include:
 - Gaseous Suppression: Clean agent suppression system in addition to automatic sprinkler protection for “high value” archival storage areas.
 - Water Mist Suppression: High-pressure water mist system in lieu of automatic sprinkler protection for “high value” archival storage areas where exposure to water is significant concern.

⁸ Clean agent fire suppression systems are also referred to as gaseous fire suppression. They use inert gases and chemical agents to extinguish a fire. See NFPA #2001, *Standard on Clean Agent Fire Extinguishing Systems*. We recommend using Novec 1230 or equivalent because as of October 2016, HFCs like Chemours' FM-200® (HFC-227ea) and FE-25™ (HFC-125), as well as Fike's ECARO-25® (HFC-125), are scheduled for global production phasedown under the Montreal Protocol. FM-200® and other hydrofluorocarbons (HFCs) are following the path of halon. Although these HFCs are clean agents that do not deplete the ozone layer, they are potent greenhouse gases — more than 3000 times more potent than CO₂. The European Union's HFC phasedown started in 2015 under the F-Gas regulations and the HFC phasedown in the United States and other developed countries begins in 2019 under the Montreal Protocol. Because fire suppression systems are often intended to last for 30 years or more, FM-200® and other HFCs have become unsustainable clean agents. Novec 1230 fluid, or its equivalent, has no ozone depletion potential and a climate impact less than CO₂ and it's not targeted for phasedown or phase-out.

- Low Oxygen System: Potential application for archival storage areas with automatic retrieval systems and limited/no occupancy.

Security

Security measures must be taken in archival facilities to protect the collections from unauthorized access, change, destruction, and other threats. Archival materials must be protected against theft, burglary, vandalism, terrorism, unauthorized alteration, other criminal acts, and casual damage or disturbance caused by inexperienced or careless handling.

External Security

- The building perimeter and all parts of the facility must be secure against unauthorized entry and vandalism. If the site layout permits provide:
 - Secure buffer zone around the building
 - Fences, wall or natural barrier around parking area to limit pedestrian access
 - Security gates (if appropriate)
- Clear illumination during dark hours
- Screening area for all delivery vehicles
- Optional features include:
 - Monitored and recorded video surveillance for the parking area and pedestrian walkways
 - Emergency power backup for all security lighting fixtures

Entry Security

Recommended minimum entry security includes:

- Manually inspect all mail and packages once received at the facility
- High security mechanical locks on all doors
- Dedicated public entrance separated from all archive storage, research rooms, processing and lab areas, and shipping/receiving areas
- Security guard (s) to monitor public entrances during public hours
- Intrusion detection system, covering all doors, windows, and other openings monitored by a Central Monitoring Station
- Individual component battery backup for any electronic security system provided
- Monitored and recorded video surveillance of public entrances

Optional Features include:

- Electronic screening of all mail and packages received
- On-site security command center
- Electronic access control system on select exterior entrance doors
- Electronic locks and access readers on all exterior doors that are operable from the outside. This will provide the ability to “lock-down” the facility should the need arise
- Electronic access control system, utilizing a single technology (access card, key fob etc.) on select interior doors
- Electronic visitor screening (X-ray, magnetometer) at public entrances
- Emergency generator feed to any security systems provided

Interior Security

Recommended minimum interior security:

- Visitor control and screening system (sign-in/out log, photo ID check)
- Employee photo ID's to be worn by employees at all times
- Provide roving Guard patrols during public hours
- Electronic access control system on interior doors

Optional features include:

- Paper stick-on self-expiring visitor passes to be worn by visitors at all times
- Photo ID's for long-term vendor and contractors to be worn at all times when on site
- Provide roving guard patrols 24/7
- Video surveillance system (recorded) covering all publicly accessible areas
- Recorded video surveillance at shipping and receiving areas

Collections Security

Security and controlled access for the collections storage, processing and lab areas begins externally and continues with layers of security inside the building.

