Groundwork for a brighter future



Northbrook School District 28
Facilities Assessment

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Northbrook School District 28

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Northbrook School District 28

Executive Summary

Introduction

Northbrook School District 28 commissioned DLA Architects, Ltd. in February of 2023 to complete a comprehensive Master Facilities Plan for their four schools: Greenbriar Elementary School, Meadowbrook Elementary School, Westmoor Elementary School, and Northbrook Junior High School.

A Master Facilities Plan provides a tool for Northbrook School District 28 to plan their future expenditures to maintain and provide adequate space for their learning environments. Each facility was reviewed for the Master Plan on multiple levels:

1. Facilities Assessment
2. Curriculum Method Review
3. Capacity Study
4. Security Review

The Master Plan was conducted by DLA Architects and 20/10 Engineering Group staff, which includes electrical, mechanical, and plumbing engineers. The school sites were reviewed by Gewalt Hamilton, civil engineers, and Allegion Security. Applied Population Laboratory, University of Wisconsin-Madison, performed the demographic study.

The Facilities Assessment report

The Facilities Assessment identifies building systems and assemblies that, over time, will require replacement. It also identifies any deficiencies that need to be corrected to meet current codes but, if not updated, might be a detriment to the practical use of the facilities. The review was to include each building and its physical condition, including architectural, mechanical, electrical, and plumbing, with a detailed review of the roofs, the state of each site, including parking lots and playgrounds, and the general overall security of each building and its site.

The Curriculum Study

The Curriculum Study reviewed the District's needs and wants for current and future educational delivery systems and teaching methodologies. This information can be used in the future to give direction in designing new spaces that the District might need.

The Capacity Study

The Capacity Study reviews each school to determine how many students each can comfortably house. The number of students is based on the maximum number of students the District allows in a classroom and then the size and number of classrooms. This information is used to determine whether additional teaching space is required. As a supplement to the capacity of the schools, a utilization study is also performed. Look at the total number of teaching spaces and then analyze the use of those spaces to see if they are being used efficiently. A demographic study was also performed, looking at the next five years to determine if the community's future population would significantly impact the District's capacity to house future students.

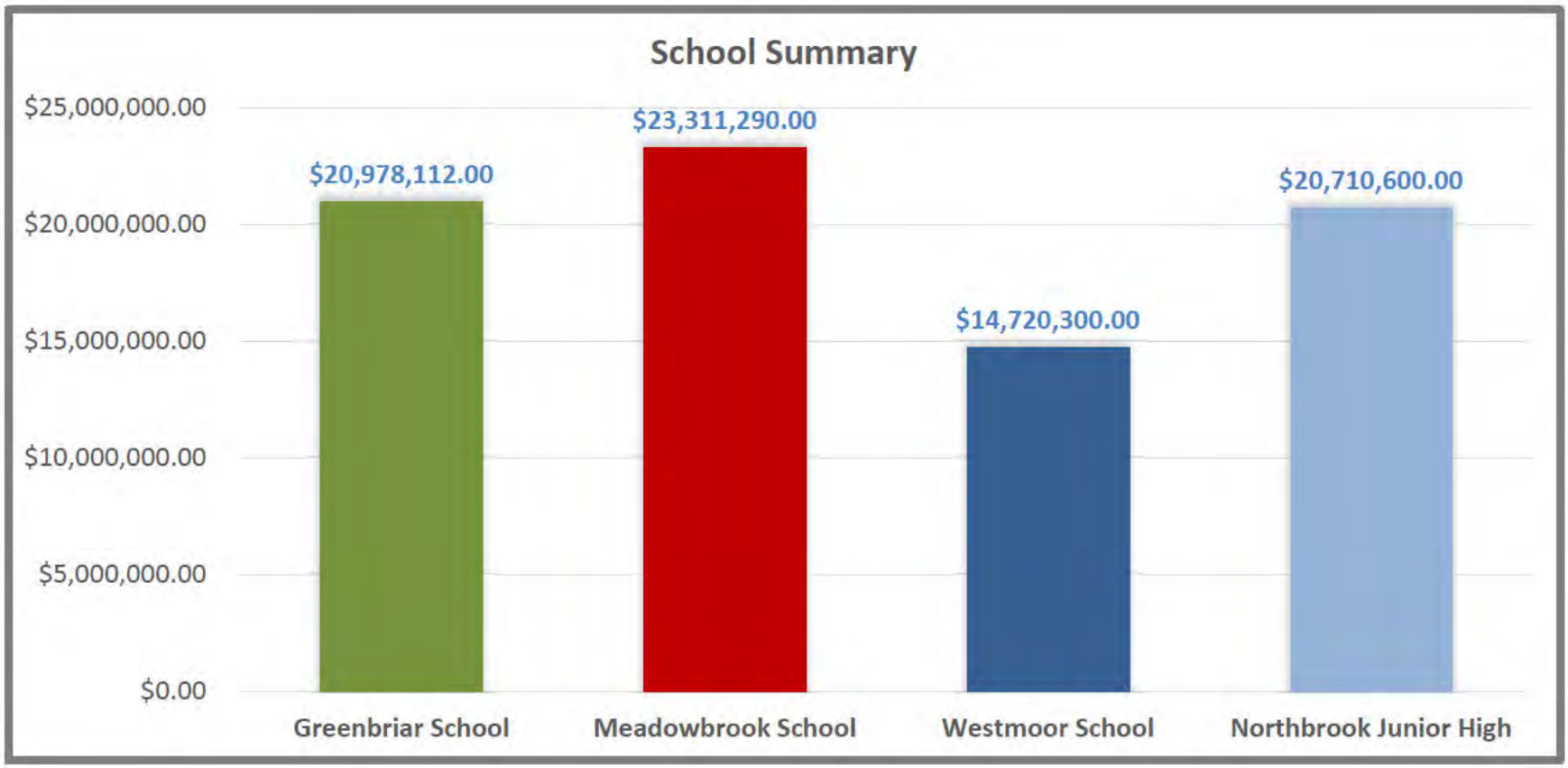
Facilities Conditions Overview

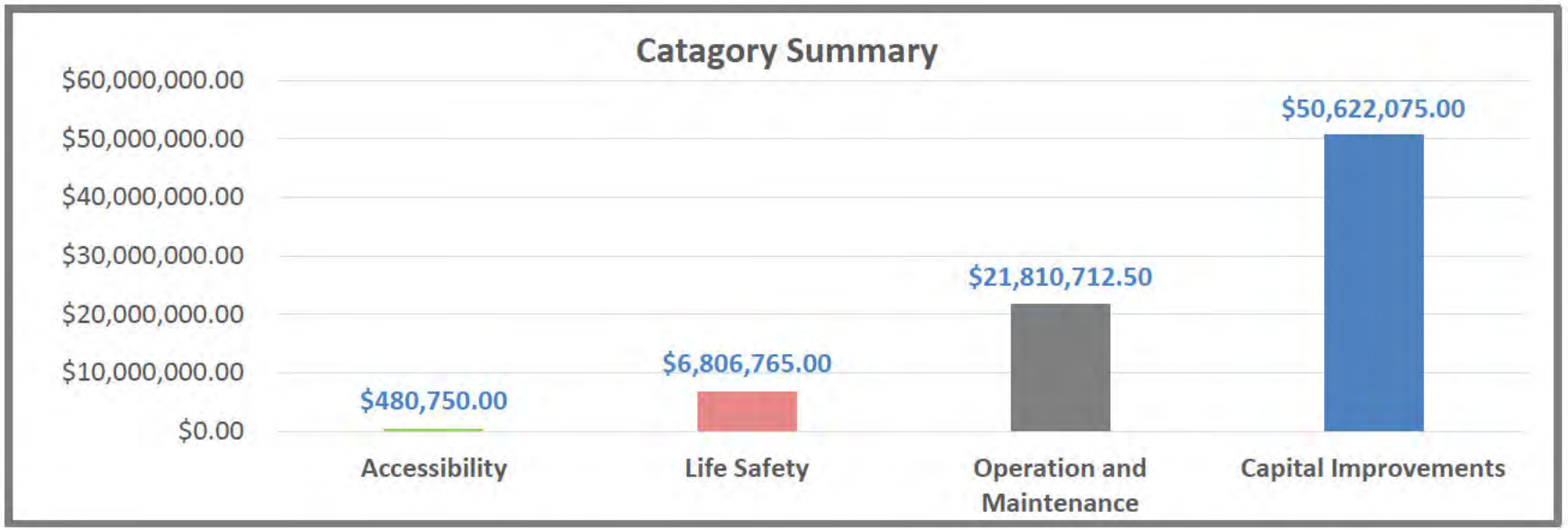
The physical assessment report included visual non-destructive inspection of the facilities, interviews with the maintenance personnel, and analysis of existing documentation. The assessment included items that the team identified as needing repair, modification, or replacement as necessary to preserve the existing facilities and enhance the safety and longevity of the facilities. It also includes any capital improvement projects which were discovered to be needed.

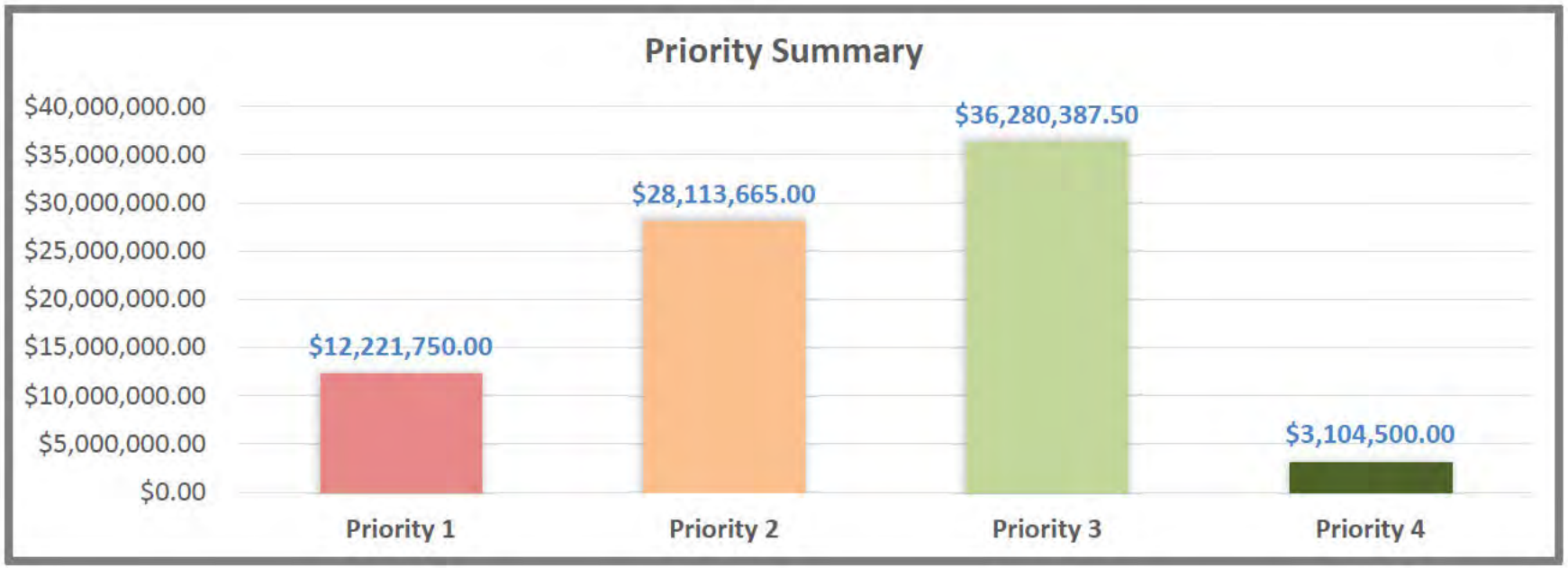
Even though a complete code review was not performed, if recognized, deficiencies not in compliance with the school code were included in this report. This assessment should not be considered a code review, life safety survey, life safety amendment, ADA compliance survey, or asbestos survey.

Below are summary charts showing the total costs by school and separated by category and priorities. An itemized listing with costs is included later in this report.

Facilities Assessment Report Cost Summary – Total $79,720,302




Catagory Summary
$60,000,000.00
$50,000,000.00
$40,000,000.00
$30,000,000.00
$20,000,000.00
$10,000,000.00
$0.00
$480,750.00
$6,806,765.00
$21,810,712.50
$50,622,075.00
Accessibility
Life Safety
Operation and Maintenance
Capital Improvements


Priority Summary
$40,000,000.00
$35,000,000.00
$30,000,000.00
$25,000,000.00
$20,000,000.00
$15,000,000.00
$10,000,000.00
$5,000,000.00
$0.00
$12,221,750.00
$28,113,665.00
$36,280,387.50
$3,104,500.00
Priority 1
Priority 2
Priority 3
Priority 4

Curriculum Study

The Curriculum Study allows DLA Architects to understand better the District's needs and desires for their educational spaces for any future spaces created. Natural light was expressed by most of the participants, with the students liking small nooks where they could find privacy and comfort for studying or reading. It was discovered that teachers were using the corridors as breakout learning spaces and that they would like to continue that practice and have a more accommodating way to do this. It was noted that building finishes and colors were essential in providing an inviting place for the students to learn. They wanted to improve carpeting, lockers, and the general color schemes of their schools. All expressed that safety and security were a top issue. There was a desire to provide classroom flexibility and minimize class sizes.

Capacity Study

Our room capacity study shows that most of the teaching classrooms in all the schools are within their traditional capacity, with possible flexibility in student numbers in each teaching classroom to allow more students per school in the future if needed.

Student Capacities

	Existing Population	Current Functional Capacity	Current Practical Capacity	Remaining Capacity
Greenbriar Elementary School	315	408	535	93
Meadowbrook Elementary School	453	515	626	62
Westmoor Elementary School	377	387	632	10
Northbrook Junior High School	638	682	731	44
Total	**1,783**	**1,992**	**2,524**	**209**

The schools seem adequate in their teaching spaces but lack space for their instructional support spaces. This lack of space could be due to the original design, the changing of programs, or new programs that have been added over the years. Most of the building's space needs include Specials, Itinerant Offices, and spaces specifically for Music instruction. The review of the teaching classrooms' utilization shows that the ratio is between 65% and 70%, which is well within the range of the regular scheduling for an efficiently programmed school, which should be no more than 85%.

Extra spaces needed at each school include Greenbriar Elementary School, which needs a more extensive cafeteria/gym and a substantial increase in toilet rooms for the lower and second floors. Meadowbrook Elementary School requires more space for its cafeteria and gymnasium, while Westmoor Elementary School needs more room for science and art and additional toilet rooms spread throughout the school. Northbrook Junior High School cafeteria is not adequately sized, and its location is inefficient.

The Demographics Study shows that grades K to 5 could increase by 133 students in five years while grades 6 to 8 could increase by a minimal amount of 12. These numbers do consider the impact of the Northbrook Court development. The development raises the 5-year maximum projections for K to 5 by 44 students, while grades 6 to 8 are increased by 22.

Student Projections

	Existing Population	Projected Max Population	Existing Max Capacity	Remaining Capacity
Grades K to 5	1,124	1,257	1310	53
Grades 6 to 8	631	643	682	39
Total				**92**

The Physical Security Assessment report

The Physical Security Assessment report identifies areas in the buildings where security can be improved. Recommendations included [redacted]

Conclusion

We want to stress that this Master Plan Assessment is just the start of a continuous planning process or a Long-Range Plan for your District. Now that this first stage is completed, conversations and decisions need to be made on the direction the District wants to go based on the information in this report. We will continue assisting the District as we proceed with this process. We recommend that once a primary goal and direction have been established, this document be reviewed regularly with periodic updates to summarize decisions made and to work that needs to be done.

Northbrook School District 28

Statement of Purpose

Introduction

Completing a District-wide Facility Assessment study is a stepping stone for developing a comprehensive plan for future needs and budget expenditures. The Assessment Study is a significant component of the District's Long Range Plan. Along with curriculum, demographic issues, and future program needs, the study becomes a working document for helping to manage and maintain the District's facilities in good working order, balanced with the required long-term expenditures.

Our study has found that the facilities are well cared for, exceptionally clean, and regularly maintained – a tribute to your teachers, students, and maintenance staff. While the facilities are well managed, the fact remains that there are significant infrastructure and building components that are aging and will require considerable renovation and replacement in the coming years.

It has been documented that the quality of educational space can directly reflect how well students can focus and learn within their classroom. Poor environments, with deficient heating and air conditioning, poor lighting, bad acoustics, or simply too cluttered, inhibit learning and teaching.

The study's goal centers around these facility needs, anticipating renovations and additions and replacing equipment before major failures occur. There is no question that systems can be repaired to "get a bit more life" out of the system; however, the point of diminishing returns makes these repairs more and more costly and ultimately not capable of renovation.

The process and priority of those renovations are things that the Board of Education, District administration, and DLA Architects will be working together on developing. We remain

active in helping establish a renovation program that best meets the District's goals and philosophical approach. In this manner, all Northbrook School District 28 students and teachers will benefit.

Study Protocol

Our study has entailed ongoing tours of your facilities by a team of architects and engineers. In addition, the team examined existing drawings of your buildings. Our goal was to investigate the significant components of each facility to determine their age and condition and develop a process of review and, ultimately, implementation of the recommendations.

The study did not include destructive testing or a "take apart" of the buildings. However, windows, walls, roofs, mechanical, electric, and plumbing infrastructure were reviewed and examined. In addition, on-site interviews were made to discuss the buildings with the District's Buildings and Grounds personnel and administration. We aim to combine the design team's expertise with those who best know the building. This synergy is integral to a comprehensive report.



When the report was reviewed, many options were discussed, including longevity issues and life cycle costs, particularly with the mechanical, electrical, and plumbing portions. These options allow the District to determine the best solution for each school, including the best program for long-term comfort for the students and staff and which solution provides the best energy savings versus initial cost.

Completing the Assessment Study is an opportunity to make the administration and Board of Education more aware of significant factors and concerns within each facility and the anticipated costs for these work items. In this manner, the

Board of Education will be better able to plan for these critical expenditures necessary to maintain a quality educational facility for the District.

Rationale

The rationale for proceeding with recommendations efforts, either remodeling or additions, is based upon four categories:

CAP	Capital Improvement
LS	Ten-Year Survey Item
O/M	Operations and Maintenance
ADA	Accessibility



Priority

Each line item is prioritized in order of attention for repair or replacement as follows:

1. HIGH (1): Items needing immediate attention to maintain each facility's safety, health, and operation based upon current condition.
2. MEDIUM (2): Items needing attention to ensure efficient energy use in each facility. They may be currently in acceptable condition, but it is projected, based on life cycle length, that the item will require replacement.
3. LOW (3): Items may be acceptable but are recommended upgrades or renovations.
4. RECOMMEND (4): Items are in good condition but are to be planned for future upgrades or replacements.

Estimate Cost

The projected estimated cost for each item in the individual school sections is based on 2023 estimated costs and is not escalated to account for inflation. This cost reflects labor and material, as well as A/E fees.

Northbrook School District 28

Facilities Assessment Summary

Purpose

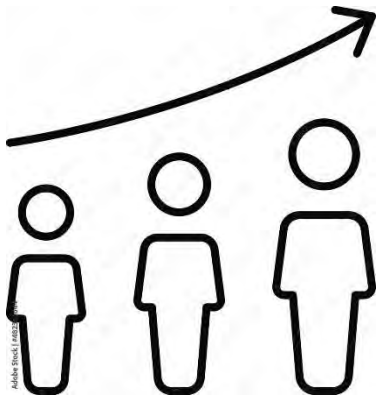
The District has been experiencing the need for improvements to its current facilities. Some of these needs are obvious and can be observed walking through the buildings, while other facility deficiencies need a deeper look and review. A few apparent items in all the buildings include replacing deteriorated doors, remodeling toilet rooms, needing additional toilet rooms, remodeling and expanding cafeterias, and adding Itinerant offices, "specialty" spaces, and storage. There was a general feeling among the educational staff that their classrooms could be improved by configuration, location, and size to enable them to deliver their curriculum delivery method goals more productively.

The objective was to equip the District with comprehensive supporting information, enabling them to make informed decisions on facility needs. By scrutinizing the buildings in their entirety, including aspects beyond the visibly problematic areas, the District sought to avoid investing substantial funds solely in capital improvement projects that address apparent issues. The rationale behind this approach was grounded in fiscal responsibility and the strategic foresight of understanding the costs associated with maintaining the operation and function of their facilities for the future.



The physical assessment of the buildings, including the surrounding grounds, was to determine if any deficiencies required attention and, if so, what type of funds would be necessary to correct those deficiencies.

The review of each of their building's ability to accommodate today's educational needs not only included analyzing them to see if they were handling the current population and curriculum demands comfortably but also to see how the existing buildings might accommodate the impact of any future curriculum changes, new teaching methodologies, technology and the possibility of any prospective student population growth.



Summary

Several deficiencies discovered would not be uncommon in schools of the age found in this District. Finishes worn, worn-out building components and mechanical systems beyond their useful life. Several buildings had space needs, including a possible expansion of the existing facilities and the remodeling of existing spaces.

It would be premature to provide specific details on the work items found in this report for capital improvement and systems upgrade work items. Only when the District has had a chance to review the results of this report in its entirety would we suggest that we move forward with any solutions that might be available for any issues that have been discovered. That said, we have included examples of what is possible with what you currently have (existing sites and buildings) to accommodate some of the needs we saw in this report. These needs could

be accommodated in other ways, which is why discussions between administration, staff, and facilities personnel need to occur with DLA Architects before moving forward with any actual plan. That is why we consider this report to be a working document. As such, the information in this report should be subject to annual reviews by the District and DLA Architects and updated periodically as a part of the District's overall long-range planning efforts.









Northbrook School District 28

School Floor Plans

Purpose

The floor plans of all four schools within the district include. Each plan is colored coded to represent the use of each space at the time of the survey and labeled as currently used. Over time, the use of the spaces in each school has changed as necessary due to enrollment changes, and in some cases, the rooms are not designed for the current function. The rooms and room numbers are labeled to be used as a reference to the work matrix schedule for each school.

Northbrook School District 28

Work Matrix

Purpose

The following Matrices provide an anticipated scope of work and cost estimate to bring each facility to a minimum standard for their educational environments. The list includes architectural and engineering work for both exterior and interior. Major programs and curriculum enhancement possibilities have briefly been mentioned in this report to give a concept of the curriculum's impact on upgrading your existing buildings. These indicated changes will be reviewed further once the utilization part of this report has been discussed. Once discussed, the team should review the priorities of all work within the schools based on discussions made from the utilization reports.

While comprehensive in nature, it is not out of the realm that additional items may be added to this list each year as building functions change and new items are uncovered.

Each item listed is numbered for easier identification. In addition, representative photographs are added at the end of the Matrix for each school for a broad scope of the anticipated work. As the District prioritizes work in the coming years, the remaining work items and numbers should remain constant. In this manner, a benchmark of work that is yet to be done will have a comparison to the new work that is added to the list. Below is a summary of improvement items that would benefit each building per the walkthrough and discussion with the Administration and staff.

Observation

There is a preference to bring in natural light throughout the spaces of each school but also to provide nook areas for students to cuddle up and read. The carpeting needs to be updated throughout the District, or a different flooring material can be explored. It's evident that security and safety are essential throughout the District and can be reviewed for improvement and updating at all facilities. The toilet rooms at all buildings are outdated and many do not meet current accessibility requirements, so it's recommended to remodel a majority of the toilet rooms and add more to some buildings.

The cafeterias at the facilities need an upgrade or new ones constructed. The cafeteria at Northbrook Junior High is small and dark, while the cafeteria at Greenbrier is half of an old gym shared with instructional space and separated by a curtain. At Meadowbrook, the multipurpose room and gym spaces are used as each building's cafeteria but do not provide enough space. Additions to the elementary schools and remodeling within the Junior High would help provide adequate ancillary spaces, cafeteria spaces, gymnasium spaces, toilet room facilities, and additional classroom spaces.

Greenbriar Elementary School

Proposed Work Matrix

Project 2023.016

December 11, 2023

#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
01	Kindergarten 004, Kindergarten 005	Interior	O&M	Casework	3	Need casework- currently using old furniture	100	L.F.	$550.00	$55,000.00
02	Classroom 204	Interior	O&M	Doors	1	Door doesn't latch closed. Replace hardware	1	Ea.	$2,000.00	$2,000.00
03	Classrooms 201, 203, 204, 205, 206, 212, 213	Interior	LS	Doors	2	Door projects >7" into the corridor in fully opened position- recess doors	7	Ea.	$10,000.00	$70,000.00
04	Room 208A	Interior	LS	Doors	3	Wired glass in door. Replace glass.	2	S.F.	$75.00	$150.00
05	Restroom 224	Interior	CAP	ADA	2	Toilet room does not meet ADA requirements and needs to be remodeled	100	S.F.	$285.00	$28,500.00
06	Baseball field	Ext Build/Site	CAP	Other	3	Needs work, replace rusted items, clean up grass and dirt. Needs update	1,750	S.Y.	$14.00	$24,500.00
07	Lower Level and Second Floor	Interior	CAP	Other	3	Lower level and the second floor do not have toilet rooms. Remodel lower level and a classroom on the second floor to provide toilet rooms and build an addition to include classrooms lost to the toilet rooms. Include needed itinerant spaces.	14,000	S.F.	$475.00	$6,650,000.00
08	Art Room	Interior	O&M	Doors	2	Wood door and frame separate art and music. Install new door and frame	1	Ea.	$3,400.00	$3,400.00
09	Art Room	Interior	LS	Door	1	Door swings opposite of egress travel. Replace door and frame	1	Ea.	$3,400.00	$2,500.00

Greenbriar Elementary School

Proposed Work Matrix

Project 2023.016

December 11, 2023

#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
10	Auditorium	Interior	CAP	Other	3	Stage needs to be updated	1,100	S.F.	$65.00	$71,500.00
11	Auditorium	Interior	CAP	ADA	3	Underutilized and inefficient. Remodel to a multi-purpose space and storage	2,250	S.F.	$275.00	$618,750.00
12	Mechanical Room in Basement	Interior	O&M	Other	2	Duct insulation tearing and needs to be replaced	150	L.F.	$15.00	$2,250.00
13	Mechanical Room in Basement	Interior	LS	Stairs	1	Missing handrail Extensions. Replace handrails	50	L.F.	$185.00	$9,250.00
14	Music Room	Interior	LS	Doors	3	Wired glass in door, to be replaced.	2	S.F.	$75.00	$150.00
15	Music Room	Interior	CAP	Other	3	Room is small for intended use, to be remodeled	1,400	S.F.	$225.00	$315,000.00
16	Boys Restroom	Interior	CAP	Other	3	Toilet room needs an update. Remodel Toilet Room	100	S.F.	$315.00	$31,500.00
17	Boys Restroom 207b	Interior	CAP	Other	3	Toilet room needs an update. Remodel Toilet Room	185	S.F.	$315.00	$58,275.00
18	Cafeteria	Interior	CAP	Other	2	Divided up for other uses. Area used for cafeteria is small. To be remodeled and enlarged into courtyard.	2,400	S.F.	$425.00	$1,020,000.00
19	Classroom exits	Ext Build/Site	LS	Egress	1	Step at door, exterior not level with interior floor. Replace concrete Step	30	S.F.	$28.00	$840.00

Greenbriar Elementary School

Proposed Work Matrix

Project 2023.016

December 11, 2023

#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
20	Corridor by 123	Interior	LS	Egress	1	Dead end condition- Rework doors	1	Lump Sum	$20,000.00	$20,000.00
21	Corridor by 224	Interior	LS	Ceiling	1	Signs of water on ceiling, leaks at skylights- Repair skylights	3	Ea.	$6,500.00	$19,500.00
22	Corridor by room 206	Interior	LS	Egress	1	Security gate causing a dead end condition- Remove Security Gate	1	Lump Sum	$6,000.00	$6,000.00
23	Elevator lobby	Interior	O&M	Flooring	2	Carpet tiles curling at edges and need to be replaced	125	S.F.	$28.00	$3,500.00
24	Expansion joints whole side	Ext Build/Site	O&M	Masonry	1	Replace sealant in expansion joints	200	L.F.	$32.00	$6,400.00
25	Exterior fascia	Roof	O&M	Roofing	2	Damaged standing seam fascia panels are deteriorating	1,000	S.F.	$42.00	$42,000.00
26	Exterior fascia	Ext Build/Site	O&M	Roofing	1	Fascia panel missing, to be replaced	50	S.F.	$42.00	$2,100.00
27	Classrooms Throughout	Interior	O&M	Casework	3	Casework deteriorating, to be replaced	1,500	L.F.	$550.00	$825,000.00

Greenbriar Elementary School

Proposed Work Matrix

Project 2023.016

December 11, 2023

#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
28	Girls Restroom 207a	Interior	CAP	Other	3	Toilet room is old and inefficient and needs to be remodeled.	245	S.F.	$285.00	$69,825.00
29	Gym	Ext Build/Site	O&M	Masonry	2	Efflorescence present on the masonry to be cleaned off	500	S.F.	$8.00	$4,000.00
30	Gym door	Interior	O&M	Floorin g	1	Threshold is deteriorating and needs to be replaced	8	L.F.	$20.00	$160.00
31	Janitors cost by 224	Interior	O&M	Other	2	Hole in the wall, the ceiling is in bad shape	90	S.F.	$85.00	$7,650.00
32	Kitchen	Interior	CAP	Other	2	Small space- Remodel Kitchen	150	S.F.	$275.00	$41,250.00
33	Library	Interior	O&M	Glazing	1	Air space in window has condesation, window needs to be resealed	1	Lump Sum	$450.00	$450.00
34	Main Office	Interior	CAP	Security	2	Secured entrance trap shares the vestibule with the school entrance and egress. Provide separation between the trap and vestibule.	750	S.F.	$260.00	$195,000.00
35	Main Office	Interior	CAP	Other	3	Office layout is inefficient and needs to be remodeled	1,500	S.F.	$275.00	$412,500.00
36	Outdoor deck	Interior	LS	Doors	1	Door required excessive force to open and impedes egress- replace hardware	1	Ea.	$2,000.00	$2,000.00

Greenbriar Elementary School

Proposed Work Matrix

Project 2023.016

December 11, 2023

#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
37	Outdoor deck	Interior	ADA	Other	1	Slope of ramp does not meet ADA, floor to be corrected	240	S.F.	$125.00	$30,000.00
38	Roof	Roof	O&M	Roofing	2	Gutters are only located at door and no where else. Provide Gutters at sloped roof areas.	850	L.F.	$20.00	$17,000.00
39	Room 120	Interior	LS	Doors	3	Wired glass in door to be replaced	10	S.F.	$75.00	$750.00
40	Room 222	Interior	O&M	Ceiling	3	Low ceiling at 7'-6"- Raise Ceiling	1,200	S.F.	$20.00	$24,000.00
41	Room 222	Interior	ADA	Toilet Rooms	1	Toilet room does not meet ADA requirements and needs to be remodeled	100	S.F.	$315.00	$31,500.00
42	Room 307	Interior	LS	Doors	3	Wired glass to be replaced	25	S.F.	$75.00	$1,875.00
43	Sidewalk	Ext Build/Site	LS	Site	1	Excessive cracking in sidewalk causing a tripping hazard to be replaced	450	S.F.	$30.00	$13,500.00
44	South courtyard	Interior	LS	Doors	1	Door required excessive force to open and impedes egress and swings in the wrong direction, to be replaced	1	Ea.	$8,500.00	$8,500.00

Greenbriar Elementary School

Proposed Work Matrix

Project 2023.016

December 11, 2023

#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
45	North Courtyard	Ext Build/Site	CAP	Other	2	Enclose North Courtyard for additonal learning space	1,900	S.F.	$395.00	$750,500.00
46	Corridor near Toilet Rooms 105	Interior	LS	Protruding Objects	1	Drinking fountains are protruding into path of egress. To be removed and installed in a nook or provide wing walls	1	Ea.	$2,500.00	$2,500.00
47	Restroom 105	Interior	CAP	ADA	1	Toilet rooms do not meet ADA requirements and needs to be remodeled	800	S.F.	$315.00	$252,000.00
48	Exterior	Ext Build/Site	CAP	Site	3	No trash enclosure so containers are up against building. Build a trash enclosure	800	S.F.	$50.00	$40,000.00
49	Exterior	Ext Build/Site	O&M	Masonry	1	Bricks and mortar deterorating, to be tuckpointed	1,200	S.F.	$45.00	$54,000.00

Greenbriar Elementary School

Proposed Work Matrix

Project 2023.016

December 11, 2023

#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
50	Exterior	Ext Build/Site	O&M	Masonry	1	Bricks and mortar deterorating, to be tuckpointed	1,500	S.F.	$45.00	$67,500.00
51	Upper corridor	Interior	LS	Other	1	Flammable cork and paper covers wall in corridor. Remove flammable covering	300	S.F.	$8.00	$2,400.00
52	Corridors	Interior	CAP	Flooring	2	Carpeting outdated and makes it difficult to transition throughout building and in need of replacment	8,000	S.F.	$22.00	$176,000.00
53	Corridors	Interior	CAP	Other	2	Remodel corridors to replace ceilngs, finishes and provide learning nooks	8,000	S.F.	$250.00	$2,000,000.00
54	Corridors	Interior	CAP	other	2	Lockers are large and outdated. Replace with new or cubbies	400	Ea.	$300.00	$120,000.00
55	Vestibule by door B	Interior	O&M	Flooring	1	Carpet tiles curling at edges and cause a tripping hazard and need to be replaced	150	S.F.	$30.00	$4,500.00
56	Window sills throughout	Ext Build/Site	O&M	Masonry	1	Mortar deteriorating at window sills, to be tuckpointed	500	L.F.	$35.00	$17,500.00

Greenbriar Elementary School

Proposed Work Matrix

Project 2023.016

December 11, 2023

#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
57	Exterior Doors	Ext Build/Site	O&M	Doors	2	Exterior doors can be dogged with a hex wrench and can be a security issue. Replace exterior door hardware	9	Ea.	$1,850.00	$16,650.00
58	East and South Parking Lot	Ext Build/Site	O&M	Paving	3	Sealcoat Parking Lot- see Paving Analysis	33,850	S.F.	$1.75	$59,237.00
59	Parking Lots	Ext Build/Site	CAP	Paving	2	Not enough parking available onsite. Provide additional parking lots at North and East areas onsite	36,000	S.F.	$22.00	$792,000.00
60	Playgrounds (total of 3)	Ext Build/Site	O&M	ADA	2	Provide ADA compliant Access- see Paving Analysis	3	Ea.	$8,500.00	$25,500.00
61	South Exits to Playground	Ext Build/Site	O&M	ADA	2	South exits are do not meet ADA requirements- see Paving Analysis	1,000	S.F.	$28.00	$28,000.00
62	Playgrounds (total of 3)	Ext Build/Site	CAP	Other	3	Playground equipment is older and in need of replacement	3	Lump Sum	$100,000.00	$300,000.00

Greenbriar Elementary School

Proposed Work Matrix

Project 2023.016

December 11, 2023

#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
63	West Exit	Ext Build/Site	O&M	ADA	2	Exit does not meet ADA requirements- See Paving Analysis	650	S.F.	$28.00	$18,200.00
64	Permable Paver Parking Lot	Ext Build/Site	O&M	Paving	3	Some permeable pavers have settled at the front entrance pedestrian route and need to be reset- See Paving Analysis	1,500	S.F.	$11.00	$16,500.00
65	Parking Lot	Ext Build/Site	O&M	Paving	3	Parking lot signs need to be installed and spaces restriped- See Paving Analysis	3	Ea.	$750.00	$2,250.00
66	Permable Paver Parking Lot	Ext Build/Site	O&M	Paving	2	Adding ADA signs within permable pavers and add wheel stops	2	Ea.	$1,500.00	$3,000.00
67	Exits	Interior	LS	Security	1	Label all interior doors at exits for quick identification by emergency responders	9	Ea.	$150.00	$1,350.00
68	General	Ext Build/Site	O&M	Security	2	Alarm systems are monitored by Esscoe. Post Esscoe security alarm signs at all exterior doors.	9	Ea.	$100.00	$900.00

Greenbriar Elementary School

Proposed Work Matrix

Project 2023.016

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
69	Site	Ext Build/Site	O&M	Security	2	Some vegetation does not follow the Crime Prevention Through Environmental Design. Trim landscaping to meet best practices.	1	Ea.	$25,000.00	$25,000.00
70	Site	Ext Build/Site	O&M	Security	2	Post property access restriction signs at parking lot entries and along property lines. Post visitor management signs and firearm prohibition signs at all exterior doors	1	Ea.	$5,000.00	$5,000.00
71	Site	Ext Build/Site	O&M	Security	2	Install vehicle barriers such as removable bollards to restrict access to playgrounds, entries, and pedestrian areas	4	Ea.	$1,250.00	$5,000.00
72	Exterior doors	Ext Build/Site	O&M	Security	3	Install security film on exterior door vision panels and sidelights.	1,000	S.F.	$55.00	$55,000.00
73	Roof Areas E & F (Yellow in report)	Roof	O&M	Roofing	2	Patch and repair roof as needed. See Roof Inventory Report	16,900	S.F.	$30.00	$507,000.00
74	Roof Areas A, B & C (Purple in report)	Roof	O&M	Roofing	1	Membrane (coal-tar pitch) is bubbling through the ballast and needs to be replaced	11,200	S.F.	$68.00	$761,600.00
75	Throughout	Interior	LS	Other	1	Provide wayfinding throughout school	1	Lump Sum	$5,000.00	$5,000.00

Greenbriar Elementary School

Proposed Work Matrix

Project 2023.016

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
76	Site	Ext Build/Site	CAP	Site	1	Provide Fencing to fully enclose site	2,200	L.F.	$125.00	$275,000.00
77	Atrium	Interior	O&M	Finishes	3	The acoustics are poor in the Atrium making it difficult to fully use the space. Provide acoustical treatment	800	S.F.	$25.00	$20,000.00
78	Roof	Roof	O&M	Roofing	2	Access between different roof levels to service equipment lacks permanent ladders.	4	Ea.	$5,000.00	$20,000.00
HV1	Original building area	Interior	O&M	Mech	1	(2) Bryan hot water boilers are 22 years old and refractory could be deteriorating. Inspect and repair refractory in the next 2 years as required to extend life of the boiler	2	Ea.	$15,000.00	$30,000.00
HV2	Original building area	Interior	O&M	Mech	1	(2) ABB variable frequency drives serving hot water pumps for the original area of the building are 21 years old and at the end of their useful life. To be replaced	2	Ea.	$10,000.00	$20,000.00
HV3	2011 Addition	Interior	O&M	Mech	4	(2) Camus hot water boilers are 12 years old. Replace in the next 10 years	2	Ea.	$110,000.00	$220,000.00
HV4	2011 Addition	Interior	O&M	Mech	3	(2) Danfoss variable frequency drives serving hot water pumps are 12 years old. Repalce in the next 8 years.	2	Ea.	$10,000.00	$20,000.00
HV5	West Wing	Ext Build/Site	O&M	Mech	1	RTU-SU1: Trane 55 ton VAV Intellipak rooftop unit is 21 years old and beyond the end of its useful life. To be replaced	1	Ea.	$225,000.00	$225,000.00

Greenbriar Elementary School

Proposed Work Matrix

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
HV6	Kindergarten Classroom 224	Ext Build/Site	O&M	Mech	1	RTU-2: Trane 4 ton rooftop unit serving is 21 years old and at the end of its useful life. Exposed ductwork above roof is in poor condition. Replace RTU and reseal or replace ductwork in next 2 years.	1	Ea.	$75,000.00	$75,000.00
HV7	Kindergarten Classroom 222	Ext Build/Site	O&M	Mech	1	RTU-3: Trane 5 ton rooftop unit is 21 years old and at the end of its useful life. Exposed ductwork above roof is in poor condition. Replace RTU and reseal or replace ductwork in next 2 years.	1	Ea.	$75,000.00	$75,000.00
HV8	Library	Ext Build/Site	O&M	Mech	1	RTU-4: Trane 8 ton rooftop unit years old and well beyond the end of its useful life. Exposed ductwork above roof is in poor condition. Replace rooftop unit and reseal or replace ductwork in next 2 years	1	Ea.	$80,000.00	$80,000.00
HV9	Reading/ EXEL Rooms	Ext Build/Site	O&M	Mech	3	McQuay rooftop unit with capacity of 3 tons is 12 years old. Replace RTU in the next 8 years.	1	Ea.	$55,000.00	$55,000.00
HV10	2011 Addition Classrooms & Offices	Ext Build/Site	O&M	Mech	3	McQuay variable volume rooftop unit with 25 tons capacity is 12 years old. Replace RTU in the next 8 years.	1	Ea.	$125,000.00	$125,000.00
HV11	Gymnasium	Ext Build/Site	O&M	Mech	3	McQuay rooftop unit with 20 tons capacity is 12 years old. Replace RTU in the next 8 years.	1	Ea.	$110,000.00	$110,000.00

Greenbriar Elementary School

Proposed Work Matrix

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
HV12	Penthouse over west wing corridor for class 209	Interior	O&M	Mech	1	Trane Air Handling Unit is 21 years old. Associated Trane 4 ton air cooled condensing unit on roof is 21 years old, utilizes banned R22 refrigerant, and is at the end of its useful life. Replace condensing unit, DX cooling coil and refrigeration piping in next 2 years.	1	Ea.	$85,000.00	$85,000.00
HV13	Lower level mechanical room serving Auditorium	Interior	O&M	Mech	1	Trane Air Handling Unit and Return Fan are 49 years old. Trane Air Cooled Condensing Unit on roof is 22 years old and utilizes banned R22 refrigerant. All equipment is at the end of its useful life. Replace in next 2 years.	1	Ea.	$225,000.00	$225,000.00
HV14	ELL Office 208B	Interior	O&M	Mech	1	Sanyo duct free split system is 23 years old, utlizes banned R22 refrigerant, and is at the end of its useful life, to be replaced.	1	Ea.	$35,000.00	$35,000.00
HV15	Throughout Building	Interior	O&M	Mech	1	(13) Trane Air Cooled Condensing units serving unit ventilator DX cooling coils are 22 years old, utilize banned R22 refrigerant, and are at the end of their useful life, to be replaced.	13	Ea.	$75,000.00	$975,000.00
HV16	East Wing	Interior	O&M	Mech	3	No relief path for air introduced by unit ventilators in 2-story east wing exists. Provide relief system.	1	Ea.	$190,000.00	$190,000.00
HV17	Throughout Building	Interior	O&M	Mech	1	Existing Building Automation System needs to be kept current. Update license for the JACES to Tridium N4 latest revisions.	1	Ea.	$7,500.00	$7,500.00
P1	Throughout in older areas of building	Interior	O&M	Plumb	2	Galvanized water piping in the older areas of the building is beyond its useful life. Replace water piping with copper.	1	Ea.	$180,000.00	$180,000.00
P2	Basement North Side near Auditorium	Interior	O&M	Plumb	2	Duplex Vertical Shaft Storm pump system may be near the end of its life cycle. Cover is rusted and deteriorated. Replace pumps, covers and pump controls	1	Ea.	$35,000.00	$35,000.00

Greenbriar Elementary School

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
P3	Basement North Side near Auditorium	Interior	O&M	Plumb	3	Simplex sanitary submersible pump system may be near the end of its life cycle.	1	Ea.	$7,500.00	$7,500.00
P4	Basement- South Side	Interior	LS	Plumb	3	Duplex Vertical Shaft pump system may be near the end of its life cycle.	1	Ea.	$35,000.00	$35,000.00
P5	Janitor Closet First Floor Southeast	Interior	O&M	Plumb	3	Simplex Sanitary submersible pump system may be near the end of its life cycle.	1	Ea.	$17,500.00	$17,500.00
P6	Outside Stairwell	Ext Build/Site	O&M	Plumb	3	Single small floor drain at bottom of outside stairwell to basement mechanical room is subject to being covered with leaves leading to flooding in the mechanical room. Provide trench drain.	1	Ea.	$7,500.00	$7,500.00
P7	Original building area	Interior	O&M	Plumb	3	AO Smith water heater serving the original area of the building is 7 years old. Replace in next 8 years	1	Ea.	$10,500.00	$10,500.00
P8	Original building area	Interior	O&M	Plumb	1	No expansion tank is installed at the AO Smith water heater. Provide expansion tank.	1	Ea.	$3,500.00	$3,500.00
P9	2011 Addition	Interior	O&M	Plumb	2	Rheem water heater is 12 years old. Replace in next 3 years with direct vent type.	1	Ea.	$12,500.00	$12,500.00
P10	2011 Addition	Interior	O&M	Plumb	1	Lavatories and classroom sinks not remodeled in 2011 are lacking the proper water temperature protection. Provide thermostatic mixing valves	15	Ea.	$750.00	$11,250.00

Greenbriar Elementary School

Proposed Work Matrix

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
P11	All Janitor Closets	Interior	O&M	Plumb	1	Cross connection and contamination possibility at all janitor sinks in facility with chemical soap systems. Provide RPZ backflow preventer on dedicated water line for chemical soap system.	5	Ea.	$3,000.00	$15,000.00
P12	Basement Boiler Room	Interior	O&M	Plumb	1	Service sinks faucets do not have a vacuum breaker.	2	Ea.	$2,000.00	$4,000.00
FP1	Throughout Building	Interior	LS	Plumb	3	The building is not completely protected throughout by a sprinkler system. Extend sprinkler system to serve pre-2011 areas of building	1	Ea.	$375,000.00	$375,000.00
E1	Vestibule 26	Interior	LS	Elec	1	Missing pull station at egress door, to be provided.	1	Ea.	$2,000.00	$2,000.00
E2	Stair 53	Interior	LS	Elec	1	Exit sign incorrectly identifies path of egress. Replace exit sign.	1	Ea.	$750.00	$750.00
E3	Courtyard	Ext Build/Site	LS	Elec	1	No FA notification, to be provided.	1	Ea.	$3,500.00	$3,500.00
E4	Courtyard, Roof Patio	Ext Build/Site	LS	Elec	1	No exit sign to identify path of egress. Provide exit signs.	2	Ea.	$1,750.00	$3,500.00
E5	Mechanical Room 012	Interior	LS	Elec	1	Exposed panelboard bus. Provide breaker insert.	1	Ea.	$500.00	$500.00

Greenbriar Elementary School

Proposed Work Matrix

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
E6	Auditorium 112	Interior	LS	Elec	1	Temporary lighting in use. Remove festoon lights.	1	Lump Sum	$500.00	$500.00
E7	Room 114	Interior	O&M	Elec	1	AHU Room 114: Open junction box. Provide cover.	1	Ea.	$500.00	$500.00
E8	Elevator Machine Room 115	Interior	O&M	Elec	1	Open puill box. Provide cover.	1	Ea.	$500.00	$500.00
E10	Corridor E	Interior	LS	Elec	1	Exit sign incorrectly identifies path of egress. Remove sign.	1	Ea.	$500.00	$500.00
E11	Classroom 222, 224	Interior	LS	Elec	1	Missing exit signs, to be provided	2	Ea.	$1,000.00	$2,000.00
E12	Corridor K	Interior	LS	Elec	1	Pull station not installed within 5' of egress doors. Relocate pull station.	1	Ea.	$1,500.00	$1,500.00
E15	Throughout Building	Interior	LS	Elec	1	Existing fire alarm system does not comply with current codes for Notification. Replace with new Voice Evacuation based fire alarm system with notification devices installed in all spaces.	1	Ea.	$425,000.00	$425,000.00
E16	Throughout Building	Interior	O&M	Elec	3	Due to the age of the panelboards, connections may become loose over time. Thermoscan switchboard and panelboard to identify any loose connections.	1	Ea.	$8,500.00	$8,500.00
E17	Throughout Building	Interior	LS	Elec	2	Intercom system is obsolete, no longer supported by manufacture. Manufacture no longer exists. Replace intercom and head end.	1	Ea.	$85,000.00	$85,000.00

Greenbriar Elementary School

Proposed Work Matrix

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
Greenbriar Total Cost Estimates										$20,978,112.00

