WILLIAM BYRD MIDDLE SCHOOL

ARCHITECTURAL

William Byrd Middle School was constructed in 1988. The building is partially sprinkled and loosely complies with the accessibility requirements of the time in which the work was performed; however, some spaces do not comply with current standards and yet others have been adapted to comply. The multi-story structure went through a front entrance renovation in 2014 for adequate accessibility to the building as well as adequate security for the building. Total square footage for the facility is 145,624 SF.

The building has developed some masonry cracks along the front exterior corner adjacent to the Choral Room and some cracks noticeable along the Mechanical Room walls and the Team Room near the showers (see Structural Narrative).

Exterior Finishes

Exterior Cladding:

Exterior wall material is, generally, brick with exterior insulation finish system better known as EIFS. Brick was observed to be in good condition with some areas needing re-pointing of mortar joints and monitoring of cracks. Limited areas of the building are clad in an "Exterior Insulation and Finish System" (EIFS). The EIFS appears to be in very good condition. Pre-finished metal copings, flashings and drip edges occur at wall/roof intersections and are in, generally, good condition. Joints at these copings, flashings and drip edges have suffered some degradation. Maintenance repairs and fresh Sealant will be required. The Windows have brick rowlock sills with a soldier course head and banding.

Roof:

The building roof is a black EPDM flat (minimum slope to drains) roof with metal copings, drip edges, flashing and membrane flashing. In general, the roof appears to be in good shape. Access to the roof occurs from the second floor mechanical space. The roof access ladder anchors are loosening from the wall which will required some maintenance.

While the roofs are reasonably in good shape, they should be consistently monitored for issues and maintained. Several areas of the roof have large amounts of debris that should be removed (southwest roof area). Sealants along coping, roof edges, etc. should be regularly monitored and replaced as needed. Several joints have experience sealant degradation and cracking and should be resealed.

Skylights were observed to be in good condition. Sealants should be monitored for stability and replaced as required.

Windows:

Windows at the exterior of the building are generally hollow metal windows with some aluminum awning windows within the Science Lab Area of the building. Condition of sealants and glazing should be monitored. Sealant that is cracked or failing in any other way should be replaced. All glazing units were observed to be in good condition with no signs of seal failure.

Exterior Doors:

Exterior doors are hollow metal doors and frames with glass sidelites and transoms. The main entrance provides adequate accessibility and security that allows visitors to be monitored prior to entering the building. All other exterior doors and frames are hollow metal. Glazing condition and door condition at all hollow metal doors and frames should be monitored. Rusting doors and frames should be replaced as required. Glazing can be replaced to improve overall energy efficiency of the system. All exterior doors shall receive new weather seal kits.

Interior Finishes, Fixtures & Equipment

(See assessment tabulations for interior finish conditions).

Terrazzo, Vinyl Composition Tile, and Ceramic Tile are the predominant floor finishes at WBMS. Other floor finishes include limited applications of sheet vinyl, carpeting and parquet wood at the Gymnasium.

Interior wall finishes are generally painted concrete block and brick veneer. Restroom areas have glazed wall tiles with ceramic tile flooring. Window treatments are typically vinyl roller shades. Gymnasium walls are painted block with no acoustic sound panels.

Ceilings are generally suspended acoustical tile (lay-in) with some gypsum wall board ceilings. Exposed, painted tectum decking is present in the gymnasium area.

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

Marker boards and tack boards are present in classrooms. Most are in fair to good condition. Some would be replaced during renovations. Smart boards have been placed in rooms.

Casework (cabinets) condition varies across the facility. Painted casework, generally, needs to have new finishes applied. Some fixed wooden casework may need to be

refinished. Most casework is not accessible. Lockers are in good condition in most locations, and should be painted as required.

Toilet rooms have high pressure laminate partitions that have sustained some abuse and minor damage.

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 saving 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.

General school storage is scattered throughout the building and consumes spaces intended for other functions such as the second level Mechanical room which has stored items within the space and a radio classroom is in the Mechanical space. This is in violation of the current building and fire code. All stored items and classroom items shall be removed immediately. As part of future 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, or down, into the building, which are not accessible. While these no longer serve as entrances due to security concerns, they should provide an accessible route for egress. Routes to paved play areas, play fields, and play equipment are not all accessible. As part of any substantial renovation all elements of the site and building entrances would be renovated to be accessible. Accessible play areas would be required as part of any substantial renovation and addition project.

Within the building, most areas are accessible but others are not, simply because of their age. Some restrooms are not accessible to the latest ADA standard, as the most recent renovation was performed under a previous version. Accessible urinals were not present in some Men's rooms. Minor changes may need to be incorporated into any future renovations. Casework should be added which incorporates accessible work stations and storage units; most casework provided only a single, 36" high countertop.

Signage, throughout the facility, does not comply with the most recent ADA standard. Accessibility throughout the building would be achieved during any substantial renovation.

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 vestibules at all schools. The vestibule at WBMS 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 renovations and additions to the school, the building is reasonably compartmentalized. Sight lines and distance are reasonably long in most areas of the building.

End of William Byrd Middle School Architectural Narrative

STRUCTURAL

During the Architectural investigation of the William Byrd Middle School, a couple issues were discovered warranting additional investigation from a structural standpoint.

