POUDRE SCHOOL DISTRICT

BOLTZ MIDDLE SCHOOL

FACILITY CONDITION ASSESSMENT

FORT COLLINS, CO

OCTOBER 2023

Together, Building a Thriving Planet

McKinstry
For The Life Of Your Building

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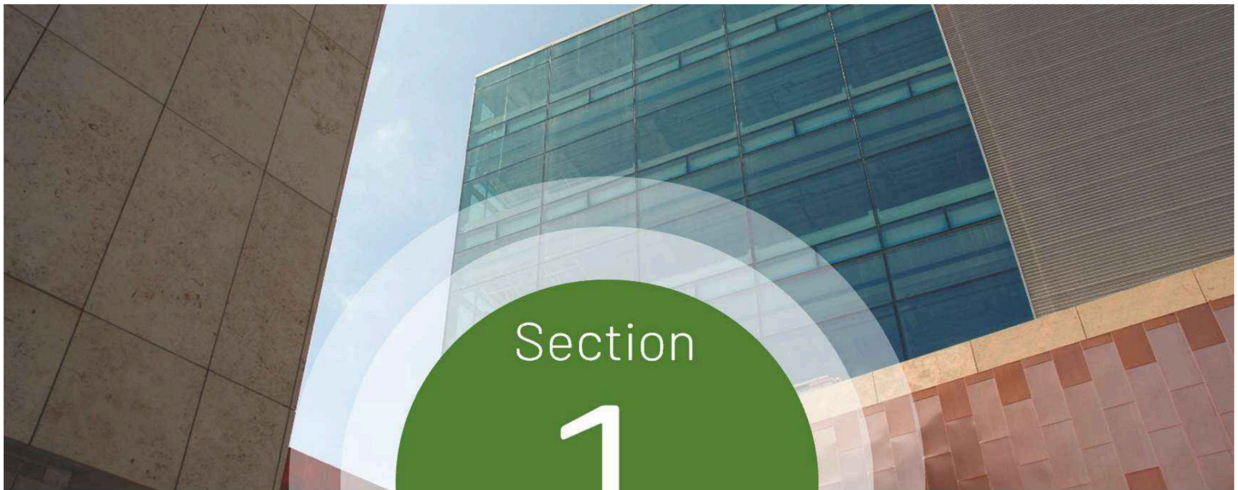

Section

1

Executive Summary

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Executive Summary

Project Goals

The contents of this report present the results of the Facility Condition Assessment (FCA) performed at Boltz MS within the Poudre School District (PSD) on April 17, 2023. PSD intends to utilize the findings of this report to inform both capital and operating budgets, prioritize maintenance efforts, and optimize planning processes as replacements and upgrades of assets and facility systems become necessary in the future.

Facility List

The scope of the FCA project included the assessment of the following campus.

FACILITY NAME	AREA (SF)	YEAR(S) BUILT
BOLTZ MS	85,120	1972
TOTAL	**85,120**	

Facility Summary

Boltz MS

Boltz MS is located at 720 Boltz St., Fort Collins, CO 80525. This 85,120 SF facility consists of one level and was initially constructed in 1972. The equity index for this school is 1.59.

Boltz MS

Executive Summary

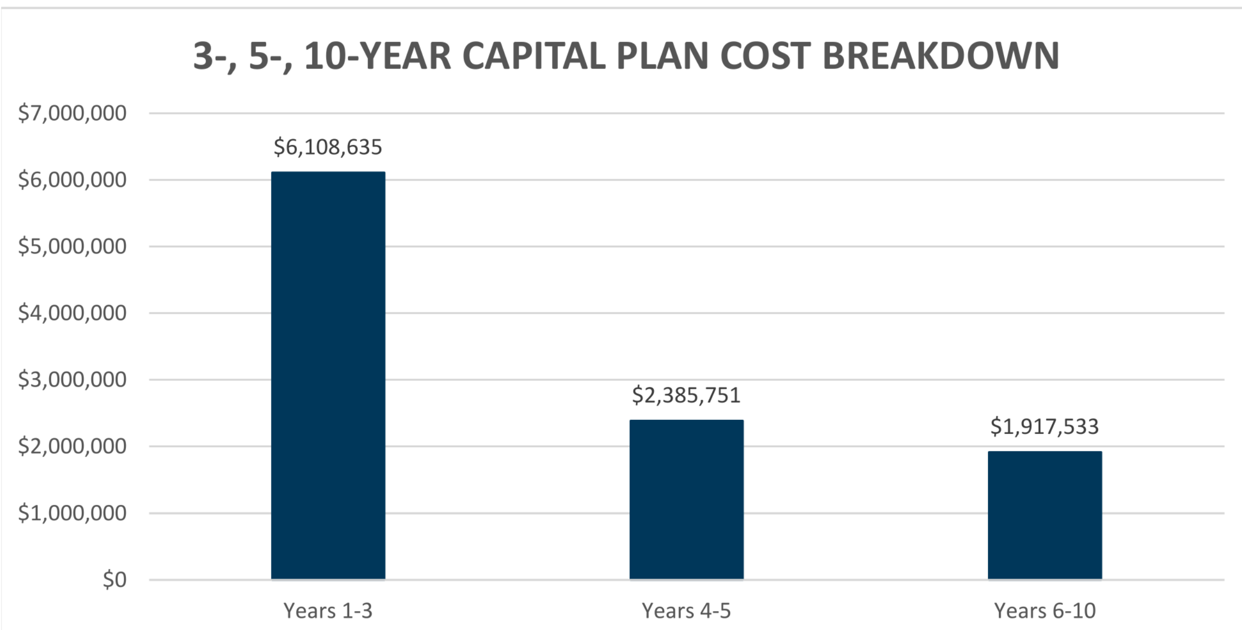
Assessment Summary

This section summarizes the building systems at the facility and describes the general condition observed based on the assessment performed on April 17, 2023. Additional details, findings and recommendations are presented in Section 3 of this report.

Capital Plan Summary

The estimated replacement costs for equipment expected to fail within the next ten years are shown below, divided into three separate plans. These plans are the 3-Year Plan, 5-Year Plan, and the 10-Year Plan. Each plan includes the cost for replacement of equipment expected to fail during these periods, based on the observed condition of the equipment at the time of the assessment.

Replacement costs include 3% inflation year over year.



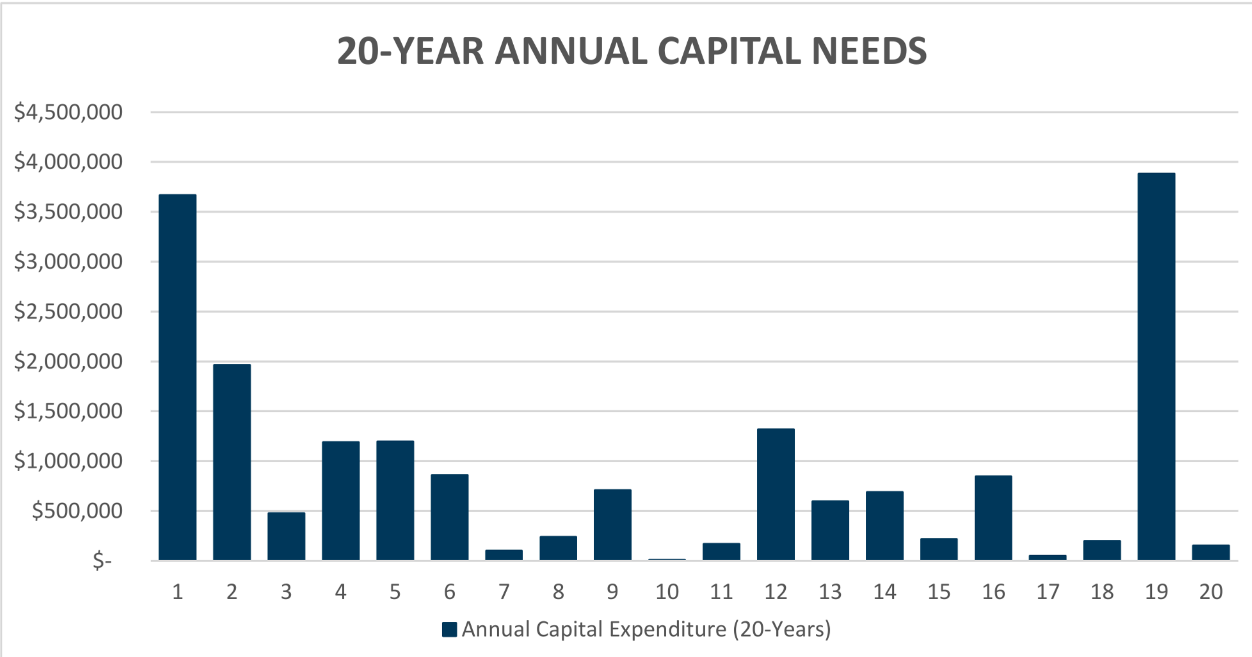
3-, 5-, 10-Year Capital Plan Cost Breakdown

Executive Summary

Annual Capital Expenditure (20 Years)

20-Year Annual Capital Needs and 20-Year Annual Capital Expenditure by Subsystem below indicate the estimated replacement costs for equipment expected to fail within the next twenty years, and are displayed both by year and by subsystem.

