

AECOM Canada Architects Ltd.

FINAL

Building Condition Assessment For Almonte Branch Library

Prepared for:

The Town of Mississippi Mills

Attention: W. Troy Dunlop, C.E.T.

Director of Roads and Public Works

Contract No. 0381

Project No. 60310532

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Executive Summary

AECOM Canada Architects Ltd (ACAL) was retained in October 2013 by the Town of Mississippi Mills to undertake a visual, non-invasive, non-destructive review of the following Municipal Facilities. The sites are listed in the order in which they were reviewed:

Public Works Facilities:

- Ramsay Garage, Salt Shed, Sand Dome and Storage Shed
- Pakenham Garage, Storage Shed and Sand Shed
- Howie Road Landfill - Shed and Scale House
- Almonte Garage
- Almonte Branch Library
- Almonte Daycare
- Pakenham Branch Library

The primary goal of the reviews was to provide detailed Condition Assessments to be used as guidance for planning future facility renewal and potential replacement. The reviews identified life cycle concerns and deficiencies, serving to assist the Town in developing a long term asset management strategy and capital funding plan. The report also includes recommendations as to measures that would improve overall energy and environmental performance.

A report is provided for each facility at each site. The information provided includes the age, general condition and remaining useful life of facility components. The detailed description and replacement / repair cost for components deemed to be deficient, and the horizon year out from 2013 in which the cost is recommended to be incurred is also provided. Reference documents noted in the report were kindly furnished by the Town.

Overall General Condition Ratings are defined as follows:

- Good: More than 10 years or more useful life
- Fair: 1 - 10 years of useful life
- Poor: Less than 1 year of useful life

The Overall General Condition Rating considers all building systems and provides an averaging of reviewed conditions to arrive at the overall recommended condition rating.

ALMONTE BRANCH LIBRARY

The Almonte Branch Library site includes the library facility and on-site parking. This assignment includes for the review and report for the library facility and site.

Almonte Branch Library

The original building that accommodates the Almonte Branch Library is reported in municipal file notes to have been constructed in 1980 at a tendered cost of \$223,676.00 plus \$12,083.76 for change orders and site fence for a total of \$235,759.76. This corresponds to the amount of \$235,760.00 in the PSAB summary. The tender for the 1995 addition is reported at \$308,160.00 and is also reported in the PSAB summary at this same amount. The building area is reported in the Loss Control / Valuation report as 8,410 sq ft. This corresponds with information from drawings provided by the Municipality prepared by Julian Smith & Associates Architects for the 1995 addition.

The PSAB summary notes the year for the original building project as 1980 and the addition as 1995. For the purposes of this report, 1980 and 1996 will be referenced as the years of construction for the original building and the addition respectively. According to the Inventory of Buildings prepared under PSAB for the Town of Mississippi Mills, the useful life of the facility is 40 years. In this case, the end of useful life for each major phase of the facility is as follows:

- original 1980 building: 2020
- 1996 addition: 2036

The useful life calculation is based on the averaging of the useful lives of the major building systems that make up each facility phase. The source for useful life system data is the Building Owners and Managers Association (BOMA) manual.

At the end of useful life, buildings are assessed to determine the value of the renewal necessary to bring the facility to current Ontario Building Code standard, and to see the facility continue for another life cycle, in this case 40 years for the respective facility phases. This assessment is compared to the cost of replacing the existing facility with a new structure meeting the same criteria. The two sets of data serve to assist in the development of the long term asset management program being developed by the Town.

In general, the Almonte Branch Library is considered to be in Fair to Good Condition. However, it does not fully comply with the 2013 Ontario Building Code (OBC). In particular, the mechanical room requires minor repairs to the walls and ceiling to maintain a one hour fire separation around the room. There are also deferred maintenance items to be addressed, based on the useful life identified for the component, and as listed in this report. The summary of recommended expenditures by category of building system and expenditure horizon follows, and excludes site works:

Category	5 years	10 years	15 years	20 years	TOTAL
Structure	0	0	0	0	
Envelope	13500	100000	0	0	
Interior	32500	50000	0	0	
Life					
Safety	16000	0	0	0	
Mechanical	60000	75000	0	0	
Electrical	10000	18000	0	0	
Totals	132000	243000	0	0	375000

The projected cost of a new structure with the same 8,410 sq ft area , and built to current OBC requirements would be \$230/sq ft, for a total of \$1,934,300 (\$ 2013). This amount includes construction only and is intended to compare to the construction estimate included in the Loss Control / Valuation Report noted above, which carries a value of \$1,217,300, or a unit rate of \$145/sq ft for replacement in 2012. This cost is understood to include for construction only and excludes design, engineering, tendering, construction administration, furnishings, equipment, IT, and HST. This also excludes consideration of Environmental remediation requirements and associated costs. The Owner of the facility is required under Ontario Regulation 490/09 to arrange for this report which documents hazardous materials in the facility. The costs associated with preparing the survey, and any related remediation would be in addition to estimated amounts listed herein. Costs are based on 2013 construction data, including the Hanscomb Yardsticks for Costing reference guide.

