BURLINGTON ELEMENTARY SCHOOL

ARCHITECTURAL

Burlington Elementary School (BES) was originally built in 1939 and consisted of eight classrooms, four toilet rooms and an auditorium. In 1953, the first addition was completed. In 1960, three basement rooms were renovated and made into classrooms. In 1966, the second addition consisting of four classrooms, four toilet rooms, five storage rooms and a multipurpose room was added. In 1999, a remodeling project resulted in the addition of six new classrooms, new gymnasium, remodeled kitchen area, new library and redesigned offices and entrance to the school. The front office was remodeled again in 2007. In 2012, a new addition housing eight classrooms was built on the east side of the main building. In 2014, the main entrance was renovated by RCPS to provide building accessibility and security controlled by the Administration Office. The total facility square footage is 68,149 SF.

Finishes in the additions are similar to those found in the original building. The building is generally two stories with exterior access mechanical room / boiler room located in the basement of the original building. A courtyard was formed by construction of the additions. It appears to be used as green space with outdoor planting beds. The building is not equipped with an automatic sprinkler system.

Basement area separate from the Mechanical/Boiler room went through an early stage of renovation and was never completed. This area has limited head height and moisture causing a mold problem. This area will need the mold issue addressed and due to low ceiling heights, this area is suitable for storage only.

Exterior Finishes

Exterior Cladding:

Exterior wall material is brick and Exterior Insulation Finish System. EIFS was used on the two story classroom section to fill in some oversize windows, etc. The finish system matches up well with the original precise concrete window sills.

Other exterior materials include metal gravel stops and flashings and precast concrete window sills.

Roof:

Areas of the building were re-roofed during one of the past renovations. The pitched roofs are a Standing Seam Metal Roof and the flat roof area is a black EPDM roofing membrane. The existing membrane roofing has multiple patches and shows insulation anchors penetrating through the membrane. Membrane bubbles are noticeable throughout the roofing area. The roof hatch location is near the roof edge and should

have protection railing. The old original copper downspout from the pitched roof is bent up and is in need of replacement. Sealants along roof edges should be regularly monitored and replaced as needed. Several joints have experience sealant degradation and cracking and should be resealed.

Windows:

Windows in the original building retains the old steel hopper windows and approximately 80% of the windows in the additions were replaced with aluminum window systems. These newer windows have operable vents with screens, which allow natural ventilation. Glazing consists of tinted, insulated glass, and translucent, insulated panels. These windows are generally in good condition.

The remaining steel windows are original. Original glazing is single pane (non-insulated) glass. The remaining steel windows systems are in poor condition, are not energy efficient, and allow significant air infiltration.

Exterior Doors:

Exterior doors in the original building are wood, likely original to the building. Exterior doors elsewhere are hollow metal, and are also likely original. Doors are in good-poor condition. Door hardware is in good-poor condition, and has mostly been replaced since the buildings were built. Door and door hardware replacement is recommended during renovations.

Interior Finishes, Fixtures & Equipment

(See assessment tabulations for interior finish conditions).

Vinyl Composition Tile, Quarry Tile and Ceramic Tile are the predominant floor finishes at Burlington Elementary School. Other floor finishes include carpet, painted and unpainted concrete, and wood flooring. Carpet is present in limited locations (Main Office, Library/Media Center). Vinyl Asbestos floor tile in Classroom 203, 204 and 205 is broken, cracked and is in terrible shape. Asbestos Vinyl Tile should be removed as soon as possible. Existing Vinyl Composition Tile is breaking up in certain areas such as near Classroom 217.

Interior wall finishes are generally painted concrete block and glazed ceramic tile. Section of existing glazed wall tile collapsed in the original building section on the upper level. Walls would be patched and painted and tile repairs during renovations.

Window treatments are typically vinyl roller shades. Most are in poor condition and should be replaced during renovations.

Ceilings are generally plaster on metal lathe, 2'x4' suspended acoustical tile (lay-in) with some gypsum wall board ceilings. Exposed painted roof decking is present in the multi-purpose area. Water damage is present in some of the suspended acoustic tile ceilings. 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.

Some door frames would be replaced to achieve handicap accessibility, or because of reconfigured spaces. Other door frames may be salvaged, patched, and painted.

Marker boards, chalk boards and tack boards are present in classrooms. Most are in poor condition. All would be replaced during renovations.

Built-in wooden storage units are present in the original building. All are in poor condition and many would be displaced during renovations because of the need to enlarge and reconfigure spaces.

Casework (cabinets) is generally in good-poor condition. Most casework is not handicap accessible. Student storage is accomplished by hooks on the classroom walls. This provides no separation of belongings. General casework storage is not sufficient in most classrooms. Classrooms would benefit from new casework with individual student cubbies, sink with bubbler, and storage to accommodate large format paper, books, manipulatives, etc. All casework should be replaced during any substantial renovation.

Loose furnishings are a mixture of tables and desks of varying ages. The flexibility required of 21st Century classrooms is enabled by flexible, movable furnishings. All furniture and equipment should be replaced during a substantial renovation to provide a uniform appearance, enhance student 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. This includes library shelving and furnishings.

Kitchen (food service) equipment is a mixture of equipment original to the building and equipment purchased as the building aged. To ensure maximum efficiency in terms of function and energy, new food service equipment should be provided during a substantial renovation. Significant energy savings can be achieved through more efficient kitchen hoods with energy recovery capabilities, and other equipment. The kitchen should be enlarged and rearranged to increase efficiency of function and serving capacity.

Custodial storage shelving is mostly original to the building. Custodial storage is scattered throughout the building. Consolidated, larger custodial storage is important for efficiency and proper space utilization. Smaller custodial closets throughout the building

are also important to efficient custodial function. New metal shelving would be provided in consolidated custodial storage spaces during renovations. Proper floor sink size and locations would be provided during renovations to sufficiently accommodate modern floor machines.

