

October 4, 2017

AAA Project No. 1696.02

Township of North Huron
274 Josephine Street,
Wingham, Ontario
N0G 2W0

Attn: Pat Newson, Director of Recreation & Facilities

**Re: Preliminary Facility Review and Study of North Huron Museum
273 Josephine St, Wingham**

Dear Ms Newson

Attached is **FINAL DRAFT** of Part A, Preliminary Facility Review and Study of North Huron Museum.

The building assessment was conducted by Architect only and did not involve engineers or other specialized consultants that would normally participate in a comprehensive Building Condition Assessment Report.

Part B of the Study is deferred, as directed.

Please contact us with any questions or comments.

Yours truly



Allan Avis architects inc.

Allan Avis
B Arch, OAA, MRAIC, CAHP

S:\00 - ACTIVE JOBS\1696 North Huron - Museum Study\Report\20171004 North Huron Museum Brief Report FINAL DRAFT.wpd

Purpose

In this Study, the building will be considered “infrastructure” and the existing Museum occupancy will be considered the “tenant”.

The purpose of this Study is to provide a preliminary assessment of the existing Museum building’s infrastructure to assess its general condition and to report our observations, analysis and recommendations, for various building systems. The Study will briefly discuss building interior layout, room sizes, current Tenant use of interior spaces and appropriateness of this space for that use (a more exhaustive study of these issues is outside of this Study and is pending further direction from the Owner).

For the purposes of this Study, the wall facing Josephine Street is considered to face west.

General

Observations are based on a single site visit, conducted 01-Aug-2017, with visual review from grade level and from interior floor levels. No elevated platform access or invasive testing was involved.

Architect only was involved in the preliminary visual assessment; no engineers or specialized consultants participated.

Brief Building History

The Old Post Office and Customs Building was constructed 1904-07. In 1914, the clock tower was extended upward to accommodate the clock mechanism and the clock was installed. The building operated as a Post Office until 1968 when it was sold, privately. In 1972 the property and building were acquired by the Town of Wingham. The Museum occupied the upper two floors starting in 1972, and by 1977 occupied the entire building.

The original Post Office was located at main floor level, facing Josephine Street. The attached one-storey structure, at (rear) southeast corner, was the Customs House. The Post Master residence occupied the second floor level and the building’s Caretaker residence occupied the third floor.

Heritage Designation

The Town of Wingham designate The Old Post Office as being of architectural and historical value or interest in By-Law 1683-81, dated 05-Jul-1981. Reasons for designation are not specified in the By-Law.

Current Museum Size and Use

| Floor Level | Approximate Gross Floor Area (sq.ft.) | Use |
|---------------------|---------------------------------------|---|
| Third (Attic) Floor | 2,100 | Museum archive and storage. The bell mechanism is located in the tower, on its own floor level, above the attic ceiling. |
| Second Floor | 2,700 | Museum exhibits, archive and one single-occupant unisex washroom. |
| First (Main) Floor | 2,700 | Museum exhibits, office, meeting room, one single-occupant unisex washroom, one barrier-free washroom and storage. |
| Basement | 2,050 | Museum exhibits, one single-occupant unisex washroom, building services and storage. |
| Total | 9,550 | |

Building dimensions and area calculations are approximate and are based on scaling of available floor plan drawings. A limited number of dimensions were confirmed on site while preparing this report. Detailed measurements are required to verify accurate floor area calculations and structural support systems.