It is recommended that a capital maintenance program for the facility consider the incorporation of the identified items in this report per the time horizons noted for implementation.

Energy Efficiency

This study includes general comments with respect to energy efficiency of the reviewed facilities. Three factors are considered in current energy efficiency standards that are referenced under the Ontario Building Code:

- Types of energy used
- Building envelope general condition and remaining useful life

- Heating, ventilating and cooling systems general condition and remaining useful life

For buildings designed prior to 2006, a range of standards for energy efficiency were generally available and accepted under the Ontario Building Code. For buildings designed from 2006 - 2012, the design standards that were generally applied in relation to the Ontario Building Code were ASHRAE 90.1 or the Canadian Model National Energy Code for Buildings (CMNECB). For buildings designed following 2012, upgraded energy efficiency requirements beyond ASHRAE 90.1 / CMNECB, and related reporting documentation under the new OBC apply. These latest requirements include increased insulation values and increased attention to thermal bridging in building envelopes, and the preparation of energy models to document the projected energy use of the building based on the proposed design of HVAC systems and the building envelope. This report includes a general energy efficiency rating based on the above criteria and is summarized as follows into three categories:

- Fair Energy Efficiency – systems have 1 – 10 years of remaining useful life
- Good Energy Efficiency – systems have more than 10 years of remaining useful life
- Very Good Efficiency – systems have more than 10 years of remaining useful life, use natural gas as the principal source of energy, and / or incorporate energy recovery systems
- Excellent Energy Efficiency – systems have more than 10 years of remaining useful life, use natural gas and a renewable energy source and incorporate energy recovery systems

For the Almonte Branch Library, the energy efficiency rating is Good – Very Good. Measures that are recommended to increase energy efficiency with a replacement facility are listed in the Conclusions section of the report.

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1 Introduction

The original Almonte Branch Library was constructed in 1980 at 105 High Street, Almonte, Ontario. An addition was constructed in 1995 - 1996. The facility is estimated to accommodate 75 persons based on available washroom fixtures as per 2013 OBC requirements. The overall building area is 8,410 square feet. For the purposes of this report, 1980 and 1996 will be used as the years for the original building construction, and the addition respectively.

The 1980 - 1995 building includes a wood truss double pitch slope roof supported on wood frame bearing walls, and steel columns and beams on concrete foundations. The structural drawing notes indicate the foundations as being required to have 5'-0" of cover for frost protection. The building envelope includes face brick and windows with prefinished infill panels below. The roof assembly includes asphalt shingles, prefinished metal fascia and prefinished perforated aluminum soffit.

Under the OBC, the building accommodates an A2 occupancy (assembly – library) with combustible/non-combustible combination construction.

AECOM was engaged to visually review the facility systems and components documented in this report, including providing a professional opinion as to the age, condition, remaining life, replacement/repair cost and year the cost may expect to be incurred.

Costs listed in the report for repairs/replacements are for construction only in 2014 and include material, labour and applicable taxes except for HST. Costs also exclude design, engineering and construction administration/project management fees. Unless otherwise noted, work as described is recommended to be completed in 2014. The work described is for capital projects. Work completed under regular operations and maintenance budgets is considered to be separate from this work scope.

2 Condition Assessment

a. Structure

i) Foundations

Description: The building foundations visible at grade appear to be parged concrete. Drawings for the 1995 addition indicate foundations to be concrete walls and piers.

Condition / Deficiencies: The foundation parging visible at grade has spalled at some locations.

Approximate Age: 17 years

Expected Service Life: 40 years (structure); 15 years (parging).

Remaining Service Life: 23 years (structure); -2 years (parging).

Recommended Work: Monitor parging for increases in spalls or evidence of hairline cracks.

Budget Replacement / Repair Cost: Monitoring is part of site maintenance.



ii) Superstructure

Description: The 1980 building includes a double pitch wood truss roof supported on loadbearing wood frame walls, steel beams and columns. The 1996 addition includes a similar structural arrangement. Concrete columns support the entry porch gable-end roof.

Condition / Deficiencies: The structural systems appear to be in Good Condition.

Approximate Age: Original building (1980): 33 years; 1996 addition: 17 years.

Expected Service Life: 40 years for all systems.

Remaining Service Life: Original building (1980): 7 years; 1996 addition: 23 years.

Recommended Work: Monitor seasonally for indications of movement including hairline cracks in exterior wall finishes.

Budget Replacement/Repair Cost: Monitoring is part of site maintenance review.





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b. Building Envelope

i) Exterior Walls

Description: The exterior includes face brick and prefinished metal panels below clad sealed double glazed windows.

