



# Glencoe Public Library

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## Capital Needs Assessment

AS APPROVED, DECEMBER 15, 2021



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The primary product of this study is an active workbook. This report is a simplified set of filtered data to summarize findings, frame major conclusions and illustrate the ways in which the workbook can be used to plan for care of the facility.

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# Process, Context, & Limitations

## Process

Glencoe Public Library commissioned this study to

- Better understand the condition of the building,
- Prioritize needed repairs or replacements,
- Coordinate capital maintenance projects with service-based improvements to the building and
- Identify appropriate funding levels to replace those building systems or components using designated reserve funds.

A multi-step process was used to address these goals.

- In preparation for the systems evaluations, we reviewed the available documentation provided by the Library. This was limited and consisted primarily of scaled floor plans.
- Next, we convened a group of engineers and architects familiar with library building systems for a one-day walk-through of the facility. IMEG Consulting Engineers was engaged for the mechanical and electrical engineering assessment. Eriksson Engineering Associates was retained for site evaluations. As part of this session, we met with building maintenance personnel and management staff to identify areas of known or suspected issues related to building performance.
- The results of these conversations and the walk through became the basis for development of specific life-expectancy and replacement cost schedules included in the workbook.
  - The workbook contains 388 individual line entries.
  - General notes relating to abnormal wear or deterioration in the condition of the components were included for each line.
- Each component or system occurs once in the tracking file. This is typically not an issue with long-lived systems or components. Shorter-lived components or parts are typically not considered a capital expense. For systems that fall in between, painting as an example (with a lifespan of 3 to 5 years) are tallied at their first occurrence only. Depending on the timing and nature of the action taken at that first occurrence, the interval to the next scheduled action could vary. Maintenance efforts and fiscal planning requires keeping the workbook current.
- A snapshot of a representative section of the workbook is shown at the end of this section.
- These schedules were constructed from established industry standards, consultation with system or component vendors/suppliers, and our individual experience.
- Any discernable violations of life safety, plumbing, mechanical or electrical codes were identified to the Library. This does not constitute a whole building code review or accessibility review.
- Building systems that appear to warrant more intensive investigation or inspection are identified in this report.
- Furnishings and Information technology systems were not be included in the evaluation.
- The replacement schedules were submitted to the Library in draft form for review and comment. A final version included modifications as the Library deems appropriate.

This narrative summarizes the findings.



## Context

This Capital Needs Assessment is one element of a comprehensive evaluation and planning processes necessary to maintain the facility in proper condition and tuned to the service needs of the Library. Major maintenance and renewal/replacement are part of a series of maintenance programs and budgets associated with long term stewardship of the facility. A full range of building related maintenance programs consists of:

- **Custodial Care:** Day to day periodic cleaning, painting and replacement of disposable supplies to keep the facility in safe, clean and orderly condition. Such efforts, while essential to the smooth operation and long-term care of the facility are not part of this study and are addressed by other means by the Library.
- **Preventative Maintenance:** Regularly scheduled activities that carry out the diagnostic and corrective actions necessary to prevent premature failure or maximize or extend the useful life of a facility or its components. This includes a program of inspection, servicing, testing and replacement of systems and components that is cost effective on a life-cycle basis. Annual service agreements and testing regimens are not included in the study.
- **Major Maintenance:** Larger repair or rehabilitation efforts to protect the building and correct building code deficiencies. Major Maintenance is differentiated from Capital Repairs by the scale of the repair or replacement. Major Maintenance consists of activities less than \$10,000 in aggregate expense or with product life cycles less than 10 years.
- **Capital Repair or Replacement:** Scheduled and anticipated systematic upgrading of a system or component to a renewed functioning standard.

Unlike most plans, this is not a static document. The chief product of this study is a series of interconnected detailed schedules are provided as an excel workbook for the Library's use. The schedules include opinions of both anticipated repair or replacement dates and probable cost. Entries related to condition are the result of the observations made by the review team and are an overview of wear at the time of the observation. Each item requires ongoing monitoring to assess the impact of continued building use, maintenance procedures, exposure and other factors that will influence the longevity of products and assemblies.

Within the workbook, Major Maintenance is differentiated from Capital Repairs by the scale of the repair or replacement. Capital Repairs consists of items greater than \$10,000 in aggregate expense or with product life cycles greater than 10 years. Because the schedule offers a finer level of differentiation than most studies, many of the individual items by their extent will fall below the "Capital Repair" threshold. Aggregation of the individual items into likely groups shifts the activity into the capital category. As an example, resealing the perimeter of a window is a small expense. Resealing all the soft joints on a building is a major endeavor and has a capital scale cost.

In the course of development, the schedule has evolved to include a number of items that the library may deem to be more appropriately scheduled as preventative maintenance or custodial care (painting is an example). In the interest of being inclusive, such items are included in the schedule and can be reassigned as appropriate to the library's management and budgeting model.

Other items may be deemed to be facility renewal to keep the building effective in its ability to support modern library service (upgrades to power and data networks and furnishings systems are an example).



## Prioritization

A second layer of definition is added to each evaluation. Items are designated for repair or replacement based on a priority basis:

- **Priority 1: Life Safety or Building Code.** Repairs or replacements are needed to meet the requirements of applicable code codes.
- **Priority 2: Building Enclosure:** Repairs or are needed to maintain thermal integrity or to prevent water intrusion into the building and includes roofs, walls, windows and other building enclosure systems.
- **Priority 3: Building System functionality is at risk.** This is typically related to primary building systems other than enclosure. Heating, cooling, ventilation, electrical, elevators, and other systems are found here unless there is a code related issue driving a higher priority rating.
- **Priority 4: Obsolescence.** This is wear to the point that the item or system in question is diminishing the effectiveness of the building but has not yet become a safety or code issue.

The priority rating for an item is not static. Carpet, as an example, can move from priority 4 because of its worn look, to priority 1 because the edges have deteriorated to the point where repairs can no longer prevent edges from becoming a tripping hazard.

It is important to note that a priority 1 item scheduled for repairs in 2030 is not a life safety or code related issue until the it wears past the condition predicted for 2030.

## Notes related to the Covid-19 Pandemic

Because this study is premised on a “replace in kind” repair or replacement approach, it does not consider changes the Library may want to consider in response to the on-going COVID-19 pandemic.

Some of the building systems or materials may in some instances fall short of improvements or changes needed within the building to be better able to respond to similar public health crises.

Systematic evaluation of ventilation, indoor air quality, pathogen resistant or maintenance-friendly materials and cleaning processes is appropriate as part of any projects that develop from this study. Determining any changes in the Library’s expectations and obligations with respect to occupant comfort and health and the ability of existing systems or materials to meet those standards can shift the focus of those projects from replacement to enhancement. If such shifts are deemed necessary, budgets will need to be adjusted based on those decisions.

Given the extent to which the current crisis has impacted society at large (as well as library service) and the advice of public health officials citing the importance of ventilation, physical separation, and aggressive cleaning in mitigating the spread and impact of various pathogens, we recommend that the Library contemplate allocating funds above those recommended in this study until such time as a more detailed assessment of the COVID-related aspects of the general layout, staff and public seating arrangements, indoor air distribution / quality ,and materials can be addressed.



### Fit within Service Evaluations and Strategic Planning

The projected costs are based on the current service models and delivery methodology. These are aspects of the building other than general wear and particular use that need to be considered in order to assure that the building is supporting the library's efforts in serving the community. Repairs or replacements are typically one for one unless there has been a service or other paradigm described that suggests a different approach is required. An example is the replacement of large fixed service desks with smaller, more interactive staff/public service points. This report does not replace a Strategic Plan, a Facilities Plan, a Space/Needs Assessment or Program. Aesthetic quality, fit with programmatic requirements, and comparisons with other facilities in the Library's peer group are outside the scope of this study.

### The Glencoe Context

While this caveat normally suffices, the age, character, and arrangement of the building form and many of its more fixed components is more intertwined with the evaluation process than in a typical building. A number of observations are offered here to help the library consider the timing, nature and extent of any investment in maintaining the physical condition of the building so that it does not inadvertently invest in an arrangement that is counter to desired or needed changes to the current underlying operations/service model.

The team acknowledges that there is much to recommend the current building. The review process is, by necessity, both limited and focused on challenges.

These observations are made with the understanding that much of what constitutes the character/charm of the building, and a component of the community's sense of identity, is intertwined with the functional challenges faced by the Library's patrons and by staff.

The goal is not to make this into a cookie cutter building but to identify areas where nuanced planning and coordinated repairs/improvements may be appropriate. The Library has a Space Audit that identifies minimum, moderate and ideal budget strategies to bring the building into alignment with contemporary service models. The moderate and ideal strategies will be much more effective but would also have the greatest impact on the repair/replacement timelines outlined in this study. A strategic blending of the Space Audit and this capital needs Assessment is essential.

### Architectural Organization

- The symmetry of the building is one of its defining characteristics. The formal arrangement of spaces and movement paths through the building is an asset in some ways (navigation) and a liability in others (overly rigid pairing of service points as an example). In that the symmetry is not absolute (the entry is flanked by unequal wings, the primary wings have different proportions, uses, and aesthetics, and so on) the Library should consider adjusting the points at which the symmetry is embraced and the points at which it is modified or ignored. The pairing of public service points seems an overly deferential nod to previous service concepts and in no longer efficient and in many ways is counterproductive. Keep the clear organizing lines (axes) and reducing the forced symmetry would be more consistent with current planning strategies. In the case of this study, one of the two paired public service point replacements would be eliminated by virtue of a shift in adherence to established symmetries. Maintaining the current operating model keeps both of the paired public service points as well as the very nearby service point in the new materials area.