Recommended collections security criteria:

- Doors must be locked, alarmed, and monitored
- Collections storage with high level security or high value items require minimum four-hour fire rating.
- Defined operational procedures that cover staff access to collections storage areas

Research Room Security

- Single secure entrance
- Lockers, rest rooms and researcher registration located outside the research room
- Design to provide clear supervision of all researchers by staff.
- Provide at least a 6" elevated platform for the central desk to provide staff a clear view of researchers in all monitored rooms.
 - The desk should be of sufficient size to house a closed-circuit television (CCTV) monitoring station (if specified), desktop computer, and telephone.
 - The desk should be equipped with a panic alarm button connected to the security station or local police.
- Defined security rules and procedures for access to collections

Electrical

A standby generator for emergency power should be supplied and located above ground. If the generator is located outdoors, it should be housed in a minimum Level 2 weatherproof enclosure. The generator should be sized to provide emergency power to life safety systems including egress lighting, alarm systems, telecom equipment, elevator, fire pump and mechanical service equipment whose failure to function will cause hazard to life or property.

Additionally, the generator should also maintain the HVAC systems for archival storage areas during a power outage. However, a risk management evaluation and analysis of the environmental fluctuations

in collections storage rooms without power for a set period may offer the ability to revise the generator capabilities.

Lighting

The design should seek to minimize lighting costs and energy use by providing natural lighting in spaces that will not contain archival holdings such as the lobby, offices, conference rooms, and break room.

Collections Storage, Processing, Labs, and Imaging Areas

- Lighting should be LED or UV filtered.
- No natural lighting through windows, skylights or clerestories.
- In the case of a renovation, any existing sources of natural light must be completely blocked.
- Lights should be on automatic sensors or occupancy detectors to conserve power and limit light exposure. Depending on design, consider after-hours lighting controls so lights are timed to go off at night and on weekends.
- Large archival storage rooms should be divided into lighting zones.
- Use lighter floor colors to provide better lighting reflection and enhance lower lighting levels.

Research Area

- Natural light can be used if appropriate measures for diffusing and filtering UV and IR radiation are implements in accordance with the standards for archival facilities.

New Construction versus Adaptive Reuse

Under ideal conditions, the soundest solution for the City of Westminster Archives, especially if it is a shared facility, is a permanent, stand-alone facility that is designed and built to meet the functional requirements for archives storage. It should reflect best archival practices and optimize operational programs while preserving the collections.

A newly designed, purpose-built facility offers the greatest flexibility and the ability to comply with archival standards and guidelines. However, a well-designed renovation can also meet collection and staff needs.

Adaptive reuse of an existing building should include a detailed conditions assessment, a feasibility study, and a test fit drawing/layout to ensure that the building meets the size and program requirements. In particular, the designs of the storage areas are critical. When considering the reuse of an existing building, the planners must consider many factors. These include:

- Roof age and structure
- Original building materials
- Floor load and stiffness (especially if using mobile shelving)
- Ceiling heights
- Ability to mitigate against water intrusions
- Spaces for the necessary mechanical and fire protection equipment
- Future expansion capabilities

Archival buildings should be designed with long life expectancies and include quality and durable materials. Adapting an existing building for archival use can cost more than constructing a new facility.

Consideration of repurposing an existing building for archival use should address the following:

- Can be modified to meet the standards for an archival facility
- Located outside flood plain borders.
- Savings in site development, site servicing, and project administration costs
- Site administrator and management have experience working with irreplaceable collections
- Passive energy capabilities: structure supports energy savings while maintaining environmental conditions for long-term preservation of archival materials
- Structure has the necessary floor loads for mobile shelving (if desired)
- One-story structure eliminates elevators and increases operational efficiencies
- High ceilings offer shelving efficiencies

An archival facility can be developed with new construction or by reusing an existing building. Project participants should look at other archival and collections storage building successes and at best practices as they work through the planning and design process.

Section 7 Recommendations and Next Steps

Recommendations

If the City of Westminster wishes to develop an Archival Facility, it should be an appropriate, permanent facility that is designed to archival standards and that meets the functional requirements for archives storage and access. The City should strive to develop a facility that uses efficient storage solutions and that can be adapted for growth and changing environmental standards.