General school storage is scattered throughout the building and consumes spaces intended for other functions. The addition of casework in classrooms will alleviate some of this. But, as part of renovation plans, general school storage should be planned in several strategic areas serving administration, faculty, and staff. Metal shelving units would be provided in dedicated general storage rooms.

Accessibility

At several exterior doors, there are steps up into the building, which are not handicap accessible. Paved play areas, play fields, and play equipment 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. Obtaining handicap accessibility to areas behind the school will be difficult because of the grade that must be negotiated by ramps and walks. Handicap accessible play areas would be required as part of any substantial renovation and addition project.

Within the building, few components are handicap accessible simply because of their age. All restrooms are not handicap accessible to the latest ADA standard, and will require substantial renovations to achieve full handicap accessibility. The stage is currently not handicap accessible without special accommodation. Some doors lack clearances required to be handicap accessible. Handicap accessibility throughout the building would be achieved during any substantial renovation. Signage throughout the building will need to be provided as part of the latest handicap accessibility requirements.

Safety and Security

This section addresses passive security measures, such as how entrances function, visibility within the building, etc.

Recent renovation work, undertaken by RCPS in 2014, involved the installation of secure entry vestibule at all schools. The vestibule at Burlington Elementary School provides visibility from the office and control over the main entry. Door position sensors and locks are provided at all other exterior doors. Entry at these points is limited to staff members with appropriate keys/cards. Due to the nature of the school, the building is reasonably compartmentalized. Sight lines and distance are reasonably long in most areas of the building.

The administration area is the first line of defense in passive school security. Visibility to the exterior and interior of the building are critical to early threat identification and intervention. The administration area at Burlington Elementary School has almost no

visibility to the interior of the building. A more transparent administration area should be considered as part of renovations and additions.

End of Burlington Elementary School Architectural Narrative

PLUMBING/FIRE PROTECTION

Plumbing Fixtures:

Water Closets: Water closets observed were floor mounted vitreous china with manual type flush valves. There were several water closets that were ADA compliant. The condition of the water closets ranged from fair to excellent in accordance with their age.

Urinals: Urinals observed were wall mounted vitreous china with manual type flush valves. There were some ADA compliant urinals observed. The condition of the urinals and flush valves ranged from fair to excellent in accordance with their age.

Lavatories: Lavatories observed were wall mounted vitreous china or enamel cast iron with manual or manual faucets. There were several lavatories that appeared to be ADA compliant. Most lavatories observed did not have hot water supply and ASSE 1970 mixing valves that are required by today's codes, lavatories included in the 2012 addition do have hot water supplies and proper mixing valves. The condition of lavatories and faucets ranged from fair to excellent in accordance with their age. About ten percent of the lavatories observed in the older parts of the building had leaking faucets.

Sinks: Classroom sinks observed were stainless steel or porcelain with gooseneck faucets and bubblers. Most of the classroom sinks in the older parts of the building did not have hot water supplies or ASSE 1070 mixing valves as required by today's codes. The sinks included in the 2012 addition appear to be code compliant. The condition of the sinks ranged from good to excellent in accordance with their age.

Showers: No showers were observed.

Laboratory Fixtures: No laboratory fixtures observed.

Emergency Fixtures: No emergency fixtures observed.

Electric Water Coolers: There were several different types of water coolers observed throughout the building, from high/low floor models, single wall hung types to recessed duel height models. The condition of the water coolers ranged from good to excellent in accordance to their age. All appeared to be in good working order.

Water Heaters:

There were several different water heaters observed throughout the building. The following is a list of heaters observed. Two 80 gallon State Electric 4.5 kW located in the older mechanical room, the estimated age for these two heaters would be ten to twelve years old. Hot water is recirculated to this system by an in-line recirculation pump. Also located in the older mechanical room is a 10 gallon 2 kW point of use water heater estimated to be ten years old. In the newer mechanical room there is a 75 gallon

Rheem/Rudd gas fired water heater rated at 75,000 BTU input that is estimated to be four years old. Hot water is recirculated to this system by an in-line recirculation pump. Also located in a first floor storage room there is a 50 gallon electric 6 kW that is estimated to be four years old.

Piping:

Water: Most water piping observed was copper, however it is assumed there may still be some galvanized steel piping still is use in the older sections of the building.

Sanitary Piping: Cast iron / PVC
Storm Piping: Cast iron / PVC
Gas Piping: Black steel

Pipe Insulation:

Hot water, cold water, hot water return and horizontal storm drain piping is insulated with fiberglass insulation.

Water Entrance:

The building is served by a 3" cold water line that is assumed to be from a municipal system. There is a RPZ type backflow preventer on the incoming service, along with a pressure reducing valve downstream of the backflow preventer.

Kitchen:

Kitchen has been updated with indirect waste and floor sinks. The grease interceptor is the large type located outside the building with manhole access (assume 1000 gallon concrete type). All kitchen equipment is electric with no gas fired equipment.

Sprinklers:

The building is only partially sprinkled. There are several storage rooms that are sprinkled off the domestic water system. The observed connections to the domestic system consisted of a check valve and flow switch serving the limited area sprinklers.

Recommendations:

Plumbing fixtures in the older sections of the building should be replaced and brought up to code.

