

Facilities Assessment
Chatham Area Public Library (CAPL)

The purpose of this assessment is to document existing conditions and provide the library staff with a comprehensive list of maintenance items and suggested improvements. The intent is then to establish a proactive approach for maintaining the library facility and budgeting for any relevant corrective or replacement work. We have also included any deficiencies we observed in relation to the function and use of the facility near the end of this assessment report.

A previous report (dated July 18, 2022) highlights deficiencies with the building envelope where evidence of water infiltration is present. Refer to the above-reference report and the opinion of probable costs provided by O'Shea Builders (dated September 8, 2022) for more detailed information regarding corrective work related to water infiltration corrective work.



Image A (aerial image looking southwest)

Findings Summary

Overall, we found the facility is excellent condition and provides the appropriate access and services required of a library. In addition to the typical aging and weathering of materials (i.e., flooring, paint, sealants, roofing, brick, windows, paving, etc.), your staff has taken excellent care

The most significant discoveries with the highest cost implications include roofing work not previously identified, HVAC (heating, ventilation and air conditioning) equipment and the exterior asphalt paving. This is expected and quite typical based on the age and use of the building facility. Other exterior items previously addressed (i.e., roof, walls, and windows), will only be referenced

to provide a comprehensive perspective and the magnitude of associated costs. The following is a list of items discovered:

1. Roofing assemblies.
2. HVAC equipment
 - a. Replacement required (including upgrades).
 - b. Duct work and diffusers require cleaning.
 - c. Filters.
 - d. Electric heat in entrance vestibule.
 - e. Insufficient heating/cooling in study rooms and book return area.
3. Exterior asphalt paving is cracked and deteriorated.
4. Broken door on electrical panel in storage mezzanine.
5. Grease trap located beneath the kitchen sink needs cleaned.
6. Hot water supply at north toilet rooms is insufficient.
7. Accessible sink does not drain properly.
8. Leaking flush valve at the urinal in Men's north toilet room.
9. Broken rubber seals on the top and bottom of operable partitions in meeting rooms.
10. Deteriorated electrical floor boxes in meeting rooms.
11. Partition door hardware in Men's south toilet room accessible stall.
12. Gasketing at exterior windows.
13. Surface cracks at gypsum wall board (GWB, aka drywall) beneath window.
14. Exposed GWB corner bead.
15. Various paint blemishes visible on wall surfaces.
16. Damage ceiling tile from previous water infiltration.
17. GWB ceiling and wall finishes damaged from water infiltration.
18. Flooring and maintenance of the walk-off mat at main entrance vestibule.
19. Potential upgrades to lighting and building automation systems (BAS).
20. Potential reorganization and re-purpose of existing areas.

1. Roofing Systems

During our leak investigation we focused on areas reported to have specific issues. During this assessment work, we reviewed these areas as well as continuing our investigations to the other membrane roofing systems. The 2007 building addition incorporated TPO (Thermoplastic Polyolefin) membrane roofing in lieu of the original BUR (built-up roofing) and standing seam metal roof assembly (SSMR) to match the existing. As previously documented, the original BUR roofing areas have since been replaced with EPDM (ethylene propylene diene terpolymer) membrane roofing. Both TPO and EPDM roofing are rubber type products that can be re-covered or coated with fluid-applied products to extend their life and avoid complete removal, commonly referred to as a "tare-off".

With the exception of EPDM and SSMR flashings all existing roofing systems appear to be in fair condition. Areas of concern can also be corrected by full system replacement, installation of a re-roofing system (i.e. fluid-applied coating, membrane overlay, etc.) or a combination of both. Anticipated costs for this work will range anywhere between \$17 - \$25 per square foot of roof area depending on the particular system, availability of materials and current local construction environment.

From the below illustration (Image B), the various roofing systems can be seen; white areas illustrate the TPO systems from the 2007 building addition, tan areas illustrate the SSMR systems, and the remaining areas located on the east side of the building show where the EPDM roofing systems are located along with the majority of RTU equipment.