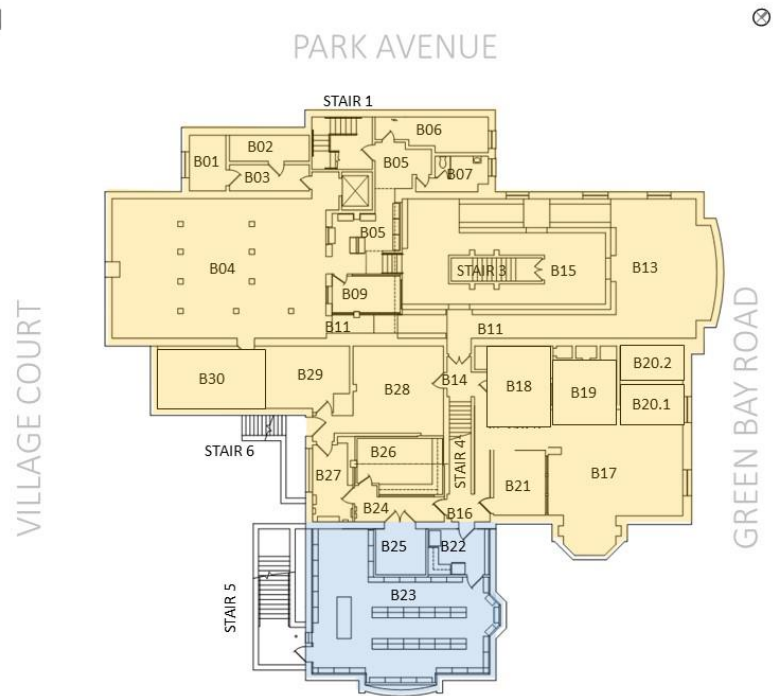


# Key Plans

## Key Plans

### BASEMENT KEY PLAN

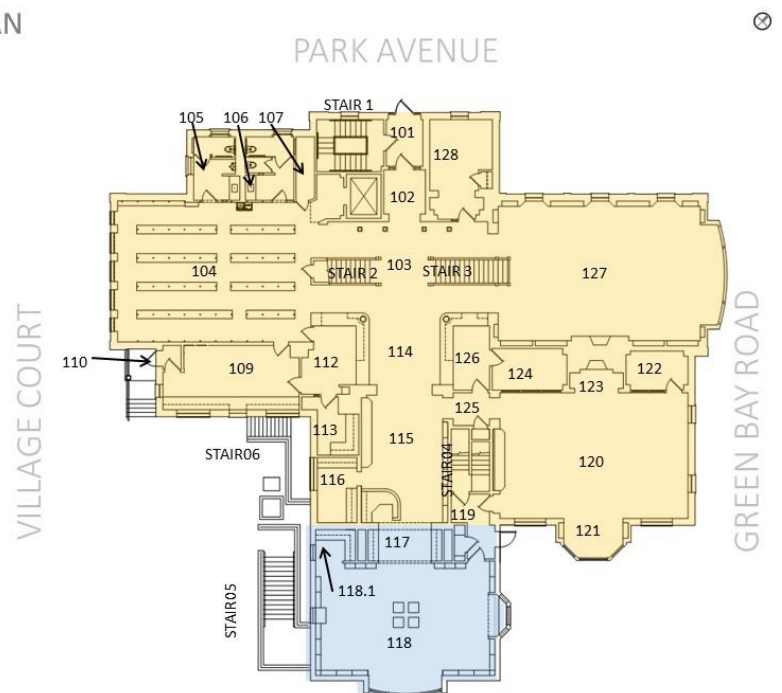
B01	MECHANICAL
B02	MECHANICAL
B03	MECHANICAL
B04	STACK ROOM
B05	MUSIC
B06	STORAGE ROOM
B07	STAFF RESTROOM
B09	HAMIL ROOM
B11	CORRIDOR
B13	"STAGE"
B15	LOWER LEVEL COLLECTIONS
B16	CORRIDOR
B17	OFFICE
B18	OFFICE
B19	OFFICE
B20.1	OFFICE
B20.2	MAIN DISTRIBUTION FRAME
B21	OFFICE
B24	CORRIDOR
B25	MECHANICAL
B26	OFFICE
B27	ELECTRICAL ROOM
B28	BOILER ROOM
B29	STORAGE
B30	STAFF WORK ROOM



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### FIRST FLOOR KEY PLAN

101	VESTIBULE
102	FOYER
103	LOBBY
104	STACK ROOM
105	RESTROOM
106	RESTROOM
107	STORAGE ROOM
109	STAFF WORK ROOM
110	VESTIBULE
112	PUBLIC SERVICE POINT
113	OFFICE
114	QUEUING SPACE
115	NEW MATERIALS
116	OFFICE
117	PASSAGE
118	TEEN & TECHNOLOGY
118.1	OFFICE
119	LANDING
120	PERIODICALS
121	BAY
122	STUDY ROOM
123	INGLENOK
124	OFFICE
125	PASSAGE
126	PUBLIC SERVICE POINT
127	JOHNSON ROOM
128	OFFICE



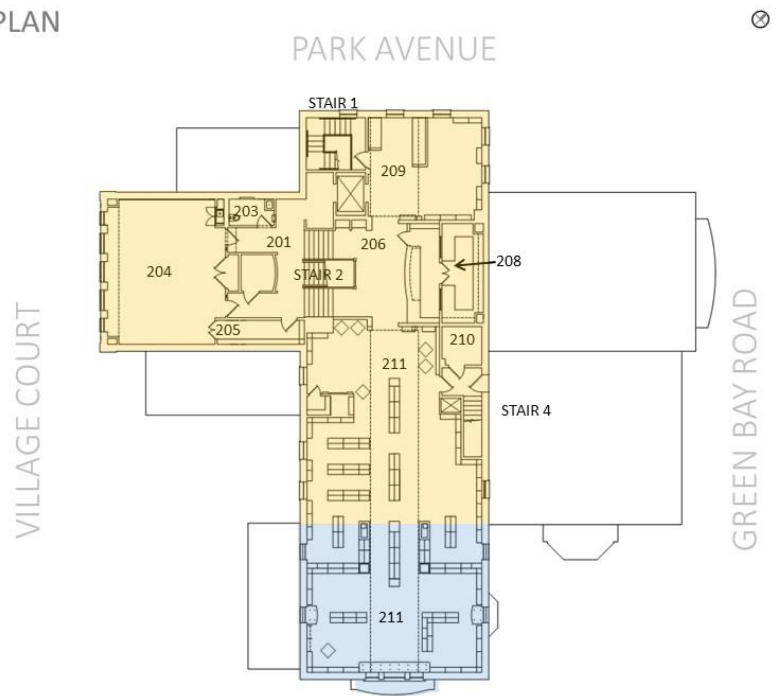
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# Key Plans

## Key Plans

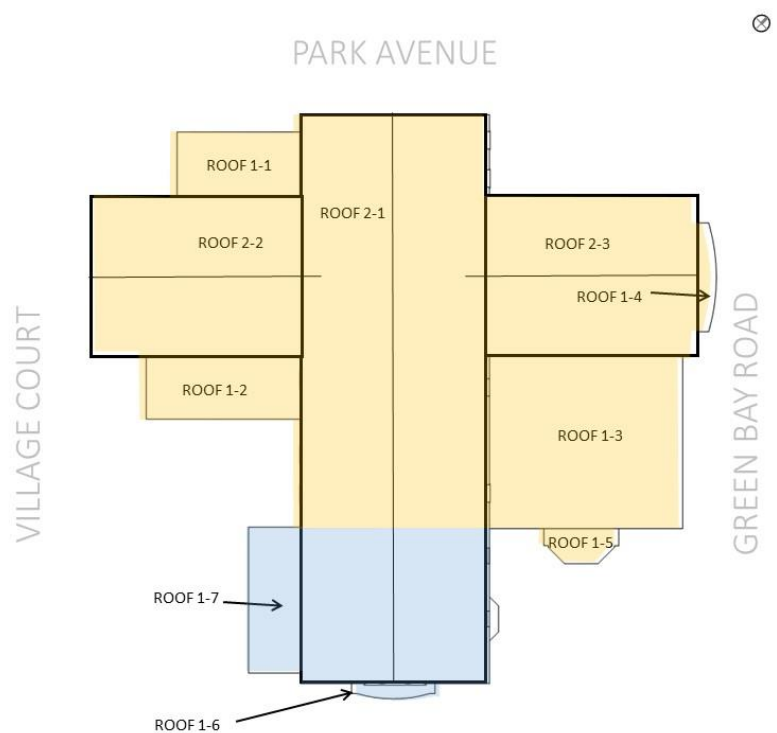
### SECOND FLOOR KEY PLAN

201	LANDING
203	RESTROOM
204	HAMMOND ROOM
205	STORAGE
206	UPPER LEVEL STORAGE
208	STAFF WORK ROOM
209	MIDDLE SCHOOL ROOM
210	STORAGE ROOM
211	CHILDREN'S ROOM



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### ROOF KEY PLAN



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- There are a number of points of friction (challenges to effective use by patrons) that are a result of space constrictions. The entry on one end is discussed separately below. The next is the arrangement of the primary public staircases leading to the lower and upper levels. Their size and location does help differentiate the arrival zone from the functions housed within the east and west wings (a positive), but they constrain easy arrival by pinching the path from the entry to the public service points, stair landings, and pathway to new materials and the teen/computer zone at the far south end of the first floor. This introduces congestion, adds to the challenges for those with strollers, children, and mobility issues. It compresses decision making into a smaller space when the preferred model is to allow more space for decision making.

### Building Structure

- The cruciform core of the building and the multiple floor levels provide character and several challenges. The arms of the primary building form are relatively narrow. Any insertions of interior rooms (restrooms, elevator, stairs) quickly impact flexibility, accessibility and visibility.
- The floor-to-floor heights at the stack areas in the west wing of the main and lower levels constrain distribution of light and air. The end aisle at the west end of the lower level is difficult for a fully mobile person to navigate and in no way complies with standards intended to support use of the space by individuals with mobility challenges. This area is in violation of the Americans with Disabilities Act as well as the Illinois Accessibility Code. The Library is making staff-assisted use of the collections as a means of providing equivalent access.
- The Main Level stack area has supporting columns intersperse in the stacks that support the Mezzanine level – a further restriction on space use.
- The floor to Ceiling height in the Hammond Room is similarly low.

