ROANOKE COUNTY PUBLIC SCHOOLS
MAINTENANCE BUILDINGS

ARCHITECTURAL

There are four existing Maintenance Buildings on site. Building One is Maintenance Building Office, Building Two is Wood Shop Building, Building Three is Wood Post and Beam Building and Building Four is Maintenance Key Shop and Electronics Repair Building. Maintenance Building Office is on a concrete slab with concrete block walls, wood roof structure with metal roof panels. The front entrance has two offices and a workroom with casework. The front entrance also has two small restrooms. One small restroom off of the office has vinyl asbestos floor tile and this needs to be abated and replaced with new floor tile. The back part of the building is a wood working shop area with a mechanical room and a mezzanine office. Building renovation will bring the handicap accessibility, restroom accessibility and signage up to current standards.

Building Two is a wood shop with a paint booth and a computer area. This building is on concrete slab with concrete block walls, wood roof structure with metal roof panels. The roof has 14 total plastic skylight panels. Some skylight panels have deteriorated over time and they leak. Replace existing metal roof panels and skylights with new metal roof panels. Building renovation will help bring the handicap accessibility requirements up to current standards.

Building Three is a wood post and beam storage shed wrapped in metal wall panels. The right side has one bay door area and one single door access. The middle is a post and beam open storage area. The left side has two bay door areas and one single door access. The roof has collapsed in the bay door area. The far left are three open storage areas. This shed like building should be replaced with a new shed type building with combination interior storage and exterior storage.

Building Four is the Maintenance Key Shop and Electronic Repair. This building is a single-story painted block, wood roof structure with architectural shingles. The building is in good shape. Minimal renovation will bring the handicap accessibility up to current standards. Cost information cannot be provided without obtaining existing floor plan information.

Exterior Finishes

Exterior Cladding:

Painted concrete block, metal roof panels and metal wall panels.

Roof:

Buildings one, two and three pitched roofs have old metal roof panels anchored to wood roof trusses. The metal roof panels need to be replaced along with fascia panels, gutters and downspouts.

The fourth building pitched roof has architectural shingles. The existing roof appears to be fairly new.

Skylights were observed to be in bad condition, needing to be replaced or cover over the existing skylight openings with new metal roof panels.

Windows:

The windows in the building have been replaced as the building aged; however, the glazing is single pane (non-insulated) glass. These window systems are in poor condition and not energy efficient, and allow significant air infiltration. Existing windows should be replaced with new energy efficient, operable aluminum windows with thermal break, screens, and insulated glazing.

Exterior Doors:

Exterior doors have been replaced as the building aged; however, the exterior doors are hollow metal. Doors are in good-poor condition. Door hardware is in good-poor condition and has mostly been replaced since the building was built. Door and door hardware replacement is recommended during renovations. Existing overhead doors replacement is recommended during renovations with new insulated metal overhead doors.

Interior Finishes, Fixtures & Equipment

(See assessment tabulations for interior finish conditions).

Vinyl composition tile and concrete are the predominant floor finishes. Other floor finishes include carpet, painted and unpainted concrete. Carpet is present in limited locations.

Interior wall finishes are generally painted concrete block and wood paneling. Wood paneling should be removed in its entirety and replaced with painted gypsum wallboard. Walls would be patched and painted during renovations.

Ceilings are spline, 2'x4' suspended acoustical tile (lay-in) with some gypsum wall board ceilings. The ceiling in work spaces are generally exposed metal roof panels and wood roof structure. New suspended acoustical tile ceilings are recommended as part of

renovations. The acoustical tile ceilings help reduce noise and hide new HVAC, electrical, and data work.

Most interior doors are wood and are original to their respective construction periods. Most doors exhibit wear and do not have handicap accessible door hardware. All interior doors and door hardware would be replaced during a substantial renovation. All door frames would be replaced to achieve handicap accessibility, or because of reconfigured spaces.