Condition / Deficiencies: In general, the envelope components are in Fair to Good condition. Caulking is dried and cracking around windows and doors. Mortar repointing is evident at some locations (refer to photo below).

Approximate Age: 1980 building: 33 years; 1996 addition: 17 years.

Expected Service Life: 40 years for brick. 30 years for remaining components.

Remaining Service Life: 7 years (brick); Remaining components: -3 years (averaged).

Recommended Work: Monitor brick and mortar for hairline cracking. Recaulk at all window and door perimeters, at construction joints, and other locations where dissimilar materials adjoin.

Budget Replacement/Repair Cost: Monitoring is part of maintenance. Recaulk within the next 5 years: \$7,000.



ii) Roof

Description: The roof finish is asphalt shingles with a ridge vent. The soffit and fascia are prefinished perforated metal. The soffit system at the main entry is prefinished linear metal.

Condition / Deficiencies: Fair to Good Condition for all roof systems. Minor damage to the entry soffit and fascia appears to be caused by overgrown bittersweet vines.

The Municipal Building Department reports that ice dams have occurred in the roof and that they are the by-product of a lack of insulation at the lower portions of the eaves. Further detailed investigation of the lower eaves in the attic interior is recommended to develop a long-term solution to this issue.

Approximate Age: 1980 building: 33 years: 1996 addition: 17 years.

Expected Service Life: 15 years

Remaining Service Life: -10 years (averaged)

Recommended Work: Review the lower eaves in the attic in the next year to confirm the types of trusses used, the amount of existing insulation and attic ventilators, and the space available for additional insulation. Replace all roofing in the next 10 years. Include for gutters, downspouts and splash pads to reduce erosion of ground adjacent to the building. Trim bittersweet vines at main entry seasonally to minimize encroachment on soffit and fascia.

Budget Replacement/Repair Cost: \$1500 in the next year for minor repairs to the main entry soffit and fascia. Reserve \$5,000 in the next 5 years for provision of additional insulation and possible ventilators subject to a detailed review of the attic interior at the lower eaves. Allow \$100,000 in the next 10 years for general roofing systems replacement (roofing, flashing, gutters, downspouts and splash pads).

Vine trimming at the main entry is part of general maintenance.

ii) Roof (continued)





iii) **Windows**

Description: Prefinished metal clad units with a combination if fixed and operating sashes.

Condition / Deficiencies: Fair condition.

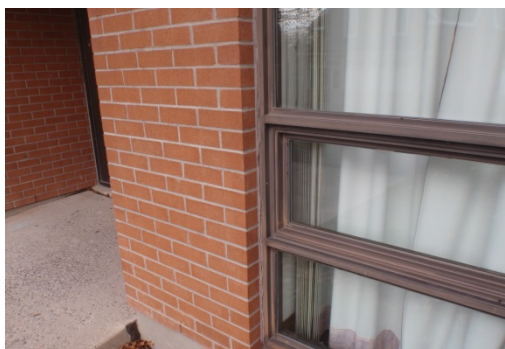
Approximate Age: 1980 building: 33 years. 1996 building: 17 years.

Expected Service Life: 30 years

Remaining Service Life: 1980 building: -3 years. 1996 building: 13 years.

Recommended Work: Caulk seal at perimeters of frames. The cost for this work has been included in Building Envelope – Exterior Walls.

Budget Replacement/Repair Cost: Refer to Building Envelope – Exterior Walls.



iv) Exterior Person Doors

Description: Prefinished steel doors and frames.

Condition / Deficiencies: The doors, hardware and weather seals are in Fair to Good condition.

Approximate Age: 1980 building: 33 years. 1996 addition: 17 years.

Expected Service Life: 25 years.

Remaining Service Life: 1980 building: -8 years. 1995 addition: 8 years.

Recommended Work: Monitor monthly for damage / deterioration.

Budget Replacement/Repair Cost: Monitoring is part of maintenance.



v) **Exterior Overhead Doors**

Not applicable.

c. **Interior Finishes**

i) **Flooring:**

Description: Ceramic tile (entry, corridors and washrooms), vinyl tile (service and storage areas), carpet (general / stacks areas).

Condition / Deficiencies: Fair Condition. Some vinyl tile is worn in storage / service areas). Staff report annual heaving of concrete slab under carpeted areas and rippling of carpet in humid summer weather.

Approximate Age: 1980 building: 33 years. 1996 addition: 17 years.

Expected Service Life: Ceramic tile: 25 years; vinyl: 15 years; carpet: 7 years.

