RedGate Park Clubhouse

Condition Assessment Report

City of Rockville

September 29, 2022

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Condition Assessment Report

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1 EXECUTIVE SUMMARY

WRA was tasked by the City of Rockville to prepare a condition assessment for the Clubhouse building located at 14500 Avery Road, Rockville, MD at the former RedGate Park Public Golf Course, with the original portion built ca. 1974, and an expansion around 1992. The condition assessment is part of a larger project in which MRA (Mahan Rykiel Associates), with WRA, has been tasked within the scope of work to design a new Master Plan for the entire site.

The goal of this condition assessment report is to develop recommendations and consider an alternate concept to determine if retaining the existing clubhouse is prudent to support the program defined in the scope of work. Extensive improvements are necessary to have the existing building meet current building, fire/life safety, ADA/COMAR and energy codes.

Overall, the conditions of the exterior and interior are marginal. The exterior masonry walls and T-111 plywood siding are intact without noticeable cracks or differential settlement. Some spalling of the CMU face was evident as well as wood rot and material transitions. The deteriorated asphalt shingle roof has potentially allowed some water to get into the roof substrate as there is evidence of heaving and misalignment; anecdotally, the team was told of roof leaks possibly from ridge and gable vents and compromised roof transition flashing. Having minimal wall insulation, no vapor barriers, nor conditioning in the space for an unknown period of time, have caused some of finish materials to deteriorate. The mechanical and electrical systems are beyond their useful lives and need replacement to make them code and energy compliant. The toilet rooms are not ADA/COMAR compliant and will need to be replaced in their entirety.

The condition assessment is divided into Architectural, Structural, Mechanical, Electrical, Plumbing, and Fire/Life Safety sections with assessments and descriptions of all character-defining features for the building. Some recommendations for Mechanical, Electrical and Life/Safety are for immediate consideration (if the building is to remain).

The team's recommendation is to demolish the existing facility in its entirety and replace it with a new universally accessible, similarly scaled building. The building could be simpler in plan and roof form that could support a more functional, flexible multi-purpose event space (possibly dividable) with efficiently configured restrooms and support areas.

Following the condition assessment is an estimate of probable cost comparing the reuse of the existing building versus the removal of the building in its entirety and replacing it with a similarly scaled one-level structure. The price to demolish the existing facility and construct a new building is currently less costly than to provide the required extensive renovations to the existing one.

Figure 1: Clubhouse, South Elevation, June 2022

Figure 2: Clubhouse, West Elevation, June 2022

Figure 3: Clubhouse, North Elevation, June 2022

Figure 4: Clubhouse, East Elevation, June 2022

2 EXTERIOR ARCHITECTURAL ASSESSMENT

2.1 Wall Cladding

2.1.1 Exposed CMU and T-111 Plywood

The building walls are load bearing masonry. The North, East, South, and West facades of the building are made of a stack-bond common 8”x16”x12” concrete masonry unit (CMU) that is painted, without the appearance of a block filler. The walls are interspersed with full height panels of T-111 plywood siding to articulate and align with wall openings, porch end overhangs, and some walls on the 1992 addition. There is no moisture or vapor barrier applied to the walls, flashing or weep holes, and with minimal insulation.

A closed-over window on the North wall of the later addition has the steel lintel showing signs of corrosion and is causing heaving in the adjacent CMU (see Figure 5). Due to the lack of flashing and conditioning, most wood wall materials have absorbed moisture at transitions and shows signs of moisture penetration (see Figure 6).

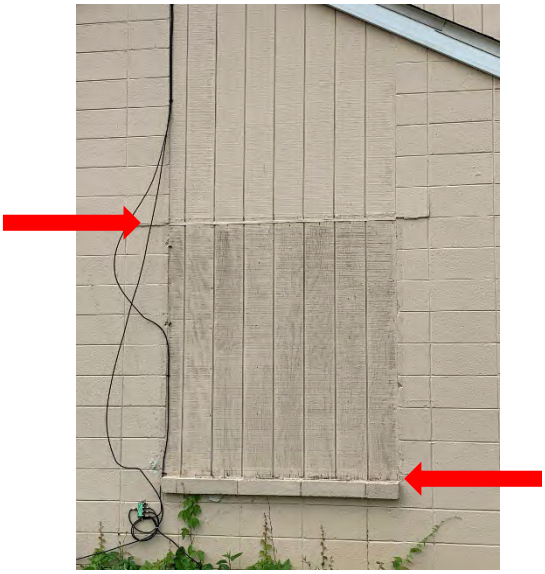

Figure 5: Exposed CMU and T-111 Wall Detail

Figure 6: South Wall T-111

2.2 Entrances

South Door

The south entrance to the building is a single non-insulated door with a side lite and transom that is positioned towards the right side of the connector between buildings. There is not roof overhang to protect from adverse weather. This door has a curb of 3-1/2”. This entrance is not ADA compliant (see Figure 7) Access to this door, via a sloping sidewalk, is also not ADA compliant.

West Doors

There are two (2) doors for access into the previous golf pro shop and entry space. Both doors are single non-insulated doors with a side lite. Both entrances are ADA compliant, yet the access route to them is not. They are both protected by a large roof overhand from adverse weather.

North Door

There is an additional exit door across from the main entrance. This door is similar to the main entrance but does not have a curb. Access to the entrance is not ADA compliant (see figure 8) due to the slope and steps.

East Doors

There are two (2) access doors to the deck on east side of the building. Both are insulated and operable. There is evidence of wood decay at the trim around the doors.

Figure 7: South Entrance

Figure 8: North Entrance

2.3 Windows

2.3.1 Window Sash, Frames, Glazing, and Hardware

The majority of the painted wood windows are insulated, swing-out casement style, with a custom bay window of six (6) insulated fixed sash units in the east façade. All but one of the casement units were not operable as they are painted shut and the hardware gears are stripped. The windows in the original portion of the building are single-paned uninsulated glass. Some of their frames show degradation (see figure 9.). The aforementioned custom bay window units show signs of glazing sealant failure (internal haze in the air space), as well as having the majority of their wood sashes and frames showing decay, causing them to sag (see Figures 10 & 11).

Figure 9: Original Single-Pane Casement Window

Figure 10: East Bay Window Detail

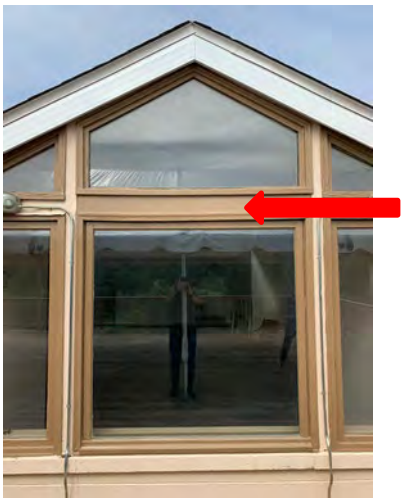

Figure 11: Custom Fixed Bay Window

2.4 Building Roof

2.4.1 Roof Material

The gable and valley roof are clad with asphalt shingles. The roof is in poor condition with previous repairs visible There is shingle loss near the roof's edges along with warping of the substrate underneath (see Figures 12 and 13). The roof, substrate, and fascia would have to be removed and replaced.