Loose furnishings are a mixture of tables and desks of varying ages. The flexibility required of 21st Century buildings is enabled by flexible, movable furnishings. All furniture and equipment should be replaced during a substantial renovation to provide a uniform appearance, enhance personnel comfort, and to provide flexibility. Furnishings, fixtures, and equipment design should occur in tandem with building design to achieve proper coordination between building utilities and furniture types and locations.

Handicap Accessibility

At several exterior doors, there are steps up into the building, which are not handicap accessible. As part of any substantial renovation, all elements of the site and building entrances would be renovated to be handicap accessible.

Within the building, all restrooms need to be handicap accessible. Handicap accessibility throughout the building would be achieved during any substantial renovation.

Safety and Security

The maintenance buildings have no security except for doors with key locks and a gate that can be closed and locked off from the public after hours.

End of RCPS Maintenance Buildings Architectural Narrative

PLUMBING/FIRE PROTECTION

Plumbing Fixtures:

Water Closets: Water closets observed were tank type floor mounted vitreous china with manual flush. The water closets are from the early 2000's and seemed to be in good working condition. The water closets are expected to have a useful life of 30 years.

Lavatories: Lavatories observed were wall mounted vitreous china with manual type faucets. There is a 4 station group use lavatory in the shop area with manual type faucets. The age of the lavatories is unknown.

Electric Water Coolers: There is a floor mounted water cooler located in the shop. The age of the water cooler is unknown.

Water Heaters:

Domestic water heating is done by a 30 gallon tank type electric water heater. The age of the water heater is unknown.

Piping:

Water: Copper with fiberglass insulation
Sanitary Piping: Cast iron and PVC
Gas Piping: Black steel
Compressed Air: Galvanized

Domestic Water Entrance:

The building is served by a 3/4" cold water line that is assumed to be from a municipal system. There is a RPZ backflow preventer.

Fire Protection:

The building is not sprinkled.

Recommendations:

None.

End of RCPS Maintenance Buildings Plumbing/Fire Protection Narrative

MECHANICAL (HVAC)

Heating:

Maintenance Office Building: There is one cast iron gas-fired boiler that provides heat to the building through a hot water circulation system. Hot water is circulated to the building's heating coils with a base mounted pump. Coils are in ceiling mounted heaters. The boiler was built in 1969. It has passed its useful life expectancy of 30 years. The pump is assumed to be similar age or a few years younger. Most likely the pump has passed its useful life expectancy of 25 years. The suspended hot water radiant heaters are most likely original to the building. There is one split system heat pump was manufactured in 2014 and has an expected useful life of 15 years.

In the Woodshop Building, the paint booth area has heating coils that are also heated by the hot water from the gas-fired boiler. The computer area of the Woodshop Building is heated by electric heat from a fan coil unit and ductless split systems. The fan coil unit was installed in 2013 and has an expected useful life of 20 years. The split system is 7 years old and has a useful life expectancy of 15 years.

The Maintenance Key Shop & Computer/Electronics Repair Building is primarily heated by split system heat pumps with electric heat, and one above ceiling electric unit heater. The Goodman split system heat pump is 16 years old and the other heat pump is 3 years old. They each have a life expectancy of 15 years old. The Goodman split system unit has passed its useful life expectancy.

Ventilation:

Buildings use operable doors/window to satisfy fresh air requirements. Also, there are wall louvers with a damper and fan that induce fresh air.

Air Conditioning:

The office area in the Maintenance Office Building is cooled by a split system heat pump, the same unit that provided heat. The lounge area is serviced by a room air conditioner.

In the Woodshop Building, the paint booth area is air conditioned by an air handler unit that was manufactured in 2007. The air handler has a useful life expectancy of 18 years. The computer area is served by a fan coil unit that was manufactured in 2013 and has a useful life expectancy of 20 years. The storage room has a room air conditioner. There is a ductless split system that serves one of the rooms is 7 years old and has a useful life expectancy of 15 years.