Building Enclosures

- ▶ Stone foundation is of coursed limestone units. Stone masonry appears to generally be in fair condition. Approximately 30% of foundation stone units have spalled faces, are severely fragmented and crumbling, and these stone units will require replacement or re-consolidation. This is most notable adjacent to stoops and sidewalks and at the chamfered plinth beltcourse, at transition between stone foundations and brick walls. Damaged and deteriorated stone units will require repair or replacement. Some mortar joints are severely weathered. It is anticipated that 100% of foundation mortar joints will require pointing. (Photographs are provided on following page)
- ▶ Brick walls are multi-wythe thick and are load-bearing. Exterior brick masonry and mortar appear to generally be in good condition. Some localized pointing of mortar joints is required, especially at tower walls. Feature stone elements, higher in walls, are of limestone and generally appear to be in good condition. Approximately 15% of mortar joints in brick walls require pointing.
- ▶ North and south walls of original one-storey Customs House portion of building, bow outwards at eaves. This wall deformation was discussed in a 2010 structural engineering report, but the cause was not determined. Additional investigations are required.
- ▶ Sloped roofs are of prefinished steel shingles, in a diamond pattern, installed c2006. Roofing shingles appear to be in good condition. There are some areas of mismatched colour, indicating that localized repair and replacement has been involved after original installation. If a contiguous membrane underlayment was incorporated in the roofing system, there will be a backup to water intrusion at shingles. Metal shingles, alone, are not watertight. Anticipated service life for steel roofing is approximately 40 to 50 years, however, the painted finish will normally deteriorate around year 25 and worsen, progressively, over time.
- ▶ Sheet metal flashing and trims, including parapets and dentil band around perimeter of flat roof, are prefinished sheet steel. Joints typically rely on simple overlaps and sealant. Sealants require regular review and replacement at approximately 15 year intervals.
- ▶ Rain gutters at perimeter of steel shingle roofs are standard 5" K-style aluminum gutters, secured with nails and ferrules. There is evidence of crushing and denting, caused by snow and ice slides. Some nail fasteners are loose and some are completely disconnected. Purpose-made internal brackets with screw fasteners are recommended to reinforce gutter anchorage. The gutter is torn at the valley above south parapet over the main entrance door. Gutters require cleaning; especially the gutters on the one-storey portion of building that readily collect debris from overhanging trees. Downpipes should be checked for splits and leaks.
- ▶ Flat roofing at upper area of main building block is a single-ply, vinyl membrane system. The installation date is unknown but is suspected to be approximately 10 years old. Vinyl membranes tend to shrink and tent over time and will frequently tear under snow and ice loads. This membrane is likely to require replacement at age 15 to 20 years.
- ▶ Tower roofing is of prefinished, standing seam steel. The date of installation is unknown. Paint finish has failed on approximately 20% - 25% of the steel roofing and is beginning to look unsightly. The loss of paint finish does not immediately diminish the ability of the steel roof to shed water, but may over time if the zinc content of the underlying steel dissipates, allowing rust to form. On site repainting of roofing steel normally only provides for a short service life.
- ▶ Wood trims and siding at dormers require painting.
- ▶ Most windows appear to be original wood windows with uninsulated, single glazing. All of the wood windows require repainting; many will require repair and restoration prior to painting. A small number of windows have been retrofitted with exterior, residential grade, aluminum storm windows. Many of the windows, opening into exhibit and storage spaces, have black-panels at inside of windows. Lower tower windows are hollow metal frames with fixed, insulated glass.
- ▶ Decorative stained-glass, over main entrance, appears to be in reasonable condition. This should be more closely examined. The cavity between exterior, protective clear glass and stained-glass panel should be ventilated to the exterior or the interior, to allow for ventilation.
- ▶ Exterior doors are hollow metal frames and door panels. Door and frame at front entrance and basement exit have significant rust deterioration near bottoms. These doors and frames require replacing.
- ▶ The building is assumed to have minimal, if any, thermal insulation.



Interior Finishes

Flooring materials include tongue and groove wood, vinyl composite tile, sheet vinyl, carpet, painted concrete and raw plywood. Carpets, throughout the building, are generally stretched and rippled, packed and worn, and should be replaced. Carpet runner on basement concrete floor, in exhibit spaces, may pose a tripping hazard. Other existing floorings are in reasonable condition.

Wall finishes are primarily painted plaster and gypsum board, with wood tongue and groove wainscot. Several walls in basement are painted brick.

Ceiling materials include suspended lay-in tile, painted plaster and painted gypsum board.

Wall and ceiling finishes are generally in fair condition, except at third (attic) floor level where the finishes are in poor condition with visible water staining, peeling paint and wallpaper, cracked and missing plaster, and dinged and chipped paint on wood trims. All finishes at third floor require renewal or replacement.

Brick masonry walls throughout basement have evidence of rising damp. Rainwater runoff, downpipe discharges and soils around building are often major contributing factors creating elevated moisture levels in basements.

The bottom riser, in basement stairway, is only 3" high. All other risers are approximately 7.5" high. The short bottom riser is a trip hazard.