While not part of this project, the City's record management program should also be considered when developing a City Archives. Records management primarily serves the city government while archives serves both the city and the wider cultural interests.

An archival facility could provide the City with an opportunity to address the future preservation of its archival collections. The benefits include:

- Ability to house and manage the current and future collections of the City in appropriately sized and environmentally precise storage spaces.
- Ability to perform processing, preservation, and digital operations to preserve and access the collections.
- Appropriate security and conditions for all archival collections.
- Provisions for future expansion of the archival collections.
- Greater operational and maintenance efficiencies for the City.
- Ability to start an effective records management program and ensure that all archival records can be accessioned on time and in a proper manner.
- Insurance that no archival collections are lost because of inadequate storage.

This report concludes that the most efficient and cost-effective plan for Westminster to implement an Archives is to develop an Archival facility that supports best practices, advances efficient operations and programs, preserves the records of the City, and that serves the citizens of Westminster. An archives facility provides the City with opportunity to address collection storage and preservation as well as records management issues.

Next Steps

Administrative Planning:

Develop the procedures, plans and budgetary requirements that are needed to advance this project.

Steps to assist in this planning include:

- Visits to other municipal archives to review best practices and the operational options for a city archives program.
- Review of other city archives' mission statements, policy documents, and organizational set-up.
 - See Resources in section 2
- Review of the professional literature on developing and maintaining a city archives program.
 - See Resources in section 2

Archives Planning:

The City Archives staff should continue its collections assessments and program evaluations to finalize its requirements for a new facility. This preliminary report can be used as a starting point and guide in

computing and finalizing plans for a new facility. Both archival storage, digitization, and electronic records management need to be considered for the Westminster City Archives. The future city archives must include the infrastructure for collecting and managing traditional paper based historical records and born-digital materials.

Evaluations and Decisions to be made include:

- Determine the collections and their sizes that will be located at the facility.
- Determine the breakdown of collection types that require management and storage at the archival facility.
 - Textual
 - Oversized – on shelves; in map cases
 - Records needing special environments – film, negatives
 - Electronic Records
 - Artifacts/Art/Furniture
 - Books
 - The Library has a collection of books on Westminster History that should be housed in the City Archives.
 - If not already in the collection, the Library should purchase *Westminster Fire Department 1934-2014, 80 Years of Service*.
- Determine types and quantities of shelving and special shelving equipment to be purchased and/or accommodated in an archives facility.
 - Sizes of standard shelving – fixed or mobile
 - Sizes and quantity of flat files
 - Sizes and quantity of oversized shelving
 - Sizes and quantity of cabinets or other special shelving
 - Cold storage (if needed)
- Software and equipment decisions
 - Interaction with Laserfiche software system
- Operations and management plans
 - Organizational location within the City government
 - Coordination and interaction with other City departments
 - Relationship to the City's records management program
 - Staffing
 - Budget (see below)
- Move planning and preparation
 - Preservation decisions
 - Records location systems

Programming and Final Requirements:

After review of this preliminary program of requirements, a follow-up programming phase may be required to reconcile and finalize the building's requirements to assist with site selection and design of the archives. Normally, programming would precede site selection so that all of the building requirements were quantified and finalized. Programming is especially critical to complete if multiple sites and building options are to be considered.

Site Selection:

The City needs to identify a site or sites that can accommodate the archival facility requirements and allow for future growth.

- Are there existing rooms in City buildings that can successfully be adapted for the archival program?
- Is there vacant land available that meets the requirement for the construction of a new archives building if that is considered as an option?

The City should work with its appropriate planning and engineering departments to assist with identification of candidate sites, to compare costs, to identify building and program issues, and to determine the best options for an archival facility.

Budget Determination:

Develop the budgetary requirements that area needed to advance the archives project.