The Maintenance Key Shop & Computer/Electronics Repair Building is cooled by a DX air handler unit, two split system air conditioners, and a ductless split system. The DX

air handler was manufactured in 2008 and has a useful life expectancy of 18 years. The Goodman split system heat pump is 16 years old and the other unit is 3 years old. They each have a life expectancy of 15 years old. The Goodman split system AC unit has passed its useful life expectancy. The LG ductless split system was manufactured in 2010 and has a useful life expectancy of 15 years.

Piping:

There is hot water piping, copper.

Controls:

There are no centralized building automation controls.

Recommendations:

Building #3 is just one big open storage shed and should be torn down. The gas-fired boiler is way past its expected useful life and should probably be replaced. The boiler and pump are past their expected useful life expectancies and will need to be replaced. The hot water vertical unit heaters are most likely past their useful life expectancy and will need to be replaced.

End of RCPS Maintenance Buildings Mechanical Narrative

ELECTRICAL

The site has four buildings located on it:

(1) – Office and Woodshop
(2) – Warehouse and Shop
(3) – Garage and Storage Shed
(4) – Electronic Repair and Key Shop

Panelboards:

Distribution and Branch Circuit Panelboards: Each of the buildings, except for the garage and storage shed, has its own low voltage service drop and main distribution panel. The main panel from the office building feeds the subpanel providing power for the storage shed. All of these panels have no space or spares available and have exceeded their expected useful life. The warehouse building also has a newer Siemens panel in the new computer room.

Recommendation: If renovations and additions occur, replace the panelboards and locate them in areas to meet National Electrical Code working clearances. Expand as necessary to accommodate new or modified spaces. Consolidate the three separate service entrances if renovations or additions allow.

Cabling:

Cabling: Most of the wiring is original and is past its rated useful life and should be replaced. Exposed electrical wiring can be seen in multiple locations and should be encased in conduit or raceway to prevent electrical hazards.

Recommendation: Any existing exposed electrical wiring should be enclosed in conduit or raceway. During a renovation some new wiring may be salvageable, but because of the tedious process of identifying and preserving this wire, it is recommended that all wiring be replaced during renovations.

Conduit/Raceway:

Conduit/Raceway: The conduit and raceway used throughout the buildings is still in good condition, but most is original to the buildings and has exceeded its expected useful life.

Recommendation: All surface raceway should be evaluated regularly and securely reattached to the wall if it becomes loose. All raceway would be replaced if the building were renovated. Conduit would be salvaged where practical.

Light Fixtures:

Light Fixtures: The light fixtures consist of primarily exposed 4' and 8' T8 general fixtures, 2x4 T8 fixtures, and high bay fluorescent fixtures. The T8 lamps are current technology, and meet the current needs of the buildings. Lamps are likely changed as lamps burn out; however, many of the ballasts and optics have likely not been changed and have exceeded their useful life.

Recommendation: To accommodate a new addition or renovation, provide a new lighting design. Consider LED fixtures where practical.

Lighting Controls:

Lighting Controls: Lighting controls throughout the buildings consist of toggle switches controlling fixtures within an area and smaller rooms switched with motion controlled switches by the door. Most of the controls have exceeded their expected useful life.

Recommendation: In the event of a renovation or addition, replace lighting controls throughout the buildings and add automatic lighting controls to each room to comply with building energy codes.

Security System:

Security System: Security system consists of electronic locks and motion sensors at exterior doors. The current system meets the needs of the buildings and utilizes current technology.

Recommendation: Upgrade, expand, and reconfigure zones of the system as necessary if renovations and additions are pursued.

Camera System:

Camera System: An IP based camera system is installed for the front gated entrance to the site and office building. It is current technology that meets the current needs of the buildings.

Recommendation: In renovations and additions, provide additional cameras and digital video recorders as required for additional areas with desired coverage.

Data System:

Data System: The data system consists of newer Category 6 and 5e cable. The buildings are equipped with wireless internet through Cisco access points in multiple areas.

