Shaker Heights Public Library

FACILITIES ASSESSMENT

BERTRAM WOODS BRANCH LIBRARY
SHAKER MAIN LIBRARY

MAINTENANCE MASTER PLAN

MAINTENANCE ITEMS AND BUDGETS

PREVENTATIVE MAINTENANCE RECOMMENDATIONS

MAINTENACE ITEMS AND BUDGETS PER ANNUM
AND SUMMARY TIMELINE

Prepared by

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Richfield, Ohio 44286

April 21, 2014

HBM ARCHITECTS

TBA

HBM ARCHITECTS

04.21.14

Mr. Luren Dickinson
Director
Shaker Heights Public Library
16500 Van Aken Boulevard
Shaker Heights, Ohio 44120

Re: Facilities Assessment and Maintenance Master Plan

Dear Luren:

Please find attached our Facilities Assessments for both the Bertram Woods and Shaker Main Library facilities. Together with our consulting engineers Thorson Baker + Associates, we have visited each building and assembled the enclosed report identifying the existing conditions we encountered including site, building envelope, interiors, mechanical, electrical, technology, plumbing, and fire protection. An important qualification to our analysis is that hazardous materials were not surveyed or investigated by our team in the course of this assessment.

We have also prepared a Maintenance Master Plan that includes an itemized summary of problems and maintenance concerns, priorities for addressing these issues along with associated budget estimates, summaries and a preventative maintenance schedule with recommendations for routine services.

Both facilities are in need of some upgrading but are fundamentally sound. The mechanical systems in the Main Library are the one area that will need significant attention in the near future, as the main units are about to reach the end of their useful life and have not performed optimally for some time.

We believe that our analysis will provide you with a sound basis for moving forward with the planning process that you have identified as you consider the future of the Shaker Heights Public Library System.

Please contact us with any questions or clarifications that you may require on these reports or any other items.

Sincerely,

Kevin Kennedy
Project Manager
HBM Architects

KAK/kak

Enclosure

Cc: P. Bolek, HBM

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BERTRAM
WOODS BRANCH
LIBRARY

Holzheimer Bolek + Meehan | Architects, LLC
1382 West Ninth St., Suite 300 Cleveland, Ohio 44113 216.241.1100

FACILITIES ASSESSMENT AND REVIEW

Name of Library: Bertram Woods Branch Library

Address: 2600 Fayette Road
Shaker Heights, Ohio 44122

Name of Person(s) Performing Inspection: Kevin Kennedy (Architect), HBM Architects, LLC
Doug Giebel (Architect), HBM Architects, LLC
Guy Hicks (Mechanical Engineer), Thorson Baker + Associates
Chris Boyle (Electrical Engineer), Thorson Baker + Associates

Date of Review: March 18, 2014

This review is formatted to document existing conditions of the building and site; identifying areas of concern and repair based on visual observations. This is not a detailed analysis - testing or invasive inspection were not used.

SITE

General Statement of Site Conditions

This statement is intended to be an objective overview of the conditions of the site being assessed.

The site is in fair condition, but replacement of deteriorating curbs and sidewalks is recommended in the next few years. The parking lot is also showing its age and should be resurfaced in a similar timeframe as the walks. Landscaping is minimal, consisting of low shrubs and grasses and trees. It generally appears overgrown and is showing its age.

Site

	Complies	Does not comply	Not Applicable	Notes
1. SIDEWALKS				
A. Are areas accessible?	X			
B. Are surfaces even, with no holes, abrupt changes in elevation, and in good condition?	X			Sidewalk joints are beginning to spall at many locations
C. Do curb ramps occur at drives or parking areas?	X			
General Comments on walkways:	This is a very flat site with low curbs and low sloping access to the building.			

	Complies	Does Not Comply	Not Applicable	Notes
2. PARKING AREAS				
A. Are drive surfaces in good condition with no obstructions or potholes?		X		There are many surface cracks and asphalt damage with a few potholes.
B. Are lots properly lined and accessible spaces marked?	X			
C. Is pedestrian/vehicle traffic flow clear and intuitive?	X			
D. Are accessible signs provided?	X			
E. Do the parking areas drain properly?	X			Appears to drain properly.
General comments on parking areas:	Parking is in need of resurfacing or replacement.			
3. BUILDING APPROACHES & ENTRANCES				
A. Do all stairways & ramps have secure, full length handrails?			X	
B. Do stairs & Ramps provide good, non-slip footing?	X			
C. Are there any obstructions or obvious defects in stairs and ramps?	X			
D. Do canopies or coverings provide adequate coverage?	X			
General comments on building approaches & entrances:	As the site is low and flat, handicap ramps are not required for access into the building. Curb cuts are located where required from the parking lot.			
4. SITE LIGHTING & ELECTRIC				
A. Are parking lot lights provided?	X			
B. Are walkways & building approaches well lit? Are all areas of the lot properly illuminated?		X		Parking lot lighting is inefficient and could use replacement
C. Are exterior convenience outlets provided?		X		No visible outlets on the exterior were found.
General comments on site lighting/electric:	Number of fixtures appears to be adequate but the fixtures are aging and could use replacement with more efficient fixtures.			

	Complies	Does Not Comply	Not Applicable	Notes
5. GENERAL MAINTENANCE				
A. Are fences, gates & enclosures in good condition?	X			
General comments on general maintenance:	Overall fencing and gates are in fair to good condition. Refinishing and repair may be needed at some point in the future.			
6. LANDSCAPING				
A. Does vegetation obstruct walkways, stairs, entries, etc?	X			
B. Does landscaping cause security concerns?		X		The higher bushes near the main entry could allow someone to hide behind.
C. Does the site drain without concerns for ponding water or issues with run off?	X			
D. Does runoff occur at walking surfaces?	X			
E. Is landscaping maintained reasonably?		X		The landscaping appears to be overgrown.
General comments on landscaping:	The landscaping would benefit from maintenance and a significant reworking.			

BUILDING ENVELOPE

General Statement of Building Envelope Conditions

This statement is intended to be an objective overview of the conditions of the site being analyzed.

The building is in solid condition but is showing its age. Painted wood trim is peeling and needs to be repainted. The existing brick would benefit from cleaning. The windows are aging and need to be upgraded.

Physical Condition Guidelines: The physical condition of the various building components is described in this review fall into one of four categories: *Excellent*, *Good*, *Fair* or *Poor*. The following definitions for this terminology are intended to apply:

Excellent: New or in like new condition requiring only maintenance of a routine and/or preventative nature. Repairs are not anticipated.
Good: Acceptable as is and performing satisfactorily. Only requires maintenance of a routine and/or preventative nature. Has incurred normal wear and tear, but significant repairs are not anticipated.
Fair: Acceptable as is for the most part, but either requires or is anticipated to require repairs and/or increased maintenance effort/surveillance in the short-term.
Poor: Not acceptable as is. Generally, an item/system that exhibits evidence of deferred maintenance, is in disrepair and/or poor operating condition, and requires immediate repair or replacement.

Building Envelope

	Condition	Not Applicable	Notes
1. EXTERIOR WALLS			
A. Indicate the condition of existing brick, stone, siding, or other material.	G		
B. Indicate the condition of grout or mortar.	G		
C. If flashing is provided, indicate condition.	G		Copper flashing under sills is in good condition.
General comments on exterior finishes:	Overall in good condition for its age. The brick would benefit from a cleaning.		
2. WINDOWS			
A. Indicate condition of windows.	F/P		Units are not insulated.
B. Are windows insulated or otherwise designed to reduce heat gain / heat loss.	P		Units are not insulated.
C. Indicate condition of sealant at window frames.	P		Windows should be recaulked. Existing sealant is dry and brittle.
D. Indicate condition of other specialty windows.		X	

	Condition	Not Applicable	Notes
General comments on windows:	Overall windows are not in poor condition but new units would improve energy efficiency. They all need to be recaulked if retained.		
3. DOORS			
A. Indicate condition of exterior doors.	F/P		Same condition as windows.
B. Indicate condition of sealant at door frames.	P		
C. Indicate condition of other specialty doors.		X	
General comments on doors:	Same as windows.		
4. ROOFING (Flat)			
A. Does the roof appear to be in good condition with all required elements? (gutters, scuppers, overflow or secondary roof drains)		X	
B. Indicate the condition and type of roofing material.		X	
C. Condition & type of flashing, copings & expansion joints.		X	
General comments on roofing (flat):			
5. ROOFING (Sloped)			
A. Does the roof appear to be in good condition with all required elements? (snow guards, gutters, scuppers, overflow or secondary roof drains)	G/F		Roof consists of slate shingles with stainless steel flashing, gutters and downspouts.
B. Indicate the condition and type of roofing material.	G		Slate/Metal
C. Condition & type of flashing, copings & expansion joints	G		Visible flashing appears to be stainless steel.
General comments on roofing (sloped):	Overall roof is in good condition. It was replaced approximately 9 years ago according to the facilities manager. A few broken edge shingles were observed and could use replacement. Gutter guards have become dislodged and could use reinstallation.		
6. Skylights / Monitors			
A. Condition & Type of Glazing & Flashing	F/P		Fiberglass Kalwall type skylights.
General Comments on Skylights / Monitors	Skylights look good on the interior but are worn and aged on the exterior.		

BUILDING INTERIOR

General Statement of Building Interior Conditions

This statement is intended to be an objective overview of the conditions of the site being analyzed.

Though the building interior spaces are in fair to good condition, they are showing their age and would benefit from full repainting as well as a general reworking of the interior layouts for less crowding in staff work areas as well as the public spaces.

Physical Condition Guidelines: The physical condition of the various building components is described in this review fall into one of four categories: *Excellent*, *Good*, *Fair* or *Poor*. The following definitions for this terminology are intended to apply:

Excellent: New or in like new condition requiring only maintenance of a routine and/or preventative nature. Repairs are not anticipated.
Good: Acceptable as is and performing satisfactorily. Only requires maintenance of a routine and/or preventative nature. Has incurred normal wear and tear, but significant repairs are not anticipated.
Fair: Acceptable as is for the most part, but either requires or is anticipated to require repairs and/or increased maintenance effort/surveillance in the short-term.
Poor: Not acceptable as is. Generally, an item/system that exhibits evidence of deferred maintenance, is in disrepair and/or poor operating condition, and requires immediate repair or replacement.

Building Interior

	Condition	Not Applicable	Special Conditions
1. MAIN OPEN PUBLIC AREAS			
A. Indicate the condition of flooring.	G		
B. Indicate the condition of the wall surfaces	F/P		All painted walls need to be repainted. Rubber baseboards should be replaced as well.
C. Indicate access issues for each room, including door way widths, floor height transitions or other concerns affecting common use.	G		Handicapped Access to and throughout the public areas is acceptable.
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	G		Acoustical ceiling tiles are in good condition and no signs of leakage were observed.
E. Comment on general condition & perception of lighting.	G		Lighting is direct/indirect linear, pendant and surface-mounted and is adequate for the spaces.
F. Indicate condition of windows. Can windows be locked and secured?	F		Windows are lockable.
G. Comment on general layout of space accessibility and	F/G		Clearances are acceptable but slightly tight.

crowding.			
	Condition	Not Applicable	Special Conditions
H. Comment on accessibility of the space, both getting to the space and navigating within the space.	G		Handicapped Access to and throughout the public areas is acceptable.
General comments on interior space:	In general, the public spaces are open and accessible and sufficiently bright. They would benefit from more room to circulate around tables and desks as well as more soft seating areas.		
2. STAFF WORKROOM			
A. Indicate the condition of flooring.	G		
B. Indicate the condition of the wall surfaces	F/P		All painted walls need to be repainted. Rubber baseboards should be replaced as well.
C. Indicate access issues for each room, including door way widths, floor height transitions or other concerns affecting common use.	G		Access into the space is sufficient.
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	G		Acoustical ceiling tiles are in good condition and no signs of leakage were observed.
E. Comment on general condition & perception of lighting.	G		Lighting is fluorescent and is adequate for the space.
F. Indicate condition of windows. Can windows be locked and secured?	G		Windows are lockable.
G. Comment on general layout of space accessibility and crowding.	F		Clearances are very tight and are quite crowded. Storage is an issue.
H. Comment on accessibility of the space, both getting to the space and navigating within the space.	P		It would be difficult to maneuver in this space with a wheelchair.
General comments on interior space:	The workroom would benefit from more space with regard to book cart storage as well as storage in general.		
3. OFFICES			
A. Indicate the condition of flooring.	G		
B. Indicate the condition of the wall surfaces	F/P		All painted walls need to be repainted. Rubber baseboards should be replaced as well.
C. Indicate access issues for each room, including door way	F		The office/workroom for the Children's Area doesn't have sufficient handicap

widths, floor height transitions or other concerns affecting common use.			clearance on the pull side of the door.
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	G		Acoustical ceiling tiles are in good condition and no signs of leakage were observed.
	Condition	Not Applicable	Special Conditions
E. Comment on general condition & perception of lighting.	G		Lighting is fluorescent and is adequate for the space.
F. Indicate condition of windows. Can windows be locked and secured?	F		Windows are lockable.
G. Comment on general layout of space accessibility and crowding.	F		Clearances are very tight in the Children's Area office.
H. Comment on accessibility of the space, both getting to the space and navigating within the space.	P		Sink is not accessible in the Children's Area office.
General comments on interior space:	The Branch Manager's office is in good condition but the Children's Area office is tight and non-accessible.		
4. MEETING ROOM			
A. Indicate the condition of flooring.	P		The sheet vinyl in this room needs to be stripped, buffed and a newly waxed.
B. Indicate the condition of the wall surfaces	F/P		All painted walls need to be repainted. Rubber baseboards should be replaced as well.
C. Indicate access issues for each room, including door way widths, floor height transitions or other concerns affecting common use.	G		Access into the space is sufficient.
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	G		Acoustical ceiling tiles are in good condition and no signs of leakage were observed.
E. Comment on general condition & perception of lighting.	G		Lighting is fluorescent and is adequate for the space.
F. Indicate condition of windows. Can windows be locked and secured?	G		Windows are lockable.
G. Comment on general layout of space accessibility and crowding.	G		

H. Comment on accessibility of the space, both getting to the space and navigating within the space.	G		Handicapped Access to and throughout the room is acceptable.
General comments on interior space:	The exterior door needs to be caulked around the perimeter gaps at a minimum. Replacement of all doors and windows is recommended for energy efficiency in another section of this report.		