Replacement costs include 3% inflation year over year.



Annual Capital Expenditure by Year

Replacement costs associated with the Annual Capital Expenditure graph and table include values that are adjusted for inflation.

20-Year Annual Capital Expenditure by Subsystem

Subsystem	Years 1-5	Years 6-10	Years 11-15	Years 15-20
B20 - Enclosure	$695,508	$3,788	$62,627	$0
B30 - Roofing	$6,005	$682,383	$163,632	$10,223
C10 - Int. Construction	$314,023	$386,755	$0	$6,874
C20 - Stairs	$0	$0	$0	$0
C30 - Interior Finishes	$1,931,896	$0	$1,440,280	$244,750
D10 - Conveying	$0	$0	$0	$0
D20 - Plumbing	$98,487	$0	$112,575	$0
D30 - HVAC	$2,856,161	$606,412	$735,833	$1,092,129
D40 - Fire Suppression	$938,870	$0	$0	$0
D50 - Electrical	$1,626,288	$238,194	$473,003	$3,774,344
E10 - Equipment	$27,147	$0	$0	$0
Total:	**$5,546,954**	**$844,606**	**$1,321,411**	**$4,866,474**

Section

2

Approach and Methodology

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Scope and Approach

Scope and Approach

SCOPE OF WORK

The scope of this facility condition assessment includes all major mechanical, electrical, and plumbing equipment, and commercial refrigeration equipment. In addition, the building enclosure, roofing, interior construction and finishes, and fire suppression systems are included within the assessment. Turf, site assets, kitchen assets besides walk-in freezers, exhaust fans and kitchen make up air units are not included in scope.

The following table lists the general asset types included within the scope of this assessment. Also shown is the corresponding Uniformat code, which has been used to catalog equipment based on type and intended use.

UniFormat Classification of Building Systems

UNIFORMAT CODE	CATEGORY DESCRIPTION
B20	Exterior Enclosure (i.e. windows, walls, doors)
B30	Roofing (i.e. roofing covering, skylights, etc.)
C10	Interior Construction (i.e. doors, walls)
C20	Interior Stairs (i.e. stair construction)
C30	Interior Finishes (i.e. flooring, ceiling finishes, etc.)
D10	Conveying (i.e., elevators)
D20	Plumbing (i.e., water heating, pumps, compressors)
D30	Heating, Ventilation, and Air Conditioning
D40	Fire Suppression Systems
D50	Electrical (panelboards, transformers, switchgear)
E10	Equipment, Kitchen Hoods, Walk-in Units, etc.

Scope and Approach

RATINGS, METHODS AND SCORING

To allow Poudre School District more flexibility in prioritizing capital planning efforts, McKinstry has developed the following metrics which assign various scores to each asset.

Asset Condition

Condition ratings are presented for each asset as a score of 1 – 5. Scores are based upon a visual inspection during the building evaluation period. A score of 1 signifies that the asset is in great, “like new” condition. A score of 2 indicates that the asset is in good condition. A score of 3 signifies that the asset is in expected “average” condition based on function and the age of the asset. A score of 4 signifies that the asset is in poor condition, in need of repair, and will require replacement in the near future. A score of 5 signifies that the asset is in very poor or failed condition and in need of imminent replacement.

SCORE	CONDITION ASSESSMENT
1	Asset is in great condition, no action required.
2	Asset is in good condition, regular maintenance expected.
3	Asset is in expected condition, regular replacement/maintenance expected.
4	Asset is in poor condition, maintenance/replacement recommended soon.
5	Asset is in very poor condition, urgent replacement needed.

Student/Teacher Impact

Student/Teacher Impact scores are presented for each asset on a scale of 1 – 5 (low to high impact). This metric considers educational (student and/or teacher) impact caused if the equipment were to fail. Assets serving classrooms and other educational spaces are assigned scores of 2-5 depending on the impact the failure of an asset would have and if backups are available. A student/teacher impact score of 1 indicates that there is little to no impact to educational activities.

SCORE	STUDENT/TEACHER IMPACT
1	Failure poses no significant educational impact.
2	Failure poses low educational impact.
3	Failure poses moderate impact. Asset serves teaching area, but has backup.
4	Failure poses high educational impact.
5	Failure poses severe impact. Asset serves teaching area and has no backup.

Energy Cost Impact

The Energy Impact score is presented for each asset on a scale of 1-5 (low to high impact). Each of the asset types within the scope of this assessment were evaluated based on their impact to energy cost and consumption (including electrical, natural gas, and liquid fuels). Assets with a higher Energy Cost Impact score indicate that the asset has a large contribution to the overall energy costs of the facility. A sample of Energy impact scores is shown below:

Scope and Approach

ASSET TYPE	ASSET SIZE	ENERGY COST IMPACT (1-5)
Air Handling Unit	less than 10,000 CFM	3
	between 10,000 CFM – 50,000 CFM	4
	greater than 50,000 CFM	5
Chiller	less than 200 tons	3
	between 200 – 500 tons	4
	greater than 500 tons	5
Computer Room AC Condensing Unit Heat Pump	less than 10 tons	2
	greater than 10 tons	3
Cooling Tower	less than 200 tons of rejection	2
	greater than 200 tons of rejection	3
Dust Collector	less than 5 HP	2
	between 5 HP and 25 HP	3
	greater than 25 HP	4
Exhaust Fan	less than 5000 CFM	2
	greater than 5000 CFM	3
Fan Coil Unit	greater than 3000 CFM	2
Fuel Fired Boiler	less than 200 MBH	2
	between 200 – 1000 MBH	3
	between 1000 – 2000 MBH	4
	greater than 2000 MBH	5
Furnace	less than 100 MBH	2
	between 100 and 500 MBH	3
	greater than 500 MBH	4
Generator	less than 500 KW	2
	greater than 500 KW	3
Lighting, Exterior	LED	2
	Fluorescent	3
	HID/Incandescent	4
Lighting, Interior	LED	2
	Fluorescent	4
	HID/Incandescent	5
Make-Up Air Unit	less than 5,000 CFM	3
	between 5,000 and 25,000 CFM	4
	greater than 25,000 CFM	5
Pumps	less than 25 HP	2
	between 25 -150 HP*	3
	greater than 150 HP*	4
Return Fan Supply Fan	less than 20 HP	2
	greater than 20 HP*	3

ASSET TYPE	ASSET SIZE	ENERGY COST IMPACT (1-5)
Rooftop Unit	less than 5 ton	2
	between 5 and 20 tons	3
	between 20 and 50 tons	4
	greater than 50 tons	5
Transformer	greater than 200 kVA	2
VFD	greater than 50 HP	2
Air Compressor	All sizes	2
Air Curtain		
Air Dryer		
Cabinet Unit Heater		
Dehumidifier		
Electric Duct Heater		
Humidifier		
Unit Heater		
Unit Ventilator		
Walk-In Condenser		
Walk-In Unit		
All Other	All sizes	1

*Add 1 for direct drive motors

Operational Impact

Operational Impact scores are presented for each asset on a scale of 1 – 5 (low to high impact). This metric considers the operational impact caused if the equipment were to fail. Assets serving critical administrative and district operational spaces are assigned scores of 2-5 depending on the impact the failure of an asset would have and if backups are available. An operational impact score of 1 indicates that there is little to no impact to administrative or operational activities.