Vertical Crack at Building Corner Exterior

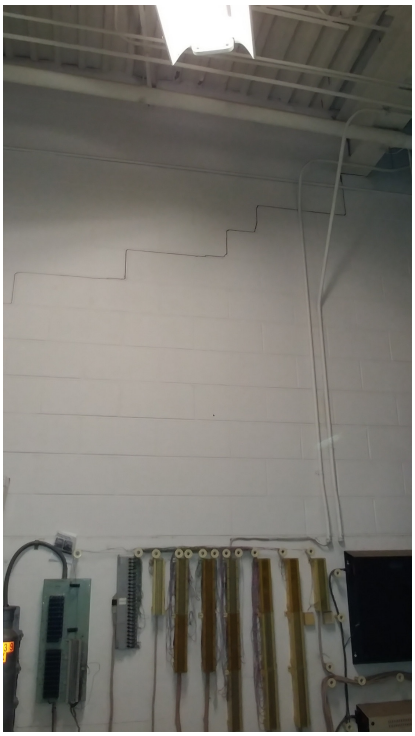
At the south end of the school, the entrance facing William Byrd High School, a vertical crack was observed at a building corner, approximately 4" off the corner. Additionally, the northeast face of this corner appears to have rotated to the northeast (in the adjacent photo, that would be the face of the wall extending back into the page, rotating to the right). It is believed that the southeast face of the building (the face containing the white sign in the adjacent photo) expanded, creating movement to the northeast at this end of the wall (to the right in the adjacent photo) creating the rotation in the northeast face of the wall. Then, as cooler temperatures occurred, the face of the wall contracted, creating the crack. Significant temperature swings are expected in this wall since it is a southeast facing wall which will absorb significant amounts of heat from the sun – particularly during the summer - but then cool at night – becoming particularly cold during winter nights. This condition was not visible on the interior of the building and does not pose a threat to the structural system of the building. However, it should be sealed with some flexible sealant to keep moisture from entering the crack. The sealant needs to be flexible as it is anticipated that this crack will continue to open and close with temperature swings.

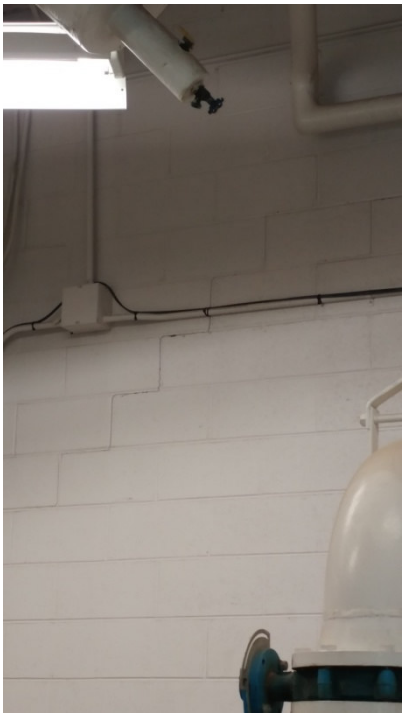
Crack in Team Room Near Shower

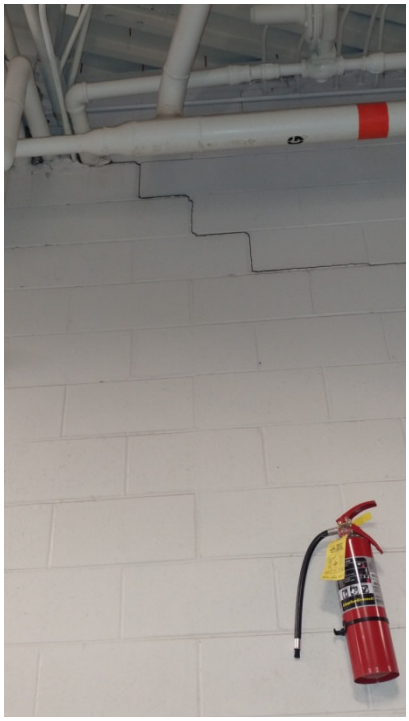
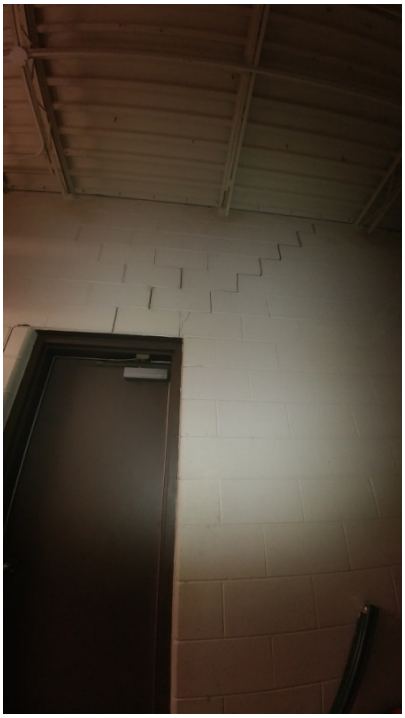
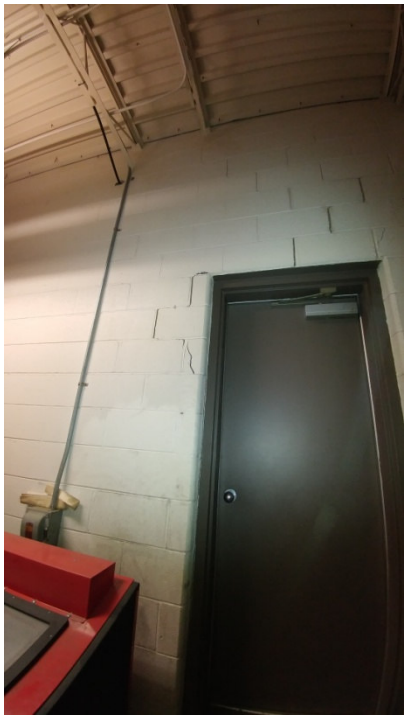
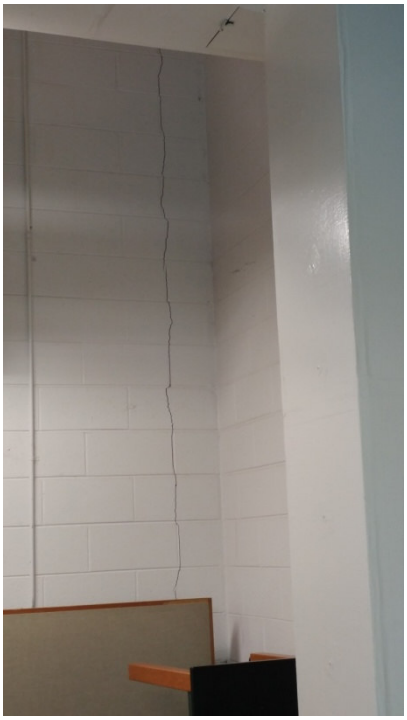
On a wall corner, entering the shower area of the Team Room, a crack was observed "wrapping" the corner. The cause of this movement is somewhat unclear. It could be related to some differential movement between the masonry and the glazed tile material of the intersecting wall. It could also be related to the relatively widespread movement noted at the nearby mechanical room. This should be caulked and painted and closely observed for any additional movement. This crack, in its current state, does not pose a threat to the structural integrity of the building.