Image B (aerial image looking directly down)

2. HVAC

From the maintenance and budget documentation provided, it is apparent that all rooftop unit HVAC equipment (RTU), are currently beyond their normal life expectancy. Since 2017, all twelve (12) total units have required repair work and replacement of compressors and heat exchangers. With the exception of heat exchangers located in units 5, 8, 10, 11 and 12, all warranties have expired for the other RTU's.

The maintenance agreement currently in place with E.L. Pruitt for repair and/or replacement work assures any failure or immediate repairs will be addressed in a timely manner. However, these repairs can be significant in cost and difficult to budget for. This is especially true as the repair work becomes more frequent. The most logical and cost effective solution is to establish a proactive plan to replace the RTU equipment rather than the continual reactive approach currently in place. The operational costs associated with HVAC equipment increases with time and efficiency can diminish anywhere between 20% - 50%. Depending on the size, location and area served for each RTU, anticipated replacement costs will range between \$45,000 and \$75,000 per unit. In lieu of a total systems replacement, individual units can be budgeted for in phases over several years.

In our current economy, the availability of HVAC equipment can often range between two to three times longer than in previous years. We are currently planning projects several years out to allow ample time for design, production and delivery. To put this into perspective, what used to be three to six months has escalated from nine to as many as fifteen months and that is prior to installation itself.

3. Asphalt Paving

It is our understanding that CAPL shares the larger portion of asphalt parking with St. Joseph's Catholic Church. For the purpose of this report, we will reference the entire parking lot in condition only. All associated costs for repair and/or replacement will be limited to approximately 88 parking spaces and associated approaches from the north along E. Spruce St, and the main access drive located directly east of the library. (See image C below)

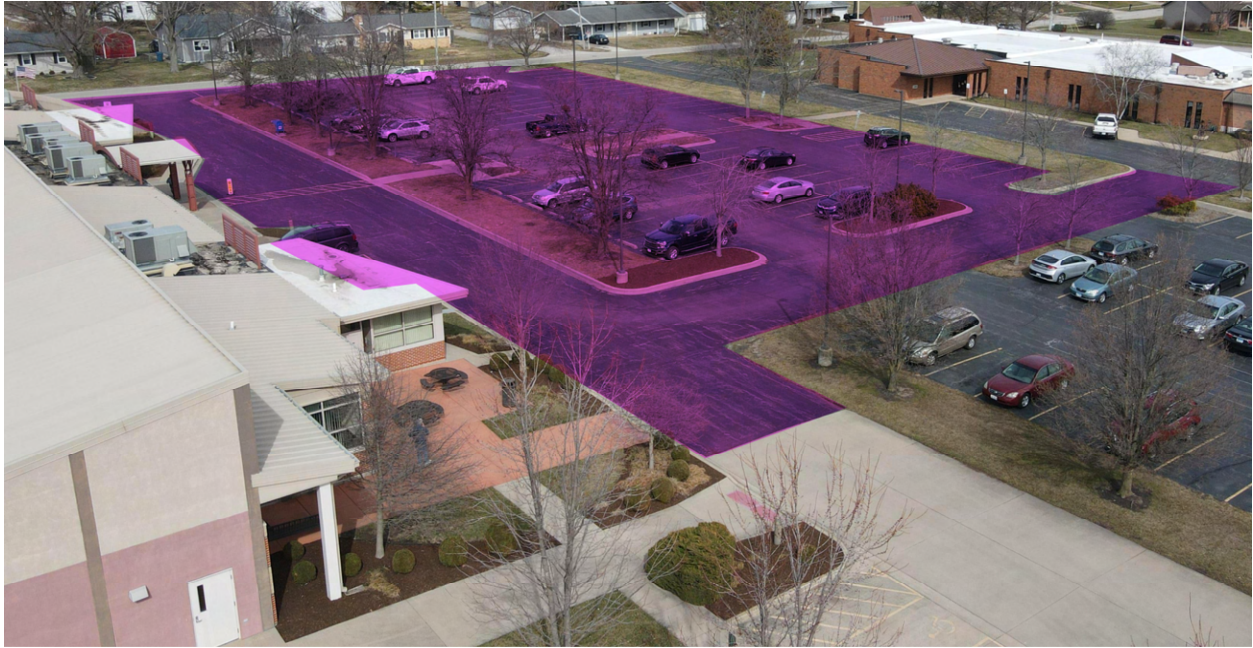


Image C (purple highlighted areas are included in projected costs included herein)