End of Burlington Elementary School Plumbing/Fire Protection Narrative

MECHANICAL (HVAC)

Heating:

The building is primarily heated by Geothermal water source heat pumps. There is one cast iron gas boiler that was installed in 1998. There is chemical treatment for the boiler. The boiler provides condenser water for heating coils. The classrooms typically have unit ventilators or split system heat pumps. Unit ventilators have electric heat and were installed in 2016 and have an expected useful life of 20 years. The split system water source heat pumps were also installed in 2012 and have a useful life expectancy of 18 years. The newest addition of classrooms is served by Bard type split system heat pumps exposed on the exterior wall. These units were installed in 2012 and have a useful life expectancy of 18 years. The larger areas were served by rooftop water source heat pumps. There are also two gas fired rooftop units that serve the cafeteria and kitchen that were also installed in 2012. The gym is served by a DX type rooftop unit with a duct mounted hot water reheat coil. There are two Trane DX type rooftop units with electric heating. These two units were installed in 1994 and have a useful life expectancy of 18 years.

Ventilation:

Ventilation is provided to the building by the rooftop air handler units and rooftop louvered penthouse ventilators. The dishwasher and large kitchen hood have dedicated exhaust fans on the roof.

Air Conditioning:

The building is primarily cooled by water source heat pump units and unit ventilators, the same units that heat the building. Cafeteria and Kitchen are served by DX type rooftop units. These units were installed in 2012. Cafeteria is also cooled by floor mounted unit ventilators. The gym is air conditioned DX rooftop unit that was installed in 2012.

Piping: There is hot water piping, black steel, insulated.

Controls:

The controls were the digital type (DDC) & are the Metasys brand, by Johnson Controls.

Recommendations:

After talking with school staff, there are no major issues with the HVAC system in the school.

End of Burlington Elementary School Mechanical Narrative

ELECTRICAL

Main Switch Gear:

Main Switchboard: The school current utilizes multiple electric service entrances and distribution systems; one for the gym AC, one for the main building, and one for the new addition. The main building is the only service with a main switchboard, the other services have main distribution panels. The main switchboard is a 2000 Amp, 3 phase, 4 wire, 240/120 volt delta high leg Square D, service entrance rated switchboard which was added in 1999. The switchboard feeds the original single phase system and a newer 208Y/120 system and has space and spares available.

Recommendation: The existing switchboard and equipment has useful life remaining, but the delta system is rare to today's standards for equipment and distribution. The inclusion of multiple distribution systems throughout the building can lead to confusion and possible coordination errors. In the event of a substantial renovation or addition, existing switchboard should be replaced and the distribution system for the building should be consolidated.

Transformers:

Transformers: The main GE 240/120V delta high leg to 208Y/120V 150kVA transformer was added with the 1999 renovation and switchboard and is currently in good working condition; however, over time transformers become less energy efficient.

Recommendation: If renovations and additions are pursued, maintain the existing transformer, if possible.

Panelboards:

Distribution and Branch Circuit Panelboards: The school has undergone multiple renovations throughout its lifespan and so there are many brands of panelboards used; including GE A Series, GE Spectra Series, Square D, and original single phase Kinney. Many of the panels throughout the building have exceeded their useful lifespan and have no space available for new work. Original branch circuit panelboards are flush mounted within the corridors and newer panels have been surface mounted within the corridors with exposed conduit. The new 2012 wing has a separate 208Y/120 volt service entrance and includes an electrical room to minimize student access to panelboards.

Recommendation: If renovations and additions occur, replace existing panelboards within the main building. Expand as necessary to accommodate new or modified spaces and locate any new panels in areas to minimize student access and to meet National Electrical Code working clearances.

Cabling:

Cabling: Much of the building wiring is original. Some new wiring has been added for the addition of receptacles. Although much of the visible wiring is in conduit, there is also some exposed wire running along walls and ceiling throughout the school. Most of the wiring is past its rated useful life and should be replaced.

Recommendation: 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: Exposed wiring can be seen in various locations around the school which should be encased in conduit or raceway. Surface raceway is utilized for any new receptacles and all data wiring to classrooms.

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. All exposed wiring should be encased in conduit or raceway to prevent electrical shock hazards.

Light Fixtures:

Light Fixtures: The light fixtures consist of primarily 2x4 flat lens fixtures with T8 lamps, 1x4 fixtures with T8 lamps, fluorescent can lighting, and some decorative fluorescent pendants. The gym is lit through 8' T8 fixtures. The T8 lamps are current technology, and meet the current needs of the school. Various emergency light fixtures are also utilized and many have exceeded their expected useful life. 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. The new 2012 wing utilizes T5 and LED fixtures for energy savings and extended lifespans.

Recommendation: To accommodate a new addition or renovation, provide a new lighting design. Reuse existing fixtures throughout the corridors and in the new wing. Consider LED fixtures where practical.

Lighting Controls:

Lighting Controls: Lighting controls throughout the building consist of toggle switches controlling fixtures within an area, most classrooms have zoned switching. Corridor lighting is controlled through toggle switches at the ends of the hallways. The new 2012 wing utilizes motion controlled corridor and classroom switching.

Recommendation: In the event of a renovation or addition, add automatic lighting controls to each room in the main building to comply with building energy codes. Consider providing additional control in the classroom areas for multiple scenes for different types of media.

Public Address System:

Public Address System: The public address system is currently a Simplex Building Communications system with speakers located throughout the school. Each classroom has an older PA speaker and an unused push-to-talk button. Teachers and staff use the Cisco phone system to call in to the PA for most communications and announcements.

Recommendation: The PA headend and classroom speakers have exceeded their useful lifespan and should be updated to a newer Valcom system as typical for the county for efficient operation. In the event of a renovation or addition, the system headend and classroom speakers should be replaced, but the remainder of the system could be reused and expanded as necessary.