	Condition	Not Applicable	Special Conditions
5. BASEMENT			
A. Indicate the condition of flooring.	G		
B. Indicate the condition of the wall surfaces	F/P		All painted walls need to be repainted. Rubber baseboards should be replaced as well.
C. Indicate access issues for each room, including door way widths, floor height transitions or other concerns affecting common use.	P		No handicap access is provided to the Basement.
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	G		The ceiling is exposed structure and is painted.
E. Comment on general condition & perception of lighting.	G		Lighting is fluorescent and is adequate for the space.
F. Indicate condition of windows. Can windows be locked and secured?		X	
G. Comment on general layout of space accessibility and crowding.	G		
H. Comment on accessibility of the space, both getting to the space and navigating within the space.	P		No handicap access is provided to the Basement. The Basement spaces are not accessible: the Lounge sink and the Staff Toilet Room are not accessible.
General comments on interior space:	There is evidence of water leakage in the northwest corner of the Maintenance Room. According to the facilities manager, the entire perimeter of the basement leaks and needs to be properly waterproofed.		
6. VESTIBULE			
A. Indicate the condition of	F		The rubber walk-off matts in the

flooring.			vestibule are in fair shape.
B. Indicate the condition of the wall surfaces	F/P		All painted walls need to be repainted. Rubber baseboards should be replaced as well.
C. Indicate access issues for each room, including door way widths, floor height transitions or other concerns affecting common use.	G		The entry is accessible.
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	G		The ceiling is painted gyp. bd. in good condition.
	Condition	Not Applicable	Special Conditions
E. Comment on general condition & perception of lighting.	G		Lighting is provided by fluorescent downlights and is adequate for the space.
F. Indicate condition of windows. Can windows be locked and secured?		X	
G. Comment on general layout of space accessibility and crowding.	G		Clearances are acceptable.
H. Comment on accessibility of the space, both getting to the space and navigating within the space.	G		Handicap access is acceptable.
General comments on interior space:	The Vestibule functions appropriately as a weather barrier for the interior but also functions as a waiting area and area of public notice displays and is not large enough for these functions.		
7. RESTROOMS			
A. Are accessible facilities provided?	F		The current Ohio Building Code requirements include an 18" vertical grab bar in handicap toilet stalls.
B. Is flooring in acceptable condition and easily cleanable?	G		Grout could use cleaning at ceramic tile baseboards.
C. Is an exhaust system in acceptable condition?	G		
D. Are the walls in acceptable condition and are the finishes easily cleanable?	F/P		All painted walls need to be repainted.
E. Adequate lighting provided in each restroom?	G		
General comments on restrooms:	Restrooms are in generally good condition with the above exceptions.		
3. STAIRWAYS & RAMPS			

A. Do all stairs & ramps have full length handrails with extensions? Are handrails secured?	G		Handrails are painted steel in good condition.
B. Are treads & risers consistent in height? Are treads & landings non-slip?	G		Rubber treads are in good condition.
C. Is there any storage, obstructions or defects in stairways?	G		There are no obstructions in the stairwell.
D. Is there adequate lighting & emergency lighting in stairs?	G		A battery pack/emergency light is located in the stairwell.
General comments on stairways & ramps:	Rubber treads and handrails are in good condition. Stairwell is sufficiently lit. A battery pack/emergency light is located in the stairwell.		

MECHANICAL OBSERVATIONS

The maintenance room in the basement has the fire main that supplies water to the fully sprinkled basement. The fire department siamese, fire department connection, is located near the street. This fire main has a static water pressure at 120 psig and a residual water pressure of 115 psig.

The main mechanical room on the first floor has the 2" cold water main. The water meter is in a meter pit underground near the street. The building does not have a main reduced pressure backflow preventer.

The building's domestic hot water comes from an A.O. Smith energy saver water heater, model FSGT 40, serial number ME99-G021259-224, heated by natural gas at 50,000 BTUH input. The heater has a 38 gallon storage tank. The kitchen sink and restroom lavatory in the basement and the children's workroom on the first floor all have their own electric instant hot for domestic water.

The building is supplied with natural gas. The meter is located at the front of the building in which the 1 1/2" supply pipe comes out of the ground, through the meter, then back underground. The gas line does not enter the building above grade.

The basement mechanical room has a ground water sump and pump and discharges water to the storm pipes underground outside of the building.

The basement mechanical room has a Trane air handler with a hot water heating coil and a DX cooling coil. The air handler is a model TWE090, serial number F28176584. The DX cooling condensing unit is a model TTA072.A, serial number F30212951 and is located on grade by the outside stairs down to the basement. This system supplies conditioned air to the basement and the children's area on the first floor. This system was installed in 1991. The basement staff lounge and the workroom have an electric wall heater.

The mechanical room on the first floor has an air handler, boiler, and two pumps. The air handler is a Trane model BCVB0721, serial number R99G26669N with a supply fan, chilled water coil and hot water coil. This air handler supplies air to the first floor areas. The building is also conditioned by unit ventilators, unit heaters, fan coil units, convectors, and fin tube.

The building is a two pipe system in which there are two switching valves. The control system controls these valves to allow heated water or chilled water to circulate through the building to the equipment. Both heating and cooling are not available at the same time. The boiler is a Bryan Boiler, model CL90-W-G, serial number 84572, two-stage boiler with a gas input of 900,000 and 450,000 BTUH. The boiler has a maximum heating capacity of 720,000 BTUH. The boiler was installed in 1999. The boiler system has a floor mounted bladder type expansion tank. The pumps are by Tacco but the model could not be read due to the pumps being insulated to keep them from sweating when they are used for the cooling season to supply chilled water to the equipment. The piping system air separator is installed near the ceiling. It appears that this piping system may have a leak or it sweats too much in the cooling season because there is black mold on the insulation. One pump needs additional insulation to be installed.

The chiller is an air cooled chiller, which is installed outside. The piping is routed from the chiller down under ground and enters the first floor mechanical room. The chiller is a Trane model CGAFC30FA, serial number C99F09967M, which uses refrigerant R-22.

The temperature controls for the mechanical equipment is Trane, Tracer Summit. This is a direct digital control system which is connected by phone (216-991-8743) to an outside source, to monitor the operations of the equipment. There is a manual switch on the panel to change from winter heat mode to summer cooling mode. Thermostat settings are not consistent throughout the library. They ranged from being off, 65, 70, 72, and 74 degree settings.

The restrooms have an exhaust system which also exhausts the janitor's closet on the first floor. The fan is located on the outside wall by the workroom back door. The basement restroom has a ceiling exhaust fan controlled with the lights.

MECHANICAL RECOMMENDATIONS

1. The mechanical equipment is about 15 years old. This equipment has an expected life span of 25 years. So, the library should start developing a plan to have this equipment replaced in 10-15 years.
2. The unit ventilators and the fan coil units need their coils cleaned and their return air grilles and sections clean of dust and debris.
3. The ceiling diffusers and grilles need to be cleaned. The ductwork needs to be inspected to see if ductwork needs to be cleaned.
4. The buildings room thermostats are not controlling the space temperatures properly. The thermostats are set at different settings. These thermostats need to be calibrated or replaced. A new building automation system should be considered to have better control of the building space temperatures and efficiency of operating the mechanical equipment. Plus, alarms can be programmed to identify system operating problems to any person. Plus, the system operating parameters and changes can be accessed remotely.
5. The chiller has refrigerant R-22, which has been discontinued. Recyclable R-22, which has been cleaned, is available; but the cost of this refrigerant is getting pricey. It may come to the time that this cost may be too high or the refrigerant may not be available. The library should investigate the cost to modify the existing chiller with a new refrigerant or replace the chiller with a new one.
6. The hot/chilled water system's air separators' insulation needs to be removed to verify if it has a leak or if the unit is sweating. The issue needs to be fixed and the unit re-insulated.

7. The condensing units' refrigerant piping insulation needs to be replaced.
8. The outdoor chillers location needs to be cleaned.
9. The gas pipe needs to be modified to enter the building above grade.
10. One pump needs additional insulation installed.

ELECTRICAL OBSERVATIONS

The majority of the electrical systems were last renovated in 2002.

Electric Service – The electric service originates from a utility pole located south of the building at the rear of the adjacent residential property. The electric service secondary feeder is routed underground to the first floor main mechanical/electrical room. It is not clear whether the secondary feeder is routed around the outside perimeter of the building or is routed beneath the existing building. The electric service is split into two (2) separately metered services within the building. The service voltage serving the building appears to be 120/240V, 1-phase, 3-wire (Residential Type Voltage). There appears to be a 200A, 120/240V, 1-phase, 3-wire service and utility meter; and a 400A, 120/240V, 1-phase, 3-wire service and utility meter. The electric service and associated equipment within the main electric room appears to be original to the building. The service appears to be adequate for the building. The grounding electrode system could not be observed.

Electrical Distribution Equipment – The electric panelboards, disconnect switches and the like within the main mechanical/electrical room appear to be original to the building and are at the end of their life expectancy. It was observed that sometime during a previous renovation, a different style of breaker had been installed within one of the existing panelboards. This is an indication that original parts for the existing panelboards are hard to find and/or no longer manufactured. The majority of the existing electrical equipment within the mechanical/electrical room is manufactured by General Electric. During the 2002 building renovation, it appears that two (2) existing recessed panelboards were replaced with new at the same location within the circulation workroom. Also during the 2002 building renovation, a new panelboard was installed within the mechanical room on the basement level. The panelboards installed during the 2002 renovation are manufactured by Cutler-Hammer. The working clearance, required by code, in front of the panelboards located in the circulation workroom is not maintained. An associate's desk is located directly in front of the panelboards.

Power Devices – Consideration should be given to replacing public area duplex receptacle with tamper resistant rated duplex receptacles. Current code requires receptacles be tamper resistant rated in child care areas.

Exterior Lighting – Pedestrian height (~15'-0") pole mounted lanterns are being used to illuminate the site. It appears the lamp type is metal halide for the pole mounted lanterns. The pole mounted fixtures, approximately 5 to 6 fixtures, directly in front of the main entry appear to have photo-cells integral to the poles. The photocells appear to operate the pole mounted fixtures when sufficient light levels are not present. There appears to be one pole mounted fixture that was "on" during the day which suggests there might be an issue with the photocell associated with the pole mounted fixture. It appears the remaining site lighting is controlled via a time clock located in the main electric room. It appears several pole mounted fixtures had their branch circuit wiring reworked through the side of their respective pole and concrete bollards were installed directly in front of the pole. There are recessed downlights within the exterior

building soffits as well as floodlights in some areas to illuminate the façade, landscape and walkways. The lamping of these lights appear to be incandescent. At the rear of the building, there are wall mounted sconces to illuminate the service area. There are wall mounted remote emergency egress fixtures at each of the entry/exit doors. The entry and exit signs at the parking area driveways are internally illuminated. It appears the entry and exit signage had their branch circuit wiring reworked through the side of their respective pedestal and concrete curbs were installed around each of the signs.

Interior Lighting – A combination of different types of fixtures are utilized within the building. Emergency lighting is provided through-out the building utilizing (2) headed emergency battery fixtures which are either ceiling or wall mounted. General lighting is provided through-out the public areas utilizing large pendant acrylic bowls, suspended direct/indirect linear parabolic fixtures, recessed linear inverted parabolic basket fixtures, recessed downlights, and wall mounted sconce uplights. The office areas utilize recessed 2x4 parabolic fixtures. The utility rooms utilize standard strip or industrial type strip fixtures. With the exception of the sconce uplight which utilize metal halide lamps, all other fixtures appear to use fluorescent lamps. The linear fluorescent lamps appear to be "T8" while compact fluorescent lamps are used for the downlights. The T8 and CFL fluorescent lamps are still widely used in commercial buildings.

Lighting Controls – As mentioned above, the majority of the exterior lighting is controlled either by photocell or time clock. There may be a few fixtures located in the soffit areas that are controlled via manual switches. The interior lights are controlled via manual switches. The current energy code requires automatic controls for exterior and interior lighting for a building of this size. The majority of the exterior site lighting appears to have automatic controls. The time clock providing the automatic controls appears to be at the end of its life expectancy.

Fire Alarm System – The existing system is a hard-wired, zoned, horn/strobe system manufactured by Silent Knight. The security/intrusion devices appear to be integrated into the fire alarm system control panel. The building appears to have a limited use sprinkler system for the book storage area in the basement. The building appears to have smoke detectors through-out the building in all spaces. The building contains manual pull stations at all exits with notification devices through-out. It was observed that several of the notification devices were mounted on the partition walls at heights greater than 80" above the finished floor.

Area of Refuge / Rescue Assistance System – If required by current code, consideration should be given to adding an area of rescue assistance system at locations classified as area of refuge. Architect to determine whether current code requires a system for this type of building.

ELECTRICAL RECOMMENDATIONS

1. Consideration should be given to upgrading the existing service in the future to a 3-phase commercial service and having only one electric utility meter serve the building.

2. Consideration should be given to adding surge protection devices (SPD), or transient voltage surge suppressor (TVSS), through-out the electric system, as warranted, to protect the system and equipment from the damaging effects of lightning and voltage disturbances.

3. Consideration should be given to confirm the building is properly grounded per code.

4. Consideration should be given to the removal of the furniture directly in front of the panelboards.

5. Current code requires electrical equipment to be labeled for Arch Flash Hazard and Short Circuit. Consideration should be given to hiring a qualified third party to perform a Short Circuit Study, Arch Flash Study and a Coordination Study.

6. Consideration should be given to replacing public area duplex receptacle with tamper resistant rated duplex receptacles. Current code requires receptacles be tamper resistant rated in child care areas.

7. Consideration should be given to replacing existing light fixtures with fixtures that contain more efficient lamps and ballasts/drivers (T5 and/or LED) in the future.

8. Consideration should be given to purchasing "Long Life" rated replacement lamps.

9. It may be beneficial to investigate current incentives being offered by the electric utility company. At times, the electric utility company offers incentives to customers for upgrading their facilities with more energy efficient appliances, lighting and the like.