Surface cracks are typical in asphalt parking lots and with proper maintenance, the surface has the ability to last between 20 and 30 years. We were unable to locate records of asphalt sealer being applied, overlay or replacement; however, evidence of patching and repair work is apparent in several drive lane locations. All that being said, the asphalt paving has reached the end of its anticipated life expectancy and requires full replacement and/or a combination of overlay and resurfacing.

Associated costs typically range between \$6 – \$9 per square foot of paving area depending on the soil and sub-base conditions located directly beneath the asphalt. The complexity and configuration of the parking areas also contribute these overall costs. In addition, asphalt requires application of a sealcoating every 2 – 3 years, maximum. During this process, cracks are sealed and/or repaired prior to applying the sealer ensuring the surface will last up to, and often beyond, the 20 – 30 life expectancy.

4. Mezzanine Electrical Panel

Electrical panel LP-E1 has a broken hinge on the door assembly. (See image D). Although unlikely, there is a greater chance for injury, breaker failure and even fire when an electrical panel is not properly secured and or protected. Costs associated with correcting this should be limited to the electricians labor involved to remove the panel cover and door assembly, fix the damage hinge and reinstall the cover and door assembly. If the electrician determines it cannot be repaired, then it will be subject to fabrication of a new panel cover and door assembly.



Image D (Hinge)



Image E (Grease Trap)

5. Grease Trap During our site visits a foul odor was present in the south end of the facility. After further investigation, we discovered the kitchen grease trap needs cleaned out and the lid seals may require adjustment or even replacement. It appears the kitchen was originally designed with the anticipation of more frequent food preparation, which is not how it current is utilized. There are several rules

of thumb for maintaining a grease trap: first rule, if you can smell a foul odor, then it should be cleaned; second, if there is a low volume of drainage the trap is less likely to be flushed out through normal use and it will require more frequent cleaning; third, if more than 3 months' time have passed, the trap should be cleaned. Since this space is utilized more for storage than food preparation it likely has resulted in neglect of the grease trap maintenance. Cost will range significantly depending on whether this work is performed by maintenance staff or by a licensed plumbing contractor, but should range between \$400 - \$1,000 per cleaning.

6. Hot Water Supply

Hot water supplied to sinks in the north toilet rooms does not reach an adequate temperature within a reasonable amount of time. This is typically due to an aging water heater or excessive distance between the sink and water heater. Several options are available: replace the water heater with a larger capacity unit, install a circulation pump to the existing system, or install an instantaneous water heater(s) to supplement and/or even replace the existing water heater. Depending on which option(s) are selected, costs for this will range greatly, anywhere between \$5,000 - \$9,000.

7. Slow Draining Sink

The Men's accessible sink does not drain properly. Typically this is due to a clogged drain and can be corrected by simply having the drain piping augured out to remove any build-up or obstructions. Once again, costs for this will vary depending on wither work is being performed by CAPL maintenance staff or a licensed plumber, but should range between \$400 - \$900 per drain.



Image E (Sink)

8. Leaking Flush Valve

The Men's urinal leaks when in operation, which likely means the seals have failed or the assembly needs replaced. The flush valve assembly itself will vary in cost depending on the manufacturer and where it's purchased; however, installation will be subject to the same labor mentioned above. Repair/replacement costs to replace a flush valve assembly will range between \$900 - \$1,600.



Image F (Flush Valve)

9. Moveable Partition Seals

The moveable partitions located in the southwest meeting room area are original to the 2007 building addition/renovation project. Other than normal signs of use on some of the panel faces, the partition structure appears to be in sound and functional condition. The top and bottom seals are failing on several panels and should be replaced, and costs should range between \$6,000 - \$9,500.