O&M O&M Total Costs $5,573,497.00

Greenbriar Elementary School

Work Matrix Summary

Project 2023.016

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Overall Cost Estimate	$20,978,112

Cost Estimate per Area	
Interior	$16,262,935
Exterior/ Site	$3,367,577
Roof	$1,347,600

Cost Estimate per Rationale	
O & M	$5,573,497
ADA	$61,500
Life Safety	$1,101,015
Capital Improvements	$14,242,100

Cost Estimate per Priority	
Priority 01 (within 2 years)	$3,905,050
Priority 02 (2 to 5 years)	$6,239,800
Priority 03 (5 to 10 years)	$10,613,262
Priority 04 (10 years and beyond)	$220,000

Greenbriar Elementary School

Photographs
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01 - Kindergarten 004 & 005



01 - Kindergarten 004 & 005



01 - Kindergarten 004 & 005



02 - Classroom 204

Greenbriar Elementary School

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03 - Class 201, 203, 204, 205, 206, 212



04 - Classroom 208A



05 - Restroom in Room 224



06 - Baseball Field

Greenbriar Elementary School

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08 - Art Room



09 - Art Room



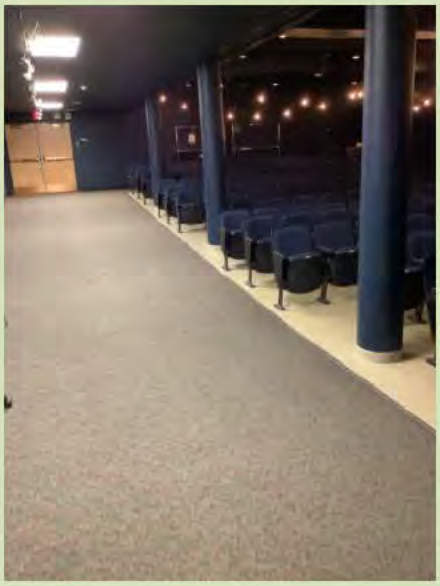
10 - Auditorium



10 - Auditorium



11 - Auditorium



11 - Auditorium



12 - Mech Room in Basement



12 - Mech Room in Basement



13 - Mech Room in Basement



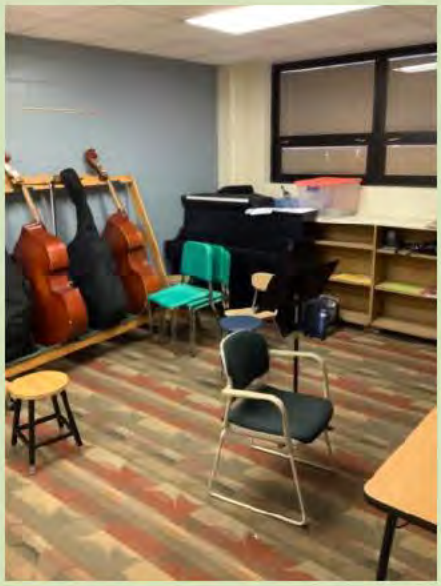
13 - Mech Room in Basement



13 - Mech Room in Basement



14 - Music Room



15 - Music Room



16 - Boys Room



16 - Boys Room



16 - Boys Room



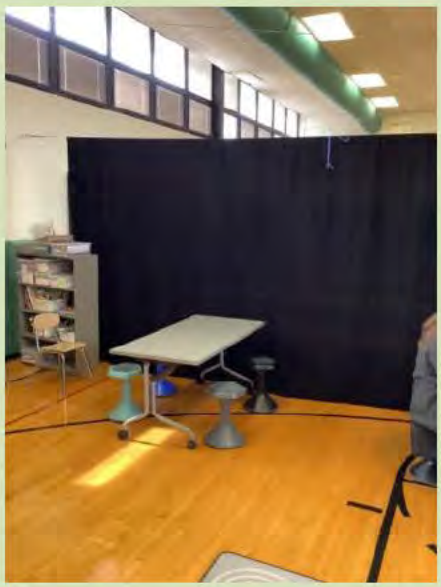
17 - Boys 207b



17 - Boys 207b



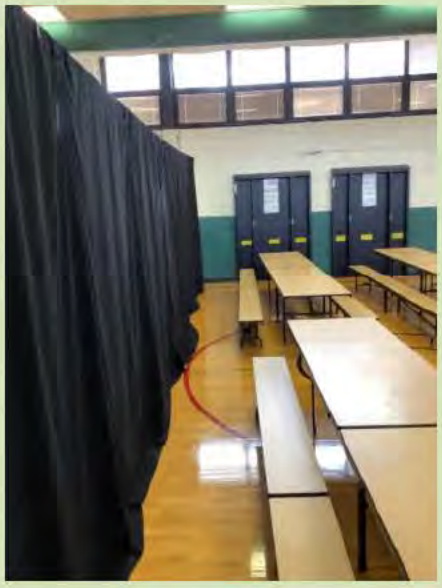
18 - Cafeteria



18 - Cafeteria



18 - Cafeteria



18 - Cafeteria



19 - Classroom Exits



19 - Classroom Exits



21 - Corridor by 224



21- Corridor by 224



21 - Corridor by 224



22 - Corridor by Room 206



23 - Elevator Lobby



24 - Expansion joints whole side



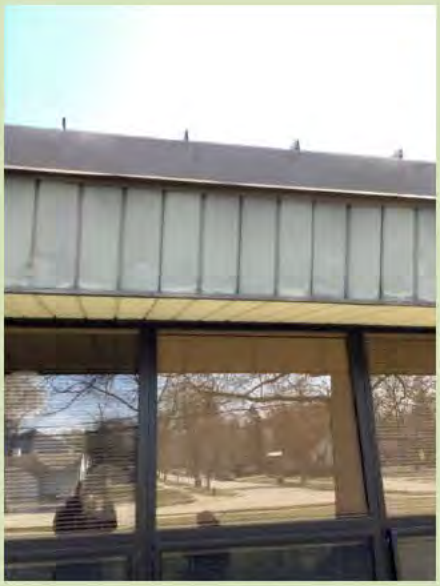
24 - Expansion joints whole side



24 - Expansion joints whole side



24 - Expansion joints whole side



25 - Exterior Fascia



25 - Exterior Fascia



25 - Exterior Fascia



26 - Exterior Fascia



27 - Classrooms Throughout



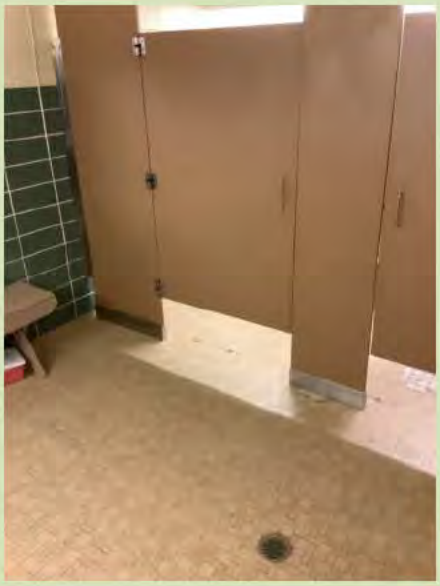
27 - Classrooms Throughout



27 - Classrooms Throughout



28 - Girls 207A



28 - Girls 207A



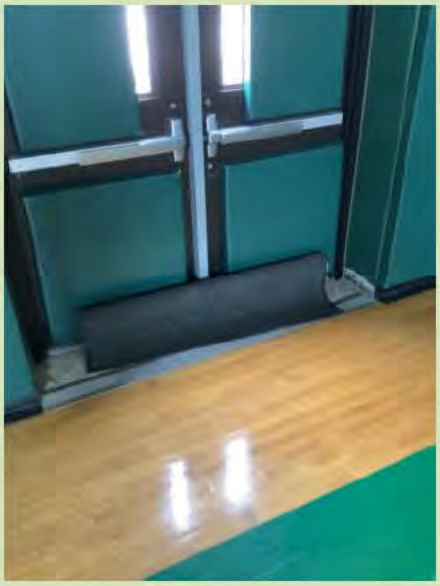
28 - Girls 207A



29 - Gym



29 - Gym



30 - Gym Door



31 - Janitor by 224



31 - Janitor by 224



32 - Kitchen



33 - Library



34 - Main Office



36 - Outdoor Deck



36 - Outdoor Deck



37 - Outdoor Deck Access



38 - Roof



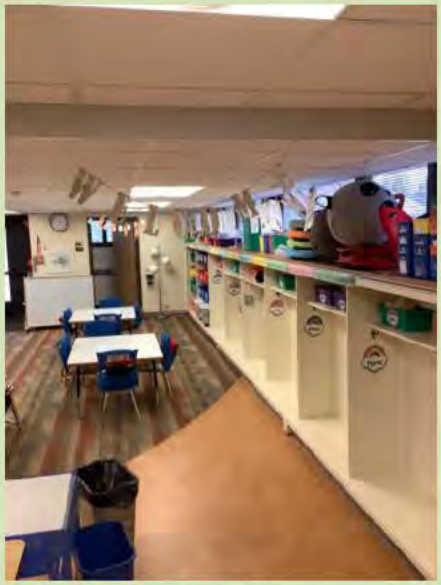
38 - Roof



38 - Roof



39 - Room 120



40 - Room 222



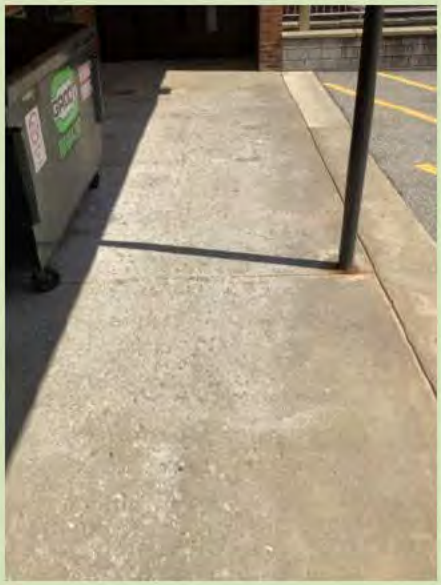
41 - Room 222 Toilet Room



41 - Room 222 Toilet Room



42 - Room 307



43 - Sidewalk



43 - Sidewalk



44 - South Courtyard



46 - Toilet Rooms by Room 105



47 - Toilet Rooms by Room 105



48 - Trash Area

Greenbriar Elementary School

Photographs
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49 - Exterior



49 - Exterior



49 - Exterior



50 - Exterior

Greenbriar Elementary School

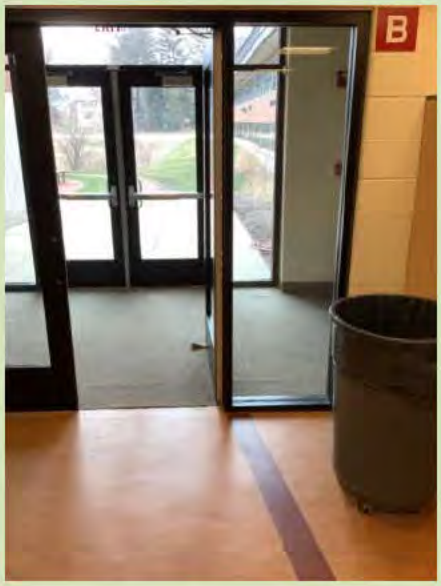
Photographs
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50 - Exterior



51 - Upper Corridor



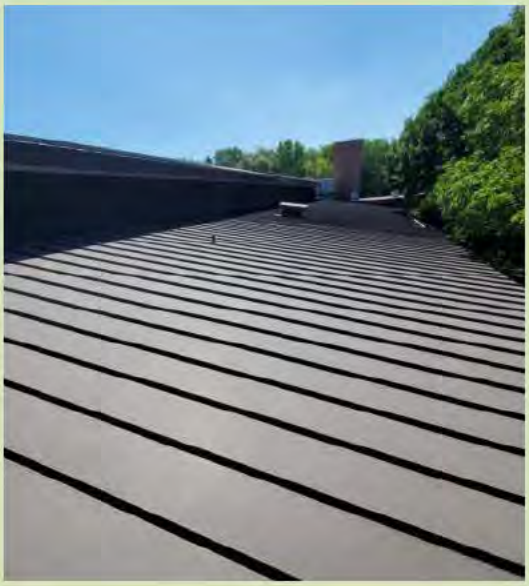
55 - Vestibule by Door B



56 - Windowsills Throughout



56 - Windowsills Throughout



73 - Roof Areas E & F (Yellow)



74 - Roof Areas A, B, C (Purple)

Meadowbrook Elementary School

Proposed Work Matrix
Project 2023.016
December 11, 2023

#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
01	251 band rooms	Interior	CAP	Other	3	Rooms are small and inefficient for intended use. Renovate or include in an addition.	800	S.F.	$450.00	$360,000.00
02	Above window	Ext Bldg/Site	O&M	Other	2	Exposed wood infilled hole. Replace cladding	20	S.F.	$22.00	$440.00
03	Across from 050	Interior	CAP	Other	2	Appears to be storage room used as office. Remodel for office use	175	S.F.	$215.00	$37,625.00
04	Boys Restroom 024	Interior	CAP	Other	2	Old and outdated, inefficient and does not meet ADA. To be remodeled	200	S.F.	$315.00	$63,000.00
05	Boys Restroom 121	Interior	ADA	Other	2	Old and outdated, inefficient and does not meet ADA. To be remodeled	200	S.F.	$315.00	$63,000.00
06	Boys Restroom 230, Girls Restroom 232, Single Restroom	Interior	CAP	Other	2	Old and outdated, inefficient and does not meet ADA. To be remodeled	450	S.F.	$315.00	$141,750.00
07	Center corridor	Interior	O&M	Other	3	Exposed cables to be enclosed	100	L.F.	$50.00	$5,000.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
08	Center corridor	Interior	LS	Egress	1	Dead end corridor, replace doors	1	Lump Sum	$8,500.00	$8,500.00
09	Class 107	Interior	O&M	Other	3	Paint is peeling and room needs to be repainted.	700	S.F.	$8.50	$5,950.00
10	Corridor	Interior	LS	Other	3	Wood paneling on wall to be removed and new finish	500	S.F.	$22.00	$11,000.00
11	Egress Door area by elevator	Interior	O&M	Other	3	Door not numbered and it is not an enclosed vestibule. Provide door number and enclose the vestibule.	150	S.F.	$150.00	$22,500.00
12	Vestibule at Door C	Interior	ADA	Egress	1	Homemade ramp not Ada- remodel for ADA access. Steps deteriorating causing a tripping hazard	185	S.F.	$250.00	$46,250.00
13	Exterior by Door F	Ext Bldg/Site	O&M	Egress	2	Painting is peeling, steps are tripping hazard and plumbing for stormwater- remodel area	175	S.F.	$275.00	$48,125.00
14	Exterior	Ext Bldg/Site	O&M	Site	3	Drainage area had deteriorated- Regrade Area	500	S.F.	$14.00	$7,000.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
15	Exterior	Ext Bldg/Site	O&M	Egress	1	Concrete deterioriating causing a tripping hazard	75	S.F.	$28.00	$2,100.00
16	Exterior	Ext Bldg/Site	O&M	Masonry	1	Bricks and mortar deteroriating to be tuckpointed	6,000	S.F.	$45.00	$270,000.00
17	Exterior	Ext Bldg/Site	LS	Egress	1	Concrete deterioriating causing a tripping hazard	85	S.F.	$28.00	$2,380.00
18	Exterior	Ext Bldg/Site	LS	Egress	1	Concrete deterioriating causing a tripping hazard	40	S.F.	$28.00	$1,120.00
19	Exterior	Roof	O&M	Roofing	2	Soffit cut- to be replaced	50	S.F.	$45.00	$2,250.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
20	Exterior	Ext Bldg/Site	O&M	Masonry	2	Ivy holding in water- remove ivy and tuckpoint masonry	50	S.F.	$45.00	$2,250.00
21	Exterior	Ext Bldg/Site	O&M	Masonry	1	Install sealant in expansion joint	25	L.F.	$35.00	$875.00
22	Exterior	Roof	O&M	Roofing	2	Exposed fastener to be covered	1	Ea.	$75.00	$75.00
23	Exterior	Ext Bldg/Site	LS	Egress	1	Cracking and deterioration at end of concrete is a tripping hazard. Replace concrete.	125	S.F.	$28.00	$3,500.00
24	Exterior	Ext Bldg/Site	O&M	Masonry	1	Replace sealant in expansion joints	100	L.F.	$35.00	$3,500.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
25	Exterior	Ext Bldg/Site	LS	Paving	1	Excessive cracking in asphalt causing a tripping hazard. To be replaced.	200	S.F.	$25.00	$5,000.00
26	Exterior	Ext Bldg/Site	O&M	Masonry	1	Replace sealant at hinge of window	15	L.F.	$35.00	$525.00
27	Exterior	Roof	O&M	Other	3	Paint steel plates	10	Ea.	$250.00	$2,500.00
28	Exterior	Roof	O&M	Roofing	2	Open soffit- Enclose	30	S.F.	$40.00	$1,200.00
29	Girls Restroom 025	Interior	CAP	Other	2	Old and outdated, inefficient and does not meet ADA. To be remodeled	200	S.F.	$315.00	$63,000.00
30	Girls Restroom 050	Interior	ADA	Other	2	Old and outdated, inefficient and does not meet ADA. To be remodeled	200	S.F.	$315.00	$63,000.00
31	Girls Restroom 115	Interior	ADA	Other	2	Old and outdated, inefficient and does not meet ADA. To be remodeled	200	S.F.	$315.00	$63,000.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
32	IT closet	Interior	LS	Other	1	Electrical panel by mop sink- separate the mop sink and electric	200	S.F.	$250.00	$50,000.00
33	Library	Interior	CAP	Other	3	Can upgrade shelving and furniture	1	Lump Sum	$125,000.00	$125,000.00
34	Lounge	Interior	O&M	Casework	3	Casework deteriorating, to be replaced	20	L.F.	$550.00	$11,000.00
35	Lounge	Interior	CAP	Other	2	Stove layout- replace stove and provide hood	1	Lump Sum	$4,000.00	$4,000.00
36	Lounge	Interior	O&M	Storage	3	Storage for accessible equipment- provide new storage area	200	S.F.	$275.00	$55,000.00
37	Lower corridor	Interior	LS	Storage	3	Storage in corridor- provide new storage area in building or an addition	250	S.F.	$375.00	$93,750.00
38	Lower corridor	Interior	LS	Doors	1	No rating on corridor doors. Provide new rated doors.	2	Ea.	$5,500.00	$11,000.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
39	Lower corridor	Interior	LS	Protruding Objects	1	Sink is a protruding object. Remove and install in a nook or provide wing walls	1	Ea.	$2,500.00	$2,500.00
40	Lower corridor	Interior	LS	Egress	1	Gate to close off corridor to be removed	1	Lump Sum	$5,000.00	$5,000.00
41	Main office	Interior	CAP	Other	2	Layout of Main Office area is inefficient and lacks security with access to school through Nurse and Work Rooms. To be remodeled.	3,000	S.F.	$315.00	$945,000.00
42	Main vestibule	Interior	LS	Ceilngs	2	Wet clg tile- replace and investigate cause	1	Ea.	$200.00	$200.00
43	North gym	Interior	LS	Flooring	1	Tripping hazards in floor, to be replaced	2	Ea.	$1,000.00	$2,000.00
44	Nurse	Interior	ADA	Other	2	Small and toilet room not ADA	100	S.F.	$285.00	$28,500.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
45	Roof	Roof	O&M	Roofing	2	Soffit deteriorating, to be repaired	50	S.F.	$55.00	$2,750.00
46	Room 030	Interior	CAP	Other	3	Work Room too small. To be renovated and enlarged.	400	S.F.	$275.00	$110,000.00
47	Room 101	Roof	O&M	Plumb	2	The water continues to run because the faucet get stuck. Replace faucet.	1	Ea.	$1,500.00	$1,500.00
48	Room 101	Interior	LS	Ceilings	2	Leaky pipe above ceiling to be repaired.	20	L.F.	$55.00	$1,100.00
49	Rooms 101, 102, 103, 104	Interior	LS	Finishes	2	Wood paneling on wall is flammable to be removed and new finish	500	S.F.	$22.00	$11,000.00
50	Room 104	Interior	LS	Clearance	1	Insufficient ADA clearance at egress door	50	S.F.	$125.00	$6,250.00
51	Room 105	Interior	CAP	ADA	2	Toilet room not Ada to be remodeled and enlarged.	200	S.F.	$315.00	$63,000.00
52	Room 14	Interior	O&M	Ceilings	3	12 x 12 ceiling tiles all lower level- replace ceiling	825	S.F.	$35.00	$28,875.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
53	Rooms 19, 21	Interior	LS	Doors	2	Door deteriorating- replace door and frame	2	Ea.	$3,400.00	$6,800.00
54	Room 240	Interior	O&M	Other	3	Phone board in office to be removed	1	Ea.	$250.00	$250.00
55	Side stair	Interior	LS	Stairs	1	Handrails don't extend. Replace with new handrails.	40	L.F.	$185.00	$7,400.00
56	Sidewalk	Ext Bldg/Site	LS	Egress	1	Concrete deterioriating causing a tripping hazard	50	S.F.	$28.00	$1,400.00
57	Sidewalk	Ext Bldg/Site	LS	Paving	2	Standing water on concrete, to be replaced	50	S.F.	$28.00	$1,400.00
58	Sidewalk	Ext Bldg/Site	LS	Paving	1	Sidewalk heaved/cracked and causing a tripping hazard. To be replaced.	45	S.F.	$30.00	$1,350.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
59	Restroom between Boys 24 and Girls 26	Interior	CAP	ADA	2	Small and not Ada- to be remodeled	200	S.F.	$285.00	$57,000.00
60	Main Gym	Interior	CAP	Other	2	Gym is too small for the school's needs. Currently used for the cafeteria along with the other gym. Need a new gym addition and remodel the existing Cafeteria and Library. Provide itinerant offices.	15,000	S.F.	$495.00	$7,425,000.00
61	South gym	Interior	O&M	Ceilings	2	Wet clg tile- replace and investigate cause	1	Ea.	$200.00	$200.00
63	South gym	Interior	O&M	Other	3	Padding getting worn, to be replaced	250	S.F.	$45.00	$11,250.00
64	Stairs	Interior	LS	Stairs	1	Handrails don't extend. Replace with new handrails.	40	L.F.	$185.00	$7,400.00
65	Stairs	Interior	LS	Stairs	1	Treads worn and tripping hazard to be replaced.	50	S.F.	$45.00	$2,250.00
66	Storage 20	Interior	O&M	Ceilings	3	Ceiling 12 x 12- replace ceiling	300	S.F.	$200.00	$60,000.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
67	Storage 20	Interior	LS	Doors	1	Door held open with hook- remove hook	1	Ea.	$100.00	$100.00
68	Throughout	Interior	LS	Glazing	2	Wired glass throughout to be replaced.	2,000	S.F.	$75.00	$150,000.00
69	Throughout	Interior	O&M	Doors	2	Wood trim at doors- replace door frame	75	Ea.	$3,500.00	$262,500.00
70	Upper corridor	Interior	LS	Doors	1	Doors are not rated, to be replaced with rated door & frame.	4	Ea.	$4,500.00	$18,000.00
71	Upper corridor	Interior	O&M	Plumb	3	Sink is old, to be replaced.	1	Ea.	$1,500.00	$1,500.00
72	Upper corridor mechanical room	Interior	LS	Doors	1	No label on door- replace with rated door & frame	1	Ea.	$3,400.00	$3,400.00
73	Upper level	Interior	LS	Doors	1	Doors to stair not rated, to be replaced with rated door & frame.	1	Ea.	$3,400.00	$3,400.00
74	Upper rooms	Interior	O&M	Ceilings	3	12 x 12 ceiling tiles- replace ceiling	4,800	S.F.	$25.00	$120,000.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
75	Sensory Room	Interior	CAP	Other	2	The Sensory Room is currently in the Principal's Office. A Sensory Room to be provided somewhere in the school or within an addition	500	S.F.	$400.00	$200,000.00
76	Lower corridor	Interior	O&M	Ceilings	3	Refinish ceiling to look less industiral. Paint pipes for educational aspect	1,400	S.F.	$30.00	$42,000.00
77	Exterior Doors	Ext Bldg/Site	O&M	Doors	2	Exterior doors can be dogged with a hex wrench and can be a security issue. Replace exterior hardware. See Door Hardware Summary.	9	Ea.	$1,850.00	$16,650.00
78	Playground	Ext Bldg/Site	O&M	Paving	2	Provide ADA ramp access into mulch area and replace with ADA compliant flush surface	2,000	S.F.	$25.00	$50,000.00
79	Playground	Ext Bldg/Site	CAP	Other	3	Enlarge playgrounds (relocate as needed) and replace playground equipment, and build a new playground to the North.	2	Lump Sum	$185,000.00	$370,000.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
80	Parking Lot	Ext Bldg/Site	O&M	Paving	3	Parking lot is in good condition. Continue to seal coat and crackseal every 2 to 5 years.	42,000	S.F.	$1.75	$73,500.00
81	Parking Lot	Ext Bldg/Site	CAP	Paving	2	Not enough parking available onsite. Provide additional to the East of the Building	40,000	S.F.	$25.00	$1,000,000.00
82	South Parking Area	Ext Bldg/Site	O&M	Paving	3	ADA Parking signs need to be installed. See Paving Analysis	2	Ea.	$1,500.00	$3,000.00
83	South Parking Area	Ext Bldg/Site	O&M	Paving	1	Lot requires 4 ADA spaces instead of 2. To be restriped and a pathway to be striped	1,600	S.F.	$3.50	$5,600.00
84	South Parking Area	Ext Bldg/Site	O&M	Paving	2	Some sidewalk heaved along North walk near benches. To be replaced	400	S.F.	$28.00	$11,200.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
85	Hardscape Play areas	Ext Bldg/Site	O&M	Paving	2	Stoop areas by the hardscape play and entrances are in poor condition and should be replaced	100	S.F.	$40.00	$4,000.00
86	North Drive/Pedestrian Walk	Ext Bldg/Site	O&M	Paving	2	Drainage and erosion issues to be investigated. Replace walk. Include with Addition project	3,700	S.F.	$22.00	$81,400.00
87	Exits	Interior	LS	Security	2	Label all interior doors at exits for quick identification by emergency responders	17	Ea.	$150.00	$2,550.00
88	General	Ext Bldg/Site	O&M	Security	3	Alarm systems are monitored by Esscoe. Post Esscoe security alarm signs at all exterior doors.	17	Ea.	$100.00	$1,700.00
89	Site	Ext Bldg/Site	LS	Security	2	Some vegetation does not follow the Crime Prevention Through Environmental Design. Trim landscaping to meet best practices.	1	Lump Sum	$25,000.00	$25,000.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
90	Site	Ext Bldg/Site	O&M	Security	2	Post property access restriction signs at parking lot entries and along property lines. Post visitor management signs and firearm prohibition signs at all exterior doors.	1	Lump Sum	$5,000.00	$5,000.00
91	Site	Ext Bldg/Site	LS	Security	2	Install vehicle barriers such as removabel bollards to restrict access to playgrounds, entries, and pedestrian areas.	4	Ea.	$1,250.00	$5,000.00
92	Exterior Doors	Ext Bldg/Site	O&M	Security	3	Install security film on exterior door vision panels and sidelights.	1,000	S.F.	$55.00	$55,000.00
93	Roof (Entire Area)	Roof	O&M	Roofing	1	Patch and repair roof as needed. See Roof Inventory Report	49,600	S.F.	$30.00	$1,488,000.00
94	Roof (Entire Area)	Roof	LS	Roofing	2	Replace roof throughout	49,600	S.F.	$45.00	$2,232,000.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
95	General	Interior	CAP	Other	3	Classroom spaces need to be remodeled for the School's needs in order to support the curriculum and Iternant spaces. New classrooms are needed- Remodel existing and provide a 4 classroom addition.	10,000	S.F.	$475.00	$4,750,000.00
96	Main Office	Interior	CAP	Security	2	Secured entrance trap shares the vestibule with the school entrance and egress. Provide separation between the trap and vestibule.	750	S.F.	$260.00	$195,000.00
HV1	Throughout Building	Interior	O&M	Mech	1	Bryan boilers are 22 years old. Extend their life by repairing any damaged refractory.	2	Ea.	$15,000.00	$30,000.00
HV2	Throughout Building	Interior	O&M	Mech	1	(2) Variable frequency drives on main hot water system pumps are 22 years old. To be replaced	2	Ea.	$15,000.00	$30,000.00
HV3	Throughout Building	Interior	O&M	Mech	1	(2) Variable frequency drives on main chilled water system pumps are 22 years old. To be replaced.	2	Ea.	$15,000.00	$30,000.00
HV4	Offices 15, 15A, 15B, 15C, 15D	Interior	O&M	Mech	4	Ceiling mounted unit ventilator serving Offices 15 & 15A-D is 25 years old. Its associated air cooled condensing unit is 8 years old and utilizes banned R22 refrigerant. To be replaced within the next 12 years.	1	Ea.	$105,000.00	$105,000.00
HV5	Throughout Building	Interior	O&M	Mech	1	(4) Fan coil units are 21 years old. Associated air cooled condensing units are 21 years old and utilize banned R22 refrigerant. To be replaced.	4	Ea.	$55,000.00	$220,000.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
HV6	Throughout Building	Interior	O&M	Mech	1	Hot water cabinet unit heaters and convectors appear to be original to the areas of the building they serve, up to 56-69 years old. To be replaced.		Ea.		$20,000.00
HV7	Maintenance Office	Interior	O&M	Mech	1	Sanyo duct free split system serving Maintenance Office is 23 years old, utlizes banned R22 refrigerant, and is at the end of its useful life. To be replaced.	1	Ea.	$30,000.00	$30,000.00
HV8	MDF Closet	Interior	O&M	Mech	1	Mitsibushi duct free split system serving the MDF is 22 years old and is at the end of its useful life. To be replaced.	1	Ea.	$30,000.00	$30,000.00
HV9	Throughout Building	Interior	O&M	Mech	1	Existing Building Automation System needs to be kept current. The license for the Tridium JACE's should be upgraded to N4 latest revision and integrated into the District Virtual Server.	1	Lump Sum	$8,500.00	$8,500.00
P1	Older areas of Building	Interior	O&M	Plumb	2	Galvanized water piping in the older areas of the building is beyond its useful life. Replace with copper.	1	Lump Sum	$250,000.00	$250,000.00
P2	Older areas of Building	Interior	O&M	Plumb	2	Duplex Sanitary Submersible pump system in older area of the building may be near the end of its life cycle. Replace pumps over 20 years old and any damaged basin covers.	1	Lump Sum	$30,000.00	$30,000.00
P3	Older areas of Building	Interior	O&M	Plumb	2	Simplex Storm Submersible pump system in older area of the building may be near the end of its life cycle. Replace pumps over 20 years old and any damaged basin covers.	1	Lump Sum	$30,000.00	$30,000.00

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P4	South Area of Building	Interior	O&M	Plumb	3	AO Smith water heater serving the south area of the building is 7 years old. Replace in next 8 years.	1	Ea.	$12,000.00	$12,000.00
P5	South Area of Building	Interior	O&M	Plumb	1	No expansion tank is installed at the AO Smith water heater. To be provided.	1	Ea.	$3,000.00	$3,000.00
P6	North areas of the Building	Interior	O&M	Plumb	4	Vanguard water heater serving the north areas of the building is 2 years old. Replace in next 13 years.	1	Ea.	$12,000.00	$12,000.00
P7	North areas of the Building	Interior	O&M	Plumb	1	No expansion tank is installed at the Vanguard water heater. To be provided.	1	Ea.	$3,000.00	$3,000.00
P8	Throughout Building	Interior	LS	Plumb	1	Lavatories and classroom sinks are lacking the proper water temperature protection. Provide thermostatic mixing valves at all lavatories.	50	Ea.	$600.00	$30,000.00
P9	Throughout Building	Interior	O&M	Plumb	2	Service sinks in the first and second floor corridors of the 2-story classroom wing have cold water only. Extend hot water to the service sinks.	2	Ea.	$5,500.00	$11,000.00
P10	Throughout Building	Interior	O&M	Plumb	1	Cross connection and contamination possibility at all janitor sinks in facility with chemical soap systems. Provide RPZ backflow preventer on a dedicated water line for chemical soap system at	5	Ea.	$3,000.00	$15,000.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
P11	Exterior	Ext Bldg/Site	O&M	Plumb	1	Exterior hose bibs do not have an integral vacuum breaker. Provide screw-on vacuum breaker for hose bibs without integral vacuum breaker.	5	Ea.	$100.00	$500.00
FP1	Throughout Building	Interior	CAP	Plumb	3	The building is not protected by a sprinkler system in it's entirety. Extend sprinkler system to serve the pre-1993 areas	1	Lump Sum	$375,000.00	$375,000.00
E2	Mechanical 113, Storage 16A	Interior	O&M	Elec	2	Obsolete branch circuit panel. Replace Panel.	1	Lump Sum	$50,000.00	$50,000.00
E3	Mechanical 113, Storage 16A	Interior	O&M	Elec	2	Obsolete distribution panels. Replace Panel.	1	Lump Sum	$45,000.00	$45,000.00
E4	Mechanical 113	Interior	LS	Elec	1	Missing fire alarm pull station. Provide pull station.	1	Ea.	$1,000.00	$1,000.00
E5	Assembly 114	Interior	LS	Elec	1	Missing exit sign. Provide exit sign.	1	Ea.	$1,000.00	$1,000.00
E6	Mechanical 20A	Interior	LS	Elec	1	Exposed bus of panelboard. Provide bus cover insert.	1	Ea.	$150.00	$150.00

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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
E7	Mechanical 20A	Interior	O&M	Elec	1	Open junction box. Provide cover.	1	Ea.	$200.00	$200.00
E8	Assembly 114	Interior	LS	Elec	1	Life safety devices missing wire guards in Gym/Assembly. Provide wire guards.	1	Ea.	$200.00	$200.00
E9	Storage 51, Storage 240	Interior	LS	Elec	1	Spaces changed from storage to occupied. No FA notification present. Provide FA Audible/Visual Notification.	2	Ea.	$1,100.00	$2,200.00
E10	Mechanical 226	Interior	LS	Elec	2	Panelboard working clearence violation. Relocate panel.	1	Lump Sum	$10,000.00	$10,000.00
E11	Storage 51, Storage 240	Interior	LS	Elec	1	Spaces changed from storage to occupied, windowless area of student occupancy. Provide EM light.	2	Ea.	$1,000.00	$2,000.00
E12	Exterior	Ext Bldg/Site	LS	Elec	1	Broken exterior light. Replace light fixture.	1	Ea.	$1,000.00	$1,000.00
E13	Throughout Building	Interior	O&M	Elec	1	Due to the age of the panelboards, connections may become loose over time. Thermoscan switchboard and panelboard to identify any loose connections.	1	Lump Sum	$7,500.00	$7,500.00

Meadowbrook Elementary School

Proposed Work Matrix
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#	LOCATION	AREA	RATIONAE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
E14	Throughout Building	Interior	O&M	Elec	2	Intercom system is obsolete, no longer supported by manufacture. Manufacture no longer exists. Replace intercom system head end.	1	Lump Sum	$75,000.00	$75,000.00
E15	Throughout Building	Interior	LS	Elec	3	Exiting fire alarm system does not comply with current codes for Notification. Replace with new Voice Evacuation based fire alarm system with notification devices installed per IBC/IAC requirements.	1	Lump Sum	$220,000.00	$220,000.00

Meadowbrook Total Cost Estimates	$23,311,290

Meadowbrook Elementary School

Work Matrix Summary

Project 2023.016

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Overall Cost Estimate	$23,311,290

Cost Estimate per Area	
Interior	$17,521,500
Exterior/ Site	$2,059,515
Roof	$3,730,275

Cost Estimate per Rationale	
O & M	$3,813,865
ADA	$263,750
Life Safety	$2,949,300
Capital Improvements	$16,284,375

Cost Estimate per Priority	
Priority 01 (within 2 years)	$2,424,050
Priority 02 (2 to 5 years)	$13,837,465
Priority 03 (5 to 10 years)	$6,932,775
Priority 04 (10 years and beyond)	$117,000

Meadowbrook Elementary School

Photographs
Project 2023.016
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01 – Band Rooms 251



02 – Exterior Above Window



02 – Exterior Above Window



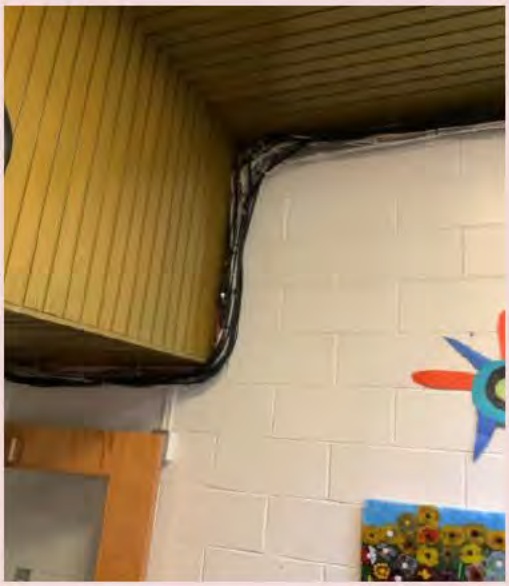
03 – Office/ Storage across from 050

Meadowbrook Elementary School

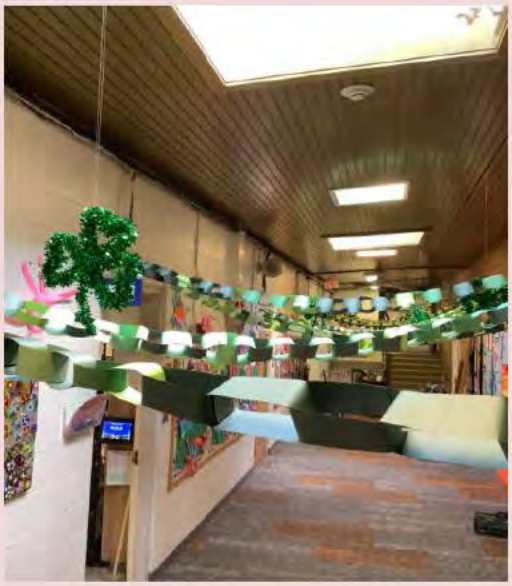
Photographs
Project 2023.016
December 11, 2023



04 – Boys Room 024



07 – Center Corridor cables



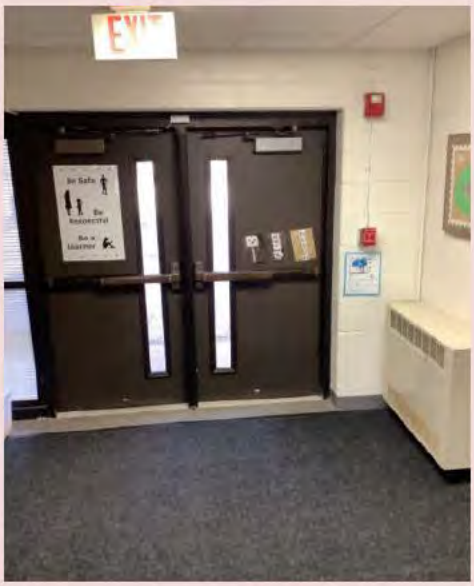
07 – Center Corridor cables



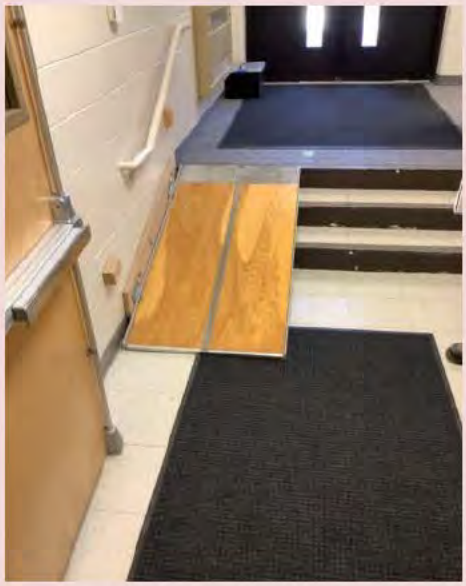
08 – Center Corridor



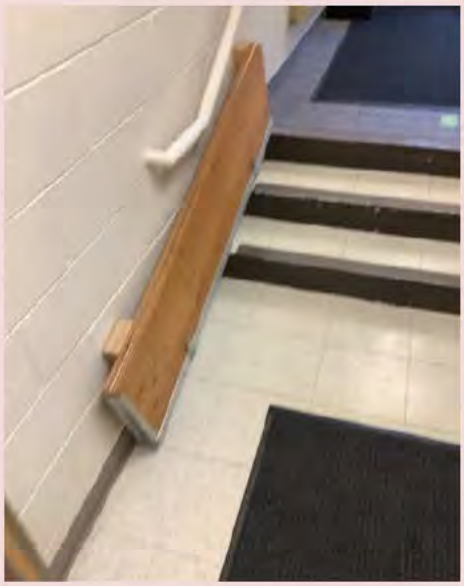
10 – Corridor



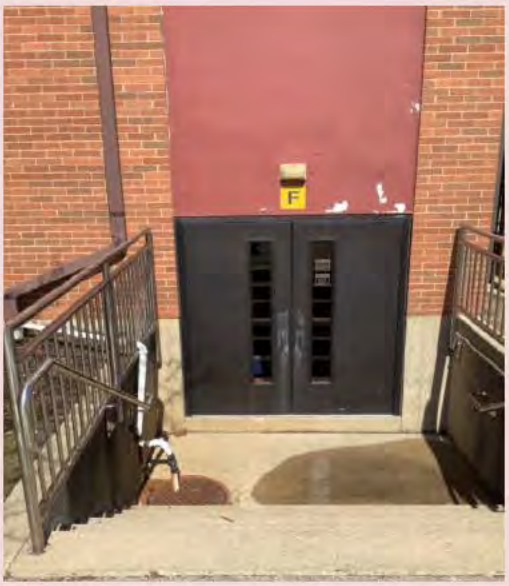
11 – Door near elevator



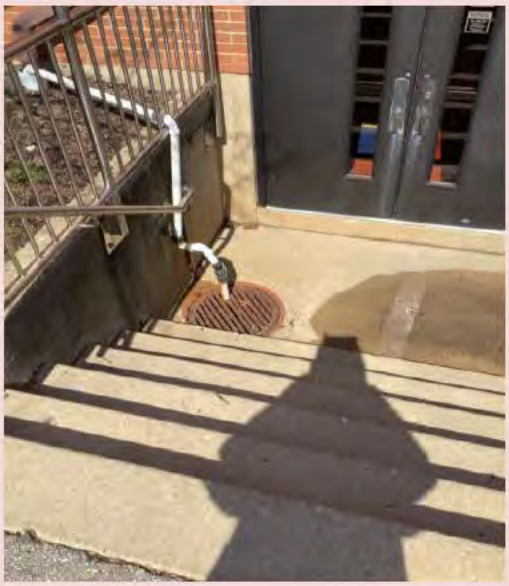
12 – Door C Vestibule



12 – Door C Vest – makeshift ramp



13 - Exterior Door F



13 – Exterior Door F



14 - Exterior



15 – Exterior Concrete



15 – Exterior Concrete



16 – Exterior Tuckpointing



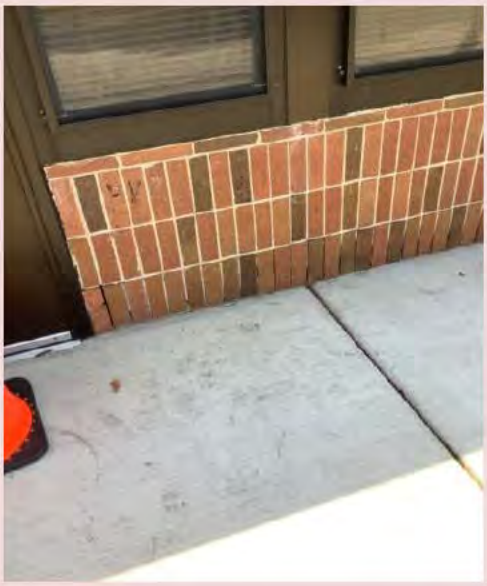
16 – Exterior Tuckpointing



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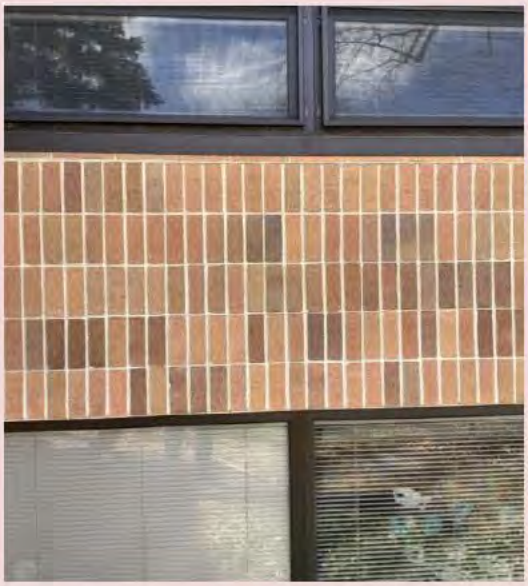
16 – Exterior Tuckpointing