Cracks in Many Mechanical Room Walls

While searching for a crack observed by the architectural team, many, if not all, of the mechanical rooms were visited. Each room visited exhibited significant cracking in the masonry walls. Where the exterior of the wall was investigated, the cracking did not appear in the exterior face brick. Most of the cracks appeared to be settlement cracks. Cracking in adjacent areas was not reported. It is assumed that this cracking is isolated to the mechanical rooms observed. These cracks, while somewhat unsightly, do not pose a threat to the structural integrity of the building. However, they should be caulked, painted and observed for additional movement. Due to the number of cracks, particularly in the second floor mechanical rooms, it would be wise to begin a monitoring program using crack gages installed across the most severe cracks. Monitoring on a quarterly basis with detailed documentation of readings is recommended. Further information regarding a monitoring program can be provided if desired.





End of William Byrd Middle School Structural Narrative

PLUMBING/FIRE PROTECTION

Plumbing Fixtures:

Water Closets: Water closets observed were floor mounted vitreous china with manual type flush valves. There were just a couple of water closets that were ADA compliant. The condition of the water closets ranged from fair to good considering 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 was good considering their age.

Lavatories: Lavatories observed were wall mounted vitreous china or enamel cast iron with either manual or metered type faucets. There were some lavatories that appeared to be ADA compliant. Most lavatories observed did not have hot water supply or any ASSE 1970 mixing valves that are required by today's codes. The condition of lavatories ranged from fair to good considering their age.

Sinks: Sinks observed were stainless steel with kitchen type faucets with swing spouts. The condition of the sinks varied from fair to very good in accordance to their age.

Showers: Showers are supplied with tempered water by a master mixing valve. Controls for shower valves are single handle with severe service shower heads. Condition of showers seemed to be good.

Laboratory Fixtures: Sinks observed in the laboratory areas were chemical resistant type to match countertops. Supply faucets and gas fittings on laboratory sinks appear to be original to the building. There was a manual gas shut off valve located within the Science Prep Room, but no emergency solenoid shut off button located within the classrooms as required by today's codes.

Emergency Fixtures: Emergency showers and eyewash observed were not ADA compliant. It was not determined if they were supplied with tepid water. The condition of the emergency fixtures was fair to good.

Electric Water Coolers: Several different styles of water coolers were noted within the building. Even some porcelain drinking fountains were noted in the gymnasium. There were several ADA compliant high/low models. The condition of the water coolers ranged from good to very good.

Water Heaters:

Domestic hot water is generated through the gas-fired boilers and heat exchangers in storage tanks. Kitchen hot water is stored in an approximately 500 gallon vertical steel tank; school hot water is stored in an approximately 2000 gallon horizontal steel tank.

Both systems have recirculation pumps. Boilers and tanks are assumed to be original to the building (1988).

Piping:

Water: Copper
Sanitary Piping: Cast iron
Storm Piping: Cast iron
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 2" cold water line that is assumed to be from a municipal system. There is a strainer and pressure reducing valve on the main water entrance and the bypass. No backflow preventer was observed within the building.

Kitchen:

The Kitchen is an older type with mostly direct waste connections, no sanitary floor sinks were observed. 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 partially sprinkled. The incoming sprinkler service is 6". Areas served by sprinkler system are first floor area 'A', second floor area 'A' and the stage area. No backflow preventer was observed within the building.

Recommendations:

This school appears to be in good working order considering its age; however, it may require some renovations and ADA updates in the future to bring it up to code.