- Establish cost estimates for site development, design, construction, equipment, and related costs.
- Establish estimated annual operating budgets and provisions for future annual funding.
- Assess benefits of funding an Archives with other City budget priorities

Grant Funding

- Review available grants for archival planning projects and consider applications, when appropriate, to help with planning and set-up costs.
 - See a discussion of grants in section 2.

Hire an Archivist

Hire an archivist to continue the development of the policies and procedures. This staffing position also can be combined with records management responsibilities.

Commitment

To implement a City archives, the City of Westminster must make a commitment to develop an archives program and facility. Education of the City's citizens should continue as the project progresses.

Activities may include:

- Public meetings to explain and review the progress of the project
- Newspaper articles about the archives project
- Establish a "Friends of the Archives" group to help advance the archives project.

Section 8 Appendices

Appendix A Citations

There are numerous standards and codes for the renovation and construction of buildings. Any building project for the City of Westminster Archives must consult all the applicable codes and regulations. The following citations relate specifically to archival facilities. The standards include extensive bibliographies that cite the specialized standards and codes that relate to archival facilities.

General

American Society of Heating, Refrigerating and Air-Conditioning Engineers. ASHRAE Handbook Chapter 23. 2015

IIC/ICOM-CC 2014 Declaration on Environmental Guidelines. <http://www.icom-cc.org/332/-icom-cc-documents/declaration-on-environmental-guidelines/#.W24AQS2ZP-Y>

International Organization for Standardization, ISO 11799. *Information and Documentation – Document Storage Requirements for Archive and Library Materials*. 2015

ISO 19814. *Information and Documentation – Collection Management for Archives and Libraries*. 2017

Pacifico, Michele and Wilsted, Thomas, editors. *Archival and Special Collections Facilities: Guidelines for Archivist, Librarians, Architects, and Engineers*. SAA Approved Standard. Chicago: Society of American Archivists Press. 2009.

National Archives and Records Administration. *Architecture and Design Standards for Presidential Libraries*. College Park, MD: NARA, 2014

National Fire Protection Association (NFPA) codes for Fire Protection:

NFPA No. 232, Standard for the Protection of Records

NFPA 232A, Guide for Fire Protection for Archives and Record Centers

NFPA 750, Standard for Water Mist Fire Protection Systems

NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems

NFPA 13, Standard for the Installation of Sprinkler Systems

Prohibited Materials

Below is a **DRAFT** list of materials that must never be used in archival storage areas or exhibit cases housing original records and collections. It is also recommended that these materials be prohibited in processing rooms, holding areas, and exhibit galleries. (This list was originally developed for the 2009 SAA Standard for Archival Facilities; the standard is being revised. The current draft version is below.)

Avoid for Conservation/Preservation Reasons:

Acid-curing silicone sealants and adhesives, or similar products that emit acetic acid during cure.

Most pressure-sensitive adhesives and contact cements and adhesives.

Cellulose nitrate-bearing materials, such as cellulose nitrate lacquers, varnishes, and adhesives.

Cellulose diacetate fabrics. Cellulose acetate fabrics and films.

Polyurethane products including paints, varnishes and foams, and carpet pads. (Two-part polyurethane coatings do not off-gas and are acceptable as sealants for wood and wood products.)

Latex Paint based on vinyl acrylic or styrene acrylic latex. (Acrylic latex is generally acceptable).

Modified alkyd paints.

Oil-based and alkyd resin paints and varnishes, and oil-based caulks and glazing compounds.

Sulfur-containing materials in any form that could be released as hydrogen sulfide or mercaptans. These include, but are not limited to, vulcanized rubber, animal glue, wool, cadmium sulfide pigments, and disodium phosphate fire retardant treatments.

Unstable chlorine-containing polymers (PVCs), such as polyvinyl chloride. Unsealed concrete, due to its production of fine particulate, alkaline dust.

Vinyls, including but not limited to unstable chlorine-containing polymers (i.e., polyvinyl chloride).

Woods, particularly those known to have high acid content, such as oak. Wood or wood products that are not sealed to prevent off-gassing. All combustible furniture (fire safety issues).