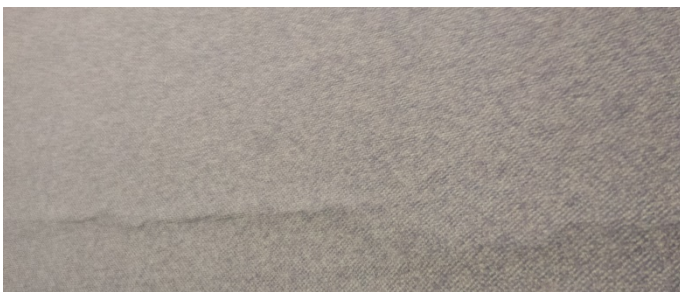
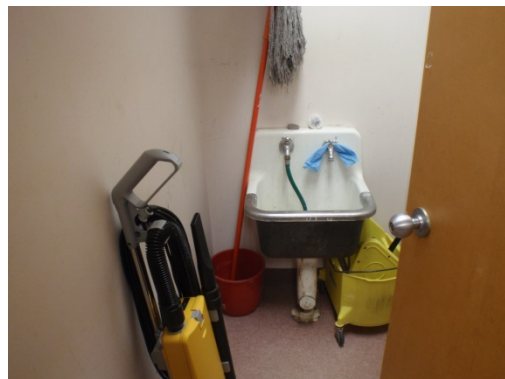
Remaining Service Life: Ceramic tile: 0 years (averaged); vinyl: - 10 years; carpet: - 18 years.

Recommended Work: Replace worn vinyl tile. Allow for carpet replacement in the next 5 years. Monitor and measure slab heaving seasonally to determine extent of movement. Monitor and measure interior temperature and humidity levels seasonally to determine whether levels are outside those generally recommended for libraries with open stack areas. An interior temperature of 20°C and a relative humidity range of 30 – 40% are industry standards and are recommended to be maintained at all times in the building.

Budget Replacement/Repair Cost: Allow for vinyl repair in the next 5 years: \$500. Allow for carpet replacement in the next 10 years: \$50,000. Allow \$3,000 in the next year for monitoring and measuring slab movement and interior temperature and humidity levels.

Analysis of findings from monitoring and measuring will allow for next steps to be determined with respect to addressing slab movement and rippling of carpet. Budgeting of next steps is beyond the scope of this review. However, slab heaving may be an indication of moisture levels below and in the concrete slab. This condition could be a contributing cause for the rippling carpet during summer. It will be important that both the slab movement findings and the general interior temperature/humidity control findings be reviewed together to assist in determining solutions to managing slab movement, controlling interior temperature/humidity levels, and eliminating the causes for the rippling of carpet.

i) Flooring (continued):



Photograph above: Close-up of carpet with evidence of concrete slab heave below.

ii) Walls:

Description: Ceramic tile (barrier-free washroom) and painted gypsum board.

Condition / Deficiencies: Fair to Good Condition. Minor openings through walls of mechanical room to be sealed to maintain 1 hour fire separation.

Approximate Age: 25 years (averaged).

Expected Service Life: 10 years

Remaining Service Life: - 15 years (averaged)

Recommended Work: Seal openings in mechanical room walls within 1 year. Allow for general repainting in the next 5 years.

Budget Replacement/Repair Cost: \$25,000.



iii) Ceilings:

Description: Lay-in tile and painted gypsum board.

Condition / Deficiencies: Fair condition. Repair damaged gypsum board ceiling in mechanical room to maintain 1 hour fire separation from adjacent interior spaces. (photo below).

Approximate Age: 25 years (averaged).

Expected Service Life: 15 years

Remaining Service Life: -10 years

Recommended Work: Replace stained tiles as part of maintenance program. Repair gypsum board and repaint within 5 years.

Budget Replacement/Repair Cost: \$1,000 (repair/repaint gypsum board).



iv) **Doors:**

Description: Sealed /painted metal and wood doors and frames.

Condition / Deficiencies: Fair to Good Condition.

Approximate Age: 25 years (averaged).

Expected Service Life: 40 years

Remaining Service Life: 15 years (averaged)

Recommended Work: Maintain hardware. Allow for resealing of wood doors and repainting of metal doors within 5 years.

Budget Replacement/Repair Cost: \$3,000.



d. Life Safety

i) Fire Separations

Description: Mechanical room wall penetrations.

Condition / Deficiencies: It is necessary to maintain a 1 hour fire rating between the mechanical room and adjacent spaces. Refer to Interior Finishes – Walls section and Ceilings section for details and costs for repairs.

Approximate Age: 33 years.

Expected Service Life: 40 years.

Remaining Service Life: 7 year.

Recommended Work: Provision of fire stop in any penetration through the walls (refer to Interior Finishes – Walls) and ceiling (refer to Interior Finishes – Ceilings). Repair gypsum board ceiling to maintain separation. Allow for provision of fire dampers in ducts that travel from the mechanical room to the attic space. Dampers are required to maintain the same 1 hour fire separation.

Budget Replacement/Repair Cost: Fire dampers: \$10,000.



ii) **Exit Signs**

Description: Illuminated type.

Condition / Deficiencies: Good Condition.