Recommendation: The current system meets the needs of the building and switches and patch panels could be reused in any renovation or new construction.

Site Lighting:

Site Lighting: The site lighting consists of wooden pole mounted flood lights for the main parking area and a couple building mounted wall packs. The fixtures appear to be original to the building. Lamps are likely changed as lamps burn out; however, many of the ballasts and optics have likely not been changed and have exceeded their expected useful life.

Recommendation: To accommodate a new addition or renovations, replace existing lighting fixtures around exit doors. Provide new general site lighting to maximize energy efficiency and minimize light contamination on neighboring properties and to the sky.

Phone System:

Phone System: The phone system consists of a new Cisco IP phone system. Phones are provided in most rooms throughout the building as required to access outside lines. The system is operational and meets the current needs of the buildings.

Recommendation: It is possible to retain and expand the existing phone system through additions and renovations.

End of RCPS Maintenance Buildings Electrical Narrative

CIVIL

Traffic Circulation

Parking: Site is located in the City with the bulk of the parking located on the street. There are 8 parking spaces located on the north side of the building, and approximately 10 parking spaces along the street on the west side of the building. Inside the fence are 28 numbered spaces for various types of service vehicles. Parking appears to be adequate for day to day operations.

Service: There is an entrance on the west side of the property with loading areas throughout the site. There is adequate maneuvering area for all equipment and delivery vehicles.

Fire Access: Fire apparatus have adequate access around the building.

Adjacent Roadways: There is adequate sight distance along the adjacent street in both directions.

ADA Accessibility

Parking: There are no designated ADA parking spaces.

Recommendation: Provide a minimum of one ADA parking space adjacent to the main building with striping, signage, and an accessible route into the main office.

Access to all areas: There is ADA access available to all areas and activities on site, however no ADA parking spaces.

Parking Areas, Driveways, and Sidewalks

Asphalt Pavement: Poor sections of asphalt on the north side of the shop area as well as on the south portion of the site adjacent to the storage buildings.

Recommendation: Mill and overlay older sections of asphalt.

Concrete Pavement: Concrete apron entering shop area is severely broken.

Recommendation: Replace concrete apron entering shop area.

Concrete Walks: Concrete walks at main entrance are in good condition, concrete walks around the shop area are old and in poor condition with major cracking and settlement.

Recommendation: Replace sections as necessary when cracking and deterioration become hazardous.

Stairs, Ramps, and Railings: Concrete stairs at main entrance are in good condition, concrete stairs at northwest corner of the shop area are old and in poor condition with major cracking and settlement. Railings at stairs at main entrance are in good condition, railings at stairs at northwest corner of the shop area are old and in poor condition.

Recommendation: Remove and replace concrete stairs and railings at northwest corner of shop.

Guardrail, Parking Bumpers, and Miscellaneous: Parking bumpers on north side of shop area are severely deteriorated. Guardrail at parking area is rusted and missing bolts.

Recommendation: Replace all parking bumpers on north side of shop. Install all necessary bolts to maintain structural integrity of guardrail. Monitor guardrail and replace when rust causes structural issues.

Fire Lane: There is no designated fire lane present.

Utilities

Fire Lines and Hydrants: Fair fire hydrant coverage and spacing, but no fire hydrant located on site. The closest fire hydrant is located across the road and a block away owned by City of Salem.

Domestic Water System: The water system is in fair condition. Staff indicated no pressure or water discoloration issues. Water is provided to school via City of Salem public water network. Meter is located in manhole at S. Market Street.

Sewer System: The sanitary sewer system consists of older manholes and pipes in fair condition, but functional. Staff indicated no issues with stoppages, but observations show signs of stagnant waste. Laterals tie into City of Salem sanitary sewer network.

Recommendation: Sewer system should be flushed to clear and prevent blockages.

Natural Gas System: Two gas meters located on site. Pipe on one meter has broken off and it appears to be abandoned, but it's unclear. Second gas meter shows signs of deterioration and rust. Both meters are protected from vehicular traffic.