The sunken exhibit room, in tower at main floor level, is accessed by a three-riser stair, having the same carpet as in adjacent rooms. For safety reasons, stair nosings should have contrasting colour for increased visibility. Handrails should also be provided at the stairs.

Life Safety Systems

Most of the fire safety upgrades, outlined in AAA Brief Review and Report, dated 28-Mar-2014, were executed later that same year. Some of the prescribed exit signs and the emergency lighting pack were not installed, as recommended.

The exterior steel fire escape was reinforced and upgraded c2014.

Basement stairway door is held open with a wood wedge. This door is a required fire-rated door and must be closed at all times, or held open with a device that will allow the door to close upon activation of the fire alarm system.

Accessibility

As a museum, open to the public, the building is required to comply with the Accessibility for Ontarians with Disability Act (AODA).

A sloped sidewalk wrapping around the north end of the building provides flush access to the main floor level. The concrete sidewalk was recently installed and appears to comply with maximum 1:20 slope.

The east-facing exterior door, at sidewalk landing, is equipped with a power door operator controlled with interior and exterior push buttons. At the time of my site visit, the door operator was switched off and not operational. There is no door bell or buzzer to alert staff inside the museum of persons awaiting entry. Passage clearance, with door in open position, is 2'-7.5"; this is not in compliance with the Code minimum of 2'-9 7/8" (860mm) for door clearance.

Once inside, stairs to floor levels above and below the main floor, limit accessibility to only main floor. Corridors and door opening widths through barrier-free path of travel are not compliant with Code. Stored tables in the rear washroom corridor create additional restriction. The sitting room, in the tower at main floor, is down three risers from the main floor level and, therefore, not accessible. The lack of accessibility to public areas throughout the building is not compliant with AODA and general accessibility requirements.

The designated barrier-free washroom is separated from the adjacent washroom with a 7' high panelized partition that does not extend to the ceiling. This partition is structurally inadequate to support the installed grab bar and, because it does not fully extend to the ceiling, there is a lack of privacy. Other deficiencies include knob hardware at entry door, no power door operator, no emergency alarm, low toilet seat height and the hand basin are not barrier-free style. The existing room dimension is inadequate to allow for a properly sized and equipped universal washroom.

The existing building, in general, is deficient at main floor level in terms of accessibility and is completely inaccessible with regard to other floor levels that are open to the public.

General Comments on the Building's Structure, Mechanical and Electrical Systems

The building is a three-storey structure with full basement and a finished attic level. Multi-wythe mass masonry exterior walls are load-bearing, supported on stone foundations. Floor and roof structures are wood-framed.

Some steel columns are visible, supporting concealed beams at floor structures. However, ceiling finishes at basement and first (main) floor largely conceal the building's structural system, making it difficult to confirm essential load-bearing elements at building interiors. It is unclear, at this stage, as to what existing interior partition walls could be readily removed and which would require significant restructuring to allow removal.

For the second and third floor structures, it appears that both walls of the central north-south corridor are load-bearing. Subject to confirmation, partition walls between rooms are suspected to be non-load-bearing.

Engineering analysis is required to determine if the existing floor structures have adequate structural loading capacity for museum occupancy.

New high efficiency, gas-fired hot water boilers were installed in 2014 by EMLE Schaab Climate Care to replace the pre-existing boilers. The heating distribution system was retained.

A few supplemental electric space heaters are placed throughout the building. There are a few exhaust fans, but not all storage rooms and washrooms have proper exhaust systems.

The building does not have an air handling system and, thus, there is no air conditioning or mechanical ventilation in the building. Vintage buildings, such as this former Post Office, have to be carefully studied and properly understood prior to installing air conditioning (AC). AC would not only improve creature comfort for building occupants, but it would provide significant improvement in control of indoor humidity, something that is very important for a museum's collection.

There are two sump pits in the basement. One is located in the boiler room and one is located in the storage room, below the entry lobby. Both pumps triggered "on" when tested.

Portable dehumidification equipment is placed in the basement exhibition hall. Built-in pumps eject the water through the foundation wall above grade. There is a lack of humidity control throughout the basement. Room dehumidifiers are not sufficient to address this issue. A central air system is recommended to provide ventilation and effective, overall humidity and temperature controls. Individual temperature and humidity systems may be required for sensitive items in the museum collection and this can be accomplished with specialized display cabinets.