### Main Stairs

- The paired public stairs are located in close proximity and constrict the space used to move from the entry to the public service points. The east stair, to the lower level, has tall risers and shallow treads, which is to say it is inordinately steep.. This is a challenge for many patrons, especially in moving from the main level to the lower level in that the stride required is inconsistent with that encountered in almost any other stairway. The existing riser height exceeds current code maximum and the tread depth falls short of the current code minimum. Rebuilding the east stair to current code requirements would improve safety and comfort.

- The west staircase arrives at a mid-level that is home to a meeting room and various support spaces. The configuration of the stairs, elevator, restroom, storage and other spaces forces a contorted path at the landing, at entry into the meeting room, at the elevator lobby and at the entry into the restroom. The location of these spaces at the landing (and not in alignment with the upper level) reduces the head room in the stack area of the main level. Lastly, this use of this mid level space has an impact on flexibility.

### Entry

- The entry is narrow and shallow. The vestibule brings people into close proximity which limits ease of access for most patrons including those with mobility issues, those wishing to donate materials to the Friends of Glencoe Library, and those with groups of children or strollers.
- The proximity of inbound and outbound traffic is even less desirable in managing use of the building should there be a rise in covid-related infections or similar public health emergencies



- It is also difficult to provide the needed buffering of the interior spaces: even with offset actuation, the inner and outer doors of the vestibule provide a substantial opening through which warm or cold air can move.

### Interior Walls

- In combination with narrow forms, stair placement, and forced symmetry, the location of public service points and interior walls adds to the number of constricted spaces. The staff work room east of the public service point is an example. The narrow landing in front of the public service point acts as an effective security checkpoint because it restricts flow of people and materials. It also brings people accessing the space in close proximity to each other and those seeking service at the desk. The desk could be moved back to allow a more comfortable space to move and seek service if not for the workroom directly behind it. This arrangement may in fact, on balance, remain the preferred configuration in that it allow staff effective movement between the public areas, the desk area and the workroom.

### Interior Materials, Forms and Acoustics

- Staff reports many issues with acoustics, primarily a whisper tunnel effect and a lack of separation between staff workspace and other areas such as the breakroom.
- The whisper tunnel effect is the result of ceiling shapes and materials that bounce the sound in unexpected ways. More sound-absorbent materials or less directional shapes, or a combination would reduce or the transfers. The wood, plaster and drywall surfaces are more acoustically reflective than the materials typically found in libraries. The curved ceiling forms can reflect sounds across considerable distance.

- Sound from the building entry area travels into areas of the building that are intended for quiet use. The Johnson Room is a prime example.

The recent renovations of some of the lower-level staff work zones are likely the result of multiple factors combining to produce the frustrating acoustics. Full height partitions, with acoustic insulation, running to the bottom of the structural slabs above, and sealed to the concrete would help. Application of an acoustically absorbent material in areas with the “floating wood” panels would also help. This material could be applied to the concrete or installed on the top side of the wood panels. Care should be taken to match the heat resistive properties of the insulation to the type of lighting installed in the “floating” panels.

### **Code Violations**

One of the components of the study process is to identify discernable violations of life safety, plumbing, mechanical or electrical codes. Much of the following are not technically violations in that they were permitted at the time of construction. Given the age of the building, many of those formerly acceptable arrangements are now well outside of what is considered the norm. As additions and renovations continue, one of the next projects may trigger a need to bring the entire building into compliance with current code. Key elements include:

- Automatic Fire Suppression System throughout the building
- Handrails and guard rails, stair rise and run, and other A. D. A., Illinois Accessibility Standards, and Building Code requirements
- NFPA requirements for alarm and detection systems
- Allowable head room in occupied spaces
- Electrical distribution wiring



### Accessibility Standards

In that the majority of the building was constructed prior to widespread accessibility standards, and that most of the building is largely in its original form, there are a number of accessibility issues in the facility. While some improvements to general access have been made (elevator, internal ramps, external ramps, a number of accessible restrooms), and the Library continues to seek ways to improve access, either directly or through some equivalent accommodation, there are areas of note.

- The railing leading to the mezzanine level is too close to the stringers and other members of the stair leading from the mezzanine to the upper level.
- The railing leading to the mezzanine level has noticeable movement even under minimal force. This is typically disconcerting to most patrons and can be a safety risk in some instances if the rail were not capable of resisting the lateral forces applied by someone using the stair.
- The ramp from the entry toward the west (Village Court) exceeds allowable length and does not have a level landing at the end of the ramp (the slope continues through the landing zone).

### **Additional Investigations**

A topographic survey should be undertaken to confirm if the paths are ADA compliant.

### **Limitations**

The appended schedules include opinions of both anticipated repair or replacement dates and probable cost. All costs have a subjective component and require ongoing monitoring to assess the impact of continued building use, maintenance procedures, weather and other factors that will influence the longevity of products and assemblies.

All costs and anticipated budgets are based on 2021Q4 data and escalated at a rate of 3% per annum. Cost data is assembled from Library records, industry standards and current construction cost review by local construction and construction management firms. Unit costs include allowances for installation, removal of existing components or material, preparation of substrates, overhead and labor expenses (such as prevailing wage rates) associated with public sector projects, engineering or architectural design costs, permitting and other “ancillary” expenses. With these components added to the basic cost of the material, many unit costs will appear to be higher than many observers might expect. This is intentional.

Within this framework, it is important to remember that:

- No unit cost can anticipate all of the circumstances associated with procuring a specific repair or replacement.
- Many decisions regarding material selection, system development and project parameters have yet to be defined.
- Market conditions, as always, are beyond the control of the architect or estimator and will vary over time.

Thus, no guarantee can be given nor inferred that costs will not vary from these schedules. In order to ensure conformance with projected costs it is imperative that additional estimates are prepared, or specific proposals sought from potential vendors or contractors as the projected replacement or repair date nears.

Finally, the Library should review projected replacement dates based on both condition and reasonable financial planning parameters. Structuring repairs and replacements to coincide with major strategic planning initiatives, building renovations or replacements and revenue streams will maximize the community's return on its investment.



## Sample Worksheet

The primary product of this study is an active workbook. Because the workbook is an active file, it provides GPL with a “living document” that can be kept current as repairs are made and used for future planning. This report presents a set of filtered data to summarize major conclusions and illustrate the ways in which the workbook can be used to assess the building and plan for future investments. The excerpt on this page and the next are offered to illustrate the level of detail in the “living document.”

Capital Repair Assessment																			
Glencoe Public Library Engberg Anderson ©2021				Clear Filters		Floor Level Key Plans			Elevation Zone Keys										
KEY: CR Capital Repair M Major				ZONES Site/Exterior Common Public LL Public 1 Public 2 Friendr Staff Support		Additions 1941 1999		Renov 2007 2021		Façade/Roof Zone 1 2 1941 1999		Building Projects 1941 New Construction; 1999 Addition, Renovation; 2007 Renovation; 2021 Renovation							
<div>1 Life Safety, Code</div> <div>2 Occupant Health</div> <div>3 Building System</div> <div>4 Obsolescence</div>												1987 Repaired, replaced, or remodeled since Original Construction				-1 Number of years to replacement date		2021 Compared to normal predicted wear.	
																		Better System in Normal	
																		Wearing System in Used Up	
	Key Sort	Location & Category								Product Data/Life Expectancy						Evaluated Condition			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
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## Anticipated Annual Capital Repair & Major Maintenance (CR & M) Costs, 2020-2039

	1 Life Safety	2 Building Enclosure	3 Building Systems	4 Physical / Functional Obsolescence	Sum 1-4	Average per year within 5 year period
2022	\$172,075	\$32,452	\$139,157	\$423,161	\$766,846	\$205,672
2023	\$0	\$0	\$102,112	\$0	\$102,112	
2024	\$0	\$30,734	\$0	\$0	\$30,734	
2025	\$0	\$0	\$0	\$3,719	\$3,719	
2026	\$21,736	\$0	\$13,911	\$89,301	\$124,949	
<b>5 Year Group</b>	<b>\$193,812</b>	<b>\$63,187</b>	<b>\$255,179</b>	<b>\$516,182</b>	<b>\$1,028,360</b>	
2027	\$0	\$0	\$49,255	\$26,152	\$75,407	\$104,100
2028	\$0	\$0	\$0	\$0	\$0	
2029	\$0	\$490	\$4,355	\$26,919	\$31,763	
2030	\$0	\$0	\$22,426	\$0	\$22,426	
2031	\$147,831	\$9,774	\$187,308	\$45,992	\$390,905	
<b>5 Year Group</b>	<b>\$147,831</b>	<b>\$10,264</b>	<b>\$263,343</b>	<b>\$99,063</b>	<b>\$520,501</b>	
2032	\$0	\$0	\$0	\$0	\$0	\$51,755
2033	\$39,208	\$0	\$219,567	\$0	\$258,776	
2034	\$0	\$0	\$0	\$0	\$0	
2035	\$0	\$0	\$0	\$0	\$0	
2036	\$0	\$0	\$0	\$0	\$0	
<b>5 Year Group</b>	<b>\$39,208</b>	<b>\$0</b>	<b>\$219,567</b>	<b>\$0</b>	<b>\$258,776</b>	
2037	\$0	\$0	\$0	\$0	\$0	\$39,760
2038	\$0	\$0	\$0	\$0	\$0	
2039	\$0	\$3,043	\$0	\$0	\$3,043	
2040	\$14,466	\$0	\$0	\$22,686	\$37,152	
2041	\$0	\$43,022	\$109,270	\$6,312	\$158,604	
<b>5 Year Group</b>	<b>\$14,466</b>	<b>\$46,065</b>	<b>\$109,270</b>	<b>\$28,998</b>	<b>\$198,799</b>	
<b>TOTAL</b>	<b>\$395,317</b>	<b>\$119,516</b>	<b>\$847,360</b>	<b>\$644,243</b>	<b>\$2,006,436</b>	