Recommendation: Contact gas company to inspect condition of meter.

Electric: Electric service is provided via overhead poles to the property and overhead service to the building. Transformers are mounted on the service pole and the meter is mounted on the building.

Site Lighting: Very few small site lights illuminate the asphalt area. Lighting is not sufficient for safety, although the property is fenced off with lockable gates.

Recommendation: Provide additional site lighting to ensure safety and security.

Grading and Drainage

Storm Water System: Downspouts daylight and are not piped underground. Runoff sheet flows across site to inlets in right-of-way, owned by City of Salem and conveyed off site. Downspouts are rusted and trench drains are clogged.

Recommendation: Trench drains should be cleaned. Consider planning for redesign of storm water system.

Slopes, Ponding, and other Drainage Issues: Site littered with salvaged items, debris and trash. Minor erosion and sediment accumulation present due to sheet erosion and daylighted downspouts.

Site Features

Vegetative Landscaping: Landscaping is limited. However, there is natural vegetation that requires either pruning or removal.

Recommendation: Specific trees in need of extensive pruning include one overhanging CMU storage bay and one midblock that will potentially cut power to CMU storage building if limb breaks. This vegetation may be in City of Salem right of way. It is recommended to coordinate with the City for maintenance of these items.

Lawns: No turf areas noted.

Recommendation: Continue maintenance of natural grass.

Fencing and Gates: Fencing generally in poor condition showing signs of age and damaged three strand barbed wire. Poles in solid foundations but show significant rust.

Recommendation: Replace fencing.

Signage: None present.

Recommendation: Provide ADA signage and parking. Provide directional signage to main office.

Accessory Structures: One open bay building in need of repair with plywood siding and roof in poor condition. Second open bay building has new siding and roof and appears in good condition for its function. Third out building is CMU construction in good condition.

Recommendation: Repair and reroof open bay building to extend life.

End of RCPS Maintenance Buildings Civil Narrative

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Notes

Project Name: RCPS Facilities Assessment	Comm. #: 1637

Subject: RCPS Maintenance Buildings	Total Pages:
Date: 10/05/2016	Location: Salem, VA
Copies To:	Report Prepared By: JFH

General:

There are four Existing buildings on site**.** Building 1 is Maintenance Building Office, Building 2 is Wood Shop Building, Building 3 is Wood Post and Beam Building and Building 4 is Maintenance Key Shop and Electronic Repair Building. Maintenance Building Office is on a concrete slab with CMU block walls, wood roof Structure with metal roof panels. The front entrance has two offices and workroom with casework. The front entrance also has two small restrooms. The back part of the building is a wood working shop area with a Mechanical Room and Mezzanine Office. Building 2 is a wood shop with a paint booth and a computer area. This building is on concrete slab with CMU block walls, wood roof structure with Metal Roof panels. The roof has 14 Total Plastic Skylight panels. Some skylights have deteriorated over time and leaks. The third Building is a Post and Beam shed wrapped in metal wall panels. The Right side has one bay door area and one single door access. The middle is post and beam open storage area. The left side has two bay doors area and one single door access. The roof has collapsed in the bay door area. The far left are three open storage areas. This shed is in very bad shape. The Fourth Building is the Maintenance Key Shop and Electronic Repair. This is building is on concrete slab with CMU Block walls with a wood roof structure with Architectural Shingle Roof. This building is in very good shape.