10. Consideration should be given to adding new automatic control for the interior lighting and replacing the existing automatic controls for the exterior lighting. The type of automatic controls to consider would probably be a combination of the following: programmable lighting relay panel with time of day schedules and photocell control inputs for the larger areas/spaces; stand alone or lighting relay panel system dual technology occupancy/vacancy sensors for smaller enclosed spaces; digital timer switches for utility rooms.

11. Consideration should be given to lowering several fire alarm devices to compliant heights above the floor.

12. Consideration should be given to upgrading the fire alarm system in the future to an addressable type.

13. Consideration should be given to adding an area of rescue assistance system at locations classified as area of refuge.

TECHNOLOGY OBSERVATIONS

Bertram Woods has (3) fiber cables entering the building underground.

Bertram Woods DMARC is in the partial basement.

Bertram Woods telecommunications grounding busbar is insufficient in size and is improperly located. Proper grounding to the main electrical ground could not be confirmed.

Bertram Woods utilized Cat 5 cabling through-out. In one area the cabling is too close to existing electrical distribution system.

Bertram Woods has Cisco phones

Bertram Woods has Cisco switches

Bertram Woods has Cisco wireless access points.

Bertram Woods has inside & outside security cameras wall & ceiling mounted dome and pin point cylindrical cameras. The video management system showed 'video lost' error message from all cameras at the time of assessment.

Bertram Woods does not have access control

Bertram Woods Fire Alarm and Intrusion Detection (burglar alarm) appear to be in the same panel.

Bertram Woods has paging over the phones.

TECHNOLOGY RECOMMENDATIONS

1. Replace all Cat5 cabling with Cat6 as Cat6 is the current (and foreseeable) standard. Cat6 provides additional bandwidth and capabilities for future applications.

2. Replace Cat5 cabling to Wireless Access Points with two (2) Cat6A cabling. In order to support future BYOD (Bring Your Own Device) wireless.

3. Existing racks should be retrofitted with vertical cable management raceway to improve patch cable support. All patch cables should be replaced with Cat6 or Cat 6a patch cables as appropriate.

4. Replace Telecommunications main Grounding Busbar (TMGB) with proper sized bar, relocate to a proper location, and re-cable all grounding cables to new busbar.

5. The Library should check with their Cisco representative, as the current switches may have reached end of life and are no longer supported by Cisco.

6. Replace all exterior cameras with exterior rated cameras in weather-proof housings. Re-initialize video management system to re-acquire video feed from all cameras.

7. Phone devices are not exterior rated, recommend replacing exterior phones with exterior rated phone station connected to the phone system.

STAFF COMMENTS

From Lynne Miller, Bertram Woods Branch Manager

1. The heating and cooling system never seems to have the temperature right – it's either too hot or too cold, including the offices.
2. The Workroom is very tight.
3. There isn't any blank wall space for mounting things.
4. The lighting in the acoustical clouds over the service points is too hot. Some lamps have been removed, especially over the Children's Area service point.
5. Ceiling fans might help with air distribution.
6. More tables and less carrels would be useful.
7. Automatic doors function well.

8. There is no Basement handicap access.
9. It seems like the mechanical units are worked on more than would be normal.
10. Book carts can take up a lot of floor area and there is no good place to store them.
11. Because of the convenience of the drive up book drop-off, many of the materials from the Main Library are delivered and processed through the Woods branch.
12. It has been more of a challenge to service patrons with the reduced staffing model now in place.

2

SHAKER MAIN LIBRARY

Holzheimer Bolek + Meehan | Architects, LLC
1382 West Ninth St., Suite 300 Cleveland, Ohio 44113 216.241.1100

FACILITIES ASSESSMENT AND REVIEW

Name of Library: Shaker Main Library

Address: 16500 Van Aken Boulevard
Shaker Heights, Ohio 44120

Name of Person(s) Performing Inspection: Kevin Kennedy (Architect), HBM Architects, LLC
Doug Giebel (Architect), HBM Architects, LLC
Guy Hicks (Mechanical Engineer), Thorson Baker + Associates
Chris Boyle (Electrical Engineer), Thorson Baker + Associates

Date of Review: March 18, 2014

This review is formatted to document existing conditions of the building and site; identifying areas of concern and repair based on visual observations. This is not a detailed analysis - testing or invasive inspection were not used.

SITE

General Statement of Site Conditions

This statement is intended to be an objective overview of the conditions of the site being assessed.

The site is in good condition and no visible issues were observed. Circulation of traffic throughout appears adequate. Landscaping consists of ornamental trees, low shrubs and grass. Site lighting is primarily through the use of HID pole lights and is adequate at the main entrance and parking area. There is, however, a lack of site lighting in the northwest and southeastern portions of the site.

Site

	Complies	Does not comply	Not Applicable	Notes
1. SIDEWALKS				
A. Are areas accessible?	X			
B. Are surfaces even, with no holes, abrupt changes in elevation, and in good condition?	X			
C. Do curb ramps occur at drives or parking areas?	X			
General Comments on walkways:	Curb ramps occur where marked. There is some general cracking on sidewalks.			

	Complies	Does Not Comply	Not Applicable	Notes
2. PARKING AREAS				
A. Are drive surfaces in good condition with no obstructions or potholes?	X			The staff parking area is showing some cracking.
B. Are lots properly lined and accessible spaces marked?	X			The parking lot would benefit from re-striping.
C. Is pedestrian/vehicle traffic flow clear and intuitive?	X			
D. Are accessible signs provided?	X			
E. Do the parking areas drain properly?	X			
General comments on parking areas:	The parking lot is in good condition overall with the only issues being a need for resurfacing in the staff parking area and general re-striping. The library has purchased two new drive-up book drops and would like to locate them in the parking lot area.			
3. BUILDING APPROACHES & ENTRANCES				
A. Do all stairways & ramps have secure, full length handrails?	X			The handrails at the ramps don't meet ADA requirements due to the flat bar stock used in their construction.
B. Do stairs & Ramps provide good, non-slip footing?	X			
C. Are there any obstructions or obvious defects in stairs and ramps?	X			
D. Do canopies or coverings provide adequate coverage?	X			
General comments on building approaches & entrances:	Approaches and entrances appear to meet handicap accessibility requirements (except where noted above) and are in good condition.			
4. SITE LIGHTING & ELECTRIC				
A. Are parking lot lights provided?	X			
B. Are walkways & building approaches well lit? Are all areas of the lot properly illuminated?	X			Couldn't determine lighting levels.
C. Are exterior convenience outlets provided?		X		No visible outlets on the exterior were found.
General comments on site lighting/electric:	Lighting levels could not be determined but the light fixtures appear adequate at the main building entrance. There is no lighting on the southeast and northeast sides of the building along the sidewalks.			

	Complies	Does Not Comply	Not Applicable	Notes
5. GENERAL MAINTENANCE				
A. Are fences, gates & enclosures in good condition?	X			
General comments on general maintenance:	The fence around the playground area is starting to rust in some areas. This fence (and the playground) are owned by the city.			
6. LANDSCAPING				
A. Does vegetation obstruct walkways, stairs, entries, etc?	X			
B. Does landscaping cause security concerns?	X			There are a couple of areas where the landscaping could be a security concern.
C. Does the site drain without concerns for ponding water or issues with run off?	X			
D. Does runoff occur at walking surfaces?	X			
E. Is landscaping maintained reasonably?	X			
General comments on landscaping:	The landscaping doesn't appear to be overgrown or a security concern.			

BUILDING ENVELOPE

General Statement of Building Envelope Conditions

This statement is intended to be an objective overview of the conditions of the site being analyzed.

The building consists of a brick veneer facade over concrete masonry with aluminum insulated windows and entry doors. Stone trim (painted in some instances) and lintels accent the façade. The roof consists of a slate shingle perimeter gable with the back side of the gable and the inner flat portion of the roof being constructed of an EPDM roof.

Physical Condition Guidelines: The physical condition of the various building components is described in this review fall into one of four categories: *Excellent*, *Good*, *Fair* or *Poor*. The following definitions for this terminology are intended to apply:

Excellent: New or in like new condition requiring only maintenance of a routine and/or preventative nature. Repairs are not anticipated.
Good: Acceptable as is and performing satisfactorily. Only requires maintenance of a routine and/or preventative nature. Has incurred normal wear and tear, but significant repairs are not anticipated.
Fair: Acceptable as is for the most part, but either requires or is anticipated to require repairs and/or increased maintenance effort/surveillance in the short-term.
Poor: Not acceptable as is. Generally, an item/system that exhibits evidence of deferred maintenance, is in disrepair and/or poor operating condition, and requires immediate repair or replacement.

Building Envelope

	Condition	Not Applicable	Notes
1. EXTERIOR WALLS			
A. Indicate the condition of existing brick, stone, siding, or other material.	G		
B. Indicate the condition of grout or mortar.	F		A few areas could use some minor joint work. Plans are in place for tuckpointing. The aggregate in the mortar is visible in most joints, indicating weathering. Some tuck-pointing has occurred and it is understood that more is planned.
C. If flashing is provided, indicate condition.		X	
General comments on exterior finishes:	The building envelope appears to be in generally good condition. There were no visible major problem areas although it was stated by the facilities manager that the existing Efco double hung windows leak. The north façade masonry has been tuck-pointed and there are plans in place to tuckpoint the rest of the facades. Much of the stone accents on the exterior have been painted and are peeling and in need of repainting.		
2. WINDOWS			
A. Indicate condition of windows.	F		

	Condition	Not Applicable	Notes
B. Are windows insulated or otherwise designed to reduce heat gain / heat loss.	G		Units are aluminum with insulated glazing.
C. Indicate condition of sealant at window frames.	F		Sealant is still pliable in most areas. Some splitting has occurred.
D. Indicate condition of other specialty windows.		X	
General comments on windows:	Windows are in generally solid condition although they are showing some wear and there is some evidence of leakage at some of the jambs.		
3. DOORS			
A. Indicate condition of exterior doors.	G		Automatic doors at the main entry are functioning well. The south facing doors are not used during the coldest winter days in order to keep the cold wind from blowing straight into the library.
B. Indicate condition of sealant at door frames.	G		
C. Indicate condition of other specialty doors.	G		
General comments on doors:	Good solid aluminum doors at all entrances.		
4. ROOFING (Flat)			
A. Does the roof appear to be in good condition with all required elements? (gutters, scuppers, overflow or secondary roof drains)	G		
B. Indicate the condition and type of roofing material.	G		Roof is composed of black EPDM.
C. Condition & type of flashing, copings & expansion joints.	G		Flashing is aluminum.
General comments on roofing (flat):	The roof is approximately 20 years old. It has been patched over time but is not currently leaking. It has another 5 -7 years before it needs to be replaced.		
5. ROOFING (Sloped)			
A. Does the roof appear to be in good condition with all required elements? (snow guards, gutters, scuppers, overflow or secondary roof drains)	G		Roof consists of slate shingles with aluminum flashing, concealed gutters and copper conductor heads and downspouts. Roof is 7 – 8 years old.
B. Indicate the condition and type of roofing material.	G		Slate/Metal flashing in good condition.
C. Condition & type of flashing, copings & expansion joints	G		Visible flashing appears to be aluminum in good condition.

	Condition	Not Applicable	Notes
General comments on roofing (sloped):	Overall roof is in good condition. It was replaced approximately 7 - 8 years ago according to the facilities manager.		
6. Skylights / Monitors			
A. Condition & Type of Glazing & Flashing	F/P		Skylights are aluminum/insulated glass.
General Comments on Skylights / Monitors	Skylight frames are separating at the seams and are being held together in some places with tape. One of the skylight interior glass panels is cracked. The copper clad cupola shows some wood rotting on its interior. It has been repaired recently. It should be examined with the proper scaffolding/equipment in order to determine the extent of the rotting and the work necessary to correct it.		

BUILDING INTERIOR

General Statement of Building Interior Conditions

This statement is intended to be an objective overview of the conditions of the site being analyzed.

The interior of the facility consists primarily of carpeting (carpet tiles on the first floor and broadloom in the basement and much of the second floor). Plaster, gyp. board and masonry walls are painted throughout the facility, while acoustical tiles make up the bulk of ceilings in the interior spaces in the facility.

Physical Condition Guidelines: The physical condition of the various building components is described in this review fall into one of four categories: *Excellent*, *Good*, *Fair* or *Poor*. The following definitions for this terminology are intended to apply:

Excellent: New or in like new condition requiring only maintenance of a routine and/or preventative nature. Repairs are not anticipated.
Good: Acceptable as is and performing satisfactorily. Only requires maintenance of a routine and/or preventative nature. Has incurred normal wear and tear, but significant repairs are not anticipated.
Fair: Acceptable as is for the most part, but either requires or is anticipated to require repairs and/or increased maintenance effort/surveillance in the short-term.
Poor: Not acceptable as is. Generally, an item/system that exhibits evidence of deferred maintenance, is in disrepair and/or poor operating condition, and requires immediate repair or replacement.

Building Interior

	Condition	Not Applicable	Special Conditions
1. BASEMENT: ADMINISTRATION / TECHNICAL SERVICES OFFICES / CORRIDORS			
A. Indicate the condition of flooring.	P		Carpet is stained and needs replacing. The vinyl tile in the Delivery space needs to be stripped, buffed and waxed.
B. Indicate the condition of the wall surfaces	F/G		Walls in the Admin. areas are in good condition but the Technical Services suite needs repainting.
C. Indicate access issues for each room, including door way widths, floor height transitions or other concerns affecting common use.	G		Handicap access to and throughout this area is acceptable.
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	P		Acoustical ceiling tiles are sagging and are in poor condition throughout.
E. Comment on general condition & perception of lighting.	G		Lighting is primarily 2x4 fluorescent, with acrylic lenses. Although functional, this is not the preferred type of lighting for modern office spaces.
F. Indicate condition of windows. Can windows be locked and secured?	F/G		Windows are lockable.