SCORE	OPERATIONAL COST IMPACT SCORE
1	Asset has little to no operational impact.
2	Asset has a low level of operational impact.
3	Asset has a moderate operational impact.
4	Asset has a high level of operational impact.
5	Asset has severe operational impact.

Industry Life Expectancy

The designed life expectancy for a given asset is determined using a combination of widely accepted industry standards including ASHRAE and BOMA, as well as a manufacturers' database of equipment life expectancies. This value is expressed in number of years.

Scope and Approach

Observed Remaining Life

The Observed Remaining Life is also expressed in number of years and takes into consideration the function and operating environment of the asset, as well as a determination based upon a visual inspection of the asset. The Observed Remaining Life value may vary from the Design Life value. For example, a secondary heat exchanger that has been well maintained may have an Observed Remaining Life that is greater than the expected Design Life. Likewise, a primary chilled water pump that has not been well maintained, and shows visual signs of premature wear and tear, may have an Observed Remaining Life that is less than the expected Design Life.

Cost Estimating

Based on the constraints of the scope outlined in the contract we have based our asset pricing upon industry standards, RSMeans, and pricing data sourced through McKinstry's construction division. This information is intended to assist in the prioritization and resource allocation associated with maintenance and capital replacement projects. Cost estimates are determined using specific characteristics of each asset (tonnage, motor size, capacity, etc.) along with one of several cost information data sets. Standard equipment warranties are included.

To clarify, all Estimated Replacement Costs include averages of the material cost of the asset, the demolition and installation of that asset type and are expressed in 2023 dollars. Additionally, site specific construction and equipment invoices have been utilized as available.

Costs associated with project design, contractor competence, commissioning, test and balance services and are excluded from the estimate and are the responsibility of the Client. McKinstry assumed a 3% inflation, applied year over year. All work is during normal business hours. For mechanical equipment any duct work, piping, existing appurtenances are to be reused; costs to repair or replace any lines going to or coming from the units is excluded. Existing isolation valves to be used; repair or replacement of isolation valves is excluded.

Costs typically associated with project-specific parameters are excluded and should be added at the discretion of the Client. Such exclusions include risks or contingencies such as asbestos abatement, other hazardous waste abatement, scope changes, design changes, taxes, special wage requirements such as Prevailing Wage rates, warranty management and unknown site conditions. Overtime and after-hours work is excluded. Any necessary structural or electrical upgrades to replace equipment is excluded. Incidental code violations resulting from project scope or execution are excluded. Correction of any existing code violations are excluded. Temporary heating, cooling, ventilation, and power during construction and the warranty period are excluded. Moving of heavy equipment or furniture to complete the work is excluded. Running and terminating new IP drops for equipment is excluded. Any changes to fire and life safety systems for mechanical equipment upgrades is excluded.

Data-Driven Maintenance Approach

Included with the submission of this report is the FCA Data Collection Workbook, which includes all data collected for each asset. The Workbook can be used to quickly sort through equipment and prioritize maintenance and replacement efforts. Additional observations and equipment details are provided within the workbook for each asset.

Scope and Approach

Each asset is classified according to building system, size, capacity, and other standards, as well as ratings of current condition and impact of failure. Such organization and classification facilitate searching and sorting the data for maintenance and replacement priorities. As mentioned, the impact ratings help to compare one asset to another. Based on observed condition and impact scores, the future maintenance priorities for each building are described further in later sections.

As each of the components identified in the workbook is repaired or replaced, the information can be revised to reflect the new conditions. Remaining useful life values can also be manually iterated one year from the assessment date to reflect fewer remaining years of life. Assets no longer in service can be removed from the list. Similarly, assets that have been newly installed can be added to the list. Following the impact guidelines, relative priority can be calculated for these assets.

Equity Index

As an additional metric to the six existing areas of the Facilities Condition Assessment, Poudre School District has created an Equity Index to assist in prioritizing facilities improvement projects. This number takes into account student poverty, students qualifying for ELA services, students qualifying for Special Education services, and students who are homeless. The calculated score for each school is based on these factors and where it falls in relation to the district average. The formula would be:

$$\frac{\textit{School Percentage in these areas added together as decimals}}{\textit{District Percentages in these areas added together as decimals}}$$

In this formula, a school with student needs equal to the district average would have an equity index of 1.0. Schools with student needs higher than the district average would have an Equity Index greater than 1.0. Schools with student needs less than the district average would have an Equity Index less than 1.0.

Category	Equity Index
Low	0.29
High	3.20
Average	1.11
Median	0.95

The equity index for Boltz MS is 1.59.

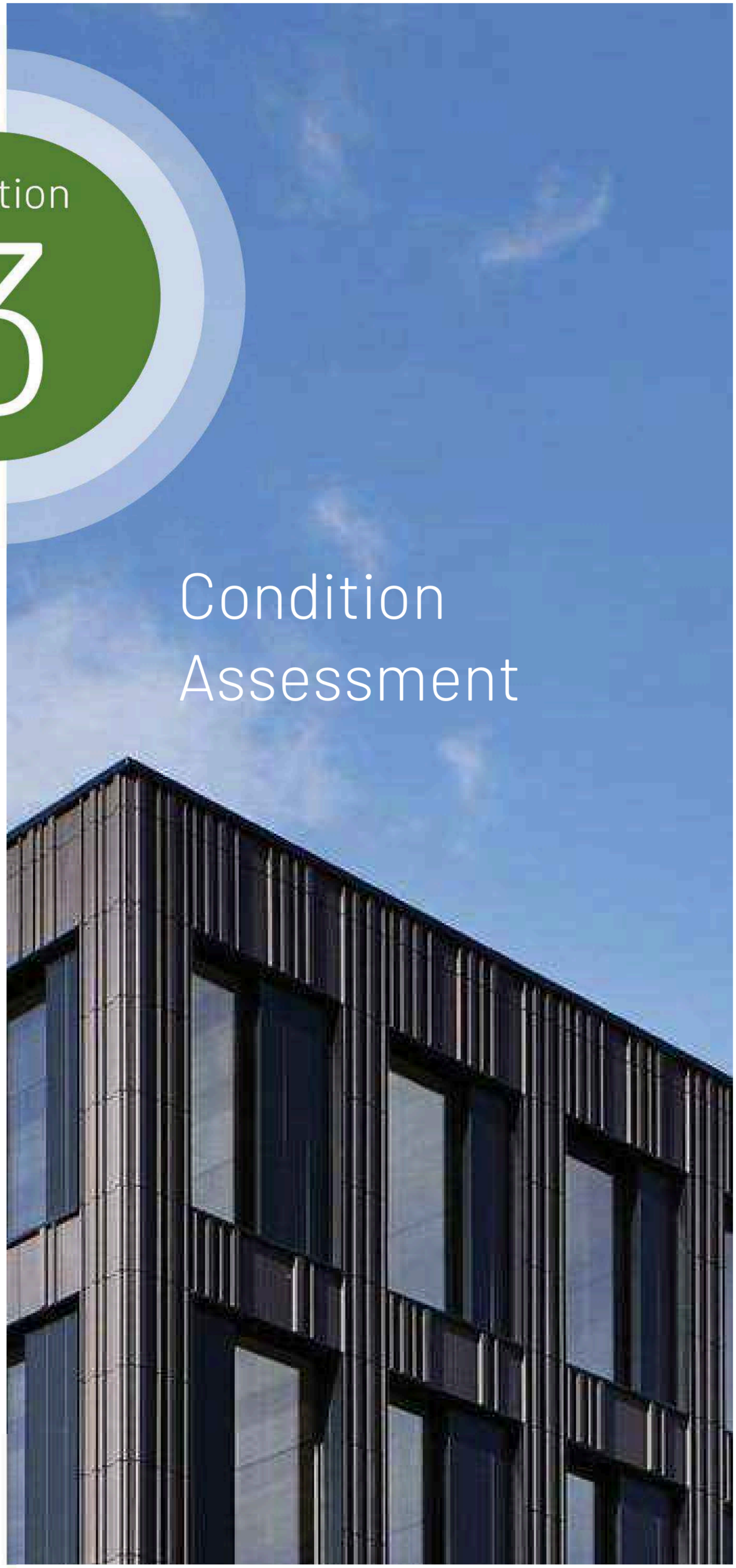
Sample Calculation:

School Name	School Population K-12 Total	F/R	ELL	SPED	McKinney-Vento	Total of Previous Columns	Equity Index Number = school average / district average
Sample	381	15.20%	0.00%	8.40%	0.00%	0.24	0.24/0.48 = 0.49
Grand PSD Total - Oct 2022 Count	**26,163**	**29.5%**	**5.8%**	**9.5%**	**3.4%**	**0.48**	

F/R - Free or Reduced-Price Lunch; ELL- English Language Learners; SPED - Special Ed.; McKinnney-Vento - Homeless Assistance

Section 3

Condition Assessment



Condition Assessment

SYSTEMS DESCRIPTION

This section summarizes the building systems at Boltz MS and describes the general condition observed based on the assessment. Specific findings and recommendations are detailed later in this report.