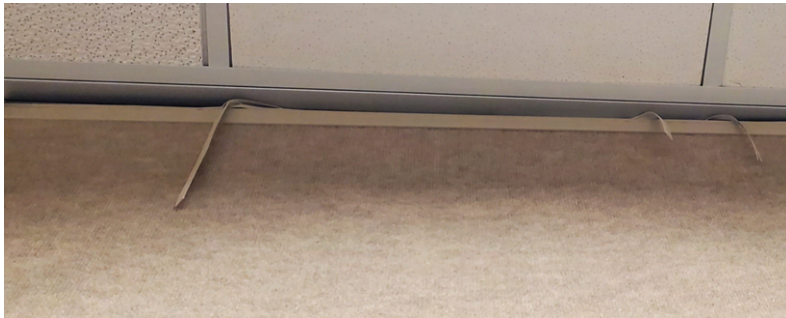


Image G (Moveable Partition Seals)

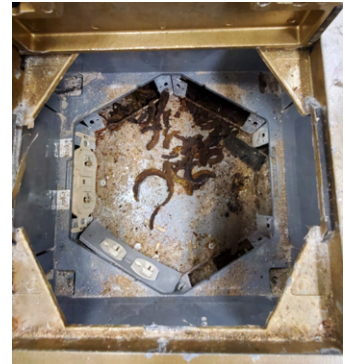


Image H (Floor Box)

10. Deteriorated Electrical Floor Boxes

In the public meetings rooms, several of the floor boxes housing electrical power and data connections contain typical dirt and debris. We also discovered significant amounts of rusted metal remnants that appear to be deteriorated electrical accessories (i.e. conduit, connectors, etc.). There were no frayed electrical wires or loose connections visible during our inspections which leads us to believe this may be construction debris from when the building addition was originally constructed or from various other modifications. Maintenance staff should be able to vacuum out all of the debris from each floor box, limiting any associated costs.

11. Toilet Partition Door – South Men's Toilet

The toilet partition door at the handicap accessible stall does not open and close properly. The existing hardware should be adjusted or new hinge hardware should be installed on the existing partitions to correct this. Anticipated costs for this work should range between \$2,000 and \$3,200.

12. Gasketing at Exterior Windows

Rubber gaskets are installed at window assemblies between the glass (glazing) and framing to hold the glass in place, provide a weatherproof barrier, and to create another level of insulation for both sound and heat/cold air transfer. During our assessment, we found a couple areas in the 2007 addition where the gaskets may have shrunk or simply were cut to short.

Our recommendation is to have a glazing and/or commercial window installer inspect each window opening individually to determine the extent of gasket failure and perform any corrective work necessary. The cost to replace the window gaskets will vary, but should be limited to the labor involved. Anticipated costs for this work should range between \$1,200 - \$3,000.

13., 14., 15., 16., and 17.

Gypsum Wall Board (GWB) and Ceiling Repairs

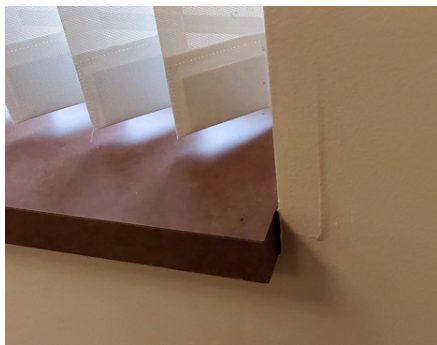
There are surface cracks are present around the exterior windows in the north meeting room. This can be corrected by installing an expansion joint(s) above and below the window opening, allowing movement of the GWB and preventing this type of surface cracking.

There is exposed corner bead trim around the window perimeter and likely due to building movement, humidity or moisture.

There are also various locations where ceilings and acoustic ceiling tiles have been damaged because of water infiltration.

Corrective work should include painting of the entire wall/ceiling surface(s) and replacement of all damaged ceiling tile. Our suggestion is to have all of the ceiling and GWB corrective work performed by the same carpentry and painting contractor.

Combining all of this work should minimize costs, which should range from between \$8,000 and \$14,000.