	Condition	Not Applicable	Special Conditions
G. Comment on general layout of space accessibility and crowding.	G		Spaces are generally not overcrowded and appear to function acceptably.
H. Comment on accessibility of the space, both getting to the space and navigating within the space.	G		Handicap access to and throughout this area is acceptable.
General comments on interior space:	These office areas are functional but need cosmetic refreshing in the form of new carpeting and ceiling tiles and some painting. There is water leakage near the Alltel room in the basement and the area around this room should be properly waterproofed.		
2. FIRST FLOOR: MAIN OPEN PUBLIC AREAS			
A. Indicate the condition of flooring.	F		The carpet tiles that make up the majority of the first floor are showing their edges throughout. The edges of this particular carpet tile were not trimmed in the factory as they should have been and require in situ repair. The carpet manufacturer is aware of this situation and will be coordinating a response with the Library.
B. Indicate the condition of the wall surfaces	F/P		All painted walls need to be repainted. Rubber baseboards should be replaced as well.
C. Indicate access issues for each room, including door way widths, floor height transitions or other concerns affecting common use.	G		Handicap access to and throughout the spaces in the public areas is acceptable.
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	F/G		Acoustical ceiling tiles are in good condition with the exception of those with leak stains. Numerous stains are found throughout the first floor ceiling tiles. The facility manager indicated that the leaks were a combination of roof and pipe/condensation leaks that have been fixed. There are no known leaks currently, with the exception of some downspouts that are leaking into the building at the northeast corner Study Rooms. There is damage to numerous column capitals in the high bay main space from past leaks. Note: Ceilings throughout have been blackened where mechanical grilles supply air into the space.
E. Comment on general condition & perception of lighting.	G		Lighting is primarily 2x4 fluorescent, with acrylic and parabolic lenses. Although functional, this is not the

			preferred type of lighting for modern public spaces. The main central high bay is primarily lit with perimeter and pendant HID fixtures. The lighting in this area tends towards murky and feels a bit dark.
	Condition	Not Applicable	Special Conditions
F. Indicate condition of windows. Can windows be locked and secured?	F		Windows are lockable. They are double hung, aluminum and difficult to open due to their size/weight. There is evidence of leakage in some of the window jambs, particularly on the southern elevation.
G. Comment on general layout of space accessibility and crowding.	G		Clearances are acceptable.
H. Comment on accessibility of the space, both getting to the space and navigating within the space.	G		Handicap access to and throughout the public areas is acceptable.
General comments on interior space:	The main large public areas of the library are accessible and in generally good condition but suffer in particular from a lack of modern lighting that leaves many areas feeling more institutional than welcoming.		
3. FIRST FLOOR: STAFF WORKROOM			
A. Indicate the condition of flooring.	F		Same as Item 2. A. above.
B. Indicate the condition of the wall surfaces	F/P		All painted walls need to be repainted. Rubber baseboards should be replaced as well.
C. Indicate access issues for each room, including door way widths, floor height transitions or other concerns affecting common use.	G		Access into the space is sufficient.
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	G		Same as Item 2. D. above.
E. Comment on general condition & perception of lighting.	G		Lighting is primarily 2x4 fluorescent, with acrylic and parabolic lenses. This is not the preferred type of lighting for a modern office space.
F. Indicate condition of windows. Can windows be locked and secured?	F		Same as Item 2. F. above.
G. Comment on general layout of space accessibility and crowding.	F		The central work area is crowded with book carts.

	Condition	Not Applicable	Special Conditions
H. Comment on accessibility of the space, both getting to the space and navigating within the space.	F		It would be difficult to maneuver in this space with a wheelchair.
General comments on interior space:	The workroom would benefit from more space with regard to book cart storage as well as storage in general.		
4. OFFICES / STUDY ROOMS			
A. Indicate the condition of flooring.	G		Same as Item 2. A. above.
B. Indicate the condition of the wall surfaces	F/P		All painted walls need to be repainted. Rubber baseboards should be replaced as well. Hollow metal door and storefront window frames are showing wear and need repainting. The glass in the sidelights is tempered.
C. Indicate access issues for each room, including door way widths, floor height transitions or other concerns affecting common use.	F		Access into the spaces is sufficient.
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	G		Same as Item 2. D. above.
E. Comment on general condition & perception of lighting.	G		Lighting is primarily 2x4 fluorescent, with acrylic and parabolic lenses. This is not the preferred type of lighting for a modern office space.
F. Indicate condition of windows. Can windows be locked and secured?	F		Windows are lockable.
G. Comment on general layout of space accessibility and crowding.	F		Clearances are acceptable.
H. Comment on accessibility of the space, both getting to the space and navigating within the space.	G		Handicap access to and throughout these rooms is acceptable.
General comments on interior space:	The rooms are in generally good condition except as noted above. One of the Study Rooms in the northeast corner is under repair due to a leaking downspout on the exterior of the building.		
5. VESTIBULE			
A. Indicate the condition of flooring.	F		The existing quarry tile is in good shape. The walk-off matts in the vestibule are in poor shape and need replacing.

	Condition	Not Applicable	Special Conditions
B. Indicate the condition of the wall surfaces	F/P		All painted walls need to be repainted. The existing brick walls are in good condition. Rubber baseboards should be replaced as well.
C. Indicate access issues for each room, including door way widths, floor height transitions or other concerns affecting common use.	G		The entry is accessible.
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	F		The ceiling is gyp. bd. in fair to poor condition and needs painting.
E. Comment on general condition & perception of lighting.	G		Lighting is by fluorescent downlights and is adequate for the space.
F. Indicate condition of windows. Can windows be locked and secured?		X	
G. Comment on general layout of space accessibility and crowding.	G		Clearances are acceptable.
H. Comment on accessibility of the space, both getting to the space and navigating within the space.	G		Handicap access is acceptable.
General comments on interior space:	The Vestibule functions adequately. The south facing automatic doors are closed during cold weather to prevent wind from entering into the main spaces of the library. The east side automatic doors function well as an alternate entry when the south doors are closed.		
6. SECOND FLOOR: OFFICES / MEETING ROOMS / PLAY AND LEARN STATION - NORTH AND EAST WINGS			
A. Indicate the condition of flooring.	F/P		Many areas of the existing broadloom carpet have bunched up from use. They are causing a tripping hazard and need to be re-stretched at a minimum.
B. Indicate the condition of the wall surfaces	F/P		All painted walls need to be repainted. Rubber baseboards should be replaced as well. Hollow metal door and storefront window frames are showing wear and need repainting.
C. Indicate access issues for each room, including door way widths, floor height transitions or other concerns affecting common use.	F		Access into the spaces is sufficient.

	Condition	Not Applicable	Special Conditions
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	G		Same as Item 2. D. above.
E. Comment on general condition & perception of lighting.	G		Lighting is primarily 2x4 fluorescent, with acrylic and parabolic lenses. This is not the preferred type of lighting for modern public spaces.
F. Indicate condition of windows. Can windows be locked and secured?	F		Windows are lockable. Some evidence of water leakage on the gyp. board window jambs is evident in some of the rooms.
G. Comment on general layout of space accessibility and crowding.	F		Clearances are acceptable.
H. Comment on accessibility of the space, both getting to the space and navigating within the space.	G		Handicap access to and throughout these rooms is acceptable.
General comments on interior space:	The rooms are in generally good condition except as noted above.		
7. SECOND FLOOR: CAREER CENTER / TRAINING LAB / COMPUTER CENTER OFFICES – SOUTH AND WEST WINGS			
A. Indicate the condition of flooring.	G		The carpet in these areas appears to be in good shape.
B. Indicate the condition of the wall surfaces	F/P		All painted walls need to be repainted. Rubber baseboards should be replaced as well. Hollow metal door and storefront window frames are showing wear and need repainting.
C. Indicate access issues for each room, including door way widths, floor height transitions or other concerns affecting common use.	F		Access into the spaces is sufficient.
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	G		Same as Item 2. D. above.
E. Comment on general condition & perception of lighting.	G		Lighting is primarily 2x4 fluorescent direct/indirect.
F. Indicate condition of windows. Can windows be locked and secured?	F		Windows are lockable.
G. Comment on general layout of space accessibility and	F		Clearances are acceptable.

crowding.			
	Condition	Not Applicable	Special Conditions
H. Comment on accessibility of the space, both getting to the space and navigating within the space.	G		Handicap access to and throughout these rooms is acceptable.
General comments on interior space:	The rooms are in generally good condition except as noted above.		
8. SECOND FLOOR: CORRIDORS			
A. Indicate the condition of flooring.	G		The carpet in the corridors appears to be in good shape.
B. Indicate the condition of the wall surfaces	F/G		All painted walls need to be repainted. Rubber baseboards should be replaced as well. Hollow metal door and storefront window frames are showing wear and need repainting. The elevator lobby wall in particular needs repainting.
C. Indicate access issues for each room, including doorway widths, floor height transitions or other concerns affecting common use.	G		Access into the corridors is sufficient.
D. Indicated condition of ceiling surface. Identify condition of finish and any stains or finish issues or concerns.	G		Same as Item 2. D. above.
E. Comment on general condition & perception of lighting.	F/G		Lighting is 2x4 fluorescent direct/indirect in the east, partial west and south corridors. The north corridor is lit from fluorescent wall sconces which provide an uneven, scalloped light pattern with a dark feeling along the entire corridor.
F. Indicate condition of windows. Can windows be locked and secured?		X	
G. Comment on general layout of space accessibility and crowding.		X	
H. Comment on accessibility of the space, both getting to the space and navigating within the space.	G		Handicap access to and throughout the corridor is acceptable.
General comments on interior space:	The corridors are generous in width and circulation is clear throughout.		
9. RESTROOMS			
A. Are accessible facilities	G		The current Ohio Building Code

provided?			requirements include an 18" vertical grab bar in handicap toilet stalls.
	Condition	Not Applicable	Special Conditions
B. Is flooring in acceptable condition and easily cleanable?	G		Grout could use cleaning at ceramic tile baseboards.
C. Is an exhaust system in acceptable condition?	G		
D. Are the walls in acceptable condition and are the finishes easily cleanable?	F/G		All painted walls need to be repainted.
E. Adequate lighting provided in each restroom?	G		
General comments on restrooms:	Restrooms are in generally good condition with the above exceptions. The public Men's Restroom located on the first floor near the Children's Area is in poor condition overall and needs repair on the plumbing wall behind the toilet. The piping may be leaking as the wall has significant water damage. Overall the restrooms would benefit from an upgrade to the accessories and finishes but this is not a priority item.		
10. STAIRWAYS & RAMPS			
A. Do all stairs & ramps have full length handrails with extensions? Are handrails secured?	G		Handrails are painted steel in good condition.
B. Are treads & risers consistent in height? Are treads & landings non-slip?	F/G		Rubber treads are in fair to good condition.
C. Is there any storage, obstructions or defects in stairways?	F/G		Ladders were being stored in the west stairwell on the second level.
D. Is there adequate lighting & emergency lighting in stairs?	F/G		Emergency lighting is provided by battery packs attached to the fluorescent lights.
General comments on stairways & ramps:	Rubber treads and handrails are in acceptable condition. Stairwells are sufficiently lit. Emergency lights with battery pack ballasts are located in the stairwells. The existing masonry walls in the stairwells could use repainting.		

MECHANICAL OBSERVATIONS

The building is completely fire protected with two wet and one dry pipe risers being fed from a fire protection main. The main backflow preventer is located in a meter pit with a siamese fire department connection, near the street. One riser is located in a closet off the Public Relations room 100, which serves the lower level. This riser has a static pressure of 80 psig. Another riser is located in the stairway which serves the first and second floors. The static pressure reads 75 psig at the flow switch.

The dry pipe riser with an air compressor is located in a closet on the lower level across from the technical services room. This riser protects the attic space. This riser was tested and has a static pressure of 75 psi, a residual pressure of 63 psi, an air side pressure of 36 psi, and a tripped pressure of 30 psi.

The closet off of the Public Relations room 100 has the 3" diameter domestic cold water main. The meter is located in a meter pit underground near the street. The building has a main double check backflow preventer.

The building's domestic hot water comes from a Bradford White water heater, model D100T1993N, serial number SE0834314, heated by natural gas at 199,999 BTUH input. The heater has a 98 gallon storage tank. The system has a recirculating pump to maintain hot water throughout the building. This pump is being controlled by an aqua-stat to maintain a return water temperature of 120 degrees Fahrenheit.

The lower lever mechanical room and the attic space has the majority of the mechanical equipment. The lower level mechanical room has the boilers, chiller, domestic water heater, pumps, AHU-1, and AHU-2. The custodians storage room has AHU-3. The crawl space has an abandoned in-place acid sump. The crawl space has an area which is leased to Alltel/Sprint which has two fan coil units for cooling only with the condensing units in the relief air discharge air shaft. This room has a chemical fire suppression system which will not work properly due to the door being held open so a floor fan can discharge air into the room for ventilation. Therefore, the fan coil units must not be working. This system is not part of this study. But, since it is not protected properly, the library must insist that Alltel correct the cooling problem so that the doors can be kept shut.

The building has two Cleaver Brooks flexible water tube boilers. The boilers are model FLX, fuel series 700, size 250, serial number BT004248 and BT004249. The boilers have a Webster, cyclonetic power burner, model JB1G-07-70D10-M25, serial number W028965 with a heating maximum input capacity of 2,500,000 BTUH and a minimum input capacity of 775,000 BTUH. Burners have a 3/4 HP motor. There are two Weinman split case hot water pumps circulating heating water throughout the building. The model 3L4-75P14GDT, serial number 2004054-1 and 204054-2 and dated 1992 with a 7 1/2 HP motor to supply 200 gpm vs. 63' head.

The chiller is a McQuay water cooled chiller. The chiller is a model PEH050, serial number 5YB0101900, style 0543918010, using refrigerant 134A. The chiller was rebuilt in 2012. Chilled water is being circulated throughout the building by one Weinman split case chilled water pump. Information on the pump could not be obtained since the pump casing is insulated to prevent the pump from wetting. The pump has a 7 1/2 HP motor. The chiller's open style cooling tower is located on the roof. The one pump for the tower is in the lower mechanical room with the chiller. This pump is a Weinman, horizontal split case pump, model 4L3-75PN14GDT, serial number 204056, dated 1992. The pump has a capacity of 360 gpm versa 40' head.