Fig. 12: Roof End Conditions on West Roof

Fig. 13: Warping of Roof Plane

2.5 Louvers

There are gable louvers on the north and south sides of the building. Due to weather exposure, both louvers and surrounding trim are showing signs of rot and require replacement.

Fig. 14: Louver on North Side

2.6 Deck, Canopy, and Stairs

The wood deck appears to be in good condition, but the structure as documented in the original construction drawings does not consider the wind loading from the tented canopy that was added, nor the additional length of the structural members not originally shown. The stain is weathegatend would need to be refinished. The attached canopy is in good condition and has no noticeable defects. Existing railing was cut off for installation of wood deck and partially remains today. Stair treads vary from 10 ½" – 10 ¾" in depth and are not to current code. The handrail doesn't extend beyond the last riser and is also not to current code.

Fig. 15: Wood Deck and Canopy

Fig. 16: Existing Tube Railing

Fig. 17: Deck Stairs

3 INTERIOR ARCHITECTURAL ASSESSMENT

The building is separated into three zones: Dining, Entry Hall/Pre-Function, and Operations. On the south side of the building is the main entrance that leads directly into the entry hall without the protection of a weather vestibule or roof overhang. This area separates the dining and operations areas. Within the west side of the vestibule are non-compliant ADA toilet rooms, offices, retail space, mechanical rooms, and multiple storage spaces. There is one exterior entrance/exit within the former pro shop/retail space and one within the entry space outside the office and both are covered. Within the east side of the entry hall is the dining area, snack bar, storage, mechanical room, and access to the adjacent deck. The electrical service panels are located within the storage room between the toilet rooms and an office in the southwest corner of the building.

3.1 Flooring

The floor finishes vary per room. The retail space, vestibule, entry, offices, and dining area are all level loop broadloom carpet. The storage areas, snack bar, and corridor are all 12”x12” textured VCT floor tile. The mechanical rooms are exposed concrete without any finishes. The toilet rooms are 6”x6” quarry tile with matching tile cove base.

Fig 18: Typical Carpet

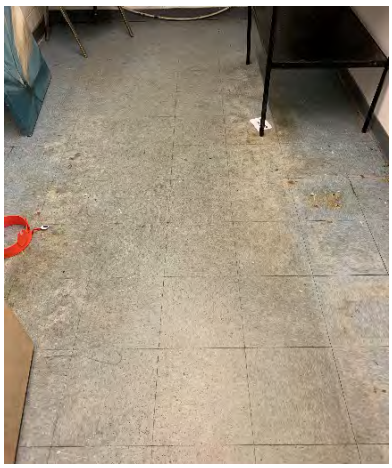

Fig 19: Typical Floor Tile

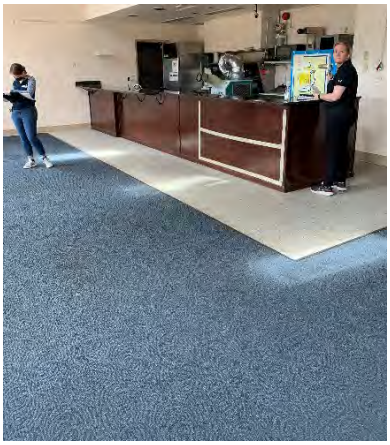

Fig. 20: Dining Area Carpet

Fig. 21: Typical Toilet Room Tile

3.2 Wall Cladding

The interior wall cladding is primarily painted gypsum wall board with minimal areas of painted, exposed stack-bond CMU. Wooden slat wall used for display is against the wall of the the retail space. There are various holes located in the gypsum wall board. There is no insulation or moisture barriers on any of the exterior CMU walls. Exposed CMU is spalling with bubbled paint due to moisture exposure.

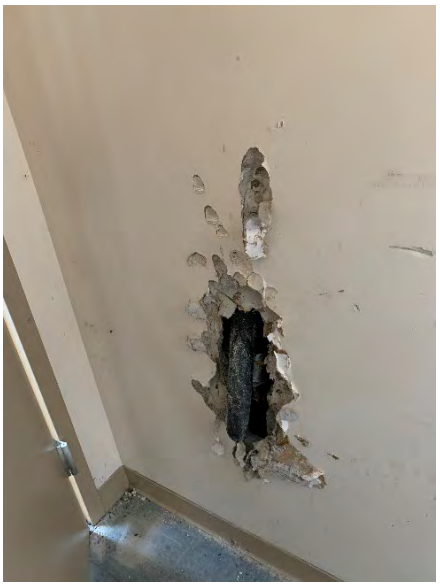

Fig. 22: Various Hole in GWB

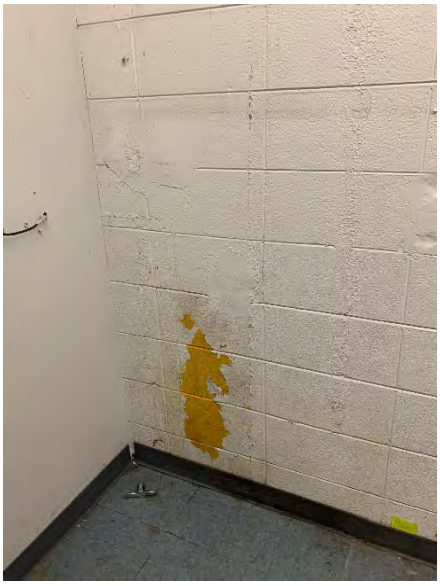

Fig. 23: CMU Conditions

3.3 Ceiling Cladding

The ceiling cladding consists of 24”x24” lay-in ceiling panels with a 15/16” metal grid. A great deal of moisture has been absorbed by the ceiling tiles, causing them to sag; water stains are also present. The dining area has gypsum board ceiling with exposed, painted trusses; no acoustic materials are present. There are joint cracks and water damage within the adjacent gypsum board clad bulkheads.

Fig. 24: ACT Ceiling Tile with Water Stains

Fig. 25: Exposed Truss Ceiling with Gypsum Board

3.4 Interior Windows

There are multiple interior windows within the walls of the building. All but one contains wire glass. The other window is covered up with painted gypsum board to match the surrounding wall. The wire glass is not code compliant (see Figures 26 and 27 below).

3.4.1 Skylights

There are five (5) skylights in the dining area. All the skylights appear to be in good condition except for one (1). The glass of the third skylight from the north is shattered (see Figure 28).