16 – Exterior Tuckpointing



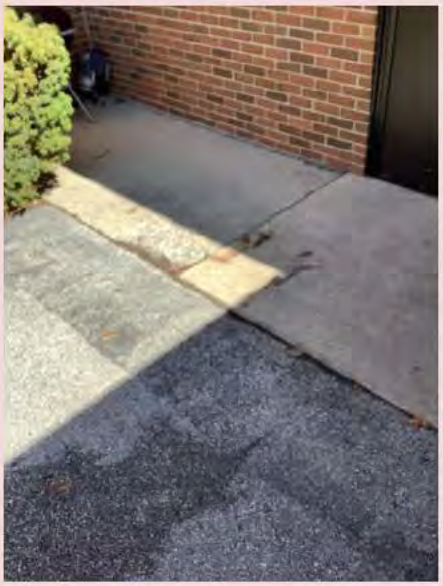
16 – Exterior Tuckpointing



16 – Exterior Tuckpointing



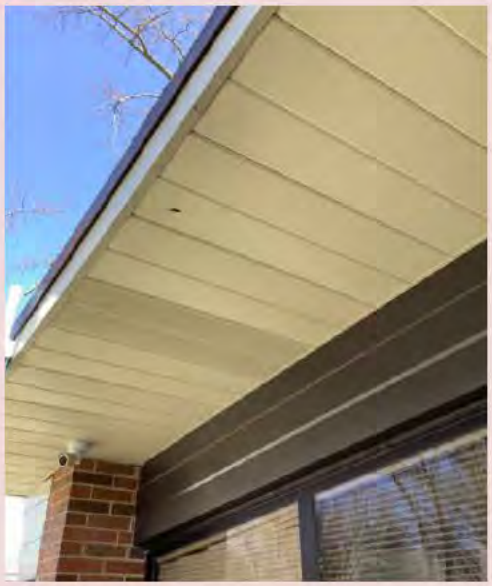
16 – Exterior Tuckpointing



17 – Exterior Concrete



18 – Exterior Concrete



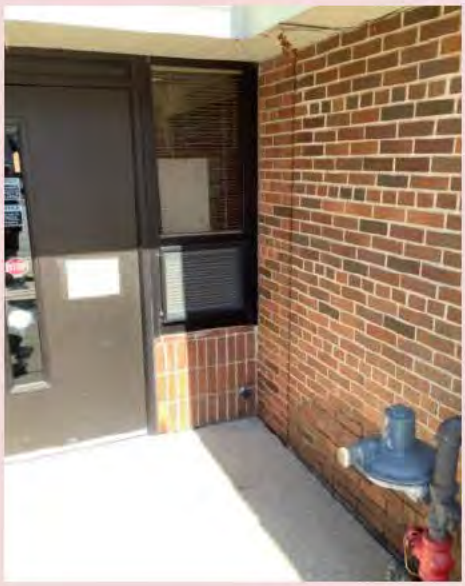
19 – Exterior Soffit



20 – Tuckpointing and Ivy



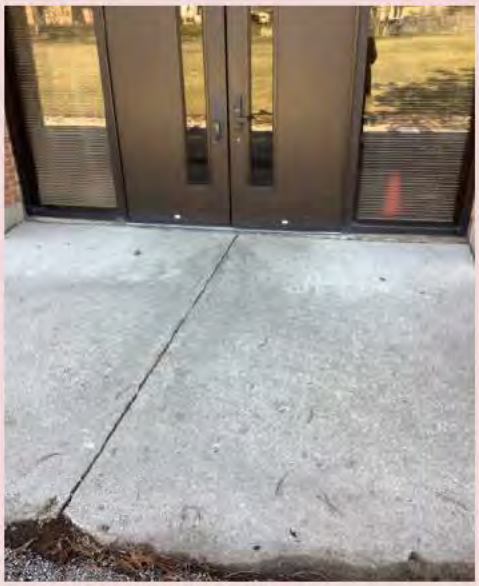
21 – Expansion Joint



21 – Expansion Joint



22 – Exposed fasteners



23 – Exterior concrete



24 – Expansion joint sealant



25 – Exterior concrete



26 – Sealant at hinge



27 – Steel plates



27 – Steel plates



27 – Steel plates



29 – Girls 025



30 – Girls 050



32 – IT Closet



33 - Library



34 - Lounge



35 - Lounge



36 - Lounge



37 – Lower Corridor storage



38 – Lower Corridor



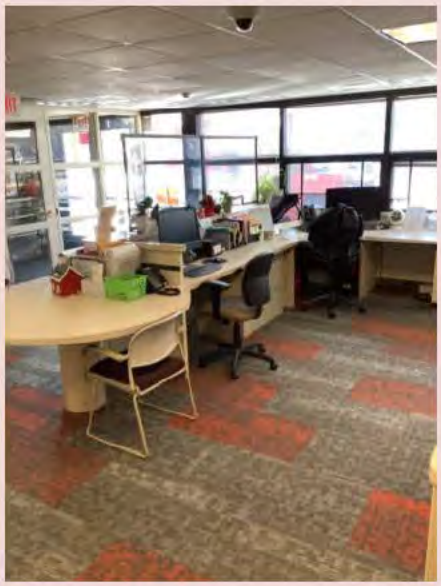
39 – Lower Corridor



40 – Lower Corridor gate



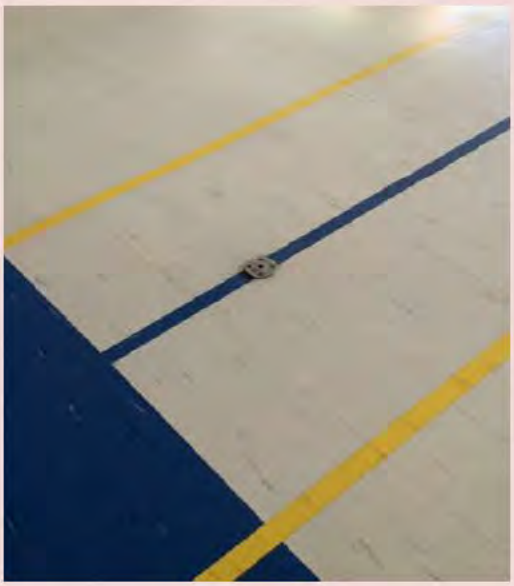
41 – Main Office



41 – Main Office



42 – Main Vestibule



43 – North Gym



44 – Nurse Toilet Room



45 – Roof Soffit Deteriorating



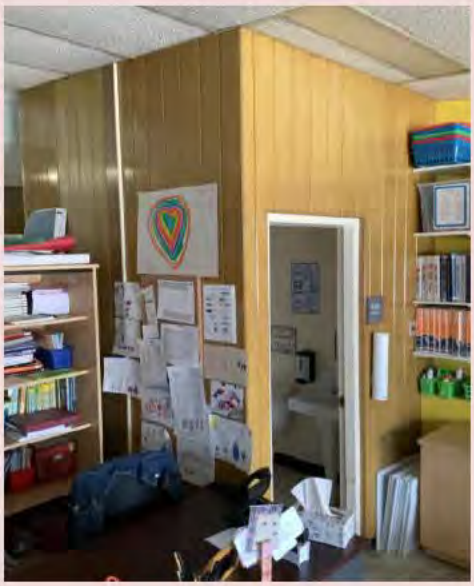
46 – Work Room



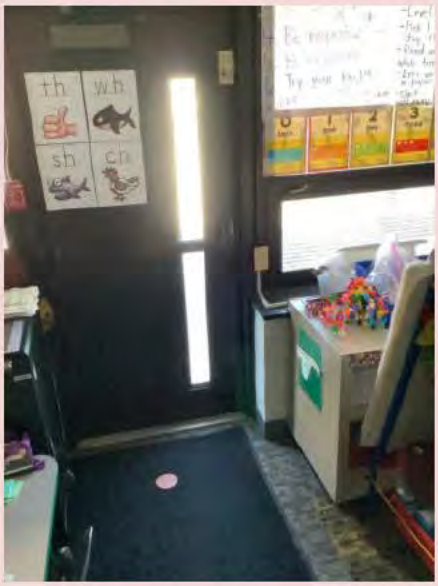
47 – Room 101 sink



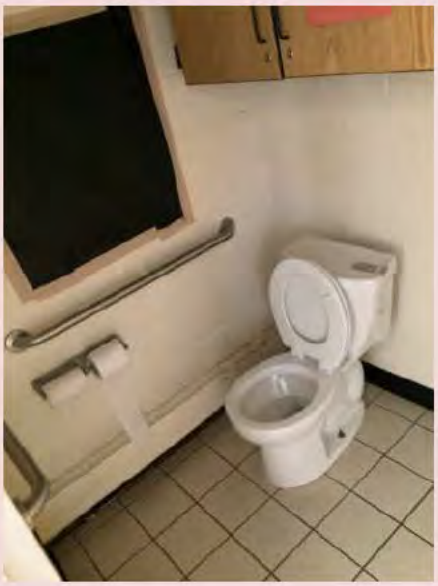
48 – Room 101 leaky pipe



49 – Rooms 101, 102, 103, 104



50 – Room 101



51 –Toilet Room 105



52 – Room 14



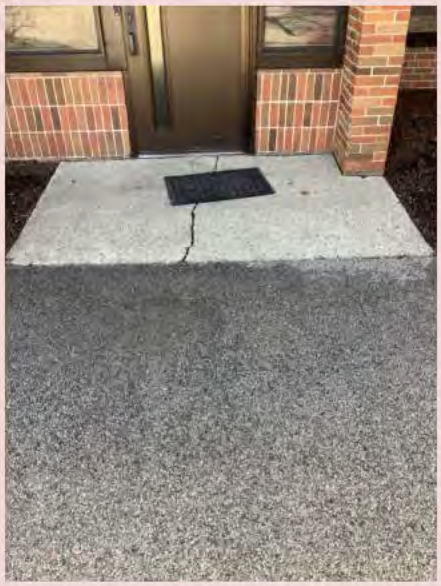
53 – Rooms 19, 21



54 – Room 240



55 – Side Stair



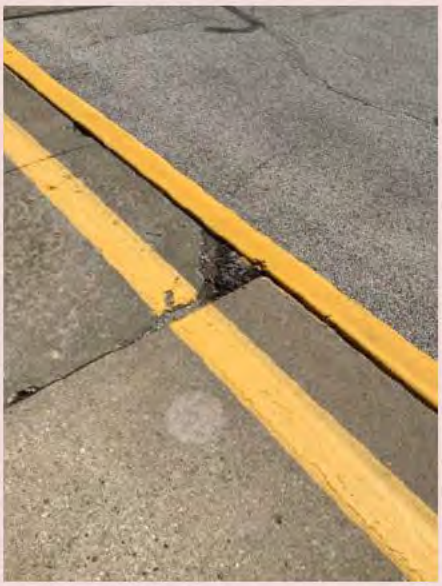
56 – Exterior concrete



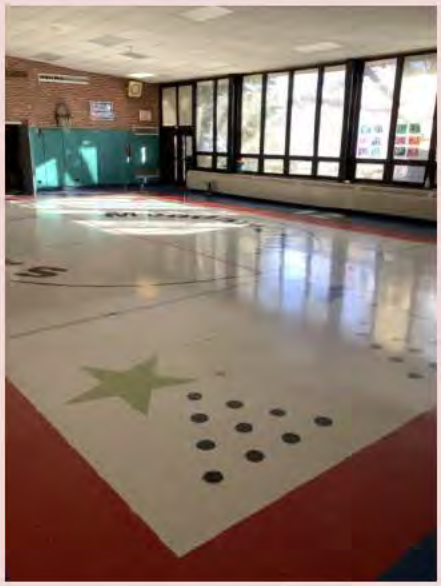
57 – Exterior standing water



57 – Exterior standing water



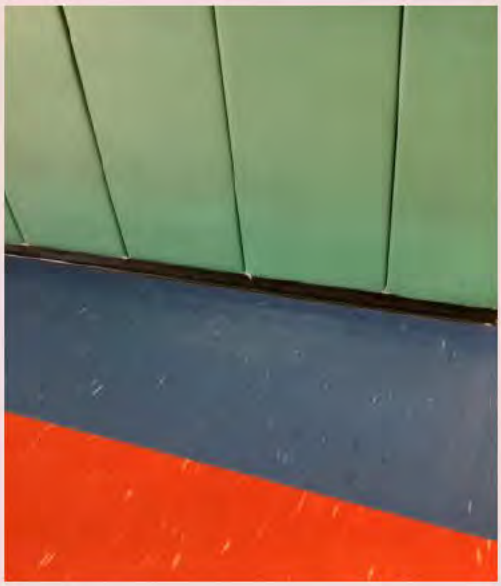
58 – Sidewalk tripping hazard



60 – South Gym



61 – South Gym ceiling



63 – South Gym wall pads



64 – Stairs handrails



64 – Stairs handrails



65 – Stairs treads worn



66 – Storage 20



67 – Storage 20



69 – Throughout



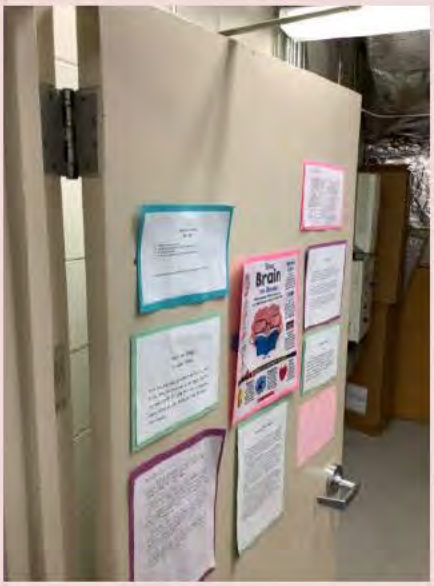
70 – Upper Corridor



70 – Upper Corridor



71 – Upper Corridor



72 – Upper Corridor Mech Room



73 – Upper Level Stair



74 – Upper Rooms ceiling

Westmoor Elementary School

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
01	Classrooms 101, 103	Interior	O&M	Doors	2	Wood door and frame deteriorated to be replaced	2	Ea.	$3,400.00	$6,800.00
02	Classroom 105	Interior	LS	Glazing	3	Wired glass in door, to be replaced	2	S.F.	$75.00	$150.00
03	Classroom 105	Interior	O&M	Casework	3	Casework poor condition, to be replaced	40	L.F.	$550.00	$22,000.00
04	Boiler 153	Interior	O&M	Other	2	Mop sink deteriorated to be replaced	1	Ea.	$1,500.00	$1,500.00
05	Teacher Lounge 155	Interior	CAP	Other	3	Old and outdated, inefficient. To be remodeled	785	S.F.	$275.00	$215,875.00
06	Classroom 159	Interior	O&M	Casework	3	Casework deteriorating, to be replaced	35	L.F.	$550.00	$19,250.00
07	Art 147	Interior	O&M	Casework	3	Casework deteriorating, to be replaced	35	L.F.	$550.00	$19,250.00

Westmoor Elementary School

Proposed Work Matrix

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
08	Music 151	Interior	LS	Doors	2	No sidelights- Provide new door with vision panels	1	Ea.	$3,400.00	$3,400.00
09	Cafeteria 174	Interior	O&M	Doors	3	Wood and wired glass both doors, to be replaced	40	S.F.	$75.00	$3,000.00
10	Classrooms 110	Interior	O&M	Casework	3	Casework deteriorating, to be replaced	30	L.F.	$550.00	$16,500.00
11	All Classroom Window Seats	Interior	O&M	Other	2	Window seat is deteriorating, to be repaired/replaced	28	Ea.	$1,500.00	$42,000.00
12	Classrooms 116, 118, 120, 122, 124, 126, storage 128, 134, 136, 138, 140, 142, 144, 151, 159, 137, 135, 133, 131, 129a, 127, 125, 178, 176	Interior	O&M	Doors	2	Wood door and frame and wired glass. Remove door and frame and install new	24	Ea.	$3,400.00	$81,600.00
13	Classrooms 118, 120, 122, 124, 126, 130, 132, 134, 136, 138, 140, 142, 144, 137, 135, 133, 131	Interior	O&M	Casework	3	Casework deteriorating, to be replaced	500	L.F.	$550.00	$275,000.00

Westmoor Elementary School

Proposed Work Matrix
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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
14	Classrooms 130, 132, 155, 169, 129a, 129b, 129c, 123, 160	Interior	O&M	Doors	2	Wood door and frame. Remove and install new	9	Ea.	$3,400.00	$30,600.00
15	All Classrooms	Interior	LS	Other	1	Flammable corkboard above marker chalk board, replace wall finish	20	Ea.	$1,500.00	$30,000.00
16	Conference 104	Interior	O&M	Doors	2	Wood door and frame. Remove and install new	1	Ea.	$3,400.00	$3,400.00
17	Corridor by Music	Interior	LS	Storage	3	Music stored in corridor. Provide storage area	180	S.F.	$215.00	$38,700.00
18	Corridor by 128, Corridor by 172, Corridor by 178, Corridor by Toilet Rooms	Interior	LS	Protruding Objects	1	Drinking fountains are protruding into path of egress. Remove and install new drinking fountains in a nook, or provide wing walls.	4	Ea.	$2,000.00	$8,000.00
19	Corridor door by 144	Interior	LS	Doors	3	Wired glass in corridor wall, to be removed and replaced.	75	S.F.	$75.00	$5,625.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
20	Corridor doors by 130	Interior	LS	Doors	3	Wired glass transom and sidelight, to be removed and replaced.	20	S.F.	$75.00	$1,500.00
21	Corridors, conference, classrooms	Interior	O&M	Ceilngs	1	Ceiling is flammable material- replace ceiling	25,000	S.F.	$35.00	$875,000.00
22	Vestibule by Door C	Interior	O&M	Flooring	1	Floor tiles coming up- Replace Flooring	75	S.F.	$30.00	$2,250.00
23	Exterior	Ext Bldg/Site	O&M	Masonry	1	Bricks and mortar deteroriating, to be tuckpointed.	750	S.F.	$45.00	$33,750.00
24	Exterior corner	Ext Bldg/Site	O&M	Masonry	1	Bricks and mortar deteroriating, to be tuckpointed, and downspout needs to be replaced	25	S.F.	$45.00	$1,125.00
25	Gym	Ext Bldg/Site	O&M	Masonry	1	Sealant in expansion joints failing. Replace sealant in expansion joints	200	L.F.	$35.00	$7,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
26	Gym	Ext Bldg/Site	O&M	Masonry	2	Lintels are rusty, to be cleaned and repainted	75	L.F.	$35.00	$2,625.00
27	Gym 146	Interior	LS	Doors	2	Door deteriorating, to be removed and replaced	1	Ea.	$6,500.00	$6,500.00
28	Mens across from 124	Interior	CAP	Other	2	Toilet room is old and inefficient. Remodel toilet room and eliminate deadbolts	185	S.F.	$285.00	$52,725.00
29	Science 124	Interior	LS	Casework	1	Poorly installed casework blocking door. Remove and install new casework.	20	L.F.	$550.00	$11,000.00
30	Staff Restroom	Interior	O&M	Other	2	Toilet room is old and inefficient and needs to be remodeled	100	S.F.	$315.00	$31,500.00
31	Storage 121	Interior	O&M	Doors	2	Wood door wood frame to be replaced	1	Ea.	$3,400.00	$3,400.00
32	Restroom across from 172	Interior	O&M	Other	1	Broken tile and storage- remodel toilet room	50	S.F.	$325.00	$16,250.00

Westmoor Elementary School

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
33	Womens Restroom across from 124	Interior	CAP	Other	2	Toilet room is old and inefficient. Remodel toilet room and eliminate deadbolts	185	S.F.	$315.00	$58,275.00
34	Exterior Doors	Ext Bldg/Site	O&M	Doors	2	Exterior doors can be dogged with a hex wrench and can be a security issue. See Door Hardware Summary.	9	Ea.	$1,850.00	$16,650.00
35	Hardscape Playground	Ext Bldg/Site	O&M	Paving	3	Hardscape play in fair condition. Seal coat and crackseal every 2 to 5 years. Inspect and patch as needed.	26,000	S.F.	$1.75	$45,500.00
36	Playground	Ext Bldg/Site	O&M	Equipment	3	Playground equipment is over 27 years old and could be replaced.	1	Lump Sum	$150,000.00	$150,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
37	Bus Dropoff/ Pickup	Ext Bldg/Site	O&M	Paving	2	Poor condition. Needs a full depth removal and replacement in 2 to 5 years	12,000	S.F.	$25.00	$300,000.00
38	Sidewalk West of East parking lot	Ext Bldg/Site	O&M	Paving	2	Sidewalk has heaved and some cross slopes are excessive. Sidewalk to be replaced.	2,500	S.F.	$28.00	$70,000.00
39	East Parking Lot	Ext Bldg/Site	O&M	Paving	3	Parking lot in good condition. Continue to seal coat and crackseal every 2 to 5 years	30,000	S.F.	$1.75	$52,500.00
40	East Parking Lot	Ext Bldg/Site	O&M	Paving	1	Retaining wall at northeast corner of East parking is deteriorated and needs to be reconstructed	4,000	S.F.	$15.00	$60,000.00

Westmoor Elementary School

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
41	Parking Lot	Ext Bldg/Site	ADA	Paving	3	ADA signs need to be placed in the center of the stalls. At least one ADA stall needs a van accessible plaque. And stripe path of travel.	2	Ea.	$1,500.00	$3,000.00
42	Sidewalk at the stairs at the North Entrnace	Ext Bldg/Site	O&M	Paving	2	Sidewalk is cracked and should be replaced.	300	S.F.	$30.00	$9,000.00
43	Sidewalk at East end of bus drop off	Ext Bldg/Site	ADA	Paving	1	The sidewalk panels have an excessive cross slope and need to be corrected	250	S.F.	$28.00	$7,000.00
44	Exits	Interior	LS	Security	1	Label all interior doors at exits for quick identification by emergency responders	11	Ea.	$150.00	$1,650.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
45	General	Ext Bldg/Site	O&M	Security	2	Alarm systems are monitored by Esscoe. Post Esscoe security alarm signs at all exterior doors.	11	Ea.	$100.00	$1,100.00
46	Site	Ext Bldg/Site	O&M	Security	2	Some vegetation does not follow the Crime Prevention Through Environmental Design. Trim landscaping to meet best practices.	1	Lump Sum	$25,000.00	$25,000.00
47	Site	Ext Bldg/Site	O&M	Security	3	Post property access restriction signs at parking lot entries and along property lines. Post visitor management signs and firearm prohibition signs at all exterior doors.	1	Lump Sum	$5,000.00	$5,000.00
48	Site	Ext Bldg/Site	LS	Security	2	Install vehicle barriers such as removabel bollards to restrict access to playgrounds, entries, and pedestrian areas.	4	Ea.	$1,250.00	$5,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
49	Exterior Doors	Ext Bldg/Site	O&M	Security	3	Install security film on exterior door vision panels and sidelights.	1,000	S.F.	$95.00	$95,000.00
50	Roof (Area I)	Roof	O&M	Roofing	1	Roof is deteriorating throughout and needs to be replaced	33,900	S.F.	$45.00	$1,525,500.00
51	Throughout Building	Interior	Cap	Other	3	The building is lacking staff restrooms, sensory room, calm room, and general storage. Select classrooms to remodel into new uses and provide an addition for 4 new classrooms.	13,000	S.F.	$495.00	$6,435,000.00
52	Main Office	Interior	CAP	Security	2	Secured entrance trap shares the vestibule with the school entrance and egress. Provide separation between the trap and vestibule.	750	S.F.	$260.00	$195,000.00
HV1		Interior	O&M	Mech	2	(2) LES hot water boilers are 20 years old and nearing the end of their useful life. Replace in the next 5 years.	2	Ea.	$160,000.00	$320,000.00
HV2		Interior	O&M	Mech	1	(2) ABB variable frequency drives serving main hot water system pumps are 20 years old and at the end of their useful life. Replace in the next 2 years.	2	Ea.	$27,500.00	$55,000.00

Westmoor Elementary School

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
HV3	Gymnasium	Interior	O&M	Mech	3	Trane indoor air handling unit and return fan serving gymnasium are 30 years old. To be replaced in the next 10 years.	1	Lump Sum	$120,000.00	$120,000.00
HV4		Ext Bldg/Site	LS	Mech	1	Trane air cooled condensing unit serving the gymnasium air handling unit is 20 years old, utilizes banned R22 refrigerant, and is at the end of its useful life. To be replaced in the next 2 years.	1	Lump Sum	$105,000.00	$105,000.00
HV5	Art Room and adjacent spaces	Interior	O&M	Mech	3	Trane indoor multizone air handling unit and return fan serving Art Room and adjacent spaces is 30 years old. To be replaced in the next 10 years.	1	Lump Sum	$120,000.00	$120,000.00
HV6	Art Room and adjacent spaces	Ext Bldg/Site	LS	Mech	1	Trane air cooled condensing unit serving the Art Room and adjacent spaces is 30 years old, utilizes banned R22 refrigeant, and is well beyond its useful life. To be replaced in the next 2 years.	1	Lump Sum	$100,000.00	$100,000.00
HV7	Scienct 172	Ext Bldg/Site	O&M	Mech	1	Carrier rooftop unit RTU-1 serving Science 172 is 26 years old and well beyond its useful life. To be replaced in the next 2 years.	1	Lump Sum	$50,000.00	$50,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
HV8	Administrative Offices	Ext Bldg/Site	O&M	Mech	4	Trane rooftop unit RTU-2 serving the Administrative Offices is 9 years old. To be replaced in the next 11 years.	1	Lump Sum	$100,000.00	$100,000.00
HV9	Class ELS	Ext Bldg/Site	O&M	Mech	3	Carrier rooftop unit RTU-3 serving Classroom P-2 ELS 105 is 12 years old. To be replaced in the next 8 years.	1	Lump Sum	$50,000.00	$50,000.00
HV10	Multi-Purpose Room 174	Ext Bldg/Site	O&M	Mech	1	Trane rooftop unit RTU-4 serving Multi-Purpose Room 174 is 20 years old and at the end of its useful life. To be replaced in the next 2 years.	1	Lump Sum	$100,000.00	$100,000.00
HV11	LMC 107	Ext Bldg/Site	O&M	Mech	4	Trane rooftop unit RTU-5 serving LMC 107 is 9 years old. To be replaced in the next 11 years.	1	Lump Sum	$100,000.00	$100,000.00
HV12	Computer 109	Ext Bldg/Site	O&M	Mech	1	Trane rooftop unit RTU-6 serving Computer 109 is 20 years old and at the end of its useful life. To be replaced in the next 2 years and seal or replace horizontal ductwork on roof.	1	Lump Sum	$85,000.00	$85,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
HV13	Reading Specialist Area	Ext Bldg/Site	O&M	Mech	4	Trane rooftop unit RTU-7 serving Reading Specialist Area is 9 years old. To be replaced in the next 11 years, and evaluate condition of horizontal ductwork.	1	Lump Sum	$60,000.00	$60,000.00
HV14	Conference 160	Ext Bldg/Site	O&M	Mech	3	Carrier rooftop unit serving Conference 160 is 13 years old. To be replaced in the next 7 years.	1	Lump Sum	$50,000.00	$50,000.00
HV15	Pre-K Class Addition	Ext Bldg/Site	O&M	Mech	4	Trane variable volume rooftop unit serviing Pre-K Classroom addition at the east side of the building is 9 years old. To be replaced in the next 11 years.	1	Lump Sum	$125,000.00	$125,000.00
HV16	West and North Classroom Wings	Ext Bldg/Site	O&M	Mech	4	(2) Trane dehumidification rooftop units serving the west and north classroom wings are 9 years old. To be replaced in the next 11 years.	2	Lump Sum	$95,000.00	$190,000.00
HV17	2014 Addition	Ext Bldg/Site	O&M	Mech	4	(3) Trane air cooled condensing units associated with Trane under-the-window unit ventilators in the 2014 addition are 9 years old. To be replaced in the next 11 years.	3	Lump Sum	$35,000.00	$105,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
HV18	West and North Classroom Wings	Ext Bldg/Site	LS	Mech	1	(20) Trane air cooled condensing units associated with Trane under-the-window unit ventilators serving west and north wing classrooms in the 1965-1967 areas of the building are 20 years old, utilize banned R22 refrigerant, and are at the end of their useful life. To be replaced in the next 2 years.	20	Lump Sum	$52,500.00	$1,050,000.00
HV19	Offices 125, 127, 169	Ext Bldg/Site	O&M	Mech	1	(4) Trane packaged terminal air conditioners serving Offices 125/127/169 are 20 years old and at the end of their useful life. To be replaced in the next 2 years.	4	Lump Sum	$4,750.00	$19,000.00
HV20	Storage 176, Work Room 178	Interior	O&M	Mech	1	Sanyo duct free split system serving Storage 176/Work Room 178 is 20 years old and at the end of its useful life. To be replaced in the next 2 years.	1	Lump Sum	$30,000.00	$30,000.00
HV21	Book Storage 128	Interior	O&M	Mech	1	Sanyo duct free split system serving Book Storage 128 (MDF) is 33 years old, utilizes banned R22 refrigerant, and is well beyond its useful life. To be replaced in the next 2 years.	1	Lump Sum	$30,000.00	$30,000.00
HV22	Storage 169A	Interior	O&M	Mech	1	Sanyo duct free split system serving Storage 169A is 33 years old, utilizes banned R22 refrigerant, and is well beyond its useful life. To be replaced in the next 2 years.	1	Lump Sum	$30,000.00	$30,000.00
HV23	Throughout Building	Interior	O&M	Mech	1	Hot water cabinet unit heaters and convectors in older areas of the building are 56-58 years old. To be replaced if found not to be functional.	1	Lump Sum	$60,000.00	$60,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
HV24	Throughout Older Areas of Building	Interior	O&M	Mech	1	Exhaust fans serving older areas of the building are 56-58 years old. To be replaced.	1	Lump Sum	$42,000.00	$42,000.00
HV25	Throughout Building	Interior	O&M	Mech	1	Existing Building Automation System Tridium AX JACEs are obsolete. Replace JACE's with current technology Tridium N4 latest revision and integrate into the new District Virtual Server.	1	Lump Sum	$30,000.00	$30,000.00
P1	Throughout Building	Interior	CAP	Plumb	2	Galvanized water piping in the older areas of the building is beyond its useful life. Replace piping with copper.	1	Lump Sum	$250,000.00	$250,000.00
P2		Interior	O&M	Plumb	4	AO Smith water heater serving the south area of the building is 2 years old. To be replaced in next 13 years.	1	Ea.	$12,500.00	$12,500.00
P3		Interior	LS	Plumb	1	No expansion tank is installed at the AO Smith water heater. Provide and install expansion tank.	1	Ea.	$3,000.00	$3,000.00
P4	Throughout Building	Interior	LS	Plumb	1	Lavatories and classroom sinks are lacking the proper water temperature protection. Provide thermostatic mixing valves.	20	Ea.	$500.00	$10,000.00
P6	Janitor Closets	Interior	LS	Plumb	1	Cross connection and contamination possibility at all janitor sinks in facility with chemical soap systems. (Five locations) Provide RPZ backflow preventer on dedicated water lined for chemical soap system at each janitor closet service sink.	5	Ea.	$1,250.00	$6,250.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
E1	Throughout Building	Interior	O&M	Elec	1	Due to the age of the panelboards, connections may become loose over time. Thermoscan switchboard and panelboards to identify any loose connections	1	Lump Sum	$7,500.00	$7,500.00
E3	Vest 001, Pre-K 156, 154, 148, Kinder 108, 106	Interior	LS	Elec	1	Missing fire alarm pull station at egress door. Provide pull station.	6	Ea.	$1,350.00	$8,100.00
E4	Multi-Purpose Room 174	Interior	LS	Elec	1	Life Safety devices missing wire guards. Provide wire guards.	2	Ea.	$250.00	$500.00
E5	ELL Office 169, Toilet near 117, Kiln 147A, Office 145, Conf 104	Interior	LS	Elec	1	FA notification devices missing. Provide FA notification device.	5	Ea.	$1,250.00	$6,250.00
E6	Vest 004	Interior	LS	Elec	1	Non functional exit sign to be replaced.	1	Ea.	$500.00	$500.00
E7	Administrative Offices	Interior	LS	Elec	1	No EM light. To be provided.	1	Ea.	$750.00	$750.00
E8	Throughout Building	Interior	LS	Elec	2	Intercom system is obsolete, no longer supported by manufacturer. Manufacturer no longer exists. Replace intercom system head end.	1	Lump Sum	$80,000.00	$80,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
E9	Storage 176	Interior	LS	Elec	2	Foreign system piping routed over electrical panels. Relocate the electrical panels.	1	Lump Sum	$30,000.00	$30,000.00
E10	Roof	Roof	O&M	Elec	2	Pull box on roof access obstructed by RTU screening. Reconfigure screening.	1	Lump Sum	$1,000.00	$1,000.00
E11	Roof	Roof	O&M	Elec	1	At roof, conduit supports are too far apart. Provide additional support blocks.	1	Lump Sum	$500.00	$500.00
E12	Throughout Building	Interior	LS	Elec	2	Existing fire alarm system does not comply with current codes for Notification. Replace with new Voice Evacuation based fire alarm system with notification devices per code.	1	Lump Sum	$250,000.00	$250,000.00

Westmoor Total Cost Estimates	$14,720,300.00

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Work Matrix Summary

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Overall Cost Estimate	$14,720,300

Cost Estimate per Area	
Interior	$10,015,050
Exterior/ Site	$3,178,250
Roof	$1,527,000

Cost Estimate per Rationale	
O & M	$5,741,550
ADA	$10,000
Life Safety	$1,761,875
CAP	$7,206,875

Cost Estimate per Priority	
Priority 01 (within 2 years)	$4,407,875
Priority 02 (2 to 5 years)	$1,877,075
Priority 03 (5 to 10 years)	$7,742,850
Priority 04 (10 years and beyond)	$692,500

Westmoor Elementary School

Photographs
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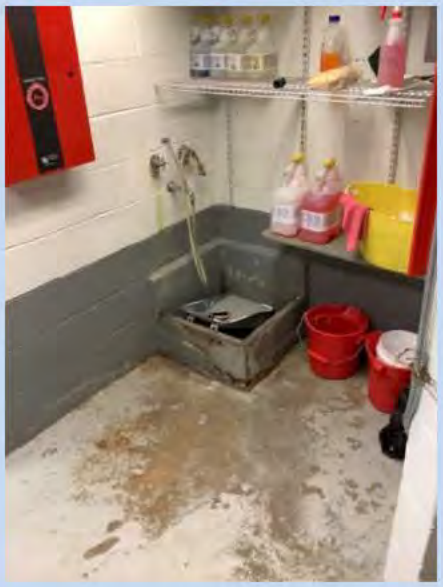
01 – Rooms 101, 103