18. Main Vestibule Entrance Walk-off Mat

During our visit, the recessed walk-off mat in the vestibule floor located at the main entrance had a significant amount of dirt and debris in it during our visit. The primary purpose of a walk-off mat is to minimize the risk of slips or falls caused by dirt and moisture. By locating the mat directly inside the main entrance with the highest volume of foot traffic, the idea is to provide a place for dirt and moisture to fall from our shoes. However, if the mat is not cleaned regularly, you end up with a build-up of debris which negates the use of a recessed mat. The image below illustrates how much debris was present during our visit and how the mat can be removed for cleaning. How often this is cleaned will vary greatly depending on the season and amount of traffic received, but it is recommended to vacuum this a minimum of once every couple of weeks.

We also noticed additional floor mats located directly inside the vestibule and over the ceramic floor tile in the Lobby. The presence of additional walk-off mats is likely be due to moisture on the ceramic tile, which can be extremely slippery when wet. Regularly scheduled cleaning of the recessed walk-off mat may potentially reduce the frequency of having these floor mats laundered.



Many of the flooring finishes are original and in relatively good condition. It appears the carpet tiles have been replaced as needed. Over time, flooring systems (i.e., carpet, ceramic tile, vinyl) like yours will show wear in high traffic areas, but will likely outlast many of the other systems discussed herein. Carpet is not an immediate concern, but will likely require replacement within the next 10 – 20 year period. Continued attention to the walk-off protection at each building entrance, and mentioned above, combined with regularly scheduled cleaning procedures will ensure the flooring systems longevity.

19. Systems Upgrades (Lighting and Building Automation)

The current lighting systems are comprised mostly of fluorescent fixtures. In 1994 when the facility original was constructed, these were inevitably the most energy efficient lighting option. In 2007 when the renovation and addition work was performed fluorescent lighting was still one of the more viable solutions and definitely the most cost effective. LED technology has accelerated since then and ironically only a few years after this last addition, use of LED lighting versus fluorescent became significantly more cost effective.

Fast forward to today, LED lighting has become virtually the standard and often can reduce installation costs. Use of LED lighting and implementation of lighting controls can reduce electrical energy consumption by as much as 30% - 40%. In Chatham, your electricity is provided through the Illinois Municipal Electric Agency (IMEA) which has historically participated in the Electric Efficiency Program which offers incentives for lighting upgrades.

Obviously, your replacing your current lighting and the addition of lighting controls will require additional costs that are not an immediate concern; however, this should be considered when discussing future improvement work and energy conservation. The building automation system (BAS) has periodically been updated over the years and will inevitably require future upgrades. As HVAC systems are upgraded and replaced, serious consideration must be given to capabilities of the BAS to improve occupant comfort and potentially reduce energy consumption.

20. Potential Re-organization and Re-purpose of Existing Areas

As history has shown, the evolution of library services has changed significantly for your facility and required additional spaces or even repurposing of existing areas. During our work we noticed the following areas may require some additional thought and consideration regarding function: technical services, book check-in, storage, computer lab, kitchen, and café.

- A. Technical Services: There appears to be an unnecessary amount of open area originally required due to the volume of physical book handling. Now that much of the media being accessed is digital, these spaces may be best suited as offices or even additional patron spaces.
- B. Book Check-in: Although it's location is still relevant, size, configuration, comfort and lighting should be re-considered in this area while analyzing how flow between technical services and the circulation desk happen today.
- C. Storage: Organization and use of storage should always be re-evaluated as a facility evolves. Often office functions begin to appear within a storage area, other storage areas begin to be overwhelmed and others appear to be underutilized.
- D. Computer Lab: Technology proves to be one of the largest complicated conveniences of modern times. I'm confident the computer lab was relevant in the facilities early days, but it appears to be used as an individual's office space and storage. Re-purposing this space should be considered in conjunction with the above-referenced.
- E. Kitchen: The kitchen space is not utilized as originally intended. It appears to be used for storage and very limited food preparation. Re-thinking the location, access and amenities in this area should be considered in future plans.
- F. Café: The café has been re-purposed from its original use where food and beverages were commercially sold. Similar to the kitchen, the commercial equipment currently installed does not serve a relevant purpose any longer.