### Notes:

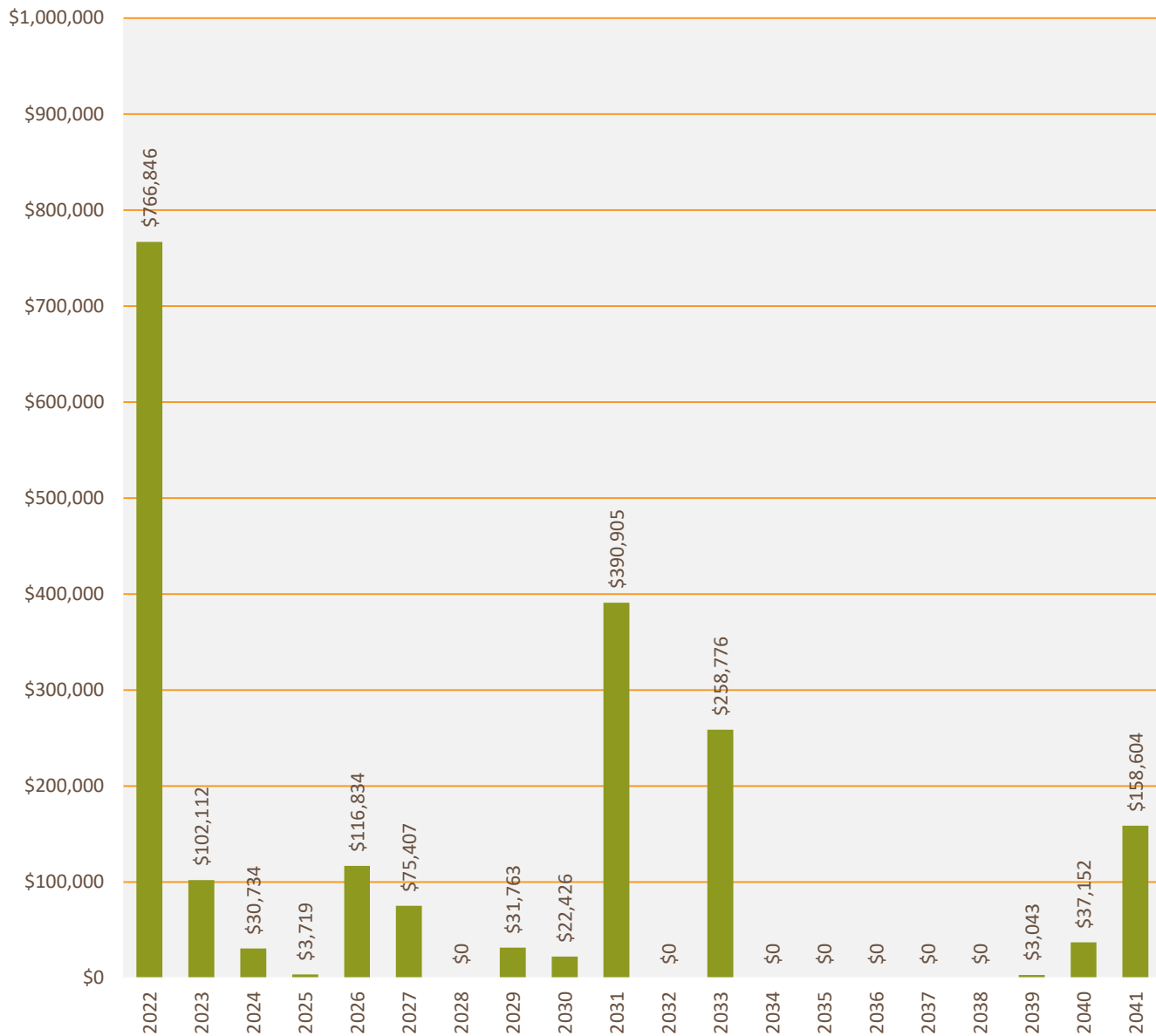
*Costs are for repairs and replacements only. Many repairs will precipitate ancillary work (removal of ceilings, walls, floor or other intervening construction) that will add to the scheduled cost of the work.*

*Short lifespan repairs (interior painting with a 3-5 year lifespan as an example) are included in the workbook only at the initial occurrence. Actual expenses will recur within the 20 year window.*





## 20-Year Anticipated CR & M Costs by Year



Major expenses occur in predictable patterns. Near term expenses (2022) are reflective of the age of the building and the need to continue the Library's efforts to keep the various portions of the building in good working order. Mid-term expenses (2031, 2033) and longer term expenses (2041) reflect the aging of systems installed or repaired in recent renovations, many of which will have 10-, 20- and 25-year lifespans.

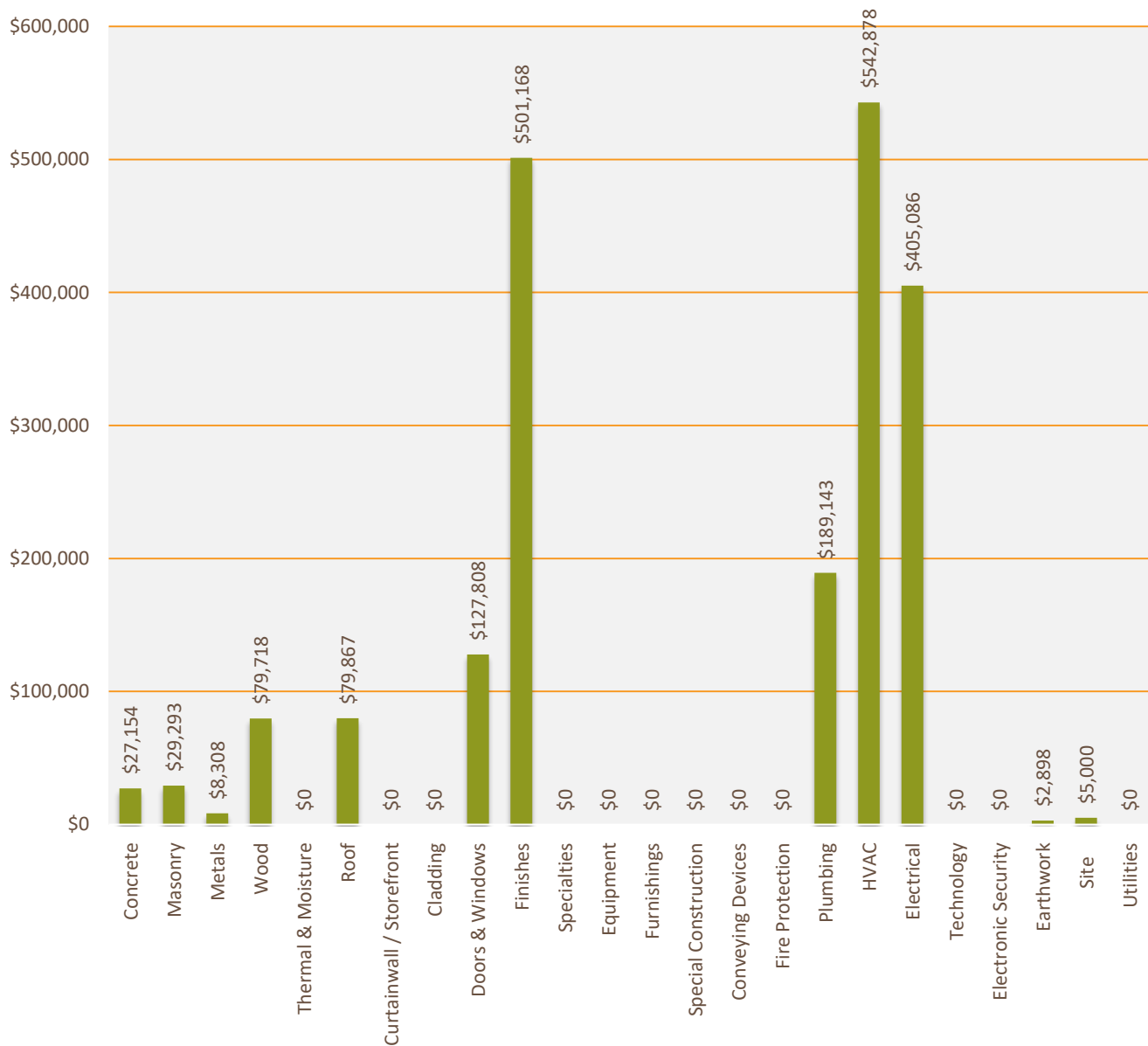
**Notes:**

Costs are for repairs and replacements only. Many repairs will precipitate ancillary work (removal of ceilings, walls, floor or other intervening construction) that will add to the scheduled cost of the work.

Short lifespan repairs (interior painting with a 3-5 year lifespan as an example) are included in the workbook only at the initial occurrence.

Actual expenses will recur within the 20 year window.

## 20-Year Anticipated CR & M Costs by Category



Major expenses align with typical lifecycle milestones for the two parts of the building (original, additions, and major renovations). These cycles are driving the projected expenses in multiple categories.

### Notes:

Costs are for repairs and replacements only. Many repairs will precipitate ancillary work (removal of ceilings, walls, floor or other intervening construction) that will add to the scheduled cost of the work.

Short lifespan repairs (interior painting with a 3-5 year lifespan as an example) are included in the workbook only at the initial occurrence.

Actual expenses will recur within the 20 year window.

## 5-Year Anticipated Costs by Priority 2022-2026

Of the major costs identified for the planning period, 3 groups of expenses stand out.

### Priority 1

The critical life safety items relate to the replacement of various electrical components: aged wiring, devices, panels and switchboards. These are items untouched by previous renovations, items configured in ways that do not meet current codes, and suffer from general degradation of electrical components over time.

### Priority 2

The exterior windows, exterior sealants, and front entry need work. Roof maintenance is needed to reduce ice dams and protect existing roofs from rapid aging.