Security System:

Security System: Security system consists of electronic locks and motion sensors at exterior doors, keypads, and AI phone/Lobbyguard system at entrance. The current system meets the needs of the school and utilizes current technology. The handicap accessible double door entrance to the new 2012 wing needs to be reprogrammed with the access control system however. The handicap buttons provided will attempt to run the motor for the door regardless of if it is locked or unlocked – this can quickly wear out and burn up the motor or possibly damage the door.

Recommendation: Upgrade, expand, and reconfigure zones of the security system as necessary if renovations and additions are pursued. Reprogram the handicap accessible doors to the new 2012 wing for efficient operation to prevent future damage, ensure that the access control system has been coordinated throughout the remainder of the building as well.

Camera System:

Camera System: A building wide IP based camera system is installed. It is current technology that meets the current needs of the school.

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 building is equipped with wireless internet through Cisco access points throughout.

Teacher and student computers are provided with access to a local area network. All data cabling is run through raceway within classrooms in the main school building.

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

Fire Alarm System:

Fire Alarm System: The fire alarm control panel is a Simplex 4020 fire alarm system that was added during a more recent renovation. The current system consists of limited area manual pull stations, smoke detectors, and horn/strobe alarms throughout the school. The new 2012 wing addition includes alarms within the classrooms; however there are none throughout classes in the rest of the school.

Recommendation: If renovations and additions are pursued, expand existing fire alarm system and reconfigure as necessary for renovations.

Generator:

Generator: No generator is installed to serve this building. Emergency lighting is provided by emergency battery units in the corridors, large rooms, and at exits.

Recommendation: For any renovations or addition, a new generator should be considered, sized to provide power for life safety features and other equipment that the school would like to operate.

Site Lighting:

Site Lighting: The site lighting consists of pole mounted lights for parking areas, wall packs around the building, and canopy can lights or wall sconce lights at exterior doors. The fixtures have been added or replaced throughout the numerous additions and renovations. The majority of the lights seem to be newer updated fixtures, but there are various types around the school and they cannot be visually dated. The site is well covered with lighting.

Recommendation: To accommodate renovations, maintain existing lighting fixtures around exit doors or lighting areas of egress. For any new addition, provide new general site lighting to maximize energy efficiency and minimize light contamination on neighboring properties and to the sky, connect any new lights to an emergency circuit.

Classroom Media (TV, Projector, ETC):

Classroom Media: Classroom media typically consists of an Activeboard with attached projector, a teacher computer, printer, and a wall mounted phone. Laptop and iPad carts are also in use.

Recommendation: Periodic upgrade of equipment will maintain a strong inventory of new equipment and keep students aware of current technology.

Phone System:

Phone System: The phone system consists of a new Cisco IP phone system. Phones are provided in all offices and classrooms as required to access outside lines. Push-to-talk buttons with the PA system are included in all classrooms, but the phone system is used for communication with the front office. The system is operational and meets the current needs of the school.

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

End of Burlington Elementary School Electrical Narrative

CIVIL

Traffic Circulation

Buses: School is served by 6 regular buses, 1 special needs bus, and 3 daycare vans.

Morning: Buses enter the site at the first entrance and drop students off at the sidewalk along the front of the school. Drop off moves very smoothly with no issues or backups. Daycare vans utilize the car drop off loop.

Afternoon: Buses enter the site and stack up along the bus loop at the front of the school. The special needs bus enters first, and the rest of the buses stack behind. There is adequate stacking space for all buses. Daycare vans utilize the car pick up area.

Cars: Generally student drop off and pick up works relatively well with minimal backup.

Morning: Cars enter the site from the south entrance near the basketball play area and stack up along the west side of the school. The exit is extremely close to (almost shared with) the bus entrance / exit. Drop off traffic can back up down the road toward the traffic light, but it moves relatively quickly.

Afternoon: Parents must park their cars and enter the school to check out their students. Cars fill up the parking lot and stack along the curb to pick up their students. Staff indicates no major backups down the adjacent roadway at pick up.

Parking: 109 striped parking spaces are provided with 6 designated ADA spaces. Day to day parking is adequate for faculty / staff / visitors. Parking quantities meet Roanoke County requirements and State recommendations. Event parking is an issue with parents parking wherever possible and sometimes in fire lanes.

Service: The service area is located on the west side of the building and shares access with the car drop off / pick up loop. Most delivery vehicles and trash collection vehicles can access the side without difficulty. Tractor trailer sized deliveries use the bus loop which has adequate maneuvering area. Deliveries must be scheduled appropriately to avoid drop off and pick up times.

Fire Access: Fire apparatus have adequate access around the building. Only issue is during events if cars park in designated fire lanes.

Separation: Faculty / staff parking shares access with the bus loop. This is typically not an issue. The service area shares access with the car drop off / pick up area. This is typically not an issue as long as deliveries are scheduled appropriately. The bus loop entrance / exit and the car exit area are immediately adjacent to one another. This can create potential for conflicts.

Recommendation: Provide a directional island or some means of separating the entrances.

Adjacent Roadways: The adjacent roadway is a cul-de-sac which serves as access to adjacent apartments. There is little traffic and sight distance is good.

Pedestrian: Generally there are not many pedestrians who access the school. There are no sidewalks adjacent to the school.

ADA Accessibility

Parking: There are four spaces designated as ADA parking at the front of the school. One space is designated as van accessible. One space does not have an access aisle. Two spaces on the west side parking lot are designated as ADA parking, but neither are designated as van accessible. The aisle is large enough to accommodate a van accessible space.

Recommendation: Re-stripe the parking area at the front to provide access aisles for all spaces.

Signage: Signs at front parking spaces are in good condition. Signs at the west side parking spaces are faded and posts are rusting.

Recommendation: Replace signs on west side and add a van accessible designation to one space.

Ramps: Concrete ramps are at various locations around the building. All have proper handrails.