02 – Room 105



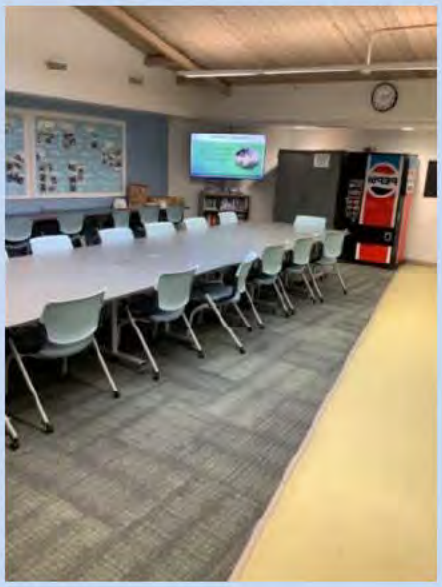
03 – Room 105



04 – Boiler Room



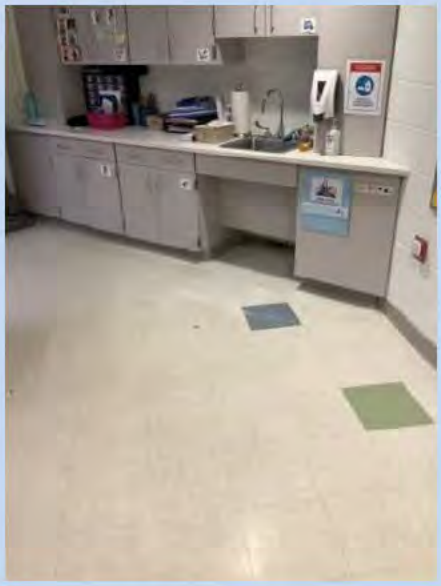
05- Teacher's Lounge 155



05 – Teacher's Lounge 155



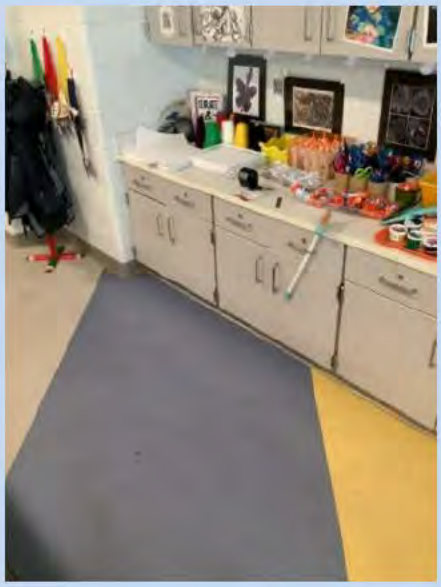
05 – Teacher's Lounge 155



06 - Room 159



07 – Art 147



07 – Art 147



08 – Music 151



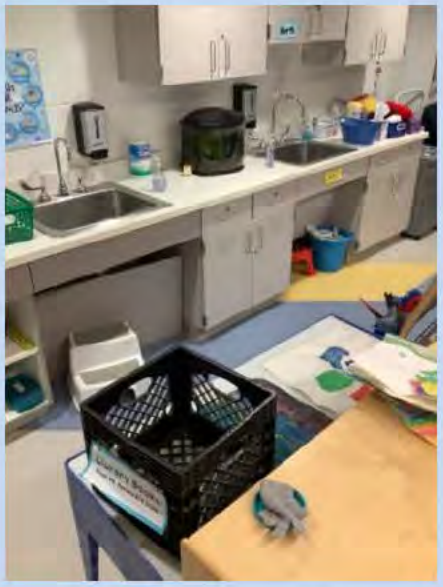
09 – Cafeteria



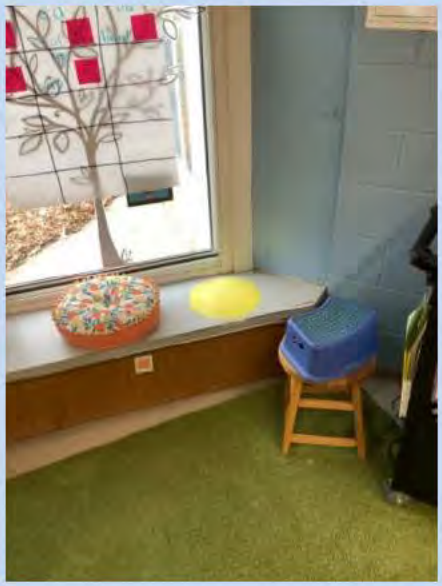
09 – Cafeteria



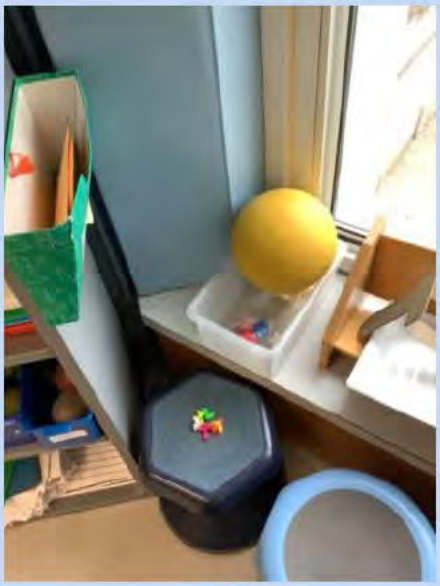
09 – Cafeteria



10 – Classroom 110



11 – All Classroom Seats



11 – All Classroom Seats



12- Multiple classes wired glass



12 – Multiple classes wired glass



12 – Multiple classes wired glass



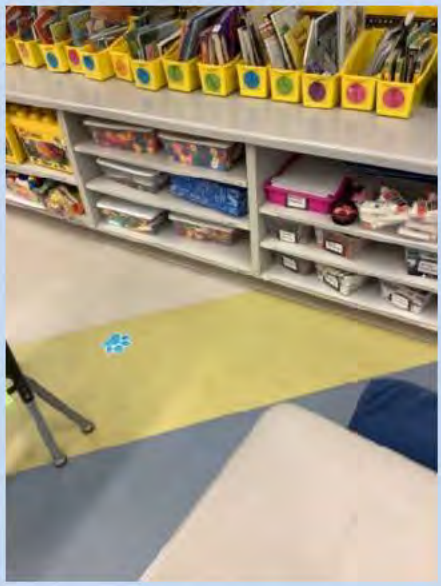
13 – Multiple classes casework



13 – Multiple classes casework



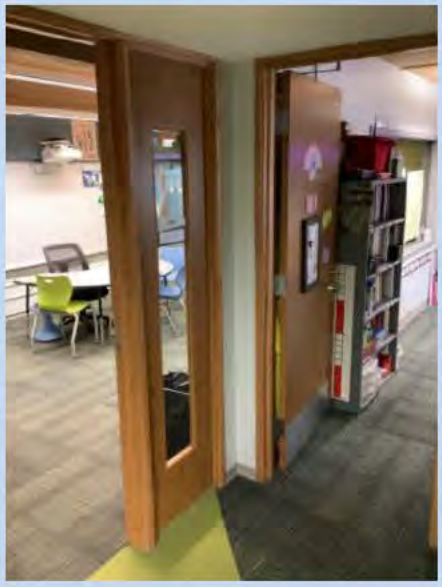
13 – Multiple classes casework



13 – Multiple classes casework



14 – Multiple classes wood frame



14 – Multiple classes wood frame



14 – Multiple classes wood frame



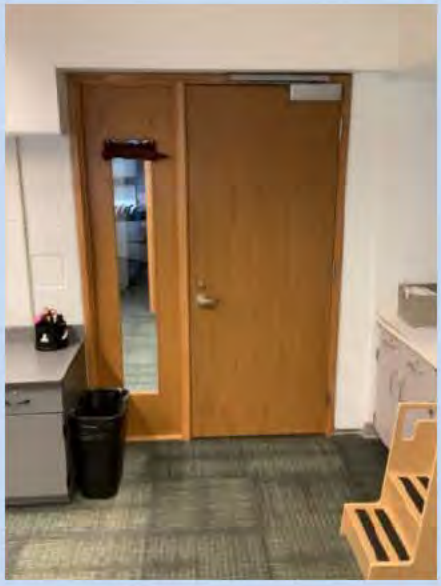
15 – Classrooms corkboard



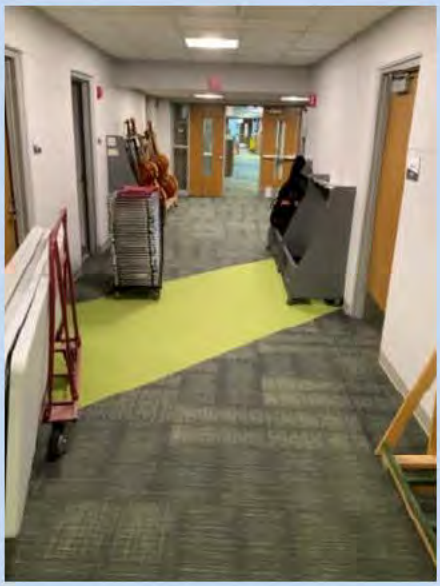
15 – Classrooms corkboard



16 – Conference 104



16 – Conference 104



17 - Corridor



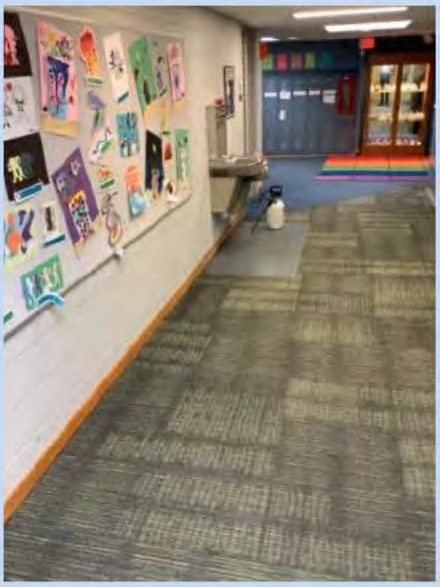
17 - Corridor



18 – Corridors



18 – Corridors



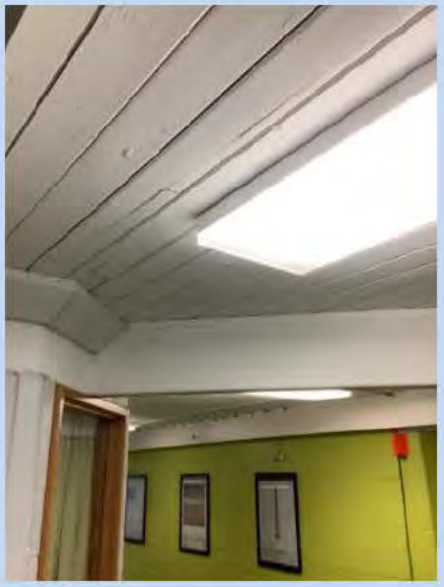
18 - Corridors



19 – Corridor by 144 wired glass



20 – Corridor doors by 130



21 – Corridors, Conf, Classes



21 – Corridors, Conf, Classes



22 – Door C Vestibule



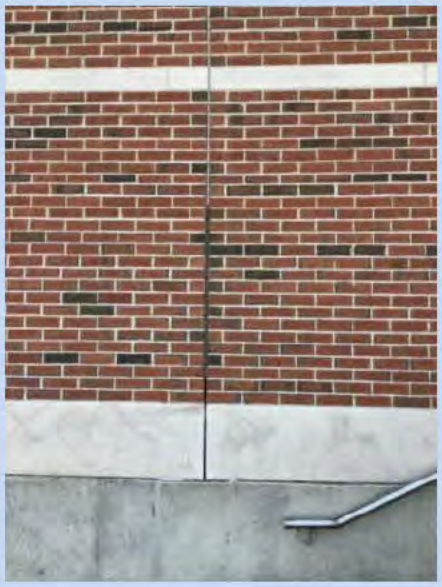
23 – Exterior masonry



24 – Exterior masonry



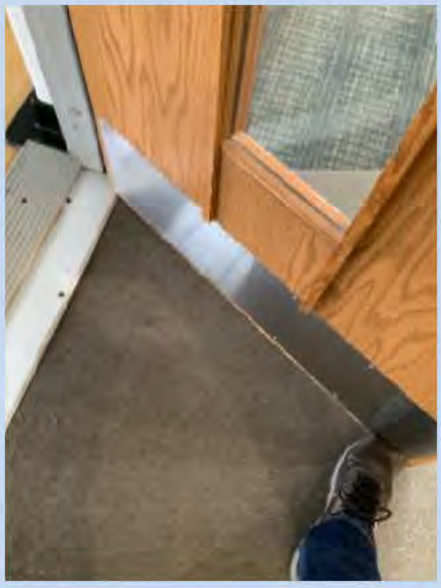
24 – Exterior masonry



25 – Gym masonry



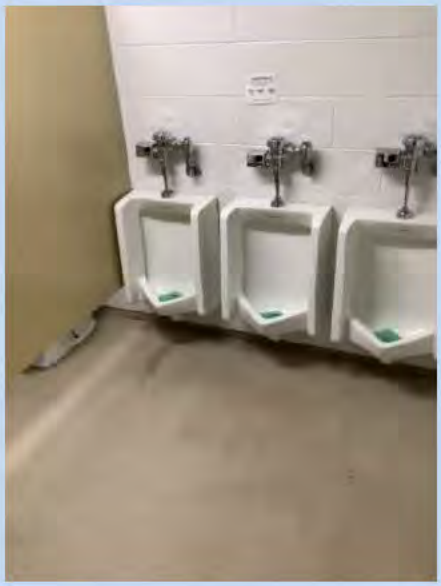
26 – Gym lintels



27 – Gym 146 door



28 – Men's across from 124



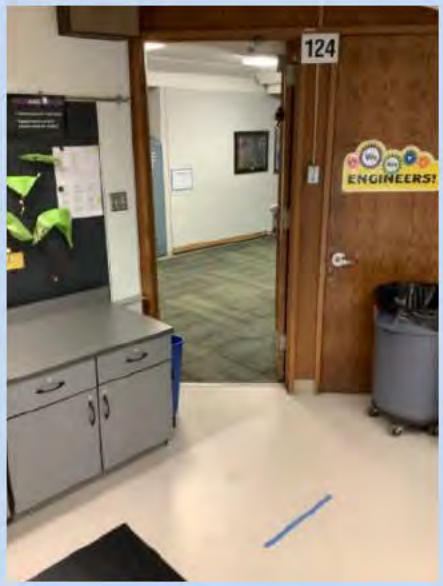
28 – Men's across from 124



28 – Men's across from 124



29 – Science 124



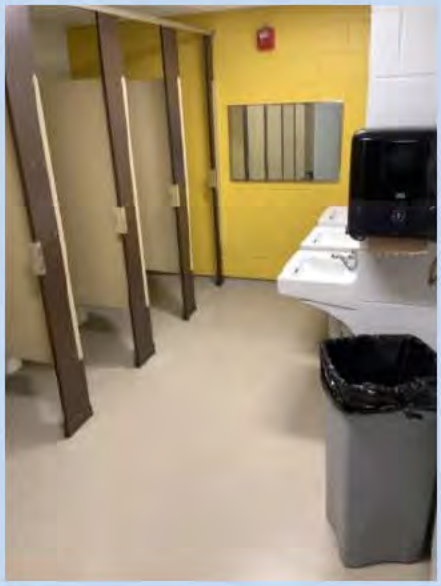
29 – Science 124



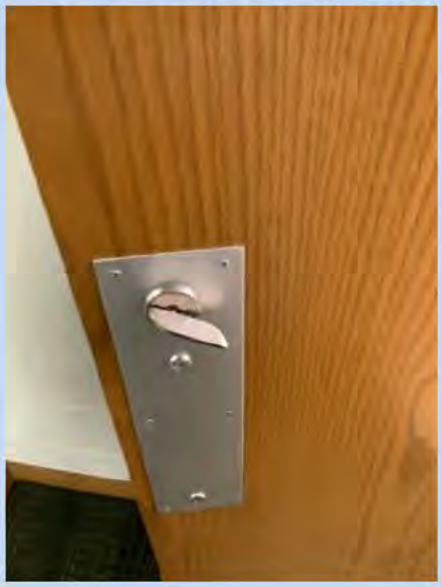
30 – Staff Toilet



31 – Storage 121



33 – Women's across from 124



33 – Women's across from 124

Northbrook Junior High School

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
01	110, 104, 100	Interior	CAP	Casework	3	No casework in room, to be installed	135	L.F.	$550.00	$74,250.00
02	111	Interior	O&M	Casework	2	Casework deteriorating, to be replaced	45	L.F.	$550.00	$24,750.00
03	112	Interior	LS	Doors	3	Wired glass to be replaced	15	S.F.	$75.00	$1,125.00
04	113,111	Interior	O&M	Ceilings	2	Wet clg tile- replace and investigate cause	2	Ea.	$200.00	$400.00
05	113,111, 110, 104, 100	Interior	LS	Doors	3	Wired glass to be replaced	115	S.F.	$75.00	$8,625.00
06	120	Interior	LS	Other	3	Light switch not by door- relocate switch	1	Ea.	$750.00	$750.00
07	122	Interior	LS	Doors	3	Wired glass to be replaced	15	S.F.	$75.00	$1,125.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
08	124	Interior	LS	Doors	3	Wired glass to be replaced	15	S.F.	$75.00	$1,125.00
09	124	Interior	O&M	Other	1	There is no vent at the stove. To be installed	1	Ea.	$4,000.00	$4,000.00
10	3rd level corridor in addition	Interior	LS	Egress	1	Dead end corridor condition. Replace doors to swing in direction of egress travel	1	Lump Sum	$9,500.00	$9,500.00
11	401 music	Interior	O&M	Storage	2	Chair storage by door- provide storage area	100	S.F.	$125.00	$12,500.00
12	402 music library	Interior	O&M	Storage	2	Storage at door- provide storage area	100	Ea.	$150.00	$15,000.00
13	Girls Restroom Across from 316 on landing	Interior	LS	Doors	1	Door has deadbolt to be removed.	1	Ea.	$750.00	$750.00
14	Girls Restroom Across from 316 on landing	Interior	CAP	Other	2	Old and outdated, inefficient. To be remodeled	175	S.F.	$315.00	$55,125.00
15	Stairwell across from Room 316	Interior	O&M	Glazing	1	Broken glass to be replaced	25	S.F.	$75.00	$1,875.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
16	Admin office	Interior	CAP	Other	2	Old and outdated, inefficient, needs chair storage. To be remodeled	3500	S.F.	$315.00	$1,102,500.00
17	Admin Office Restroom for Superintendent	Interior	CAP	Other	2	Old and outdated, inefficient. To be remodeled	75	S.F.	$285.00	$21,375.00
18	Admin office restrooms	Interior	CAP	Other	2	Old and outdated, inefficient. To be remodeled	200	S.F.	$285.00	$57,000.00
19	Admin office community room	Interior	LS	Ceilings	2	Ceilings sagging- replace ceiling	900	S.F.	$25.00	$22,500.00
20	Admin office kitchen	Interior	CAP	Casework	3	Tile and casework to be replaced.	15	L.F.	$550.00	$8,250.00
21	Art 118	Interior	LS	Doors	3	Wired glass to be replaced	15	S.F.	$75.00	$1,125.00
22	Art 118	Interior	O&M	Casework	2	Casework deteriorating, to be replaced	50	L.F.	$550.00	$27,500.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
23	Art 118 storage	Interior	LS	Ceilings	2	12 x 12 clg tiles- replace ceiling	150	S.F.	$25.00	$3,750.00
24	Basement corridor	Interior	LS	Doors	3	Wired glass to be replaced	175	S.F.	$75.00	$13,125.00
25	Basement mech	Interior	LS	Mechancial	1	Insulation ripping off duct, to be replaced	50	L.F.	$25.00	$1,250.00
26	Basement work room	Interior	O&M	Casework	2	Casework deteriorating, to be replaced	5	L.F.	$550.00	$2,750.00
27	Restroom outside Admin	Interior	CAP	Other	2	Old and outdated, inefficient. To be remodeled	190	S.F.	$315.00	$59,850.00
28	Boys Restroom 108	Interior	CAP	Other	2	Old and outdated, inefficient. To be remodeled	305	S.F.	$315.00	$96,075.00
29	Boys and girls locker rooms	Interior	LS	Doors	3	Wired glass on doors to be replaced	20	S.F.	$75.00	$1,500.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
30	Boys Restroom on landing by main entrance	Interior	CAP	Other	2	Old and outdated, inefficient. To be remodeled	155	S.F.	$285.00	$44,175.00
31	By cafeteria entrance	Ext Bldg/Site	O&M	Masonry	1	Masonry deteriorating, to be tuckpointed	500	S.F.	$45.00	$22,500.00
32	By cafeteria entrance and gym	Roof	O&M	Other	3	Lettering is different- provide new signs	2	Ea.	$5,000.00	$10,000.00
33	Cafeteria & Kitchen	Interior	CAP	Other	3	Small and inefficient space- relocate and renovate area in school for the Cafeteria and Kitchen and renovate existing cafeteria space to new uses	8500	S.F.	$615.00	$5,227,500.00
34	Cafeteria stair	Interior	LS	Doors	2	Wired glass in door to be replaced	24	S.F.	$75.00	$1,800.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
35	Commons by Door A	Ext Bldg/Site	LS	Protruding Objects	1	Drinking fountain is a protruding object. Remove and install in a nook or provide wing walls	1	Ea.	$1,500.00	$1,500.00
36	Conference by Door A	Interior	LS	Doors	3	Wired glass to be replaced	15	S.F.	$75.00	$1,125.00
37	Conference by Door A	Interior	LS	Egress	1	Gate to close off corridor to be removed	1	Lump Sum	$5,000.00	$5,000.00
38	Corridor by 316	Ext Bldg/Site	LS	Protruding Objects	1	Drinking fountain is a protruding object. Remove and install in a nook or provide wing walls	1	Ea.	$1,500.00	$1,500.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
39	Corridor by restrooms	Interior	LS	Protruding Objects	1	Sink is a protruding object. Remove and install in a nook or provide wing walls	1	Ea.	$1,500.00	$1,500.00
40	Corridor doors by 307	Interior	LS	Doors	3	Wired glass to be replaced	24	S.F.	$75.00	$1,800.00
41	Door G	Interior	O&M	Ceilings	2	Ceiling deteriorated and to be replaced	150	S.F.	$35.00	$5,250.00
42	Doors by Entrance B	Interior	O&M	Doors	2	Delaminating doors to be replaced	1	Ea.	$3,400.00	$3,400.00
43	East side	Interior	O&M	Masonry	2	Lintels to be scraped and repainted	40	L.F.	$250.00	$10,000.00
44	Faculty lounge 210	Interior	O&M	Casework	3	Casework deteriorating, to be replaced	20	L.F.	$550.00	$11,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
45	Faculty lounge, nurse	Interior	LS	Doors	3	Wired glass to be replaced	30	S.F.	$75.00	$2,250.00
46	Faculty workroom, main office	Interior	O&M	Casework	3	Casework deteriorating, to be replaced	40	L.F.	$550.00	$22,000.00
47	Front Exterior of building	Ext Bldg/Site	O&M	Masonry	1	Masonry deteriorating, to be tuckpointed	500	S.F.	$45.00	$22,500.00
48	Girls Restroom	Interior	CAP	Other	2	Old and outdated, inefficient. To be remodeled	175	S.F.	$315.00	$55,125.00
49	Girls Restroom in landing	Interior	CAP	Other	2	Old and outdated, inefficient. To be remodeled	175	S.F.	$315.00	$55,125.00
50	Gym	Interior	LS	Doors	3	Wired glass to be replaced	50	S.F.	$75.00	$3,750.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
51	Main entrance A	Ext Bldg/Site	LS	Stairs	1	Handrails do not extend, to be replaced	40	L.F.	$185.00	$7,400.00
52	Main entry	Interior	O&M	Flooring	1	Floor seam- replace flooring	600	S.F.	$30.00	$18,000.00
53	Main Entry	Interior	CAP	Other	3	Entrance and lobby is outdated and not welcoming. Renovate lobby.	2000	S.F.	$295.00	$590,000.00
54	Main office	Interior	LS	Doors	3	Wired glass to be replaced	24	S.F.	$75.00	$1,800.00
55	Main Office	Interior	CAP	Other	3	Office layout is inefficient, lacks confidentiality and needs to be remodeled	3000	S.F.	$275.00	$825,000.00
56	Maintenance room	Interior	LS	Glazing	1	Broken wired glass to be replaced	15	S.F.	$75.00	$1,125.00
57	Music 410	Interior	O&M	Storage	2	Need chair storage	150	S.F.	$125.00	$18,750.00
58	Music room 406	Interior	O&M	Storage	2	Need chair storage	150	S.F.	$125.00	$18,750.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
59	Music room 410	Interior	O&M	Other	3	Walls are chipped and peeling, need to be repainted	2300	S.F.	$11.00	$25,300.00
60	Near main entry	Interior	LS	Egress	1	Door swing causes dead end- replace doors and frames to open in direction of egress.	1	Lump Sum	$9,500.00	$9,500.00
61	Nurse	Interior	O&M	Casework	2	Casework deteriorating, to be replaced	20	L.F.	$550.00	$11,000.00
62	Room 211, 213	Interior	LS	Doors	3	Wired glass to be replaced	30	S.F.	$75.00	$2,250.00
63	Room 211, 213, 218, 219, 227, 225, 221	Interior	CAP	Casework	3	No casework present, to be provided	320	L.F.	$550.00	$176,000.00
64	Room 220, 222, 224	Interior	O&M	Casework	2	Casework deteriorating, to be replaced	280	L.F.	$550.00	$154,000.00
65	Room 231	Interior	O&M	Casework	2	Casework deteriorating, to be replaced	40	L.F.	$550.00	$22,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
66	Room 250	Interior	CAP	Casework	3	No casework present, to be provided	40	L.F.	$550.00	$22,000.00
67	Room 307, 305, 303, 304, 306	Interior	CAP	Casework	3	No casework present, to be provided	200	L.F.	$550.00	$110,000.00
68	Room 308, 310, 311, 312, 313	Interior	LS	Dors	3	Wired glass including corridor borrowed lites to be replaced	150	S.F.	$75.00	$11,250.00
69	Room 314, 315, 319, 320, 321, 322, 324, 325, 327	Interior	LS	Doors	3	Wired glass next to door only, to be replaced.	150	S.F.	$75.00	$11,250.00
70	Room 218, 219, 220, 222, 221, 224, 227, 225	Interior	LS	Doors	3	Wired glass only at doors, to be replaced.	100	S.F.	$75.00	$7,500.00
71	Science room 226	Interior	O&M	Casework	2	Casework deteriorating, to be replaced	100	L.F.	$195.00	$550.00
72	Science room 229	Interior	O&M	Casework	2	Casework deteriorating, to be replaced	100	L.F.	$550.00	$55,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
73	East gym	Interior	LS	Doors	3	Wired glass to be replaced	40	S.F.	$75.00	$3,000.00
74	Stair across from 316	Interior	LS	Doors	3	Wired glass to be replaced	30	S.F.	$75.00	$2,250.00
75	Stair by 301	Interior	O&M	Ceilings	2	Water marks on ceiling- repair ceiling and investigate cause	100	S.F.	$75.00	$7,500.00
76	Stair by 330	Interior	LS	Doors	3	Wired glass to be replaced	30	S.F.	$75.00	$2,250.00
77	Stair by 330 boys	Interior	CAP	Other	2	Old and outdated, inefficient. To be remodeled	175	S.F.	$285.00	$49,875.00
78	Stair by 330 boys	Interior	LS	Doors	1	Deadbolt to be removed	1	Ea.	$750.00	$750.00
79	Stair by gym	Interior	LS	Stairs	1	Railings don't extend and need to be replaced.	20	L.F.	$185.00	$3,700.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
80	Stairs outside admin	Interior	LS	Doors	3	Wired glass to be replaced	50	S.F.	$75.00	$3,750.00
81	Stairs outside admin	Ext Bldg/Site	O&M	Stairs	1	Stair treads are deteriorating and need to be replaced.	75	S.F.	$35.00	$2,625.00
82	Stairs outside admin boys restroom at top of stair	Interior	CAP	Other	2	Toilet room is small and outdated, to be remodeled.	175	S.F.	$285.00	$49,875.00
83	Stone window sills	Ext Bldg/Site	O&M	Masonry	1	Mortar joints are failing at the stone window sills, to be tuckpointed.	500	S.F.	$45.00	$22,500.00
84	Storage elevator room	Ext Bldg/Site	LS	Plumbing	1	Leaky pipe to be repaired	1	Ea.	$750.00	$750.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
85	Storage elevator room	Interior	LS	Doors	1	Closer doesn't work- to be replaced	1	Ea.	$1,500.00	$1,500.00
86	Third floor classrooms except science	Interior	CAP	Casework	3	No casework present, to be provided	600	L.F.	$550.00	$330,000.00
87	Restroom 408	Interior	CAP	Other	1	Base coming off to be replaced. Water infiltration is the cause- roofing needs to be patched and exerior wall needs to be tuckpointed.	1	Lump Sum	$25,000.00	$25,000.00
88	Restroom by 300	Ext Bldg/Site	LS	Protruding Objects	1	Drinking fountain encroaching on door space, to be relocated	1	Ea.	$1,500.00	$1,500.00
89	Restroom by 300	Interior	CAP	Other	2	Old and outdated, inefficient. To be remodeled	75	S.F.	$315.00	$23,625.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
90	Restrooms by commons	Interior	CAP	Other	2	Old and outdated, inefficient. To be remodeled	400	S.F.	$315.00	$126,000.00
91	Typ Restrooms	Interior	LS	Doors	1	Deadbolts on doors to be removed	20	Ea.	$750.00	$15,000.00
92	Wood shop	Interior	LS	Doors	3	Wired glass to be replaced	15	S.F.	$75.00	$1,125.00
93	Wood shop storage	Interior	O&M	Stoage	1	Heater with wood storage, water comes in clg falling down	350	S.F.	$35.00	$12,250.00
94	Exterior Doors	Ext Bldg/Site	O&M	Doors	2	Exterior doors can be dogged with a hex wrench and can be a security issue. See Door Hardware Summary.	18	Ea.	$1,850.00	$33,300.00
95	Parking Lots	Ext Bldg/Site	O&M	Paving	3	All in fair to good condition. Continue to seal coat and crackseal every 2-5 years	63,000	S.F.	$1.75	$110,250.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
96	North Parking Lot	Ext Bldg/Site	ADA	Paving	1	Ramps along main drop-off area and a ramp by the ADA stalls is non-compliant and needs to be replaced	1,250	S.F.	$30.00	$37,500.00
97	North Parking Lot	Ext Bldg/Site	O&M	Paving	2	Main drop-off lane will need major patching or overlay In the next 10 years	10,000	S.F.	$25.00	$250,000.00
98	North Parking Lot, South Parking Lot	Ext Bldg/Site	ADA	Paving	2	The ADA sign posts will need a van accessible plaque and be centered on the ADA stall, and stripe the path of travel to the nearest curb ramp	2	S.F.	$1,500.00	$3,000.00
99	North Parking Lot	Ext Bldg/Site	ADA	Paving	2	The sidewalk between the main ADA stalls and District Office has an excessive cross slope and will need to be replaced	750	S.F.	$30.00	$22,500.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
100	Northeast Parking Lot	Ext Bldg/Site	ADA	Paving	2	The Main District office doesn't have an ADA compliant access/ramp. A ramp should be added and the curb ramp from the ADA stall should be replaced.	750	S.F.	$40.00	$30,000.00
101	South Parking Lot	Ext Bldg/Site	ADA	Paving	2	Parking lot requires 3 ADA spaces, not 2. Restripe and provide striping fromt the ADA stalls to the depressed sidewalk outside the entrance	1500	S.F.	$5.00	$7,500.00
102	South Parking Lot	Ext Bldg/Site	ADA	Paving	2	The crosswalk at the West side of the building leads to a sidewalk without an ADA ramp. Remove the sidewalk and provide a ramp.	500	S.F.	$45.00	$22,500.00
103	South Parking Lot	Ext Bldg/Site	O&M	Paving	2	Drainage structure at northwest corner of lot sows signs of prevous failure. Inspect often and repair/ replace as needed	1	Ea.	$5,000.00	$5,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
104	South Parking Lot	Ext Bldg/Site	ADA	Paving	2	The ramp outside the main entrance is not compliant. Needs to be replaced	500	S.F.	$45.00	$22,500.00
105	Drop-off	Ext Bldg/Site	CAP	Paving	2	Drop-off and Pick-up traffic flow is inefficient and dangerous. Need to separate busses from cars	40000	S.F.	$45.00	$1,800,000.00
106	Exits	Interior	LS	Security	2	Label all interior doors at exits for quick identification by emergency responders	21	Ea.	$150.00	$3,150.00
107	General	Ext Bldg/Site	O&M	Security	3	Alarm systems are monitored by Esscoe. Post Esscoe security alarm signs at all exterior doors.	21	Ea.	$100.00	$2,100.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
108	Site	Ext Bldg/Site	O&M	Security	3	Some vegetation does not follow the Crime Prevention Through Environmental Design. Trim landscaping to meet best practices.	1	Lump Sum	$25,000.00	$25,000.00
109	Site	Ext Bldg/Site	O&M	Security	3	Post property access restriction signs at parking lot entries and along property lines. Post visitor management signs and firearm prohibition signs at all exterior doors.	1	Lump Sum	$5,000.00	$5,000.00
110	Site	Ext Bldg/Site	LS	Security	2	Install vehicle barriers such as removabel bollards to restrict access to playgrounds, entries, and pedestrian areas.	4	Ea.	$1,250.00	$5,000.00
111	Exterior Doors	Ext Bldg/Site	O&M	Security	3	Install security film on exterior door vision panels and sidelights.	1,000	S.F.	$75.00	$75,000.00
112	Roof (Areas G, H, & I)	Roof	O&M	Roofing	1	Patch and repair roof as needed. See Roof Inventory Report	13800	S.F.	$30.00	$414,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
113	Roof (Area B)	Roof	O&M	Roofing	1	A section of this area has deteriorated and needs to be replaced	400	S.F.	$35.00	$14,000.00
114	Roof (Areas L, N, O)	Roof	O&M	Roofing	2	Replace Roofing	14800	S.F.	$35.00	$518,000.00
115	Roof- Copings	Roof	O&M	Other	1	Mortar joints are failing throughout the stone copings. Cover stone with metal	1,500	L.F.	$15.00	$22,500.00
116	Main Office	Interior	CAP	Security	2	Secured entrance trap shares the vestibule with the school entrance and egress. Provide separation between the trap and vestibule.	750	S.F.	$260.00	$195,000.00
HV1	Boiler Room	Interior	O&M	Mech	2	Aerco Benchmark 2.0 boiler is 16 years old. To be replaced in the next 5 years.	1	Ea.	$125,000.00	$125,000.00
HV2	Boiler Room	Interior	O&M	Mech	3	Aerco Benchmark 3.0 boiler is 14 years old. To be replaced in the next 7 years.	1	Ea.	$160,000.00	$160,000.00
HV3	Boiler Room	Interior	O&M	Mech	4	(2) McQuay WMC035T indoor water cooled centrifugal chillers located in the basement boiler room are 16 years old. Replace in the next 14 years.	2	Ea.	$350,000.00	$700,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
HV4		Ext Bldg/Site	O&M	Mech	3	Marley 2 cell cooling tower is 16 years old. Replace in the next 9 years.	1	Ea.	$310,000.00	$310,000.00
HV5		Ext Bldg/Site	O&M	Mech	2	(2) ABB variable frequency drives for the cooling tower fans are 16 years old. Replace in the next 4 years.	2	Ea.	$15,000.00	$30,000.00
HV6		Ext Bldg/Site	O&M	Mech	2	(2) ABB variable frequency drives for the condenser water pumps serving the cooling tower are 16 years old. Replace in the next 4 years.	2	Ea.	$15,000.00	$30,000.00
HV7		Interior	O&M	Mech	2	(2) ABB variable frequency drives for the dual temperature hot/chilled water pumps serving the building heating/cooling elements are 16 years old. Replace in the next 4 years.	2	Ea.	$15,000.00	$30,000.00
HV8	Cafeteria	Interior	O&M	Mech	3	AHU-1: Trane CCDB12 single zone constant volume indoor air handling unit serving the Cafeteria is 34 years old. Replace in the next 6 years.	1	Ea.	$95,000.00	$95,000.00
HV9	Prep Room 221B	Interior	O&M	Mech	3	AHU-2: Trane CCDB03 constant volume indoor air handling unit located in Prep Room 221B serving Offices 221A/223 is 34 years old. Replace in the next 6 years.	1	Ea.	$95,000.00	$95,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
HV10	Storage 216A	Interior	O&M	Mech	3	AHU-3: Trane CCDB03 constant volume indoor air handling unit located in Storage 216A serving Office 216 is 34 years old. Replace in the next 6 years.	1	Ea.	$95,000.00	$95,000.00
HV11	Prep Room 221B	Interior	O&M	Mech	3	AHU-4: Trane CCDB03 constant volume indoor air handling unit located in Prep Room 221B serving Offices 321A/323 is 34 years old. Replace in the next 6 years.	1	Ea.	$95,000.00	$95,000.00
HV12	Work Room 316	Interior	O&M	Mech	3	AHU-5: Trane CCCE08 constant volume indoor air handling unit located in Work Room 316 serving the Library is 34 years old. Replace in the next 6 years.	1	Ea.	$120,000.00	$120,000.00
HV13		Interior	O&M	Mech	1	AHU-6: (2) Danfoss variable frequency drives serving the supply and return fans are 23 years old and beyond their useful life. Replace in the next 2 years.	2	Ea.	$13,000.00	$26,000.00
HV14	Storage 206D	Interior	O&M	Mech	3	AHU-7: Trane CCDB03 constant volume indoor air handling unit located in Storage 206D serving the interior rooms of the district administration area is 32 years old. Replace in the next 8 years.	1	Ea.	$95,000.00	$95,000.00
HV15	Mech 206A	Interior	O&M	Mech	3	AHU-8: Trane CCDB03 constant volume indoor air handling unit located in Mechanical 206A serving the Community Room of the district administration area is 32 years old. Replace in the next 8 years.	1	Ea.	$95,000.00	$95,000.00
HV16		Interior	O&M	Mech	1	AHU-9: Yaskawa variable frequency drive serving the supply fan is 21 years old and at the end of its useful life. Replace in the next 2 years.	1	Ea.	$10,000.00	$10,000.00

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HV17		Interior	O&M	Mech	2	AHU-10: (2) variable frequency drives serving the supply and return fans are 16 years old. Replace in the next 4 years.	2	Ea.	$15,000.00	$30,000.00
HV18		Interior	O&M	Mech	3	AHU-11: (4) Danfoss variable frequency drives serving the supply and return fans are 14 years old. Replace in the next 6 years.	4	Ea.	$12,000.00	$48,000.00
HV19	Roof	Ext Bldg/Site	LS	Mech	1	AHU-11: Aluminum jacket on the exterior supply and return ductwork exposed on the roof is damaged and allowing water into the insulation. Replace insulation and provide Venture Clad 1577W jacket.	1	Lump Sum	$25,000.00	$25,000.00
HV20		Interior	O&M	Mech	3	AHU-12: (4) Danfoss variable frequency drives serving the supply and return fans are 14 years old. Replace in the next 6 years.	4	Ea.	$12,000.00	$48,000.00
HV21	Roof	Ext Bldg/Site	LS	Mech	1	AHU-12: Aluminum jacket on the exterior supply and return ductwork exposed on the roof is damaged and allowing water into the insulation. Replace insulation and provide VentureClad 1577W jacket.	1	Lump Sum	$25,000.00	$25,000.00
HV22	Roof	Ext Bldg/Site	O&M	Mech	2	Orchestra Room RTU: AAON constant volume downblow rooftop unit in steel grillage serving the second floor Orchestra Room just north of the gymnasium is 16 years old. Replace in the next 4 years.	1	Ea.	$80,000.00	$80,000.00

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HV23	Roof	Ext Bldg/Site	LS	Mech	1	Orchestra Room RTU: Aluminum jacket on the exterior supply and return ductwork exposed on the roof is damaged and allowing water into the insulation. Replace insulation and provide VentureClad 1577W jacket.	1	Ea.	$30,000.00	$30,000.00
HV24	Roof	Ext Bldg/Site	O&M	Mech	1	Cafeteria Extension RTU: Trane XL1600 rooftop unit serving the 2 offices at the south side of the cafeteria on either side of the entrance is 18 years old. Replace in next 2 years.	1	Ea.	$55,000.00	$55,000.00
HV25	Throughout Building	Interior	O&M	Mech	3	(43) Trane unit ventilators serving classrooms throughout the building are 34 years old. Replace in next 6 years.	43	Ea.	$30,000.00	$1,290,000.00
HV26	Offices	Interior	O&M	Mech	3	(15) fan coil units serving the perimeter offices in the district administration area on the ground floor as well as 4 offices and a conference room on the second floor are 32 years old. Replace in the next 8	15	Ea.	$19,000.00	$285,000.00
HV27	Work Room 102A	Interior	O&M	Mech	2	Friedrich duct free split system serving Work Room 102a is 17 years old. Replace in the next 3 years.	1	Ea.	$30,000.00	$30,000.00
HV28	Maintenance Office 115A	Interior	O&M	Mech	4	LG duct free split system serving the Maintenance Office 115A is 8 years old. Replace in the next 12 years.	1	Ea.	$30,000.00	$30,000.00

Northbrook Junior High School

Proposed Work Matrix
Project 2023.016
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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
HV29	MDF 230A	Interior	O&M	Mech	3	Daikin duct free split system serving MDF 230A is 14 years old. Replace in the next 6 years.	1	Ea.	$30,000.00	$30,000.00
HV30	Music Work Room 102a	Interior	O&M	Mech	3	Daikin duct free split system serving Music Work Room 102a is 14 years old. Replace in the next 6 years.	1	Ea.	$30,000.00	$30,000.00
HV31	Music Storage 410A	Interior	O&M	Mech	3	Nortec Resdelux wall mounted humidifier serving Music Storage 410A is 14 years old. Replace in the next 6 years.	1	Ea.	$18,000.00	$18,000.00
HV32	Original Building	Interior	CAP	Mech	1	Hot water cabinet unit heaters, convectors, and finned tube radiation appear to be original to the area of building they are installed, approximately 60-64 years old. Finned tube radiation covers in	1	Lump Sum	$190,000.00	$190,000.00
HV33	Kitchen	Interior	O&M	Mech	1	Kitchen hood exhaust fan is 64 years old and beyond its useful life. Replace with upblast centrifugal roof exhaust fan with grease trough.	1	Ea.	$50,000.00	$50,000.00
HV34	Toilet rooms	Interior	O&M	Mech	3	Approximately 10 toilet and general exhaust fans are 30-35 years old. Replace in next 8 years.	10	Ea.	$7,000.00	$70,000.00
HV35	Throughout Building	Interior	CAP	Mech	2	Abandoned steam/steam condensate piping and equipment is present in the building and on the roof. Remove abandoned piping and equipment.	1	Lump Sum	$45,000.00	$45,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
HV36	Throughout Building	Interior	LS	Mech	1	Existing Building Automation System needs to be kept current. Existing license for the Tridium JACE is not current and older Barber Colman Network 8000 controllers are obsolete. The existing license for the Tridium JACE should be upgraded to Tridium N4 latest revision.	1	Lump Sum	$190,000.00	$190,000.00
P1		Interior	LS	Plumb	2	Water service is lacking backflow protection.	1	Lump Sum	$20,000.00	$20,000.00
P2	Mech 115C	Interior	O&M	Plumb	2	The insulation on the exposed 6" water main routed through the garage into basement Mechanical Room 115C is damaged.	1	Lump Sum	$7,500.00	$7,500.00
P3	Throughout Original Building	Interior	CAP	Plumb	2	Galvanized water piping in the older areas of the building is beyond its useful life	1	Lump Sum	$375,000.00	$375,000.00
P4	West Pump Room	Interior	O&M	Plumb	4	Basement West Mech Room - Simplex self primming Storm pump will require replacement within 15 years.	1	Ea.	$20,000.00	$20,000.00
P5	West Pump Room	Interior	O&M	Plumb	4	Basement West Mech Room - Simplex self primming Sanitary pump will require replacement within 15 years.	1	Ea.	$20,000.00	$20,000.00
P6	Boiler Room	Interior	O&M	Plumb	1	Basement Boiler Room - Small duplex Storm submersible pump system near chillers will require replacement within 5 years, replace associated piping.	1	Lump Sum	$7,500.00	$7,500.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
P7	Boiler Room	Interior	O&M	Plumb	4	Basement Boiler Room - Duplex Sanitary vertical shaft pump system will require replacement within 15 years.	1	Ea.	$30,000.00	$30,000.00
P8	East Storage Room	Interior	O&M	Plumb	4	Basement East Storage Room - Duplex vertical shaft Sanitary pump will require replacement within 15 years.	1	Ea.	$30,000.00	$30,000.00
P9	East Storage Room	Interior	O&M	Plumb	4	Basement East Storage Room - Duplex self primming Storm pump will require replacement within 15 years.	1	Ea.	$30,000.00	$30,000.00
P10		Interior	O&M	Plumb	2	Domestic water heater system including (2) water heaters and a s 400 gallon storage tank located in the penthouse of the 1991 addition is 32 years old and well beyond its useful life.	1	Lump Sum	$85,000.00	$85,000.00
P11	Boiler Room	Interior	O&M	Plumb	2	Rheem-Ruud domestic water heater in Boiler Room 117 is 12 years old.	1	Ea.	$12,500.00	$12,500.00
P12	Mechanical Room	Interior	O&M	Plumb	4	AO Smith domestic water heater in basement Mechanical Room is 3 years old.	1	Ea.	$35,000.00	$35,000.00
P13	Throughout Building	Interior	LS	Plumb	1	Lavatories are lacking the proper water temperature protection.	1	Lump Sum	$30,000.00	$30,000.00

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
P14	Kitchen	Interior	LS	Plumb	2	(2) Triple compartment sinks are direct connected to sanitary.	2	Lump Sum	$23,000.00	$46,000.00
P15	Kitchen	Interior	LS	Plumb	2	Floor drain grates missing in kitchen at drains in walking path.	1	Ea.	$5,000.00	$5,000.00
P16	Locker Rooms	Interior	LS	Plumb	4	The Locker Shower Room floor lacks the proper drainage to prevent cross contamination of waste water. Renovate to correct drainage	2	Lump Sum	$40,000.00	$80,000.00
P17	Throughout Building	Interior	LS	Plumb	1	Y fitting/splitter at service sinks not permitted by plumbing code. Remove splitters from all service sinks	1	Lump Sum	$1,000.00	$1,000.00
P18	Throughout Building	Interior	LS	Plumb	1	Cross connection and contamination possibility at all janitor sinks in facility with chemical soap systems. (Five locations)	1	Lump Sum	$17,500.00	$17,500.00
P19	Art Room	Interior	LS	Plumb	2	Art room triple compartment sinks lack plaster traps.	1	Ea.	$15,000.00	$15,000.00
P20	Elec 107	Interior	LS	Plumb	1	Electrical Room 107 has a hose bib with no vacuum breaker.	1	Ea.	$500.00	$500.00

Northbrook Junior High School

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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
FP1	Throughout Building	Interior	CAP	Plumb	4	The fire protection systems do not protect the entire building. Extend sprinkler system.	1	Lump Sum	$1,100,000.00	$1,100,000.00
E1		Interior	O&M	Elec	2	Due to the age of the panelboards, connections may become loose over time. Thermoscan switchboard and panelboards.	1	Lump Sum	$8,000.00	$8,000.00
E2	Elevator Lobby 2nd Floor	Interior	LS	Elec	1	Missing Smoke Detector, to be provided.	1	Ea.	$1,500.00	$1,500.00
E3	Vestibule (cafeteria) Conf Rm 214A, West Gym	Interior	LS	Elec	1	Missing pull station, to be provided.	4	Ea.	$2,250.00	$9,000.00
E4	Lounge 210	Interior	LS	Elec	2	Panelboard Working clearence voilation. Relocate Panelboard.	1	Lump Sum	$10,000.00	$10,000.00
E5	Science Labs, Toilet Rooms 106, 108, Stair Toilet Rooms, Office Toilet Rooms, Woodshop, Locker Rooms	Interior	LS	Elec	1	Missing EM light, to be provided.	1	Lump Sum	$25,000.00	$25,000.00
E6	Corridors Throughout	Interior	O&M	Elec	1	Obsolete Exit signs (incadescent, glass, no battery backup, or non functional). To be replaced.	1	Lump Sum	$6,000.00	$6,000.00

Northbrook Junior High School

Proposed Work Matrix
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#	LOCATION	AREA	RATIONALE	CATEGORY	PRIORITY	COMMENT	QUANTITY	UNIT	UNIT COST	ESTIMATE
E7	Art Room	Interior	LS	Elec	1	Incorrect number of detectors for size of room. Add detector	1	Ea.	$1,800.00	$1,800.00
E8	Stem Lab 122, Class 321, 325	Interior	O&M	Elec	1	Extension type cord reels permanantly mounted. Replace with industrial hard wired cord reel	3	Ea.	$30,000.00	$90,000.00
E9	Boiler 117, Woodshop, Jan 316	Interior	O&M	Elec	2	Obsolete panelboards, to be replaced.	3	Ea.	$15,000.00	$45,000.00
E10		Interior	O&M	Elec	1	Foreign systems installed above panelboard. Relocate panelboard.	1	Ea.	$12,500.00	$12,500.00
E12	Throughout Building	Interior	LS	Elec	3	Exiting fire alarm system does not comply with current codes for Notification. Replace fire alarm system with new Voice Evacuation based system with notification devices installed per code.	1	Lump Sum	$280,000.00	$280,000.00

Northbrook Junior High Total Cost Estimates	$20,710,600.00

Northbrook Junior High School

Work Matrix Summary

Project 2023.016

December 11, 2023

Overall Cost Estimate	$20,710,600

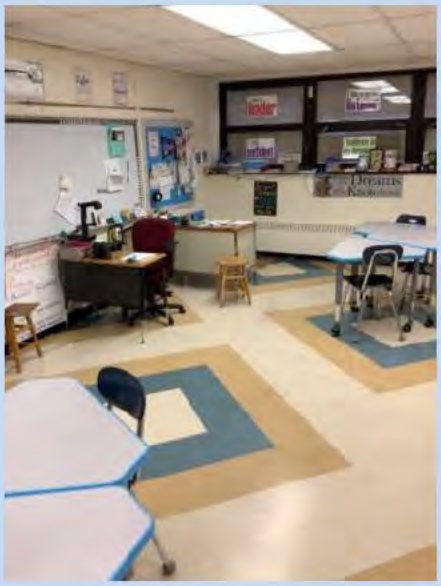
Cost Estimate per Area	
Interior	$16,608,175
Exterior/ Site	$3,123,925
Roof	$978,500

Cost Estimate per Rationale	
O & M	$6,681,800
ADA	$145,500
Life Safety	$994,575
CAP	$12,888,725

Cost Estimate per Priority	
Priority 01 (within 2 years)	$1,484,775
Priority 02 (2 to 5 years)	$6,159,325
Priority 03 (5 to 10 years)	$10,991,500
Priority 04 (10 years and beyond)	$2,075,000

Northbrook Junior High School

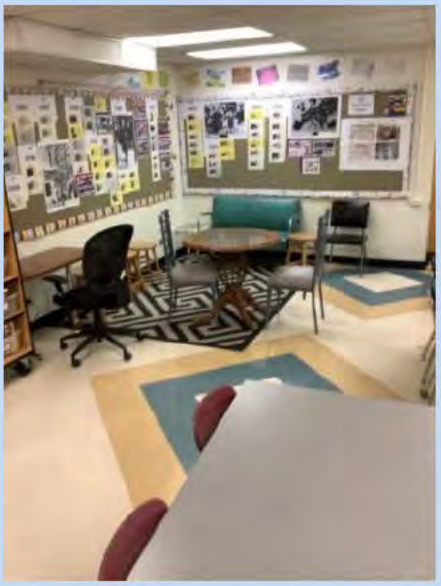
Photographs
Project 2023.016
December 11, 2023