End of William Byrd Middle School Plumbing/Fire Protection Narrative

MECHANICAL (HVAC)

Heating:

There are three gas-fired boilers. The boilers provide heat to the building through a hot water circulation system. Hot water is circulated to the buildings heating coils with six base mounted pumps. The boilers and pumps were installed in 1987-1988 and seemed to be in good, working condition. However, the boilers are 28 years old and only have 2 years left of their useful life expectancy of 30 years. The pumps are 28 years old and are past their expected useful life expectancy of 25 years. Coils are located in air handler units, terminal units, and unit heaters. Air handler units and terminal units are on average at least 6 years old.

Ventilation:

The laundry room has a wall louver with a damper for ventilation. There are multiple louvered penthouse ventilators on the roof that provide fresh air intake for the indoor air handler units and terminal units. There is one dedicated outside air unit that was installed in March 2010.

Air Conditioning:

There is one cooling tower that is believed to be installed in 2008. There is one chiller located on grade. Chilled water is pumped to the building's cooling coils located in air handler units and in terminal units. The chiller and chilled water pumps were in good working condition. The chiller is 4 years old and is expected to have a useful life expectancy of 20 years. The pumps are at least 4 years old and are expected to have a useful life expectancy of 25 years. There are also four variable refrigerant (VRF) air conditioners that service the school. The VRF systems are about 5 years old and have a useful life expectancy of 15 years. There is a DX rooftop unit that was manufactured in 2010 and has a useful life expectancy of 18 years.

Piping:

There is hot water and chilled water piping, black steel, insulated. The piping varies in age from 28 years old to 4 years old.

Controls:

The building automation controls are a combination of the digital type (DDC) and pneumatic controls. The DDC controls are by Johnson Controls.

Recommendations:

Based on conversation with school staff, there were no major issues. The insulation on the pipes from the boilers to the pumps is wearing out and is torn in some places.

End of William Byrd Middle School Mechanical Narrative

ELECTRICAL

Main Switch Gear:

Main Switchboard: The main switchboard is a 2500 Amp, 3 phase, 4 wire, 480Y/277 volt Square D, service entrance rated switchboard. The existing switchboard is original to the building from 1988 and has space and spares available.

Recommendation: In the event of a substantial renovation or addition, existing switchboard can be reused and expanded as necessary.

Transformers:

Transformers: The majority of the transformers are original Square D 480/277V to 208/120V. There are also two newer above ceiling transformers for the 2010 computer lab renovation. All of the transformers are currently in good working condition; however, over time transformers become less energy efficient.

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

Panelboards:

Distribution and Branch Circuit Panelboards: The majority of panelboards are original Square D. There are also two newer Square D panelboards that were added for the 2010 computer labs renovation. The panels have space available, but the original panelboards have reached their expected useful life.

Recommendation: If renovations and additions occur, replace the panelboards and locate them in areas to minimize student access and to meet National Electrical Code working clearances. Expand as necessary to accommodate new or modified spaces. The newer panelboards may be reused.

Cabling:

Cabling: Much of the building wiring is original. Some new wiring has been added for the addition of receptacle. All visible wiring appears to be in conduit. 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: The conduit and raceway above ceiling is still in good condition. There is not much surface raceway throughout the building, but it could potentially become dislodged from the wall creating a potential shock hazard.

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

Light Fixtures:

Light Fixtures: The light fixtures consist of primarily 2x4 flat lens fixtures with T8 lamps, some fluorescent can lighting, and 1x4 fixtures with T8 lamps. The T8 lamps are current technology, and meet the current needs of the school. Various emergency wall pack light fixtures are also utilized. 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 building consist of toggle switches controlling fixtures within an area; some classrooms have zoned switching. Corridor lighting is controlled through switch bank in the front office.

Recommendation: In the event of a renovation or addition, add automatic lighting controls to each room 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 Rauland headend system with speakers located throughout the school and a Simplex clock system. Each classroom has a PA speaker, clock, and a push-to-talk button. Teachers and staff use the Cisco phone system to call in to the PA for most communications and announcements. The PA system is currently in the process of being upgraded.

Recommendation: The PA system is currently being upgraded to the newest technology. In the event of a renovation or addition, the new 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.

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

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.

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 system contains two headends in the front office, an original Simplex 4500 and a newer Simplex 4010. Both headends are still operational and appear to control different sets of devices. The staff mentioned that both systems must be activated separately for a fire alarm drill. The current system devices consist of limited area manual pull stations, smoke detectors, and horn/strobe alarms. However, there are no alarm devices located in classrooms.

Recommendation: The two fire alarm systems should be consolidated for accuracy and safety so that all areas of the school are alerted at the same time. If renovations and additions are pursued, expand existing fire alarm system with audible and visual notification devices throughout the school and in classrooms. Reconfigure the existing system 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, exterior door canopy lighting, and ground based flood lights. These lamps are likely changed as lamps burn out; however, the ballasts and optics have likely not been changed and have exceeded their useful life.

Recommendation: To accommodate a new addition or renovations, replace light fixtures around exit doors or lighting areas of egress. Connect these lights to an emergency circuit. Provide new general site lighting to maximize energy efficiency and minimize light contamination on neighboring properties and to the sky.

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. Some classrooms contain a TV; however, TVs were not consistently present.

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 William Byrd Middle School Electrical Narrative

CIVIL

Traffic Circulation

Buses: School is served by 36 regular buses. There is no dedicated bus loop, but the buses generally stack and drop off / pick up in the area between the high school and middle school.

Morning: Buses enter the site and drop off students at the cafeteria at the west side of the school. After dropping off, buses continue around the parking lot loop and proceed to the drop off area at the east side of the middle school and then exit the site. Conflicts can occur where buses are exiting after dropping off at the middle school and parents are entering the middle school drop off area.