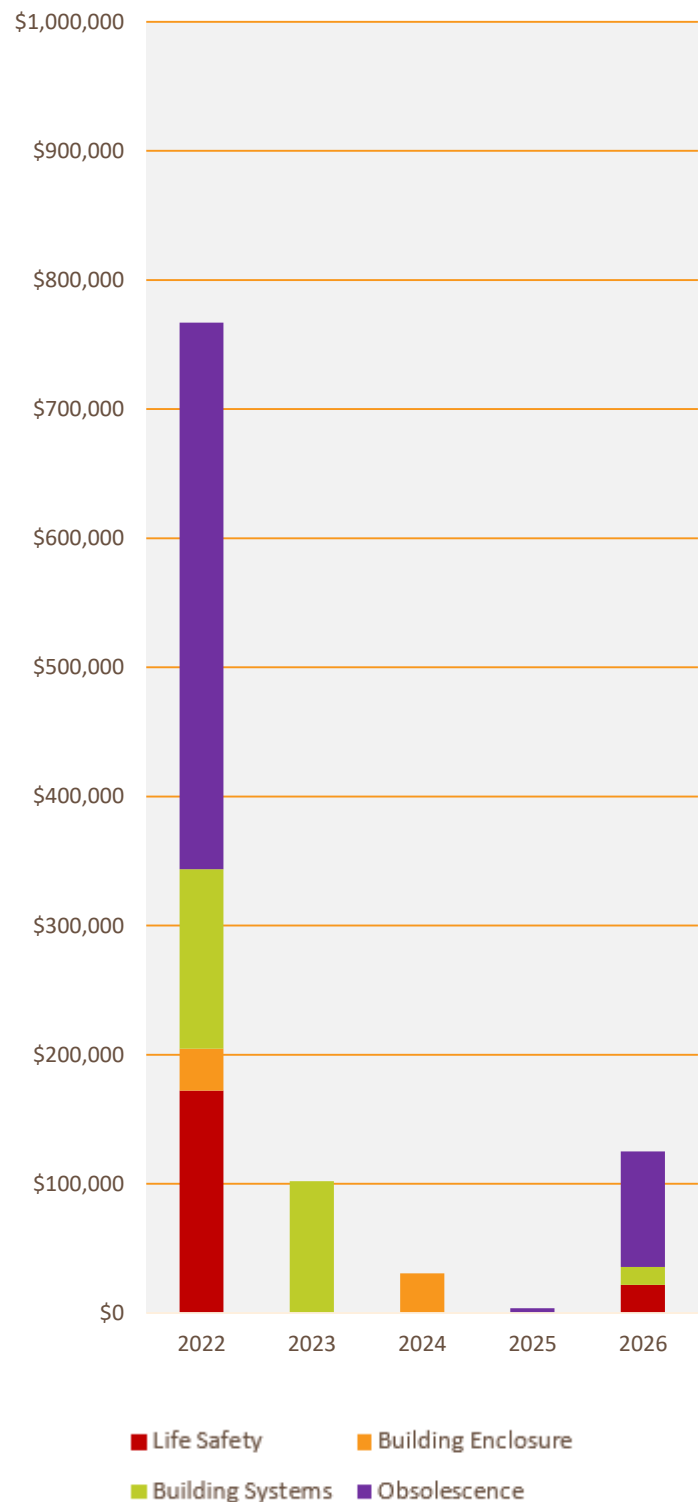
### Priority 3

The largest anticipated repair is related to RTU-1.

### Priority 4

While not significant in that they pose no threat to occupant safety, the building's finishes are outdated and appear worn. In aggregate they can comprise a significant investment. These need to be coordinated with a larger vision of the Library's strategic service goals.

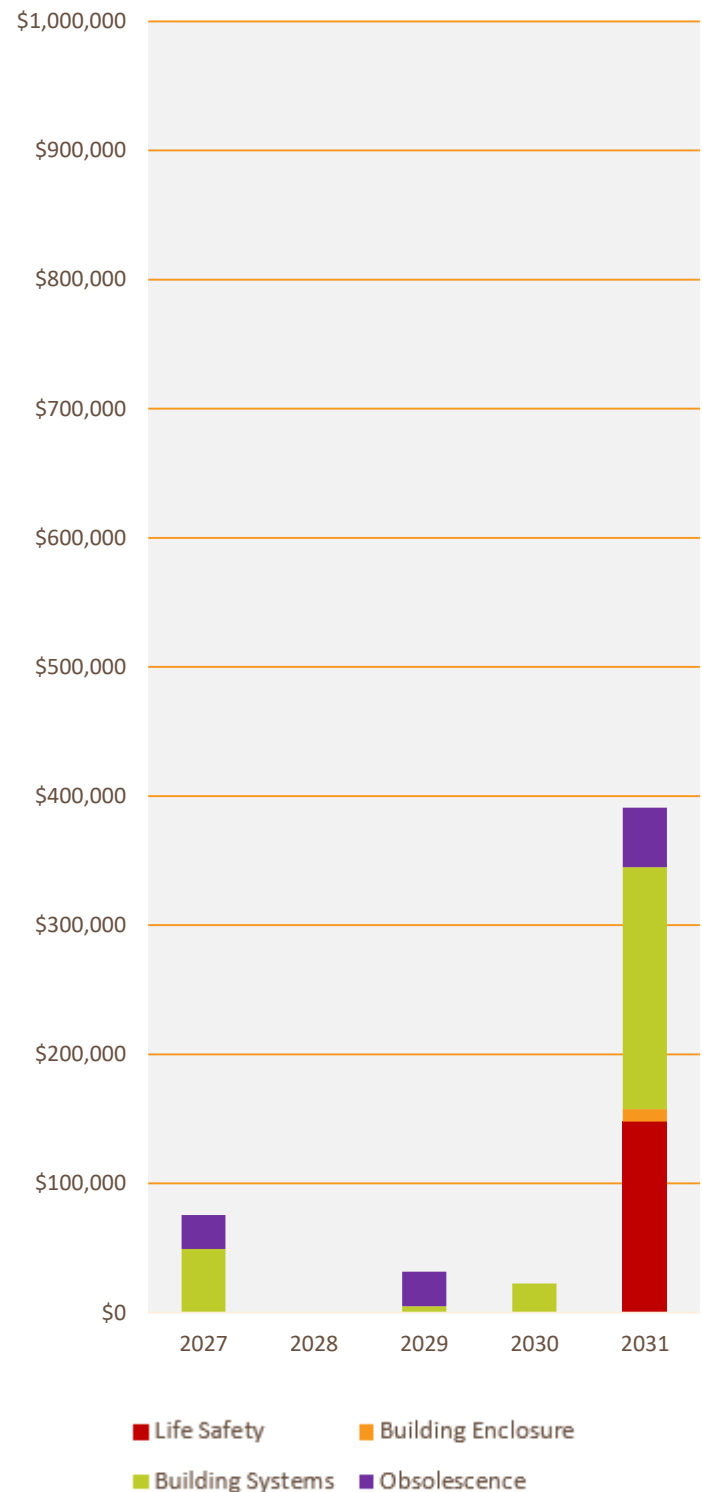
5-Year Anticipated Costs by Priority  
2022-2026



## 5-Year Anticipated Costs by Priority 2026-2031

In the 2026-2031 timeframe the major expenses are envisioned to be roof repair, and most notably, domestic water system replacement.

5-Year Anticipated Costs by Priority  
2027-2031



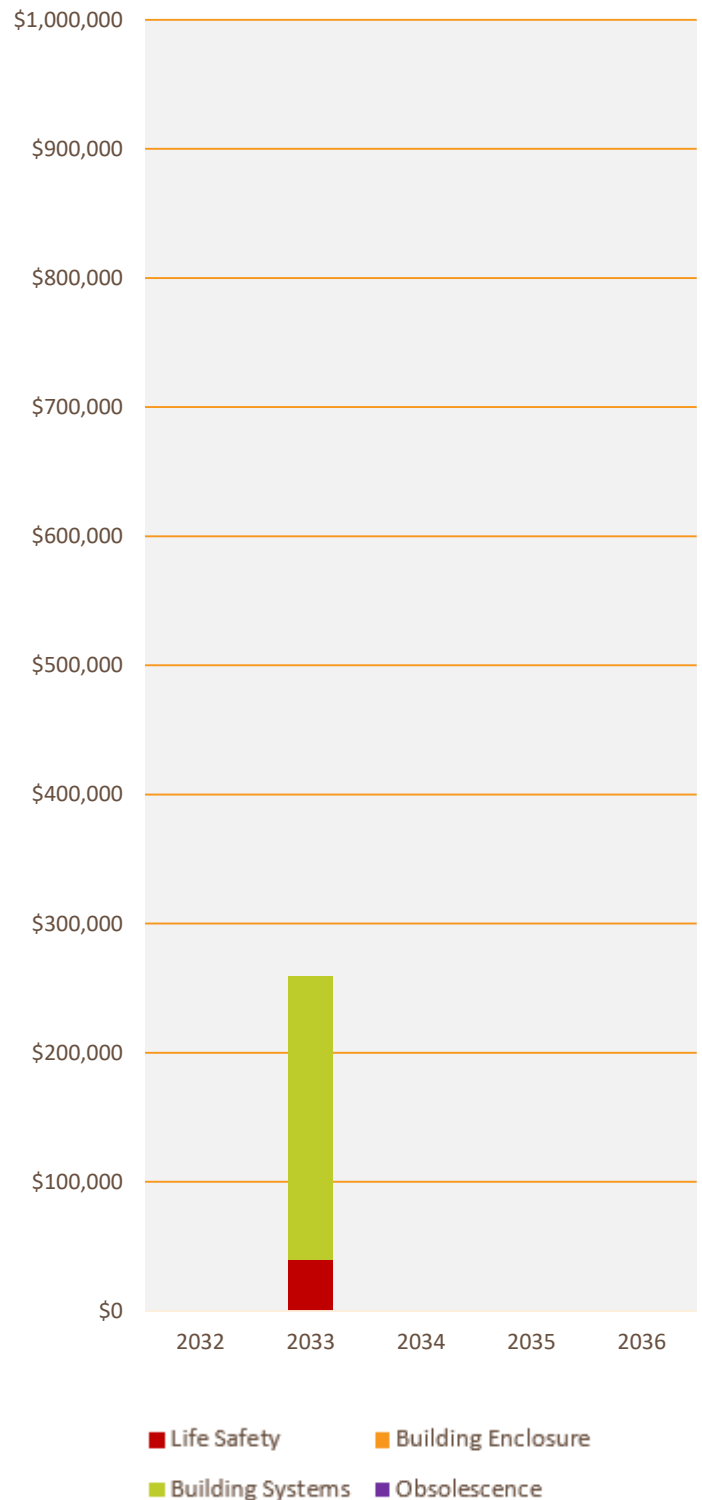
### Notes:

Costs are for repairs and replacements only. Many repairs will precipitate ancillary work (removal of ceilings, walls, floor or other intervening construction) that will add to the scheduled cost of the work. Short lifespan repairs (interior painting with a 3-5 year lifespan as an example) are included in the workbook only at the initial occurrence. Actual expenses will recur within the 20 year window

## 5-Year Anticipated Costs by Priority 2032-2036

Electrical and mechanical systems are the major expense in the 2032-2036 timeframe. Power and heating systems will need updating.