Fig. 26: Wire Glass Interior Window

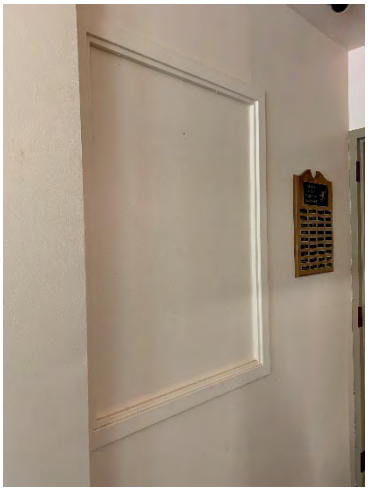

Fig. 27: Covered Interior Window

Fig. 28: Broken Skylight

3.5 Toilet rooms

The toilet rooms wall finishes are painted gypsum board. Floor finishes are 6”x6” quarry tile and cove base. Floor tile in both toilet rooms is cracked near the back wall and where the building expansion transition begins. The floors do not align with the original construction. Plumbing fixtures and stall widths do not have enough clearance to be ADA compliant. The edge of sink to stall face doesn’t accommodate a person in a wheelchair and someone trying to get into the stall behind them. The paper towel dispensers project too far into the path of travel.

Fig. 29: Separation of Floor

Fig. 30: Change in Floor Elevation and Wall Finishes

3.6 Snack Bar

The snack bar equipment and casework is beyond its useful life. The finished walls are painted gypsum board with a vinyl wall base. The finished floor is 12”x12” textured VCT tile with level loop broadloon carpet in the dining area. Water damage and mold is evident under the sink.

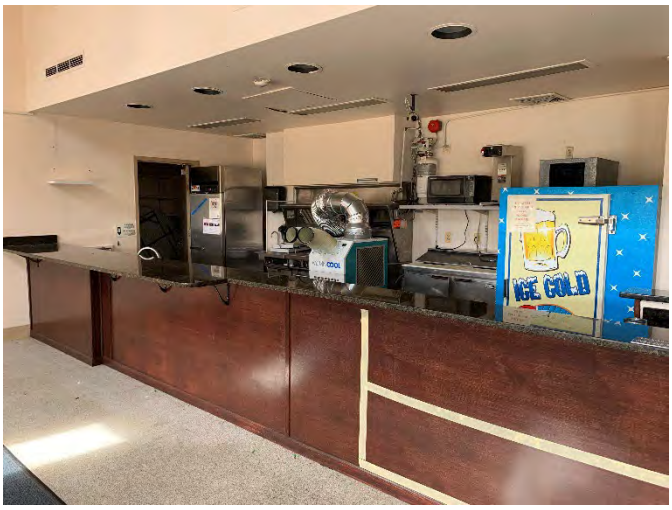

Fig. 31: Snack Bar

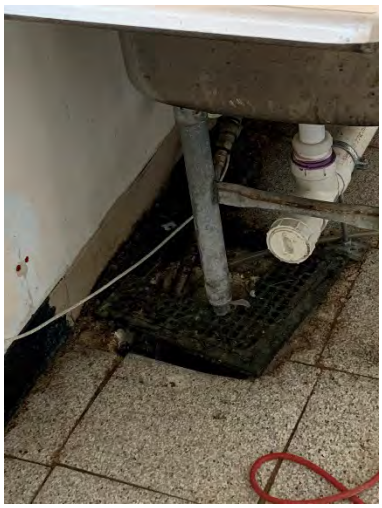

Fig. 32: Under Sink Condition

4 STRUCTURAL ASSESSMENT

4.1 Structural Overview

The RedGate Clubhouse is a single-story building consisting of two main areas, the original masonry structure and an addition built in the 1990s. There is also a large, exterior wooden deck that was added in 2012. The perimeters of both the original building and the addition are masonry walls. Both also have gable roofs with multiple steps in them, with the ridges running in the north-south direction.

WRA had access to record drawings from the 1990s addition and the deck, but drawings from the original building were not available at the time of the on site assessment. The original building construction documents were found and are of similar construction described herein.

The 1990s main addition roof consists of 2” x 6” wood trusses that span in the east-west direction to masonry bearing walls. The ground floor is an elevated floor framed with precast planks and a concrete topping that span to steel beams and the masonry bearing walls. The masonry bearing walls continue below grade and bear on concrete strip footings. The bathroom addition roof has smaller wood trusses that also span in the east-west direction to masonry bearing walls. The ground floor in this area is a slab on ground. The masonry bearing walls continue below grade and bear on concrete strip footings.

The original building’s structure is unknown since surfaces on the interior were covered by ceiling, carpet, etc. It is probably similar in construction to the addition, but it was unable to be verified.

4.2 Structural Conditions

4.2.1 Foundation

The existing concrete foundations are hidden from view, and therefore, were not observed. However, the masonry bearing walls were observable from the outside of the building and appear to extend below grade to concrete foundations.

There is a hatch in the 1990s addition to access the crawlspace, where portions of the foundation and ground floor framing may be visible, but the hatch was not openable during WRA’s assessment, making observations of the crawl space not possible.

4.2.2 Exterior Walls

Most of the exterior walls were visible from the outside during the assessment. They are painted concrete masonry unit walls of mostly 6” or 8” thickness. A few locations appear to have modifications made with studs and wood panel to accommodate new openings or cover up old openings. From the outside, minor spalls were visible at a few locations. Under the deck, the masonry paint is peeling, and erosion of the surrounding grade was observed near a downspout (see Figure 33). Overall, the exterior faces of the CMU walls appear to be in acceptable condition; the T-111 siding shows degradation at material transition.

Figure 33: Masonry under Deck near Downspout

Figure 34: Crack at Terrace Slab

4.2.3 Ground Floor

The ground floor in the original building was not visible since it was covered with flooring throughout. The ground floor in the addition was only visible at the terrace. A few cracks were noticed that run parallel to the precast plank's span direction (see Figure 34). While walking through the women's bathroom, there is a noticeable difference in elevation that appears to correspond with where the addition abuts the original building. The addition floor in the women's bathroom was higher than the original building floor. In the men's bathroom, it appeared that the wall tile at the base had separated from the floor slightly. This could be the result of a construction error or differential settlement (see Figures 35 and 36). Overall, the slabs appear to be in acceptable condition where observed.

Figure 35: Change in Floor Elevation at Women's Bathroom

Figure 36: Separation of Floor and Wall Finishes at Men's Bathroom

4.2.4 Roof Framing

The roof framing was covered by ceiling or soffit in most areas. However, the wood trusses were visible in the dining room of the addition. The trusses appear to be in good condition (see Figure 37). One of the skylights was cracked while remaining in the frame, which may result in water damage to the surrounding structure. In the original building, there were a few small water stains on the ceiling in the retail area, which could be the result of a roof or utility leak.

Figure 37: Typical Condition of Roof Trusses at Addition

4.2.5 Exterior Deck Framing

The top surface of the deck appears to have some wear as the stain has worn off in a few locations but is generally in acceptable condition. There is a guardrail around the perimeter for fall protection.

A large tent is anchored to the deck that does not appear on the record drawings. While the tent may not be a heavy structure, it does have a large surface area to catch wind, and it should be verified that the deck can support the resulting reactions.

While observing the deck from the underside, it was apparent that many of the wood posts exhibited vertical checks (see Figure 38). A few checks appeared on both sides of the posts, which causes concern that the post is splitting. The record drawings state that the longest post should be 6 feet long. Most of the posts are over 6 feet long with the outermost posts being well over 6 feet, perhaps double. Since the structural capacity of a post decreases as length increases, it is crucial to stay within the intended design lengths.

