REPORT OF FACILITY CONDITION ASSESSMENT

Rosman Middle and High School

Property Address:
749 Pickens Hwy
Rosman, NC 28772

Prepared For:

Transylvania County Board of Commissioners
101 South Broad Street
Brevard, NC 28712

Prepared By:

Axias

Project No. GA23-017

February 26, 2024

Axias
BUILDING VALUE

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Building: Rosman Middle & High
GSF: 140870
Age: 1949, extended 1956 (74 and 67 years old)
Address: 749 Pickens Hwy
Brevard, NC 28772

Item No.	Condition	Recommendation	Priority Category	Deficiency Category	Impact of Failure	Condition	Probability of Failure	Frequency of Failure	Risk Score	Risk Category	Estimated Useful Life	Remaining Useful Life	Quantity	Unit of Measure	Unit Cost	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Required
															Year	1	2	3	4	5	6	7	8	9	10	
Accessibility																										
Required																										
1	The building was constructed before the implementation of the Americans with Disabilities Act. Minor modifications have been made to achieve compliance where possible. Future renovations are anticipated to comply with applicable guidelines.	No anticipated capital expenditures.																								$0
Site Systems																										
Required																										
1	Asphalt to the parking access road, and parking lot at the east, behind the gym, is in a poor condition. The asphalt is excessively cracked and is believed to have deteriorated from oil trucks delivering oil to the underground storage tank (UST), coupled with heavy general car and vehicle usage.	The asphalt should be removed and full-depth asphalt repairs completed.	III	DM	4	3	3	4	14	Medium	30	1	1,700	SY	$35.00	$59,500										$59,500
2	Asphalt paving to the parking lot to the east of the site behind the High School and below the Old Gym was in a poor condition and cracked at many locations.	Fully mill and overlay the asphalt behind the High School and below the Old Gym	III	DM	4	3	3	4	14	Medium	15	1	1,420	SY	$15.00	$21,300										$21,300
3	Asphalt paving to the parking lot to the east of the site behind the Old Gym and at the upper parking lot area was in a poor condition and cracked at many locations.	Fully mill and overlay the asphalt behind the Old Gym and upper parking lot.	III	DM	4	3	3	4	14	Medium	15	1	3,300	SY	$15.00	$49,500										$49,500
4	Where asphalt is recommended for replacement a future crack fill, seal coat, and restripe is recommended to preserve and extend the life of the asphalt.	Crack fill, seal coat, and restripe asphalt (future cycle on asphalt which has been replaced).	IV	SM	5	5	5	5	20	Low	7	5	6,420	SY	$2.00					$12,840						$12,840
5	The football field appeared to be located in a low lying area and exhibited poor drainage. It is recommended to have a stormwater study, design, and corrective work completed to address the stormwater management at the football field. This is anticipated to include installation of passive stormwater management systems and a new artificial turf to help improve overall stormwater management. The cost of the project could vary based on final calculations of the stormwater management system capacity.	Complete study, design, and construction of a stormwater management system at the football field.	III	CI	4	3	4	4	15	Medium	20	2	77,000	SF	$25.00		$1,925,000									$1,925,000
6	A segmental retaining wall is located at the east side of the school. At the time of our site visit we noted that the retaining wall had indications of efflorescence as well as organic growth at the top courses. It was also noted that the wall may have not been constructed in accordance with industry standards as published by the National Concrete Masonry Association. It is recommended to have the segmental wall evaluated by a structural engineer and complete subsequent repairs. Final costs will likely fluctuate based on the findings of the study.	Allowance for the evaluation and follow up repairs of the segmental retaining wall.	II	DM	2	3	4	4	13	High	30	1	6,500	SF	$110.00	$715,000										$715,000