Access to all areas: There is ADA access to all areas and activities on site.

Parking Areas, Driveways, and Sidewalks

Asphalt Pavement: Fair to good condition with minor cracking in various locations. One poor area at dumpster pad.

Recommendation: Repair poor section at dumpster pad.

Asphalt Walks: Asphalt walking track is in poor condition with severe cracking and rutting throughout.

Recommendation: Replace asphalt walking track.

Concrete Pavement: Concrete pavement located at the dumpster pad only. Concrete is aged but in good condition.

Concrete Walks: Mostly good condition with some minor cracking in various locations.

Stairs, Ramps, and Railings: Some older stairs showing signs of age but still functional. Ramps are relatively new and in good condition. Newer ramps and stairs have aluminum railings. Older ramps and stairs have steel railings. Older painted railings have peeling / chipped paint. One section of aluminum railing at the rear of the school has a broken cheekwall at a railing post.

Recommendation: Repair concrete cheekwall. Sand, prime, and paint older railings.

Concrete Curb and Gutter: Concrete curb and gutter is in varying conditions. Older curbs are showing age.

Concrete / Brick Pavers: Two parking areas consist of relatively new permeable concrete pavers. Grass is beginning to grow through the cracks along the edges.

Recommendation: Remove grass to keep permeable openings clear.

Guardrail, Parking Bumpers, and Miscellaneous: Metal guardrail is located along the parking / drop off area on the west side of the building and is in good condition. Wooden guardrail is located along the entrance to the parking / drop off area on the west side of the building. The wood posts are in good condition, but some sections of the rail are warping and showing signs of age.

Recommendation: Replace warped and deteriorated sections of wooden rail.

Fire Lane: Paint on curbs and asphalt is faded. Fire lane signs are not turned toward oncoming traffic.

Recommendation: Re-paint curbs and asphalt at fire lanes. Turn fire lane signs toward oncoming traffic.

Utilities

Fire Lines and Hydrants: Sufficient fire hydrant coverage and spacing with multiple fire hydrants along the road and a fire hydrant at the rear of the building. No paved fire lane around building, but there is fire truck access around three of the four sides of the building.

Domestic Water System: The water system is in good condition. Staff indicated no pressure or water discoloration issues. Water is provided to school via public water network.

Sewer System: The sanitary sewer system is functional and ties into the trunk line on South Barrens Road. The staff indicated no issues with stoppages, but observations could not be made because the manhole lids could not be removed.

Recommendation: Sewer system should be flushed to clear and prevent blockages. Manhole lids should be loosened so the network can be accessed.

Natural Gas System: Gas meter is located in a nook between building walls and out of traffic areas. The meter is in good condition and shows no signs of deterioration.

Electric: Electric service provided via overhead poles along South Barrens Road to the school property. An overhead pole with mounted transformers takes the service underground to the school building. The meter is mounted on the building and safe from traffic.

Site Lighting: Large site lights illuminate the front parking lot, but it's very minimal. There is no site lighting in the side parking lot and the only lights at the rear of the school are building mounted. Staff indicated issues with trespassing on the playground and school fields after school hours.

Grading and Drainage

Storm Water System: Roof drains and downspouts are pipe underground into the school storm water network. The majority of runoff comes from the front parking lot and the building roof, which drains to southeast to bioretention areas. Runoff from the side parking lot sheet flows to South Barrens Road and is collected in curb inlets. There is a sump pump located on the southern portion of the property. All storm water inlets, manholes and pipes are in fair condition and functional, but filled with sediment.

Recommendation: Underground piping system should be flushed and pipe outlets should be cleaned out and inspected for sediment.

Detention / Retention Ponds: Bioretention areas are in good condition, but contain sediment accumulation and minor erosion. The bioretention areas treat water from the front parking lot and the roof.

Recommendation: Provide more rip rap to dissipate energy from concentrated runoff and provide more general maintain to prevent sediment accumulation.

Stormwater Management BMPs: The bioretention areas contain no pretreatment measure and obtain trash and litter through storm water runoff. Observations indicate very little trash and litter is present.

Slopes, Ponding, and other Drainage Issues: The sump pump indicates that there appears to be ponding issues, but no issues were inspected during field work. Minor erosion at the bio retention areas and at the rear of the school due to concentrated runoff from conveyance pipes.

Recommendation: Provide additional rip rap at outlet to bioretention areas to dissipate energy and prevent erosion.

Site Features

Vegetative Landscaping: Vegetation, including trees and shrubs, are healthy.

Recommendation: Continue general maintenance of pruning and mulching. Provide remediation with mulch and shrubs to planter bed on north side of school.

Lawns: Generally good condition. Minor areas in need of repair in heavily trafficked areas.

Recommendation: Repair and reseed bare areas. Provide fencing and erosion control mat to protect seed in high traffic areas.

Fencing and Gates: Limited site fencing. CLF at paved play area in poor condition. Fence around paved play area needs replacement. Specific staff request to add fencing at back side of school against residential neighborhood due to protect students.

Recommendation: Replace fence around paved play area and add fence along south and southeast property lines.

Signage: Minor damage to some signs. Posts are aging. No directional signage.

Recommendation: Repair or replace damaged or leaning signs. Future signs should utilize 2"x2" square posts in sleeves with concrete foundations. Provide directional signage.

Flagpoles: New poles in excellent condition.

Site Furnishings: Limited to benches at playground in fair condition.

Recommendation: Monitor benches and replace when needed.

Accessory Structures: Dumpster enclosure in fair condition. Though gates are in good condition, there is significant damage to the back CMU wall. One storage structure with wood framing and vinyl coating. Roof in good condition.