Exterior Enclosure

The original building was constructed in 1972. Subsequent renovations to the school were completed in 1981, 1987, 1993, 1999, 2001, 2003, 2012, 2013, and 2015. Exterior walls are of brick and mansard standing seam metal. [redacted]

Roofing

The rolled asphalt roofing was replaced in 2004 and has an estimated 6 years of remaining life. [redacted]

Interior Construction and Finishes

The interior construction components of the building, including drywall, brick, and concrete masonry unit (CMU) walls are of varying ages of install. original. The interior doors are primarily of the wood and hollow metal type. Carpeting of three different ages was observed to be in poor condition, and VCT flooring of three different ages [redacted]

Conveyance

As the building is a single story an elevator is not provided.

Electrical and Lighting

The building includes both 120/208V and 277/480V service. Electrical assets, including panelboards, transformers, and the main switchboard are of mixed age of install. The back-up generator was replaced in 2010. Emergency back-up lighting appears to have been updated in 2004. The fire alarm system and the security system were both updated in 2012. Most of the interior lighting fixtures were updated to LED fixtures in 2022. Recommend replacement of the 2012 fluorescent lighting fixtures with LED lighting fixtures in approximately 9 years. [redacted]

HVAC Systems

The HVAC assets include (5) 1972-built AHUs, (14) RTUs, exhaust fans, cabinet unit heaters, and (74) 2014-built VAVs. The (5) AHUs and (7) of the original RTUs were observed to be [redacted] requiring replacement within the year. The heating water system features two 1972-built gas-fired boilers and two 1972-built circulation pumps. A [redacted] The BAS was in the process of being updated from the 1992 NOVAR system to a Long controls system at the time of inspection.

Plumbing

Plumbing assets include a single 1992-built gas-fired water heater [redacted] and two circulation pumps in poor [redacted] Four backflow preventers, and one thermostatic mixing valve are also provided.

Fire Suppression

The fire alarm system was updated in 2012, [redacted]

Equipment

The Kitchen area is provided one walk-in cooler and one walk-in freezer with associated condensing units. Both walk-in units were built in 1996 and have an estimated 5 years of remaining life. The two condensing units were replaced in 2017.

Condition Assessment

PRIORITIES

SPECIFIC PRIORITIES

The top capital measures (up to five max) have been detailed in the following tables. Each measure receives a priority level of 1, 2, or 3. A priority level of 1 indicates that the measure is considered an immediate concern or a potential hazard and should be addressed as soon as possible. A priority level of 2 indicates that the measure is considered urgent, but not a potential hazard or there is a less severe impact to occupants. A priority level of 3 indicates that the assets associated with the measure are nearing end of life, but have not yet failed or have a mild to moderate impact on occupant safety and comfort.

Boltz MS

Wet Fire Sprinkler System

The fire alarm system was updated in 2012, [redacted].

The following assets are included within this measure:

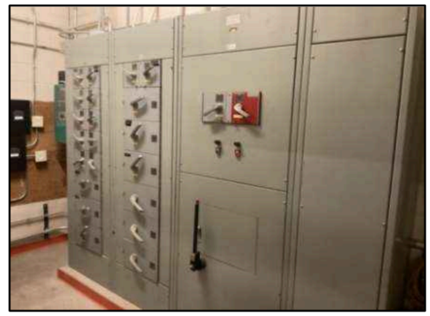
FCAID-080211

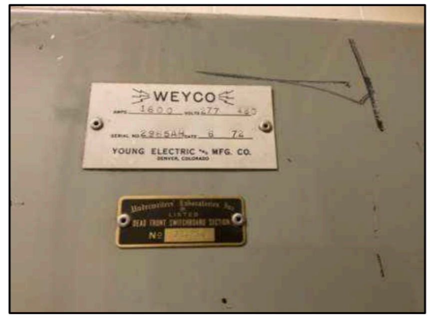
Priority Level:	1
Estimated Cost:	$938,870
Remaining Life:	1 Year

Condition Assessment

1972 Electrical Asset Replacement

[redacted]





The following assets are included within this measure:

FCAID-080241 through FCAID-080245, FCAID-080249, FCAID-080221, FCAID-080223, FCAID-080224, FCAID-080225, FCAID-080228, FCAID-080231, FCAID-080232

Priority Level:	1
Estimated Cost:	$165,740
Remaining Life:	1-2 Years

Boiler & HWP Replacement

The heating water system features two 1972-built gas-fired boilers that are 16 past expected life, and two 1972-built circulation pumps that are 31 years past expected life. [redacted]

The following assets are included within this measure:

FCAID-080117, FCAID-080118, FCAID-080120, FCAID-080120

Priority Level:	1
Estimated Cost:	$419,020
Remaining Life:	1 Year

Condition Assessment

Replace GWH-1, P-3, P-4

Plumbing assets include a single 1992-built gas-fired water heater ([redacted] and two circulation pumps [redacted] P-3 is four years past expected life and P-4 is 11 years past expected life. [redacted]

The following assets are included within this measure:

FCAID-080070, FCAID-080065, FCAID-080066

Priority Level:	2
Estimated Cost:	$87,680
Remaining Life:	1-2 Years

AHU & RTU Replacement

The (5) 1972-built AHUs and (7) of the 1972-built RTUs were observed to be [redacted] requiring replacement within the year. AHUs are 26 year past due and RTUs are 16 years past expected life. Measure includes AHUs 16,5,6,7,8 and RTUs 2,10,11,12,13,14,15.

The following assets are included within this measure:

FCAID-080071 through FCAID-080075, FCAID-080123 through FCAID-080128

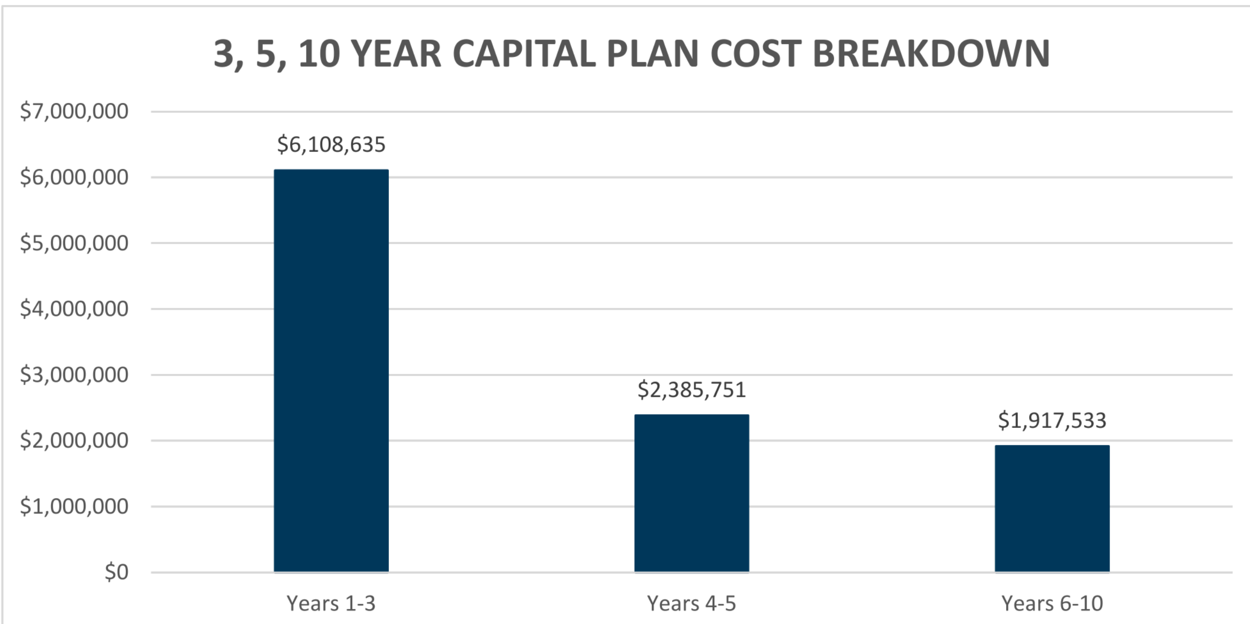
Priority Level:	2
Estimated Cost:	$1,274,930
Remaining Life:	1 Year