Afternoon: All buses enter the site and stack up through the parking lot and bus area between the middle school and high school. Students exit both the middle school and high school and find their bus making it difficult to monitor student movements.

Recommendation: A separate centrally located bus loop with its own entrance and exit would be beneficial. Explore the possibility of creating an access drive for bus traffic to enter the site from the adjacent park area and access the existing bus area adjacent to the stadium. The bus area would need to be expanded and reconfigured to accommodate all bus traffic for both middle and high school students.

Cars: There is one main entrance for both middle school and high school. This creates a great deal of traffic entering and exiting the site. Seniors leave the high school early to clear some of the traffic before buses and other traffic exits the site.

Morning: Parents utilize the access drive along the west edge of the student parking lot to access the middle school. Students are dropped off at the main entrance. There is adequate stacking space in the access drive. Sometimes conflicts occur with buses exiting and parents entering the drop off area.

Afternoon: Pick up works similar to drop off utilizing the access drive and drop off / pick up at the front of the school. Stacking space is adequate to prevent significant backups entering site. Backups occur with vehicles exiting the site onto Route 24.

Recommendation: With a separate bus entrance / exit, traffic patterns for car traffic could be reconfigured to move more smoothly.

Parking: 124 striped parking spaces are provided with 4 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 adequate when scheduled appropriately with high school activities.

Service: The service area on the west side of the school has adequate maneuvering area for all deliveries.

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

Separation: Separation is poor due to crossing traffic patterns, no dedicated bus loop, one main entrance into campus, and two large schools sharing quite a few facilities.

Recommendation: See above.

Adjacent Roadways: Access into the site is from Route 24 which is a heavily travelled four lane divided highway. Traffic backup issues and safety issues are a major concern.

Recommendation: See above.

Pedestrian: Some students walk from the surrounding neighborhoods, and some walk down the shoulder of Route 24.

ADA Accessibility

Parking: There are 4 spaces designated as ADA parking at the main entrance. None are designated as van accessible. 5 spaces are required.

Recommendation: All spaces are large enough to accommodate van accessibility. Add signage to designate at least one space as van accessible. Restripe parking area and add aisle and signage to create one more ADA accessible parking space.

Signage: Signage is in good condition and code compliant. No van accessible designation.

Recommendation: Add signage to designate at least one space as van accessible.

Ramps: Curb ramps are appropriately located and in good condition.

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

Parking Areas, Driveways, and Sidewalks

Asphalt Pavement: Fair condition, aged with minor cracking throughout.

Concrete Pavement: Fair condition, aged but functional.

Concrete Walks: Fair condition, aged but functional. Walks are heavily deteriorated with major spalling on the north side of the building.

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

Stairs, Ramps, and Railings: Fair condition, aged but functional. Paint on railings is faded, chipping, and peeling.

Recommendation: Sand, prime, and paint railings.

Concrete Curb and Gutter: Fair condition, aged but functional.

Guardrail, Parking Bumpers, and Miscellaneous: Wooden 2"x6" guardrail with metal posts is deteriorated.

Recommendation: Provide proper guardrail to existing posts.

Fire Lane: Paint on curbs and asphalt is faded. There is an insufficient quantity of fire lane signs. Fire lane signs are not turned toward oncoming traffic.

Recommendation: Re-paint curbs and asphalt at fire lanes. Provide additional signs as necessary. Ensure that fire lane signs are turned toward oncoming traffic.

Utilities

Fire Lines and Hydrants: Sufficient fire hydrant coverage and spacing with one fire hydrant located at the loading dock and service area, post indicator valve and building mounted siamese fire department connection. No paved fire lane around building, but fire truck access is present around all sides.

Domestic Water System: The water system is in good condition. Staff indicated no pressure or water discoloration issues. Water is provided to school via tap into public water main. Water meter is located in vault at the rear of the school beside the transformer.

Sewer System: The sanitary sewer system consists of concrete manholes and pipes in fair condition. System is functional with proper invert shaping. Staff indicated no issues with stoppages, but observations show signs of stagnant waste.

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

Natural Gas System: Gas meter is located in the loading dock area and is protected from vehicular traffic by a block wall. The meter is in good condition, but shows signs of rust and deterioration.

Recommendation: Contact gas company to inspect condition of meter.

Electric: Electric service provided via overhead poles to school property at the faculty parking lot. Service is taken underground to a transformer at the rear of the school and then into the building. The meter is mounted on the building and the transformer is safe from vehicular traffic.

Site Lighting: Large site lights illuminate school parking lots and bus loop and building mounted lights illuminate sidewalks and entrances. Lighting is sufficient for safety and security. There is lighting at baseball field and softball fields.

Grading and Drainage

Storm Water System: Roof drains and downs spouts are piped underground into the school storm water network. Runoff from the parking lots and bus loop is collected in curb inlets and piped to the detention pond at the high school. Runoff from the PE field and softball field sheet flows off site. All storm water inlets, manholes and pipes are in good condition, but filled with sediment and debris.

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

Slopes, Ponding, and other Drainage Issues: Minor sediment accumulation and ponding near janitorial parking area due to poor slopes away from the building.

Site Features

Vegetative Landscaping: Significant pruning and mulching is needed.

Recommendation: Provide general maintenance and pruning as indicated.

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

Recommendation: Repair and reseed bare areas.