Exterior:

Painted CMU block (Building 1, 2 and 4)
Wood frame with Metal Wall panels (Building 3)
Metal Roof Panels (Building 1, 2 and 3)
Architectural Shingle Roof (Building 4)

Work Bays:

Concrete Floor
Painted CMU Walls
Exposed Roof wood Roof structure

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Notes

Office Area: (Building 1)

The office area has painted block and Paneling walls, which are in good condition. The offices and work room has Vinyl Composition Tile Flooring in good condition. The work room has paneling wainscot over CMU. The Restroom off of the office has Vinyl Asbestos Tile Flooring. This will need to be abated and replaced. The restroom off of the work room has VCT flooring. The HM Frames need painting and the wood doors need to be refinished and fitted with new hardware throughout. The office and work room area ceiling consists of Tongue and Groove Acoustic Ceiling. The upper level Mezzanine Office has Paneling Walls, carpeted flooring and Tongue and Groove Acoustic Ceiling. The Mezzanine office flooring sags and dips along with water stains on ceiling tiles. This area experience Roof leaks.

Work Lounge:

The room has painted CMU walls, Suspended acoustic tile ceiling (SATC) and Vinyl Composition tile flooring (VCT). The Stained wood Casework in good condition. The casework has plastic laminate counter tops and is in good condition. The Concrete floor has small cracks but is in overall good condition. The finishes are in good condition.

Wood Shop Building: (Building 2)

Concrete Floors
Steel Windows
Exposed Wood Roof Structure
HM Frames and Wood Doors
Paint Booth within the building has concrete floors, GWB Ceiling and CMU Walls
Wood Shop Restrooms has 2 urinals, 2 flush valve water closets and 2 lavatories
The restrooms has GWB ceiling, CMU Walls and Painted Concrete floors
Computer area has VCT Flooring, SATC ceiling and CMU walls. The room has HM Frame and Wood doors. This room has one restroom with Tank type Water Closet, Wall hung Lavatory.

Post and Beam Shed: (Building 3)

Enclosed Shed area with concrete floor, exposed wood roof structure and wood frame walls with an upper level in poor condition. The outside shed bays have asphalt flooring, wood roof structure with metal roof panels. This building has experienced roof collapse on the left side.

Maintenance Key Shop & Electronic Repair Building: (Building 4)

The building has painted CMU walls, wood roof structure with shingle roof. The flooring is slab on grade with VCT throughout and the ceiling is Old SATC (Need Replacing). The building has one wood window. This building is in good shape.

RCPS Maintenance Buildings Architectural Condition Assessment

Reference Building Owners and Managers Association International (BOMA)

Preventative Maintenance Guidebook

System/Components	Condition Category	Expected Useful Life	Current Age	Expected Life Remaining	Notes
Architectural					
CMU walls	4	Life	50+ years	Life	CMU Block Buldings
Metal Siding over Wood Framing	2	30 years	50 years	0 years	Post and Beam Shed Bldg needs replacing
Wood trim	3	15 years	50+ years	0 years	Wood Paneling, Chari Rail and Wood frame
Interior doors	3	20 years	50+ years	0 years	Wood
Exterior doors	3	50 years	50+ years	0 years	Aluminum
Door hardware (Code Compliant)	2	7 years	50+ years	0 years	Not Code Compliant
Vinyl Asbestos Tile	1	N/A		N/A	Abatement Required
Vinyl floor tile	2	12 years	50+ years	0 years	
Exposed concrete floors	2	50 years	50+ years	0 years	Clean, Seal and refinish
Exterior windows (Type , Operable, Insul Glazing, Thermal Broken)	2	30 years	50+ years	0 years	Need to replace stl window with a new window
Interior windows	2	30 years	50+ years	0 years	Single Pain Vision Panel (Not Tempered)
Roof (Including flashings, coping, Roof Access, etc.)	1	20 year	50+ years	0 years	Replace existing Metal Roofs
Plastic Skylights	1	N/A		N/A	Remove existing Plastic Skylight Roof Panels
Suspended acoustical tile ceilings (lay-in)	2	25 years	50+ years	0 years	Replace damage and Stain Ceiling Tiles
Spline Ceiling	4	20 year	50+ years	0 years	
Plaster/GWB ceilings	2	30 years	50+ years	0 years	
Ceiling/exposed structure finish (paint)	2	5 years	50+ years	N/A	Paint as required
Interior wall finishes (paint)	2	5 years	50+ years	N/A	Paint as required
Marker boards, Chalk boards, Tack Boards, Projection Screen	5	N/A		N/A	
Casework	3	N/A		N/A	
Toilet Partitions	2	20 years	50+ years	N/A	
Toilet Accessories	2	N/A		N/A	
Maintenance Facility Signage	1	N/A		N/A	
Sprinkler/No Sprinkler	2	N/A		N/A	Repair as required
ADA Code Compliance	1	N/A		N/A	Not Sprinkled
	1	N/A		N/A	ADA Code Compliant as of 2002.
Condition Categories					
1 Immediate replacement required, life saftey concern					
2 System has reached it's useful life					
3 Major repair or modifications required, useful life remaining					
4 Minor repair required					
5 General maintenance required					