Condition Assessment

3-, 5-, 10-YEAR PLANS

The following sections present the expected equipment replacement costs over the next ten years, broken into three separate plans. These plans are the 3-Year Plan, 5-Year Plan, and the 10-Year Plan. Each plan includes the equipment expected to fail during these periods, based on the observed condition of the equipment at the time of the assessment. Note, the 3-Year Plan includes assets failing within the next three years, the 5-Year Plan includes assets failing between four and five years, and the 10-Year Plan includes assets failing between in the next six to ten years from the assessment date.

The chart below presents the total expected replacement costs for each plan. Note that these figures include 3% inflation YOY.



Future Capital Plan

The table below displays replacement costs for the campus, and the number of associated assets expected to fail within the next ten years. Assets requiring replacement or extensive maintenance in this plan are presented in Appendices A, B, and C.

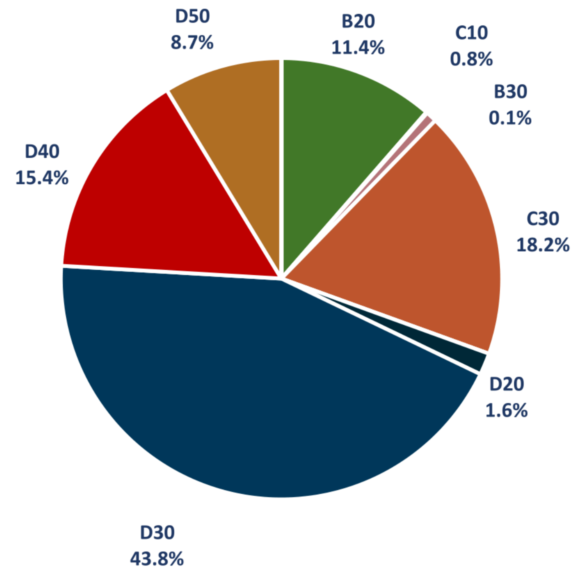
REPLACEMENT PERIOD	ASSET QUANTITY	CUMULATIVE REPLACEMENT COST
3-Year Plan	88	$6,108,635
5-Year Plan	19	$2,385,751
10-Year Plan	100	$1,917,533
Total	**207**	**$10,411,918**

Condition Assessment

3-YEAR PLAN BREAKDOWN

The three-year plan includes the estimated capital expenditure needed to replace assets reaching end of life in years 1-3, or between 2024 and 2026. The sum of the anticipated capital needs is $6,108,635. The specific assets that will reach end of life in this period are listed in Appendix A.

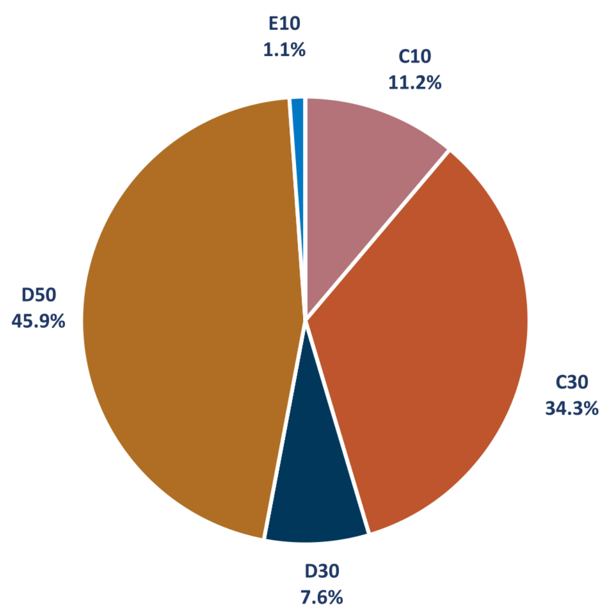
SUBSYSTEM	Years 1-3	Percent
A10 - Foundations	$0	0%
B10 - Superstructure	$0	0%
B20 - Exterior Enclosure	$695,508	11%
B30 - Roofing	$6,005	<1%
C10 - Int. Construction	$47,998	1%
C20 - Stairs	$0	0%
C30 - Interior Finishes	$1,114,698	18%
D10 - Conveying	$0	0%
D20 - Plumbing	$98,487	2%
D30 - HVAC	$2,675,410	44%
D40 - Fire Protection	$938,870	15%
D50 - Electrical	$531,659	9%
E10 - Equipment	$0	0%
G20 - Site Improvements	$0	0%
G40 - Site Electrical	$0	0%



5-YEAR PLAN BREAKDOWN

The five-year plan includes the estimated capital expenditure needed to replace assets reaching end of life in years 4-5, or between 2027 and 2028. The sum of the anticipated capital needs is $2,385,751. The specific assets that will reach end of life in this period are listed in Appendix A.

SUBSYSTEM	Years 4-5	Percent
A10 - Foundations	$0	0%
B10 - Superstructure	$0	0%
B20 - Exterior Enclosure	$0	0%
B30 - Roofing	$0	0%
C10 - Int. Construction	$266,025	11%
C20 - Stairs	$0	0%
C30 - Interior Finishes	$817,198	34%
D10 - Conveying	$0	0%
D20 - Plumbing	$0	0%
D30 - HVAC	$180,752	8%
D40 - Fire Protection	$0	0%
D50 - Electrical	$1,094,628	46%
E10 - Equipment	$27,147	1%
G20 - Site Improvements	$0	0%
G40 - Site Electrical	$0	0%

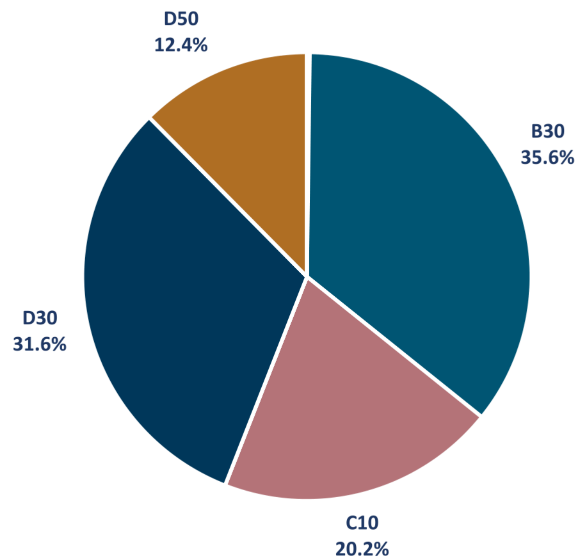


Condition Assessment

10-YEAR PLAN BREAKDOWN

The ten-year plan includes the estimated capital expenditure needed to replace assets reaching end of life in years 6-10, or between 2029 and 2033. The sum of the anticipated capital needs is $1,917,533. The specific assets that will reach end of life in this period are listed in Appendix A.

SUBSYSTEM	Years 6-10	Percent
A10 - Foundations	$0	0%
B10 - Superstructure	$0	0%
B20 - Exterior Enclosure	$3,788	<1%
B30 - Roofing	$682,383	36%
C10 - Int. Construction	$386,755	20%
C20 - Stairs	$0	0%
C30 - Interior Finishes	$0	0%
D10 - Conveying	$0	0%
D20 - Plumbing	$0	0%
D30 - HVAC	$606,412	32%
D40 - Fire Protection	$0	0%
D50 - Electrical	$238,194	12%
E10 - Equipment	$0	0%
G20 - Site Improvements	$0	0%
G40 - Site Electrical	$0	0%



Condition Assessment

PRIORITY SUMMARY

The summary below assigns a composite Overall Priority Score to the campus as of the assessment date. Priority Scores range from 6 (low priority) to 30 (high priority), and are based on asset condition, operating impact, student impact, energy impact, estimated replacement cost, and observed remaining life.