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															Year	1	2	3	4	5	6	7	8	9	10	
7	Chain link fencing is provided around the foot ball field along with the baseball field. At the time of our site visit sections of the fencing were noted to be damaged. It is recommended to budget for repairs to the chain link fencing during the study period.	Replace damaged sections of chain link fencing.	III	DM	4	3	4	5	16	Medium	25	1	300	LF	$30.00	$9,000										$9,000
8	A concreate amphitheater is provided at the east side of the school. Areas of distressed concrete were noted. It is recommended to budget for the replacement of distressed concreate at the amphitheater.	Replace damaged concrete at the amphitheater.	III	CR	5	4	4	4	17	Low	25	2	200	sf	$35.00		$7,000									$7,000
Structural Systems																										
Required																										
1	Structural cracking issues were identified at the Old Gym and High School building. At the Old Gym significant cracking to the exterior wall near the entrance, was noted. Inside the building, the gym floor had dropped 3". Within the old coal store room, cracking was observed in the wall and the room reportedly floods often with ground water entering under pressure through the cracks. At select classrooms in the High School on the west-facing elevation, some movement was apparent where the floor and exterior walls meet. Cracking and deterioration to brickwork externally was also noted within the restrooms at the Art Gallery/Common Area in front of the Auditorium.	Further investigation by a Structural Engineer and provisional placeholder cost for repair works recommended.	II	DM	2	2	1	4	9	High	50	1	1	ALLOW	$165,000	$165,000										$165,000
Roofing Systems																										
Required																										
1	The modified bitumen roof installed at the low slope roof areas over the High School was in a poor condition. The covering is at the end of its life and has been patched in many areas. Fully strip off and replace the modified bitumen roof system and replace with a TPO covering. Measurement excludes the northernmost section of roof, which was being replaced at the time of our assessment.	Replace modified bitumen roof with new TPO roof at the High School.	II	DM	3	2	3	4	12	High	15	1	35,500	SF	$20.00	$710,000										$710,000
2	The modified bitumen roof installed at the low slope roof areas over the Middle School was in a poor condition. The covering is at the end of its life and has been patched in many areas. Fully strip off and replace the modified bitumen roof system and replace with a TPO covering.	Replace modified bitumen with new TPO roof at the Middle School.	II	DM	3	2	3	4	12	High	15	1	13,200	SF	$20.00	$264,000										$264,000
3	The modified bitumen roof installed at the Old Gym was in a poor condition and had exceeded it's useful life. Gutters were blocked and overflowing with vegetation growth. Fully strip off and replace the modified bitumen roof system and replace with a TPO covering. Replace the gutters and downspouts during the roof replacement works.	Replace modified bitumen with new TPO roof at the Old Gym.	II	DM	3	2	3	4	12	High	15	1	11,400	SF	$20.00	$228,000										$228,000

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															Year	1	2	3	4	5	6	7	8	9	10	
Exterior Elements																										
Required																										
1	Insulated glazed units (IGUs) at the "bell tower" (stairwell) area of the building had fogged. The sealants had failed and moisture has entered between the glazing panes. Remove and replace the glazing with new IGU panes.	Replace failed glazing units.	III	DM	5	2	4	5	16	Medium	25	1	1,000	SF	$110.00	$110,000										$110,000
2	Sealant joints at the perimeters of the exterior windows and at building movement joints were in poor condition. Sealants had perished and failed at many locations.	Replace elastomeric sealant joints across building exteriors.	III	DM	3	2	3	4	12	High	10	1	6,300	LF	$10.00	$63,000										$63,000
3	The exterior insulation finishing system (EIFS) on the rear west-facing elevation at the courtyard and front east-facing elevation is in fair condition evidenced by staining and organic growth. It is recommended to complete a thermography scan of the EIFS elements before completing any repairs or recoating.	Clean and recoat the EIFS. Includes allowance for repairs to the EIFS due to potential moisture damage.	III	DM	5	3	4	4	16	Medium	10	1	6,275	SF	$14.00	$87,850										$87,850
4	Exteriors were generally in fair condition. It is recommended to carry an allowance to complete generic building-wide exterior repairs including replacement of pointing, isolated painting, replacement of failed windowpanes, and other general exterior maintenance.	Complete exterior repairs. Cycle one.	III	SM	4	3	4	5	16	Medium	5	2	1	ALLOW	$75,000		$75,000									$75,000
5	Exteriors were generally in fair condition. It is recommended to carry an allowance to complete generic building-wide exterior repairs including replacement of pointing, isolated painting, replacement of failed windowpanes, and other general exterior maintenance.	Complete exterior repairs. Cycle two.	IV	SM	4	3	4	5	16	Medium	5	7	1	ALLOW	$50,000							$50,000				$50,000
Interiors																										
1	Ceiling tiles were noted to be in general good condition. We did note numerous stained ceiling tiles throughout. It is recommended to budget for the replacement of the stained ceiling tiles in the near-term. Some ceiling tiles could protentially be fire rated and would need to be replaced with the same type of rated material.	Replace stained and/or damaged ceiling tiles.	III	DM	5	3	4	5	17	Low		1	2,500	SF	$8.00	$20,000										$20,000
2	Interiors appeared to be typical finishes and fair condition for an educational establishment. Allowance only includes renewal of interior finishes and minor renovations of restrooms. Does not include reconfiguration of space or address items related to educational adequacy.	Allowance for renewal of interior finishes. Timing and scope will vary based on future program needs. Cycle one.	V	CR	5	3	5	5	18	Low	10	3	35,220	SF	$60.00			$2,113,200								$2,113,200