5-Year Anticipated Costs by Priority  
2032-2036



### Notes:

Costs are for repairs and replacements only. Many repairs will precipitate ancillary work (removal of ceilings, walls, floor or other intervening construction) that will add to the scheduled cost of the work. Short lifespan repairs (interior painting with a 3-5 year lifespan as an example) are included in the workbook only at the initial occurrence. Actual expenses will recur within the 20 year window



## 5-Year Anticipated Costs by Priority 2037 -2041

At the end of the twenty year period encompassed by this study, the renovations completed in 2009 and 2016 will be aging out. Investments in interior finishes, mechanical systems and utilities should be considered.

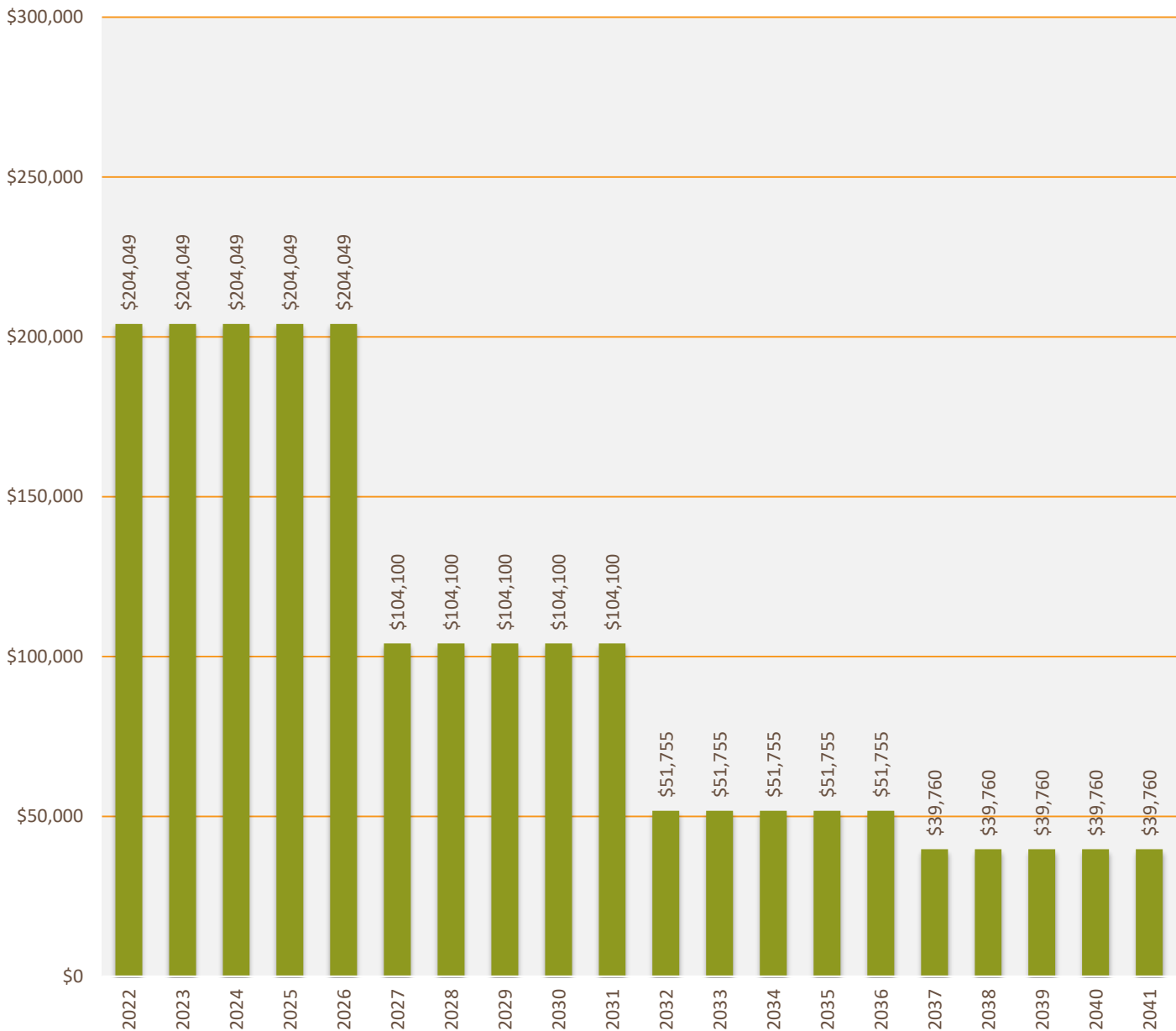
5-Year Anticipated Costs by Priority  
2037 -2041



### Notes:

Costs are for repairs and replacements only. Many repairs will precipitate ancillary work (removal of ceilings, walls, floor or other intervening construction) that will add to the scheduled cost of the work. Short lifespan repairs (interior painting with a 3-5 year lifespan as an example) are included in the workbook only at the initial occurrence. Actual expenses will recur within the 20 year window

## CR & M Costs Averaged Over 5 Year Periods



*Spikes in the repair / replacement costs can be mitigated by budgeting and expenditure strategies that look at 5 year planning periods. While there is merit in grouping as many repairs as practical into a single larger project (lower cost, less interference with public use of the building) there is value in separating the budgeting process from these larger expenditures. Setting aside smaller more manageable reserves over a series of years can be arranged to fund a major repair project. This graph illustrates the Capital Repair & Maintenance expenses averaged over a series of 5-year planning periods.*



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# Site Conditions

Eriksson Engineering Associates, Ltd. (EEA) was retained by Engberg Anderson Architects (EA) on behalf of Glencoe Public Library (GPL) to assess parking lots, driveways, sidewalks, and associated drainage issues as part of a Capital Reserve Study (CRS) at their facility located at the intersection of Park Avenue and Glencoe Avenue in Glencoe, IL.

## Objective

The objective of the assessment was to observe the existing conditions of the site, locate areas in need of repair, evaluate what type of repairs may be appropriate, prioritize repairs by area and type, and provide a ballpark opinion of probable cost on the repair for budget and future planning purposes. The main focus was to identify issues that, in our opinion, constituted safety concerns or might be contributing to building degradation.

## Parcel Information

The parcel of land the library sits on includes the Public Library and the Village Hall building. The property identification number is 05-07-206-007-0000. No survey or title reports were provided for the site. This site study focuses on the northern half of the site, using the crushed rock pathway immediately south of the library as the southern boundary of the study.

## Easements, Encroachments, Perimeter Roads:

There are no provided easements or encroachments that were provided for the site. This information would appear on an ALTA survey.

The library site is adjacent to three perimeter roads. Green Bay Road is located to the East, Park Avenue is located to the North, and Village Court is located to the West. Green Bay Road is a bi-directional roadway with

a left turn lane controlled by a stoplight. The space between Green Bay Road and the library is heavily treed, which supplies a decent buffer between the library and the roadway and Union Pacific Railroad lines immediately east of the roadway. Park Avenue is a bi-directional roadway with angled parking stalls adjacent to the library. Park Avenue provides the main pedestrian access paths to the library's front door. Village Court is bi-directional roadway with no parking. There is a book drop off, accessed by a walkway from the Village Court sidewalk and an access to a small 5 stall parking lot in the back of the library.

The south boundary of the site study is the crushed rock path that meanders along the southern edge of the library. South the path is a small open green field and then the Village Hall and associated paths.

## Topography and Drainage Characteristics:

No topographic survey was provided so the information herein is based on the engineer's visual observations. The building sits a few feet above all three roadways. In general, the ground slopes away from the buildings on these three sides.

The southern end of the site does have areas that appear higher than the building, pushing stormwater drainage toward the building.

On the north side of the building the site has 7 steps to take pedestrians from the public walkway to the building entrance.

There are ramps located on the east and west side of the building to allow for access without steps. The ramp to the east is a longer ramp. Based on visual inspection, it appears the cross slope is greater than 2%, the maximum cross slope allowed by ADA requirements.



## Site Conditions

- The ramp on the west is a shorter ramp with handrails. The presence of handrails allows the slope to be steeper; however, the landing areas at the bottom of the ramp appears to be greater than 2%.

EEA recommends a topographic survey be completed for the site to confirm the slopes of these ramps. If the slopes do not meet ADA requirements, they should be replaced.

On the east side of the north façade, the ramp up appears to have blocked water from properly draining. It appears the area has been regraded and segmented blocks have been used to form a window well. The ground now appears to slope away from the building. Overtime, the segmented retaining wall will eventually lean in. While these appear to be in good condition, they should be inspected often to ensure they do not start to lean over the window well.

The east side of the building has segmented block window wells, as well as HVAC equipment on concrete pads. There is a small depression located east of the building, near the south end of the east façade, that likely traps water. A sump pump was recently installed within the building. A small outdoor seating area east of the building appears to drain toward the roadway but is fairly flat.