01 – Rooms 100, 104, 110



01 – Rooms 100, 104, 110



01 – Rooms 100, 104, 110



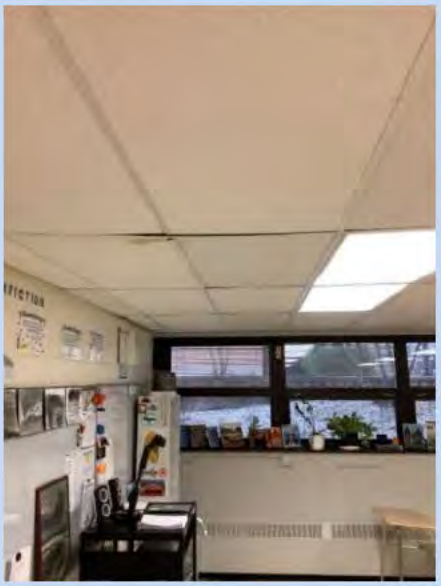
02 – Room 111



03 – Room 112



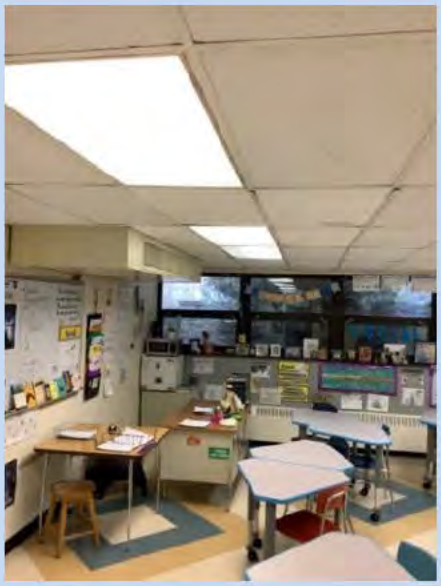
03 – Room 112



04 - Rooms 111, 113



04 - Rooms 111, 113



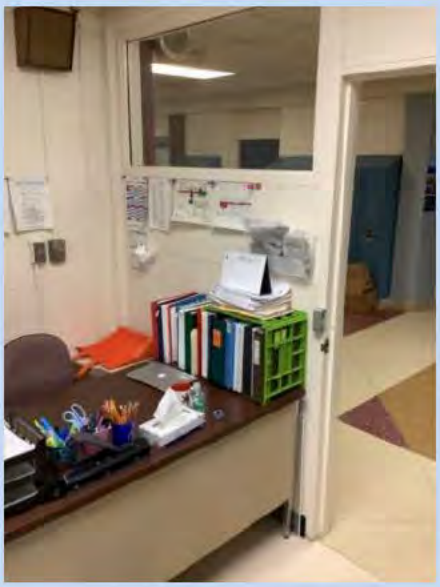
04 – Rooms 111, 113



05 – Rooms 100, 104, 110, 111, 113



05 – Rooms 100, 104, 110, 111, 113



06 – Room 120



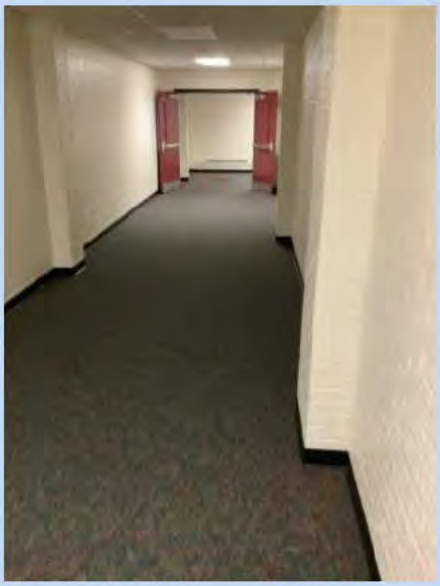
07 – Room 122



08 – Room 124



09 – Room 124



10 – Third Level Corridor in Addition



11 – Room 401 Music



12 – Room 402 Music Library



13 – Girls across from 316 on Landing



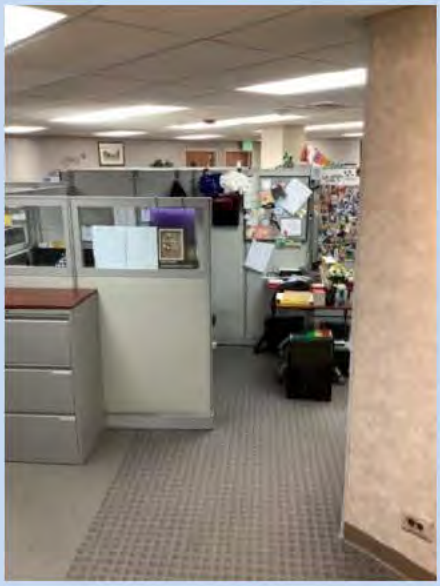
14 – Girls across from 316 on Landing



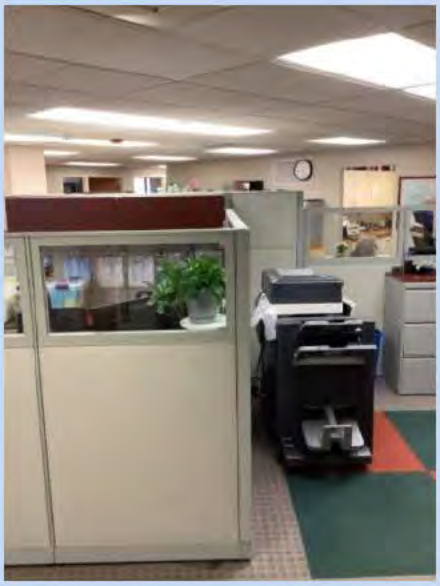
14 – Girls across from 316 on Landing



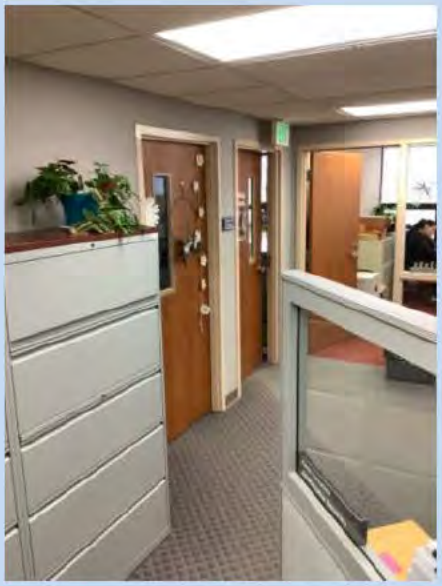
15 – Stairwell across from 316



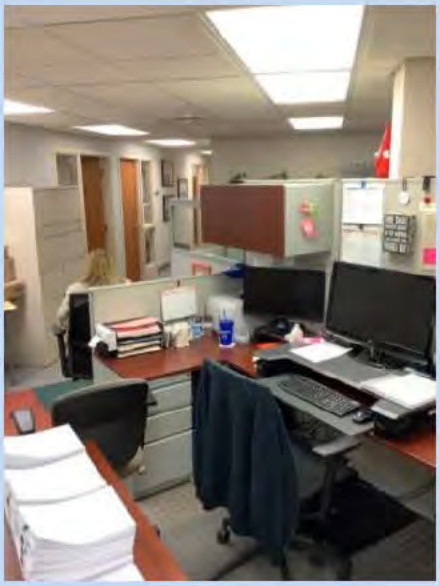
16 – Admin Office



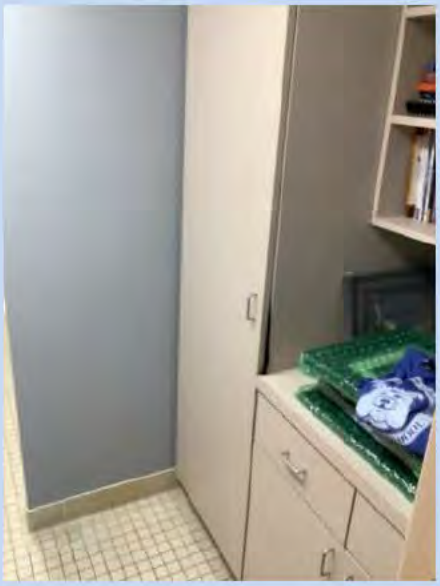
16 – Admin Office



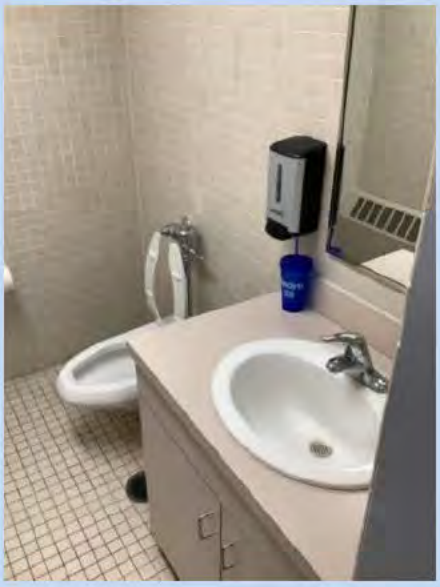
16 – Admin Office



16 – Admin Office



17 – Admin Office Superintendent WC



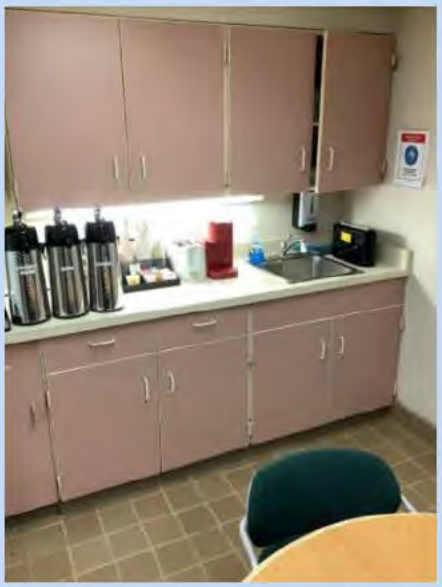
17 – Admin Office Superintendent WC



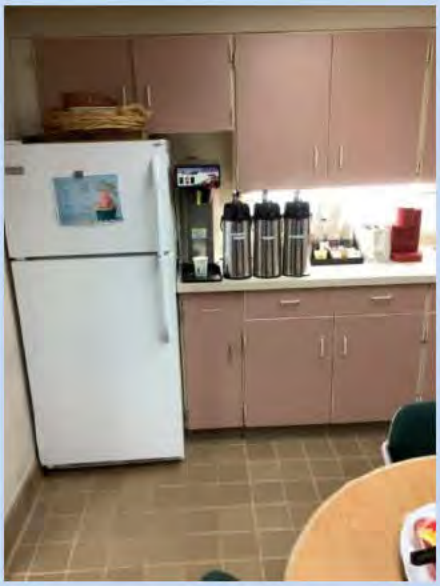
18 – Admin Office Toilet Rooms



19 – Admin Office Community Room



20 – Admin Office Kitchen



20 – Admin Office Kitchen



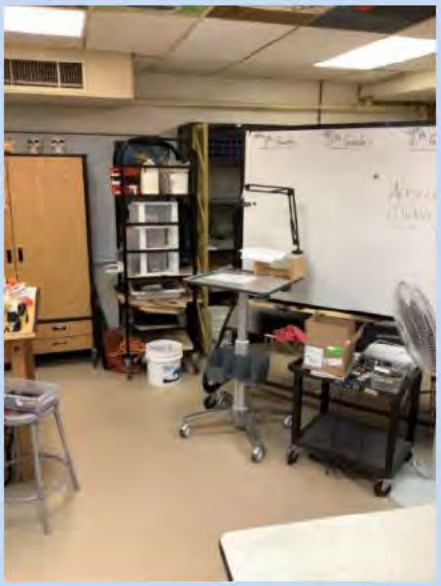
21 – Room 118 Art



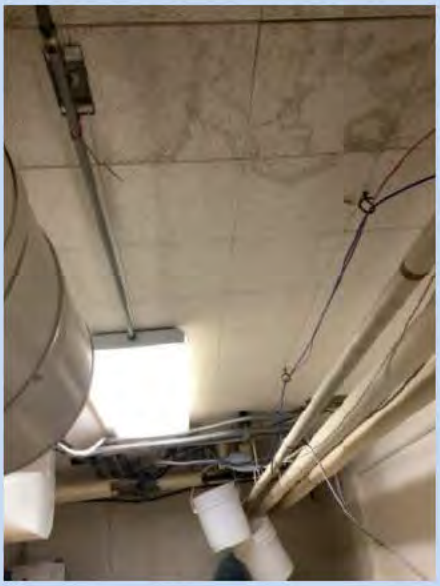
22 – Room 118 Art



22 – Room 118 Art



22 – Room 118 Art



23 – Room 118 Art Storage



24 – Basement Corridor



24 – Basement Corridor



25 - Basement Mechanical



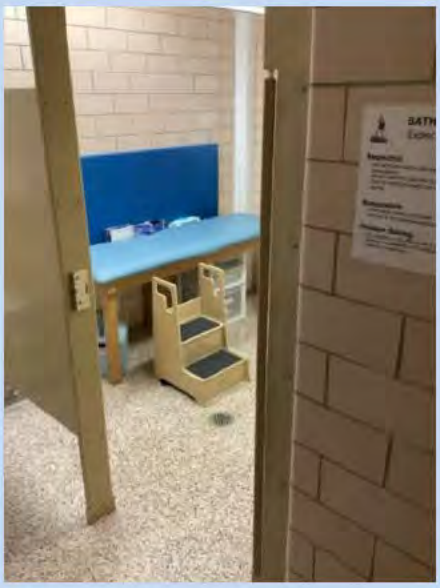
25 – Basement Mechanical



25 – Basement Mechanical



26 – Basement Workroom



27 – Bathroom outside Admin



27 – Bathroom outside Admin



27 – Bathroom outside Admin



28 – Boys 108



28 – Boys 108



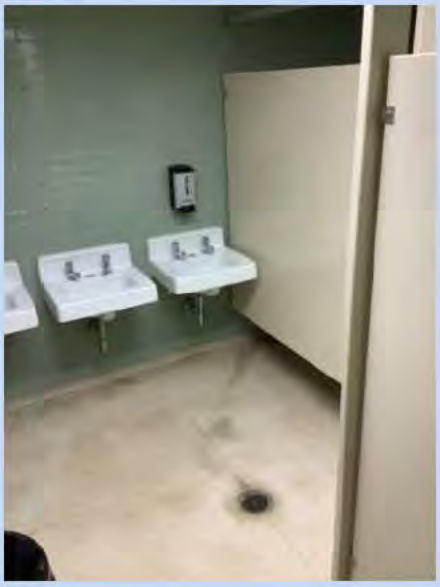
29 – Boys and Girls Locker Rooms



29 – Boys and Girls Locker Rooms



29 – Boys and Girls Locker Rooms



30 – Boys on Landing by Main



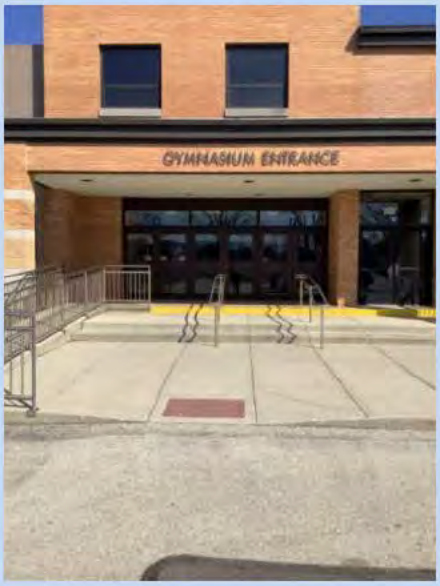
30 – Boys on Landing by Main



31 – Near Cafeteria Entrance



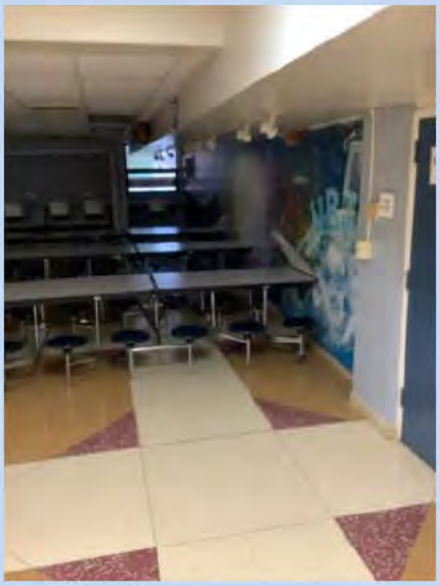
32 – Cafeteria and Gym Entrance



32 – Cafeteria and Gym Entrance



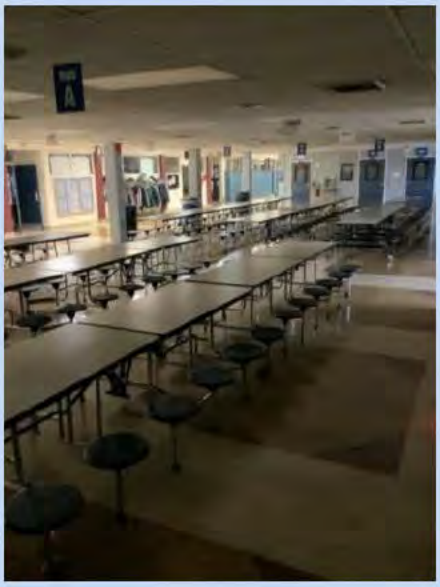
33 – Cafeteria



33 – Cafeteria



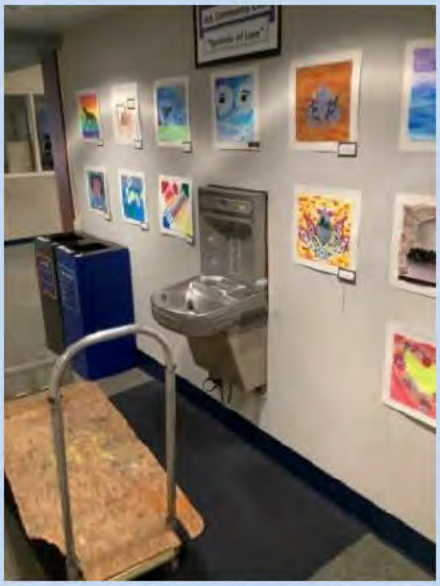
33 - Cafeteria



33 - Cafeteria



34 – Cafeteria Stair



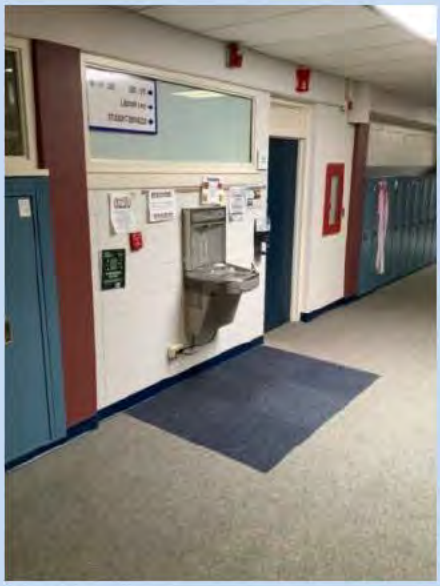
35 – Commons by Door A



36 – Conference by Door A



37 – Conference by Door A



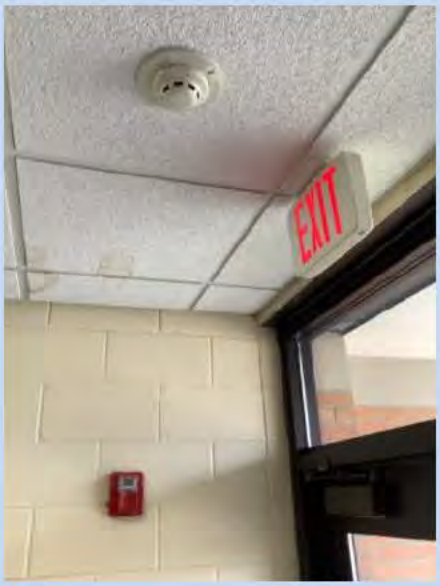
38 – Corridor by Room 316



39 – Corridor by Toilet Rooms



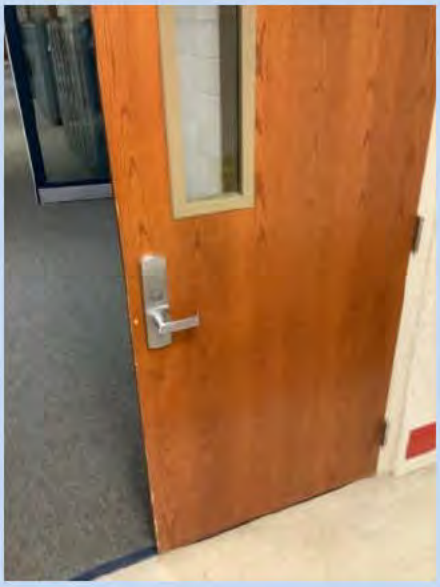
40 – Corridor Doors by 307



41 – Door G



42 – Doors by Entrance B



42 – Doors by Entrance B



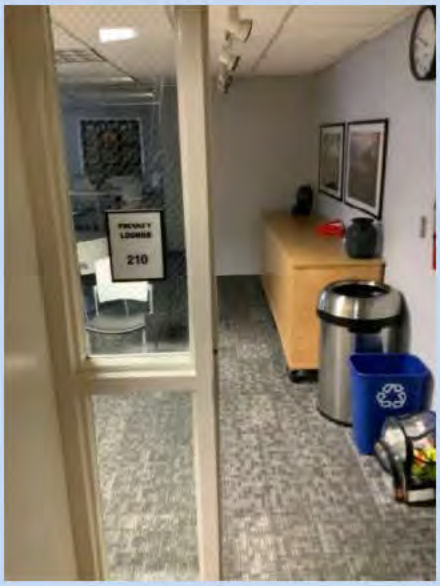
43 – East Side



43 – East Side



44 – Faculty Lounge 210



45 – Faculty Lounge Nurse



45 – Faculty Lounge Nurse



46 – Faculty Workroom



46 – Faculty Workroom



47 – Front of School



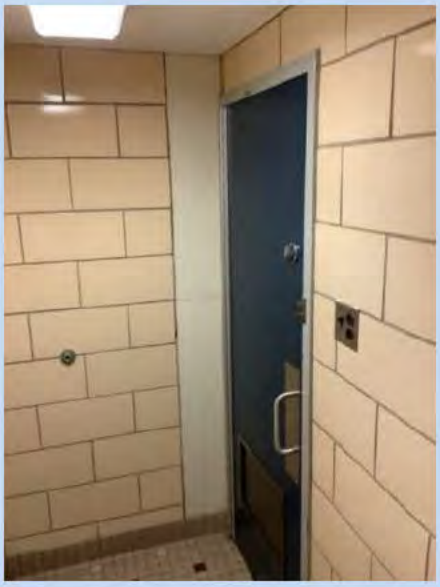
47 – Front of School



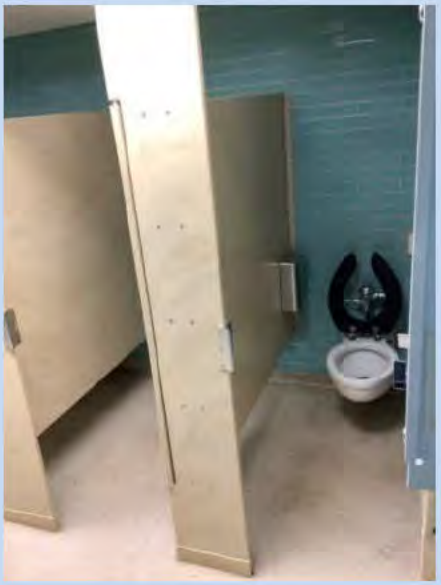
48 – Girls Room



48 – Girls Room



48 – Girls Room



49 – Girls in Landing



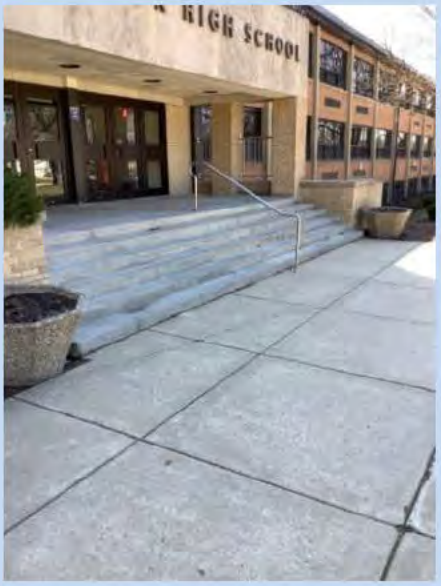
49 – Girls in Landing



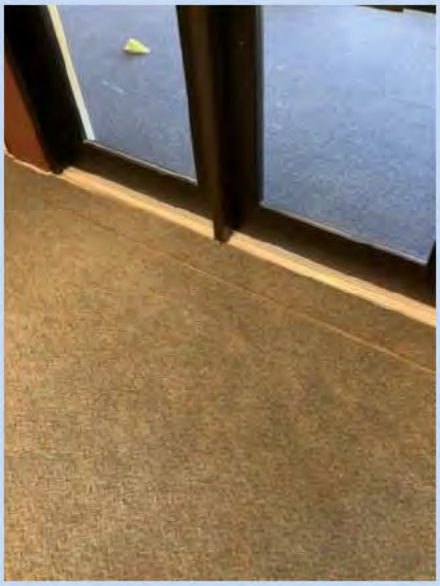
49 – Girls in Landing



50 - Gym



51 – Main Entrance A



52 – Main Entry



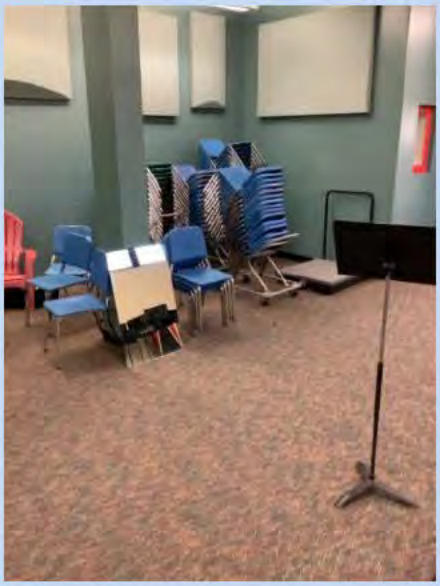
54 – Main Office



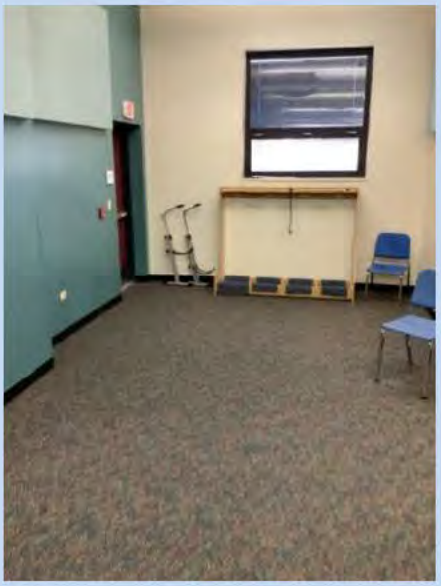
54 – Main Office



56 – Maintenance Room



57 – Music 410



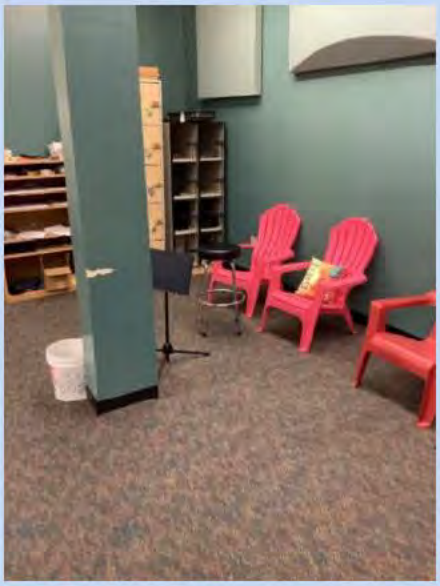
57 – Music 410



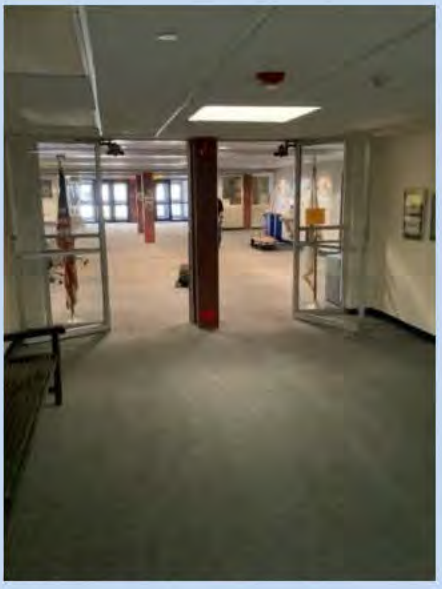
58 – Music Room 406



58 – Music Room 406



59 – Music 410



60 – Near Main Entry



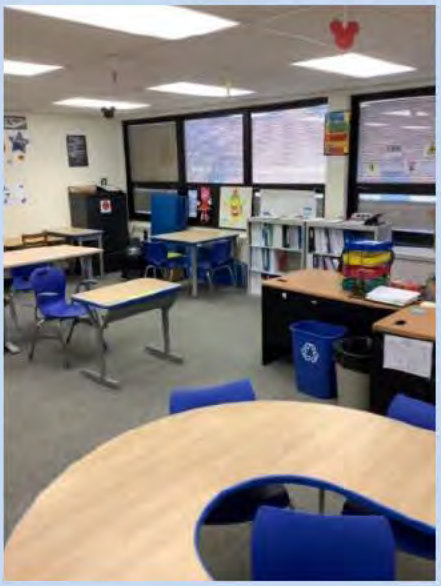
61 - Nurse



62 – Rooms 211, 213



62 – Rooms 211, 213



63 – 211, 213, 218, 219, 221, 225, 227



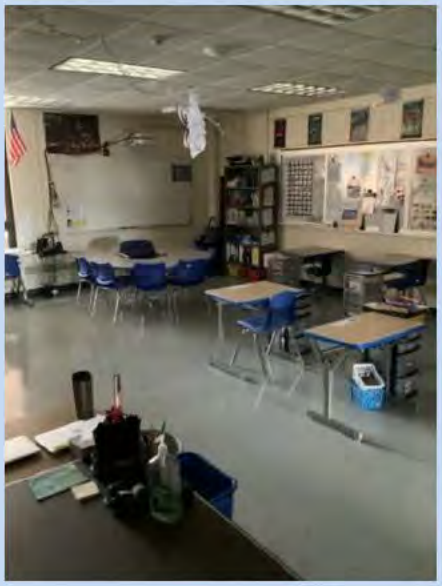
63 – 211, 213, 218, 219, 221, 225, 227



64 – Rooms 220, 222, 224



65 – Room 231



65 – Room 231



66 – Room 250



67 – Rooms 303, 304, 305, 306, 307



67 – Rooms 303, 304, 305, 306, 307



68 – Wired Glass



69 – Wired Glass



69 – Wired Glass



70 – Wired Glass



71 – Science Room 226



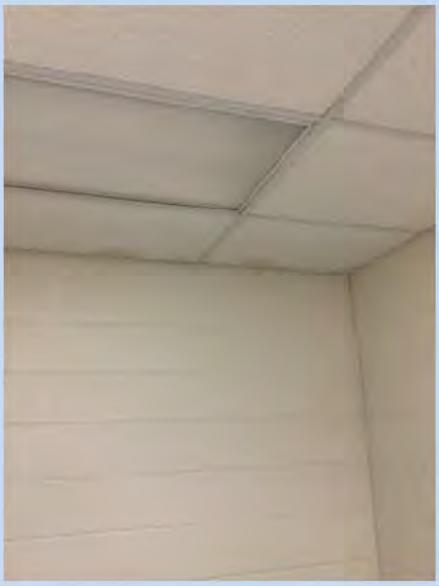
72 – Science Room 229



73 – East Gym



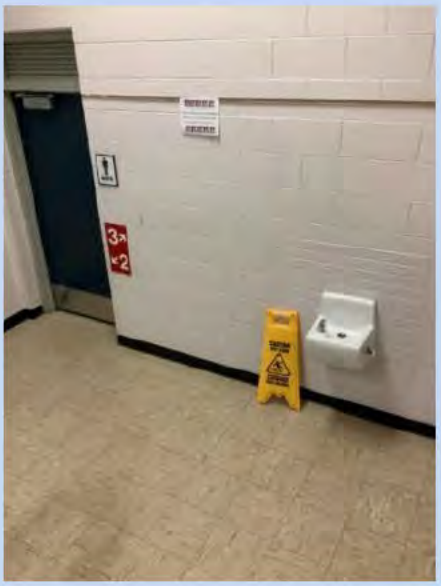
74– Stair across from 316



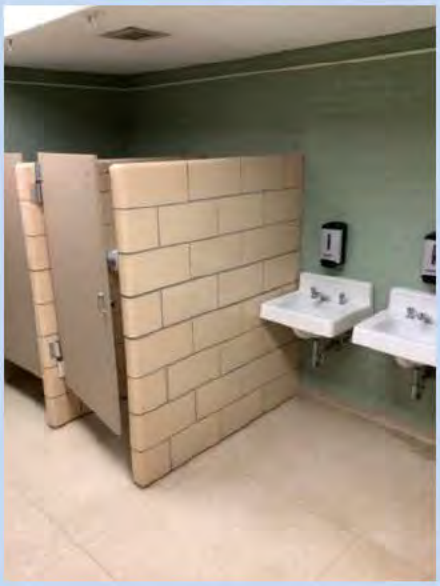
75 – Stair by 301



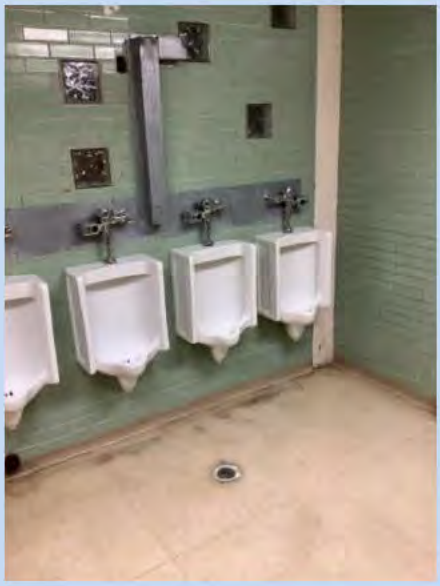
76 – Stair by 330



77 – Boys by 330



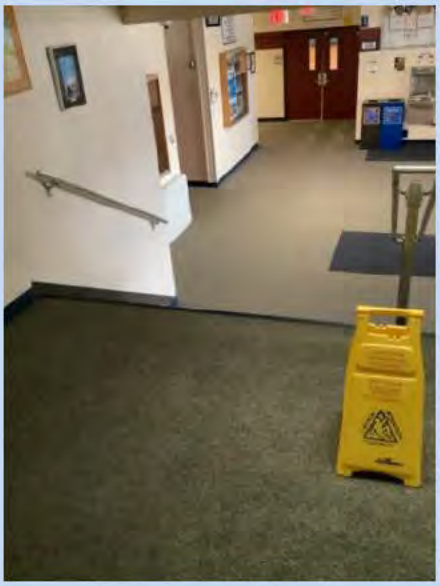
77 – Boys by 330



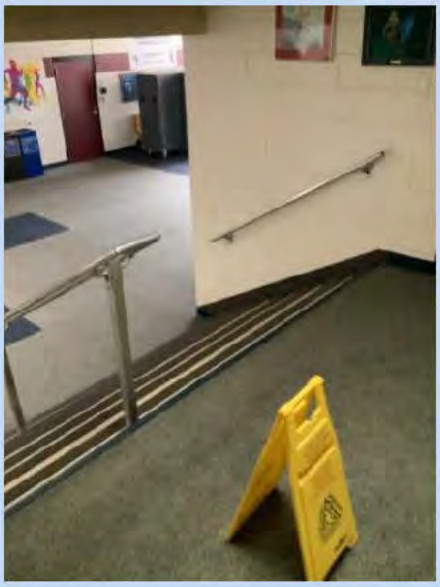
77 – Boys by 330



78 – Boys by 330



79 – Stair by Gym



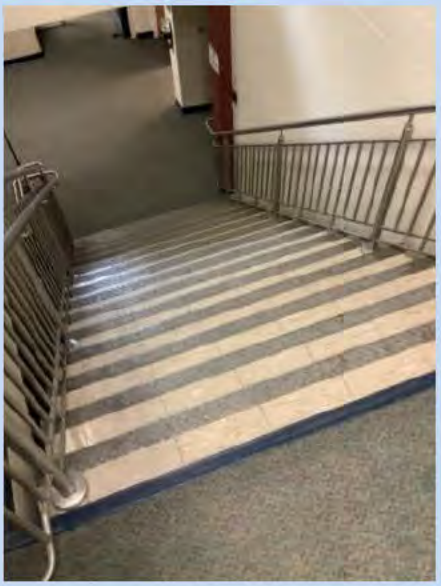
79 – Stair by Gym



80 – Stairs outside Admin



81 – Stairs outside Admin



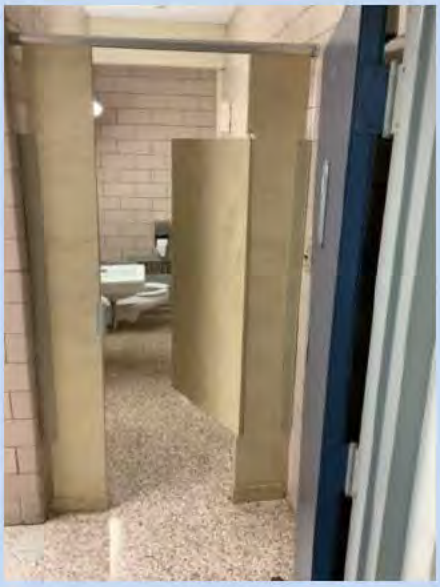
81 – Stairs outside Admin



82 – Boys outside Admin



82 – Boys outside Admin



82 – Boys outside Admin



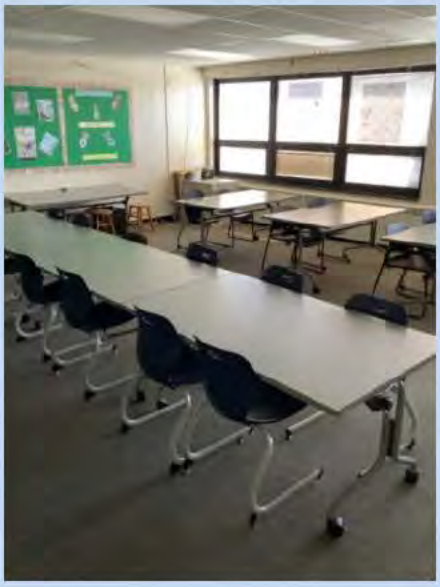
83 – Stone Window Sills



84 – Elevator Mechanical Room



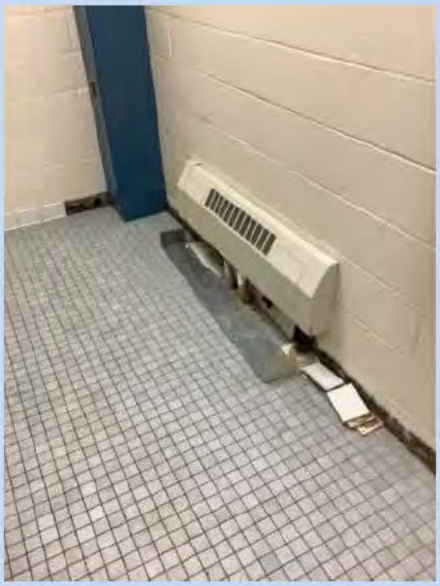
85 – Elevator Mechanical Room



86 – 3rd Floor Classrooms except Sci.



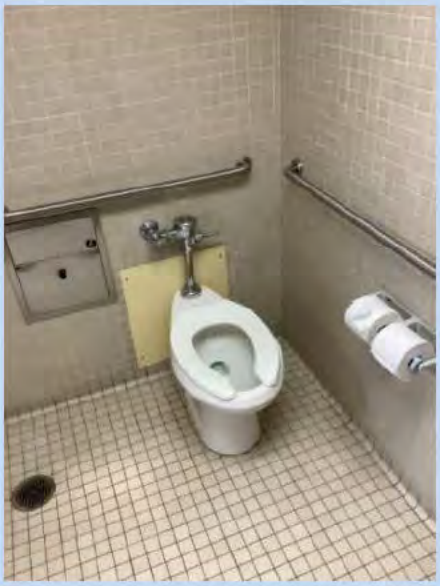
86 – 3rd Floor Classrooms except Sci



87 – Toilet 408



88 – Toilet Room by 300



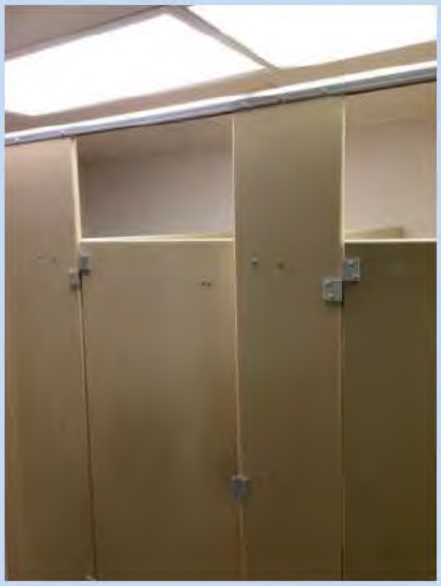
89 – Toilet Room by 300



90 – Toilet Rooms by Commons



90 – Toilet Rooms by Commons



90 – Toilet Rooms by Commons



91 – Typical Toilet Rooms



92 – Wood Shop



93 – Wood Shop Storage



113 - Roof



114 - Roof



Roof



115 - Roof

Northbrook School District 28

Building Utilization/Capacity Study

General Review

The results of our facility review have shown a mix of heavily utilized spaces within each school with a sprinkling of intermittent rooms that may not currently be used to their fullest potential.

The classrooms in the schools, for the most part, are below the maximum design capacity. Traditionally, when planning for schools, you want to achieve around 85% efficiency in your facility spaces. The 85% efficiency allows enough room to hold school instruction comfortably while allowing flexibility to accommodate extra meeting areas for teaching small group instruction for students or general staff meetings. This efficiency also allows the facilities to accommodate population increases the District might experience during a specific year. The most highly utilized rooms are specialized curriculum-oriented spaces, such as art, music, etc. Overused specialized spaces are common in many schools.

As the District looks into addressing the over-utilized space issues, they should realize that a traditional classroom may require 30 square feet per student. In comparison, specialty spaces such as art and music rooms may require up to 70 square feet per student. During these discussions, the program's value versus the need for space will be significant.

There may also be a need to analyze the schools' functional relationship requirements to see if the current facilities allow for program diversity to meet the current administration's and



teachers' requests for instruction. Traditional design methods have been to group grades together. However, that is changing for some districts that want to combine the grade levels to allow for more interaction between the different age groups. If renovations become an option to resolve any capacity issues, then a "temporary" solution could become problematic if the changes you make eliminate your capacity issues (at great expense) in the short term but don't address current and future governmental requirements and long-term goals for the administration and teaching staff. The balance comes from anticipating the District's long-term needs and goals and balancing the shorter-term gains into a "master plan." It can be seen from the extensive data that a comprehensive master growth plan is critical to the future of Northbrook District 28. There are many short-term gains through the renovation of underutilized spaces. The long-term questions, however, remain, and further exploration will be needed.



Utilization

Our overall review of the utilization of the teaching classrooms for the District shows that their utilization is generally in the 60% to 75%+ range for all the schools. As stated, traditional scheduling for an efficiently programmed school should be no more than 85%.

Capacity

Our room capacity study shows that most teaching classrooms are within their practical capacity.

	Current Capacity	Traditional Max Capacity	Traditional Utilized	Contemp. Max Capacity	Contemp. Utilized
Greenbriar	315	534	58.99%	459	68.63%
Meadowbrook	453	626	72.36%	537	84.36%
Westmoore	377	632	59.65%	541	69.69%
Northbrook Junior High	638	953	66.95%	817	78.09%

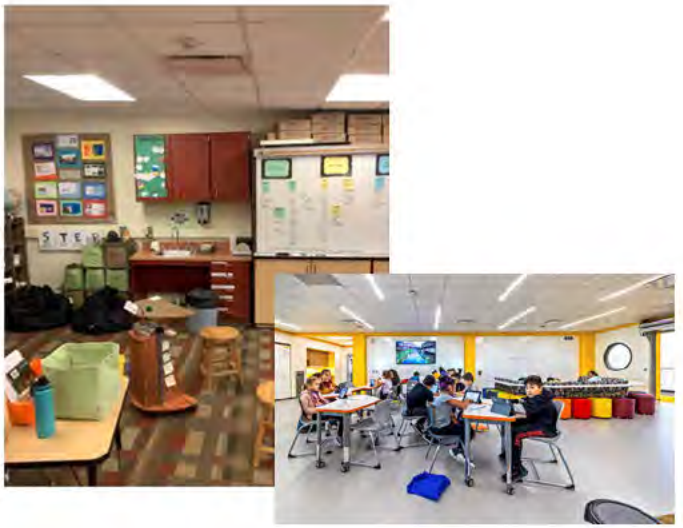
Looking at the average student capacity per classroom, at Greenbriar Elementary, all the teaching classrooms are within their practical capacity; at Meadowbrook Elementary, all the

teaching classrooms are within their practical; at Westmoor Elementary, all the teaching classrooms are within their practical; and at Northbrook Junior High, half of the teaching classrooms are within their traditional capacity. Some specialty classrooms exceed their capacity when considering the maximum class size reported. At Northbrook Junior High, most classrooms are used daily for six out of ten possible periods.

Observations

All available classrooms in the elementary schools are being efficiently utilized throughout the day, with others, such as art, music, etc., being used throughout the day but not consistently. The classrooms and break-out spaces at Northbrook Junior High School are used approximately 60% of the day, at times beyond their practical capacity.

The capacity of the classrooms in the schools, existing size, and student occupancy were evaluated for all schools. The industrialized standard of 85% efficiency was used to determine whether classrooms were underutilized or overcrowded. The factor is determined using an industry standard of what area is standard for each student, as noted in the summary, divided into the usable classroom areas. Once the number of students exceeds 85% of the calculated allowable number of students, the space is considered overcrowded. At this point, it does not allow growth, expansion, or flexibility.Suggestions for issues observed are included in the following documentation. However, final solutions to these questions will lie in the hands of the Board of



Education, which will decide on the ultimate question, "What is best for the students of Northbrook School District 28?" We

stand ready to assist District 28 in these difficult decisions. We will work with the Board and administration to develop a comprehensive planning model that helps improve the quality of education in Northbrook School District 28.

Summary

After we analyzed the classroom sizes, total number of classrooms, and number of enrolled students for each school, we determined the following for each school:

Greenbriar Elementary School

It was determined that Greenbriar Elementary School is within capacity regarding its general classrooms. The rooms for specials, itinerant offices, and music are over capacity or nonexistent, requiring remodeling of space through renovation and expansion of building facilities.

Meadowbrook Elementary School

It is determined that Meadowbrook Elementary School is within student capacity regarding its general classrooms. The rooms for specials, itinerant offices, music, gym, and cafeteria are well above capacity or nonexistent, requiring remodeling of space through renovation and expansion of building facilities.

Westmoor Elementary School

It is determined that Westmoor Elementary School is within capacity regarding its general classrooms. The rooms for special, itinerant offices, science, art, music, and toilet rooms throughout are over capacity, noncompliant with codes (toilet rooms), inadequate, or nonexistent, requiring remodeling of space through renovation and expansion of building facilities.

Northbrook Junior High School

It is determined that Northbrook Junior High School is overall within capacity. Still, when looking at the specific maximum reported class size, some rooms are over capacity and need remodeling. The area for the cafeteria is over capacity and not in a desirable location, requiring a new space through a major renovation and possible addition.

Greenbriar Elementary School

Building Utilization Report
Project 2023.016
December 11, 2023

Spaces	Room Areas				Current Rooms and Students			Areas Per Student			Students Per Room			Utilization	
	Existing Room Net Area	Existing Overall Net Area	Traditional Minimum Area	Contemp Minimum Area	Current # of Rooms	Current # of Students	Existing Students per room	Existing Area per Student	Traditional Minimum Area per Student	Contemp Minimum area per Student	District Maximum Students per room	Traditional Maxium Students per room	Contemp Maxium Students per room	Existing Room Capacities (85% Max)	Number of Hours in use per day
Kindergarten		3,128	1,320	1,540	3	44		71.09	30	35				42.20%	
004	988		450	525			15	65.87	30	35	21	33	28	45.55%	4.50
222	998		420	490			14	71.29	30	35	21	33	29	42.08%	4.50
224	1,142		450	525			15	76.13	30	35	21	38	33	39.40%	4.50
First Grade		2,414	1,770	2,065	4	59		40.92	30	35				73.32%	
103	808		450	525			15	53.87	30	35	21	27	23	55.69%	4.50
104	803		450	525			15	53.53	30	35	21	27	23	56.04%	4.50
106	803		420	490			14	57.36	30	35	21	27	23	52.30%	4.50
107	798		450	525			15	53.20	30	35	21	27	23	56.39%	4.50
Second Grade		2,407	1,530	1,785	3	51		47.20	30	35				63.56%	
305	806		510	595			17	47.41	30	35	21	27	23	63.28%	4.25
306	803		510	595			17	47.24	30	35	21	27	23	63.51%	4.25
307	798		510	595			17	46.94	30	35	21	27	23	63.91%	4.25
Third Grade		2,417	1,680	1,960	3	56		43.16	30	35				69.51%	
302	806		510	595			17	47.41	30	35	22	27	23	63.28%	4.25
303	808		570	665			19	42.53	30	35	22	27	23	70.54%	4.25
304	803		600	700			20	40.15	30	35	22	27	23	74.72%	4.25
Fourth Grade		2,440	1,380	1,610	4	46		53.04	30	35				56.56%	
206	832		450	525			15	55.47	30	35	22	28	24	54.09%	4.25
209	804		480	560			16	50.25	30	35	22	27	23	59.70%	4.25
210	804		450	525			15	53.60	30	35	22	27	23	55.97%	4.25
Fifth Grade		2,444	1,770	2,065	3	59		41.42	30	35				72.42%	
201	804		570	665			19	42.32	30	35	22	27	23	70.90%	4.25
202	808		600	700			20	40.40	30	35	22	27	23	74.26%	4.25
204	832		600	700			20	41.60	30	35	22	28	24	72.12%	4.25
Overall							315				408	535	459	58.89%	of Maximum Students

Greenbriar Elementary School

Building Utilization Report

Project 2023.016

December 11, 2023

	Existing Room Net Area	Overall Existing Net Area	Current # of Rooms	Current # of Students	Existing # of Students per session	Existing Area per Student	Minimum Area per Student	Existing Room Capacities (85% Max)		
Specials/Int		1,484			24	61.83	50	80.86%		
Reading 120	212		1		3	70.67	50	70.75%	2.50	
Reading 121	167		1		3	55.67	50	89.82%	2.50	
SLP/LRA 123A	200		1		3	66.67	50	75.00%	4.00	
Kids Lounge 123B	178		1		3	59.33	50	84.27%	7.00	
PT/OT/Soc Wk 124	172		1		3	57.33	50	87.21%	4.00	
Soc Wk Psych 125	194		1		3	64.67	50	77.32%	6.00	
Math Int 310	225		1		3	75.00	50	66.67%	4.00	
SLP 105B	136		1		3	45.33	50	110.29%	4.00	
Intervention 308	212		1		5	42.40	50	117.92%	4.00	
ML 309	169		1		5	33.80	50	147.93%	3.00	
Spec Ed		4,051			51	79.43	50	62.95%		
Kinder/ FDN 005	956		1		14	68.29	30	43.93%	6.00	
Ture North SLE 102	806		1		10	80.60	50	62.03%	7.00	
Spec Ed 205	817		1		10	81.70	50	61.20%	6.50	
Spec Ed 212	804		1		10	80.40	50	62.19%	6.50	
Foundational 203	820		1		11	74.55	50	67.07%	7.00	
Foundational 213	804		1		10	80.40	50	62.19%	7.00	
Gen Use/ Multi		18,002								
Art 111	1,386		1		20	69.30	55	79.37%	4.00	
Music/Flex 113	272		1		6	45.33	40	88.24%	1.00	
Music 109	745		1		20	37.25	40	107.38%	4.00	
Spanish 219a	750		1		18	41.67	30	72.00%	4.00	
Spanish 301	817		1		15	54.47	30	55.08%	3.00	
Multi Purpose 219	1,500		1		175	8.57	12	140.00%	1.00	
Gymnasium	6,763		1		60	112.72	20	17.74%	6.00	
Auditorium 112	2,342		1		240	9.76	8	81.98%	1.00	Inst Music
Stage 110	909		1		20	45.45	20	44.00%	1.00	Choir
Library	2,518		1		40	62.95	45	71.49%	7.00	

Total NSF	40,922
Total Rooms	46
Total # Students	315

Meadowbrook Elementary School

Building Utilization Report
Project 2023.016
December 11, 2023

Spaces	Room Areas				Current Rooms and Students			Areas Per Student			Students Per Room			Utilization	
	Existing Room Net Area	Existing Overall Net Area	Traditional Minimum Area	Contemp Minimum Area	Current # of Rooms	Current # of Students	Current # of Students per Room	Existing Area per Student	Traditional Minimum Area per Student	Contemp Minimum area per Student	District Maximum Students per room	Traditional Maxium Students per room	Contemp Maxium Students per room	Existing Room Capacities (85% Max)	Number of hours in use per day
Kindergarten		5,318	2,340	2,730	4	78		68.18	30	35				44.00%	
101	777		600	700			20	38.85	30	35	21	26	22	77.22%	4.67
102	776		600	700			20	38.80	30	35	21	26	22	77.32%	4.67
103	742		570	665			19	39.05	30	35	21	25	21	76.82%	4.67
104	742		570	665			19	39.05	30	35	21	25	21	76.82%	4.67
First Grade		3,883	2,520	2,940	5	84		46.23	30	35				64.90%	
10	762		510	595			17	44.82	30	35	21	25	22	66.93%	4.67
11	762		510	595			17	44.82	30	35	21	25	22	66.93%	4.67
107	757		510	595			17	44.53	30	35	21	25	22	67.37%	4.50
108	801		510	595			17	47.12	30	35	21	27	23	63.67%	4.67
109	801		480	560			16	50.06	30	35	21	27	23	59.93%	4.67
Second Grade		2,822	2,430	2,835	4	81		34.84	30	35				86.11%	
220	744		600	700			20	37.20	30	35	21	25	21	80.65%	4.33
221	744		600	700			20	37.20	30	35	21	25	21	80.65%	4.33
222	667		600	700			20	33.35	30	35	21	22	19	89.96%	4.33
223	667		630	735			21	31.76	30	35	21	22	19	94.45%	4.33
Third Grade		3,292	1,890	2,205	4	63		52.25	30	35				57.41%	
224	820		480	560			16	51.25	30	35	22	27	23	58.54%	4.33
225	820		450	525			15	54.67	30	35	22	27	23	54.88%	4.33
227	832		480	560			16	52.00	30	35	22	28	24	57.69%	4.33
229	820		480	560			16	51.25	30	35	22	27	23	58.54%	4.33
Fourth Grade		3,278	2,520	2,940	4	84		39.02	30	35				76.88%	
18	820		630	735			21	39.05	30	35	22	27	23	76.83%	4.33
21	820		600	700	Team Teach		20	41.00	30	35	22	27	23	73.17%	4.33
228	819		630	735	Team Teach		21	39.00	30	35	22	27	23	76.92%	4.33
231	819		660	770			22	37.23	30	35	22	27	23	80.59%	4.33
Fifth Grade		2,472	1,890	2,205	3	63		39.24	30	35				76.46%	
14	820		630	735			21	39.05	30	35	22	27	23	76.83%	4.33
17	832		630	735			21	39.62	30	35	22	28	24	75.72%	4.33
19	820		630	735			21	39.05	30	35	22	27	23	76.83%	4.33
Overall							453				515	626	537	72.35%	of Maximum Students

Meadowbrook Elementary School

Building Utilization Report

Project 2023.016

December 11, 2023

	Existing Room Net Area	Overall Existing Net Area		Current # of Rooms	Current # of Students	Current # of Students per session	Existing Area per Student	Minimum Area per Student			Existing Room Capacities (85% Max)	
Specials/Int		871				16	54.44	50			91.85%	
Social Work 238	89			1		4	22.25	50			224.72%	6.00
Ture North 240	85			1		2	42.50	50			117.65%	1.00
Psych 256	110			1		1	110.00	50			45.45%	7.00
Reading Int 255	247			1		4	61.75	50			80.97%	5.50
Reading Int 55	247			1		4	61.75	50			80.97%	5.50
OT 236	93			1		1	93.00	50			53.76%	3.50
Spec Ed		1,796				20	89.80	50			55.68%	
Resource 106	808			1		10	80.80	50			61.88%	6.00
Spec Ed/ Res 105	988			1		10	98.80	50			50.61%	6.00
Gen Use/ Multi		11,458										
Art 53	868			1		22	39.45	55			139.40%	5.50
Music 253	891			1		20	44.55	40			89.79%	5.50
G/T 258	767			1		20	38.35	30			78.23%	3.00
Spanish 12	741			1		17	43.59	30			68.83%	5.00
Spanish 13	742			1		10	74.20	50			67.39%	5.00
Stem 56	767			1		22	34.86	30			86.05%	4.33
Multi Purpose 114	2,081		Lunch (125)/ PE (26)	1		125	16.65	20			120.13%	7.00
Gymnasium 16	2,942		Lunch (147)/ PE (26)	1		147	20.01	20			99.93%	7.00
Library 110	1,659			1		26	63.81	45			70.52%	4.00

Total NSF	32,909
Total Rooms	41
Total # Students	453

Westmoor Elementary School

Building Utilization Report
Project 2023.016
December 11, 2023

Spaces	Room Areas				Current Rooms and Students			Areas Per Student			Students Per Room			Utilization		
	Existing Room Net Area	Existing Overall Net Area	Traditional Minimum Area	Contemp Minimum Area	Current # of Rooms	Current # of Students	Current # Students per room	Existing Area per Student	Traditional Minimum Area per Student	Contemp Minimum area per Student	District Maximum Students per room	Traditional Maxium Students per room	Contemp Maxium Students per room	Existing Room Capacities (85% Max)	Number of hours in use per day	
Pre-K (am/pm)		4,008	3,060	3,570	8	102		39.29	30	35				76.35%		
148	1,058		360	420			12	88.17	30	35	21	35	30	34.03%	4.50	Blended
154	1,061		450	525			15	70.73	30	35	21	35	30	42.41%	4.50	Blended
156	1,048		420	490			14	74.86	30	35	21	35	30	40.08%	4.50	Blended
172	841		390	455			13	64.69	30	35	21	28	24	46.37%	4.50	Blended
104	784		240	280			8	98.00	30	35	21	26	22	30.61%	5.50	Full Day
159	802		240	280			8	100.25	30	35	21	27	23	29.93%	5.50	Full Day
Kindergarten		2,174	1,170	1,365	3	39		55.74	30	35				53.82%		
106	1,083		570	665			19	57.00	30	35	21	36	31	52.63%	4.50	
108	1,091		600	700			20	54.55	30	35	21	36	31	55.00%	4.50	
First Grade		2,426	1,860	2,170	2	62		39.13	30	35				76.67%		
110	803		630	735			21	38.24	30	35	21	27	23	78.46%	4.50	
112	791		630	735			21	37.67	30	35	21	26	23	79.65%	4.50	
116	832		600	700			20	41.60	30	35	21	28	24	72.12%	4.50	
Second Grade		774	630	735	3	21		36.86	30	35				81.40%		
120	795		630	735			21	37.86	30	35	21	27	23	79.25%	4.50	
122	774		630	735			21	36.86	30	35	21	26	22	81.40%	4.50	
Third Grade		2,401	1,560	1,820	3	52		46.17	30	35				64.97%		
130	845		510	595			17	49.71	30	35	22	28	24	60.36%	4.50	
134	777		540	630			18	43.17	30	35	22	26	22	69.50%	4.50	
136	779		510	595			17	45.82	30	35	22	26	22	65.47%	4.50	
Fourth Grade		2,377	1,860	2,170	3	62		38.34	30	35				78.25%		
133	819		630	735			21	39.00	30	35	22	27	23	76.92%	4.50	
138	779		600	700			20	38.95	30	35	22	26	22	77.02%	4.50	
140	779		630	735			21	37.10	30	35	22	26	22	80.87%	4.50	
Fifth Grade		2,405	1,170	1,365	4	39		61.67	30	35				48.65%		
137	829		570	665			19	43.63	30	35	22	28	24	68.76%	4.50	
142	779		600	700			20	38.95	30	35	22	26	22	77.02%	4.50	
144	797		540	630			18	44.28	30	35	22	27	23	67.75%	4.50	
Overall							377				387	632	541	59.70%	of Maximum Students	