Based on the post length and tent issues described above, a structural analysis of the deck is recommended to confirm that the capacity is accepatable if it is going to remain in use.

Figure 38: Vertical Checks at Deck Posts

5 MECHANICAL ASSESSMENT

5.1 Mechanical Overview

The clubhouse is served by two separate HVAC systems. The Dining area and associated spaces are served by a single direct expansion (DX) split system. The vertical indoor unit for this system is located in the mechanical room south of the dining room and ducted into the space, while the outdoor condensing unit is located on grade immediately outside the mechanical room. The dining area also contains a “snack bar” with a commercial stovetop and kitchen hood. The remainder of the building is served by a packaged rooftop unit (RTU) located on the north side of the building.

5.2 Dining Area Split DX System

The split system serving the dining area of the building was not operational at the time of visit and appeared in poor condition. Based on nameplate data shown on the outdoor unit, this system is past its useful life at approximately 21 years old. There is significant damage to the fins on the outdoor unit and it is expected that the indoor unit motor will not function adequately based on its age and its lack of recent operation - which will deform ball bearings over time.

The ductwork serving the dining area was only observable within the mechanical room, and the ductwork in this location appeared in fair condition. The air devices mounted within the dining area were also in fair condition. There is an air cleaner mounted in the ceiling of the dining area, but it was unclear from the site survey whether it was operational – it appeared in poor condition.

The snack bar area of the dining space contained a commercial-grade combination oven/stovetop with a commercial kitchen hood located above. There was an ANSUL fire protection system associated with the kitchen hood, which was the only fire protection equipment located within the building. There was no make-up air delivered to this space, which is typically provided in conjunction with a kitchen exhaust hood to prevent negative air pressure within the building and is a code requirement in newer buildings. At the time of visit, a temporary cooling system was installed adjacent to the kitchen hood, with the unit exhaust directed toward the hood.

Figure 39: Dining Area Outdoor Unit

Figure 40: Dining Area Indoor Unit and Ductwork

Figure 41: Kitchen Hood with ANSUL Fire Protection System and Temporary Cooling System

5.3 Packaged RTU System

The packaged RTU system serving the remainder of the building is approximately ten years old and appears in adequate condition. The ductwork in this area was not visible, but the air devices appear in good condition.

Figure 42: Packaged RTU

5.4 Mechanical Recommendations

For the packaged RTU system, the typical lifespan of these units is approximately fifteen years, so contingent on the current operation of the unit, it could possibly be used for a few additional years. This is largely dependent on how the unit has been serviced and how often and recently it has been actively operational. If the space usage in this area changes, calculations will need to be performed to establish the size and outdoor air requirements and confirm whether the existing unit will meet the performance and code requirements of the area it serves.

The split DX system serving the dining area is beyond its useful life and a replacement system will be necessary. With a new system, the existing ductwork and air devices are recommended to be replaced if any unit sizing changes occur to ensure that the area has adequate air distribution. Similarly, the duct layout should be reviewed and adjusted as required for better distribution. Because the existing kitchen hood does not incorporate any make-up air, a new make-up air system will be required by code to serve this space if the hood will remain.

6 ELECTRICAL ASSESSMENT

6.1 Electrical Overview

The existing electrical power and lighting system are deteriorated and have passed beyond useful life. All existing electrical panels, lights, receptacles, and wiring shall be replaced for any new renovation or occupancy. The existing electrical service is energized but will require coordination with local utility company for a new upgraded electrical service for modern occupancy. A comprehensive detail load analysis shall be performed to determine the new electrical service requirements for the desired building occupancy and coordinated with local utility company for available electrical system for the building.

6.2 Power Distribution System

The electrical service was provided via an exterior pad mounted Pepco utility transformer on the north side of the building. 208Y/120V, 3 phase, 4 wire, service entrance panel located in the storage room behind the snack bar. The existing panel serves the existing building loads including the lights, receptacles, HVAC and kitchen equipment. The existing panel is deteriorated and shall be replaced. The existing panel also does not have proper working clearances, and is not located in a dedicated electrical space, which are both National Electrical Code (NEC) violations. We recommend providing a new panel shall be located in a designated electrical closet with dedicated working clearance in accordance with the NEC. The main panel sub feeds two additional panel one is located in the same storage room and the other is located in the storage room adjacent to the rest rooms.

Additionally, there are a number of other concerns throughout the building including standard receptacles installed where GFCI receptacles are mandated by the current NEC, Existing GFCI receptacles that have been painted, rendering the testing and resetting operations un-usable, EMT conduit installed on the exterior of the building, exterior receptacles with illegal covers, and old battery backed up emergency fixtures that have not been maintained or tested.

All existing wiring and devices including the incoming service feeders to the panels and all branch circuit wires shall be replaced with new devices and THHN/THWN insulated copper conductors, installed in appropriate conduit.

6.3 Lighting System

The existing lighting is fluorescent and compact fluorescent luminaires, with toggle type switches. The restrooms are the only rooms in the building with occupancy controls installed. The luminaries throughout the building are beyond useful life and would not meet current energy code requirements, therefore all luminaires shall be replaced with modern LED fixtures to provide the required light levels for each space with modern lighting controls in order to meet the latest energy code requirements.

7 PLUMBING

7.1 Plumbing Overview

The existing plumbing system serves the toilet rooms located in the southwest corner of the building and the plumbing fixtures within the snack bar area of the dining room. Additionally, there is a mop sink and electric water cooler located near the toilet rooms. The domestic hot water system is served by a single electric storage water heater located in a closet adjacent to the toilet rooms which is fifteen years old, but appears in good condition. The Women's toilet room contains four (4) water closets and three (3) lavatories while the Men's toilet room contains three (3) water closets, two (2) urinals, and three (3) lavatories. The snack bar contains a hand sink and a three-compartment sink, the latter of which drains to a floor mounted grease interceptor. There was no backflow preventer located on the domestic water system, and where visible, the domestic water insulation appeared in poor condition.

Figure 43: Typical Water Closet

Figure 44: Urinals – One Sensor Flush Valve, One Manual Flush Valve

Figure 45: Typical Lavatories

Figure 46: Electric Storage Water Heater

Figure 47: Electric Water Cooler

Figure 48: Three-Compartment Sink with Floor-mounted Grease Interceptor

Figure 49: Domestic Water Insulation

7.2 Plumbing Recommendations

To meet current plumbing codes, there are several items that will require updates. A backflow preventer is required to be installed upstream of the domestic water system. Additionally, there is no hot water recirculation on the domestic water system, which is also required per current code. This will require the installation of a small inline pump at the inlet of the domestic water heater, as well as routing hot water recirculation piping to each fixture with balance valves to regulate the flow. With the three-compartment sink in the snack bar, grease interceptor requirements will apply. Currently, this sink is served by a floor-mounted grease interceptor. Depending on the new usage of the space and the current codes, a larger grease interceptor could be required. Due to offsets in the sanitary lines below the lavatories, the P-trap insulation appears to have been poorly installed (see Figure 45). The purpose of this insulation is to prevent wheelchair users from scalding their legs on the sanitary pipe if hot water is drained, so this insulation should be checked and replaced if necessary to ensure it completely covers the pipe.