The mechanical room is heated by a hot water unit heater. The cooling tower on the roof is a Baltimore Aircoil unit, model VTL 126 MP, serial number 92601129P with a belt number B116. The unit is mounted on a structural steel frame, which is rusting and needs to be repainted. The cold water fill line's insulation is missing on most of the pipe exposing the heat trace cable.

Air handler, AHU-1, is a McQuay model LSL134DH, serial number 3YA00056-04 which conditions the left side of the first floor. AHU-2 is a McQuay model LSL134-DH, serial number 3YA0056-03, which conditions the right side of the first floor. AHU-2 appears to have a leaky drip pan or a coil may have a small leak, this needs to be investigated further.

The exhaust air shaft needs to be cleaned out and screens cleaned. One screen needs to be replaced in the ductwork.

Air handler, AHU-3, is located in the custodian storage room. This is a McQuay unit that supplies air to the lower level area. There was no information on the unit listing the model or serial number. This storage room has an exhaust fan and outside air louver which is controlled by a room thermostat. This exhaust fan has been disconnected for many years and the fan's intake is covered with a plastic bag. This was done to keep the room from getting too cold. It has helped a little, but not enough.

The CEI main buildings transformer is in a transformer vault near the mechanical room. This room has an exhaust fan to keep this room's temperature under control. The room outside of this vault also has an exhaust fan, but the outside air intake for this fan is blocked up with insulation. Further investigation needs to be done to determine how this effects the building mechanical system performance.

A second floor storage room has AHU-4, which is a McQuay model MSL108CV, serial number 3YA0055-06 which serves the west side of the second floor. There is an electrical room with many light ballasts that has an exhaust fan that does not operate. The room is very hot. The computer data room has a Liebert horizontal unit installed near the ceiling. This unit was installed in 2012. The condensing unit is installed on the roof. Information could not be accesses for the model numbers. The unit has a capacity of 3 tons. The refrigerant piping insulation needs to be replaced. There is an electrical/data room that has an exhaust fan which cannot keep up with the heat load of the equipment. Therefore, a portable spot cooler was installed to maintain temperature.

The attic space has AHU-5, AHU-6, chilled water pump and system, and various exhaust fans. AHU-5 services the north side of the second floor. This is a McQuay model CAH030FDAC, part number 9675276010, conditioner P.O. #12598-1. AHU-6 was installed in 2012 to serve the south side of the second floor. AHU-6 is a Carrier, model 39MN17D020C7C11XGS, serial number 0111000562, size 17 unit.

The attic has two large blower exhaust fans to keep the attic temperature set-point for summer ventilation. There are other exhaust fans in the attic space which exhaust air from rooms within the library. But, since there are no drawings, we do not know what rooms they serve. One exhaust fan EF-4 had a broken belt. The chilled water pump and system was installed in 1992 to supply chilled water from an air cooled chiller on the roof to the AHUs on the second floor. The main pump is a TACO pump which keeps on wearing out the rubber coupling. This needs to be investigated further to find out why this is happening. Since this pump is insulated, information on model and size could not be accessed. There is also a smaller pump which is a TACO model FL 1207E2CAH1LOB with a capacity of 65 gpm versa 40' head with a 1 1/2 HP motor. Since we do not have drawings, we do not know why these two pumps are different sizes. Further investigation will need to be done to determine the size difference. The larger pump has had a motor replacement.

The roof has a few goosenecks of exhaust air relief, exhaust fans, outside air intakes, Liebert condensing unit, water cooling tower and an air cooled chiller. Since we do not have drawings, the areas served by the exhaust fans and goosenecks is unknown. The outside air intakes are for AHU-5 and AHU-6. The Liebert unit and water cooling tower were described earlier in the report. The air cooled chiller was installed in 1992. This chiller is a McQuay model AGR085A527, serial number 58H8128101. This chiller uses refrigerant R-22. This chiller supplies chilled water to AHU-4, AHU-5, and AHU-6.

The air handlers supply conditioned air to variable air volume (VAV) boxes. The rooms have thermostats which control the volume of air allowed to enter the room to maintain cooling set point. Once the space

gets too cool on the minimum air setting, the room thermostat modulated the reheat coils control valve to maintain space temperature. Most of the VAV boxes are Envirotech boxes. Some have been replaced, due to them failing to operate and not being able to maintain room set points.

The controls are Alerton Direct Digital Controls (DDC). The boilers DDC have not worked in a long time. At the present time, the boilers are operating on their limit thermostat settings to maintain 180 degrees Fahrenheit during the heating season, which is controlled manually. The chillers DDC are not efficiently operating the chillers and pumps. There are other types of control systems in which all of the controls do not communicate with each other, so the system cannot operate efficently. Variable frequency drives (VFD) were added to AHU-1. AHU-2, AHU-3, and AHU-4. These VFDs seem to operate at maximum speed all the time. Therefore, it appears the VAV boxes are not operating to reduce the air quantity when not required to maintain space temperature. Further investigation needs to be done to see that is really happening. VFD's were added to the pumps and cooling tower to help save energy. This has not been verified to see if this has really helped.

MECHANICAL RECOMMENDATIONS

1. The air cooled chiller and the open cooling tower's support frame needs cleaned and painted to prevent further rusting of support frame.
2. The cold water feed to the open cooling tower needs a new electric heat trace and needs to be insulated to keep this water line from freezing.
3. AHU-2's cooling drip pan and the coil need to be checked for leaks and the issue corrected.
4. The exhaust air shaft needs to be cleaned out of dirt and debris. One ductwork section need its cover screen replaced.
5. The exhaust fan in AHU-3 mechanical room and the outside air intake damper need to be removed and openings capped.
6. Make up air for the mechanical room in the lower level needs to be investigated to provide enough air for the exhaust fan to keep the building from going into a negative pressure relationship. Causing outside air to come into the building through doors and windows.
7. The light ballast room on the second floor needs a mechanical cooling system designed and installed to keep the room temperature proper for the equipment. This will keep the equipment from failing prematurely.
8. The Liebert's condensing units refrigerant piping insulation needs to be replaced.
9. The electrical/data room needs the spot cooler removed and a permanent cooling system installed sized to handle this room's cooling needs.
10. The second floor chilled water system needs to be investigated further and the proper circulating pumps installed for this system.
11. Exhaust fan, EF-4, needs its broken belt replaced.
12. All the building VAV boxes need to be planned to be replaced. They are 22 years old and their expected life is 25 years. Since there is a problem with the controls, it will be better to replace the box with new controls than just replacing the controls.
13. The DDC needs to be replaced with a new BAS system for better and more efficient control and operation of the mechanical equipment.

14. The mechanical equipment is about 22 years old. This equipment has an expected life span of 25 years. So, the library should start developing a plan to have this equipment replaced in 3-5 years.
15. The ceiling diffusers and grilles need to be cleaned. The ductwork needs to be inspected to see if ductwork needs to be cleaned.
16. The buildings room thermostats are not controlling the space temperatures properly. The thermostats are set at different settings. These thermostats need to be calibrated or replaced. A new building automation system should be considered to have better control of the building space temperatures and efficiency of operating the mechanical equipment. Plus, alarms can be programmed to identify system operating problems to any person. Plus, the system operating parameters and changes can be accessed remotely.
17. The air cooled chiller has refrigerant R-22, which has been discontinued. Recyclable R-22, which has been cleaned, is available; but the cost of this refrigerant is getting pricey. It may come to the time that this cost may be too high or the refrigerant may not be available. The library should investigate the cost to modify the existing chiller with a new refrigerant or replace the chiller with a new one.

ELECTRICAL OBSERVATIONS

The building was converted to a library approximately 20 years ago. The last major renovation to the building occurred in 2012 to the second floor.

Electric Service – Primary electric service feeders are routed underground from the site to a CEI (First Energy) electric vault located in the lower level of the building. Access into CEI's electric vault did not occur. It is assumed, the vault design and equipment within the vault is as old as the library's distribution equipment. (approximately 20 years). Consider consulting with CEI to verify whether any upgrades to CEI's vault and equipment are required. There appears to be several separately metered services within the building. The electric service secondary feeder serving the Library is routed from the vault to a main disconnect switch located in a maintenance area adjacent to the vault on the lower level. The service size and voltage serving the library portion of the building appears to be 600A, 480/277V, 3-phase, 4-wire. There appears to be a second electric service secondary feeder serving leased space for telephone/data service providers on the lower level. The service size and voltage serving the telephone/data service providers space appears to be a 200A, 277/480V, 3-phase, 4-wire service, which is transformed down to a 120/208, 3-phase, 4-wire grouped multi-meter distribution center. This multi-metered distribution center and associated transformer is located directly outside the telephone/data service providers' leased equipment room on the lower level. It appears one of three service providers meters are active. The electric service and associated equipment serving the Library, located within the main electric area, appears to be original to when the building was converted to a Library. The service appears to be adequate for the building. Given the age of the electrical panelboards and transformers, the electric equipment appears to be in good condition. The grounding electrode system could not be observed.

Electrical Distribution Equipment – The electric main disconnect switch, distribution panelboards, transformer and the like, located within the main electrical area in the lower level, appear to be original to when the building was converted to a Library. The majority of the existing electrical equipment within the mechanical/electrical area is manufactured by General Electric. There are several electrical closets containing panelboards, transformers and the like on the first level as well as the second level. The working clearance, required by code, in front of the panelboards located in the main electric area on the lower level is not maintained. Clearances at other locations should be observed as well. Current code requires electrical equipment to be labeled for Arch Flash Hazard and Short Circuit.

Power Devices –Current code requires receptacles be tamper resistant rated in child care areas. Floor boxes containing power, data, and/or av devices were observed on the second floor. Further investigation should be made to determine if the proper floor boxes were installed to maintain the fire rating of the building structure between floors.

Exterior Lighting – Pedestrian height (~18'-0") pole mounted globes and lanterns are being used to illuminate the site near the building. In the general parking area, ~30'-0" poles with arms and fixtures at 180 degrees apart are used. A photocell located on the roof appears to operate the exterior light fixtures when sufficient light levels are not present. There are recessed downlights within the exterior building soffits as well as floodlights in some areas to illuminate the façade, landscape, children play area and walkways. There are three stanchion mounted flood uplights used to illuminate the flag pole. Consideration should be given to providing barn doors or adjustable visors on these fixtures as to prevent light spill and direct the light at the flag. Consideration should be given to replacing the fixtures or lamps with more energy efficient and longer life lamp. Remote emergency egress fixtures on the exterior of the building at each of the entry/exit doors were not observed. Verify that there are emergency egress light fixtures at each of the exit doors. Add to exterior egress doors if they do not exist. It was not clear if the existing soffit downlights contained integral emergency battery ballasts which would serve this purpose.

Interior Lighting – A combination of different types of fixtures are utilized within the building. Emergency lighting is provided through-out the building utilizing (2) headed emergency battery fixtures which are either ceiling or wall mounted and light fixtures with integral emergency battery ballasts. It is not clear whether the emergency lighting coverage meets current code. It was mentioned during the site observation, the two story area on the first level did not contain any emergency lighting. General lighting through-out the public areas utilize large pendant fixtures, direct/indirect linear parabolic fixtures, recessed linear lensed parabolic fixtures, recessed downlights, and wall mounted sconce uplights. The office areas utilize recessed 2x4 parabolic fixtures, 2x4 acrylic lensed fixtures and 1x4 recessed lensed parabolic fixtures. The utility rooms utilize standard strip or industrial type strip fixtures. With the exception of the sconce uplight which utilize metal halide lamps and several incandescent lamped downlights, all other fixtures appear to use fluorescent lamps. There appears to be a mixture of fluorescent linear lamp types used through-out the facility. It was observed that T12, T8 and T5 linear lamps are being utilized. The facility manager mentioned that existing light fixtures containing T12 lamps and ballasts are changed out to T8 lamps and electronic ballasts when a particular fixture fails to operate. The majority of the facility utilizes T8 lamps and ballasts. The T5 lamps and electronic ballasts are mostly found in the areas of the 2012 renovation on the second level. The T8 and CFL fluorescent lamps are still widely used in commercial buildings.

Lighting Controls – As mentioned above, the majority of the exterior lighting is controlled by a photocell. There may be a few fixtures located in the soffit areas that are controlled via manual switches. The interior lights are controlled via manual switches, keyed manual switches, breakers integral to the electric panels, and in some areas there are occupancy/vacancy sensors. The current energy code requires automatic controls for exterior and interior lighting for a building of this size. The majority of the exterior site lighting appears to have automatic controls. The photocell, and contactors providing the automatic controls appears to be at the end of its life expectancy.

Fire Alarm System – The existing system is a hard-wired, zoned, horn/strobe system manufactured by Thorn Autocall. The system is original to when the building was converted to a Library. The building appears to have a sprinkler system installed through-out the facility. The building contains manual pull stations at all exits with notification devices through-out. It was mentioned that faults have been frequently occurring on the branch wiring serving the system's devices.

Area of Refuge / Rescue Assistance System – If required by current code, consideration should be given to adding an area of rescue assistance system at locations classified as area of refuge. Architect to determine whether current code requires a system for this type of building.

ELECTRICAL RECOMMENDATIONS

1. Consideration should be given to adding surge protection devices (SPD), or transient voltage surge suppressor (TVSS), through-out the electric system, as warranted, to protect the system and equipment from the damaging effects of lightning and voltage disturbances.

2. Consideration should be given to confirming the building is properly grounded per code.

3. Consideration should be given to the removal any items in front of the panelboard or electric equipment on all levels.

4. Consideration should be given to hiring a qualified third party to perform a Short Circuit Study, Arch Flash Study and a Coordination Study.

5. Consideration should be given to replacing public area duplex receptacle with tamper resistant rated duplex receptacles.

6. Further investigation should be made to determine if the proper floor boxes were installed to maintain the fire rating of the building structure between floors.

7. Consideration should be given to redesigning and replacing the light fixtures within the two story area on the first level as the light levels appear to be low and there doesn't appear to be any emergency lighting.

8. Consideration should be given to replacing the light fixtures with fixtures that contain more efficient lamps and ballasts/drivers (T5 and/or LED) in the future.