Conclusion

From our observations, the library is well utilized facility operated by a staff who takes great pride in its appearance and functionality. As with any building there comes a time when upgrades and maintenance inevitably will extend beyond the annual allowable budget where additional funding is necessary. Planning ahead and including budgeting to accommodate these expenditures is the most proactive method to ensuring the longevity of the facility. Based on our assessment work, the library can save several hundred thousand dollars through proper planning and proactive maintenance.

Attached are supplemental images from our assessment as well as projected costs for maintenance and improvements. Please consider this information for use in future facilities budgeting and planning.

Maintenance & Improvement Costs

Date		Description	Priority	2023 Costs	Escalated Costs (in years)		
4/10/2023					1-5	6-10	11-20
Leak Investigation		EIFS and clerestory windows	A	\$ 572,000	\$ 612,040	\$ 661,003	\$ 727,104
		Planter boxes	A	\$ 15,600	\$ 16,692	\$ 18,027	\$ 19,830
		Masonry cleaning	B	\$ 4,160	\$ 4,451	\$ 4,807	\$ 5,288
		Exterior sealant	A	\$ 1,040	\$ 1,113	\$ 1,202	\$ 1,322
		EPDM roofing (Replacement)	A	\$ 104,000	\$ 111,280	\$ 120,182	\$ 132,201
Facilities Assessment	1	TPO roofing	B	\$ 430,560	\$ 460,699	\$ 497,555	\$ 547,311
	1	Metal Roofing (coating only)	B	\$ 105,248	\$ 112,615	\$ 121,625	\$ 133,787
	2	HVAC	B	\$ 861,120	\$ 921,398	\$ 995,110	\$ 1,094,621
	2	HVAC Duct cleaning	B	\$ 67,600	\$ 72,332	\$ 78,119	\$ 85,930
	3	Asphalt paving	B	\$ 514,800	\$ 550,836	\$ 594,903	\$ 654,393
	4	Electrical panel repair	A	\$ 806	\$ 862	\$ 931	\$ 1,025
	5	Grease trap	A	\$ 910	\$ 974	\$ 1,052	\$ 1,157
	6	Hot water supply	A	\$ 8,320	\$ 8,902	\$ 9,615	\$ 10,576
	7	Accessible sink drainage	A	\$ 676	\$ 723	\$ 781	\$ 859
	8	Leaking flush valve	A	\$ 1,248	\$ 1,335	\$ 1,442	\$ 1,586
	9	Moveable partition seals	C	\$ 8,216	\$ 8,791	\$ 9,494	\$ 10,444
	10	Electrical floor boxes	C	\$ -	\$ -	\$ -	\$ -
	11	Men's toilet room partition door	C	\$ 2,912	\$ 3,116	\$ 3,365	\$ 3,702
	12	Exterior window gaskets	A	\$ 2,080	\$ 2,226	\$ 2,404	\$ 2,644
	13	Gypsum wall board (GWB) repair	C	\$ 7,904	\$ 8,457	\$ 9,134	\$ 10,047
	14	GWB exposed corner bead	C	\$ 936	\$ 1,002	\$ 1,082	\$ 1,190
	15	Paint blemishes and damage	C	\$ 1,248	\$ 1,335	\$ 1,442	\$ 1,586
	16	Damaged ceiling tiles (acoustic)	C	\$ 468	\$ 501	\$ 541	\$ 595
17	Damaged GWB ceiling	C	\$ 3,328	\$ 3,561	\$ 3,846	\$ 4,230	
18	Walk-off mat	A	\$ -	\$ -	\$ -	\$ -	
Totals				\$ 2,715,180	\$ 2,905,243	\$ 3,137,662	\$ 3,451,428

Priority	Description	Duration (in years)	Totals
A	Immediate - threat of failure	1-5	\$ 759,486
B	Preventative - required but no immediate threat	6-10	\$ 2,292,119
C	Suggested - primarily cosmetic	11-20	\$ 31,794
			\$ 3,083,399