Recommendation: The CMU wall not easily repairable and since it is not a life/safety issue, extensive work is not recommended. Ensure any future enclosure utilizes traffic bollards at rear of enclosure to prevent damage. Any enclosure should utilize composite PVC boards and not pressure treated wood for longevity.

Play Areas and Physical Education

Play / PE Areas (General):

Playgrounds / Stationary Play Equipment: Single play area with combined equipment for grades PreK to 5. Equipment is in fair condition with signs of vinyl coating wearing down. Mulch is in good condition.

Recommendation: Monitor equipment and plan for replacement.

Paved Play Areas: Paved play area with basketball goals is in poor condition with failing asphalt and requires replacement. Smaller secondary paved play area is aging, but retains useful life.

Recommendation: Replace asphalt at basketball play area.

Play / PE Fields: Two multipurpose game fields provided on campus. Infield conditions are fair. Shared outfield (PE field) turf condition is poor due to extensive use for youth soccer. Fencing is in good condition. Team benches are in good condition.

Recommendation: None. The field is for community use and likely not able to be repaired by RCPS. Any improvements will require coordination with the youth organizations utilizing the field.

End of Burlington Elementary School Civil Narrative

OWPR
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Notes

Project Name: RCPS Facilities Assessment	Comm. #: 1637

Subject: Burlington Elementary School	Total Pages:
Date: 9/15/2016	Location: Roanoke, Virginia
Copies To:	Report Prepared By: JFH

General:

The original building was constructed in 1939 and consisted of eight classrooms, four toilet rooms and an auditorium. In 1953, the first addition was completed. In 1960, three basement rooms were renovated and made into classrooms. In 1966, the second addition consisting of four classrooms, four toilet rooms, five storage rooms and a multipurpose room was added. The third addition, in 1970 was a cafeteria and storage room. In 1999 a remodeling project resulted in the addition of six new classrooms, new gym, remodeled kitchen area, new library and redesigned office and entrance to the school. The front office was remodeled again in 2007 and in 2012, a new addition housing eight classrooms was built on the east side of the main building.

Entry Vestibule:

Vinyl Composition Tile (VCT) and Base
Painted thin coat Plaster walls
SATC
HM Frame with wood doors and knob hardware

Main Office:

Carpeted flooring and VCT
Painted CMU Walls
Suspended Acoustical Tile Ceiling (SATC)
Painted HM Frames and Wood Doors (knob hardware)
Plastic Laminate Casework and Countertop

Kitchen:

Slip Resist poured flooring (stained and hairline cracks)
Vinyl wall covering, CMU, Glazed Tile Wainscot and some painted brick
Moisture Resist SATC (Stained)
Glazed Tile Wainscot damaged in some places
Painted HM Frames
Wood Doors with Push/Pull and Panic Hardware
Lever and push bar
(One serving door has a closer missing)

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Cafeteria:
- VCT Flooring
- 24”x 48” SATC (Need replacing)
- Need new Handicap Accessible HI/LO Drinking Fountain
- Aluminum Single Hung Windows with Single Pain
- Painted HM Doors and Frames with old hardware (Need Renovated)

Mechanical:
- Exposed Structure
- Concrete Floor
- CMU Walls
- Exterior Access and down to Basement Level

Roof:
- Flat Roof with EPDM Single Ply Membrane
- Slope Roof with Standing Seam Metal Roofing
- The existing membrane roofing has multiple patching and shows insulation anchors penetrating through the membrane. Membrane bubbles throughout the roof. Roof hatch location is near the edge and should have a railing.
- Old Copper Downspout from Slope roof is bent up pretty bad
- Metal Coping has lots of poor caulked joints.
- EPDM Roofing, flashing, etc needs to be replaced in the near future.

Gymnasium:
- Parquet Wood Floors
- Wood Stage Floor with Brick Edging (Wood floor shall be refinished)
- Handicapped Ramp leading off of the stage to the gym floor level is blocked by equipment.
- Painted CMU Walls
- Exposed Ceiling

Corridor: (New)
- Vinyl windows (Single Hung) Insulated Glazing
- Painted CMU Walls
- VCT Flooring
- SATC Ceiling

Corridor: (Old)
- Terrazzo flooring
- Glazed Tile Wainscot
- New and Old Corridor Vinyl composition tile is cracked and busted near Classroom 217.

Classroom 116:
- Painted CMU Walls
- VCT flooring
- SATC Ceiling
- Painted HM Frame and Wood Door with Lever Handle, Vision Panel w/Wire glass

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Elevator: (Not accessible, out of order and locked during our field investigation)

Boys Toilet Room:
- Old Section of building with broken glazed tile walls
- Terrazzo Tile flooring in bad shape
- Metal Partitions
- Floor Mounted Water Closet with Flush Valve
- (Meets ADA except flush valve not on wide side)

Library:
- Painted CMU Walls
- Carpeted Flooring
- 24” x 24” SATC
- Painted HM Frames with Wood Doors
- Aluminum Large Windows with Double pain insulated glazing
- Oak Furniture

Old Section Basement:
- Not used except for storage
- Low Ceilings and old finish (Not usable space per building code)
- New mechanical equipment
- Suspected material (Asbestos insulation)
- Peeling paint
- Faculty and Staff informed us of Moisture problems and Mold problems

Old Classroom 107:
- VCT flooring
- Glazed Tile Wainscot
- Large Wood Windows
- Porcelain Sink
- Wood Doors with Knob hardware
- Toilet Room Fixtures removed and space turned into closets
- Plaster Walls and Ceiling

New Boys Toilet near Room 214:
- Meets Handicap Accessibility
- Ceramic Tile Flooring
- Ceramic Tile Walls
- SATC Ceiling
- (1-Water Closet, 3 Urinals and 3 Lavatories)
- Marble Threshold between Ceramic Tile Flooring and Corridor VCT flooring