Westmoor Elementary School

Building Utilization Report
Project 2023.016
December 11, 2023

	Existing Room Net Area	Overall Existing Net Area	Current # of Rooms	Current # of Students per session	Existing Area per Student	Minimum Area per Student		Existing Room Capacities (85% Max)	
GT/Math 132	834		1	12	69.50	30		43.17%	4.00
Specials/Int		1,641	8			50			
Psych 101	231			3	77.00	50		64.94%	1.00
Social Work 103	243			3	81.00	50		61.73%	1.00
Reading 123	479			4	119.75	50		41.75%	6.00
Speech 125	231			4	57.75	50		86.58%	5.00
Math Int 129B	296			4	74.00	50		67.57%	5.00
Psych 129C	161			1	161.00	50		31.06%	1.00
OT/PT 135	819			4	204.75	30	35	14.65%	5.50
Spec Ed		1,617	4			50			
Spec Ed 114	798			5	159.60	50		31.33%	5.50
Spec Ed 131	819			6	136.50	50		36.63%	5.50
Gen Use/ Multi		13,549							
ELL Office 169	414		1	8	51.75	35		67.63%	5.50
Spanish 118	774		1	21	36.86	30		81.40%	4.00
STEM 122	774		1	10	77.40	30		38.76%	4.00
Science 124	700		1	21	33.33	55		165.00%	1.00
Art 147	808		1	21	38.48	55		142.95%	5.00
Music 151	810		1	21	38.57	40		103.70%	5.00
Gymnasium 146	4,063		1	42	96.74	50		51.69%	5.00
Multi/Assembly 174	2,281		1	150	15.21	20		131.52%	7.00 Lunch
Library 107	2,925		1	40	73.13	45		61.54%	6.00

Total NSF	37,406	
Total Rooms		48
Total # Students		377

Northbrook Junior High School

Building Utilization Report
Project 2023.016
December 11, 2023

Spaces	Room Areas			Current Rooms and Students					Areas Per Student			Utilizations					Room use Clarifications
	Existing Room Net Areas	Traditional Minimum Area	Contemp Minimum Area	Current # of Rooms	Current # of Students	Periods per Day being used as a Classroom	Periods per Day Available for use	Max # of Students Reported in each room	Existing Area per Student	Traditional Minimum Area per Student	Contemp Minimum area per Student	Preferred Maximum Students per room	Traditional Maxium Students per room	Contemp Maxium Students per room	Current Utilization of Rooms	Current Room Capacities at Max Reported (85% Max)	
Sixth Grade	Being used as a Classroom	6,210	7,245	Being used as a Classroom	207					30	35						
Seventh Grade		6,240	7,280		208					30	35						
Eighth Grade		6,690	7,805		223					30	35						
	28,606	19,140	22,330	36	638	198	330	731	44.84	30	35				60.00%	66.91%	
LA Basement 100	885					6	10	22	40.23	30	35	22	30	25	60.00%	74.58%	
LA Basement 104	859					6	10	23	37.35	30	35	22	29	25	60.00%	80.33%	
LA Basement 110	858					6	10	24	35.75	30	35	22	29	25	60.00%	83.92%	
LA Basement 111	858					6	10	21	40.86	30	35	22	29	25	60.00%	73.43%	
LA Ist Floor 218	873					6	10	23	37.96	30	35	22	29	25	60.00%	79.04%	
LA Ist Floor 220	873					6	10	23	37.96	30	35	22	29	25	60.00%	79.04%	
LA Ist Floor 222	872					6	10	24	36.33	30	35	22	29	25	60.00%	82.57%	
LA 2nd Floor 319	862					6	10	25	34.48	30	35	22	29	25	60.00%	87.01%	
LA 2nd Floor 320	870					6	10	22	39.55	30	35	22	29	25	60.00%	75.86%	
6th LA 327	871					6	10	25	34.84	30	55	22	29	16	60.00%	86.11%	
SST 2nd Floor 308	644					6	10	7	92.00	30	35	22	21	18	60.00%	32.61%	
SST 2nd Floor 310	629					6	10	7	89.86	30	35	22	21	18	60.00%	33.39%	
SS Basement 113	864					6	10	22	39.27	30	35	22	29	25	60.00%	76.39%	
SS 1st Floor 224	872					6	10	24	36.33	30	35	22	29	25	60.00%	82.57%	
8th Social Studies 227	873					6	10	25	34.92	30	55	22	29	16	60.00%	85.91%	
SS 2nd Floor 322	870					6	10	25	34.80	30	35	22	29	25	60.00%	86.21%	
SS 2nd Floor 324	870					6	10	25	34.80	30	35	22	29	25	60.00%	86.21%	
Science 1st Floor 226	942					6	10	24	39.25	50	55	22	19	17	60.00%	127.39%	
Science 1st Floor 229	942					6	10	24	39.25	50	55	22	19	17	60.00%	127.39%	
Science 2nd Floor 326	1,009					6	10	23	43.87	50	55	22	20	18	60.00%	113.97%	
Science 2nd Floor 329	1,009					6	10	23	43.87	50	55	22	20	18	60.00%	113.97%	
Science 2nd Floor 325	986					6	10	23	42.87	50	55	22	20	18	60.00%	116.63%	
Science 2nd Floor 321	865					6	10	25	34.60	50	35	22	17	25	60.00%	144.51%	
Math 1st Floor 219	869					6	10	24	36.21	30	35	22	29	25	60.00%	82.85%	
8th Math 225	868					6	10	23	37.74	30	35	22	29	25	60.00%	79.49%	
8th Math 221	868					6	10	22	39.45	30	35	22	29	25	60.00%	76.04%	
7th Math 231	778					6	10	22	35.36	30	35	22	26	22	60.00%	84.83%	
Math 2nd Floor 303	894					6	10	24	37.25	30	35	22	30	26	60.00%	80.54%	
Math 2nd Floor 305	886					6	10	22	40.27	30	35	22	30	25	60.00%	74.49%	
Math 2nd Floor 311	858					6	10	23	37.30	30	35	22	29	25	60.00%	80.42%	
Math 2nd Floor 313	864					6	10	24	36.00	30	35	22	29	25	60.00%	83.33%	

Northbrook Junior High School

Building Utilization Report
Project 2023.016
December 11, 2023

	Room Areas	Current Rooms and Students			Areas Per Student			Utilizations				
Elective Room 122	874	6	10	19	46.00	30	35	22	29	25	60.00%	65.22%	
Elective Room 124	791	6	10	19	41.63	30	35	22	26	23	60.00%	72.06%	
Art 118	1,330	6	10	21	63.33	50		22	27		60.00%	78.95%	
ML Classroom 120	440	6	10	9	48.89	30	35	22	15	13	60.00%	61.36%	
French 306	835	7	10	26	32.12	30		22	28		70.00%	93.41%	
Spanish 304	835	10	10	22	37.95	30		22	28		100.00%	79.04%	
Spanish 307	859	9	10	24	35.79	30		22	29		90.00%	83.82%	
Spanish 315	975	7	10	24	40.63	30		22	33		70.00%	73.85%	
Foundational 1st 211	858	10	10	7	122.57	40		22	21		100.00%	32.63%	
Foundational(SPED)213	864	10	10	5	172.80	30	35	22	29	25	100.00%	17.36%	
Staff/ Flex (OT/PT) 121A	350			5	70.00	30		22	12		#DIV/0!	42.86%	
Wood Shop 116	1,638	6	10	19	86.21	50		22	33		60.00%	58.00%	
Drama 246	1,264	6	10	20	63.20	40		22	32		60.00%	63.29%	
West Gymnasium 232	6,823	6	10	45	151.62	20		22	341		60.00%	13.19%	
East Gymnasium 234	4,757	6	10	45	105.71	20		22	238		60.00%	18.92%	
Weight Room 251	1,213	6	10	25	48.52	20		22	61		60.00%	41.22%	
Health Room 238	986	6	8	28	35.21	30		22	33		75.00%	85.19%	
TV Studio 245/247	767	1	10	6	127.83	40		22	19		10.00%	31.29%	
Music 401	1,654	6	10	46	35.96	40		22	41		60.00%	111.25%	46 at rehearsal before school
Orchestra 404	1,275	6	10	32	39.84	40		22	32		60.00%	100.39%	32 at rehearsal before school
Choral 405	1,415	6	10	45	31.44	40		22	35		60.00%	127.21%	45 twice a week at lunch
Music 406	2,150	6	10	60	35.83	40		22	54		60.00%	111.63%	60 at rehearsal before school
Orchestra 410	1,984	6	10	35	56.69	40		22	50		60.00%	70.56%	35 at rehearsal before school
Library 314	2,474	6	10	80	30.93	20		22	124		60.00%	64.67%	65-80 at staff meetings
Library Annex 312	863			20	43.15	30		22	29			69.52%	
Cafeteria 121	3,779	3	10	223	16.95	20		22	189		30.00%	118.02%	

Total NSF	68,994
Total Rooms	36
Total # Students	638

Northbrook School District 28

Curriculum Study

Purpose

As a part of our process to better understand Northbrook, DLA Architects asked the administration, staff, and community to complete a survey about your educational delivery methods. The survey responses help DLA Architects understand what types of activities are taking place within the schools today as well as any future goals for your pedagogy. DLA's design philosophy is form follows learning which means the architecture of a building should help inspire and support learning.

We believe knowledge about how you teach is very relevant when considering any facility improvements. We understand each School District is different and the following document is not meant as an evaluation of your teaching methods, rather it is an effort to submerge ourselves in your unique pedagogy and is a key part of our design process.

Survey

The surveys conducted with your staff, community members, and students provided us with similar thoughts and comments throughout all four schools. Natural light was one of the most common comments we heard throughout. The students also like small and dark places where they can cuddle up and read. Teachers and students noted that they would like to use the corridors for learning by incorporating nooks, and breakout spaces. The cafeterias in three of the schools are lacking in space and functionality. Finishes and colors were noted in the schools as well, such as carpeting, lockers and general updates. Safety and security is a top issue with many of the survey participants and even though the District makes it a priority, there is always room for improvement. And finally, there is the feeling of lacking classroom space along with the desire to keep class sizes low.

STUDENT

DLA Ltd.
ARCHITECTS

form follows learning

Facility Assessment **Workshops Vol. 1**



EMPOWER NORTHBROOK DISTRICT 28 EVERY LEARNER

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Student Workshops

May 23rd-24th, 2023

Facility Assessment: Student Perspective

Over the course of two days, DLA Architects facilitated four 1-hour workshops with students from each school in Northbrook School District 28. The primary objective was to see from the student perspective the types of learning environments they learn the best in, what they like and/or dislike about their current school environment, the kinds of spaces that inspire them to learn, and what their greatest wish for their school environment would be. In short, these activities were implemented to provide a frame of reference for what is perceived as optimal versus what conditions currently exist. Workshops were facilitated on the following dates and times:

- Westmoor School: Tuesday, May 23, 2023 from 12:30-1:30pm
- Northbrook Junior High School: Tuesday, May 23, 2023 from 1:40-2:40pm
- Greenbriar School: Wednesday, May 24, 2023 from 9:30-10:30am
- Meadowbrook School: Wednesday, May 24, 2023 from 10:45-11:45am

Westmoor School

Tuesday, May 23, 2023
12:30-1:30pm

Student Workshop Activities

- Activity 1: Favorite Space to Learn
- Activity 2: Inspiration Images
- Activity 3: I Wish My School...

Activity 1: Favorite Space to Learn

(Student Responses)

- My desk
- Library
- Science Lab (Observing worms)
- By the window
- Outside
- Science Lab (Like the colors in there)
- Reading in a comfy spot like a couch
- Reading books on the floor
- Reading books while laying down in a chair
- Sitting on a bench
- Any small corner that is quiet and with not a lot of people
- Nature
- A space with windows to see outside
- Art Room...because of the art and colors
- Bedroom...because thre are Legos
- Bedroom...on a chair that floats and swings
- Museum
- Outdoors
- Bedroom...because it is comfortable and has paintings
- Small spaces away from people

Activity 2: Inspiration Images

(Student-Selected Images in Color)



































ONE







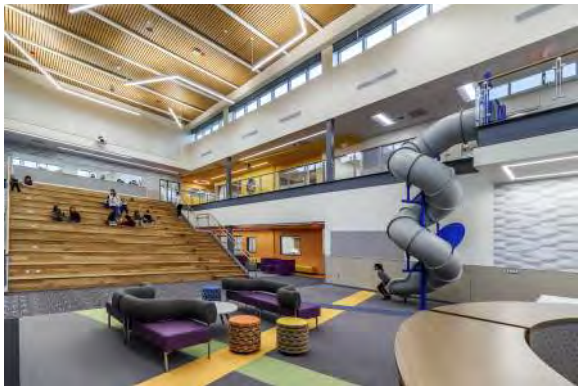




Activity 2: Inspiration Images
(Student-Selected Images in Order of Most Popular)

Comments

10



- Want to study there
- Like the slide
- Fun
- Like the colors
- Darker spaces to study (like slide)
- Don't like distractions

9



- Private space
- All to self
- Comfortable
- Laying down
- 1 person space
- Like bright color
- Quiet

8



- Looks quiet…everyone is reading
- Comfy
- Bright and Happy
- Like the color orange
- Like to climb up and read
- More enclosed and safe…don't move ladder because you might fall off

7



- Reminds of outside

Comments

2



- Like the wall color
- Looks comfy
- Like the windows and natural light

2



- Couch looks like a comfortable space to study and lay down

1



- Like the "stage" in the space
- Nature

1



- Looks like a fun place to study and to put your back against something

Activity 3: I Wish My School...

(Student Responses)

- Bright colors and high space
- High-up place
- Place to read
- Stay-safe space
- Hover room to float around
- Small space with cushions and safe space
- Bigger bathrooms
- Levitating room
- Climb and do gymnastics
- Move around
- Safe
- Climb to find quiet space
- Climbing wall with comfy place on top
- High-up space with floating desks
- Rainbow space
- More bathrooms...do not share with Kindergarteners
- Forest inside
- Gaming room
- Petting zoo
- Mini-golf place
- More staff bathrooms
- Movie theater
- Pit with rope and climbing wall
- High-up spaces that are mixed with nature
- Reading booth to solve school-related questions
- Nature section like a hole in a tree with a ladder to climb up to a place (like where an owl goes)

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Northbrook Junior High School

Tuesday, May 23, 2023
1:40-2:40pm

Student Workshop Activities

- Activity 1: Favorite Space to Learn
- Activity 2: Inspiration Images
- Activity 3: I Wish My School...

Activity 1: Favorite Space to Learn

(Student Responses)

- In class
- Library couches are comfy
- Bedroom is most comfortable
- Quiet and spacious areas
- Comfy areas
- Northbrook Library is quiet and light…like the private rooms with glass enclosure
- Bigger areas
- Lounge
- Do not like the basement cafeteria…it is nicknamed "the dungeon"

Activity 2: Inspiration Images

(Student-Selected Images in Color)
















































HEALTHY









LATION








Activity 2: Inspiration Images
(Student-Selected Images in Order of Most Popular)

Comments

6



- Library
- Big open windows
- Cozy
- Cool Seating
- Comfy
- Calm

5



-

5



- Outside
- Lots of space
- Outdoor learning

3



- Big space
- Room to study and talk
- Lots of natural light

Comments

2



•

2



- Open
- Lots of glass
- Dining space...we want large volume and a variety of furniture

1



- Colors
- Enclosed

1



- Glass
- Looks big

Activity 2: Inspiration Images (continued...)
(Student-Selected Images in Order of Most Popular)

Comments

1



- Tall volume
- Natural light

1



-

1



- Quiet area to study

1



-

Comments

1



-

1



-

Activity 3: I Wish My School…

(Student Responses)

- Don't like too much color…it's tacky and distracting. Instead, go for two colors with an accent.
- Update gymnasium with better lighting
- Too many colors look complicated
- White is boring
- Want more homelike environments
- Too much color is like a pre-school
- Tone down colors and use natural light
- Don't like too much wood…it's bland and dated
- Too much of one thing is not good
- More open space
- More access to outside
- Separate staircase to music floor would make it more easily accessible
- Corridors that are less congested and crowded
- More movement
- Comfy open spaces like the library
- Less bland…so much white. Want color…but not too much. Use a color theme.
- Bigger lunchroom that you can study in
- Bigger areas for more opportunities
- Open areas with seating
- Natural light
- More homelike…less institutional (e.g. concrete block)
- Whiteboard desks
- Furniture…more seating and variety
- Less condensed
- More general open feel
- Glass into the hall…though it may be distracting
- Variety of seating in the cafeteria
- More flow to get food
- Outside looks like a prison…boring color outside.
- Like Sunset Ridge
- Less block walls…too institutional. Want a more homelike learning environment.
- Durability

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Greenbriar School

Wednesday, May 24, 2023
9:30-10:30am

Student Workshop Activities

- Activity 1: Favorite Space to Learn
- Activity 2: Inspiration Images
- Activity 3: I Wish My School...

Activity 1: Favorite Space to Learn

(Student Responses)

- Courtyard / Outside
- Library is quiet
- Want more outdoor learning
- Desk at home
- Being able to look out a window
- Quiet places
- Quiet classroom
- Bedroom…because no one is there and it is quiet
- Library nooks and crannies
- Dark spaces
- Comfy chairs

Activity 2: Inspiration Images

(Student-Selected Images in Color)

































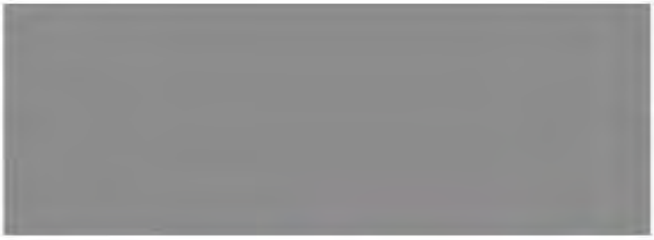


















ONE











Activity 2: Inspiration Images
(Student-Selected Images in Order of Most Popular)

10



Comments

- Like the ladder
- The back will keep you from falling out
- Feel more safe and cozy
- Like shapes to fit body
- Modern / futuristic
- Enclosed space that is not distracting

8



- Cozy
- Cushions
- Your own space and bubble
- Fluffy and soft
- Extend to fit more people
- Sit and relax
- More furniture to use
- Comfort

5



- Calming
- Your own personal space
- Comfy
- Cozy, smaller space
- Interesting
- Locate throughout school
- Encourages kids to read
- Not just wall, but also benches

3



- Quiet
- Very open
- Thermal comfort
- Colorful
- A bunch of space
- Can study with people
- Not distracting

Comments

2



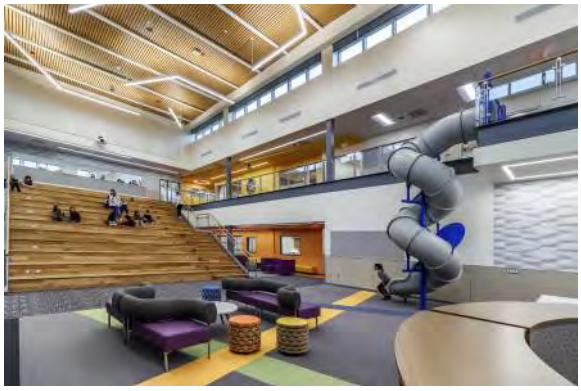
- Like the comfy chairs in the hall and in the classroom
- Wood benches in the corridor are a space to share projects at the end of the year
- Always kids in the hallway (to move)
- Try to use the space without lockers
- Like moving out of rooms and into other spaces…a change of scenery

2



- Soft seating
- Comfy
- Easier to focus
- Small space to study

1



- Like the slide…though it could be distracting
- Like in gym
- Learing stair
- Comfy
- Slide is a "brainbreak"

1



- Simple and smaller room to cuddle up
- Cool space to hang out

Activity 2: Inspiration Images (continued...)

(Student-Selected Images in Order of Most Popular)

Comments

1



- Nice and cozy background
- Quiet
- Reminds of breeze

1



- Lots of space
- Comfortable with blue

1



- A bunch of space
- Can study with people
- Not distracting

1



- Dark
- Lots of books
- Comfy place to sit / read / study
- Bit of a big space but does not make you feel lost

Comments

1



- Seats are soft
- Lighting is not crazy
- Choice of dark or light
- Ceiling and colors make you feel like you are in a book / wonderland
- Too many colors can be distracting
- Good vibe
- Prefer more pastel colors to bright

1



- Places to sit outside
- The existing courtyard only has a couple of comfy chairs that teachers use (not for students)
- Want to encourage teachers to use the outdoors

1



- Giant windows
- Like an outside space but with thermal comfort
- By yourself but still connected

1



-

Activity 3: I Wish My School...

(Student Responses)

- Darker spaces
- More modern feel
- Four (4) classrooms for every grade for more space...some kids get loud
- Modern and flexible seating...wobbly stools and bean bag chairs
- Bigger space for movement
- Spaces in hallway and enclosed space in wall
- Nooks and crannies to go to
- Space in hallways and outside
- Space for devices
- Open space to sit by yourself and to do work quietly...no boring desks!
- Fun and comfy areas
- Bean bag chairs in hallways instead of tables
- Love the yellow and enclosed nooks with a ladder from the inspiration board! I want that...
- Spaces to work in the hallways...it gets loud in the classrooms
- More rugs...platform spaces
- Favorite place in the existing school is the kids lounge...it has fidgets, exercise balls and allows us to get our energy out
- Least favorite space in the existing school is being in the very same classroom day after day
- Wobbly stools and couches
- Would like to move around everyday

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Meadowbrook School

Wednesday, May 24, 2023
10:45-11:45am

Student Workshop Activities

- Activity 1: Favorite Space to Learn
- Activity 2: Inspiration Images
- Activity 3: I Wish My School...

Activity 1: Favorite Space to Learn

(Student Responses)

- Classrooms that are spacious and not crowded
- Flexible seating that moves around
- Atrium with windows
- At home…where nature can be seen
- Bedroom…because it is quiet
- Bedroom…because it is calm
- A mix of fun and learning interact well
- Home is distracting but school is focused and comfortable
- Library…because it is quiet and there are lots of places to sit

Favorite Space in Existing School

- Nurse's Office…(the nurse is her friend and so friendly)
- Rug in the corner with stuffed animals and pillows to lay down on
- Art room expresses feelings without words or physical contact
- Tech support office is by everything (spaces to connect to people; sense of community)
- Quiet Room…no distractions
- Back of classrooms…quiet spot that is blocked off

Least Favorite Space in Existing School

- Bathrooms…they are gross, old, and dirty and the toilets clog
- Hallways are boring
- Some classrooms have to share a large table
- Reading rooms are distracting and are too small
- Some rooms have a lot of stuff but not enough space

Activity 2: Inspiration Images

(Student-Selected Images in Color)















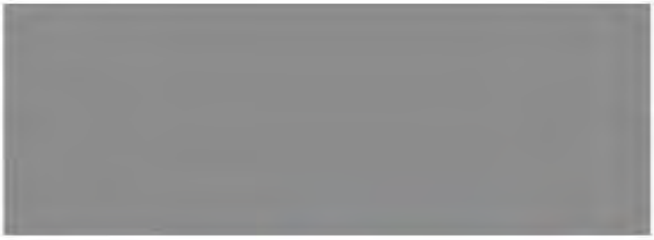




















ONE











Activity 2: Inspiration Images
(Student-Selected Images in Order of Most Popular)

Comments

4



- Calming place
- Mix
- Area to work without getting distracted
- Egg shape
- Personal space
- Add windows as a bubble to look outside

4



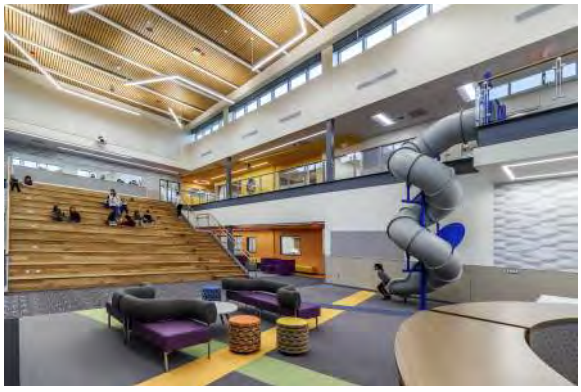
- Reading nook
- Like the curves
- Looks comfy with back support
- Modern feel with shapes
- Can lay down and relax
- Quiet, personal space
- Padded with room to move around
- Only one…so need more. Maybe a rotation and can earn a pass to use

4



- Like the windows and natural light
- Can see outdoors
- Homey
- Nature / Outdoor feel
- Calming and relaxing
- Small and quiet hallway space
- Area where kids can go and talk
- A place to express feelings
- Good for independent reading

2



- Like the slide
- Can be spaced out on learning stair
- Can move around and focus for inside recess
- Like indoor playground
- Fun colors
- Sense of play in space

Comments

2



- Nice to eat in a cafeteria and not on wet grass. We currently eat outside or in the classroom.
- Like the design and fun / calming colors
- Too many colors are distracting
- 2 or 3 different colors with white
- Every classroom / grade could have a different color

2



- Spaced out and simple design
- Different seating places
- Library space
- Shelves for storage
- Lots of spaces to sit
- It's a large space

2



- Rainbows
- Flexible seating
- Open space and not crammed
- Seating options
- Kind of babyish
- Too colorful for older students
- Would work as a Spanish room

2



- Like the colors in the white wall part
- Circles to sit in
- Spaces to read
- Separated
- Can choose your own spot...not assigned
- Storage needed
- Storage places for books

Activity 2: Inspiration Images (continued...)

(Student-Selected Images in Order of Most Popular)

Comments

2



- Playground
- Like the design with different places
- Hill with a slide
- Fun to run around
- Different than the same stuff at other playgrounds
- It's unique

1



- Like the seating

1



- Nice outdoor space to sit down
- Students sometimes go outside for Science...but we don't go outside as much as we want to.

1



- Flexible seating
- Chairs with back support...good for those who like to work at desks
- Nature
- Feels like a tree

Activity 3: I Wish My School...

(Student Responses)

- Third story to school for more classrooms...a Spanish and Science Room
- Computer lab for freetime and play...learning games online
- Reading nooks
- Small spaces to be by ourselves
- To see nature
- More parking
- Another playground that's accessible and inclusive
- More space
- Make rooms more fun
- A slide
- Hallway learning spaces with nooks and places for socializing and learning
- Windows with views to the outdoors
- Nature room
- Add another story to include extra spaces
- A sensory room
- New elevator...would help in the morning and afternoon because everyone is on the stairs and there is tripping
- Classrooms with more windows

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PARENT/STAFF

DLA Ltd.
ARCHITECTS

form follows learning

Facility Assessment **Workshops Vol. 2**



EMPOWER NORTHBROOK DISTRICT 28 EVERY LEARNER

Workshop Goals

- To understand how the existing facility is either limiting or supporting the teaching and learning that is happening.
- To open minds to new possibilities.
- To contemplate future ready schools that may introduce new ideas in terms of function, practice, & design.

Parent/Staff Workshops

June 2nd-12th, 2023

Facility Assessment: Parent/Staff Perspective

Over the course of ten days, DLA Architects facilitated four 3-hour workshops with parents and staff from each school in Northbrook School District 28. The primary objective was to understand the District's curricular goals and objectives for future ready learners in terms of ***skills***, the ***experiences*** (modes of learning) that would engage these learners in impactful ways to develop those skills, and finally the ***environments*** that would be required to help support those experiences. The findings from these workshops provide valuable insight as to the key drivers that will inform how well the existing facilities are prepared to support future ready learners. Workshops were facilitated on the following dates and times:

- Northbrook Junior High School: Friday, June 2, 2023 from 8:30-11:30am
- Greenbriar School: Friday, June 2, 2023 from 1:00-4:00pm
- Meadowbrook School: Thursday, June 8, 2023 from 1:00-4:00pm
- Westmoor School: Monday, June 12, 2023 from 1:00-4:00pm

Northbrook Junior High School

Friday, June 2, 2023
8:30-11:30am

Parent/Staff Workshop Activities

- Introductions: Share Your Favorite Space In Your School
- Skills (Future Ready Curricular Goals and Objectives)
- Experiences (Modes of Learning for Future Ready Learners)
- Design Patterns
- Environments ("Blue Sky" Ideas / Strengths & Challenges)

Share Your Favorite Space In Your School

(Parent/Staff Responses)

- LRC Library transformed in the last 5 years (e.g. flexible furniture, signage, vibrancy of space, hub of school)
- Library / Office Area 121B Café West because of natural light and accessibility throughout
- Big Gym
- Carpeted Hallways improve acoustics (quieter)
- Main Office Area
- Main Office with candy / Lighting on third floor (e.g. Skylights)
- Fitness Room
- Main Hallway (e.g. Small Group Collaboration, Space to set up Science and Art Fairs)
- Library (e.g. Natural light from windows and skylights, effective learning space with central area for instruction and small, flexible areas, vibrant)
- Performance spaces above gym (e.g. Liked being part of the process and love the natural light)
- 8th Grade Hall and Main Entrance, Flexibility and Storage, adaptive and can change easily.

Top Skills for Northbrook Junior High:
Future Ready Curricular Goals & Objectives

(Parent/Staff priority listing of the essential "Future Ready Skills" and "Priority Learning Goals" needed by students.)

- **Empathy + Social Awareness**
- **Critical Thinking**
- **Communication + Collaboration**
- **Work/Life/Play Balance**
- **Adaptability**



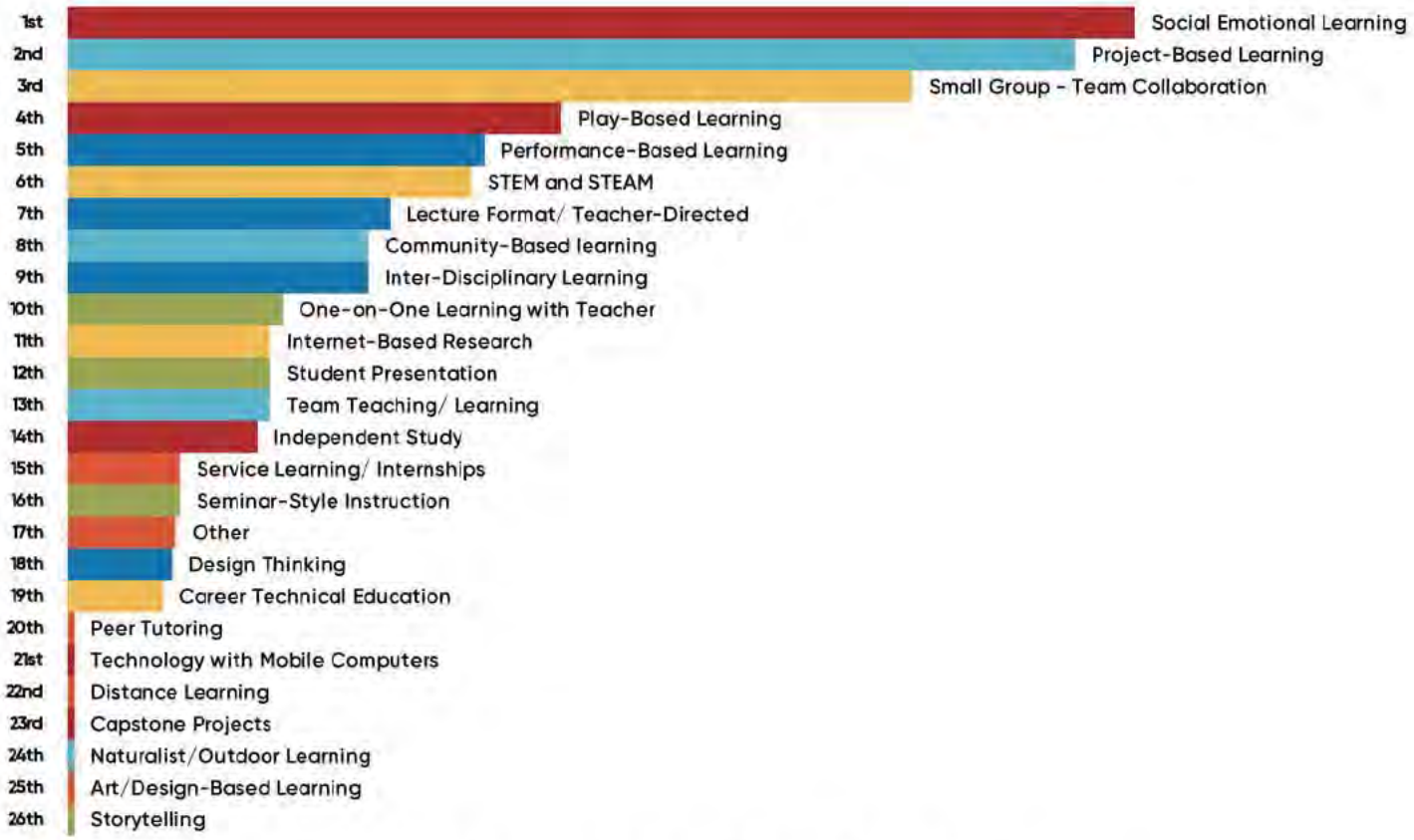
Stakeholders discuss their essential "Future Ready Skills" and "Priority Learning Goals."

Top Experiences for Northbrook Junior High:

Modes of Learning for Future Ready Learners

(Parent/Staff priority listing of the Modes of Learning needed by students to develop the essential "Future Ready Skills" and "Priority Learning Goals.")

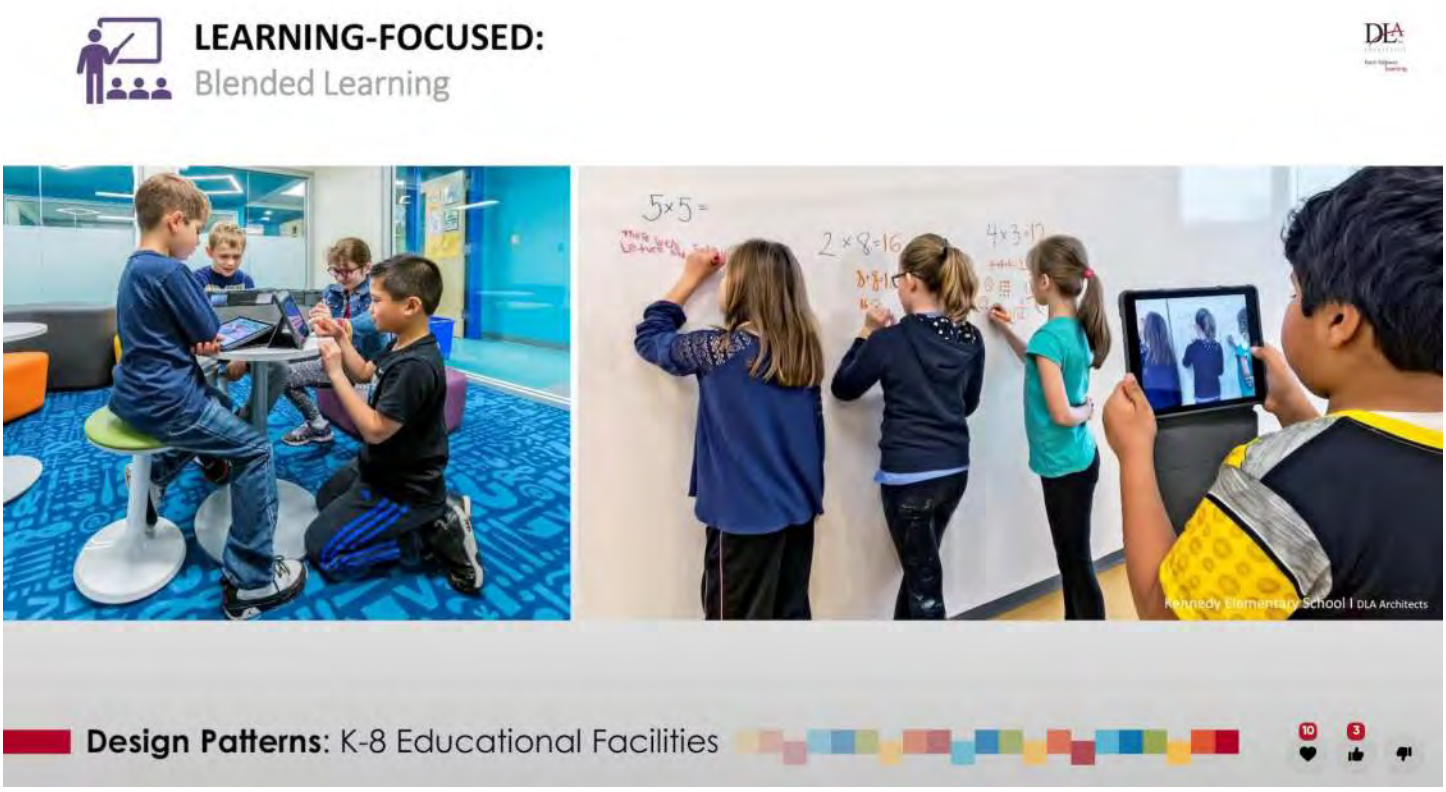
- **Social Emotional Learning**
- **Project-Based Learning**
- **Small Group - Team Collaboration**
- **Play-Based Learning**
- **Performance-Based Learning**



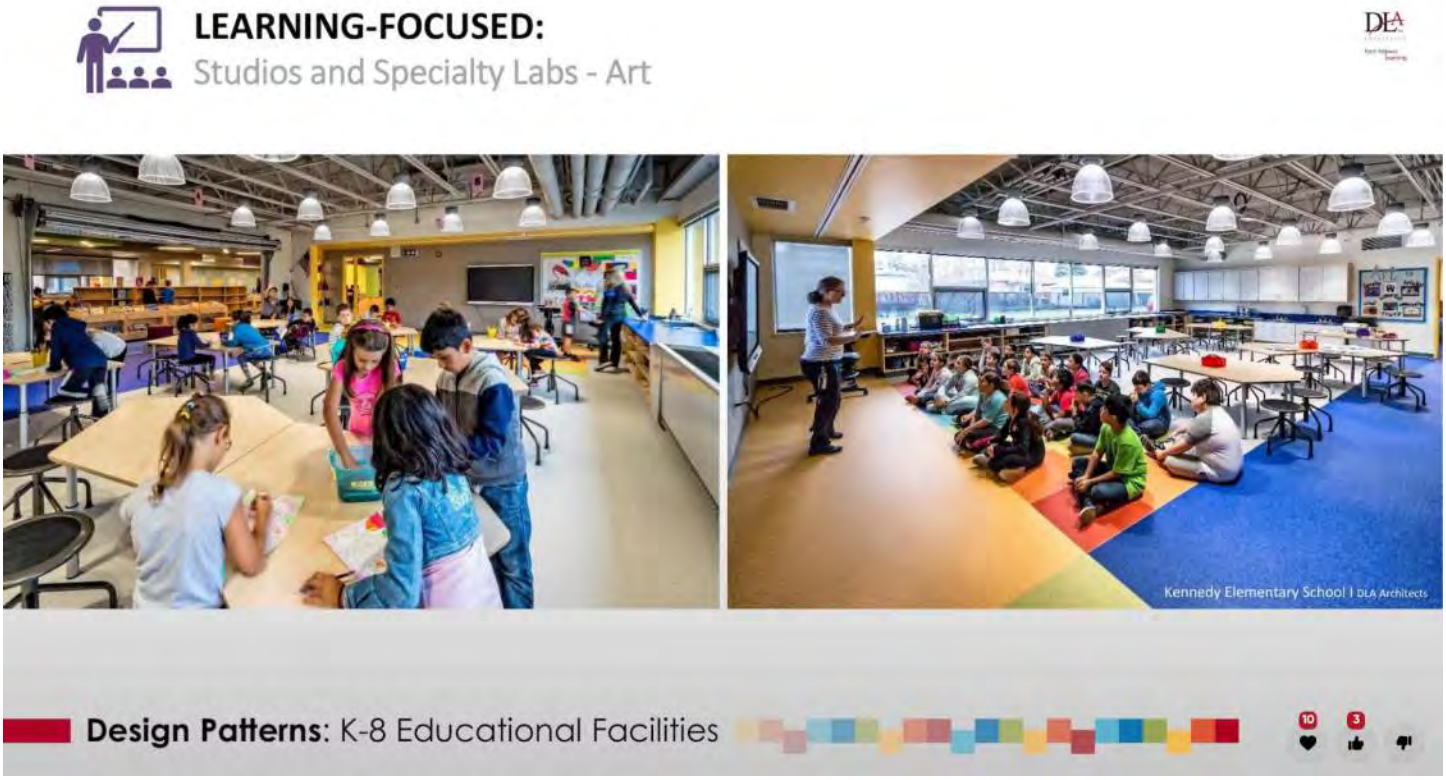
Results from Mentimeter Survey for "Modes of Learning"

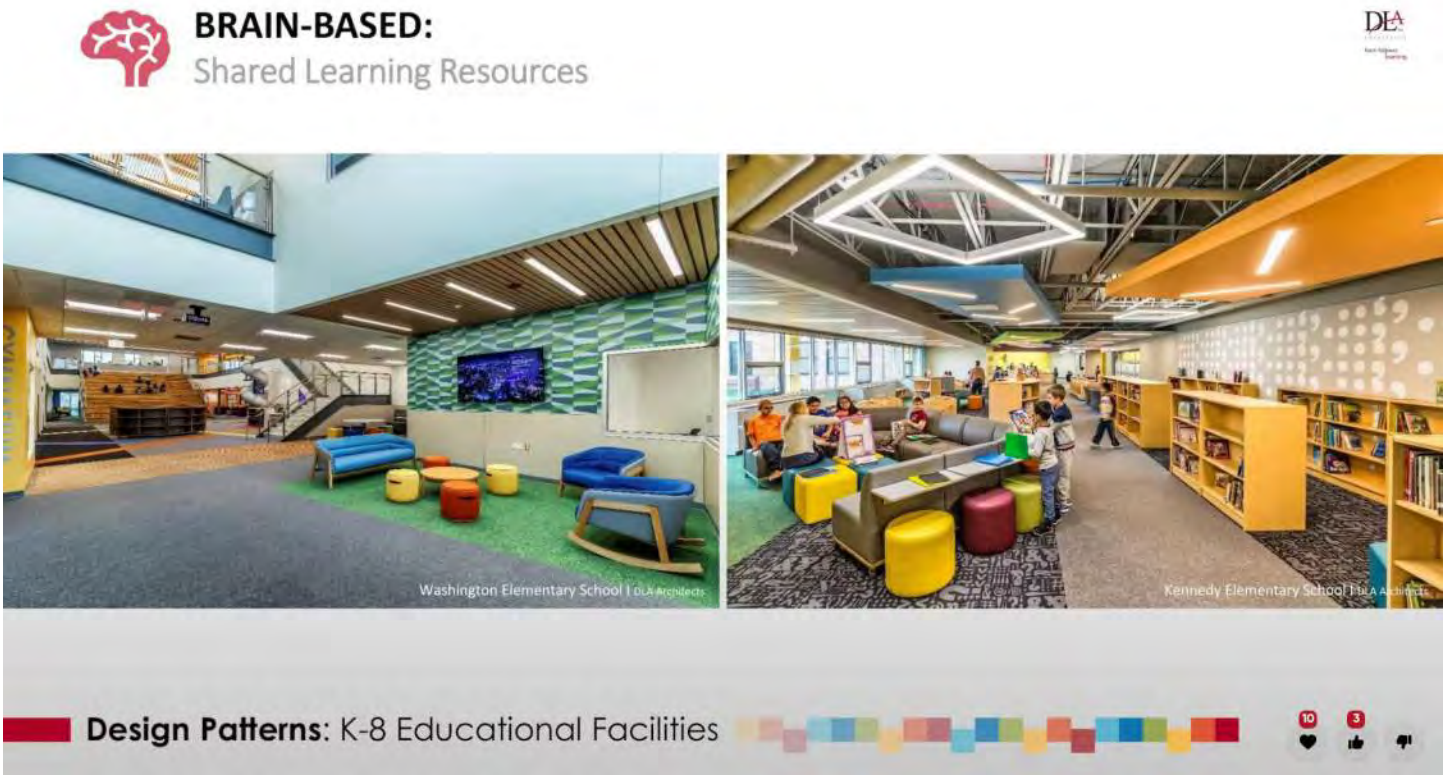
Design Patterns of Future Ready Learning Environments:





DLA Architects presented approximately 50 Design Patterns in school design in order for parents and staff to identify priorities and provide insight to the desired building features that they feel are most important for their school. Their 'Top 10' is featured here beginning with the highest ranking (on previous page).





Design Patterns (continued…)

PERSONALIZED:
Lifelong Fitness





Design Patterns: K-8 Educational Facilities

PERSONALIZED:
Welcoming Entry





Design Patterns: K-8 Educational Facilities

PERSONALIZED:
Greeting and Gatekeeping



J.R. Irvin Elementary School | Huckabee



East Maine SD63 First Steps Preschool | DLA Architects

Design Patterns: K-8 Educational Facilities

LEARNING-FOCUSED:
Varied Spaces – Extended Learning Spaces


Arlington Elementary School | Mahlum

Design Patterns: K-8 Educational Facilities

Design Patterns (continued...)

LEARNING-FOCUSED:
Music and Performance





Design Patterns: K-8 Educational Facilities

SPATIAL QUALITY:
Biophilia





Design Patterns: K-8 Educational Facilities

HIGH PERFORMANCE:
Sustainable Elements / Living Buildings





Rosa Parks Elementary School | DOWA-IBI Group

Design Patterns: K-8 Educational Facilities

HIGH PERFORMANCE:
Healthy Materials

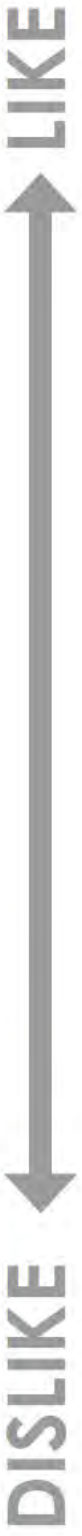




Design Patterns: K-8 Educational Facilities

Design Patterns (continued...)