The land south of the building is crowned at the middle of the building. Water drains east and west from the ridgeline. The area on the east side of the ridge does pitch slightly toward the building before draining to the east low spot. The area west of the ridgeline drains toward the roadway.

### Land Cover, Trees, Existing Structures

The site has grass in most open space areas. There are mulch areas located against the building. Most of the

paved areas at the north side of the site are paved with brick pavers. There are a variety of other paver and crushed gravel paths around the site. This includes a memorial bench area with an exposed aggregate concrete patio and a variety of different style pavers.

The site has many mature trees and bushes on the site. The trees are located primarily south and east of the building. There are additional trees located on the north side of the building.

### Parking Lot

There is an asphalt parking lot in the southwest corner of the site. The asphalt surfacing is worn but the subbase appears to be in good condition. There is a rust stain located at the southwestern corner of the parking area. The asphalt may only need to be resurfaced. The concrete curb and sidewalk around the parking lot is aged and broken. While they seem to be maintained well, these paved areas are aged and will need to be replaced in the coming years.

### Retaining Walls

There are two walls on the site appear to be in good condition. The retaining wall at the north end of the site has weep holes were free of debris, the handrails were secure with no visible rust and the brick grout appeared uniform. The brick wall at the northwest corner of the site is vertical with no indications of leaning. The bike rack mounted to the walls appears to be old but had been recently painted.

### Stair Wells

The northern stair well steps have signs of wear. The location of the concrete aging is likely due to an odd pipe protruding from an overhead downspout. Stormwater appears to fall from this pipe on to the



## Site Conditions

stairs, causing the stairs to wear faster. The bottom of this staircase has a new trench drain and concrete work. There is a second odd pipe protruding from an overhead downspout in this location. The railing on the top of the wall is completely rusted at the base. It appears that the railing had been previously replaced and the new railing posts were set below the existing concrete top of wall, creating an opportunity for water to sit around the metal post. This should be fixed.

The southern stair well has blemishes along the side walls that show the age of the walls. There is a large weep hole at the bottom of one of the walls. Cracks in the concrete floor indicate that the area may not drain well. It appears that a permanent sloped roof was placed over this stair well after the stair well was built. The columns of the overhead roof are not centered on the wall with portions of the columns extending beyond the edge of the wall. The downspout attached to the north side of the stairwell entrance is not attached well.

### **Wetlands/Bodies of Water:**

There are no wetlands on the site based on the National Wetlands Inventory Map.

### **Floodplain:**

A review of the Federal Emergency Management Agency map shows that there is no floodplain on the site.

### **Stormwater Management:**

The site is in Cook County and follows the Metropolitan Water Reclamation District's (MWRD's) Watershed Management Ordinance. Since the parcel contains both the Village Hall and the Library, the site will be viewed as one area. Any exterior improvements over 0.10 acres will require stormwater volume control. Volume

control is often addressed by adding permeable pavement, rain gardens or bio-swales. Any exterior improvements over 0.50 acres will also require stormwater detention, if the entire parcel is greater than 3 acres in size. If the parcel is less than 3 acres in size, only volume control will be required. If the proposed improvements only remove and replace existing features, the area is considered maintenance and stormwater improvements are not required.

### **Recommendations**

Based on this initial site engineering study for the subject property, items of note or concern and/or issues of warranting further study are:

- A topographic survey would confirm if the paths are ADA compliant.
- The existing handrails along the back of the house are rusting out at the base. Placing a sealant in the holes should improve the longevity of the railings.
- The site has a few drainage issues that rely on building sump pumps. Minor grading changes should improve the drainage.
- The concrete walk and asphalt are aged and cracked. Replacing them will likely be needed in the next 5 years.



# Roof Assemblies

## Asphalt Shingle Roofs

The shingles have a minimum of 8 years of service life left. Best case, as scheduled, they have 10-15 years or remaining life. They should be reevaluated in 8-10 years to determine if the exposure of the north facing roof surfaces have deteriorated quicker which could necessitate replacement in the 8 to 10 year timeframe rather than the 15 to 20 year timeframe.

### Roof 2-1, 2-2, and 2-3

Shingle roofs are in good condition. The south facing sides are in better condition than the north. Some staining is on the north side of roofs 2-2 and 2-3. This solar orientation does not get the same amount of direct sun and the stains appear to be related to the amount of time moisture is present on the roof. The sun is able to heat up and dry out the shingles facing south faster. The shingles on the north will have moisture present longer. This can lead to the bleeding of the bituminous material used as the underlayment.

### Roof 1-1 and 1-2

Similarly these shingle roofs are in good condition. As with the higher roofs, the south facing sides are in better condition than the north. Some staining is on roof 1-1.

### Roof 1-7

This is a shingle roof in low slope configuration. We are unable to determine the exact slope of Roof 1-7. Shingle roofs should not be used on roof slopes less than 2:12. (If possible they should be avoided under 4:12). Roof 1-7 is over an exterior basement stair and not over conditioned space. This roof should be monitored annually to evaluate the performance and condition of the shingles. Shingles below a 4:12 roof

pitch can have water back-up during winter conditions. Gutters at this location should be cleared regularly to keep drainage pathways clear. When the shingles have worn-out, the west facing portion of this roof should be replaced with a membrane roof recommended for low slopes or a copper roof.

## Membrane Roofs (Roofs 1-3 and 1-5)

The EPDM Membrane Roof in good condition. Cast Stone Sealant Joints need to be replaced. The cast stone be cleaned every 5-10 years based on dirt build-up. Sealant joints should be replaced every 5-8 years.

## Metal Roofs (Roof 1-4 and 1-6)

The copper roofs are in good condition.

## Metal Gutters

The copper gutters and downspouts need attention. Staff reports frequent formation of icicles and clogging of gutters. The location of most gutters with respect to the roof edge allows run-off from heavy rain events to overshoot the outer edge of the gutters. As part of any roof replacement or as part of an effort to manage ice build up at the roof eave and on paving near entries, the following modifications are recommended:

- Reposition the gutter to collect water from the roof. This will require new brackets and repositioning of the gutters to drain toward downspouts.
- Increase the size of the gutters.
- Add heat-tape to gutters and downspouts.
- Divert downspouts to storm sewer, foundation drainage, or landscape areas rather than to paved areas.



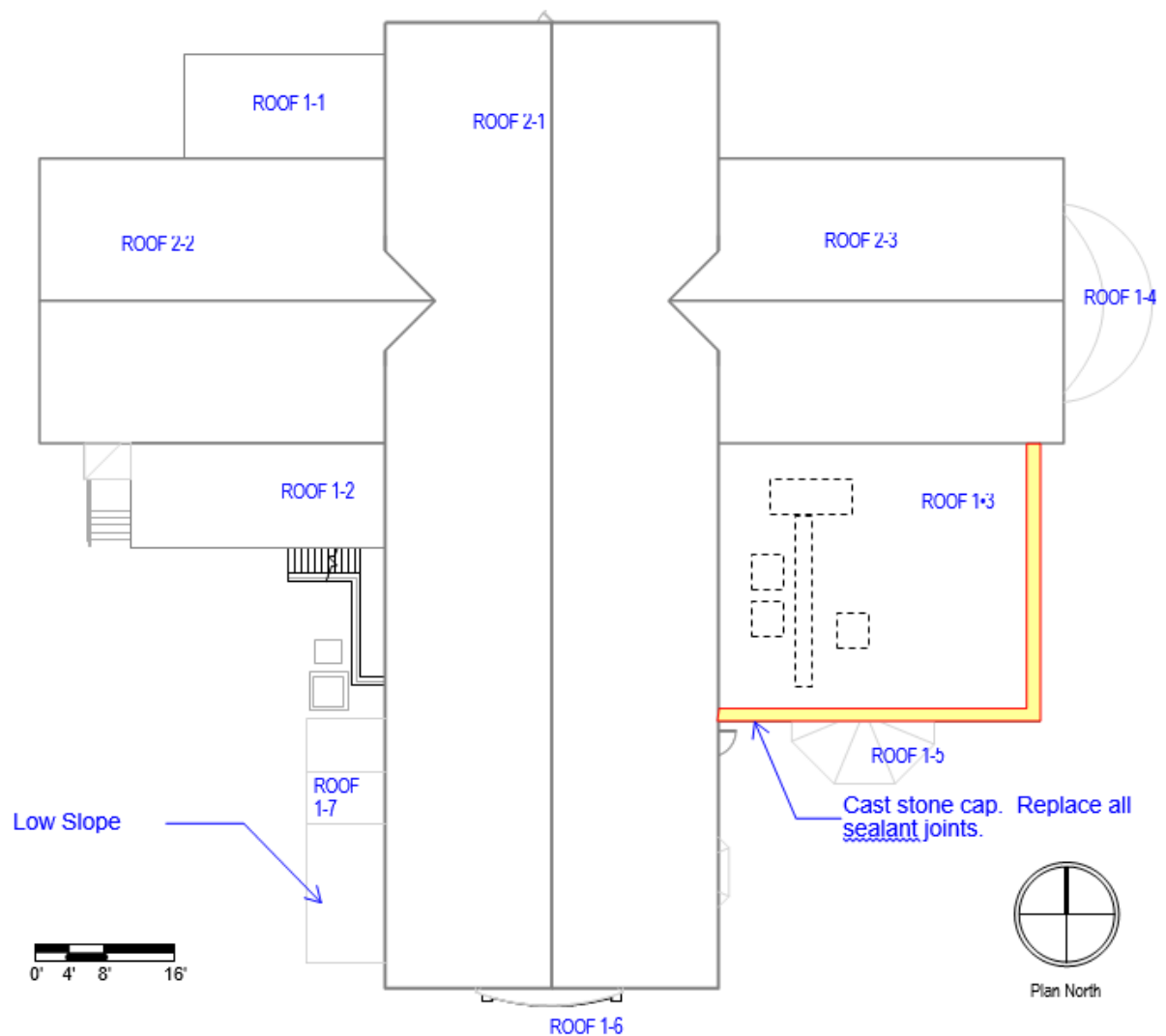
# Roof Assemblies

## Wood Trim

All the wood coping should be repaired and repainted. In some areas I think it should be fully replaced. A better option would be to remove all the wood trim and replace it with aluminum or cement board trim. These alternative trim materials could be fabricated to match the wood trim and would last longer and require less maintenance.