Old Boys Toilet near Room 201:
- Quarry Tile Flooring
- Glazed Tile Walls and Plaster Walls (Glazed tile Cracked bad)
- Plaster Ceiling
- (The floor covering at room 201 is Vinyl Asbestos Tile, Terrazzo and Quarry Tile)

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Notes

Classroom 203, 204, & 205

Vinyl Asbestos Tile Flooring (Need replacing)
Plaster Ceiling
Painted CMU Walls

Corridor off of room 207:

Glazed Wainscot along the wall collapse and temporary patch repairs were made

New Classroom Addition:

Design and Built in 2012
VCT Flooring
GWB and SATC painted Ceiling
Painted GWB Walls
Aluminum Windows with insulated glazing and thermal break

Exterior:

The Multi level building is mostly brick (New Brick and Old Brick). Exterior insulation finish system was used on the two story classroom wing to feel in some over size windows, etc. The finish system matches up well with the original precast concrete window sills.

Conclusion:

The Facility need some work. Several of the old classrooms have been updated and still keeping up with the old theme of the building. The existing building still has Vinyl Asbestos Tile and several other finishes that need to be replaced. One of the older restrooms has broken and crack tile walls. Several panels of glazed tile has already fallen off of the wall along the corridor in the older section. This building requires quite significant amount of remodeling.

The updated main entrance has provided adequate accessibility and security to the building; however more work is required to get this building up to accessibility standards that is required.

New signage will be required throughout this facility as well and new door hardware especially doors that still have the old and knob hardware.

Burlington Elementary School 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					
Brick	5	Life	4 yrs to 63 yrs	Life	
CMU walls	5	Life	4 yrs to 63 yrs	Life	
Exterior Finishes	4	10 years	4 yr to 63 yrs	6 years	EIFS matches up well with precast concrete
Wood trim	4	15 yrs	4 yrs to 63 yrs	11 years	
Interior doors	4	20 yrs	4 yrs to 63 yrs	16 years	Replace wire glass w/safety glass - code compliant
Exterior doors	4	50 yrs	4 yrs to 63 yrs	N/A	Replace HM with energy efficient Alum door/Frame
Door hardware	2	7 yrs	4 yrs to 63 yrs	3 years	Do not meet ADA Code Compliant Throughout
Electronic door hardware, entrance security	5	5 yrs	2 years	3 years	Security Entrance completed 2014
Carpet	5	5 yrs	2 yrs	3 yrs	
Quarry Tile	3	50 years	4 yrs to 63 yrs	N/A	
Terrazzo	5	50 yrs	4 yrs to 63 yrs	N/A	
Asbestos floor tile	1	N/A	N/A	N/A	Remove Existing Asbestos Tile in its Entirety
Vinyl floor tile	4	12 yrs	4 yrs to 63 yrs	N/A	
Ceramic/Porcelain floor tile	4	50 yrs	4 yrs to 63 yrs	N/A	
Wood gym floor	3	10 yrs	17 years	0 years	Need to refinish or replace
Other wood floors	3	10 yrs	17 years	0 years	
Exposed concrete floors	5	50 yrs	N/A	N/A	
Exterior windows	4	30 yrs	4 yrs to 63 yrs	N/A	Replace existing wood windows
Interior windows	5	30 yrs	4 yrs to 63 yrs	N/A	Replace wire glass w/safety glass - code compliant
Roof (Including flashings, coping, etc.)	5	20 yrs	4 yrs to 63 yrs	N/A	EPDM membrane
Standing Seam Metal Roof	5	25 years	4 yrs to 63 yrs	21 years	
Suspended acoustical tile ceilings (lay-in)	3	25 years	4 yrs to 63 yrs	N/A	Replace the damage and stain tiles throughout
Plaster/GWB ceilings	4	30 years	4 yrs to 63 yrs	N/A	Paint
Sound control panels (wall and ceiling)	3	N/A	4 yrs to 63 yrs	N/A	
Ceiling/exposed structure finish (paint)	4	5 yrs	4 yrs	1 yr	
Interior wall finishes (paint)	4	5 yrs	4yrs	1 yr	
Marker boards, chalk boards, tack boards, projection screens	5	N/A	4 yrs to 63 yrs	N/A	
Casework	3	N/A	4 yrs - 63 yrs	N/A	
Window treatments	2	N/A	4 yrs - 63 yrs	N/A	
Toilet partitions	2	20 years	4 yrs - 63 yrs	N/A	Remove all old Toilet Pratitions
Toilet accessories	2	N/A	N/A	N/A	Remove all old Toilet Accessories
Exterior Railing and Interior railings	3	30 years	4 yrs - 6 3 yrs	N/A	Require Painting
School sign	3	25 years	4 yrs to 63 yrs	N/A	signage needs to be updated as ADA code compliant
Sprinkler/No Sprinkler	3	N/A	N/A	N/A	signage needs to be updated as ADA code compliant
ADA Code Compliant	1	N/A	N/A	N/A	Update Toilet Rooms and room Signage
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					