Fencing and Gates: Limited fencing for campus. General condition is fair. Fencing at athletic facilities is covered under the WBHS assessment.

Recommendation: Refer to WBHS assessment.

Signage: ADA signage not code compliant. Minor damage to some signs. No directional signage provided. Some posts leaning due to lack of foundations.

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

Flagpoles: Poles are in fair condition. Age is showing.

Recommendation: Monitor condition to replace flag poles in future.

Site Furnishings: Site furnishings are limited and are generally in good condition.

Site Retaining Walls: Limited use of retaining walls. Functionally sound, signs of age.

Physical Education

Practice / PE Fields: Two fields provided for MS and HS use. Turf condition in poor to fair condition due to use by multiple teams.

Recommendation: Available space limits the possibility of additional turf areas. Due to high usage, a synthetic turf should be considered for the stadium and new high quality turf with improved drainage provided in the PE Fields.

Athletics

Track and Field Events: Refer to WBHS assessment.

Competition Softball Field: Refer to WBHS assessment.

Competition Baseball Field: Refer to WBHS assessment.

Competition Football Field: Refer to WBHS assessment.

Competition Soccer Field: Refer to WBHS assessment.

End of William Byrd Middle School Civil Narrative

OWPR
ARCHITECTS AND ENGINEERS

Notes

Project Name: RCPS Facilities Assessment	**Comm. #: 1637**

Subject: William Byrd Middle School	**Total Pages:**
Date: 9/13/2016	**Location: Vinton, Virginia**
Copies To:	**Report Prepared By: JFH**

General:

William Byrd Middle School is a Brick and Exterior Insulation Finish System building. The two story facility has a flat roof and was constructed in 1988. The existing facility is partially sprinkled. The front entrance access has been updated to provide adequate accessibility and Security to the Main Entrance. The flat roof is constructed as EPDM roofing with metal coping and membrane flashing. There are several skylights and mechanical units located on the roof.

Entry Vestibule:

Rubber floor covering and base
Brick Veneer Walls
Suspended Acoustic Tile Ceiling (SATC)
Entrance doors are Painted Hollow Metal Doors and Frames and HM Windows (Exterior doors need Seal Kit)

Old Main Entrance:

Slip Resist Vinyl flooring
Brick Walls
SATC
HM Frame and Doors (knob hardware)

Main Office:

Vinyl Composition Tile Flooring (VCT)
Carpet Flooring in the Principal and Assistant Principal
Painted CMU Walls
SATC
Office is equipped with floor mounted flush valve toilet room with wall hung lavatory.
The toilet room flooring is ceramic tile, painted CMU walls, SATC.
All other rooms are VCT Flooring with painted CMU walls and SATC ceiling.
The doors are wood with HM Frames and knob hardware

Corridor:

The flooring is Terrazzo with ceramic tile base.
The Walls are Brick
The ceiling is 24”x24” SATC.
The doors and frames are painted Hollow Metal

OWPR
ARCHITECTS AND ENGINEERS

Notes

Mechanical Room:
- Concrete Flooring
- CMU Walls
- Exposed Ceiling Structure
- Access from Exterior with through painted HM Doors and Frame
- Existing openings closed off with Light Gage Steel Studs and Exterior Insulation Finish System (EIFS)

Gymnasium:
- Parquet Wood Flooring
- CMU Walls (No Acoustic Panels)
- Exposed Tectum Ceiling and Structure
- 1 water fountain

Kitchen and Cafeteria:
- Terrazzo Flooring
- Painted CMU Walls
- 24”x24” SATC
- Wood Doors with painted HM Frames (Knob Hardware)
- Aluminum Windows with Insulated Glazing

Laundry Room:
- Concrete Flooring
- Painted CMU Walls
- Painted Gypsum Wallboard Ceiling
- 2 Washers and 1 Dryer

Locker Room Toilet:
- Not handicapped accessible
- Floor Mounted, Flush Valve Water Closet
- Concrete Flooring
- Painted CMU Walls
- Gypsum Wallboard Ceiling

Stairs:
- Vinyl Treads with slip resist strips
- VCT Landings
- Painted CMU Walls
- Steel Railing and Wood Railings
- SATC

Auditorium:
- Carpeted and Concrete flooring
- Painted GWB walls and CMU walls with Acoustical Panels
- Exposed ceiling painted black
- Wood Flooring Stage
- Handicap Accessible Seating not applicable

OWPR
ARCHITECTS AND ENGINEERS

Notes

Choral Room:
- Carpeted flooring
- Painted CMU Walls
- SATC
- Wood door with HM Frame (Knob Hardware)

Special Education Classroom:
- Classrooms 102, 104, 106, 108 and 110
- VCT flooring
- 24”x24” SATC
- Painted CMU Walls
- Wood Casework need replacing

Science Lab:
- VCT Flooring
- Painted CMU Walls
- SATC
- WD Door with HM Frame
- Aluminum Windows with Insulated Glazing (Operable Awning)
- Plastic Laminate Casework and Soapstone Countertop

Second Floor Mechanical Room:
- Concrete Flooring
- Painted CMU Walls and GWB Walls
- Exposed Ceiling Structure
- Roof Top Access
- Mechanical room is also being used as an Amateur Radio Class and a Storage Room as well (Major building code violation)

Technology Classroom:
- New Computer room addition
- VCT Flooring
- Painted CMU Walls
- SATC

Media Room:
- Tongue and Groove Acoustical panel ceiling
- Gypsum Wallboard accent ceiling
- Rooms off Library / Media area has 24x24 SATC
- Carpeted flooring
- Painted CMU walls
- HM Frames with Wood Doors and Knob Hardware

Roof:
- Flat EPDM Roof
- Roof access from second floor Mechanical Room
- Roof access ladder anchors need maintenance.
- Roof appears to be in pretty nice shape

OWPR
ARCHITECTS AND ENGINEERS

Notes

Exterior:

Brick collapse at lintel
CMU Block Crack within the Choral Room and Brick crack appears on the Exterior corner outside of the Choral Room (Cracks need to be monitored)
The Brick and EIFS along the front of the building appear to be in good shape.
Entry and exit doors will need new weather seals.