Building Code Compliance with Existing Use

The Ontario Fire Code (OFC) has the power to require retrofits for unsafe conditions. Improvements executed in 2014 addressed the deficiencies identified by the Fire Safety Officer. The OFC has not been updated since that time and conditions in the building have not changed since. Therefore, it is reasonable to conclude that the existing building is compliant with the OFC, with a few exceptions identified earlier in this Report.

Requirements of the Ontario Building Code (OBC) are typically triggered by building construction or change of use. Otherwise, the OBC has few retrofit powers and an existing building is generally "grandfathered" forward as-is.

If a current, comprehensive Designated Substances (Hazardous Building Materials) Survey will be required prior to any construction activity. Provincial law (Bill 208) requires that a building owner survey and know of the presence of all designated substances, including asbestos, on a property and in a building. A 2013 Asbestos Audit, prepared by MTE Consultants Inc., determined that some sheet vinyl and vinyl tile flooring materials contain asbestos.

Any building improvements or upgrades, for Code reasons or other reasons, are listed in the recommendations contained in the following section of this Report.

Anticipated and Recommended Building Improvements

The range of anticipated and recommended work items, listed in the following table, include essential, core building maintenance work required to preserve the building for ongoing use; renewal and replacement of equipment and finishes that are soon approaching their end of service life; mandatory and voluntary upgrades to building components and systems.

| | Description | Budget Estimate |
|----|--|-----------------|
| 1. | Commission a Designated Substances Survey. Probe in-ground storm drainage system for rainwater leaders to verify proper operation and determine outlet for drainage. | \$7,500 |
| 2. | Exterior Masonry: - Repair/replace deteriorating foundation stone units and point 100% of foundation mortar joints. - Localized pointing of approximately 30% of mortar joints in exterior brick masonry walls. - 100% pointing of chimney masonry and install new sheet lead cap. | \$412,000 |
| 3. | Roofing: - Repair damaged sections of rain gutters. - Install new rigid anchor brackets throughout gutters. - Renew sealants at roofing sheet metal trims and flashings. | \$17,000 |
| | - Over the next 5 to 10 years, replace the existing single-ply vinyl roofing membrane at flat roof and install new standing seam prepainted steel over roofing membrane, plywood sheathing and tapered rafters forming a very low sloped hip roof. | \$56,000 |
| | - Over the next 5 to 10 years, replace tower roofing with long-term, standing seam copper roofing. | \$167,000 |
| 4. | Windows and Doors: - Replace 2 west facing exterior steel doors and frames that have rust damage. - Replace east barrier-free entrance door with 38" wide door and provide door bell. - Paint the remaining 5, existing exterior doors. - Strip, repair and paint 44 exterior wood windows. - Paint 12 tower louvres; paint wood components at dormers; access by mobile boom bucket. | \$190,000 |

| | | |
|-----|---|--------------|
| 5. | Interior Finishes: - Replace carpeting. - Provide contrasting coloured nosings and handrails at stairs to tower room, Level 1. - Modify basement stair to provide equal height risers throughout run. - Modify public washrooms to provide fully enclosed rooms. | \$49,000 |
| 6. | Life Safety: - Install exit sign at two north doors, from main exhibition rooms, at Basement and Level 1 and at Basement stairway door. - Install fire alarm pull stations at Level 1 main entry door, Basement stairway door, Level 2 exit doors and Level 3 exit doors. - Install magnetic hold open at Basement stairway door. | \$10,000 |
| 7. | Accessibility: - Install a hoistway and hydraulic passenger elevator to provided dignified access to floor levels, above and below the first floor. The elevator would also be very useful for museum staff to safely transport collection materials. Carrying such items up and down stairs is a workplace safety concern. The elevator machine room would be located in the basement. - Modify door opening widths in barrier-free paths of travel. - Provide a universal barrier-free washroom, to replace the existing, deficient designated standard barrier-free washroom. | \$417,000 |
| 8. | In conjunction with the new elevator, construct a new enclosed secondary stairway and remove the existing, exterior steel fire escape. An exterior steel fire escape stair system is less than ideal and weather exposure can affect the useability of this stair. | \$410,000 |
| 9. | General, Mechanical and Electrical Systems: - Install exhaust systems for washrooms, janitor service rooms and storage rooms. - Install an air handling system throughout the building for ventilation and air conditioning. - Remove existing plaster finishes at 3 rd floor. Insulate walls and ceilings. Install new electrical system and finishes. - Miscellaneous upgrades to interior finishes at Levels B, 1 & 2 (insulation upgrade at exterior walls is not included). - Miscellaneous upgrades to electrical distribution and lighting at Levels B, 1 & 2. | \$1,490,000 |
| 10. | Subtotal | \$3,225,500 |
| 11. | Construction Contingency (20%) | \$645,000 |
| 12. | Cost Escalation Contingency (5% per year for deferred work) | Not Included |
| 13. | Total (HST not included) | \$3,870,500 |