9. Consideration should be given to purchasing "Long Life" rated replacement lamps.

10. It may be beneficial to investigate current incentives being offered by the electric utility company. At times, the electric utility company offers incentives to customers for upgrading their facilities with more energy efficient appliances, lighting and the like.

11. Consideration should be given to adding new automatic control for the interior lighting and replacing the existing automatic controls for the exterior lighting. The type of automatic controls to consider would probably be a combination of the following: networked programmable lighting relay panels with time of day schedules and photocell control inputs for the larger areas/spaces; stand alone or lighting relay panel system dual technology occupancy/vacancy sensors for smaller enclosed spaces; digital timer switches for utility rooms.

12. Consideration should be given to upgrading the fire alarm system in the future to an addressable type.

13. Consideration should be given to adding an area of rescue assistance system at locations classified as area of refuge.

TECHNOLOGY OBSERVATIONS

The Main Library has (4) fiber cables underground.

Main library DMARC is on the lower floor and a data closet on the lower level. There are (2) different data closets/rooms on the second floor.

Main library has Cat 5, Cat 5e, and Cat 6 cabling. It appears that the Cat 6 cables are used for the wireless access points, the Cat 5 cabling was used for the phones.

Main library has Cisco phones.

Main library has Cisco switches.

Main library has Cisco wireless access points. Based on observation it appears some of the access points may have the antenna radiation pattern in the wrong plane for proper coverage.

Main library has inside & outside security cameras wall and ceiling dome cameras.

Main library has access control on the first floor administrative offices and employee entrance.

Main library has paging over the phones and just completed bidding to install an analog general area paging speakers/system.

Main library leased the use of their chimney/smoke stack to the service providers to be used as a cell tower. There is currently only one provider in use.

TECHNOLOGY RECOMMENDATIONS

1. In areas of use, replace all Cat5 and Cat 5e cabling with Cat6 as Cat6 is the current (and foreseeable) standard. Cat6 provides additional bandwidth and capabilities for future applications.

2. Replace Cat5 cabling to Wireless Access Points with two (2) Cat6A cabling. In order to support future BYOD (Bring Your Own Device) wireless.

3. All unused patch cables should be removed from the racks. The current patch cabling is a complete disaster. Existing racks without vertical cable management should be retrofitted with vertical cable management raceway; racks with existing vertical management should be re-cabled to make use of this management to improve patch cable support. All patch cables should be replaced with Cat6 or Cat 6a patch cables as appropriate.

4. In a number of the TR locations the cable form the ceiling to the rack is not sufficiently supported. Based on observation it is expected that some cables are either broken or damaged to the point of severely limiting bandwith and connectivity.

5. The Library should check with their Cisco representative, as the current switches may have reached end of life and are no longer supported by Cisco.

6. Recommend having a wireless survey performed to verify proper coverage of the wireless network.

7. Replace all exterior cameras with exterior rated cameras in weather-proof housings. Re-initialize video management system to re-acquire video feed from all cameras.

STAFF COMMENTS

From John Harchar, Facilities Manager

1. The stains observable throughout the facility are from either past roof or pipe leaks and are not currently leaking with the exception of some downspouts on the north side.
2. Many of the windows leak during rainstorms with high winds. They are approximately 20 years old.
3. The building is undergoing mortar tuckpointing. The north side is complete and there are plans to tuckpoint the other sides.
4. The slate roof was replaced around 7 or 8 years ago.
5. The automatic doors function well.
6. The HVAC system is very poor and was installed approximately 20 years ago and many corners were cut during installation .
7. The interior high bay lighting is in the process of being changed out from HID to induction type. The exterior pole lighting will be replaced as well.

3

MAINTENANCE ITEMS & BUDGET

Maintenance Items and Budgets

(Organized by building and listed by priority level)

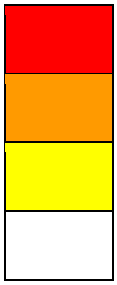
Following are maintenance items with budgets for the:

- Bertram Woods Branch Library
- Main Library

Maintenance items are organized by building and grouped by priority for each building. The items were identified during assessments performed in March, 2014. The assessments are included in a separate report. This information should be reviewed and updated on a regular basis to reflect what has been completed, what new issues and concerns have developed and to reflect changes in cost.

Budget numbers were developed utilizing baseline cost data and may vary significantly depending on current market conditions and how the work is packaged for pricing.

PRIORITY IMPORTANCE LEGEND



Item is critical and should be performed as soon as possible

Item is high and should be performed in the near future (within 2 to 5 years)

Item is medium and should be planned for (within 5 to 10 years)

Item is low and should be performed when funds are available

Bertram Woods Branch Library

12,000 SF

Priority	Item	Description	Budget
	1.	Re-caulk all windows and doors in the facility 650 LF at $6.00/LF	$3,900
	2.	Strip and Wax Meeting Room	$400
	3.	Paint exterior wood trim 1,800 SF @ 2.00/SF	$3,600
	4.	The unit ventilators and the fan coil units need their coils cleaned and their return air grilles and sections clean of dust and debris.	$750
	5.	The ceiling diffusers and grilles need to be cleaned. The ductwork needs to be inspected to see if ductwork needs to be cleaned.	$6,000
	6.	The hot/chilled water system's air separators' insulation needs to be removed to verify if it has a leak or if the unit is sweating. The issue needs to be fixed and the unit re-insulated.	$1,100
	7.	The condensing units' refrigerant piping insulation needs to be replaced.	$300
	8.	The outdoor chillers location needs to be cleaned.	$75
	9.	The gas pipe needs to be modified to enter the building above grade.	$2,500
	10.	One pump needs additional insulation installed.	$300
	11.	Confirm the building is properly grounded per code.	$1,200
	12.	Maintain code required working clearances in front of electrical equipment. Remove storage in front of panels and add signage and labels that clearly identify the clear dedicated space needed in front of every electrical panel	$1,000
	13.	Replace existing receptacles with tamper resistant type receptacles in child care/public areas ($45/device x 50)	$2,250
	14.	Replace asphalt parking lot 2,300 SY @$30/SY	$69,000
	15.	Replace existing sidewalks 1,700 SF @ $6/SF	$10,200
	16.	Replace existing curb 1,100 LF @ $18/LF	$19,800
	17.	Waterproof Basement foundation walls (estimate provided by SHPL)	$100,000

	18.	Landscaping rework 3,600 SF @ $12.50/SF	$45,000
	19.	Replace Parking lot lighting	$75,000
	20.	Replace skylights 200 SF @$140.00/SF	$28,000
	21.	Repaint interior and replace baseboards 12,000 SF @ $2.00	$24,000
	22.	The buildings room thermostats are not controlling the space temperatures properly. The thermostats are set at different settings. These thermostats need to be calibrated or replaced. A new building automation system should be considered to have better control of the building space temperatures and efficiency of operating the mechanical equipment. Plus, alarms can be programmed to identify system operating problems to any person. Plus, the system operating parameters and changes can be accessed remotely.	$50,000
	23.	Current code requires electrical equipment to be labeled for Arch Flash Hazard and Short Circuit. Consideration should be given to hiring a qualified third party to perform a Short Circuit Study, Arch Flash Study and a Coordination Study	$12,000
	24.	Consideration should be given to adding new automatic control for the interior lighting and replacing the existing automatic controls for the exterior lighting. The type of automatic controls to consider would probably be a combination of the following: programmable lighting relay panel with time of day schedules and photocell control inputs for the larger areas/spaces; stand alone or lighting relay panel system dual technology occupancy/vacancy sensors for smaller enclosed spaces; digital timer switches for utility rooms	$28,000
	25.	Consideration should be given to upgrading the fire alarm system in the future to an addressable type	$23,000
	26.	Consideration should be given to lowering several fire alarm devices to compliant heights above the floor	$1,000
	27.	Replace all Cat5 cabling with Cat6 as Cat6 is the current (and foreseeable) standard. Cat6 provides additional bandwidth and capabilities for future applications	$30,000
	28.	Replace Cat5 cabling to Wireless Access Points with two (2) Cat6A cabling. In order to support future BYOD (Bring Your Own Device) wireless	$20,000 (Incl. WAPs & Controller)
	29.	Replace existing aluminum entry doors and hardware Eight (8) single leafs @$2,000/door Includes removal of existing doors	$16,000

	30.	Replace existing aluminum entry doors and hardware including auto openers Two (2) pair of doors (4 doors total) @$3,000/door $2,000 for each door leaf $3,000 for each opener Includes removal of existing doors	$14,000
	31.	Replace existing aluminum windows with new insulated units 1,250 SF @ $60/SF	$75,000
	32.	The mechanical equipment is about 15 years old. This equipment has an expected life span of 25 years. So, the library should start developing a plan to have this equipment replaced in 10-15 years.	$180,000
	33.	Consideration should be given to replacing existing light fixtures with fixtures that contain more efficient lamps and ballasts/drivers (T5 and/or LED) in the future.	$104,000
	34.	Consideration should be given to purchasing "Long Life" rated lamps for existing fixtures when replacement is needed. (Note: light level output of lamps decreases to achieve longer lamp life.)	$0
	35.	Add exterior outlets 5 @ $250.00/OUTLET	$1,250
	36.	Exterior masonry cleaning 5,500 SF @ 1.50/SF	$8,300
	37.	The chiller has refrigerant R-22, which has been discontinued. Recyclable R-22, which has been cleaned, is available; but the cost of this refrigerant is getting pricey. It may come to the time that this cost may be too high or the refrigerant may not be available. The library should investigate the cost to modify the existing chiller with a new refrigerant or replace the chiller with a new one.	$75,000
	38.	Consideration should be given to upgrading the existing service in the future to a 3-phase commercial service and having only one electric utility meter serve the building. (Utility company costs not included in estimate.)	$25,000
	39.	Consideration should be given to adding surge protection devices (SPD), or transient voltage surge suppressor (TVSS), through-out the electric system, as warranted, to protect the system and equipment from the damaging effects of lightning and voltage disturbances.	$5,000

	40.	It may be beneficial to investigate current incentives being offered by the electric utility company. At times, the electric utility company offers incentives to customers for upgrading their facilities with more energy efficient appliances, lighting and the like.	$0
	41.	Existing racks should be retrofitted with vertical cable management raceway to improve patch cable support. All patch cables should be replaced with Cat6 or Cat 6a patch cables as appropriate	$1,650
	42.	Replace Telecommunications main Grounding Bus bar (TMGB) with proper sized bar, relocate to a proper location, and re-cable all grounding cables to new bus bar	$500
	43.	The Library should check with their Cisco representative, as the current switches may have reached end of life and are no longer supported by Cisco	$15,000-$20,000
	44.	Replace all exterior cameras with exterior rated cameras in weather-proof housings. Re-initialize video management system to re-acquire video feed from all cameras	$9,600
	45.	Phone devices are not exterior rated, recommend replacing exterior phones with exterior rated phone station connected to the phone system	$1,200-$3,000 Ea.

Main Library

62,300 SF

Priority	Item	Description	Budget
	1.	Install new ADA compliant railings at handicap ramp 100 LF @ 20.00/LF	$2,000
	2.	Re-paint stone trim on exterior 1,600 SF @ $4.00/SF Includes scaffolding	$6,400
	3.	Replace skylights 300 SF @$140.00/SF	$42,000
	4.	Replace existing broadloom carpet on Second Floor 600 SY @ $60/SY Budget estimate includes removal and disposal of existing carpet, furniture moving and installation of new carpet tile	$36,000
	5.	Install vertical grab bar in Toilet Rooms 8 @ $200 each – Installed Cost	$1,600
	6.	Repair Children's Area restroom piping and finishes	$3,000
	7.	Confirm the building is properly grounded per code.	$2,800
	8.	Maintain code required working clearances in front of electrical equipment. Remove storage in front of panels and add signage and labels that clearly identify the clear dedicated space needed in front of every electrical panel	$3,000
	9.	Replace existing receptacles with tamper resistant type receptacles in child care/public areas (Unit price $45; ~250 devices assumed.)	$11,250
	10.	Further investigation should be made to determine if the proper floor boxes were installed to maintain the fire rating of the building structure between floors (Investigation only, does not include replacement, if required.)	$500
	11.	Consideration should be given to redesigning and replacing the light fixtures within the two story area on the first level as the light levels appear to be low and there doesn't appear to be any emergency lighting	$95,000
	12.	The cold water feed to the open cooling tower needs a new electric heat trace and needs to be insulated to keep this water line from freezing.	$2,500
	13.	AHU-2's cooling drip pan and the coil need to be checked for leaks and the issue corrected.	$3,500
	14.	The intake air shaft needs to be cleaned out of dirt and debris. One ductwork section need its cover screen replaced.	$300

	15.	The exhaust fan in AHU-3 mechanical room and the outside air intake damper need to be removed and openings capped.	$2,800
	16.	The gas pipe needs to be modified to enter the building above grade.	$3,500
	17.	Exhaust fan, EF-4, needs its broken belt replaced.	$75
	18.	The ceiling diffusers and grilles need to be cleaned. The ductwork needs to be inspected to see if ductwork needs to be cleaned.	$25,000
	19.	Re-stripe parking lot	$3,500
	20.	Resurface Staff parking area 700SY @ $19/SY	$13,300
	21.	Repair rotting wood at rooftop cupola	$20,000
	22.	Replace existing carpet in Basement 700 SY @$60/SY Budget estimate includes removal and disposal of existing carpet, furniture moving and installation of new carpet tile	$42,000
	23.	Repaint interior and replace baseboards 60,000 SF @ $2.00	$120,000
	24.	Replace acoustical ceiling tile in Basement Budget estimate includes removal and disposal of existing ACT. Existing grid to remain. 6,000 SF @$4.00/SF	$24,000
	25.	Repair damaged plaster ceiling and pilasters in the main high bay space on the first floor	$5,000
	26.	Waterproof Basement Walls (SHPL estimate)	$225,000
	27.	Current code requires electrical equipment to be labeled for Arch Flash Hazard and Short Circuit. Consideration should be given to hiring a qualified third party to perform a Short Circuit Study, Arch Flash Study and a Coordination Study	$18,000
	28.	Consideration should be given to adding new automatic control for the interior lighting and replacing the existing automatic controls for the exterior lighting. The type of automatic controls to consider would probably be a combination of the following: networked programmable lighting relay panels with time of day schedules and photocell control inputs for the larger areas/spaces; stand alone or lighting relay panel system dual technology occupancy/vacancy sensors for smaller enclosed spaces; digital timer switches for utility rooms	$80,000
	29.	Consideration should be given to upgrading the fire alarm system in the future to an addressable type	$110,000