Conclusion:

The facility is in good shape and the main entrance meets accessibility and security requirements; however some maintenance work is needed.

After talking to some staff members, several items were mentioned.

1. Roof Leaks (Patches, Flashing repairs, etc)
2. Mechanical Equipment Leaks (Condensate Drain, piping, etc.)
3. Air Conditioning and Heating not working properly. Air Condition seems to shut down at 2:00 pm daily.

The facility mainly needs maintenance throughout the facility.
The door hardware knobs need to be replaced with new accessible Lever Handles.
The current facility meets the current Handicap Accessibility Standards
The multi level building is connected by Handicap Accessible Elevator and Stairways

Storing Items in a Mechanical Room and allowing Amateur Radio classes in a Mechanical Room is not acceptable per Building Code and Fire Marshal.

William Byrd Middle 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 and Exterior Finishes	4	Life	28 years	Life	Several Cracks to Repair and Monitor
Exterior Finishes	3	10 years	28 years	10 years	Exterior Insulation Finish System looks good
CMU walls	4	Life	28 years	Life	CMU Walls need cleaning and paint
Wood trim	4	15 years	28 years	0 years	refinish wood trim
Interior doors	4	20 years	28 years	0 years	
Exterior doors	5	50 years	28 years	22 years	Paint HM door and provide seal kit
Door hardware	2	7 years	28 years	0 years	Need new ADA Code Compliant Hardware
Electronic door hardware	5	5 years	2 years	3 years	General maintenace required
Carpet	5	5 years	2 years	3 years	
Terrazzo	5	50 years	28 years	22 years	
Vinyl floor tile	2	12 years	28 years	0 years	
Ceramic/Porcelain floor tile	5	50 years	28 years	22 years	
Wood gym floor	4	10 years	28 years	0 years	Refinish parquet wood gym floor
Other wood floors	4	10 years	28 years	0 years	Refinish parquet wood gym floor
Exposed concrete floors	5	50 years	28 years	22 years	
Curtain Wall, Storefront	5	50 years	28 years	22 years	
Exterior windows	4	30 years	28 years	2 years	HM Windows and Frame
Interior windows	4	30 years	28 years	2 years	HM Windows and Frame
Roof (Including flashings, coping, etc.)	2	20 years	28 years	0 years	Roof looks good and clean
Suspended acoustical tile ceilings (lay-in)	4	25 years	28 years	3 years	
Plaster/GWB ceilings	4	30 years	28 years	2 years	
Sound control panels (wall and ceiling)	5	N/A	28 years	N/A	Located on wall in Auditorium
Ceiling/exposed structure finish (paint)	5	5 years	28 years	0 years	Paint as required
Interior wall finishes (paint)	5	30 years	28 years	2 years	
Marker boards, chalk boards, tack boards, projection screens	5	N/A	28 years	N/A	
Casework	5	N/A	28 years	N/A	
Window treatments	5	N/A	28 years	N/A	
Toilet partitions	2	20 years	28 years	0 years	
Toilet Accessories	3	N/A	N/A	N/A	Replace as needed
Interior railings and Exterior Railing	5	30 years	28 years	2 years	
Sprinkler/No Sprinkler	4	25 years	28 years	0 years	Partial Sprinkler with sprinkler inspection required
Entrance Security	5	10 years	2 years	8 years	Was constructed and completed in 2014
School sign	4	N/A	28 years	N/A	
ADA Code Compliant	4	N/A	28 years	N/A	Partial ADA Code Compliant
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					

William Byrd Middle 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	2	30 years	28 years	2 years	
Chiller	5	20 years	4 years	16 years	
Cooling tower	4	18 years	8 years	10 years	
Mechanical piping	5	30 years	28 years	2 years	
Refrigerant piping	5	30 years	6 years	24 years	
Duct	5	30 years	6 years	24 years	
Terminal units	5	18 years	6 years	12 years	
Package units	5	18 years	6 years	12 years	
Variable Refrigerent systems	5	15 years	5 years	10 years	
Controls	5	20 years	8 years	12 years	
Exhaust fans	5	25 years	6 years	19 years	
Unit heaters	4	20 years	6 years	14 years	
Plumbing					
Plumbing fixtures and controls	4	30 years	28 years	2 years	
Floor drains	5	30 years	28 years	2 years	
Water heaters	5	25 years	28 years	0 years	
Pumps	4	15 years	28 years	0 years	
Potable water piping & valves	4	30 years	28 years	2 years	
Sprinkler system	4	30 years	28 years	2 years	
Back-flow preventer	N/A				
Service line & meter (size appropriate)	5	30 years	28 years	2 years	
Wall and yard hydrants	5	15 years	28 years	0 years	
Eye wash stations	5	20 years	28 years	0 years	
Emergency showers	5	20 years	28 years	0 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