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4	Interiors appeared to be typical finishes and fair condition for an educational establishment. Allowance only includes renewal of interior finishes and minor renovations of restrooms. Does not include reconfiguration of space or address items related to educational adequacy.	Allowance for renewal of interior finishes. Timing and scope will vary based on future program needs. Cycle three.	V	CR	5	3	5	5	18	Low	10	5	35,220	SF	$60.00					$2,113,200						$2,113,200
5	Interiors appeared to be typical finishes and fair condition for an educational establishment. Allowance only includes renewal of interior finishes and minor renovations of restrooms. Does not include reconfiguration of space or address items related to educational adequacy.	Allowance for renewal of interior finishes. Timing and scope will vary based on future program needs. Cycle four.	V	CR	5	3	5	5	18	Low	10	6	35,220	SF	$60.00						$2,113,200					$2,113,200
6	A physical security assessment was provided by Safe Havens International. As part of their assessment, they identified areas within the school which should be provided with a vestibule to limit continued access throughout the school. Based on this recommendation, it is recommended to budget for the installation of vestibules to limit access throughout the school.	Construct vestibules per Physical Security Assessment.	II	CI	3	3	3	3	12	High		2	140,870	SF	$2.00		$281,740									$281,740
Mechanical																										
Required																										
1	The chiller located outside the Cafeteria is in fair condition. It has exceeded its recommended useful life and the site contact reported that it frequently requires repairs. Active alarms indicating cooling circuit failures were noted on the use interface control panel. The chiller serves a large portion of the building and should be replaced early in the term, before it becomes unreliable, or a complete failure occurs.	Replace air-cooled chiller outside the Cafeteria.	III	CR	2	3	3	3	11	High	25	1	110	TON	$4,200	$462,000										$462,000
2	The chiller mounted on the roof serving the northern portion of the building was in fair to good condition. The chiller was manufactured by Trane in 2013. Based on a typical service life of 20 to 25 years, it is recommended to budget for the replacement of the chiller during the study period.	Replace rooftop chiller serving the north end of the building.	IV	CR	3	4	4	5	16	Medium	20	9	60	TON	$4,200									$252,000		$252,000