Notes Regarding Cost Estimates

Cost estimates are very conceptual and preliminary. The above list is not intended to be comprehensive or complete. No designs or accurate quantification of anticipated work has been prepared. Budget estimates are intended to provide a generalized magnitude of costs associated with the described work items.

Items of work have, in some instances, been grouped together to make efficient use of materials, equipment and labour. Scheduling the work into multiple, smaller projects will result in higher costs. It is recognized that the longer work is delayed the more expensive it becomes, not only in terms of inflationary cost escalation but also due to ongoing progressive deterioration of building systems.

Cost estimates and budgets have been prepared by Allan Avis Architects Inc., and represent the Architect's judgement as a design professional. It is recognized, however, that neither the Architect nor the Client has control over the cost of labour, materials, equipment, over the Contractor's methods of determining bid prices, over competitive bidding, market or negotiation conditions. Accordingly, the Architect cannot and does not warrant or represent that bids or negotiated prices will not vary from the estimate of construction cost or evaluations prepared or agreed to by the Architect.

The cost of work is estimated on a contracted-out basis, is based on our experience with projects of similar nature and information provided by contractors and suppliers. The estimates are in third quarter 2017 dollars. We cannot guarantee the accuracy of the estimate because market conditions are beyond our control. The estimates should be modified periodically to reflect actual or anticipated rates of inflation (at approximately 5.0% compounded annually).

A 20% construction contingency is carried in the budget to reflect the preliminary nature of the estimate and lack of detail at this early stage. This contingency is to cover unknown details in design and construction, layout variations and material selections, but excludes any scope increases.

Professional fees and HST are in addition to construction cost estimates.

Discussion

1. The building infrastructure appears to generally be in good condition. Anticipated maintenance and upgrade work items are typical for vintage building of this size, type and construction. With regular maintenance, this building has the ability to provide continued service for many years to come.
2. The building and property are strategically located at the centre of Wingham and thus are in a prime location for a wide range of potential building uses, including the museum.
3. A local history museum is an appropriate use for a heritage property, such as the former Post Office. Furthermore, it appears that both larger rooms at main and basement levels, and the smaller (former residential) rooms at second floor, work well for collection exhibits. Small rooms at attic level may not work so well for collection storage and curatorial spaces. Public access to three floor levels, with only one staff member supervising, is a safety and security concern.
4. The existing building layout may also be appropriate for other potential uses. Larger existing rooms could be subdivided and, subject to an engineering review, it may be possible to remove some existing partition walls to modify the layout. Windows are generously sized, providing ample natural daylight and natural ventilation.
5. Deficiencies in accessibility at main floor and the complete lack of accessibility to other publically accessible areas, throughout the building, are significant issues for a municipally owned and staffed facility, which is open to the public.
6. Minimal environmental control for collection exhibits and storage spaces is a significant curatorial issue. Many of these same, or similar, HVAC and control systems would be required for other potential building uses, other than a museum.

Conclusions

The former Post Office is a proud and stately building. It is an identifiable and significant landmark in Wingham that is recognized as a cultural heritage asset. Upkeep and ongoing productive usage of the building is feasible and warranted.

The cost to preserve, maintain and upgrade the building is significant. Prorated over the existing 9,550 sq.ft. gross floor area, the budget cost is approximately \$405/sq. ft. As high as this cost is, it is not outrageous in today's renovation construction market and it is possible to rationalize this level of investment in an existing quality property that is highly utilized.

This brings the museum use into focus. Do attendance/visitor records indicate that there is sufficient traffic and funding to support a major renovation project as a museum? Are there alternative uses, such as municipal offices or provincial court that could provide stronger support for renovations? Answers to these questions will help in determining the direction and feasibility for upgrades at the former Post Office building.