William Byrd Middle 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	28	12	5	
Transformers - Original	30	28	2	5	
Transformers - 2010 Renovation	30	6	24	5	
Panelboards	30	28	2	5	
Panelboards - 2010 Renovation	30	6	24	5	
Cabling	40	28	12	5	
Conduit/raceway	40	28	12	5	
Light fixtures	20	28	-8	2	
Lighting controls	30	28	2	5	
Public address system	30	28	2	5	
Security system	10	2	8	5	
Camera system	10	5	5	5	
Data system	15	5	10	5	
Fire alarm system	30	15	15	4	
Site lighting	20	28	-8	2	
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					

William Byrd Middle 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	Unknown	5-10 years	
Asphalt walks	N/A	N/A	N/A	N/A	
Concrete pavement	4	30 years	28 years	2 years	
Concrete walks	4	30 years	28 years	2 years	
Stairs	4	30 years	28 years	2 years	
Ramps	N/A	N/A	N/A	N/A	
Railings	4	15 years	28 years	0 years	
Concrete curb and gutter	4	30 years	28 years	2 years	
Concrete / Brick Pavers	N/A	N/A	N/A	N/A	
Guardrail, Parking Bumpers, Misc.	3	Varies	28 years	0 years	
Fire lane	4	Varies by Material	Unknown	0 years	
Fire lines and hydrants	5	40 years	28 years	12 years	
Domestic Water system	5	40 years	28 years	12 years	
Sewer system	4	40 years	28 years	12 years	
Natural Gas system	4	40 years	28 years	12 years	
Electrical System	5	25 years	Unknown	10-15 years	
Exterior Lighting	4	25 years	28 years	12 years	
Storm water system	4	40 years	28 years	12 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	4	N/A	N/A	N/A	
Vegetative landscaping	3	Life	28 years	Varies	
Lawns	5	Life	28 years	Life	
Fencing and gates	5	20 years	28 years	2+ years	
Signage	4	10 years	Unknown	5+ years	
Flagpoles	5	50 years	28 years	22 years	
Site furnishings	5	15 years	Unknown	10+ years	
Awnings / Canopies	N/A	N/A	N/A	N/A	
Site retaining walls	5	50 years	28 years	22 years	
Accessory structures	N/A	N/A	N/A	N/A	
Practice/PE fields	5	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					

William Byrd Middle 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					
Competition fields (Tennis)	N/A	N/A	N/A	N/A	Refer to WBHS assessment.
Lighting	N/A	N/A	N/A	N/A	
Bleachers / Stadium	N/A	N/A	N/A	N/A	
Accessory structures	N/A	N/A	N/A	N/A	
Competition Fields (Track)	N/A	N/A	N/A	N/A	Refer to WBHS assessment.
Lighting	N/A	N/A	N/A	N/A	
Bleachers	N/A	N/A	N/A	N/A	
Accessory structures	N/A	N/A	N/A	N/A	
Competition fields (Softball)	N/A	N/A	N/A	N/A	Refer to WBHS assessment.
Lighting	N/A	N/A	N/A	N/A	
Bleachers / Stadium	N/A	N/A	N/A	N/A	
Accessory structures	N/A	N/A	N/A	N/A	
Competition fields (Baseball)	N/A	N/A	N/A	N/A	Refer to WBHS assessment.
Lighting	N/A	N/A	N/A	N/A	
Bleachers / Stadium	N/A	N/A	N/A	N/A	
Accessory structures	N/A	N/A	N/A	N/A	
Competition fields (Football)	N/A	N/A	N/A	N/A	Refer to WBHS assessment.
Lighting	N/A	N/A	N/A	N/A	
Bleachers / Stadium	N/A	N/A	N/A	N/A	
Accessory structures	N/A	N/A	N/A	N/A	
Competition fields (Soccer)	N/A	N/A	N/A	N/A	Refer to WBHS assessment.
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 **William Byrd Middle School**
Client Name Roanoke County Schools

OWPR ARCHITECTS AND ENGINEERS

Quantity	Description	Unit	Cost / unit	Total w/ OH&P
	ARCHITECTURAL			
124	New interior signage-adhesive back /braille	Ea	$42.00	$6,249.60
	ADA compliant			
7	Renovate existing common area toilets	Ea	$35,000.00	$294,000.00
	to achieve ADA compliance			
310	Replace interior door locksets to comply	Ea	$800.00	$297,600.00
	with ADA standards			
95,000	Vinyl Flooring	SF	$2.50	$285,000.00
100,000	Replace existing roofs- incl removal	SF	$9.00	$1,080,000.00
	CIVIL			
1	Add bus access and loop	LS	$1,500,000.00	$1,800,000.00
1	Reconfigure traffic patterns	LS	$250,000.00	$300,000.00
150	Pavement restriping	LF	$0.20	$36.00
5	ADA signage	EA	$500.00	$3,000.00
10	Fire lane signage	EA	$500.00	$6,000.00
6	Directional signage	EA	$1,500.00	$10,800.00
300	Provide metal guardrail	LF	$20.00	$7,200.00
1,000	Repaint curbs and fire lanes	LF	$0.10	$120.00
	MECHANICAL / PLUMBING			
	ELECTRICAL			
7	Renovate existing common area toilets	Ea	$2,000.00	$16,800.00
50,000	Lighting Replacment	SF	$3.00	$150,000.00
	TOTAL Budgetary Cost			**$4,256,806**