In addition to the Overall Priority Score, each Subsystem category within the site is assigned a Priority Score. This score can differentiate systems that may need more attention than others, due to condition or impact on occupants or operations. Each Subsystem category includes a general narrative section under the Description column.

Future Capital Plan

The Subsystem scores are color coded to reflect the level of priority: ≤12 = Green, 12.1-23.9 = Yellow, ≥24 = Red. Higher priority scores indicate that a system should be considered for maintenance or capital improvements before other systems with lower scores. The rating scale for Priority Score is visualized below.

LOW	MEDIUM-LOW	MEDIUM	MEDIUM-HIGH	HIGH
6	12	18	24	30

PRIORITY SCORE SUMMARY - BOLTZ MS

BOLTZ MS

BUILDING TYPE:	Middle School
YEAR BUILT:	1972
GROSS AREA (SF):	85,120
DATE ASSESSED:	April 17, 2023
PRIORITY SCORE:	**17.7**

SUBSYSTEM:	DESCRIPTION	PRIORITY SCORE
B20 - Ext. Enclosure	The original building was constructed in 1972. Subsequent renovations to the school were completed in 1981, 1987, 1993, 1999, 2001, 2003, 2012, 2013, and 2015. Exterior walls are of brick and mansard standing seam metal. [redacted]	**14.3**
B30 - Roofing	The rolled asphalt roofing was replaced in 2004 and has an estimated 6 years of remaining life. [redacted]	**16.3**
C10 - Int. Construction	The interior construction components of the building, including drywall, brick, and concrete masonry unit (CMU) walls are of varying ages of install. original. The interior doors are primarily of the wood and hollow metal type. Carpeting of three different ages was observed to be in poor condition, and VCT flooring of three different ages was in poor to very poor condition.	**13.3**
C30 - Interior Finishes		**16.3**
D20 - Plumbing	Plumbing assets include a single 1992-built gas-fired water heater [redacted] and two circulation pumps [redacted] Four backflow preventers, and one thermostatic mixing valve are also provided.	**16.3**
D30 - HVAC	The HVAC assets include (5) 1972-built AHUs, (14) RTUs, exhaust fans, cabinet unit heaters, and (74) 2014-built VAVs. The (5) AHUs and (7) of the original RTUs were observed to be [redacted] n requiring replacement within the year. The heating water system features two 1972-built gas-fired boilers and two 1972-built circulation pumps. [redacted] The BAS was in the process of being updated from the 1992 NOVAR system to a Long controls system at the time of inspection.	**21.2**
D40 - Fire Suppression	The fire alarm system was updated in 2012, [redacted]	**24.0**
D50 - Electrical	The building includes both 120/208V and 277/480V service. Electrical assets, including panelboards, transformers, and the main switchboard are of mixed age of install. The back-up generator was replaced in 2010. Emergency back-up lighting appears to have been updated in 2004. The fire alarm system and the security system were both updated in 2012. Most of the interior lighting fixtures were updated to LED fixtures in 2022. Recommend replacement of the 2012 fluorescent lighting fixtures with LED lighting fixtures in approximately 9 years. [redacted]	**19.7**
E10 - Equipment	The Kitchen area is provided one walk-in cooler and one walk-in freezer with associated condensing units. Both walk-in units were built in 1996 and have an estimated 5 years of remaining life. The two condensing units were replaced in 2017.	**15.0**

System priority scored from 6 (lowest priority) to 30 (highest priority) based on condition, operating impact, student/teacher impact, energy impact, estimated replacement cost, and observed remaining life. [≤12 = green, 12-24 = yellow, ≥24 = red]

Appendices

A. 3-YEAR PLAN ASSETS LIST
B. 5-YEAR PLAN ASSETS LIST
C.10-YEAR PLAN ASSETS LIST

Appendix A

APPENDIX A: 3-YEAR PLAN ASSETS LIST

The individual assets associated with the 3-Year Plan are shown below, sorted from highest to lowest priority score. The priority score key is shown below for convenience.

Note that these values represent current replacement costs expressed in 2023 dollar amounts and are not adjusted for inflation.

LOW	MEDIUM-LOW	MEDIUM	MEDIUM-HIGH	HIGH
6	12	18	24	30

The asset ID listed for each entry has been assigned during this assessment and reflects the corresponding asset in the FCA workbook.

BOLTZ MS

ASSET ID	DESCRIPTION	SUBSYSTEM	OBSERVED REMAINING	REPLACEMENT COST	PRIORITY SCORE
FCAID-080072	AHU-5	D30 - HVAC	1	$234,630	27
FCAID-080118	Boiler-2	D30 - HVAC	1	$190,020	27
FCAID-080117	Boiler-1	D30 - HVAC	1	$190,020	27
FCAID-080074	AHU-7	D30 - HVAC	1	$156,420	26
FCAID-080073	AHU-6	D30 - HVAC	1	$184,860	26
FCAID-080075	AHU-8	D30 - HVAC	1	$154,290	26
FCAID-080078	Building Automation System	D30 - HVAC	1	$729,480	24
FCAID-080211	Wet Fire Sprinkler System	D40 - Fire Prot.	1	$938,870	24
FCAID-080124	RTU-11	D30 - HVAC	1	$146,610	23
FCAID-080071	AHU-16	D30 - HVAC	1	$42,660	23
FCAID-080127	RTU-14	D30 - HVAC	1	$65,780	22
FCAID-080132	RTU-2	D30 - HVAC	1	$93,020	22
FCAID-080128	RTU-15	D30 - HVAC	1	$60,120	22
FCAID-080123	RTU-10	D30 - HVAC	1	$65,780	22
FCAID-080126	RTU-13	D30 - HVAC	1	$35,380	21
FCAID-080125	RTU-12	D30 - HVAC	1	$35,380	21
FCAID-080241	Main Switchboard - Section 1 of 3	D50 - Electrical	2	$42,190	20
FCAID-080242	Main Switchboard - Section 2 of 3	D50 - Electrical	2	$42,190	20
FCAID-080243	Main Switchboard - Section 3 of 3	D50 - Electrical	2	$42,190	20
FCAID-080046	Interior Flooring Finishes: Carpet (2008)	C30 - Int. Finishes	2	$864,780	19
FCAID-080012	Exterior Windows: Metal Framed	B20 - Ext. Enclosure	2	$186,380	19
FCAID-080082	CUH-2	D30 - HVAC	2	$8,750	18
FCAID-080084	CUH-4	D30 - HVAC	2	$6,610	18
FCAID-080083	CUH-3	D30 - HVAC	2	$6,610	18
FCAID-080121	P-2	D30 - HVAC	1	$19,490	18
FCAID-080070	GWH-1	D20 - Plumbing	1	$78,420	18