Topic	♡	👍	👎	Score
Community Connected: Outdoor Play	12	1	0	63
Learning-Focused: Blended Learning	10	3	0	59
Learning-Focused: Studios and Specialty Labs/Art	10	3	0	59
Brain-Based: Shared Learning Resources	10	3	0	59
Personalized: Lifelong Fitness	11	1	0	58
Personalized: Welcoming Entry	9	4	0	57
Personalized: Greeting and Gatekeeping	9	4	0	57
Learning-Focused: Varied Spaces/Extended Learning Spaces	10	2	1	57
Learning-Focused: Music and Performance	9	4	0	57
Spatial Quality: Biophilia	10	2	0	56
High Performance: Sustainable Elements/Living Buildings	10	2	0	56
High Performance: Healthy Materials	10	2	0	56
Learning-Focused: Varied Spaces/Classroom Zones	9	3	1	55
Spatial Quality: Indoor/Outdoor Connection	9	3	0	54
Community Connected: Community Resources	9	3	0	54
Collaborative: Professional Work Areas	7	6	0	53
Personalized: Safety and Security	7	5	1	51
Learning-Focused: Student Display/Exhibition Space	6	7	0	51
Adaptable and Flexible: Agile Classrooms/Flexible Furniture	6	7	0	51
Spatial Quality: Integrated Technology	6	7	0	51
Adaptable and Flexible: Thoughtful Renovation	7	5	0	50
Personalized: Human Scale	4	9	0	47
Personalized: Wayfinding and Streetscapes	6	4	3	45
Learning-Focused: Studios and Specialty Labs/Makerspaces/FAB Labs	4	8	1	45
Learning-Focused: Project Space	5	6	2	45
Spatial Quality: Timeless and Traditional	6	4	3	45
Community Connected: Outdoor/Community Gardens	4	8	0	44
Collaborative: Breakout Spaces	3	9	1	43
Personalized: Wayfinding and Streetscapes (Graphics)	5	5	2	42
Learning-Focused: Presentation Space	3	8	2	41
Spatial Quality: Built-in/Soft Seating Furniture	4	6	3	41
High Performance: Building as a Teaching Tool	4	6	3	41
Community Connected: History and Storytelling	4	6	3	41
Personalized: Home Base and Individual Storage	4	6	2	40
Collaborative: Clusters of Learning/Learning Neighborhoods	3	8	1	40
Brain-Based: Cave Space/Reading Nooks	4	5	4	39
Brain-Based: Designing for Multiple Intelligences	5	3	5	39
Collaborative: Gathering Spaces/Casual Eating Areas	5	3	4	38
Adaptable and Flexible: Anywhere, Anytime Learning	2	8	3	37
Adaptable and Flexible: Multi-Use Classrooms	3	6	4	37
Spatial Quality: Branding and Identity	5	2	6	37
Community Connected: Local Signature	4	4	5	37
Community Connected: Siting in Context	2	8	3	37
Brain-Based: Campfire Space	2	7	4	35
Collaborative: Gathering Spaces/Learning Commons	2	7	4	35
Personalized: Distributed Resources	2	6	5	33
Spatial Quality: Transparency and Visible Learning	2	4	7	29
Brain-Based: Watering Hole Space	0	7	6	27
Adaptable and Flexible: Flexible Boundaries	0	6	6	24



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Blue Sky Ideas for Northbrook Junior High:

(DLA Architects asked parents and staff to share what they would love to see happening architecturally to support what they see happening educationally in their future ready learning environment if they had the opportunity to dream without limitations.)

"Blue Sky" Ideas 37 Answers

more natural light in hallways, classrooms, shared spaces, etc.

Sensory aspect of the environment (visual, auditory, smell, etc.) to support learning for ALL students

A larger, more open and welcoming main lobby area.

One central entrance/exit to the library for safety and resource management.

Flexible seating within the classroom and as it stretches to more communal spaces (in the hallways) -- shared learning spaces.

Increased natural light - adequate enough that we can eliminate a lot of the artificial light / also change the quality of the indoor light

Maintaining the flexibility of all learning spaces to ensure the capacity for direct instruction (modeling) in addition to group and project based learning.

More small group working spaces that are readily accessible to kids.

Clearly separate open spaces like for communication, semi-open spaces, and focus learning spaces classrooms.

Outdoor space that provides a variety of activities for students during recess.

Environmentally friendly that incorporates student learning.

collaborative work spaces for students to use that are not located in the entryway of the school. This allows for small groups to work, teachers to conference with students, etc.

Performance auditorium space so concerts, musical, etc. are not being held in the gym

Better use of outdoor space - middle schoolers love outside playgrounds & gagaball pits!

A cafeteria space with higher ceilings, better sound quality and varied spaces for different indoor activities.

Accessible, flexible, sense of security, sense of ownership and belonging, places to decompress. learning can happen anywhere. access to outdoors. access to community facilities. citizenship/ belongin

Classrooms with flexible seating & teaching areas to support differentiated instruction and peer collaboration.

Incorporate more natural elements: big windows, skylights, a living wall - love the meditation space for classes and teachers.

Enough shelving for 25,000 books in the library.

Outdoor spaces that facilitate activity, rest, play, etc.

Dedicated performance space for fine arts, with proper acoustic qualities, and integrated access from rehearsal spaces.

Open community spaces, but with options for kids who need to work in places where they don't feel overwhelmed by the aesthetics.

Places where kids can gather without being confined to "prison like" eating areas. Kids like to play, work and eat. Let 'em!

Some large community space at the heart of the school that blends to performance space (large and small) and community space which then leads to different grade-level wings (or floors)

Flexible seating, standing desks, etc. for EVERY classroom

Quiet Cafetorium- quiet (not silent) place for students to eat, converse, and be productive together. Also could be a place where performances happen.

Early Morning running for the whole school as a start of the day.

Accessibility for all students - beyond just ADA regulations, but can they access their locker shelves and hooks; appropriate size for little children to reach things

A better traffic flow pattern, entrance/exit locations for daily dropoff and pickup.

A redesigned main office/health office space!

Separate area- away from the office, but under supervision- where students can take a time-out, or wait for a meeting with administrators, etc.

Any new building/classroom materials are environmentally prioritized - sustainable - conversation-minded at the heart of the structure.

Inviting indoor/outdoor space for functional fitness (climbing, jump rope, obstacles, etc.)

Cafeteria that is more inviting for all students (better light, decreased sound amplification, improved olfactory aspect)

SAFETY & SECURITY - can't forget about that

Viewable breakout rooms for students that can work independently without the distraction of the classroom.

Portable external charging packs

Strengths for Northbrook Junior High:

(DLA Architects asked parents and staff "what is ***working well*** in your current learning environment that you would like to see maintained or replicated in your future learning environment?" The following are their Top 5 Strengths.)

- **Space/Classroom Physical Size**
- **Fitness Room**
- **Music/Band**
- **Grouping of Classes**
- **Outdoor Space**



A small group of stakeholders share and discuss strengths and challenges for Northbrook JH (L+R)

Challenges for Northbrook Junior High:

(DLA Architects asked parents and staff "what spatial or site ***challenges*** are you currently facing that are negatively impacting or holding back the learning experiences of future ready learners?" The following are their Top 5 Challenges.)

- **Landlocked Site (Traffic)**
- **Out of Space (Teacher Washrooms)**
- **Cafeteria**
- **Lack of Flexibility**
- **Accessibility/Inclusivity**



Greenbriar School

Friday, June 2, 2023
1:00-4:00pm

Parent/Staff Workshop Activities

- Introductions: Share Your Favorite Space In Your School
- Skills (Future Ready Curricular Goals and Objectives)
- Experiences (Modes of Learning for Future Ready Learners)
- Design Patterns
- Environments ("Blue Sky" Ideas / Strengths & Challenges)

Share Your Favorite Space In Your School

(Parent/Staff Responses)

- Auditorium
- Library (Updated and Spacious)
- Courtyard & Rooftop
- Open Field (e.g. seeing kids running across)
- Classroom (e.g. large windows)
- Grassy space in the front of the school (e.g. treated like a front yard)
- Kindergarten Classrooms (e.g. love the huge windows and natural light)
- Front Entrance (e.g. the exterior is modern)
- Front Entrance (e.g. the interior space is welcoming and the names of all of the students are present)
- Gymnasium (e.g. multi-functional)
- Courtyard (e.g. offices that are adjacent can hear students and staff collaborating)

Top Skills for Greenbriar:

Future Ready Curricular Goals & Objectives

(Parent/Staff priority listing of the essential "Future Ready Skills" and "Priority Learning Goals" needed by students.)

- **Functional Social Skills**
  - **Empathy**
  - **Executive Functioning**
- **Flexibility + Adaptability**
- **Critical Thinking**
  - **Learning How To Learn**
  - **Responsible Reflection**
- **Creativity**
  - **Curiosity + Wonder**
- **Responsibility / Accountability**
  - **Metacognition**



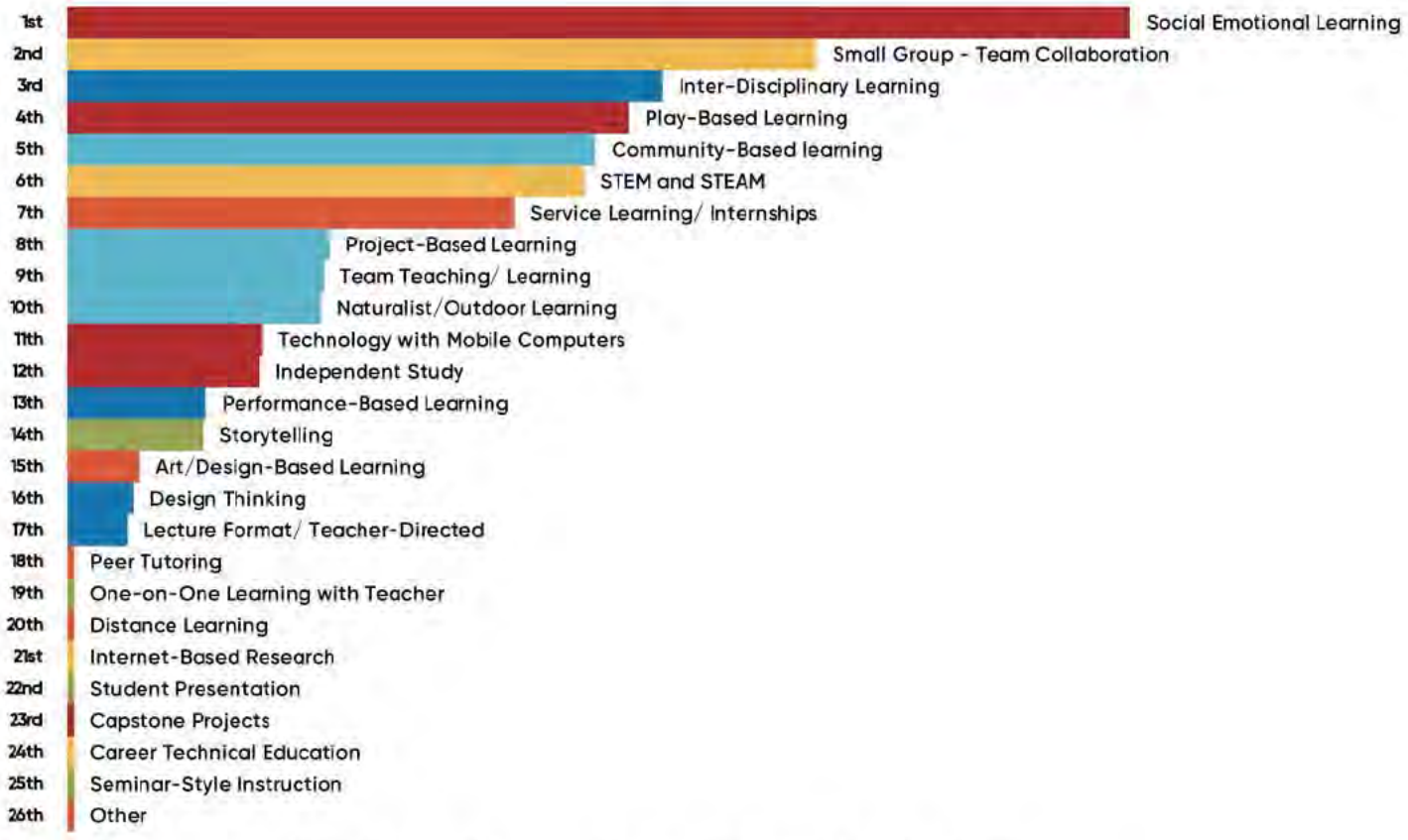
Stakeholders discuss their essential "Future Ready Skills" and "Priority Learning Goals."

Top Experiences for Greenbriar:

Modes of Learning for Future Ready Learners

(Parent/Staff priority listing of the Modes of Learning needed by students to develop the essential "Future Ready Skills" and "Priority Learning Goals.")

- **Social Emotional Learning**
- **Small Group - Team Collaboration**
- **Inter-Disciplinary Learning**
- **Play-Based Learning**
  - **Need Flexible / Adaptable Furniture**
  - **Kids Lounge (New This Year)**
  - **Sensory Garden / Rooftop**
- **Community-Based Learning**
  - **Gym**



Results from Mentimeter Survey for "Modes of Learning"

Design Patterns of Future Ready Learning Environments:

PERSONALIZED:
Greeting and Gatekeeping



J.R. Irvin Elementary School | Huckabee



East Maine SD63 First Steps Preschool | DLA Architects

Design Patterns: K-8 Educational Facilities

HIGH PERFORMANCE:
Healthy Materials




Galloway Elementary School | DLA Architects

Design Patterns: K-8 Educational Facilities

DLA Architects presented approximately 50 Design Patterns in school design in order for parents and staff to identify priorities and provide insight to the desired building features that they feel are most important for their school. Their 'Top 10' is featured here beginning with the highest ranking (on previous page).





Design Patterns (continued…)

LEARNING-FOCUSED:
Varied Spaces – Classroom Zones





Design Patterns: K-8 Educational Facilities

LEARNING-FOCUSED:
Blended Learning





Design Patterns: K-8 Educational Facilities

ADAPTABLE AND FLEXIBLE:
Agile Classrooms /Flexible Furniture





Design Patterns: K-8 Educational Facilities

ADAPTABLE AND FLEXIBLE:
Thoughtful Renovation





Design Patterns: K-8 Educational Facilities

Design Patterns (continued...)

SPATIAL QUALITY:
Integrated Technology

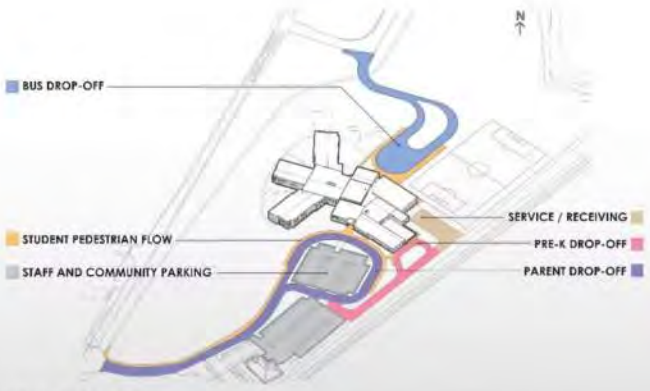




Design Patterns: K-8 Educational Facilities

PERSONALIZED:
Safety and Security





SAFETY - TRAFFIC SEPARATION

May Whitney Elementary School

Design Patterns: K-8 Educational Facilities

HIGH PERFORMANCE:
Sustainable Elements / Living Buildings



Discovery Elementary School | DOWA-IBI Group

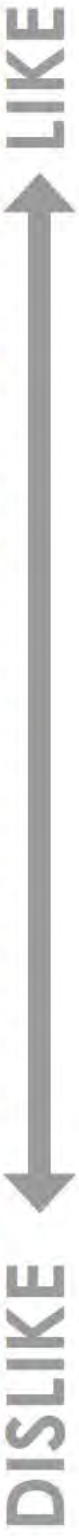


Rosa Parks Elementary School | DOWA-IBI Group

Design Patterns: K-8 Educational Facilities

Design Patterns (continued...)

Topic	♡	👍	👎	Score
Personalized: Greeting and Gatekeeping	15	2	0	81
High Performance: Healthy Materials	15	2	0	81
Community Connected: Outdoor Play	16	0	0	80
Spatial Quality: Indoor/Outdoor Connection	15	1	0	78
Learning-Focused: Varied Spaces/Classroom Zones	14	2	1	77
Learning-Focused: Blended Learning	14	2	0	76
Adaptable and Flexible: Agile Classrooms/Flexible Furniture	12	5	0	75
Adaptable and Flexible: Thoughtful Renovation	12	5	0	75
Spatial Quality: Integrated Technology	12	5	0	75
Personalized: Safety and Security	13	3	0	74
High Performance: Sustainable Elements/Living Buildings	13	3	0	74
Learning-Focused: Varied Spaces/Extended Learning Spaces	12	4	1	73
Brain-Based: Cave Space/Reading Nooks	12	4	1	73
Spatial Quality: Biophilia	12	4	0	72
Community Connected: Outdoor/Community Gardens	10	7	0	71
Personalized: Lifelong Fitness	11	5	0	70
Personalized: Wayfinding and Streetscapes	9	8	0	69
Learning-Focused: Music and Performance	10	6	0	68
Collaborative: Professional Work Areas	10	6	0	68
Personalized: Welcoming Entry	10	5	1	66
Learning-Focused: Student Display/Exhibition Space	9	7	0	66
Learning-Focused: Studios and Specialty Labs/Art	10	5	1	66
High Performance: Building as a Teaching Tool	8	8	0	64
Spatial Quality: Built-in/Soft Seating Furniture	8	7	1	62
Brain-Based: Campfire Space	6	10	1	61
Collaborative: Breakout Spaces	7	8	2	61
Adaptable and Flexible: Anywhere, Anytime Learning	7	8	2	61
Personalized: Wayfinding and Streetscapes (Graphics)	5	11	1	59
Spatial Quality: Branding and Identity	7	7	3	59
Brain-Based: Shared Learning Resources	7	7	2	58
Personalized: Human Scale	5	10	1	56
Adaptable and Flexible: Multi-Use Classrooms	9	2	5	56
Personalized: Home Base and Individual Storage	5	9	2	54
Learning-Focused: Studios and Specialty Labs/Makerspaces/FAB Labs	5	9	2	54
Learning-Focused: Project Space	5	8	4	53
Learning-Focused: Presentation Space	5	8	3	52
Brain-Based: Designing for Multiple Intelligences	4	10	2	52
Community Connected: Siting in Context	3	12	1	52
Spatial Quality: Timeless and Traditional	5	7	5	51
Community Connected: Local Signature	6	5	6	51
Community Connected: History and Storytelling	5	6	6	49
Personalized: Distributed Resources	4	8	4	48
Community Connected: Community Resources	4	7	5	46
Collaborative: Clusters of Learning/Learning Neighborhoods	2	7	6	37
Brain-Based: Watering Hole Space	0	7	10	31
Spatial Quality: Transparency and Visible Learning	0	7	9	30
Collaborative: Gathering Spaces/Casual Eating Areas	0	1	15	18
Adaptable and Flexible: Flexible Boundaries	0	1	15	18
Collaborative: Gathering Spaces/Learning Commons	0	0	16	16



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Blue Sky Ideas for Greenbriar:

(DLA Architects asked parents and staff to share what they would love to see happening architecturally to support what they see happening educationally in their future ready learning environment if they had the opportunity to dream without limitations.)

"Blue Sky" Ideas

139 Answers

sinks in every classroom

More logical flow from one part of the building to the other.

More bathrooms for students and teachers

better bathrooms

a classroom for every teacher

Lighting that can be adjusted, sturdy flexible seating, lots of windows & natural light, whole walls of whiteboards, wider hallways with small group spaces, flexible outdoor spaces for learning & play

Better, more kid-friendly color scheme around the building

Access and connection to the outdoors.

a sensory area/ kids lounge with swings and other sensory input objects

Restrooms on every floor

Bigger windows into the courtyards

Flexible spaces throughout the school building for students to work in small collaborative groups.

Indoor to outdoor learning spaces

Larger classrooms that allow for more small group areas

More natural light in classrooms and hallways

Bright natural light spaces

Less busy carpet

furniture that can move more easily

More areas for small group collaboration

Each classroom has updated technology for community learning

bathrooms, bathrooms everywhere

I would love to see safe outdoor spaces. Spaces that are secure where you can be and learn in nature.

More power outlets. They need to be everywhere.

flexible seating options for communal workspaces

more small group work spaces in the hallways

It would be awesome if the bathrooms didn't smell like a urinal cake. Bathrooms on every floor would be terrific too!

Bathrooms on the music/art/auditorium level.

Signs in the hallways to help guide people

Intuitive hallway pathways that allow students to navigate the building with ease and independence

Space to remove and hide items that aren't being immediately used (e.g., springtime PE equipment, art adventure supplies, set/props/costumes, cello racks when it's not orchestra day)

Teaching spaces for ALL teachers- no more teachers on carts, gyms, or in the hallways.

esthetically pleasing and accessible bathroom spaces

Flexible seating within classrooms.

More reflection spaces for students, that invite pausing, taking a break and student privacy

Higher ceilings!!

large classrooms with big windows. private bathrooms.

Can the carpet be less ugly and have a color path to help negotiate around the school?

Better use of open spaces such as the hallways

More modern siding...the red brick is too dark.

No more carpet.

Storage space, and a storage space that can't be 'commandeered' later on for 'classroom' purposes

More colorful walls and carpet

Updated courtyards that allow for students and staff to gather, learn and take a break

classrooms that could be used by any age and for any teaching or learning purpose

Higher ceiling with lighting that can be adjusted

no carpet flooring

NO CINDER BLOCKS

Lockers for every student

extra space for meetings. space for parent volunteers.

flexible seating and furniture for kids of difference sizes

A larger, more accommodating auditorium.

A proper sensory room with flexible equipment and features to meet all varieties of sensory needs.

natural light everywhere--outside in design

Updated classroom technology, such as interactive boards that promote student collaboration

Parking for all staff, visitors, and parents that come to the building throughout the day. Let's avoid street parking going into the future.

Four larger music practice rooms (currently there is only one) small and medium-sized instrumental music lessons (3-6 people), acoustically isolated from one another.

An updated playground for the older kids

Tasteful design

places for kids to wiggle and climb

More creative lighting/flexible lighting options.

better way finding

Big windows

Better AC and hvac. The basement smells musty

Get rid of the lockers in the hallways to create more learning nooks

Front atrium of building welcoming to parents shows school spirit

Ability to create floor pathways depending on current needs

informal performance spaces art and project displaynet zero - as sustainable as possible using the building to teachbreak out space for 1 or 2 classrooms to shareout side classrooms reading nook

More areas for shared storage

BATHROOMS

no more 1950s lockers

STEAM lab

better access to natural lighting

More display areas to showcase student learning

Enough adult bathrooms that we don't have to hunt for an open one.

Carpets more visually pleasing

big enough spaces for all students, staff and families to come together

Higher ceilings throughout the school.

Does the inner courtyard door have to lock from the inside? It's so lovely to be in the courtyard until you realize you have locked yourself in there.

Lots of flexible seating options

Children work displayed that WON'T be touched by children passing by. Let's put some tactile items on the walls so they have that input without destroying someone's hard work.

More faculty bathrooms

wayfinding appropriate for students and visiting adults

Adequate lighting in the large gym

Outdoor amphitheater for class presentations

Garden

More natural lighting.

Temperature controls in each room

No tripping hazards

Private clothes changing spaces that aren't restrooms

Maker space/STEM/STEAM

More natural light

Things kids can touch & play with in the hallway

a place for the staff to all meet that has seating for everyone

Outdoor amphitheater heater space

An actual campfire ring

Add the sinks back into the 4th and 5th grade classrooms

Can you make it so we can hear announcements when out in the courtyard?

Better technology storage

sound in the gym

Storytelling/small presentation spaces shared in the examples.

Larger classrooms

Climbing wall in the gym

Adult lounge like the "kids lounge" here at GB. :)

Dressing rooms for performances

Larger windows

Bathroom stalls to truly be private areas.

No places kids can't be seen

Live plants in each classroom

More single-use bathrooms, to support all people and their needs

Bathrooms for adults so we don't have to share with the kids

More single-use restrooms in proximity to classrooms where students may require assistance with toileting activities.

Carpet that is NOT distracting to students walking down the hallways.

New playground equipment

More parking

Communication boards for playground areas.

Better lighting controls and projection capabilities in the big gym

Sound system in the gym

Better lockers or storage spaces

More teacher meeting space with flexible seating and walls to post ideas.

Updated floors/new carpet that is welcoming

Green sustainable materials

Bulletin board strips along the walls EVERYWHERE for displaying work out of reach of kids who walk down the hall running their hands along the walls

safe, calming, soft spaces for students in crisis

Creatively move kids belongings somewhere else and get rid of lockers

access to the outside for as many classrooms as possible

outdoor walking paths

more storage!!

Navigating the hallways easier

More outlets

Student access to printer locations

Safer/better contained outdoor play spaces.

School garden outdoor science lab

Brighter paint colors

More parking.

better lighting in the large gym

Multiple workrooms that support the creative work that teachers need to do (i.e. make posters, create large packets, cut lamination, etc) like the office workroom.

I love a campfire space, but it stresses me out, too. Can we have multiple options so that it is easier to sign it out last minute? I would love to use it when it makes sense, but not with notice!

More of a Frank LLoyd Wright design

Staff meeting spaces

Strengths for Greenbriar:

(DLA Architects asked parents and staff "what is ***working well*** in your current learning environment that you would like to see maintained or replicated in your future learning environment?" The following are their Top 5 Strengths.)

- **Outdoor Spaces**
  - **Learning Potential**
- **Large Flexible Spaces**
  - **Library (Natural Light, Accessible, Moveable Furniture)**
  - **Gymnasium**
  - **Auditorium**
- **Spacious Classrooms + Integrated Technology**
- **Safety (Indoor)**
- **Pick-Up / Drop-Off**



A small group of stakeholders share and discuss strengths and challenges for Greenbriar (L+R)

Challenges for Greenbriar:

(DLA Architects asked parents and staff "what spatial or site ***challenges*** are you currently facing that are negatively impacting or holding back the learning experiences of future ready learners?" The following are their Top 5 Challenges.)

- **Bathrooms**
  - **Need Greater Variety**
- **Safety (Outdoor)**
- **Wayfinding**
  - **Finishes**
- **Parking**
- **Flexible Learning Spaces**
  - **Variety + Extended Learning**
- **Storage**
  - **Student / Individual**
  - **Teacher**



Meadowbrook School

Thursday, June 8, 2023
1:00-4:00pm

Parent/Staff Workshop Activities

- Introductions: Share Your Favorite Space In Your School
- Skills (Future Ready Curricular Goals and Objectives)
- Experiences (Modes of Learning for Future Ready Learners)
- Design Patterns
- Environments ("Blue Sky" Ideas / Strengths & Challenges)

Share Your Favorite Space In Your School

(Parent/Staff Responses)

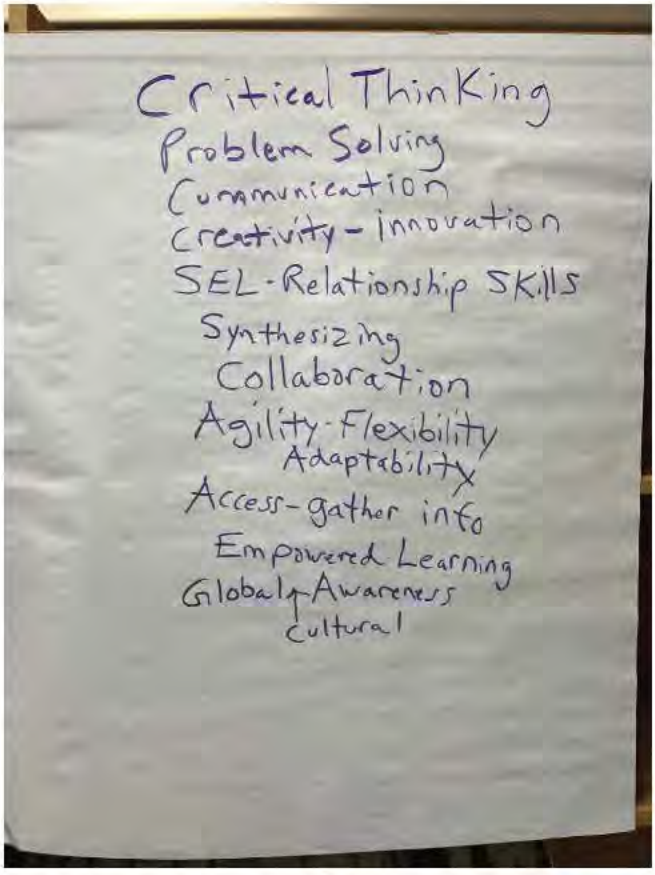
- Library
- Gymnasium
- Picnic Structure
- Classroom (Lighting and Furniture)
- Courtyard (Sunny and Open Feeling)
- Kindergarten Classroom (Big Windows)
- Lesson Room (Spacious)
- Front Hallway when decorated with art
- Book Rooms
- Classroom (Colorful and Inviting)
- Artwork that has stayed over time in the halls
- Playground

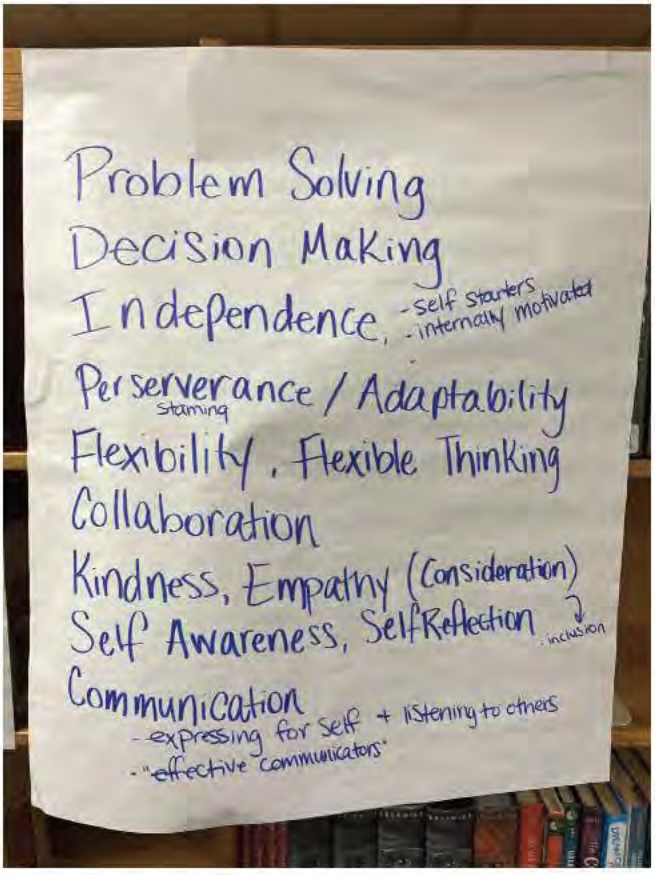
Top Skills for Meadowbrook:

Future Ready Curricular Goals & Objectives

(Parent/Staff priority listing of the essential "Future Ready Skills" and "Priority Learning Goals" needed by students.)

- **Problem Solving (Collaboration / Open to other people's ideas / Flexibility / Critical Thinking)**
- **Social Emotional Learning (Kindness / Empathy / Self-Starting / Global)**
- **Communication (Written / Verbal / Multimedia)**
- **Analyze / Synthesize (Gathering Information)**
- **Creativity (Curiosity / Innovation)**





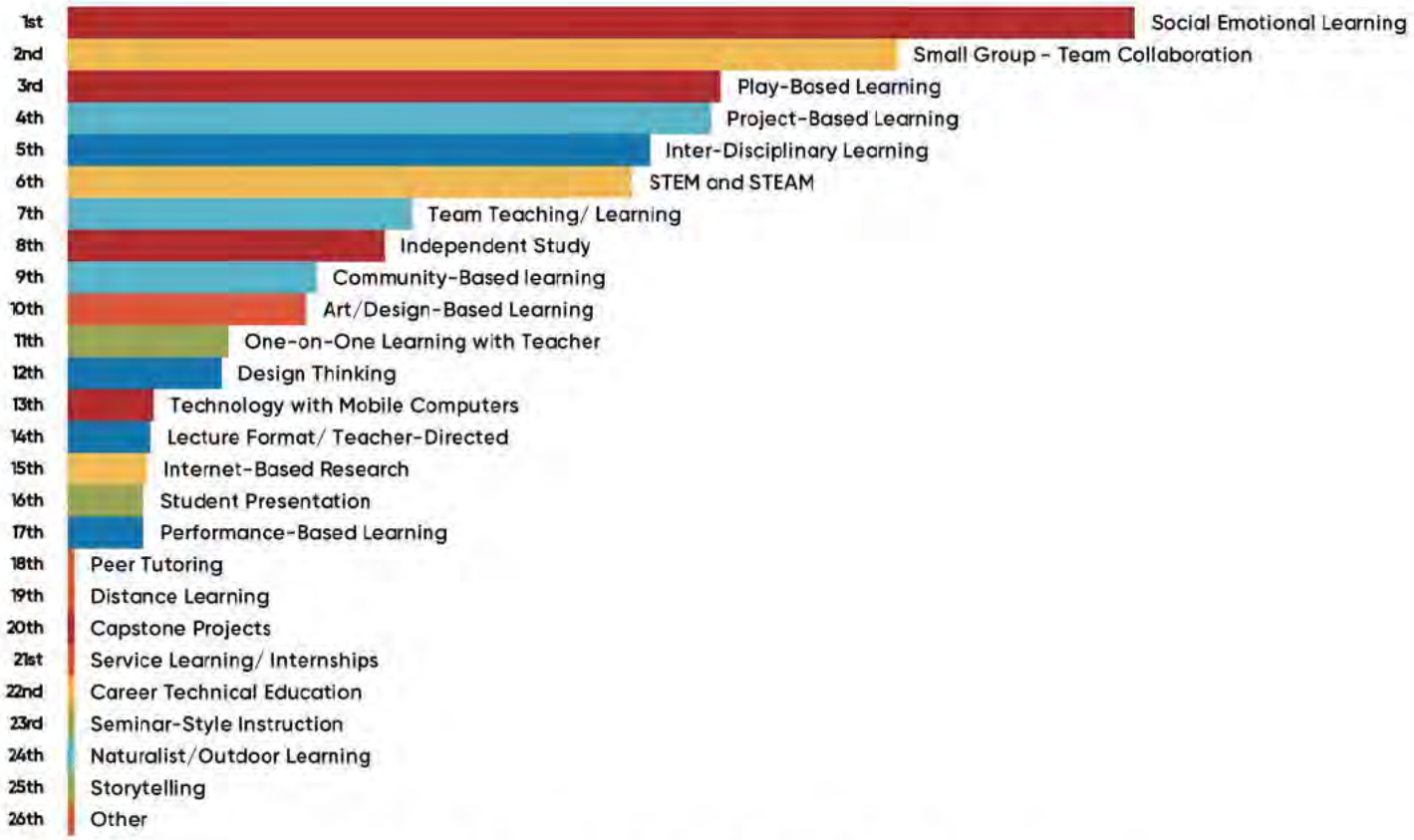
Small Groups list their essential "Future Ready Skills" and "Priority Learning Goals."

Top Experiences for Meadowbrook:

Modes of Learning for Future Ready Learners

(Parent/Staff priority listing of the Modes of Learning needed by students to develop the essential "Future Ready Skills" and "Priority Learning Goals.")

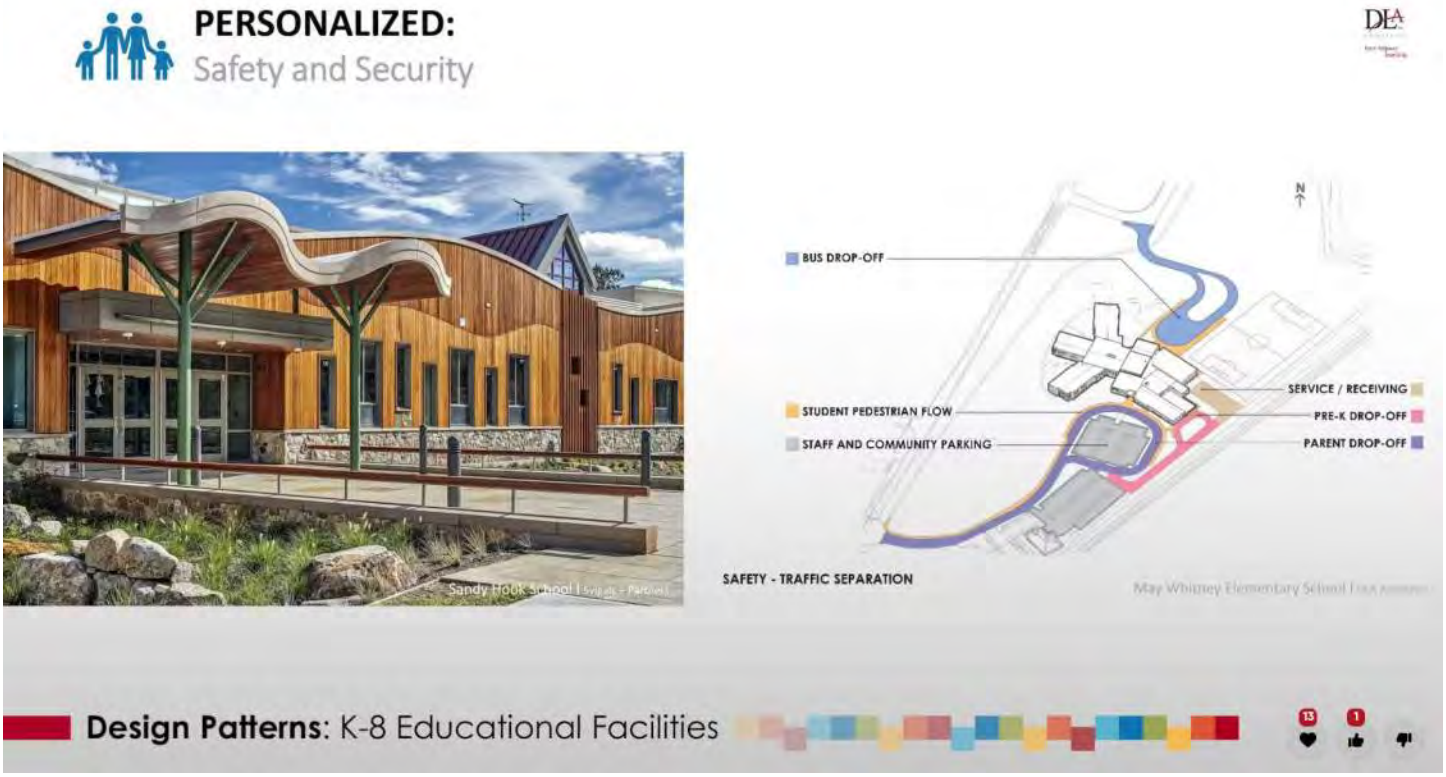
- **Social Emotional Learning**
- **Small Group - Team Collaboration**
- **Play-Based Learning**
- **Project-Based Learning**
- **Inter-Disciplinary Learning**



Results from Mentimeter Survey for "Modes of Learning"

Design Patterns of Future Ready Learning Environments:





DLA Architects presented approximately 50 Design Patterns in school design in order for parents and staff to identify priorities and provide insight to the desired building features that they feel are most important for their school. Their 'Top 10' is featured here beginning with the highest ranking (on previous page).

ADAPTABLE AND FLEXIBLE:
Agile Classrooms /Flexible Furniture





Design Patterns: K-8 Educational Facilities

LEARNING-FOCUSED:
Studios and Specialty Labs - Art



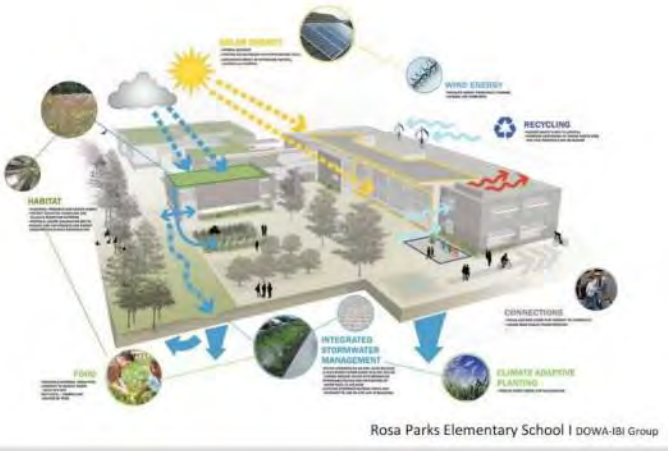


Design Patterns: K-8 Educational Facilities

Design Patterns (continued…)

HIGH PERFORMANCE:
Sustainable Elements / Living Buildings





Rosa Parks Elementary School | DOWA-IBI Group

Design Patterns: K-8 Educational Facilities

HIGH PERFORMANCE:
Healthy Materials





Design Patterns: K-8 Educational Facilities


COMMUNITY CONNECTED:
Outdoor Play
Mary Lyon Elementary School | DOWA-IBI Group
Design Patterns: K-8 Educational Facilities


LEARNING-FOCUSED:
Blended Learning
5×5=
2×8=16
4×3=12
Kennedy Elementary School | DLA Architects
Design Patterns: K-8 Educational Facilities

Design Patterns (continued…)

LEARNING-FOCUSED:
Studios and Specialty Labs – Makerspaces / FAB Labs





Design Patterns: K-8 Educational Facilities

LEARNING-FOCUSED:
Music and Performance





Design Patterns: K-8 Educational Facilities

COLLABORATIVE:
Professional Work Areas





Design Patterns: K-8 Educational Facilities

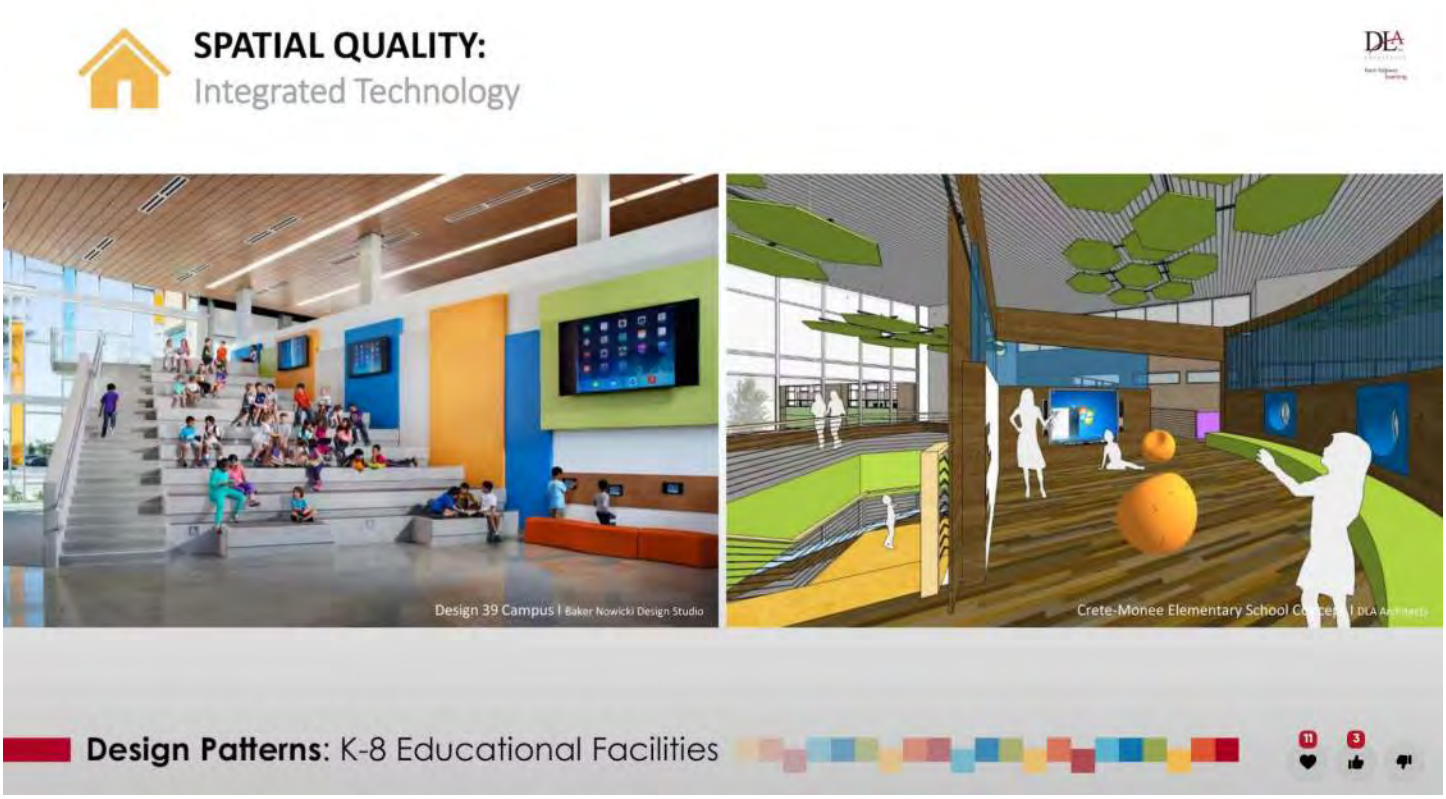
ADAPTABLE AND FLEXIBLE:
Thoughtful Renovation



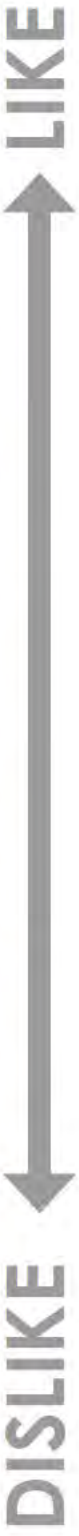


Design Patterns: K-8 Educational Facilities

Design Patterns (continued…)



Topic	♡	👍	👎	Score
Learning-Focused: Varied Spaces/Extended Learning Spaces	14	0	0	70
Personalized: Safety and Security	13	1	0	68
Adaptable and Flexible: Agile Classrooms/Flexible Furniture	13	1	0	68
Learning-Focused: Studios and Specialty Labs/Art	12	2	0	66
High Performance: Sustainable Elements/Living Buildings	12	2	0	66
High Performance: Healthy Materials	12	2	0	66
Community Connected: Outdoor Play	13	0	0	65
Learning-Focused: Blended Learning	11	3	0	64
Learning-Focused: Studios and Specialty Labs/Makerspaces/FAB Labs	11	3	0	64
Learning-Focused: Music and Performance	11	3	0	64
Collaborative: Professional Work Areas	11	3	0	64
Adaptable and Flexible: Thoughtful Renovation	11	3	0	64
Spatial Quality: Integrated Technology	11	3	0	64
Personalized: Lifelong Fitness	10	4	0	62
Learning-Focused: Varied Spaces/Classroom Zones	10	4	0	62
Adaptable and Flexible: Multi-Use Classrooms	10	4	0	62
Spatial Quality: Biophilia	10	4	0	62
Brain-Based: Shared Learning Resources	10	3	1	60
Personalized: Greeting and Gatekeeping	9	4	0	57
Collaborative: Breakout Spaces	7	7	0	56
Adaptable and Flexible: Anywhere, Anytime Learning	7	6	1	54
Learning-Focused: Student Display/Exhibition Space	5	9	0	52
Personalized: Welcoming Entry	6	7	0	51
Personalized: Home Base and Individual Storage	6	7	0	51
Learning-Focused: Project Space	4	10	0	50
Brain-Based: Cave Space/Reading Nooks	4	10	0	50
Spatial Quality: Indoor/Outdoor Connection	3	11	0	48
Spatial Quality: Built-in/Soft Seating Furniture	3	11	0	48
Community Connected: Community Resources	3	11	0	48
High Performance: Building as a Teaching Tool	2	12	0	46
Community Connected: Outdoor/Community Gardens	2	10	2	42
Personalized: Distributed Resources	1	12	0	41
Learning-Focused: Presentation Space	1	12	0	41
Brain-Based: Campfire Space	0	13	1	40
Collaborative: Clusters of Learning/Learning Neighborhoods	0	12	2	38
Adaptable and Flexible: Flexible Boundaries	1	10	3	38
Spatial Quality: Transparency and Visible Learning	0	12	2	38
Brain-Based: Designing for Multiple Intelligences	0	11	3	36
Personalized: Human Scale	1	9	3	35
Brain-Based: Watering Hole Space	1	8	4	33
Spatial Quality: Branding and Identity	3	3	8	32
Spatial Quality: Timeless and Traditional	0	8	6	30
Personalized: Wayfinding and Streetscapes	1	4	8	25
Personalized: Wayfinding and Streetscapes (Graphics)	0	6	7	25
Community Connected: Siting in Context	0	6	7	25
Collaborative: Gathering Spaces/Casual Eating Areas	0	4	10	22
Community Connected: Local Signature	0	4	10	22
Community Connected: History and Storytelling	0	4	9	21
Collaborative: Gathering Spaces/Learning Commons	0	1	13	16



Blue Sky Ideas for Meadowbrook:

(DLA Architects asked parents and staff to share what they would love to see happening architecturally to support what they see happening educationally in their future ready learning environment if they had the opportunity to dream without limitations.)