Approximate Age: 25 years (averaged)

Expected Service Life: 10 years

Remaining Service Life: -15 years

Recommended Work: Test monthly, maintain lamps in signs and allow for replacement within 5 years.

Budget Replacement/Repair Cost: \$6,000.



iii) Fire Suppression

Description: Fire extinguishers.

Condition / Deficiencies: Good condition.

Approximate Age: 25 years (averaged)

Expected Service Life: 15 years

Remaining Service Life: - 10 year

Recommended Work: Continue inspections as noted on inspection tags.

Budget Replacement/Repair Cost: Inspection program is part of maintenance.



iv) **Eyewash Deluge System**

Not applicable.

e. **Mechanical**

i) **Heating Systems:**

Description: Two gas fired furnaces with external ground-mounted condensing units are provided in the first floor mechanical room at the north west corner of the 1980 building area to serve the original building areas. A third furnace with an HRV unit is provided in the furnace room located in the central area of the 1980 building area to partially serve the 1996 addition areas. The smaller 1996 addition area (north side) is heated with two direct vented gas fired baseboard heaters. An electric heater is also included in the 1980 mechanical room. An electric force flow heater is provided at the south entry. A electric cabinet heater is provided at the west (main) entry and two baseboard heaters are provided at the south exterior wall in the south west room of the 1980 building.

Condition / Deficiencies: Systems are in Fair to Good condition. Portable heaters and fans were noted in central staff areas. Further study is recommended to determine whether repositioning/rebalancing of diffusers is required to address local interior temperatures.

Approximate Age: 1980 building: 33 years. 1996 addition: 17 years.

Expected Service Life: 18 years.

Remaining Service Life: 1980 building: -15 years. 1996 building: 1 year.

Recommended Work: Allow for replacement of 1980 furnaces in 5 years. Allow for replacement of third furnace, HRV, and other electric heating units in 10 years. Rebalancing study recommended for staff areas (\$5,000 - part of 5 year horizon work).

Budget Replacement/Repair Cost: 5 years: \$35,000. 10 years: \$55,000.

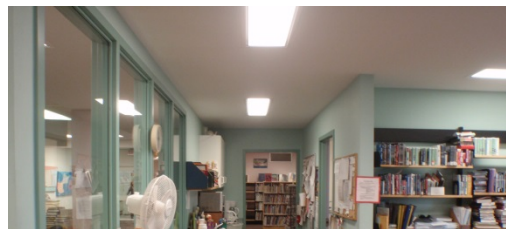
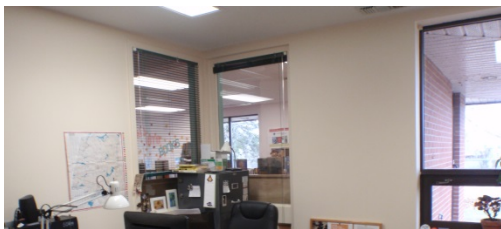
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heating systems (continued)



ii) **Ventilation / Air Conditioning:**

Description: General ventilation / air conditioning is provided in conjunction with the furnaces and HRV described in the Mechanical - Heating Systems. External ground-mounted condensing units are located at the north west corner of the building. Separate exhausts are provided for washrooms, utility room and kitchenette.

Condition / Deficiencies: The fixtures are in Fair to Good Condition. Openings for ducts from the north west mechanical room to the external condensing units may require additional sealing/insulation to reduce heat loss. A suspended electric unit heater is currently located in this area. This type of heater is normally provided to address local heat loss. Improved sealing and insulation will reduce the requirement for the heater.

Approximate Age: 25 years averaged.

Expected Service Life: 20 years.

Remaining Service Life: -5 years.

Recommended Work: Allow for replacement of the external condensing units in the next 5 years (1980 unit) and 10 years (1996 unit). Allow for replacement of the exhaust fans in the next 10 years. Allow for a study to consider redirection of the exhausts through the existing HRV, or a parallel unit. Allow for study of the staff area for cooling and ventilating needs (cost is included in the study recommended under Mechanical – Heating Systems).

Budget Replacement/Repair Cost: Condensing unit replacements: \$15,000 (5 years), \$10,000 (10 years); exhaust fan replacements: \$10,000 (10 years); study allowance for exhausts to be directed to an HRV: \$5,000 (5 years).



Building C

Mississippi Mills

Almonte Branch Library



Ventilation / Air Conditioning (continued)



iii) Plumbing:

Description: Washroom, kitchenette, staff and utility area fixtures are provided. Two barrier-free washrooms are included.

Condition / Deficiencies: The fixtures are in Fair to Good Condition.

Approximate Age: 25 years averaged.

Expected Service Life: 30 years.

Remaining Service Life: 5 years.

Recommended Work: Monitor monthly for leaks from fixtures.