FCAID-080085	CUH-5	D30 - HVAC	2	$6,610	18
FCAID-080081	CUH-1	D30 - HVAC	2	$6,610	18
FCAID-080008	Exterior Doors: Hollow Metal, Double (197	B20 - Ext. Enclosure	2	$178,560	18
FCAID-080131	RTU-18	D30 - HVAC	3	$32,740	18
FCAID-080009	Exterior Doors: Hollow Metal, Double (198	B20 - Ext. Enclosure	2	$178,560	18
FCAID-080120	P-1	D30 - HVAC	1	$19,490	18
FCAID-080214	Emergency Back-Up Lighting	D50 - Electrical	3	$324,310	18
FCAID-080249	Transformer-RR-1	D50 - Electrical	1	$4,310	17
FCAID-080011	Exterior Windows: Aluminum Framed	B20 - Ext. Enclosure	2	$46,600	17
FCAID-080106	EF-30	D30 - HVAC	1	$6,710	17
FCAID-080107	EF-31	D30 - HVAC	1	$6,210	17
FCAID-080013	Exterior Windows: Metal Framed (1993)	B20 - Ext. Enclosure	2	$46,600	17
FCAID-080090	EF-13	D30 - HVAC	1	$6,710	17
FCAID-080104	EF-29	D30 - HVAC	1	$6,710	17
FCAID-080215	Exterior Lighting: Recessed Can, Incandesc	D50 - Electrical	1	$3,030	17
FCAID-080097	EF-2	D30 - HVAC	1	$6,710	17
FCAID-080091	EF-14	D30 - HVAC	1	$8,660	17
FCAID-080100	EF-22	D30 - HVAC	1	$8,660	17
FCAID-080112	EF-8	D30 - HVAC	1	$6,710	17
FCAID-080089	EF-12	D30 - HVAC	1	$8,660	17
FCAID-080113	EF-9	D30 - HVAC	1	$6,710	17
FCAID-080103	EF-28	D30 - HVAC	1	$8,660	17
FCAID-080092	EF-15	D30 - HVAC	1	$8,660	17
FCAID-080105	EF-3	D30 - HVAC	1	$6,710	17
FCAID-080095	EF-18	D30 - HVAC	1	$6,710	17
FCAID-080096	EF-19	D30 - HVAC	1	$8,660	17
FCAID-080108	EF-32	D30 - HVAC	1	$6,710	17
FCAID-080216	Exterior Lighting: Wall Pack, Incandescent	D50 - Electrical	1	$9,700	17
FCAID-080109	EF-33	D30 - HVAC	1	$8,660	17
FCAID-080086	EF-1	D30 - HVAC	1	$6,710	17
FCAID-080110	EF-34	D30 - HVAC	1	$6,710	17
FCAID-080101	EF-25	D30 - HVAC	1	$8,660	17
FCAID-080102	EF-27	D30 - HVAC	1	$8,660	17
FCAID-080098	EF-20	D30 - HVAC	1	$8,660	17
FCAID-080245	Transformer-B-3	D50 - Electrical	2	$4,040	16
FCAID-080231	Panel RA-1	D50 - Electrical	2	$3,000	16
FCAID-080225	Panel LB-1 Section 2	D50 - Electrical	2	$3,270	16
FCAID-080056	Interior Flooring Finishes: VCT (1972)	C30 - Int. Finishes	1	$26,570	16
FCAID-080044	Interior Flooring Finishes: Carpet (1971)	C30 - Int. Finishes	2	$74,550	16
FCAID-080065	P-3	D20 - Plumbing	2	$4,630	16
FCAID-080224	Panel LB-1 Section 1	D50 - Electrical	2	$3,270	16
FCAID-080136	UH-1	D30 - HVAC	1	$4,520	16
FCAID-080228	Panel LC-1	D50 - Electrical	2	$3,270	16
FCAID-080066	P-4	D20 - Plumbing	2	$4,630	16
FCAID-080232	Panel RB-3	D50 - Electrical	2	$3,000	16
FCAID-080068	P-RTU-4 HW Coil	D20 - Plumbing	2	$4,630	16
FCAID-080244	Transformer-B-1	D50 - Electrical	2	$8,740	16

FCAID-080221	Panel EL	D50 - Electrical	2	$3,000	16
FCAID-080010	Exterior Doors: Hollow Metal, Single (1993	B20 - Ext. Enclosure	2	$28,630	16
FCAID-080223	Panel LA-1	D50 - Electrical	2	$3,270	16
FCAID-080020	Roofing: Access Ladder	B30 - Roofing	2	$5,830	16
FCAID-080045	Interior Flooring Finishes: Carpet (1981)	C30 - Int. Finishes	2	$7,460	15
FCAID-080057	Interior Flooring Finishes: VCT (1999)	C30 - Int. Finishes	1	$1,110	15
FCAID-080058	Interior Flooring Finishes: VCT (2004)	C30 - Int. Finishes	2	$22,140	15
FCAID-080038	Interior Windows: Wood Framed	C10 - Int. Construct.	2	$46,600	15
FCAID-080067	P-RTU-12 HW Coil	D20 - Plumbing	3	$4,630	14
FCAID-080076	AS-1	D30 - HVAC	1	$9,860	14
FCAID-080250	Transformer-RR-2	D50 - Electrical	3	$4,040	14
FCAID-080001	Exterior Doors: Coiling Door	B20 - Ext. Enclosure	2	$9,920	14
FCAID-080059	Interior Flooring Finishes: VCT (2008)	C30 - Int. Finishes	3	$83,910	13
FCAID-080061	BFP-RTU-12 Evap	D20 - Plumbing	3	$400	12
FCAID-080062	BFP-RTU-4 Evap	D20 - Plumbing	3	$400	12

Appendix B

APPENDIX B: 5-YEAR PLAN ASSETS LIST

The individual assets associated with the 5-Year Plan are shown below, sorted from highest to lowest priority score. The priority score key is shown below for convenience.

Note that these values represent current replacement costs expressed in 2023 dollar amounts and are not adjusted for inflation.

LOW	MEDIUM-LOW	MEDIUM	MEDIUM-HIGH	HIGH
6	12	18	24	30

The asset ID listed for each entry has been assigned during this assessment and reflects the corresponding asset in the FCA workbook.

BOLTZ MS

ASSET ID	DESCRIPTION	SUBSYSTEM	OBSERVED REMAINING LIFE	REPLACEMENT COST	PRIORITY SCORE
FCAID-080218	Fire Alarm System	D50 - Electrical	4	$663,080	23
FCAID-080240	Security System	D50 - Electrical	4	$324,650	21
FCAID-080122	RTU-1	D30 - HVAC	4	$72,910	19
FCAID-080130	RTU-17	D30 - HVAC	5	$31,160	17
FCAID-080129	RTU-16	D30 - HVAC	5	$31,160	17
FCAID-080024	Interior Doors: Hollow Metal, Double (197	C10 - Int. Construct.	5	$119,040	16
FCAID-080254	Walk-In Freezer	E10 - Equipment	5	$12,060	15
FCAID-080253	Walk-In Cooler	E10 - Equipment	5	$12,060	15
FCAID-080026	Interior Doors: Hollow Metal, Single (1972	C10 - Int. Construct.	5	$57,260	15
FCAID-080043	Interior Ceiling Finishes: Acoustic Tile (200	C30 - Int. Finishes	5	$726,070	15
FCAID-080246	Transformer-C20	D50 - Electrical	4	$4,310	14
FCAID-080111	EF-4	D30 - HVAC	4	$6,710	14
FCAID-080099	EF-21	D30 - HVAC	4	$6,710	14
FCAID-080115	ET-2	D30 - HVAC	5	$7,230	13
FCAID-080116	ET-3	D30 - HVAC	5	$7,230	13
FCAID-080217	Exterior Lighting: Wall Pack, LED	D50 - Electrical	4	$9,700	12
FCAID-080036	Interior Windows: Steel Framed (1972)	C10 - Int. Construct.	5	$46,600	12
FCAID-080028	Interior Door: Accordion	C10 - Int. Construct.	5	$9,540	11
FCAID-080049	Interior Ceilings: Drywall (1972)	C10 - Int. Construct.	5	$3,920	11

Appendix C

APPENDIX C: 10-YEAR PLAN ASSETS LIST

The individual assets associated with the 10-Year Plan are shown below, sorted from highest to lowest priority score. The priority score key is shown below for convenience.

Note that these values represent current replacement costs expressed in 2023 dollar amounts and are not adjusted for inflation.

LOW	MEDIUM-LOW	MEDIUM	MEDIUM-HIGH	HIGH
6	12	18	24	30

The asset ID listed for each entry has been assigned during this assessment and reflects the corresponding asset in the FCA workbook.