Burlington Elementary School 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	5	30 years	18 years	12 years	
Chiller or Cooling tower	N/A				
Mechanical piping	5	30 years	4 years	26 years	
Refrigerant piping	5	30 years	4 years	26 years	
Duct	5	30 yeas	4 years	26 years	
Outdoor air units	N/A				
Terminal units	5	20 years	4 years	16 years	
Package units (1994)	2	20 years	22 years	0 years	
Package units (2012)	5	18 years	4 years	14 years	
Controls	5	15 years	4 years	11 years	
Exhaust fans	4	25 years	1 8 years	7 years	
Plumbing					
Plumbing fixtures and controls 75%	2	30 years	50 years	0 years	
Plumbing fixtures and controls 25%	5	30 years	4 years	26 years	
Floor drains	4	30 years	17 years	13 years	
Water heaters - 10 years old	3	15 years	10 years	5 years	
Water heaters - 4 years old	5	15 years	4 years	9 years	
Pumps	5	15 years	4-10 years	5-11 years	
Potable water piping & valves	5	30 years	4-10 years	20-26 years	
Sprinkler system (Limited Area)	5	30 years	17 years	13 years	
Back-flow preventer	5	30 years	17 years	13 years	
Service line & meter (size appropriate)	5	30 years	17 years	13 years	
Wall and yard hydrants	2	15 years	17 years	0 years	
Eye wash stations	N/A				
Emergency showers	N/A				
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					

Burlington Elementary School 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					
Main switch gear	40	17	23	3	
Transformers	30	17	13	5	
Panelboards - Original	30	77	-47	2	
Panelboards - 2012 Wing	30	4	26	5	
Panelboards - 1999 Renovations	30	17	13	4	
Cabling - Original	40	50	-10	2	
Cabling - 2012 Wing	40	4	36	5	
Cabling - 1999 Renovations	40	17	23	5	
Conduit/raceway	40	6	34	3	
Light fixtures - Classrooms	20	50	-30	2	
Light fixtures - 2012 Wing	20	4	16	5	
Light fixtures - Corridors	20	17	3	5	
Lighting controls - Original	30	77	-47	2	
Lighting controls - 2012 Wing	30	4	26	5	
Public address system - Headend	30	17	13	4	
Public address system - Classroom speakers	30	46	-16	2	
Security system	10	2	8	5	
Camera system	10	5	5	5	
Data system	15	5	10	5	
Fire alarm system	30	17	13	5	
Site lighting - Main building	20	17	3	5	
Site lighting - 2012 Wing	20	4	16	5	
Classroom media systems (TV, projector, etc.)	10	5	5	5	
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

Burlington Elementary School 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	4	15 years	4 years	11 years	
Asphalt walks	2	20 years	17 years	3 years	
Concrete pavement	5	30 years	17 years	13 years	
Concrete walks	4	30 years	4-46 years	0-26 years	
Stairs	4/5	30 years	4-46 years	0-26 years	
Ramps	5	30 years	4 years	26 years	
Railings	4	15 years	4-46 years	0-11 years	
Concrete curb and gutter	5	30 years	4-17 years	13-26 years	
Concrete / Brick Pavers	5	30 years	4 years	26 years	
Guardrail, Parking Bumpers, Misc.	4	Varies	Unknown	5-10 years	
Fire lane	4	Varies by Material	Unknown	0 years	
Fire lines and hydrants	5	40 years	Unknown	15-20 years	
Domestic Water system	5	40 years	17 years	23 years	
Sewer system	4	40 years	Unknown	15-20 years	
Natural Gas system	5	40 years	17 years	23 years	
Electrical System	5	25 years	Unknown	15-20 years	
Exterior Lighting	4	25 years	Unknown	5-10 years	
Storm water system	4	40 years	4-17 years	23-36 years	
Detention / Retention ponds	4	Life	4 years	35-40 years	
Stormwater Management BMP's	5	Life	4 years	35-40 years	
Surface drainage and grading	4	N/A	N/A	N/A	
Vegetative landsaping	5	Life	4+ years	Varies	
Lawns	4	Life	4+ years	Life	
Fencing and gates	3	20 years	Unknown	2 years	
Signage	4	10 years	Unknown	5+ years	
Flagpoles	5	50 years	4 years	46 years	
Site furnishings	5	15 years	Unknown	5+ years	
Awnings / Canopies	N/A	N/A	N/A	N/A	
Site retaining walls	N/A	N/A	N/A	N/A	
Accessory structures	5	50 years	Unknown	10+ years	
Playgrounds	3	10 years	Unknown	5 years	
Paved play areas	3/4	20 years	Unknown	5+ years	
Play / PE fields	3	Life	Unknown	Life	
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 **Burlington Elementary School**
Client Name Roanoke County Schools

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Quantity	Description	Unit	Cost / unit	Total w/ OH&P
	ARCHITECTURAL			
22,374	Partial renovations	SF	$118.00	$3,168,158.40
	Includes door hardare, all new doors, roof			
	replacement,replace windows, all new flooring			
	replace marker/tack boards			
1,000	Remove Vinyl Asbestos Tile	SF	$2.90	$3,480.00
6	Renovate toilets to to achieve ADA complaince	EA	$35,000.00	$252,000.00
	and replace old accessories and partitions			
	CIVIL			
1	Directional island	LS	$15,000.00	$18,000.00
100	Pavement restriping	LF	$0.20	$24.00
6	ADA signage	EA	$500.00	$3,600.00
4	Directional signage	EA	$1,500.00	$7,200.00
200	Concrete dumpster pad	SF	$10.00	$2,400.00
8,400	Mill and overlay asphalt pavement	SF	$1.00	$10,080.00
400	Repaint curbs and fire lanes	LF	$0.10	$48.00
3	Provide outlet protection	EA	$200.00	$720.00
800	6' Chain link fencing	LF	$30.00	$28,800.00
300	10' Chain link fencing	LF	$40.00	$14,400.00
5,500	Demo and replace paved play area	SF	$2.50	$16,500.00
	MECHANICAL / PLUMBING			
2	Replace packaged RTU's from 1994	EA	$50,000.00	$100,000.00
	ELECTRICAL			
22,000	Partial Renovation	SF	$15.00	$330,000.00
22,000	Eletrical Distribution Upgrade	SF	$7.00	$154,000.00
	TOTAL Budgetary Cost			**$4,109,410**