Budget Replacement/Repair Cost: Monitoring is part of maintenance.





iv) Water Heater:

Description: A 180 litre domestic hot water heater / storage tank is provided in the north west mechanical room.

Condition / Deficiencies: Fair Condition.

Approximate Age: 10 years (estimated).

Expected Service Life: 10 years.

Remaining Service Life: 0 years.

Recommended Work: Replace within 5 years.

Budget Replacement/Repair Cost: \$2,000.



v) **Floor Drains:**

Description: Floor drains are provided in mechanical rooms and washrooms.

Condition / Deficiencies: Fair Condition. Staff report that traps are not maintaining seals and need to have water added weekly.

Approximate Age: 25 years (average).

Expected Service Life: 40 years.

Remaining Service Life: 15 years.

Recommended Work: Allow for repair of drain traps to maintain seals. Check traps monthly for trap seal (that traps are primed with water), build-up and clean out.

Budget Replacement/Repair Cost: Allow \$3,000 in the next year for drain repairs. Balance of checking of drains is part of monthly maintenance.





vi) Roof Drains:

Not applicable.

f. Electrical

i) Electrical Power:

Description: The three phase 200A electrical service is provided via an interior panel in the north west mechanical room.

Condition / Deficiencies: Fair to Good Condition.

Approximate Age: 33 years (original building service equipment); 17 years (addition of 1996 equipment).

Expected Service Life: 30 years

Remaining Service Life: -3 years (1980 service equipment); 16 years (1996 addition equipment)

Recommended Work: Replace original service equipment in the next 10 years.

Budget Replacement/Repair Cost: \$18,000.



ii) Lighting:

Description: Interior lighting is strip fluorescent, compact fluorescent and incandescent lamps. Exterior wall - mounted lighting is HID type. Soffit lights are compact fluorescent and incandescent lamps.

Condition / Deficiencies: Fair to Good condition.

Approximate Age: 25 years (averaged).

Expected Service Life: 15 years

Remaining Service Life: 10 years

Recommended Work: Replace T8 lamps with T5 lamps (interior). Replace HID fixtures with LED's. Replace incandescent lamps with compact fluorescents.

Budget Replacement/Repair Cost: \$8,000.





Building Condition Assessment for The Town of Mississippi Mills



Almonte Branch Library

iii) Emergency Lighting System:

Description: Permanently wired units provided.

Condition / Deficiencies: Good Condition.

Approximate Age: 17 years

Expected Service Life: 14 years.

Remaining Service Life: -3 years.

Recommended Work: Test monthly.

Budget Replacement/Repair Cost: Monitoring / testing is part of site maintenance.



iv) Carbon Dioxide Detection System:

Not applicable.

v) Security System:

Description: Motion detection type.

Condition / Deficiencies: Fair

Approximate Age: 10 years (estimated)

Expected Service Life: 10 years

Remaining Service Life: 10 years

Recommended Work: Replace within 5 years.

Budget Replacement/Repair Cost: \$2000.

vi) Fire Alarm System:

Not applicable.

h. Site

Description: The Almonte Branch Library is located on High Street, near the Elgin Street intersection. The site includes a building which houses the library, a community garden, and a parking lot. Approximately 30% of the parking lot is used for town parking. The library is serviced by municipal waterworks and sanitary sewers. The site is surfaced with asphalt paving, concrete, and grass. A few deciduous and coniferous trees are located around the building and in the grassed islands in the parking lot.

i) Asphalt Pavement

Description: The Almonte Library parking lot, which is located on the west side of the building and surfaced with asphalt pavement. An asphalt walkway runs along the fence on the north side of the site from Bridge Street to the library entrance. This walkway wraps around the building and connects to the High Street sidewalk south of the library.

Condition/deficiencies: The asphalt walkway appears to be in good condition (minor transverse cracks were noted). The asphalt parking lot is in fair condition. The driveway is considered to be in poor condition. The driveway showed fatigue cracking, longitudinal/transverse cracking and potholes in several locations. Depressions, potholes, and longitudinal/transverse cracking were noted in the parking area.

Staff report that large sink holes occur during summer.

Approximate age: 33 years

Expected Service Life: 25 years

Remaining Service Life: -8 years

Recommended work: Full-depth replacement of asphalt pavement shows signs of fatigue cracking. Hot mix or cold mix patching of potholes is evident. Placement of an asphalt overlay at depressions was noted to bring asphalt surface to the desired grade. Sealing of longitudinal and transverse cracks with asphalt crack sealer was evident. Reconstructed asphalt should be graded such that storm water runoff is captured by catch basins.

Replacement / Repair Cost: Allow \$2,000 in the next year for documenting locations and extents of sink holes. This information will assist in determining the approach to the pavement and substrate design. Allow \$60,000 for full reconstruction of driveway and overlay/patching/sealing in the parking area.

i) Asphalt Pavement (continued):



ii) Concrete

Description: Concrete accessibility ramp, sidewalk, and curbs are provided in front of the main entrance. A concrete walkway is located on the south side and connects the exit door to the asphalt walkway along the south side of the building. The grassed islands and parking lot edges are bordered by concrete curbs.