BOLTZ MS

ASSET ID	DESCRIPTION	SUBSYSTEM	OBSERVED REMAINING LIFE	REPLACEMENT COST	PRIORITY SCORE
FCAID-080219	Interior Lighting: Fluorescent	D50 - Electrical	9	$84,210	20
FCAID-080016	Roofing: Rolled Asphalt	B30 - Roofing	6	$577,110	17
FCAID-080077	Back-Up Generator	D50 - Electrical	7	$84,540	16
FCAID-080025	Interior Doors: Hollow Metal, Double (198	C10 - Int. Construct.	8	$119,040	15
FCAID-080087	EF-10	D30 - HVAC	9	$39,340	14
FCAID-080080	CU-2 Walk-In Freezer	D30 - HVAC	9	$5,030	14
FCAID-080079	CU-1 Walk-In Cooler	D30 - HVAC	9	$5,030	14
FCAID-080235	Panel RE-2	D50 - Electrical	6	$3,000	13
FCAID-080229	Panel LE-1	D50 - Electrical	6	$3,270	13
FCAID-080021	Interior Walls: Drywall (1972)	C10 - Int. Construct.	6	$130,700	13
FCAID-080019	Roofing: Access Ladder	B30 - Roofing	6	$2,920	13
FCAID-080234	Panel RE-1	D50 - Electrical	6	$3,000	13
FCAID-080027	Interior Doors: Hollow Metal, Single (1981	C10 - Int. Construct.	8	$19,090	13
FCAID-080236	Panel RE-3	D50 - Electrical	6	$3,000	13
FCAID-080239	Panel RR-2	D50 - Electrical	6	$3,000	13
FCAID-080238	Panel RR-1	D50 - Electrical	6	$3,000	13
FCAID-080205	VAV-9-4	D30 - HVAC	9	$6,600	11
FCAID-080189	VAV-7-10	D30 - HVAC	9	$5,280	11
FCAID-080181	VAV-5-8	D30 - HVAC	9	$3,960	11
FCAID-080142	VAV-15-1	D30 - HVAC	9	$6,600	11
FCAID-080197	VAV-7-9	D30 - HVAC	9	$5,280	11
FCAID-080143	VAV-15-2	D30 - HVAC	9	$3,340	11
FCAID-080230	Panel LF-1	D50 - Electrical	10	$3,600	11
FCAID-080144	VAV-15-3	D30 - HVAC	9	$3,340	11
FCAID-080185	VAV-6-1C	D30 - HVAC	9	$9,680	11

FCAID-080145	VAV-15-4	D30 - HVAC	9	$3,340	11
FCAID-080193	VAV-7-5	D30 - HVAC	9	$7,920	11
FCAID-080146	VAV-15-5	D30 - HVAC	9	$6,600	11
FCAID-080201	VAV-8-4	D30 - HVAC	9	$7,920	11
FCAID-080147	VAV-2-1	D30 - HVAC	9	$3,340	11
FCAID-080209	VAV-9-8	D30 - HVAC	9	$6,600	11
FCAID-080148	VAV-2-2	D30 - HVAC	9	$5,280	11
FCAID-080141	VAV-1-5	D30 - HVAC	9	$5,280	11
FCAID-080149	VAV-2-3	D30 - HVAC	9	$5,280	11
FCAID-080183	VAV-6-1A	D30 - HVAC	9	$9,680	11
FCAID-080150	VAV-2-4	D30 - HVAC	9	$5,280	11
FCAID-080187	VAV-6-3	D30 - HVAC	9	$7,920	11
FCAID-080151	VAV-2-5	D30 - HVAC	9	$5,280	11
FCAID-080191	VAV-7-3	D30 - HVAC	9	$6,600	11
FCAID-080152	VAV-2-6	D30 - HVAC	9	$5,280	11
FCAID-080195	VAV-7-7	D30 - HVAC	9	$5,280	11
FCAID-080153	VAV-3-1	D30 - HVAC	9	$6,600	11
FCAID-080199	VAV-8-2	D30 - HVAC	9	$9,680	11
FCAID-080154	VAV-3-2	D30 - HVAC	9	$9,680	11
FCAID-080203	VAV-9-2	D30 - HVAC	9	$5,280	11
FCAID-080155	VAV-3-3	D30 - HVAC	9	$6,600	11
FCAID-080207	VAV-9-6	D30 - HVAC	9	$2,200	11
FCAID-080156	VAV-3-4	D30 - HVAC	9	$6,600	11
FCAID-080037	Interior Windows: Steel Framed (1981)	C10 - Int. Construct.	8	$46,600	11
FCAID-080157	VAV-3-5	D30 - HVAC	9	$7,920	11
FCAID-080139	VAV-1-3	D30 - HVAC	9	$5,280	11
FCAID-080158	VAV-4-1	D30 - HVAC	9	$3,340	11
FCAID-080180	VAV-5-7	D30 - HVAC	9	$5,280	11
FCAID-080159	VAV-4-10	D30 - HVAC	9	$3,960	11
FCAID-080182	VAV-5-9	D30 - HVAC	9	$3,340	11
FCAID-080160	VAV-4-11	D30 - HVAC	9	$3,960	11
FCAID-080184	VAV-6-1B	D30 - HVAC	9	$9,680	11
FCAID-080161	VAV-4-12	D30 - HVAC	9	$3,960	11
FCAID-080186	VAV-6-2	D30 - HVAC	9	$9,680	11
FCAID-080162	VAV-4-13	D30 - HVAC	9	$3,340	11
FCAID-080188	VAV-7-1	D30 - HVAC	9	$5,280	11
FCAID-080163	VAV-4-14	D30 - HVAC	9	$2,200	11
FCAID-080190	VAV-7-2	D30 - HVAC	9	$6,600	11
FCAID-080164	VAV-4-2	D30 - HVAC	9	$3,340	11
FCAID-080192	VAV-7-4	D30 - HVAC	9	$7,920	11
FCAID-080165	VAV-4-3	D30 - HVAC	9	$3,340	11
FCAID-080194	VAV-7-6	D30 - HVAC	9	$5,280	11
FCAID-080166	VAV-4-4	D30 - HVAC	9	$5,280	11
FCAID-080196	VAV-7-8	D30 - HVAC	9	$5,280	11
FCAID-080167	VAV-4-5	D30 - HVAC	9	$3,960	11
FCAID-080198	VAV-8-1	D30 - HVAC	9	$9,680	11
FCAID-080168	VAV-4-6	D30 - HVAC	9	$5,280	11

FCAID-080200	VAV-8-3	D30 - HVAC	9	$7,920	11
FCAID-080170	VAV-4-8	D30 - HVAC	9	$2,200	11
FCAID-080202	VAV-9-1	D30 - HVAC	9	$7,920	11
FCAID-080237	Panel RF-1	D50 - Electrical	10	$3,600	11
FCAID-080204	VAV-9-3	D30 - HVAC	9	$2,200	11
FCAID-080015	Roofing: Metal Flashing	B30 - Roofing	6	$5,480	11
FCAID-080206	VAV-9-5	D30 - HVAC	9	$5,280	11
FCAID-080173	VAV-5-1B	D30 - HVAC	9	$7,920	11
FCAID-080208	VAV-9-7	D30 - HVAC	9	$5,280	11
FCAID-080174	VAV-5-1C	D30 - HVAC	9	$7,920	11
FCAID-080210	VAV-9-9	D30 - HVAC	9	$3,340	11
FCAID-080175	VAV-5-2	D30 - HVAC	9	$6,600	11
FCAID-080137	VAV-1-1	D30 - HVAC	9	$5,280	11
FCAID-080176	VAV-5-3	D30 - HVAC	9	$6,600	11
FCAID-080138	VAV-1-2	D30 - HVAC	9	$5,280	11
FCAID-080177	VAV-5-4	D30 - HVAC	9	$5,280	11
FCAID-080140	VAV-1-4	D30 - HVAC	9	$5,280	11
FCAID-080178	VAV-5-5	D30 - HVAC	9	$6,600	11
FCAID-080179	VAV-5-6	D30 - HVAC	9	$5,280	11
FCAID-080171	VAV-4-9	D30 - HVAC	9	$3,960	11
FCAID-080172	VAV-5-1A	D30 - HVAC	9	$7,920	11
FCAID-080169	VAV-4-7	D30 - HVAC	9	$6,600	11
FCAID-080003	Exterior Walls: Wood Soffit	B20 - Ext. Enclosure	8	$3,080	10
FCAID-080119	Gas Meter	D30 - HVAC	6	$3,430	10
FCAID-080050	Interior Ceilings: Drywall (1981)	C10 - Int. Construct.	8	$3,270	10
FCAID-080022	Interior Walls: Drywall (1981)	C10 - Int. Construct.	8	$3,270	10
FCAID-080017	Roofing: Roof Hatches	B30 - Roofing	6	$3,120	10
FCAID-080063	Bypass Feeder-1	D30 - HVAC	8	$750	9