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3	Boilers #1 and #2 located in the outdoor amphitheater mechanical room are oil-fired and were in fair to good condition and may remain serviceable with an effective overhaul. Replacement of both boilers is recommended near the middle or end of the study period at the same time.	Replace Boiler #1 and #2 along with associated pumps, valves, and accessories.	III	CR	3	4	3	4	14	Medium	30	5	4,100	MBH	$110					$451,000						$451,000
4	Boiler #3 is located in the basement of the Old Gym and is in good condition. The boiler is oil-fired and was installed in 2014 serving the Old Gym and parts of the Vocational Wing of the High School and reportedly meets the heating needs of these areas. To keep the boiler operating near design specifications, we recommend an overhaul early in the study period.	Refurbish Boiler #3 along with associated pumps, valves, and accessories.	III	SM	3	4	3	4	14	Medium	10	3	1,680	MBH	$110			$184,800								$184,800
5	Boiler #4 in the New Gym is oil-fired and serves the south portion of the building and is fair to good condition. Heating was reported to be adequate when in use. The boiler has reached the end of its recommended useful life and should be replaced early in the term.	Replace Boiler #4 along with associated pumps, valves, and accessories.	III	CR	3	4	3	4	14	Medium	30	3	1,084	MBH	$110			$119,240								$119,240
6	Unit ventilators in the Middle School are becoming problematic and difficult to repair. The unit ventilators have reached the end of their recommended useful life and should be replaced.	Phased replacement of unit ventilators.	III	CR	4	3	4	4	15	Medium	20	1	40	EA	$15,000	$600,000										$600,000
7	AHUs in the High School are either served by the chilled water supply loop or individual pad-mounted condenser units. The AHUs are reportedly becoming problematic and are difficult to access for the proper repairs. Based on the location of the units in the central hallway ceilings and age of the equipment, we recommend replacement of the AHUs during the study period.	Phased replacement of air handling units.	III	CR	4	3	4	4	15	Medium	20	1	28	EA	$40,000	$1,120,000										$1,120,000
8	The Fieldhouse package units operate adequately with minimal downtime and typical needs for repair. The Fieldhouse package units will reach the end of their useful life late in the study period and should be replaced at the same time.	Replace the Fieldhouse package units.	III	CR	4	4	3	3	14	Medium	25	8	2	EA	$40,000								$80,000			$80,000

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															Year	1	2	3	4	5	6	7	8	9	10	
9	Humidity levels in select rooms of the Middle School were noted as moderate and reported to be a recuring issue during periods of warmer outside air temperatures. Replacement of the unit ventilators may resolve the issue but are proposed for phased replacement over the study period. Auxiliary systems such as dedicated outdoor air systems can be added to central hallways, where return air is circulated through plenum space, to achieve optimal humidity control. Application of auxiliary systems (3 areas) to control humidity should be engineered by a qualified mechanical engineer.	Allowance to complete a detailed indoor air quality study and provisional placeholder cost for repair works recommended.	III	CI	4	3	4	3	14	Medium	15	2	3	AREAS	$250,000		$750,000									$750,000
10	The building management system (BMS) is built on the Niagara framework with Johnson Controls Metasys control hardware installed in 1999. The BMS gives a broad overview of the Property with select items controlled via the web-based interface. The system is limited but remains operational. Resources and supplies for older BMS versions are difficult to obtain, so we recommend that the BMS system is upgraded. Upgrades include hardware replacements and software advancements, and as needed component replacements.	Upgrade BMS system.	III	CR	4	3	4	4	15	Medium	15	2	140,870	SF	$2.75		$387,393									$387,393
Electrical Required																										
1	The majority of electrical service equipment, distribution panels and subsequent electrical components, dated to the 1999 renovation or newer and were in fair to good condition. However, there are still some panels which date to 1975 remaining. These panels have exceeded their useful life and with antiquated electrical components. The components can become unreliable and hard to maintain. It is recommended to replace the remaining 1975 electrical panels.	Upgrade antiquated electrical panels throughout the building.	III	CR	3	4	4	5	16	Medium	30	3	1,800	AMP	$120.00			$216,000								$216,000
2	Security and access control systems include mounted security cameras at various locations and electronic card reader access control systems. These types of systems typically have a service life of 10 years before components become obsolete. It is recommended to upgrade the security and access control systems.	Allowance to improve school security systems and school safety.	II	CI	2	3	3	4	12	High	10	2	140,870	SF	$3.25		$457,828									$457,828