Condition/deficiencies: The concrete sidewalk and accessibility ramp in front of the main entrance are in good condition. The concrete path from the side door to the asphalt walkway is in good condition. The concrete curbs in the parking lot are in poor condition. The concrete path at the side door is separated from the main building floor slab by approximately 60mm. Staff report that the gap is increasing.

Approximate age: 33 years

Expected Service Life: 50 years

Remaining Service Life: 17 years

Recommended work: Monitor and measure movement of the concrete path reported to be separating from the building floor slab at the side entry. Allow for a revised path section at the building side entry to tie the path slab to the building foundation wall. For the parking area, remove existing concrete curbs and construct new concrete barrier curbs.

Replacement / Repair Cost: Monitoring and measuring in the next year of the path adjacent to the side entry and preparation of details for tying path slab to the building

foundation: \$5,000. Provision of the revised path detail in the next 5 years: \$10,000. Replacement of concrete curbs in the parking area: \$20,000.



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Almonte Branch Library

iii) **Site Grading and Drainage**

Description: All grades are directed away from the building. Storm water runoff generated south the building is directed towards High Street, which is serviced by a storm sewer system. The west side of the building drains towards the parking lot while the north side and east side of the site drain towards the former railway tracks. Two catch basins located in the parking lot capture runoff generated by the asphalt area. The catch basin located on the north side of the parking lot discharges into the second catch basin, which in turn discharges storm water runoff to the storm water sewer on High Street.

Condition/deficiencies: The library does not have gutters or rainwater leaders. Eroded soils were noted below the rooftop corners, where the majority of storm water runoff is discharged to the grass surface. Concrete pavers are located at most corners to reduce soil erosion. The soils underlying the concrete pad which supports the fans shown in the photograph below had begun to erode due to rainfall runoff from the building roof. In addition, the site grades observed did not appear to direct storm water runoff from the driveway into the parking lot catch basins.

Staff also report that several inches of water is retained in the parking lot during heavy summer rains.

Approximate age: 33 years

Expected Service Life: 50 years

Remaining Service Life: 17 years

Recommended work: Install gutters along the roof perimeter. Install rainwater leaders and splash pads to direct runoff away from the building and onto the grassed surface. Consider constructing new catch basins in the driveway to capture storm water runoff and direct into the existing storm sewer system.

For the parking lot, monitoring and measuring of rainwater retained in the parking lot during heavy summer rains is recommended. The findings will assist in determining measures for managing the storm flow in the future.

iii) Site Grading and Drainage (continued):

Replacement / Repair Cost: \$12,000 (parking lot drainage). Refer to Building Envelope – Roof for costs related to gutters, downspouts and splash pads. Allow \$3,000 for monitoring and measuring storm flow in the parking lot, and providing recommendations for storm flow management.



iv) Fences:

Description: The north and east sides of the library property are fenced with chain link fence. The Municipality is to confirm whether the fence noted herein is owned by Mississippi Mills. Background documentation provided by the Municipality of the this assignment indicates the purchase of a fence at the time of original construction of the project. Refer to page 3 above.

Condition/deficiencies: Two openings in the fence between the former railway tracks and the library were noted. These openings appeared to have been cut with wire cutters, which exposed sharp steel chain link wires (safety hazard). With the exception of these openings, the chain link fence appears to be in good condition.

Approximate age: 33 years

Expected Service Life: 25 years

Remaining Service Life: -8 years

Recommended work: Remove and replace the damaged chainlink fence to close off the two openings. If access between the former railway tracks and the library are required, consider installing chainlink fence gates in the vicinity of the openings noted. Work is subject to confirmation that the fence is owned by the Municipality.

Replacement / Repair Cost: < \$3,000



v) Water Service:

Description: The facility is serviced by a 50 mm diameter copper water service that enters the building near the main entrance. The service is connected to the municipal water main located in High Street. Municipal staff indicated that the water main is scheduled for upgrades in the near future.

Condition/deficiencies: No deficiencies were noted with respect to the water service.

Approximate age: 33 years

Expected Service Life: 50 years

Remaining Service Life: 17 years

Recommended work: N/A

Replacement / Repair Cost: N/A

vi) Sanitary Service:

Description: The site is serviced by a 150 mm diameter sanitary sewer lateral which discharges to the Almonte sanitary sewer located in High Street. The lateral outlet from the building is located in the vicinity of the main entrance.

Condition/deficiencies: No deficiencies with respect to the sanitary sewer service were noted during the site visit. Staff report that the sanitary line exiting the facility includes an acute bend that often requires unclogging.