In general, the plumbing fixtures are older but appear to be in fair condition. Because the toilet rooms will be reconfigured to meet ADA requirements, along with the possible inclusion of a third gender neutral bathroom, it is recommended that the existing fixtures are replaced with new fixtures. The water heater is fifteen years old and near the end of its expected lifespan but appears in good condition. A replacement water heater should be considered based on its age.

Because the overall number and configuration of plumbing fixtures may change, it is recommended that all new domestic water piping is installed to ensure correct sizing and to incorporate required items such as the backflow preventer and hot water recirculation line. Where visible, the insulation on the domestic water piping appears in poor condition. With domestic water piping replacement, new insulation would be installed on this piping. Sanitary and vent piping is located in concealed areas and was not observed during the site visit. Some of this piping could be re-used, depending on the final configuration of the new design.

8 FIRE/LIFE SAFETY ASSESSMENT

8.1 Codes and Standards

City of Rockville Building and Fire Safety Regulations, 2020 Edition, incorporating the following with local amendments:

- International Building Code (IBC), 2018 Edition
- International Existing Building Code (IEBC), 2018 Edition
- NFPA 1, Fire Code, 2018 Edition
- NFPA 101, Life Safety Code, 2018 Edition
- NFPA 10, Standard for Portable Extinguishers, 2017 Edition
- NFPA 90A, Standard for the Installation of Air-Conditioning and Ventilating Systems, 2018 Edition
- National Electric Code (NEC), 2017 Edition

8.2 Existing Conditions

The existing building is a single-story structure of wood framing with a combination of masonry exterior walls and wood framed walls. The clubhouse building is approximately 5,450 sq. ft. in area consisting primarily of a dining room and a pro shop. An office is provided for the pro shop staff and restroom facilities are provided accessed from a central corridor. The remainder of the building consists of storage and utility rooms. A small kitchen and bar area is located within the dining room area. A small wood-framed storage shed is directly adjacent to the building.

An exterior wood deck structure is attached to the building and occupies approximately 2,310 sq. ft. The deck has two dedicated exit stairs that extend to grade and is provided with guardrails along the perimeter. A canopy structure is provided on the deck and occupies approximately 1,200 sq. ft. The canopy contributes to the overall building area [ref IBC Section 3102.4] which totals approximately 6,650 sq. ft.

The building is not currently occupied and is without sprinkler protection or a fire alarm system. Exit signage is provided at building exits and emergency lighting fixtures are mounted in main circulation areas and within the dining and pro shop areas. Portable extinguishers are provided and were observed to be installed within main circulation areas installed on wall brackets. The existing kitchen hood is equipped with a wet chemical hood fire suppression system. Fire safety equipment, including the emergency lighting units, fire extinguishers and the hood fire suppression system, have expired service tags and appear to be in need of maintenance or servicing.

8.3 Proposed Work

Work proposed under this project includes interior building alterations and potentially exterior upgrades. It's assumed the building will require full compliance with current IBC and NFPA 101 requirements with extensive work that may occur within the building and a partial change in use classification. With the plan to convert the clubhouse to community center, a use classification of Assembly A-2 is considered for the entire building. This code analysis does not consider a building addition or expansion. The code analysis also doesn't consider an increase in occupant load beyond the current occupancy.

While the base IBC and NFPA 101 code requirements do not require a sprinkler or fire alarm system for the building, a sprinkler system will be necessary to meet the City of Rockville Fire Prevention Code. The city requires automatic sprinkler protection for buildings with assembly occupancies with an aggregate occupant load in excess of 100 people. The current assembly occupancy exceeds 200 people so sprinklers

are required to meet current code. Please note where the new assembly occupancy exceeds 300 people there will be a requirement for a fire alarm system as well.

8.4 Use and Occupancy

The existing clubhouse building is classified as a Mixed-Use, Assembly A-2 and Mercantile, Group M, Use per the IBC. The building is classified as a Mixed-Occupancy, Existing Assembly and Mercantile Occupancy per NFPA 101. The storage areas and small office space are considered incidental use areas to the Assembly and Mercantile occupancy classification.

The new occupancy will be Assembly Use, Group A-2, per the IBC and Assembly Occupancy per NFPA 101.

8.5 Construction

The building is constructed with a wood floor and roof structure and mixture of exterior concrete masonry load-bearing or wood-framed walls. The construction classification most nearly resembles Type VB per the IBC. The central corridor is partially fire-separated from adjacent spaces, however, fire rated doors have been removed or were otherwise inoperable to compromise the fire enclosure.

8.6 Building Allowable Area / Height Analysis

The allowable building height and area is evaluated for conformance with Chapter 5 of the IBC. In accordance with Section 506.2.2, the allowable building area shall be based on the area tabular factors from IBC Table 506.2. The area tabular factors are selected based on the Assembly Use, A-2, as requirements are more restrictive than Mercantile Group M factors. Area factors are selected based on the Type VB construction type. A frontage increase in accordance with IBC Section 506.3 is considered as detailed below. The height and area analysis does not take credit for sprinkler protection since the existing building is not protected.

Allowable Building Area (IBC 506.2)

Use Group: Assembly A-2 (Most Restrictive)
Construction Classification: Type VB
Allowable Area Factor (At = NS): 6,000 sq. ft.
Actual Building Area: **6,650 sq. ft.**

Frontage Increase (IBC 506.3)

I_f = Area Increase due to Frontage (%) (506.2)
F = Building Perimeter Fronting on Open Way (Open Perimeter): **368-ft.**
P = Entire Building Perimeter (Total Perimeter.): **516-ft.**
W = Width of Public Way or Open Space: **30-ft.**

Formula: $I_f = 100\ [(F / P) - 0.25]\ (W / 30)$
$I_f = \mathbf{0.46}$

Building Area Increase (IBC 506.1)
A_a = Allowable Area per Floor
A_t = Tabular Allowable Area Factor (Table 506.2): **6,000 sq. ft.**
NS = Tabular Allowable Area Factor – Nonsprinklered Bldg.: **6,000 sq. ft.**
I_f = Area Increase due to Frontage (%) (506.3): **0.46**

Formula: $A_a = A_t + (NS \times I_f)$
A_a = **8,760 sq. ft.** (actual area 6,650 sq. ft.)

Existing Bldg. Area Meets Base Code Limits
The allowable building height needs to meet the requirements within Section 504 of the IBC. The building needs to conform with the most restrictive height requirements of Tables 504.3 and 504.4. The requirements are summarized below.

Allowable Building Height (Table 504.3)
Use Group: Assembly Group A-3
Construction Classification: Type VB
Sprinkler Protection: No
Allowable Building Height: **40-ft.** (Base)
Actual Building Height: **22-ft.** (Approx.)