RCPS Maintenance Buildings Mechanical Plumbing Condition Assessment

Reference Building Owners and Managers Association International (BOMA)

Preventative Maintenance Guidebook

System/Components	Condition Category	Expected Useful Life	Current Age	Expected Life Remaining	Notes
Mechanical					
Boiler	1	30 years	47 years	0 years	
Chiller or Cooling tower	N/A				
Mechanical piping	1	30 years	47 years	0 years	
Refrigerant piping	4	30 years	15 years	15 years	
Duct	4	30 years	15 years	15 years	
Terminal units	4	30 years	15 years	15 years	
Package units (air handler)	4	20 years	10 years	10 years	
Controls	N/A				
Exhaust fans	5	25 years	15 years	10 years	
Plumbing					
Plumbing fixtures and controls	5	30 years	15 years	15 years	
Floor drains	5	30 years	15 years	15 years	
Water heaters	2	15 years	15 + years	0 years	
Pumps	2	15 years	15 years	0 years	
Potable water piping & valves	5	30 years	15 years	15 years	
Sprinkler system	N/A				
Back-flow preventer	5	30 years	15 years	15 years	
Service line & meter (size appropriate)	5	30 years	15 years	15 years	
Wall and yard hydrants	N/A				
Eye wash stations	5	20 years	15 years	5 years	
Emergency showers	5	20 years	15 years	5 years	
Condition Categories					
1 Immediate replacement required, life saftey concern					
2 System has reached it's useful life					
3 Major repair or modifications required, useful life remaining					
4 Minor repair required					
5 General maintenance required					

RCPS Maintenance Buildings Electrical Condition Assessment

Reference Building Owners and Managers Association International (BOMA)
Preventative Maintenance Guidebook

System/Components	Average Useful Life	Current Age	Expected Life Remaining	Condition Category	Notes
Electrical					
Panelboards	30	47	-17	2	
Cabling	40	47	-7	2	
Conduit/raceway	40	47	-7	2	
Light fixtures	20	47	-27	2	
Lighting controls	30	47	-17	2	
Security system	10	5	5	5	
Camera system	10	5	5	5	
Data system	15	5	10	5	
Site lighting	20	47	-27	2	
Phone system	10	5	5	5	
Condition Categories					
1 Immediate replacement required, life safety concern					
2 System has reached it's useful life					
3 Major repair or modifications required, useful life remaining					
4 Minor repair required					
5 General maintenance required					

RCPS Maintenance Buildings Civil Condition Assessment

Reference Building Owners and Managers Association International (BOMA)