Avoid for Human Health Reasons:

Amine-based products.

Asbestos.

Biocides.

Lead containing materials.

Materials that emit formaldehydes (urea/phenol/resorcinol/formaldehyde), as might be found in interior-grade plywood, hardboard, particle board, and plastic laminates.

Self-leveling floor compounds. Magnetic ballasts and their florescent lamps unless UV filtered. Mercury and metal halide lamps due to their high UV output.

Avoid for Energy Efficiency Reasons:

Magnetic ballasts for fluorescent lighting systems.

Additional Materials to Avoid – that perhaps need further testing or other mitigation measures such as increased air exchanges.

Products that release ammonia during cure (can cause deterioration of film bases).

Products that release peroxide during cure (can be corrosive or flammable).

Self-leveling floor compounds (use only products with no VOC).

Language such as the following can be used when planning archival and special collections facilities:

Materials listed as prohibited in this section are often unavoidable in some pre-manufactured construction components and assemblies, however, every attempt should be made by the Contractor to use safer materials as they are available. The Contractor is required to submit Material Safety Data Sheets for all pre-manufactured construction components and assemblies that include materials noted on the "Prohibited Materials List" prior to construction for the Architect's Approval.

Please address all comments and questions to Michele Pacifico, Co-chair of SAA's Technical Subcommittee on Archival Facility Guidelines.

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Appendix C

Examples: Research Rooms

Below are examples of archival research rooms (also called reading rooms) that illustrate the components and special features that could be considered for an archival facility.





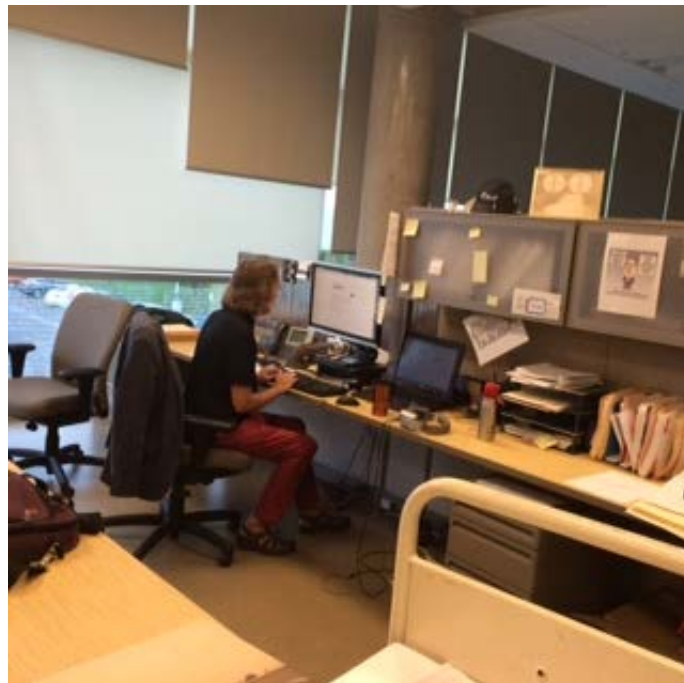
Research room with central desk



Appendix D

Examples: Archival Processing Rooms

Below are examples of archival processing rooms that illustrate the components and special features that could be considered for an archival facility.







Example: Archival Processing/Scanning Room



Example: Archival Processing

Appendix E

Examples: Collections Storage/Shelving

Below are examples of collections storage areas and archival shelving that illustrate the different sizes and types that could be considered for an archival facility.



Example: Electric Mobile Shelving, 7 shelves high



Example: Mechanical Assist Mobile Storage in Renovated Building



Example: Electric Mobile Shelving, 8 shelves high



Example: Covered rails for future mobile shelving and example of horizontal volume storage with extra shelves



Example: Map Cases on Mechanical Assist Mobile Shelving



Example: Electric Mobile Shelving, 10 shelves



Example: Flat Files with Art Racks and Mechanical Assist Mobile Shelving in one Collections Storage Room