Existing Bldg. Height Meets Code Limits

Allowable Building Stories (Table 504.4)
Use Group: Assembly
Construction Classification: Type VB
Sprinkler Protection: No
Allowable Building Stories: **1** (Base)
Actual Building Stories: **1** Stories

Existing Bldg. Stories Meets Code Limits

8.7 Fire Separation Distance

The clubhouse building is surrounded mostly by open yard space and a paved road at the front of the building. A single-story wood framed cart storage building is adjacent to the clubhouse and is separated from North side of the clubhouse by approximately 30-feet. An imaginary lot line is considered at a mid-point between the buildings to evaluate fire separation distance between the structures. The clubhouse exterior walls of the building are either masonry or wood-framed walls and are not constructed with a fire rating. Refer to the Table below for exterior wall ratings and requirements.

Building Wall	Fire Separation Distance (Feet)	Type of Construction	Required Fire Rating (Hr.)	Provided Fire Rating (Hr.)
North	> 10; < 30	VB	0	0
East	>30	VB	0	0
South	>30	VB	0	0
West	>30	VB	0	0

Exterior Wall Fire Resistance Rating Based on Fire Separation Distance: (IBC: Table 602)

8.8 Means of Egress

The central corridor of the clubhouse provides access to two main building exit doors that discharges directly at grade. An additional exit door within the Dining Room provides access to the exterior deck with an exterior access stairway to grade. The single leaf exit doors are provided with panic hardware and are marked with exit signs. The attached deck structure has two exterior exit stairs with handrails and guardrails that are not code compliant.

8.9 Occupant Load

The occupant load for the building is determined in accordance with Section 7.3 of NFPA 101 and Section 1004 of the IBC, applying the more restrictive provisions of either code. An occupant load factor of 15 sq. ft./person is used for the Dining Room and exterior porch as an Assembly Occupancy per Table 7.3.1.2 of NFPA 101. The pro shop area is calculated with a 30 sq. ft./person occupant load factor which is more restrictive than 60 sq. ft./person from IBC Table 1004.5. An occupant load factor of 300 sq. ft./person is used for storage areas based on the IBC, which is more restrictive than 500 sq. ft./person from NFPA 101. Business areas and circulation space is calculated with an occupant load factor of 150 sq. ft./person. The resulting calculated occupant load is below:

Location:	**Floor Area**	**/**	**S.F. per Person**	**=**	**Total Load**
101 Entry	143	/	150	=	1
102 Storage	118	/	300	=	1
103 Office	163	/	150	=	2
104 Men's Rm.	225	/	150	=	2
105 Women's' Rm.	228	/	150	=	2
106 Storage	121	/	300	=	1
107 Storage	129	/	300	=	1
108 Mechanical Rm.	59	/	300	=	1
109 Snack Bar	210	/	200	=	2
111 Dining Rm.	1,212	/	15	=	81
112 Mechanical Rm.	54	/	300	=	1
113 Storage	95	/	300	=	1
114 Retail/Pro-shop	837	/	30	=	28
115 Vestibule	470	/	150	=	4
116 Closet	15	/	300	=	1
117 Closet	15	/	300	=	1
118 Water Heater Clo.	12	/	300	=	1
119 Janitor's Clo.	12	/	300	=	1
120 Closet	26	/	300	=	1
Exterior Deck	1,790	/	15	=	120
Building Total:					**253**

8.10 Incidental Hazard Areas

Areas used for storage of combustible materials requires fire separation in accordance with NFPA 101 Section 12.3.2.1. A 1-hour fire rated separation is required to separate areas within the building used for storage purposes with supplies in quantities deemed hazardous by the AHJ. Fire rated wall and floor-ceiling assemblies would be required to provide fire separations between the areas used for storage and

adjacent building areas. Where the building is protected with automatic sprinklers, the storage room is only required to be enclosed within smoke-tight construction.

8.11 Interior Finishes

Interior finishes within the building generally consist of painted masonry walls, painted gypsum wallboard and acoustical tile suspended ceilings. Interior finishes are required to meet a Class B finish rating for corridors or lobby areas, and Class C finish elsewhere [LSC, 12.3.3]. New interior finish materials need to meet this requirement.

8.12 Automatic Sprinkler Requirements

A sprinkler system is required for the building as the calculated occupant load is greater than 100 people. This is in accordance with NFPA 101, Section 12.3.5.2, which is amended by the City of Rockville Fire Prevention Code to reduce the occupancy threshold from 300 to 100 people.

8.13 Fire Alarm Requirements

A fire alarm system is not required for the building as the calculated occupant load is less than 300 people. This is in accordance with IBC Section 907.2.1 and NFPA 101, Section 12.3.4.1.1. Should the new occupant load exceed this threshold a fire alarm system would be required.

8.14 Portable Extinguishers

Portable extinguishers are required in accordance with IBC Section 906.1. Existing portable extinguishers are provided, however, they are in need of servicing. Portable extinguishers must be provided in accordance with NFPA 10.

8.15 Fire Suppression Water Supply

Manual fire suppression is required for the building in accordance with the City Fire Code. A fire hydrant is located in the vicinity of the building with access from the paved roadway at the front of the building. The hose lay distance is within the 300-ft. maximum distance requirement of the fire code regulations.

9 CIVIL/SITE ASSESSMENT

9.1 Parking Lot and Entrance

The existing parking lot is located to the south of the building and contains approximately 148 parking spaces, none of which are ADA accessible. The asphalt within the parking lot is in good condition with little to no alligator cracking or signs of failure. The slopes range from just under 1% to 5% within the parking lot. The drop-off loop adjacent to the building is as steep as 7%. Curb and gutter are not present, but the lot is divided by a 50 to 15 foot wide grass and wooded median. Trees are present throughout the lot.

The pavement within driveway entrance from Avery Road contains large portions of alligator cracking and several portions show increased signs of failure.

For future use, the existing pavement section within the parking lot should be milled and overlayed to extend its useful life while the pavement section with the driveway entrance should be replaced in full. We recommend studies to confirm the entrance along Avery Road meets current City, County and MDOT SHA requirements including but not limited to sight distance analysis and traffic signal analysis.

9.2 ADA Site Accessibility

An ADA accessible route is currently not provided from the parking lot to the building. The western portion of the parking lot is too steep to provide ADA parking. ADA accessible parking may be provided within the eastern portion of the lot with possible minor pavement replacement and the installation of ADA signage and striping. An ADA accessible ramp with handrails will be required to provide access from the parking lot to the building. The area surrounding the main entrance is rather flat, but may require minor improvements (including concrete and asphalt replacement) to meet ADA code requirements with the redevelopment of the building.

Figure 50: Parking Lot from top of Drop-off Loop

Figure 51: Minor Pavement Cracks within Parking Lot

Figure 52: Alligator Cracks within Entrance Road

Figure 53: Alligator Cracking within Entrance Road

9.3 Utilities

Currently the water service to the building is provided by an existing 8-inch water line extending from Taft Court. The condition of the water line is unknow. Several valves and a fire hydrant near the parking lot were located during the site visit and did not show signs of leakage or failure.