Preventative Maintenance Guidebook

System/Components	Condition Category	Expected Useful Life	Current Age	Expected Life Remaining	Notes
Civil					
Asphalt pavement	2/5	15 years	Unknown	0-12 years	
Asphalt walks	N/A	N/A	N/A	N/A	
Concrete pavement	2	30 years	Unknown	0 years	
Concrete walks	3	30 years	Unknown	0-15 years	
Stairs	3	30 years	Unknown	0-15 years	
Ramps	N/A	N/A	N/A	N/A	
Railings	3	15 years	Unknown	0-10 years	
Concrete curb and gutter	N/A	N/A	N/A	N/A	
Concrete / Brick Pavers	N/A	N/A	N/A	N/A	
Guardrail, Parking Bumpers, Misc.	3	Varies	Unknown	0 years	
Fire lane	N/A	N/A	N/A	N/A	
Fire lines and hydrants	3	40 years	Unknown	5-10 years	
Domestic Water system	4	40 years	Unknown	5-10 years	
Sewer system	4	40 years	Unknown	5-10 years	
Natural Gas system	3	40 years	Unknown	0-10 years	
Electrical System	4	25 years	Unknown	5-10 years	
Exterior Lighting	3	25 years	Unknown	0-5 years	
Storm water system	3	40 years	Unknown	0-5 years	
Detention / Retention ponds	N/A	N/A	N/A	N/A	
Stormwater Management BMP's	N/A	N/A	N/A	N/A	
Surface drainage and grading	3	N/A	N/A	N/A	
Vegetative landsaping	4	Life	Unknown	Varies	
Lawns	5	Life	Unknown	Life	
Fencing and gates	3	20 years	Unknown	2+ years	
Signage	N/A	N/A	N/A	N/A	
Flagpoles	N/A	N/A	N/A	N/A	
Site furnishings	N/A	N/A	N/A	N/A	
Awnings / Canopies	N/A	N/A	N/A	N/A	
Site retaining walls	N/A	N/A	N/A	N/A	
Accessory structures	3/5	50 years	Unknown	5+ years	
Condition Categories					
1 Immediate replacement required, life saftey concern					
2 System has reached it's useful life					
3 Major repair or modifications required, useful life remaining					
4 Minor repair required					
5 General maintenance required					

Budgetary Cost Estimate

Estimate Date 12/7/2016
Facility Name **RCPS Maintenance Buildings**
Client Name Roanoke County Schools

OWPR ARCHITECTS AND ENGINEERS

Quantity	Description	Unit	Cost / unit	Total w/ OH&P
	ARCHITECTURAL			
1	Demolish Post and Beam Building	LS	$5,000.00	$5,000.00
416	Remove Vinyl Asbestos Tile	SF	$3.00	$1,497.60
3,125	Replace Metal Roof and skylights	SF	$20.00	$75,000.00
3,125	Interior Paint	SF	$0.75	$2,812.50
2	Toilet Partitions and Accessories	EA	$1,215.00	$2,916.00
2,500	Suspended acoustical tile ceiling	SF	$3.50	$10,500.00
40	Replace interior signage with ADA compliant	EA	$42.00	$2,016.00
2	Renovate restrooms to achive ADA compliance	EA	$35,000.00	$84,000.00
	CIVIL			
50	Pavement restriping	LF	$0.20	$12.00
1	ADA signage	EA	$500.00	$600.00
4	Directional signage	EA	$1,500.00	$7,200.00
2,500	Replace asphalt pavement	SF	$3.00	$9,000.00
13,500	Mill and overlay asphalt pavement	SF	$1.00	$16,200.00
500	Replace concrete apron	SF	$10.00	$6,000.00
500	Replace concrete sidewalk	SF	$5.00	$3,000.00
1	Replace concrete stairs and railings	LS	$2,500.00	$3,000.00
10	Parking bumpers	EA	$150.00	$1,800.00
5	Install site lighting	EA	$5,000.00	$30,000.00
1,000	10' Chain link fencing with 3 strand barbed wire	LF	$50.00	$60,000.00
3,000	Reroof open bay building	SF	$4.00	$14,400.00
	MECHANICAL / PLUMBING			
25,000	Replace Boiler and Heating System	SF	$10.00	$250,000.00
1	Replace Water Heater	EA	$10,000.00	$10,000.00
1	Replace Domestic Hot Water Circulation Pump	EA	$3,000.00	$3,000.00
	ELECTRICAL			
25,000	Full Electrical Replacment	SF	$19.00	$475,000.00
	TOTAL Budgetary Cost			**$1,072,954**