## Chimney Flashing

Chimney Flashings are in good condition. The generous amount of Sealant should be evaluated annually and replaced / repaired as needed.





# Exterior Wall Assemblies

## Masonry

### Stone

Cleaning is required to remove particulates that can, over time, in combination with rainwater, create acids that will eat at the underlying materials, etching the surface and accelerating the rate of deterioration and discoloration.

Skyward facing joints in the stone coping should be changed from mortar to a soft joint. Refer to the Roof Assembly section for notes on stone coping.

### Brick

Control joints in the masonry veneer have performed well but have reached the age where they are in need of replacement.

Brick “sill” at exterior book return on the west façade should be replaced with a stone sill. Consideration should be given to an alternate exterior return location: this location and configuration is not readily apparent to many residents, is an awkward opening in a vulnerable wall assembly, and introduces headroom and clearance issues in the lower-level stack area at the west end of the west wing.

Masonry condition and longevity are improved by adequate ventilation. Areas to the north and with heavy vegetative cover do not dry as well as area with direct sun or air movement. Consideration should be given adjusting landscape features to balance aesthetics with masonry performance.

### Mortar

Tuck-pointing is needed at about 2% of the brick surface area. Recent “emergency” pointing of the mortar and replacement of mortar with sealants should

be redone. Consideration should be given to the joint profile. The original is square raked and provides a clean distinct shadow line. The recent repairs have utilized a flush joint. The flush joint in combination with the irregular edges of the brick provides an interesting look but it is different from the rest of the building. The raked joint, while original to the building, does not drain water from the joint and will be a recurring maintenance issue.

## Wood, Painted

Wood fascial and trim boards are in need of repair and paint. Exterior paint provides a protective coating for the underlying material and should be routinely inspected for damage and wear.

Consideration should be given to a composite or cementitious product that is more resistant to water- and sunlight- driven decay. The longevity of the substrate material (wood, composite or cementitious) varies as does the longevity of the paint coatings. Each of the substrates has a different range of thermal and moisture driven expansion/contraction. Proper detailing is needed to maintain watertight joints.

### Sealants

Perimeter sealants are missing or cracking and should be replaced. The expansion and contraction of wood often leads to open joints between pieces of wood and between wood and dissimilar materials. Careful installation and maintenance of sealants a part of a painting project and follow-up routine maintenance is important.



# Exterior Wall Assemblies

## Windows & Doors

### Windows

Staff noted that all of the windows leak air. Many of the windows are single pane construction, and none are thermally broken. The windows are also in continuous need of repair of the wood frames, mullions and muntin, and glazing putty sections. Options include:

- continuing the current policy of repair as needed;
- replace the current units with higher performing wood windows that have insulating glass; or
- replacement with double-glazed, thermally broken units that have historically accurate sight lines.

### Doors

All of the doors are showing significant wear. Replacement is warranted. Consideration should be given to weight, material, operating hardware, and protective hardware. All can be obtained in profiles and patterns that are in keeping with the building's aesthetic.

Special consideration should be given to the main entry doors. The arrangement, weight, power assisted operation, and spacing should all be investigated thoroughly before a "replace in place" strategy is implemented. Heavier duty operators, lighter doors, and a deeper vestibule would be of benefit. Replacing the solid doors with 15-lite glass doors would improve safety and comfort at the entry.

### Sealants

Perimeter sealants are cracking and should be replaced.

## Sealants

In addition to the perimeter sealants mentioned in the section on windows and doors, the masonry control joints, joints between dissimilar materials, and paving joints, are in need of replacement.





# Security

As part of the scope of this review, the Library asked for an assessment of security. Security is a combination of policies, enforcement, and systems. These all need to be developed in concert with local emergency services and in light of community expectations with respect to privacy as well as safety. Differentiation needs to be made between the security of collections, personal items and persons. By nature, this overview can only focus on the physical form of the structure and is independent of the coordinated review described above.

## Staffing

In general, multiple staff members per floor or area are preferred over individual staff in any public area. This provides back up to and safety for staff as well as the public. Having public area staff backed up from back-of-house work rooms is frequent approach to providing multiple staff members on a floor. The effectiveness of this approach depends on a level of transparency between the work rooms and the public areas of the building, in particular the public service points. The arrangement at Glencoe is generally in keeping with contemporary planning principles.

## Layout & Visibility

In addition to visibility from staff work rooms, it is important that interior walls be kept to a minimum and that public rooms be as transparent as possible to allow effective monitoring of behavior. Stack arrangements should consider staff oversight as much as practical given the wide range of considerations at play (capacity, ease of use, accessibility, flexibility) in arranging shelving. For the most part, the arrangement at Glencoe incorporates these planning concepts. The primary challenges are the stack rooms at the lower and main levels of the west wing.

## Exiting

In addition to exits from the building, exiting includes consideration of ways to leave public service points, work rooms, aisles and other spaces within the building. The goal is to avoid having people trapped in any space. While not a building code requirement for many smaller rooms or public service desks, consideration should be given to increasing the means by which staff can exit their work spaces, lock themselves in secure areas, and quickly notify other staff and emergency services via alarms or “panic buttons.”

In the public areas, the book return and ductwork at the west end of the lower level stack room are troubling. The aisle width, limited head room, and projection of the drop device into the end aisle make this an area that can prevent or delay egress for some patrons. Ideally the book drop and duct work and aisle width would be modified. If this configuration cannot be modified in the near future, consideration should be given to increased video surveillance of the area.

**Exiting from the east wing of the lower level is confusing for those with mobility issues. Signage directs patrons to stairs. The ramp is an unsigned path. The elevator is appropriately signed as not available as an exit path. No signed or equipped area of refuge or rescue assistance could be found.**

**At the upper level, the exit stairs are similarly lacking in signage, area, and equipment to support an area of refuge or rescue assistance.**





# Security

## Building Systems

### Video Security System

The Library currently maintains a limited video surveillance system. Cameras were noted at the entry area of the Main Level, the “stage” area of the Lower Level, and at the public service point and far east end of the Upper Level. These correspond to typical locations (entrance, public service points, and hidden areas serving vulnerable patron groups).

Additional cameras could be of use in the remote areas of stack rooms. In addition to location, resolution, color, and recording capabilities should be considered in evaluation of the system.

### Public Address System

Ideally the building would have a PA system with speakers in all separate rooms, including restrooms. The primary functions of the PA system will be for closing announcements, storm alerts, and lost child announcements. It will be possible for staff to turn off the speakers in the meeting rooms when making announcements.

### Panic Alarms

Ideally, each individual staff workstation in the public area will have a panic alarm button linked to local emergency services. Panic buttons should be recessed in alarm housings to limit accidental alarms. Having one button per workstation rather than one button per desk is important, since this arrangement enables staff members to push buttons unobtrusively.

### Carbon Monoxide (CO) Detectors

In addition to the code required detection for rooms and equipment, the library should have CO detectors near the fire places.



# Building Systems

IMEG was retained by Engberg Anderson Architects on behalf of the Glencoe Public Library to assess mechanical and electrical systems

## HVAC System

The majority of the HVAC systems were replaced in 2018. The equipment installed in 2018 mainly consists of gas fired or electric furnace style units with direct expansion cooling condensing units located either on grade or on the roof. This equipment operates quite well and has approximately 12 years remaining in expected life.

A single zone gas fired / direct expansion rooftop unit was installed in 2002 and is beyond its useful life and should be considered for replacement in the near future. The new RTU will have improved efficiency in the burner and refrigeration circuit and could be specified with a refrigerant with low global warming potential.

A multi-zone air handling unit located in the basement was installed in 2000 and has started to give the Library some issues with maintenance. This unit should be considered for replacement soon and could be replaced with a similar unit but provide terminal air boxes with reheat coils for each zone to allow for modulation of fan speed for improved energy efficiency and temperature/humidity control.

The Director's Office is served by a split system direct expansion fan coil unit installed in 2016.

There is a 1.5 ton direct expansion Liebert unit that serves the IT room in B26. This unit has never operated well and should be reviewed by a certified technician.

The second floor toilet room does not have any heating or cooling. If only heating is desired, a cost effective

solution could be a small electric cabinet heater. If both heating and cooling are desired a good option would be to review how to extend ductwork to serve the small toilet room.

## Plumbing System

The plumbing system is in reasonably good condition throughout the building and does not cause many issues to the maintenance staff.

The domestic water heater is new and operates well.

Many of the toilet room fixtures have been replaced and operate well.

A good portion of the domestic water piping system is galvanized piping and is quite old. This piping could be replaced with copper piping and a hot water circulation loop could be added as well.

The Library has added several sump pumps recently but not all are connected to battery backup or generator (there is no generator serving the building). This could be considered for a future project as an additional safeguard during a power outage.

## Fire Protection Systems

There is no automatic fire suppression system.

## Fire Alarm System

The fire alarm system control panel is approximately ten years old, but Library staff noted that it is in need of replacement. Many detectors are old. Devices are not located per current NFPA and/or ADA codes. A complete system replacement is recommended within the next ten years.



# Building Systems

## Lighting System

Interior and exterior lighting has recently been replaced with LED.

## Power Distribution System

The main switchboard and two panels in the Basement are from 1971 and in need of replacement.

There are five other panels that are in good condition.

Wiring has been added throughout the years and some original wiring from 1941 is believed to still be present. Old cloth insulated wiring was observed in an accessible junction box being the circulation desk on the First Floor. It is likely similar wiring exists throughout the older areas of the building. This wiring should be replaced.

Convenience power outlets are lacking in public seating areas.