Water and sanitary sewer service for the site is provided by the City of Rockville, while portions of the park property fall within the jurisdiction of the Washington Suburban Sanitary Commission (WSSC).

Existing 8" gravity sanitary sewer mains (pipes with positive slopes that do not require pumping) that convey offsite systems extend from the west side of the property at Taft Court and further south on Gude Drive; through the low-lying stream valleys; then combining and exiting to the west of the existing culvert under Norbeck Road. The service connection from the building connects to the main from Taft Court. All sewer systems appear to be Vitrified Clay Pipe (VCP) and conditions are unknown. A manhole was located during the site visit just west of the existing building, no signs of failure were observed.

The existing water and sewer services for the building should be inspected prior to the redevelopment of the building to ensure proper functioning. Video camera inspection is recommended for the sanitary sewer system. City-required separation must be maintained between the water and sanitary sewer systems.

Figure 34 : Water Valve and Sanitary Sewer Manhole West of the Building

The buildings downspouts outfall on splash blocks. No stormwater management features that meet current MDE requirements nor storm drain infrastructure are present near the building or parking lot/entrance road.

10 RECOMMENDATIONS

The team's recommendation is to demolish the existing facility in its entirety and replace it with a new building.

- The site configuration and building's access are non-ADA compliant at any of the entrances.
- The general envelope conditions are poor and require replacement. Extensive repair and/or replacement of materials on the building's complexly configured roof forms are more difficult and expensive due to additional labor and materials that increase the amount of ridge, valley and side wall flashing, side wall sheathing, and roof accessories required.
- Most of the T-111 plywood siding show evidence of rot/delamination, especially at material transitions where there is not flashing; this could indicate unforeseen damage to framing members, moisture in wall cavities and insulation, and mold. Based on existing construction documents, there is no evidence of moisture barriers, or insulation that meets current energy-code requirements for R values. The windows are inoperable and in failure, save for one unit in the dining area of the later addition.
- The general interior finishes need replacement in their entirety as they are worn, stained and have been affected by humidity and moisture.
- There are a number of non-current code conditions at the existing clubhouse that should be addressed to be able to continue to use the facility- even for staging a one-day event. Interior glazing in doors, sidelights and window are made of wire glass which no longer allowed. City of Rockville Building and Fire Safety Regulations, 2020 Edition requires a sprinkler system for 200 occupants, which currently does not exist. If the occupancy is to ever exceed 300 persons, a fire alarm system will also be required.
- Replace mechanical systems to meet current code and modern occupancy requirements.
- Replace all electrical systems to meet current code and modern occupancy requirements.
- Replace all plumbing systems to meet current code and modern occupancy, ADA, and City of Rockville program requirements.
- Due to the lack of available site for expansion, the method and configuration that was used to add space to the original building, and the load bearing masonry perimeter walls, it would be costly to open up the floor plans or expand the rooms for more flexibility of use.

With the aforementioned problems of condition lack of non-current code compliance, the team recommends the construction of a universally accessible, similarly scaled new building. The building could be simpler in plan and roof form that could support a more functional, flexible multi-purpose event space (possibly dividable) with efficiently configured restrooms and support areas. The price to demolish the existing facility and construct a new building is currently less costly than to provide the required extensive renovations to the existing one.

Depending on budget and zoning issue impacts, it might be prudent to demolish the existing building in its entirety, and cap the utilities for a future reconnection, to avoid price escalation impacts.

Conceptual Cost Comparison

	BLDG DEMO	NEW BLDG	BLDG RENO	TOTAL BLDG DEMO/NEW
Total Construction Costs without Escalation	$43,600 ($9.70/SF)	$2,091,300 ($426.80/SF)	$2,238,300 ($456.80/SF)	$2,134,900 ($436.50/SF)
Total Construction Costs with Escalation (4yr + 4mo)	$79,100 ($17.60/SF)	$3,797,000 ($774.90/SF)	$4,063,900 ($829.40/SF)	$3,876,100 ($782.50/SF)

Appendix A – Cost Estimate

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INDEPENDENT COST ESTIMATE - SUMMARY

City of Rockville - R & P
Red Gate Construction Project

Date: 07/01/2022

Total Building Construction Cost with Escalation

Demolition	New Building	Renovations
$ 79,100	$ 3,797,000	$ 4,063,900

Notes:

Estimate data is based on RS Means 2022 with adjustments.
Estimate does not include any site development costs
All costs posted above are rounded to nearest hundred dollar
Please review cost estimate details and the basis of estimate
for assumptions, clarifications and percentage rates.

PRELIMINARY DESIGN

City of Rockville - R & P
Red Gate Construction Project

Independent Cost Estimate

Date: 07/01/2022

Description	QTY	UoM	$/UoM	Total
Renovations				
Demo/Prep - Renovations				
Demo window, double casement, w frame	11	EA	$ 80.00	$ 880.00
Demo window and frame, custom bay	6	EA	$ 110.00	$ 660.00
Demo door and frame, solid metal	5	EA	$ 100.00	$ 500.00
Demo storefront with side lights	4	EA	$ 125.00	$ 500.00
Demo door and frame, glass storefront	1	EA	$ 135.00	$ 135.00
Demo skylight	4	EA	$ 95.00	$ 380.00
Demo entire existing restroom area	315	GSF	$ 8.00	$ 2,520.00
Gut interior of architectural building(s)	4010	GSF	$ 2.00	$ 8,020.00
Remove skylight	3	EA	$ 125.00	$ 375.00
Remove roof, gutters and downspout	4010	GSF	$ 0.40	$ 1,604.00
Remove plmbg fixture, incl's water heater	14	EA	$ 75.00	$ 1,050.00
Remove all mechanical and electrical	4010	GSF	$ 1.00	$ 4,010.00
Subtotal - Demo/Renovations*	4325	GSF	$ 4.77	***$ 20,634.00***
Civil Utilities Renovation Upgrades				
Plumbing, storm, sanitary, allowance	1	LS	$ 5,000.00	$ 5,000.00
Civil utilities, electrical service, incoming	1	LS	$ 10,000.00	$ 10,000.00
Subtotal - Civil Utilities*				***$ 15,000.00***
New Building Renovations				
Drywall insul., ext. wall, furring, mtl studs	7400	SSF	$ 5.50	$ 40,700.00
Ext cement fiber cladding, furring, w/ trim	7400	SSF	$ 15.50	$ 114,700.00
Window, double casement	11	EA	$ 750.00	$ 8,250.00
Window and frame, custom bay	6	EA	$ 1,000.00	$ 6,000.00
New exterior door, metal 3'x7'	5	EA	$ 800.00	$ 4,000.00
Side lighting for storefront	4	EA	$ 650.00	$ 2,600.00
Door and frame, glass storefront	5	EA	$ 4,050.00	$ 20,250.00
New exterior frame 3'x7'	8	EA	$ 2,200.00	$ 17,600.00
New exterior dbl door and frame 6'x7'	1	EA	$ 4,000.00	$ 4,000.00
Restroom area	815	GSF	$ 260.00	$ 211,900.00
Interior walls	300	LF	$ 155.00	$ 46,500.00
Interior doors	1	LS	$ 4,500.00	$ 4,500.00
Flooring, carpet tile	4000	SF	$ 4.75	$ 19,000.00
Flooring, ceramic	800	SF	$ 20.00	$ 16,000.00
Louvers, gable	2	EA	$ 400.00	$ 800.00