	30.	The air cooled chiller and the open cooling tower's support frame needs to be cleaned and painted to prevent further rusting of support frame.	$6,500
	31.	The light ballast room on the second floor needs a mechanical cooling system designed and installed to keep the room temperature proper for the equipment. This will keep the equipment from failing prematurely.	$6,800
	32.	The Liebert's condensing units refrigerant piping insulation needs to be replaced.	$300
	33.	The electrical/data room needs the spot cooler removed and a permanent cooling system installed sized to handle this room's cooling needs.	$6,800
	34.	All the building VAV boxes need to be planned to be replaced. They are 22 years old and their expected life is 25 years. Since there is a problem with the controls, it will be better to replace the box with new controls than just replacing the controls.	$260,000
	35.	The DDC needs to be replaced with a new BAS system for better and more efficient control and operation of the mechanical equipment.	$130,000
	36.	The mechanical equipment is about 22 years old. This equipment has an expected life span of 25 years. So, the library should start developing a plan to have this equipment replaced in 3-5 years.	$800,000
	37.	The buildings room thermostats are not controlling the space temperatures properly. The thermostats are set at different settings. These thermostats need to be calibrated or replaced. A new building automation system should be considered to have better control of the building space temperatures and efficiency of operating the mechanical equipment. Plus, alarms can be programmed to identify system operating problems to any person. Plus, the system operating parameters and changes can be accessed remotely.	$250,000
	38.	The air cooled chiller has refrigerant R-22, which has been discontinued. Recyclable R-22, which has been cleaned, is available; but the cost of this refrigerant is getting pricey. It may come to the time that this cost may be too high or the refrigerant may not be available. The library should investigate the cost to modify the existing chiller with a new refrigerant or replace the chiller with a new one.	$160,000
	39.	In areas of use, replace all Cat5 and Cat 5e cabling with Cat6 as Cat6 is the current (and foreseeable) standard. Cat6 provides additional bandwidth and capabilities for future applications	$45,000

	40.	Replace Cat5 cabling to Wireless Access Points with two (2) Cat6A cabling. In order to support future BYOD (Bring Your Own Device) wireless	$44,000 (Incl. WAPs & Controller
	41.	Replace existing EPDM membrane roof system with EPDM system 17,000 SF @$10/SF	$170,000
	42.	Misc. acoustical stained ceiling tile replacement Budget estimate includes removal and disposal of existing ACT. Existing grid to remain. 500 SF @$4.00/SF	$2,000
	43.	Replace existing aluminum windows with new insulated units 8,400 SF @ $60/SF	$504,000
	44.	Add exterior outlets 7 @ $250/outlet	$1,750
	45.	Consideration should be given to replacing existing light fixtures with fixtures that contain more efficient lamps and ballasts/drivers (T5 and/or LED) in the future.	$448,000
	46.	Consideration should be given to purchasing "Long Life" rated replacement lamps for existing fixtures when replacement is needed. (Note: light level output of lamps decreases to achieve longer lamp life.)	$0
	47.	The second floor chilled water system needs to be investigated further and the proper circulating pumps installed for this system.	$2,500
	48.	Add site lighting at walking paths	$12,000
	49.	Upgrade Elevator and Restroom finishes and accessories	$50,000
	50.	Consideration should be given to adding surge protection devices (SPD), or transient voltage surge suppressor (TVSS), through-out the electric system, as warranted, to protect the system and equipment from the damaging effects of lightning and voltage disturbances.	$25,000
	51.	It may be beneficial to investigate current incentives being offered by the electric utility company. At times, the electric utility company offers incentives to customers for upgrading their facilities with more energy efficient appliances, lighting and the like	$0
	52.	New Drive-up Book Drop installation	$2,000

	53.	Tuckpointing of the existing masonry walls (SHPL estimate)	$420,000
	54.	All unused patch cables should be removed from the racks. The current patch cabling is a complete disaster. Existing racks without vertical cable management should be retrofitted with vertical cable management raceway; racks with existing vertical management should be re-cabled to make use of this management to improve patch cable support. All patch cables should be replaced with Cat6 or Cat 6a patch cables as appropriate	Wire Mgmt., $600 Patch Cable, $2,250, 4-Post Server Rack, $1,200
	55.	In a number of the TR locations the cable form the ceiling to the rack is not sufficiently supported. Based on observation it is expected that some cables are either broken or damaged to the point of severely limiting bandwith and connectivity	Ladder Tray, $1,500
	56.	The Library should check with their Cisco representative, as the current switches may have reached end of life and are no longer supported by Cisco	$22,500-$30,000
	57.	Recommend having a wireless survey performed to verify proper coverage of the wireless network	$2,500
	58.	Replace all exterior cameras with exterior rated cameras in weather-proof housings. Re-initialize video management system to re-acquire video feed from all cameras	$12,800
	59.	Relief air for the mechanical room in the lower level needs to be investigated to provide enough air for the supply fan to keep the building from going into a too positive pressure relationship. Causing dirty air to go into the main building.	$3,500

4

PREVENTATIVE MAINTENANCE RECOMMENDATIONS

Preventive Maintenance Recommendations

(For both buildings unless noted otherwise)

Site

1. Inspect regularly to ensure that all storm drains are free of debris.
2. Inspect pavement for signs of cracks and surface wear. Pavement should be crack-filled and seal-coated on a regular basis.
3. Inspect to ensure that accessible routes are free of obstructions from each parking space to the building.
4. Trim all trees.
5. Inspect fencing and gate operations.
6. Inspect grading to ensure that water drains away from the building.

General Building (Exterior)

1. Inspect for weather-tightness of all exterior surfaces. Fall and spring.
2. Inspect all exterior finishes for wear, paint or finish deterioration, rot, water damage, etc. Repair as required. Fall and spring.
3. Inspect all exterior sealants for drying, splitting, cracking or separation from adjacent surfaces. Fall and spring.
4. Inspect glass for cracks and breaks. Replace as required.

Roofing

1. Inspect at least twice a year, and after any severe storm.
2. Create a roofing file for each building; review warranty information.
3. Clear roof drains of debris (roof warranties don't cover this).
4. Walk the perimeter to examine sheet metal, copings, and previously repaired sections.
5. Check roof-to-wall connections, and examine flashings (at curbs and penetrations, etc.) for wrinkles and tearing.
6. For single-ply roofs, re-caulk the top of face-mounted termination bars (if needed).
7. Keep traffic off of the roof to avoid membrane damage.
8. Plan a thermal moisture survey every 5 years to detect wet insulation or leaks.

General Building (Interior)

1. Inspect elevator as required by local or state governing authorities.
2. Inspect condition of all interior finishes for signs of wear. Repair as required.
3. Inspect all exterior walls for signs of water infiltration.
4. Inspect condition of all stairs, ramps and railings. Walking surfaces should be free from debris or any tripping hazards. Railings should be secure.
5. Inspect exterior windows for signs of water infiltration, condensation, etc. Repair and/or replace as required.
6. Inspect glass for signs of cracks and breaks. Replace as required.
7. Inspect plumbing fixtures for proper operation, leaks, etc. Repair as required.

Carpeting

1. Regular vacuuming to avoid solids build-up and permanent stains.
2. Interim annual moisture-minimal cleanings.

Doors and Hardware

1. Automatic entry doors: Inspect regularly ensuring that required signage is in place; nothing is impeding or slowing foot traffic or door operation; no trip hazards are present; and all the automatic functions and safety controls, such as finger guards and motion controls, are in place and work properly.
2. Swing doors: Lubrication is required once every six months to a year, depending on the type of door and its level of use.

Mechanical

Each year, before the heating and cooling season, the following should be done:

1. With your list of equipment to be maintained, visually inspect for defects in need of correction.
2. A spreadsheet should be created for each piece of equipment listing the maintenance procedures and schedules for all equipment. A good place to start is with the manufacturers' operation and maintenance manuals. This will become the maintenance log.
3. Tune up equipment as dictated in the owner's manuals.
4. Clean or replace HVAC filters. This may need to be done every two or three months depending on how dirty the environment is outside and inside the

building. Usually, a road with much traffic will generate more dirt in the air causing filters to be cleaned more often. Owner needs to make note of this cleaning and replacement frequency and log in maintenance report.

5. Comb condenser fins, HVAC coil fins, and clean/vacuum coils. Remove all debris from coils.
6. Clean/vacuum all HVAC intake and discharge grilles from equipment like fan coil units, unit ventilators, convectors, unit heater, etc.
7. Clean/vacuum all air handling units outside intake/return air intake, mixing sections and dampers.
8. Clean/vacuum all HVAC supply diffusers and return grilles and louvers.
9. Once every five years (or as needed due to the air quality of this area) clean/vacuum the HVAC supply, return air ductwork, and supply return fans.
10. Clean/vacuum all air intake and air exhaust air shafts outside.
11. Oil or grease pump and fan motors and damper operator linkages.
12. Check equipment controls and ensure sensor calibration is maintained. Review control sequences of operations and make sure someone has not changed them, or that they have been modified for better temperature control.
13. For the hot and chilled water piping systems, clean strainers, check and maintain fluid levels, conditions, chemical treatment, and system pressure.
14. Exercise all valves in the HVAC and plumbing systems. If this has not been done for a long time (many years), take precaution and do not force valves closed. This may cause the valve to leak. It may be best to leave valves alone and replace them if the valve needs to be closed for repairing the piping system.
15. Check all cooling coil drain pans for proper drainage and clean pans. Check drain piping and remove any corrosion and blockages.
16. For fans with belts, check and adjust to have proper belt tension.
17. For DX cooling systems, check for refrigerant leaks and check for proper refrigerant levels and pressures.
18. For all motors, fans, and pumps, check for excessive vibrations and noise.
19. Inspect all insulation and ductwork, piping and inside HVAC air handlers to make sure they are fastened correctly and intact. Repair any wet or damaged insulation.

Electrical

Reference NFPA 70B publication as this recommended practice applies to preventive maintenance for electrical, electronic, and communication systems and equipment. This publication is not intended to duplicate or supersede instructions that manufacturers normally provide. Systems and equipment covered are typical of those installed in industrial plants, institutional and commercial buildings, and large multifamily residential complexes.

Power Systems

1. A PM schedule should begin with the maintenance department assessing their past maintenance records to find repair patterns. These records may point to certain components that should be closely inspected during performance of preventive maintenance.

The following inspections are for specific type of equipment and what may be required every 3-5 years

Electrical Distribution Equipment:

1. Inspect for warning signs such as insulation burnt or melted plastics. Replace as required.
2. Inspect enclosures for damage, unauthorized openings, and corrosion of metallic objects. Repair and paint as required.
3. Inspect, investigate, and solve conditions for unusual odors.
4. As equipment is operated and tested, listen, investigate, and solve conditions for unusual noises.
5. Inspect electrical connections for degradation and tightness. Repair as required. Torque all electrical connections to design value.
6. Inspect electrical insulation for discoloration and degradation. Repair as required.
7. Inspect equipment grounding components such as conductors and connections. Repair as required.
8. Inspect insulators for damage. Replace as required.
9. Inspect indicating lights for correct illumination.
10. Remove debris, dirt, and other foreign objects from all components, housings, cabinets, panels, etc.
11. Conduct infrared test on all main current carrying equipment for hot spots that may indicate overload conditions or loose connections.

Motor Starter:

1. Manually operate switches and circuit breakers to verify correct operation.
2. Operate starter unit using all manual and automatic control devices to ensure correct operation.
3. Verify correct interlocking action with other associated equipment.
4. Verify correct indicating light operation.
5. Verify equipment alarms

Safety Switches:

1. Inspect, operate, adjust, and lubricate mechanical linkages. Replace components as required.
2. Verify operation of mechanical interlocks.
3. Inspect and dress current carrying contacts in accordance with manufacturer's recommendations.
4. Test safety switches Perform insulation resistance test on each phase-to-phase and phase-to-ground using a megohmmeter of each critical load switch.
5. Perform contact resistance test on each critical load switch.

Lighting

1. Inspect at regular intervals, with group relamping when lamps begin to fail.
2. Check exterior lights to make sure cables aren't torn; all screws and hardware should be in place and working, and gaskets can be replaced to provide a better watertight seal.
3. Replace any burned-out lamps, and consider group relamping (to create your relamping schedule, calculate lamp life and how often lamps are used).
4. Ensure that each lamp has the same color temperature.
5. Re-aim adjustable lighting, if necessary.
6. Dust lamps and clean lens surfaces to enhance lighting performance.

Fire Alarm and Security Systems

1. Though a licensed or manufacturer-authorized professional should inspect fire- and life-safety systems, you can make sure your certification is up to date, and ensure that reports and paperwork are handy. You should also verify that your fire-protection control panel isn't in "alarm" or "trouble" condition, check that the pressure gauges on the fire suppression agent cylinders are in the green/operable range, ensure that system piping or

conduit is properly anchored, and verify that system nozzles aren't obstructed and allow adequate flow of the suppression agent into the protected space.