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															Year	1	2	3	4	5	6	7	8	9	10	
Plumbing																										
Required																										
1	The 250-gallon electric water heater located at the east elevation of the building exterior was observed with minor rust at the base of the outer jacket and mineral deposits at hot water supply piping. The water heater was installed in 2007 and will reach the end of its recommended useful life in the study period and should be replaced at that time.	Replace 250-gallon electric water heater.	III	CR	3	3	4	4	14	Medium	20	3	1	EA	$45,000			$45,000								$45,000
2	Additional fired domestic water heaters are provided for various use. The water heaters were manufactured in circa 2008 by PVI. Based on a typical service life of 15 to 20 years, it is recommended to budget for the replacement of the two PVI water heaters.	Replace PVI water heater #1 and #2	III	CR	3	4	4	4	15	Medium	20	3	2	EA	$55,000			$110,000								$110,000
3	The heating hot water boilers utilize No. 2 fuel oil which is repotedly stored in one 10,000 and one 20,000-gal underground storage tank. It was reported that the tanks are single walled and installed in circa 1956 and 1991. Based on the age of the tanks it is recommended to continue to monitor the condition of the tanks through annual testing and active monitoring. An allowance for remobal of the tanks has been provided; however, the timing will be driven by monitoring and testing results.	Remove underground storage tank and install new above ground code/regulation compliant storage tank.	III	CR	3	3	4	4	14	Medium	30	4	1	ALLOW	$265,000				$265,000							$265,000
Fire & Life Safety																										
Required																										
1	The building is monitored by a Notifier NFS2-640 alarm panel. The panel is in good condition.	No anticipated capital expenditures.																								$0
2	The Fieldhouse has a Simplex 4010 fire alarm control panel. The fire alarm panel is obsolete and should be scheduled for replacement.	Replace Fieldhouse fire alarm control panel.	III	CR	3	3	4	4	14	Medium	25	2	1	EA	$20,000		$20,000									$20,000
3	Existing drawings detailing to which codes the school was designed in accordance were not available for review. The school is not provided with a fire-sprinkler system. Buildings of this size typically are required to either have a sprinkler system or an approved rated assembly to protect structural elements. It is recommended to complete a more detailed fire and life safety assessment to review the code enforced at construction and the last renovation along with any details on how these ratings were achieved.	Complete life safety and code evaluation.	III	CI	3	3	4	4	14	Medium		1	1	EA	$15,000	$15,000										$15,000

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															Year	1	2	3	4	5	6	7	8	9	10	
Conveyance Systems																										
Required																										
1	The age of the hydraulic elevator is unknown, but assumed to have been installed circa 2000. The elevator was in fair condition, but would benefit from modernization. Fully modernize the elevator, including replacement of the hydraulic pump unit, controller, car top equipment, and interior cab finishes.	Modernize hydraulic elevator.	III	CR	4	3	4	5	16	Medium	25	2	1	EA	$200,000		$200,000									$200,000
Required Cost (2023 US-Dollars)																$4,699,150	$4,103,960	$2,788,240	$2,378,200	$2,577,040	$2,113,200	$50,000	$80,000	$252,000	$0	$19,041,790
Required Cost (Inflated @ 8% for 1st 3 years then 3% Per Yr.)																$5,075,082	$4,786,859	$3,512,379	$2,676,685	$2,987,496	$2,523,271	$61,494	$101,342	$328,803	$0	$22,053,410
Total Cost (2023 $/ SF/ Yr.)																$33.36	$29.13	$19.79	$16.88	$18.29	$15.00	$0.35	$0.57	$1.79	$0.00	$135.17

Deficiency	Definition
SM	Scheduled Maintenance
DM	Deferred Maintenance
CR	Capital Renewal
EN	Energy & Sustainability
CI	Capital Improvement

Priority	Definition
I	Currently Critical
II	Potentially Critical
III	Necessary / Not yet Critical
IV	Recommended
V	Appearance
VI	Does Not Meet Codes / Standards

Risk	Definition
Critical	Critical (4-8)
High	High (9-13)
Medium	Medium (14-16)
Low	Low (17-20)