PRELIMINARY DESIGN

City of Rockville - R & P
Red Gate Construction Project

Independent Cost Estimate

Date: 07/01/2022

New flashing	250	LF	$	32.00	$	8,000.00
New skylight	4	EA	$	2,000.00	$	8,000.00
Roof, asphalt shingle	6000	SSF	$	6.50	$	39,000.00
New gutters, and downspouts	310	LF	$	10.00	$	3,100.00
Insulation, roof	6000	GSF	$	5.35	$	32,100.00
Fire protection, sprinkler system	4825	GSF	$	5.30	$	25,572.50
Water heater w/ recirc. pump/piping	1	LS	$	63,000.00	$	63,000.00
Water closets w/ carrier	12	EA	$	3,445.00	$	41,340.00
Urinal w/ carrier	2	EA	$	1,575.00	$	3,150.00
Sink, wall hung w/ carrier	10	EA	$	2,450.00	$	24,500.00
Kitchen sink, dbl compartment, SS	2	EA	$	2,900.00	$	5,800.00
Service sink, mop, 22" x 18"	1	EA	$	5,950.00	$	5,950.00
Water cooler, dual height, ADA	1	EA	$	4,420.00	$	4,420.00
Drains, floor	3	EA	$	3,250.00	$	9,750.00
Floor sink, receptor 12x12, kitchen	2	EA	$	4,500.00	$	9,000.00
Kitchen equipment allowance	1	LS	$	15,000.00	$	15,000.00
Additional main domestic water piping	180	LF	$	25.00	$	4,500.00
Additional sanitary and vent piping	80	LF	$	42.00	$	3,360.00
Floor sink, receptor 12x12, kitchen	2	EA	$	4,500.00	$	9,000.00
Mechanical system for renovated area	4825	GSF	$	48.50	$	234,012.50
Upgrade/new electrical for renovated area	4825	GSF	$	26.50	$	127,862.50
Fire alarm system, electronic safety	4825	GSF	$	4.00	$	19,300.00
Upgrade/new telecom, electronic safety	4825	GSF	$	3.40	$	16,405.00
Subtotal - New Renovations*	5640	GSF	$	217.89	***$***	***1,228,922.50***
Total - Renovation w Selective Demo*	4825	GSF	$	262.08	***$***	***1,264,556.50***
General requirements and conditions	18.0%				$	227,620
Subtotal					$	1,492,177
Prime overhead	8.0%				$	119,374
Subtotal					$	1,611,551
Prime profit	5.0%				$	80,578
Subtotal					$	1,692,128
Bond	1.8%				$	29,612
Subtotal					$	1,721,741
Design contingencies	30.0%				$	516,522
Total Renov. Cost w/o Escalation**					**$**	**2,238,263**

PRELIMINARY DESIGN

City of Rockville - R & P
Red Gate Construction Project

Independent Cost Estimate

Date: 07/01/2022

Total Demolition					
Concrete slab with foundations	5155	GSF	$ 1.65	$	8,505.75
Demo terrace, w concrete retainer wall	650	GSF	$ 2.00	$	1,300.00
Demo wood raised deck, avg 7' ht	750	GSF	$ 1.20	$	900.00
Demo storage space	180	GSF	$ 3.00	$	540.00
Demo building	4010	GSF	$ 2.86	$	11,468.60
Demo toilet	315	GSF	$ 6.00	$	1,890.00
Subtotal - Demolition*	4505	GSF***	$ 5.46	***$***	***24,604.35***
General requirements and conditions	18.0%			$	4,429
Subtotal				$	29,033
Prime overhead	8.0%			$	2,323
Subtotal				$	31,356
Prime profit	5.0%			$	1,568
Subtotal				$	32,924
Bond	1.8%			$	576
Subtotal				$	33,500
Design contingencies	30.0%			$	10,050
Total Demo Cost w/o Escalation**				**$**	**43,550**
New Building w/ Foundations					
Building w foundations	4100	GSF	$ 215.00	$	881,500.00
New Restroom area w foundation	800	GSF	$ 375.00	$	300,000.00
Subtotal - New Building*	4900	GSF	$ 241.12	***$***	***1,181,500.00***
General requirements and conditions	18.0%			$	212,670
Subtotal				$	1,394,170
Prime overhead	8.0%			$	111,534
Subtotal				$	1,505,704
Prime profit	5.0%			$	75,285
Subtotal				$	1,580,989
Bond	1.8%			$	27,667
Subtotal				$	1,608,656
Design contingencies	30.0%			$	482,597
Total New Bldg w/o Escalation**				**$**	**2,091,253**

Notes

* Direct cost total w/o general contractor markups

** Refer to Basis of Estimate worksheet for total escalation per year to mid-pt

*** Total gross square feet does not include terrace or deck

BASIS OF ESTIMATE

City of Rockville - R & P
Red Gate Construction Project

Escalation, Comments and Assumptions

Date: 07/01/2022

Notes

Line Item Detail Direct Costs (embedded in each unit cost) include the following rates:

Description	Rate
Sales taxes on material and equipment	6.0%
Installing subcontractor's overhead	10.0%
Installing subcontractor's profit	10.0%

General Contractor's Markups (below the line) include the following rates:

Description	Rate
General conditions/requirements	18.0%
Prime overhead	8.0%
Prime profit	5.0%
Bond	1.8%
Design contingencies	30.0%
Gen. Contractor's markups w/o escalation:	177.0%

ESCALATION COSTS* BY YEAR AND BY PROJECT TYPE

	Rate	Bldg Demo	New Bldg	Renov.
Escalation 1st year	14.70%	$ 6,402	$ 307,414	$ 329,025
Escalation 2nd year	31.56%	$ 13,745	$ 660,018	$ 706,416
Escalation 3rd year	50.90%	$ 22,167	$ 1,064,455	$ 1,139,284
Escalation 4th year	73.08%	$ 31,827	$ 1,528,344	$ 1,635,783
Escalation of 4 months after 4 years	81.56%	$ 35,521	$ 1,705,704	$ 1,825,611
Total Construction Cost w/o Escalation		**$ 43,550**	**$ 2,091,253**	**$ 2,238,263**
Total Escalation Cost (4 Yrs 4 Mo)		**$ 35,521**	**$ 1,705,704**	**$ 1,825,611**
Total Construction Cost with Escalation		**$ 79,070**	**$ 3,796,957**	**$ 4,063,874**

Escalation, Comments and Assumptions

All above-referenced percentage rates are compounded
Per the June 13-20, 2022, ENR Magazine: The annual percentage rate (APR) for bldg constr is 14.7%
Assumption: Spring 2026 start of project with construction of 12-months
Construction completed is 11/2026 which is 4 year and 4 months from now
* Each year 14.7% APR (annual percentage rate) of escalation is compounded on to the next year

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