Camera and Security Systems

1. Inspect at regular intervals, according to manufacturer specifications.

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MAINTENANCE ITEMS & BUDGETS PER ANNUM AND SUMMARY TIMELINE

Bertram Woods Branch Library
Maintenance Items and Budgets Per Annum

04.21.14

Year	Item	Budget
2015	Re-caulk all windows and doors in the facility	$3,900
	Strip and Wax Meeting Room	$400
	Paint exterior wood trim	$3,600
	The unit ventilators and the fan coil units need their coils cleaned and their return air grilles and sections clean of dust and debris.	$750
	The ceiling diffusers and grilles need to be cleaned. The ductwork needs to be inspected to see if ductwork needs to be cleaned.	$6,000
	The hot/chilled water system's air separators' insulation needs to be removed to verify if it has a leak or if the unit is sweating. The issue needs to be fixed and the unit re-insulated.	$1,100
	The condensing units' refrigerant piping insulation needs to be replaced.	$300
	The outdoor chillers location needs to be cleaned.	$75
	The gas pipe needs to be modified to enter the building above grade.	$2,500
	One pump needs additional insulation installed.	$300
	Confirm the building is properly grounded per code.	$1,200
	Maintain code required working clearances in front of electrical equipment. Remove storage in front of panels and add signage and labels that clearly identify the clear dedicated space needed in front of every electrical panel	$1,000
	Replace existing receptacles with tamper resistant type receptacles in child care/public areas	$2,250
	2015 Total	***$23,375***
2016	Replace asphalt parking lot	$69,000
	Replace existing sidewalks	$10,200
	Replace existing curb	$19,800
	Waterproof Basement foundation walls	$100,000
	Replace parking lot lighting	$75,000
	Landscaping rework	$45,000
	2016 Total	***$319,000***
2017	Replace skylights	$28,000
	Repaint interior and replace baseboards	$24,000
	A new building automation system should be considered to have better control of the building space temperatures and efficiency of operating the mechanical equipment.	$50,000
	Replace all Cat5 cabling with Cat6 as Cat6 is the current (and foreseeable) standard. Cat6 provides additional bandwidth and capabilities for future applications	$30,000
	Replace Cat5 cabling to Wireless Access Points with two (2) Cat6A cabling. In order to support future BYOD (Bring Your Own Device) wireless	$20,000

Year	Item	Budget
2017	Existing racks should be retrofitted with vertical cable management raceway to improve patch cable support. All patch cables should be replaced with Cat6 or Cat 6a patch cables as appropriate	$1,650
	Replace Telecommunications main Grounding Bus bar (TMGB) with proper sized bar, relocate to a proper location, and re-cable all grounding cables to new bus bar	$500
	The Library should check with their Cisco representative, as the current switches may have reached end of life and are no longer supported by Cisco	$20,000
	2017 Total	***$174,150***
2018	Current code requires electrical equipment to be labeled for Arch Flash Hazard and Short Circuit. Consideration should be given to hiring a qualified third party to perform a Short Circuit Study, Arch Flash Study and a Coordination Study	$12,000
	Consideration should be given to adding new automatic control for the interior lighting and replacing the existing automatic controls for the exterior lighting. The type of automatic controls to consider would probably be a combination of the following: programmable lighting relay panel with time of day schedules and photocell control inputs for the larger areas/spaces; stand alone or lighting relay panel system dual technology occupancy/vacancy sensors for smaller enclosed spaces; digital timer switches for utility rooms	$28,000
	2018 Total	***$40,000***
2019	Consideration should be given to upgrading the fire alarm system in the future to an addressable type	$23,000
	Consideration should be given to lowering several fire alarm devices to compliant heights above the floor	$1,000
	2019 Total	***$24,000***
2020	Replace existing aluminum entry doors and hardware	$16,000
	Replace existing aluminum entry doors and hardware including auto openers	$14,000
	Replace existing aluminum windows with new insulated units	$75,000
	2020 Total	***$105,000***
2021	Consideration should be given to replacing existing light fixtures with fixtures that contain more efficient lamps and ballasts/drivers (T5 and/or LED) in the future.	$104,000
	Consideration should be given to purchasing "Long Life" rated lamps for existing fixtures when replacement is needed.	$0
	2021 Total	***$104,000***
2022	Add exterior outlets	$1,250
	Exterior masonry cleaning	$8,300
	The chiller has refrigerant R-22, which has been discontinued. Recyclable R-22, which has been cleaned, is available; but the cost of this refrigerant is getting pricey. It may come to the time that this cost may be too high or the refrigerant may not be available. The library should investigate the cost to modify the existing chiller with a new refrigerant or replace the chiller with a new one.	$75,000
	2022 Total	***$84,550***

Year	Item	Budget
2023	Consideration should be given to upgrading the existing service in the future to a 3-phase commercial service and having only one electric utility meter serve the building. (Utility company costs not included in estimate.)	$25,000
	Consideration should be given to adding surge protection devices (SPD), or transient voltage surge suppressor (TVSS), through-out the electric system, as warranted, to protect the system and equipment from the damaging effects of lightning and voltage disturbances.	$5,000
	2023 Total	***$30,000***
2024	Replace all exterior cameras with exterior rated cameras in weather-proof housings. Re-initialize video management system to re-acquire video feed from all cameras	$9,600
	Phone devices are not exterior rated, recommend replacing exterior phones with exterior rated phone station connected to the phone system	$9,000
	2024 Total	***$18,600***
2025	The mechanical equipment is about 15 years old. This equipment has an expected life span of 25 years. So, the library should start developing a plan to have this equipment replaced in 10-15 years.	$180,000
	2025 Total	***$180,000***

Note: This breakdown by year represents one path to completing the identified maintenance items. The Shaker Heights Public Library can adjust, as necessary, the priority and timing of this sequencing.

Main Library
Maintenance Items and Budgets Per Annum
04.21.14

Year	Item	Budget
2015	Install new ADA compliant railings at handicap ramp	$2,000
	Re-paint stone trim on exterior	$6,400
	Replace skylights	$42,000
	Replace existing broadloom carpet on Second Floor	$36,000
	Install vertical grab bar in Toilet Rooms	$1,600
	Repair Children's Area restroom piping and finishes	$3,000
	Confirm the building is properly grounded per code	$2,800
	Maintain code required working clearances in front of electrical equipment. Remove storage in front of panels and add signage and labels that clearly identify the clear dedicated space needed in front of every electrical panel	$3,000
	Replace existing receptacles with tamper resistant type receptacles in child care/public areas	$11,250
	Further investigation should be made to determine if the proper floor boxes were installed to maintain the fire rating of the building structure between floors (Investigation only, does not include replacement, if required.)	$500
	Consideration should be given to redesigning and replacing the light fixtures within the two story area on the first level as the light levels appear to be low and there doesn't appear to be any emergency lighting	$95,000
	The cold water feed to the open cooling tower needs a new electric heat trace and needs to be insulated to keep this water line from freezing.	$2,500
	AHU-2's cooling drip pan and the coil need to be checked for leaks and the issue corrected.	$3,500
	The intake air shaft needs to be cleaned out of dirt and debris. One ductwork section need its cover screen replaced.	$300
	The exhaust fan in AHU-3 mechanical room and the outside air intake damper needs to be removed and openings capped.	$2,800
	The gas pipe needs to be modified to enter the building above grade.	$3,500
	Exhaust fan, EF-4, needs its broken belt replaced.	$75
	The ceiling diffusers and grilles need to be cleaned. The ductwork needs to be inspected to see if ductwork needs to be cleaned.	$25,000
	Replace existing receptacles with tamper resistant type receptacles in child care/public areas.	$2,250
	Install two drive-up book drops.	$2,000
	2015 Total	***$154,475***

2016	Repaint interior and replace baseboards	$120,000
	Replace acoustical ceiling tile in Basement	$24,000
	Replace existing carpet in Basement	$42,000
	Repair damaged plaster ceiling and pilasters in the main high bay space on the first floor	$5,000
	Misc. acoustical stained ceiling tile replacement	$2,000

Year	Item	Budget
2016	Relief air for the mechanical room in the lower level needs to be investigated to provide enough air for the supply fan to keep the building from going into a too positive pressure relationship. Causing dirty air to go into the main building.	$3,500
	The DDC needs to be replaced with a new BAS system for better and more efficient control and operation of the mechanical equipment.	$130,000
	Recommend having a wireless survey performed to verify proper coverage of the wireless network	$2,500
	2016 Total	***$329,000***
2017	All the building VAV boxes need to be planned to be replaced. They are 22 years old and their expected life is 25 years. Since there is a problem with the controls, it will be better to replace the box with new controls than just replacing the controls.	$260,000
	The second floor chilled water system needs to be investigated further and the proper circulating pumps installed for this system.	$2,500
	The light ballast room on the second floor needs a mechanical cooling system designed and installed to keep the room temperature proper for the equipment. This will keep the equipment from failing prematurely.	$6,800
	The Liebert's condensing units refrigerant piping insulation needs to be replaced.	$300
	The electrical/data room needs the spot cooler removed and a permanent cooling system installed sized to handle this room's cooling needs.	$6,800
	All unused patch cables should be removed from the racks. The current patch cabling is a complete disaster. Existing racks without vertical cable management should be retrofitted with vertical cable management raceway; racks with existing vertical management should be re-cabled to make use of this management to improve patch cable support. All patch cables should be replaced with Cat6 or Cat 6a patch cables as appropriate	$4,050
	In a number of the TR locations the cable form the ceiling to the rack is not sufficiently supported. Based on observation it is expected that some cables are either broken or damaged to the point of severely limiting bandwith and connectivity	$1,500
	The Library should check with their Cisco representative, as the current switches may have reached end of life and are no longer supported by Cisco	$30,000
	Current code requires electrical equipment to be labeled for Arch Flash Hazard and Short Circuit. Consideration should be given to hiring a qualified third party to perform a Short Circuit Study, Arch Flash Study and a Coordination Study	$18,000
	2017 Total	***$311,950***
2018	Resurface Staff parking area	$13,300
	Repair rotting wood at rooftop cupola	$20,000
	Waterproof Basement Walls (SHPL estimate)	$225,000
	The buildings room thermostats are not controlling the space temperatures properly. The thermostats are set at different settings. These thermostats need to be calibrated or replaced. A new building automation system should be considered to have better control of the building space temperatures and efficiency of operating the mechanical equipment. Plus, alarms can be programmed to identify system operating problems to any person. Plus, the system operating parameters and changes can be accessed remotely.	$250,000
	In areas of use, replace all Cat5 and Cat 5e cabling with Cat6 as Cat6 is the current (and foreseeable) standard. Cat6 provides additional bandwidth and capabilities for future applications	$45,000

Year	Item	Budget
2018	Replace Cat5 cabling to Wireless Access Points with two (2) Cat6A cabling. In order to support future BYOD (Bring Your Own Device) wireless	$44,000
	Replace all exterior cameras with exterior rated cameras in weather-proof housings. Re-initialize video management system to re-acquire video feed from all cameras	$12,800
	2018 Total	***$610,100***
2019	The air cooled chiller has refrigerant R-22, which has been discontinued. Recyclable R-22, which has been cleaned, is available; but the cost of this refrigerant is getting pricey. It may come to the time that this cost may be too high or the refrigerant may not be available. The library should investigate the cost to modify the existing chiller with a new refrigerant or replace the chiller with a new one.	$160,000
	Replace mechanical equipment (boilers)	$300,000
	The air cooled chiller and the open cooling tower's support frame needs to be cleaned and painted to prevent further rusting of support frame.	$6,500
	2019 Total	***$466,500***
2020	Replace mechanical equipment (AHU's)	$250,000
	Consideration should be given to adding new automatic control for the interior lighting and replacing the existing automatic controls for the exterior lighting.	$80,000
	Consideration should be given to upgrading the fire alarm system in the future to an addressable type	$110,000
	2020 Total	***$440,000***
2021	Replace existing EPDM membrane roof system with EPDM system	$170,000
	Upgrade Elevator and Restroom finishes and accessories	$50,000
	Repair rotting wood at rooftop cupola	$20,000
	Replace mechanical equipment (AHU's)	$250,000
	2021 Total	***$490,000***
2022	Replace existing aluminum windows with new insulated units	$126,000
	Consideration should be given to replacing existing light fixtures with fixtures that contain more efficient lamps and ballasts/drivers (T5 and/or LED) in the future.	$112,000
	Tuckpointing of the existing masonry walls (SHPL estimate)	$105,000
	Add exterior outlets	$1,750
	2022 Total	***$344,750***
2023	Replace existing aluminum windows with new insulated units	$126,000
	Consideration should be given to replacing existing light fixtures with fixtures that contain more efficient lamps and ballasts/drivers (T5 and/or LED) in the future.	$112,000
	Tuckpointing of the existing masonry walls (SHPL estimate)	$105,000
	2023 Total	***$343,000***
2024	Replace existing aluminum windows with new insulated units	$126,000
	Consideration should be given to replacing existing light fixtures with fixtures that contain more efficient lamps and ballasts/drivers (T5 and/or LED) in the future.	$112,000
	Tuckpointing of the existing masonry walls (SHPL estimate)	$105,000
	2024 Total	***$343,000***

Year	Item	Budget
2025	Replace existing aluminum windows with new insulated units	$126,000
	Consideration should be given to replacing existing light fixtures with fixtures that contain more efficient lamps and ballasts/drivers (T5 and/or LED) in the future.	$112,000
	Tuckpointing of the existing masonry walls (SHPL estimate)	$105,000
	2025 Total	***$343,000***

Note: This breakdown by year represents one path to completing the identified maintenance items. The Shaker Heights Public Library can adjust, as necessary, the priority and timing of this sequencing.

Shaker Heights Public Library
Maintenance Budget Item Timeline Summary
04.21.14

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Bertram Woods Per Year	*$23,375*	*$319,000*	*$174,150*	*$40,000*	*$24,000*	*$105,000*	*$104,000*	*$84,550*	*$30,000*	*$18,600*	*$180,000*
Running Total	$23,375	$342,375	$516,525	$556,525	$580,525	$685,525	$789,525	$874,075	$904,075	$922,675	**$1,102,675**
Main Per Year	*$154,475*	*$329,000*	*$311,950*	*$610,100*	*$466,500*	*$440,000*	*$490,000*	*$344,750*	*$343,000*	*$343,000*	*$343,000*
Running Total	$154,475	$483,475	$795,425	$1,405,525	$1,872,025	$2,312,025	$2,802,025	$3,146,775	$3,489,775	$3,832,775	**$4,175,775**
Main and Woods Per Year	*$177,850*	*$648,000*	*$486,100*	*$650,100*	*$490,500*	*$545,000*	*$594,000*	*$429,300*	*$373,000*	*$361,600*	*$523,000*
Running Total	$177,850	$825,850	$1,311,950	$1,962,050	$2,452,550	$2,997,550	$3,591,550	$4,020,850	$4,393,850	$4,755,450	**$5,278,450**

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025