Approximate age: 33 years

Expected Service Life: 50 years

Remaining Service Life: 17 years

Recommended work: Arrange a camera scan of the sanitary line to determine general condition of the pipe and severity of the reported bend in the line. Include for a recommendation to address the bend to reduce ongoing line maintenance.

Replacement / Repair Cost: Camera scan and follow-up report in the next year: \$5,000.

vii) Electrical Utilities:

Description: Power is supplied by the Ottawa Power Corporation (generated by the Mississippi River Power Corporation) to the facility.

The outdoor parking lot is lit by two light standards. The library entrance is lit by wall-entrance.



Recommended work: N/A

Opinion of probable costs: N/A

iciencies were noted during the site visit.

viii) Gas Utility:

Description: The facility is heated by gas, which is supplied by Enbridge Gas. The gas meter and entry point to the building are located on the west side of the building, as shown in the photograph below.

Condition/deficiencies: No deficiencies observed.

Approximate age: 33 years

Expected Service Life: 50 years

Remaining Service Life: 17 years

Recommended work: N/A

Replacement / Repair Cost: NA



3 Conclusions

The total of identified Replacement / Repair work for the building is \$375,000 for the listed building items. The replacement cost for the Almonte Branch Library has been estimated at \$1,934,300 based on the replacement value in the Loss Control Valuation Report, updated to 2013 dollars.

The cost of replacement / repair items represents 19% of the replacement cost. The breakdown of amounts for repair / replacement expenditures according to 5 year horizons is as follows:

Category	5 years	10 years	15 years	20 years	TOTAL
Structure	0	0	0	0	
Envelope	13500	100000	0	0	
Interior	32500	50000	0	0	
Life					
Safety	16000	0	0	0	
Mechanical	60000	75000	0	0	

Electrical	10000	18000	0	0	
Totals	132000	243000	0	0	375000

It is recommended that a capital maintenance program for the facility consider the incorporation of the identified items in this report per the time horizons noted for implementation.

Energy Efficiency

Measures that are recommended for an energy efficient facility have been provided below for reference should a replacement facility be designed with mechanical heating / ventilation. The following are based on current industry recommendations for energy efficient buildings:

- Design building envelope systems to achieve overall U-value (thermal conductivity) ratings in the order of U0.040 (R25) for wall assemblies and U0.020 (R 50) for roof assemblies.
- Increase the air tightness of the building to 1.0 air change per hour at 50 Pa.

- Include when possible heating / cooling equipment that uses renewable energy / natural gas / propane
- Include heat recovery in the heating / cooling / ventilating system design
- Target an overall energy use/intensity of 160 kWh/m² or lower in preparing the energy models for the buildings. This is more applicable for the occupied building where heating / cooling is required to maintain a suitable interior environment for occupants.
- Include programmable thermostats to allow for setbacks when buildings are not occupied for more than a few hours
- Include for shading devices and tree plantings on the south side of the building to moderate the effect of solar gain on the building interior.
- Increase use of Heat Recovery Ventilator technology to harvest and reuse heat from exhaust systems. This item is discussed further under Mechanical – Ventilation / Air Conditioning.

4 Limitations

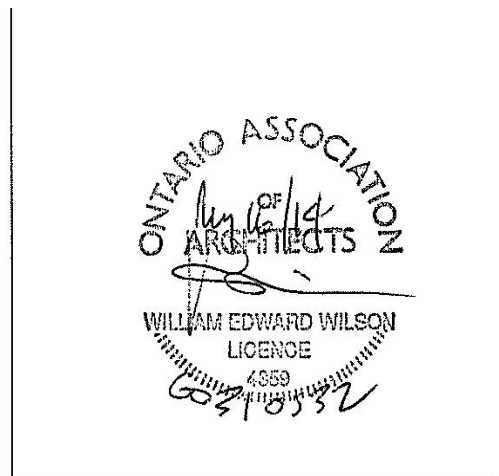
1. Maintenance and repair items less than \$500 per item are understood to be maintenance items. They are not part of the report.

2. Condition Definition:

- a. Good: Better than average condition for component/system age and use. May include a recommendation for extended service life.
- b. Fair: Average condition for component/system age and use.
- c. Poor: Inferior condition for component/system age and use. May include a recommendation for early replacement / repair to meet originally projected service life.

3. Replacement / Repair Costs and Probable Costs are for budgeting purposes. Actual costs will vary with the market at time of procurement. It is understood that budget amounts are based on each recommended cost item be procured individually.

4. Budget amounts are based on 2013 dollars and are for construction only. This excludes design, engineering, tendering, construction administration, furnishings, equipment, IT, and HST. This also excludes consideration of Environmental remediation requirements and associated costs. The Owner of the facility is required under Ontario Regulation 490/09 to arrange for this report which documents hazardous materials in the facility. The costs associated with preparing the survey, and any related remediation would be in addition to estimated amounts listed herein.



(Provide seal here)