"Blue Sky" Ideas 92 Answers

Auditorium	Flexible spaces	Larger gymnasium
Large classrooms that have room for different learning zones	Big parking lot.	Flexible and open space.
Ample student work spaces	Bigger library	Bigger classrooms
Balance of whole group and small group instructional spaces.	Separate buses from cars	Quiet, flexible work spaces
Small group learning spaces	Larger gym	Indoor playground space
Emotional regulation resetting spaces	Additional spaces for a variety of learning styles- breakout rooms, quiet spaces, small group discussion, etc.	Center courtyard(s) for gardening/science classrooms look out on to
Proper teaching spaces for each teacher and type of teacher. Rooms big enough for flexible learning.	New gym without sacrificing current space	A performance space without walls (not a stage) so the space is flexible for size of performers.
Quiet spaces	Community garden	Outdoor learning for various styles
Larger library with more learning spaces	Interactive spaces	Student centered spaces Spaces for collaborative learning with teachers and students
Staff lounge appropriate for size of staff	Space for entire school to gather	gathering spaces for different sized groups - grade level, while school, etc.
Staff dedicated bathrooms	Teacher chill / re-energize space	Welcoming and calming colors, motif, and decorations.
Area for technical / mechanical learning	Newer restroom facilities	An area where the school can gather to watch a performance.

Outdoor learning spaces

STEAM lab/maker spaceL

Please no auditorium we can outgrow and limits performance

Multiple purpose/ flexible office spaces that allow students to access teachers, specialists, and resources

Indoor lunch spaces for students and staff.

Out door spaces for kids to explore nature

Maximize all space - walls, halls, etc.

Multicultural collaboration and inclusion.

Sensory room/walk

Adjustable desks / chair for ergonomics

Designated eating area

Staff work space

Many places to display student work.

New lockers that are not rusted inside inviting carpet and walls are not the checkered ones and ugly colors we haveTeacher bathroomsWork space that have copy machines that work.

Flexible classroom furniture

Flexible furniture - tables, seating, standing desks

Lunch space for students

Outdoor lunch spaces for students and staff.

I'd love to see a modern, technologically driven building with large, modular classrooms., with a multi-purpose furniture fit out..

Outdoor space for teachers

Enough classrooms/offices for all teachers and students

Bigger library

Staff meeting space

A large gym with a multi-sport discipline - tennis, basketball, track, etc

Flexible furniture and seating

Trampoline park

Adequate lighting - especially in rooms with no windows.

Grade level meeting space

Flexible spaces

Areas where the kids can build with multiple mediums

Indoor recess space

More ClassroomsCafeteria Matching furniture (desks, tables, teacher work spaces)New bigger gymOutside work spaceNot bent bookshelvesWhiteboards that are NOT scratched

Larger office space for itinerants

Extra space for collaborative learning

Cubbies in classroom so students don't have to keep everything in lockers

Whiteboards with projectors

Tech room

Parking garage

Music lesson rooms that are sound treated and large enough to fit a few students.

Sunlight and windows!!

Natural light

A computer lab with fun coding disciplines.

Open schedule makerspace

Teacher meeting rooms

Book room, space for shared resources

Natural light. Lots of opportunities to infuse nature to the space

Outdoor play space cover by a pavilion so rain doesn't stop play

No hallway lockers

Soothing and/or neutral colors

No carpet that act as jump spots

Meeting spaces for teachers to work.Stem / Steam lab space

Very thoughtful design for safety

More options for recess - spaces for building, zen walk

Storage for student musical instruments that is on the way in and out of the building.

Using psychology of color when designing

Neutral spaces . Student work adds the color and creation. (Design is blank slate)

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Strengths for Meadowbrook:

(DLA Architects asked parents and staff "what is ***working well*** in your current learning environment that you would like to see maintained or replicated in your future learning environment?" The following are their Top 5 Strengths.)

- **Outdoor Open Space**
- **Classrooms have access to natural light**
- **Kindergarten and 2nd Grade Classrooms have direct access to Toilet Rooms**
- **Flexible Furniture**
- **Some generous sized Classrooms and Hallways (e.g. Music and Art)**



A small group of stakeholders share and discuss strengths and challenges for Meadowbrook (L+R)

Challenges for Meadowbrook:

(DLA Architects asked parents and staff "what spatial or site ***challenges*** are you currently facing that are negatively impacting or holding back the learning experiences of future ready learners?" The following are their Top 5 Challenges.)

- **Parking / Traffic / Site Safety + Congestion**
- **Lack Large Gathering Spaces for PE, Assemblies, Musicals, Lunch, Library**
- **Layout and Access / Adjacencies**
- **Space…Need more Classrooms, Office Space, Meeting Space, Storage, Toilet Rooms, Teacher Space, Calm + Quiet Space (More Flexibility)**
- **Need more Student Play Areas (Indoor & Outdoor)…Indoor is limited.**



Westmoor School

Monday, June 12, 2023
1:00-4:00pm

Parent/Staff Workshop Activities

- Introductions: Share Your Favorite Space In Your School
- Skills (Future Ready Curricular Goals and Objectives)
- Experiences (Modes of Learning for Future Ready Learners)
- Design Patterns
- Environments ("Blue Sky" Ideas / Strengths & Challenges)

Share Your Favorite Space In Your School

(Parent/Staff Responses)

- Front Classrooms by Drop-off (e.g. bright, open and big)
- Outside Space
- Garden (e.g. multi-purpose)
- Garden (e.g. the peace it brings)
- Garden, Outdoor Space
- Garden is unique, Gym and Lunchroom
- Kindergarten Classroom (e.g. largest in school)
- Garden
- Library (e.g. community feel)
- Classrooms for Early Childhood, Garden
- Music Wing
- Garden
- 3 front classrooms (e.g. glass and bright)
- Office & Entrance, Library (e.g. openness and located in the center of the building)
- Library
- Library (e.g. open, clean, calming colors)
- Speech Class (e.g. glass)
- Classroom for 2nd grade (e.g. clean & sleek, bookroom)
- Different Spaces for the Specials
- Garden, Library

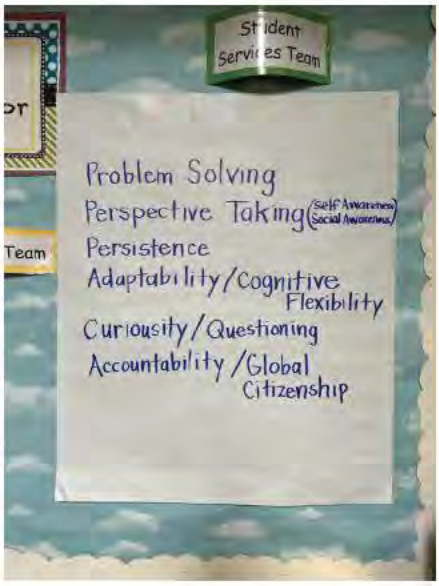
Top Skills for Westmoor:

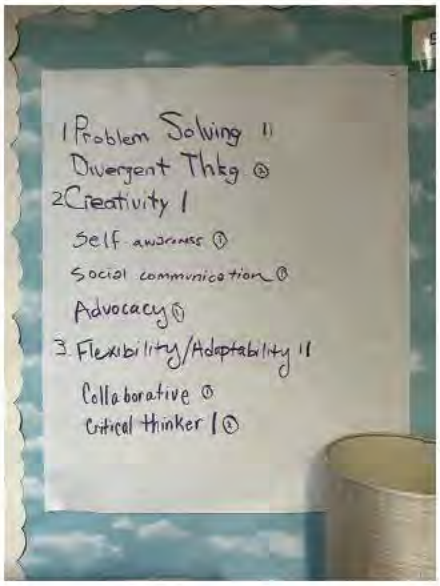
Future Ready Curricular Goals & Objectives

(Parent/Staff priority listing of the essential "Future Ready Skills" and "Priority Learning Goals" needed by students.)

- **Creativity**
- **Self + Social Awareness**
- **Accountability**
  - **Executive Functioning**
- **Flexibility + Adaptability**
  - **Curiosity**
- **Problem Solving**
  - **Collaboration**
  - **Persistence**







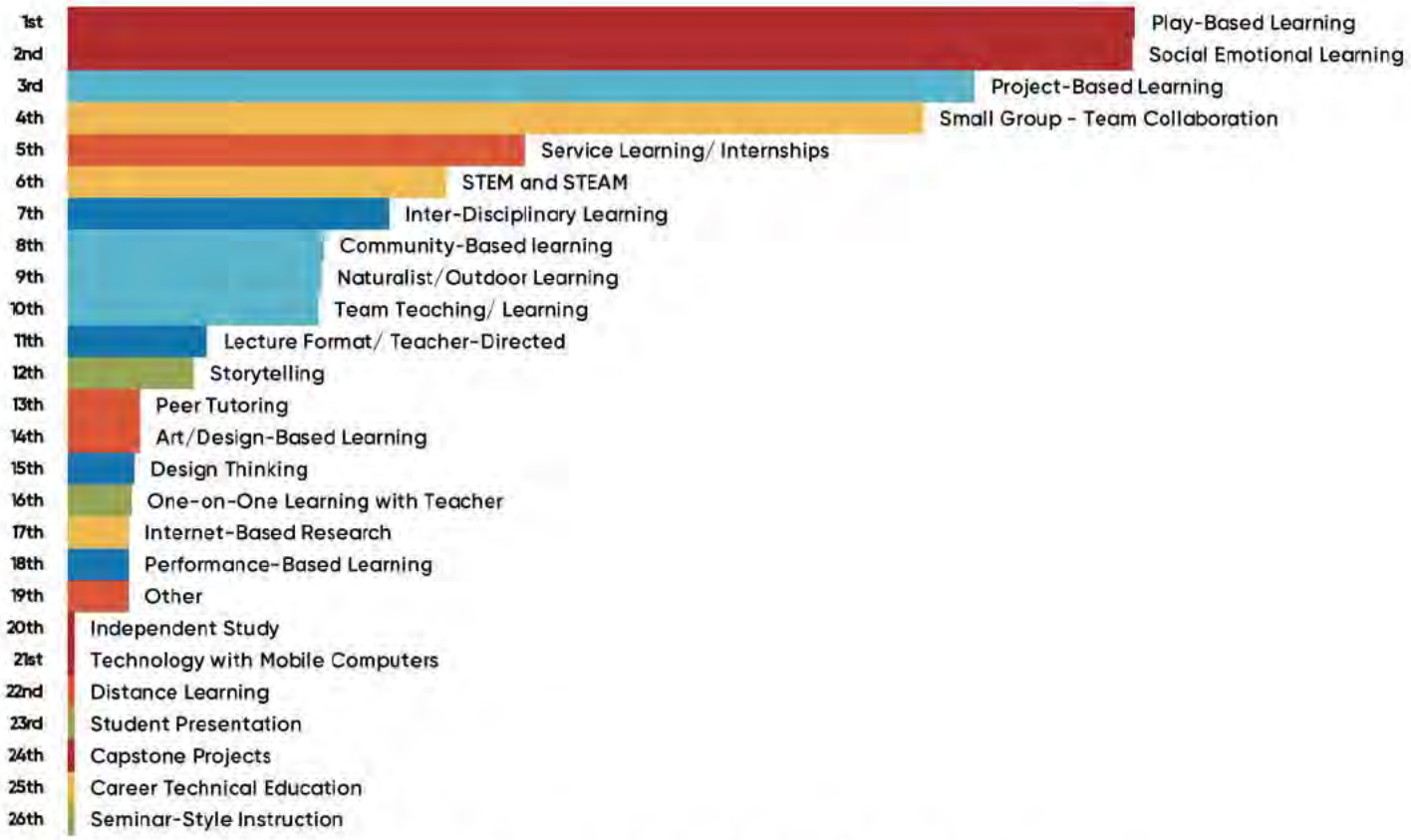
Small Groups list their essential "Future Ready Skills" and "Priority Learning Goals."

Top Experiences for Westmoor:

Modes of Learning for Future Ready Learners

(Parent/Staff priority listing of the Modes of Learning needed by students to develop the essential "Future Ready Skills" and "Priority Learning Goals.")

- **Play-Based Learning**
  - **Learning through movement**
- **Social Emotional Learning**
  - **Empathy + Flexibility**
- **Project-Based Learning**
  - **Hands-on Learning**
  - **Direct Application of Skills**
- **Small Group - Team Collaboration**
  - **Different Skillsets Working Together**
- **Service Learning / Internships**
  - **Part of a Larger Community**



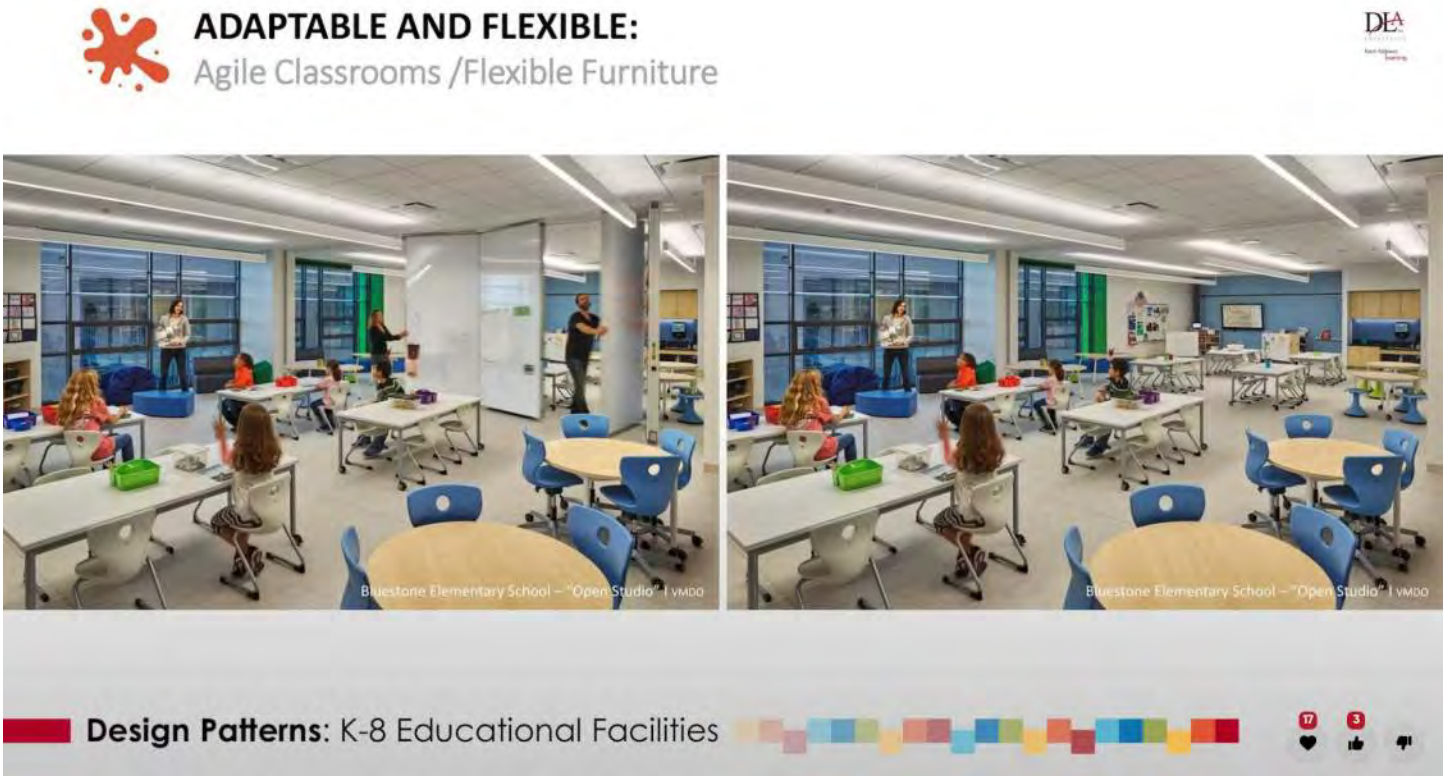
Results from Mentimeter Survey for "Modes of Learning"

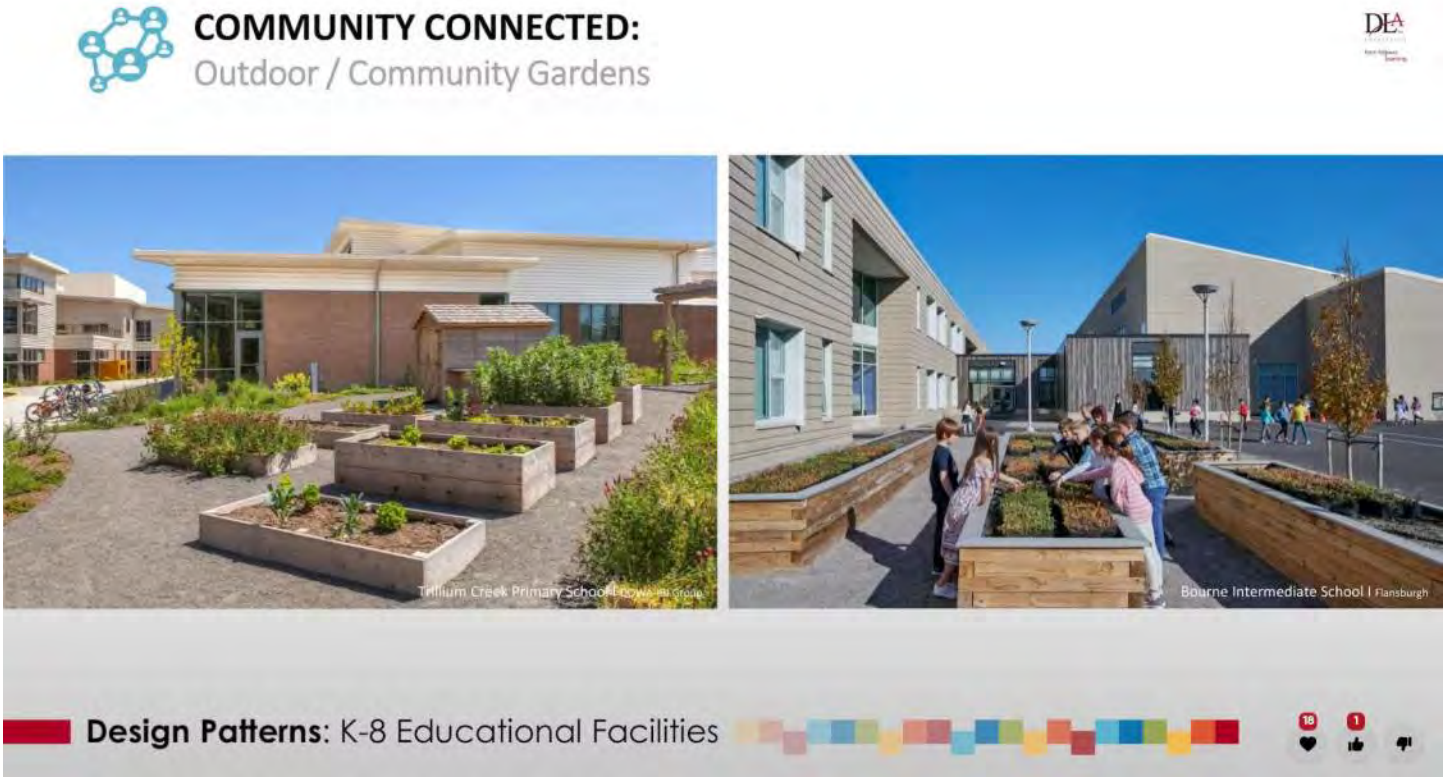
Design Patterns of Future Ready Learning Environments:





DLA Architects presented approximately 50 Design Patterns in school design in order for parents and staff to identify priorities and provide insight to the desired building features that they feel are most important for their school. Their 'Top 10' is featured here beginning with the highest ranking (on previous page).





Design Patterns (continued…)

LEARNING-FOCUSED:
Blended Learning





Design Patterns: K-8 Educational Facilities

HIGH PERFORMANCE:
Healthy Materials





Design Patterns: K-8 Educational Facilities

LEARNING-FOCUSED:
Varied Spaces – Classroom Zones





Design Patterns: K-8 Educational Facilities

COLLABORATIVE:
Professional Work Areas





Design Patterns: K-8 Educational Facilities

Design Patterns (continued...)

PERSONALIZED:
Greeting and Gatekeeping



J.R. Irvin Elementary School | Huckabee



East Maine SD63 First Steps Preschool | DLA Architects

Design Patterns: K-8 Educational Facilities

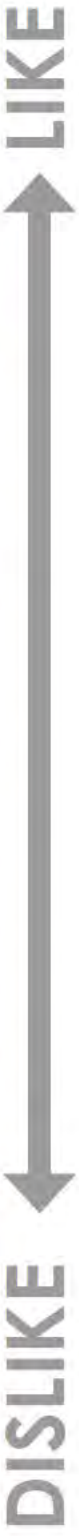
SPATIAL QUALITY:
Built-in / Soft Seating Furniture


St. Andrews Scots School | Rosan Bosch Studio


Buckingham County Primary | VMDO

Design Patterns: K-8 Educational Facilities

Topic	♡	👍	👎	Score
Community Connected: Outdoor Play	19	1	0	98
Personalized: Lifelong Fitness	17	3	0	94
Adaptable and Flexible: Agile Classrooms/Flexible Furniture	17	3	0	94
Community Connected: Outdoor/Community Gardens	18	1	0	93
Learning-Focused: Blended Learning	16	4	0	92
High Performance: Healthy Materials	15	5	0	90
Learning-Focused: Varied Spaces/Classroom Zones	16	3	0	89
Collaborative: Professional Work Areas	16	3	0	89
Personalized: Greeting and Gatekeeping	15	4	0	87
Spatial Quality: Built-in/Soft Seating Furniture	13	7	0	86
Collaborative: Breakout Spaces	12	8	0	84
Learning-Focused: Varied Spaces/Extended Learning Spaces	13	6	0	83
Learning-Focused: Studios and Specialty Labs/Art	13	6	0	83
Spatial Quality: Indoor/Outdoor Connection	14	4	1	83
Personalized: Safety and Security	14	3	2	81
High Performance: Sustainable Elements/Living Buildings	12	7	0	81
Learning-Focused: Student Display/Exhibition Space	10	10	0	80
Personalized: Wayfinding and Streetscapes (Graphics)	13	4	2	79
Adaptable and Flexible: Multi-Use Classrooms	11	8	0	79
Adaptable and Flexible: Thoughtful Renovation	11	8	0	79
Personalized: Welcoming Entry	11	7	1	77
Learning-Focused: Studios and Specialty Labs/Makerspaces/FAB Labs	10	9	0	77
Brain-Based: Shared Learning Resources	11	7	0	76
Community Connected: Community Resources	8	12	0	76
Learning-Focused: Project Space	10	8	1	75
Learning-Focused: Music and Performance	10	8	0	74
Spatial Quality: Biophilia	11	6	1	74
Brain-Based: Cave Space/Reading Nooks	11	6	0	73
Personalized: Wayfinding and Streetscapes	8	10	2	72
Brain-Based: Campfire Space	9	8	2	71
Adaptable and Flexible: Anywhere, Anytime Learning	10	6	3	71
Spatial Quality: Integrated Technology	8	10	1	71
Personalized: Human Scale	7	10	1	66
High Performance: Building as a Teaching Tool	4	13	1	60
Learning-Focused: Presentation Space	4	12	3	59
Personalized: Home Base and Individual Storage	6	7	5	56
Brain-Based: Designing for Multiple Intelligences	2	14	3	55
Personalized: Distributed Resources	2	14	2	54
Community Connected: Siting in Context	1	16	1	54
Community Connected: Local Signature	2	12	5	51
Collaborative: Clusters of Learning/Learning Neighborhoods	3	9	5	47
Spatial Quality: Timeless and Traditional	1	11	5	43
Community Connected: History and Storytelling	3	6	10	43
Brain-Based: Watering Hole Space	2	8	8	42
Collaborative: Gathering Spaces/Casual Eating Areas	1	9	9	41
Spatial Quality: Transparency and Visible Learning	2	6	9	37
Spatial Quality: Branding and Identity	1	7	9	35
Adaptable and Flexible: Flexible Boundaries	2	4	12	34
Collaborative: Gathering Spaces/Learning Commons	1	4	14	31



Blue Sky Ideas for Westmoor:

(DLA Architects asked parents and staff to share what they would love to see happening architecturally to support what they see happening educationally in their future ready learning environment if they had the opportunity to dream without limitations.)

"Blue Sky" Ideas 110 Answers

Bigger classrooms	Sensory room	A theater
Second story added to the building	More storage pod areas for teachers	Open and collaborate learning spaces
Multiple large multi-purpose rooms	A dedicated maker area	Natural light in all spaces
Small group learning spaces	Proper early childhood spaces. There are only 2 kindergarten rooms. They are large, have space for play and projects, they also have bathrooms.	Sensory/motor room
Multiple physical activity spaces	Outdoor learning spaces	Sensory/regulation space
Color and light	More multipurpose space	Accessible playground/outdoor spaces
Little people-sized kitchen spaces	- more functional / useable outdoor spaces for exploration	Small soft spaces for children
Natural light	A STEM room	More interactive outdoor classroom/ recess spaces for all ages
Multi purpose/flexible spaces within the building for everyone	Bathrooms in all EC and kinder rooms	A space that can be used for small group work, project based learning
YE having their own building for our littlest learners	Flexible learing spaces and walls	- multi purpose rooms
Safety (types of glass/access in and out	Raised ceilings (exposed duct work, etc).	Grade level learning areas/wings
Furniture on wheels	More small space areas	More inclusive and flexible outdoor spaces for play, gathering, or learning.

Adaptive outdoor spaces (accessible for wheelchairs etc)

sensory room

Moveable walls

Ways to expand the walls into utilizing the hallway spaces as work spaces. Outdoor classroom spaces. Flexible spaces and furniture. Permanent stage area for performances. Natural lighting. Tech integ

Shared spaces for grade levels (like a corridor or wing) with classrooms off to the sidesOf a big shared space

Small group areas

Covered storage to eliminate visual stimuli

Nooks and small spaces for small groups, individuals, or partners to work, read, or have a mental break.

Space to promote play

Sensory garden

Flexible class learning spaces- theaterStyle and various areas

Flexible seating options w/ spaces that are adaptable for different types of learning opportunities

Early childhood center

Dedicated technology space

- messy play spaces

Space to promote play

Flexible space

Larger lunch/eating space

Flexible/collaborative spaces

Bigger classroom with flexible space

EC center w/outdoor, natural, inclusive learning environments. Learning kitchen; collaborative spaces: share with park district/community

No interior classrooms and all exterior classrooms have doors to outside. All interior spaces are shared spaces (ie library, etc).

STEAM areas

- early childhood building

Security in the classrooms (bulletproof windows/doors)

Multipurpose areas

Play based areas

More "nooks" for reading in the library.

Single use bathrooms

A washer/dryer

More bathrooms

Varied outdoor play and learning spaces

Multiple, Secure areas where teachers can work with students in small groups

Multi purpose rooms of different shapes and sizes

Play features (ex. slides, stairs, obstacles) incorporated into building

Quiet spaces and nooks for students that appreciate those cozy areas

A multimedia room where students and teachers can record podcasts, use green screens, etc

Interactive playground options

Outdoor learning spaces

YE needs our own space together, not spread all over the building

Student kitchen

Indoor gross motor space

More spaces that convert into multipurpose spaces.

Movable furniture that allows for flexibility

Art display areas integrated

Updated restrooms- for students with sinks that are outside of restrooms

Early childhood needs their own wing or building.

Theater/stage

Overall better security ie flexibility to lock down certain parts of the school

Bathrooms in more classrooms

Fully early childhood outdoor space

Skylights to allow naturally light in interior areas.

Lighting that can be dimmed

Enclosed outdoor spaces

Storage that doesn't look like storage, flexible seating, flexible learning spaces

Gross motor areas for use (not the gym) during indoor recess

Both enough offices for staff members in addition to spaces for learning/work separate from classrooms

Outdoor shade on playgrounds

Larger classrooms

Large group area for presentations, assemblies, musical performances, etc.

Small groups spaces, multi functional space, flexible space, colorful, clean, inviting, more single use bathrooms, multiple kid bathrooms, outdoor spaces that can be used by all grade levels, storage

Dedicated art/project spaces with adaptability and flexible furniture

More Natural lighting

Technology spaces varied and collaborative

- evaluation space

Kithcen and dedicated lunch space

More secure perimeter (more trees, fence, rocks, etc.).

Full walk whiteboards for collaboration

Bathrooms in all preschool and K rooms.

A library that has movable doors as white boards

More outlets!

More work spaces for staff

- related services collaboration space

Outdoor security but beautiful!

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Strengths for Westmoor:

(DLA Architects asked parents and staff "what is ***working well*** in your current learning environment that you would like to see maintained or replicated in your future learning environment?" The following are their Top 5 Strengths.)

- **Garden**
- **Entrance / Front Office**
- **Library**
- **Classroom Size / Vaulted Ceilings**
- **Parking**
- **Teacher's Lounge**



A small group of stakeholders share and discuss strengths and challenges for Westmoor (L+R)

Challenges for Westmoor:

(DLA Architects asked parents and staff "what spatial or site ***challenges*** are you currently facing that are negatively impacting or holding back the learning experiences of future ready learners?" The following are their Top 5 Challenges.)

- **Toilet Rooms**
- **Storage**
- **Outdoor Space**
- **Young Explorers Early Childhood Out of Space**
- **Safety / Accessibility**
- **Collaborative Spaces**



Greenbriar Elementary School
Mechanical, Electrical & Plumbing
Existing Conditions & Revision Recommendations
Project 2023.016
December 11, 2023

HVAC
Existing Conditions
Central Heating Plants

The central heating plant serving most of the building consists of (2) Bryan model HECL-180 gas fired forced draft boilers with modulating Gordon Piatt burners located in the basement boiler room. Each boiler was installed in 2002 and has an input capacity of 1800 MBH. Each boiler has a Bell & Gossett boiler circulation pump. The primary boiler loop is circulated by (2) Bell & Gossett hot water pumps with variable frequency drives in a lead/stand by configuration. The hot water system serves air handling unit coils, unit ventilators, and hot water terminal units throughout the original areas of the building.

The central heating plant serving the 2011 addition consists of (2) Camus model DRNH-1000 gas fired forced draft boilers with modulating burners located in the first floor mechanical room. Each boiler was installed in 2011 and has an input capacity of 1000 MBH. Each boiler has a Taco boiler circulation pump installed in 2011. The primary boiler loop is circulated by (2) Bell & Gossett hot water pumps with variable frequency drives in a lead/stand by configuration. The hot water system serves air handling unit coils, unit ventilators, and hot water terminal units throughout the original areas of the building.

Rooftop Unit RTU-SU1

The west wing classrooms are heated, cooled, and ventilated by a Trane Intellipak SXHFC55 packaged gas fired horizontal discharge variable volume rooftop unit with nominal 55 tons of cooling capacity. It was installed in 2002.

Rooftop Unit RTU-1

The multipurpose room is heated, cooled, and ventilated by a JCI/York ZJ180 packaged gas fired single zone horizontal discharge constant volume rooftop unit with nominal 15 tons of cooling capacity. It was installed in 2022.

Rooftop Unit RTU-2

The south wing Kindergarten 224 classroom is heated, cooled, and ventilated by a Trane YHC048 packaged gas fired horizontal discharge single zone constant volume rooftop unit with nominal 4 tons of cooling capacity. It was installed in 2002.

Rooftop Unit RTU-3
The south wing Kindergarten 222 classroom is heated, cooled, and ventilated by a Trane YHC060 packaged gas fired horizontal discharge single zone constant volume rooftop unit with nominal 5 tons of cooling capacity. It was installed in 2002.

Rooftop Unit RTU-4
The library is heated, cooled, and ventilated by a Trane SACC-8856-A packaged gas fired horizontal discharge single zone constant volume rooftop unit with nominal 5 tons of cooling capacity. It was installed in 1985.

Reading/EXEL Classroom Rooftop Unit
The classrooms are heated, cooled, and ventilated by a McQuay MPS003 packaged gas fired single zone constant volume rooftop unit with nominal 3 tons of cooling capacity. It was installed in 2011.

North Classrooms & Office Area Rooftop Unit
The north area is heated, cooled, and ventilated by a McQuay RPS025 packaged variable volume rooftop unit with hot water coil and nominal 25 tons of cooling capacity. It was installed in 2011.

Gymnasium Rooftop Unit
The gymnasium is heated, cooled, and ventilated by a McQuay RPS020 packaged gas fired single zone constant volume rooftop unit with nominal 20 tons of cooling capacity. It was installed in 2011.

Air Handling Unit AHU-1
Classroom 209 is heated, cooled, and ventilated by an indoor Trane MCC-03 constant volume air handling unit that was installed in 2002 located in the penthouse above the west wing corridor ceiling. It has a hot water coil and a DX cooling coil with associated Trane TTA048 air cooled condensing unit utilizing R22 refrigerant and installed in 2002.

Auditorium Air Handling Unit

The auditorium is heated, cooled, and ventilated by an indoor Trane Climate Changer M-14 single zone constant volume air handling unit with Trane U-30 SWSI centrifugal return fan that were installed in 1974 located in the adjacent mechanical room. It has a hot water coil and a DX cooling coil with associated Trane TTA180 air cooled condensing unit utilizing R22 refrigerant and installed in 2002.

East Wing Offices 105/105A near First Grade Classrooms Duct Free Split System
The 2 offices are heated and cooled by a duct free split system consisting of a Carrier 38MGRQ18B heat pump unit with nominal capacity of 1.5 tons and (2) 3/4 ton high wall fan coil units, one per room. The equipment was installed in 2019.

West Wing ELL Office 208B Duct Free Split System
The office is cooled by a duct free split system consisting of a Sanyo CL2432 air cooled condensing unit with indoor high wall fan coil unit with nominal 2 tons of cooling capacity. The equipment was installed in 2000.

Classroom Unit Ventilators
The classrooms are heated, cooled, and ventilated by (13) Trane under-the-window unit ventilators installed in 2002. Each unit ventilator has a separate hot water coil and DX cooling coil with associated Trane roof mounted air cooled condensing unit utilizing R22 refrigerant and installed in 2002. There is no path in place to relieve the air introduced into the room through the unit ventilator.

Miscellaneous Heating
Hot water finned tube radiation is located in various offices beneath glass and in toilet rooms. Hot water cabinet unit heaters and convectors are located in vestibules and toilet rooms. Hot water suspended unit heaters are located in mechanical and storage rooms. Most equipment appears to be original to the area it serves.

MDF Room Duct Free Split System
The MDF Room is located in a storage room in the basement. It has no dedicated cooling.

Exhaust Fans

Roof mounted exhaust fans serve toilet rooms and general building exhaust. All roof exhaust fans appear to be 21 years old or newer.

Temperature Controls
The Building Automation System is currently Tridium N4.7 with LON controllers residing on the new District wide Tridium Virtual server.

Revision Recommendations

Central Heating Plant
The (2) Bryan hot water boilers serving the pre-2011 areas of the building are 21 years old and shouldn't need to be replaced for 18 years. To extend their life, we recommend inspection and repair if required to the refractory within the next 2 years. The variable frequency drives serving the main system circulation pumps are 21 years old, at the end of their useful life, and should be scheduled for replacement in the next 2 years.

The (2) Camus hot water boilers serving the 2011 addition are 12 years old and should be scheduled for replacement in 10 years. The Danfoss variable frequency drives serving the main system circulation pumps are 12 years old and should be scheduled for replacement in the next 10 years.

Rooftop Unit RTU-SU1
The Trane Intellipak SXHFC55 packaged gas fired horizontal discharge variable volume rooftop unit serving the west wing classrooms is 21 years old, at the end of its life expectancy, and should be scheduled for replacement within the next 2 years.

Rooftop Unit RTU-1
The JCI/York ZJ180 packaged gas fired single zone horizontal discharge constant volume rooftop unit serving the multipurpose room is 1 year old and shouldn't need replacing for another 19 years..

Rooftop Unit RTU-2
The Trane YHC048 packaged gas fired horizontal discharge single zone constant volume rooftop unit serving the south wing Kindergarten 224 classroom is 21 years old, at the end of its useful life, and should be scheduled for replacement in the next 2 years. Associated exposed horizontal ductwork is in poor condition and

should be resealed or replaced at the same time.

Rooftop Unit RTU-3
The Trane YHC060 packaged gas fired horizontal discharge single zone constant volume rooftop unit serving the south wing Kindergarten 222 classroom is 21 years old, at the end of its useful life, and should be scheduled for replacement in the next 2 years. Associated exposed horizontal ductwork is in poor condition and should be resealed or replaced at the same time.

Rooftop Unit RTU-4
The Trane SACC-8856-A packaged gas fired horizontal discharge single zone constant volume rooftop unit serving the library is 38 years old, well beyond the end of its useful life, and should be scheduled for replacement in the next 2 years. Associated exposed horizontal ductwork is in poor condition and should be resealed or replaced at the same time.

Reading/EXEL Classroom Rooftop Unit
The McQuay MPS003 packaged gas fired single zone constant volume rooftop unit serving the Reading/EXEL classrooms is 12 years old and should be scheduled for replacement within the next 8 years.

North Classrooms & Office Area Rooftop Unit
The McQuay RPS025 packaged variable volume rooftop unit with hot water coil serving the north wing classrooms & office area is 12 years old and should be scheduled for replacement in the next 8 years.

Gymnasium Rooftop Unit
The McQuay RPS020 packaged gas fired single zone constant volume rooftop unit serving the gymnasium is 12 years old and should be scheduled for replacement in the next 8 years.

Air Handling Unit AHU-1
The indoor Trane MCC-03 constant volume air handling unit located in the penthouse above the west wing corridor ceiling serving Classroom 209 is 21 years old and shouldn't need to be replaced for another 19 years. The associated Trane TTA048 air cooled condensing unit is 21 years old, utilizes banned R22

refrigerant, and is at the end of its useful life. Schedule replacement of condensing unit, DX cooling coil, and refrigeration piping within the next 2 years.

Auditorium Air Handling Unit

The indoor Trane Climate Changer M-14 single zone constant volume air handling unit and Trane U-30 SWSI centrifugal return fan serving the auditorium are 49 years old and at the end of their useful life. The associated Trane TTA180 air cooled condensing unit is 21 years old, utilizes banned R22 refrigerant, and is at the end of its useful life. Schedule replacement of air handling unit, return fan, condensing unit, and refrigeration piping within the next 2 years.

East Wing Offices 105/105A near First Grade Classrooms Duct Free Split System

The duct free split system consisting of a Carrier 38MGRQ18B heat pump unit and (2) high wall fan coil units serving the east wing offices is 4 years old and shouldn't need to be replaced for another 16 years.

West Wing ELL Office 208B Duct Free Split System

The Sanyo CL2432 air cooled condensing unit with indoor high wall fan coil unit serving the west wing ELL office is 23 years old, utilizes banned R22 refrigerant, is at the end of its useful life. Schedule replacement of air cooled condensing unit, indoor fan coil unit, and refrigeration piping within the next 2 years.

Classroom Unit Ventilators

The (13) Trane under-the-window unit ventilators serving the 2-story east wing classrooms are 21 years old and shouldn't need to be replaced for 19 years. The associated Trane air cooled condensing units located on the roof are 21 years old, utilize banned R22 refrigerant, and are at the end of their useful life. Schedule replacement of the air cooled condensing units, DX cooling coils, and refrigeration piping within the next 2 years.

Since there is no path in place to relieve the air introduced into the room through the unit ventilator, the corridor is being used as a relief plenum which is a violation of the current code. We recommend that a relief system be installed in the 2 story classroom wing.

Roof Access

Access between different roof levels to service equipment lacks permanent roof ladders resulting in unsafe conditions. Provide permanent ladders between different roof levels.

Temperature Controls
The license for the JACE's should be upgraded to Tridium N4 latest revision.

PLUMBING

Existing Conditions

Water Services
There are 2 water services to the building.

There is 3" domestic water service entering the building into the basement boiler room from the west side of the building serving the pre-2011 areas of the building. There is a 3" water meter with bypass and a 3" Ames 4000SS Reduced Pressure Zone backflow preventer.

There is a 6" water service in the 2011 addition into the storage room near the gymnasium serving both domestic and fire protection systems. There is a 3" water meter with bypass and a 3" Ames 4000SS Reduced Pressure Zone backflow preventer.

Domestic Water Distribution Piping
The domestic water piping appears to be a mix of galvanized and copper piping. The pre-2011 areas of the building appear to be galvanized piping except where toilet room remodeling has occurred. Copper piping has been utilized in the 2011 addition and remodeled areas.

Sanitary and Storm
Below grade areas of the building are protected by drain tile on the exterior of foundation wall.

The basement boiler room has a settling basin and duplex storm pump basin serving drain tile. The pump motors appear to have been replaced, the age of the pumps is unknown. The original 1948 building drawings show this basin to be

vented and serving both drain tile and sanitary piping, though no vent pipe is observed currently. No sanitary basin is present, so it is assumed the basin currently serves sanitary piping from the floor drains.

The lower level of the 2-story east wing has a duplex sanitary basin with a single pump installed.

The lower level mechanical room adjacent to the Auditorium in the 1951 addition has both storm and sanitary basins that appear to be original to the addition with rusted covers. The pumps appear to have been replaced at some point, though their age is unclear.

The 2011 addition gang toilet rooms are served by a sanitary basin with single pump.

There is a single 4" floor drain in the exterior stairwell leading to the basement boiler room.

Domestic Water Heaters

There are two locations of domestic water heaters in the building. One is located in the original building basement boiler room serving the toilet rooms and sinks in the older areas of the building. It is an A.O. Smith GCG-50 400, 50 gallons of storage, 40,000 BTU/HR input, tank type gas fired domestic water heater without an expansion tank. The water heater was installed in 2015.

The second is located in the 2011 addition mechanical room serving the toilet rooms and sinks in the addition. The water heater is a Rheem PDV40 tank type heater with 40,000 BTUH input and 40 gallons of storage with expansion tank installed. The water heater was installed in 2011.

Domestic hot water from each water heater has a recirculation piping system with recirculation pump.

Plumbing Fixtures

Public toilet room plumbing fixtures are commercial quality fixtures in good condition. The toilet rooms in the pre-school rooms have wall mounted china

lavatories with metering faucets without mixing valves and child-sized floor mounted water closets with manual or hands free flush valves. No floor drains are present in these rooms.

Toilet rooms in the renovated 2 story east classroom wing have floor mounted water closets with sensor operated flush valves, urinals are wall hung with sensor operated flush valves, lavatories are wall hung with metering faucets.

Toilet rooms in the west classroom wing have floor mounted water closets with manual valves, floor mounted urinals with manual flush valves, and wall hung lavatories with metering faucets and no mixing valve.

2011 area toilet rooms have wall mounted water closets with hands free flush valves., and wall mounted lavatories with hands free faucets.

Classroom that have been remodeled have countertop stainless steel sinks with wrist blade manual faucets and mixing valves.

There are a number of janitor closet mop basins that have splitters with shut-off valves for chemical dispensing. Art room sinks have plaster traps.

The basement boiler room has a service sink with faucet with no vacuum breaker.

Electric water coolers are wall mounted, many recently replaced which include bottle fillers.

Revision Recommendations

Galvanized water piping in the older areas of the building is beyond its useful life and should be replaced with copper piping.

Submersible pump systems may be near the end of their useful life. Replace pumps, controls and rusted basin covers within the next 2-10 years.

Single small floor drain at the bottom of the outside stairwell to the basement mechanical room is subject to being covered with leaves leading to flooding of the basement. We recommend that this floor drain should be replaced with a

trench drain.

The AO Smith water heater serving the original building is 7 years old and should be scheduled for replacement in the next 8 years. This water heater has no expansion tank. An expansion tank is required because the domestic water service has an RPZ backflow preventer installed.

The Rheem water heater serving the 2011 addition is 12 years old. Schedule replacement of the water heater in the next 3 years.

Thermostatic mixing valves are not provided at lavatories and sinks that were not remodeled in the 2011 project. Provide thermostatic mixing valves at all lavatories to prevent water temperature from exceeding 110 degrees.

Existing janitors closets and service sinks should have splitter removed from faucet to prevent cross connection.

Existing janitor closets and service sinks should not have chemical soap system directly connected to the service sink faucet per IDPH and Illinois Plumbing Code Cross Connection requirements. An independent water connection and RPZ backflow preventer should be provided at all chemical soap systems.

FIRE PROTECTION

Existing Conditions

The 2011 addition areas are protected by wet pipe sprinkler system.

The water enters the 2011 addition to the building as a combined water service at the north storage room adjacent to the gymnasium where it splits to separate fire protection and domestic water services.

The fire protection service is equipped with a backflow preventer. Fire department connection is located on the north wall. The fire department connection is a Storz fitting with alarm bell located above the fire department connection.

Revision Recommendations

The fire protection system does not protect the entire building. If desired, extend the sprinkler system to serve the entire building.

ELECTRICAL

Existing Conditions

Electrical Service

The main electrical service is fed from a pad mounted utility transformer at the southwest corner of the site. The service entrance conductors are routed below grade to the main switchboard in the lower level mechanical room. The switchboard is rated for 1600 amperes at 208/120V-3Ph-4W with a 1600 ampere main bolted pressure disconnect switch. It is manufactured by Cutler Hammer (now part of EATON) and was manufactured in 2000. Feeder circuits are of circuit breaker construction. The switchboard appears to be in good condition. There is limited bussed space for future expansion.

Electrical Power Distribution

Distribution panels and branch circuit panels are distributed throughout the building. The majority of panels were manufactured by Cutler Hammer, with a few manufactured by Square D. The panels vary in age with most having date stamps of 2000, 2002, 2011. The panels that do not have date stamps may be older, however all panels observed have modern replacements available.

An outdoor, natural-gas generator is installed on the roof of the building. The transfer switch appears to serve two branch circuit panels. The generator appears in good condition and is manufactured by Generac. The panels appear to serve some lighting and other select loads in the buildings. The generator is a smaller unit and likely has no additional capacity for additional loads.

Lighting

There are varying styles of luminaires inside the building including 2'x2', or 2'x4' lay-in troffers, strip lights, decorative pendants, and recessed round downlights. Gymnasium fixures appear to be indirect HID, and fluorescent lamps appear to be the primary source of lighting in the rest of the building. Interior lighting appears to be in fair/good condition and provides adequate light levels throughout the

building.

Manual operated on/off toggle switches were observed to control lighting in most areas.

Exterior lighting is installed around the outside of the building including canopy downlights, soffit lights, wall packs, and parking lot poles. They appear to be controlled via time clocks. All exterior lighting appears to be a mixture of HID and LED type. It appears the district has been replacing fixtures with LED as existing fixtures require replacement.

Exit signs are installed throughout the building and are mostly adequate, however there are a few locations where additional exit signs may be required (such as the courtyard). Emergency lighting appears to be a combination of self-contained unit battery packs and generator backed light fixtures. Some areas (such as the courtyard) don't have exit signs or emergency lights.

Fire Alarm System

The building has audio/visual notification devices that are tied to a control panel located in the main main mechanical room. Notification coverage is not full, but appears to be compliant with the codes in effect at the time of construction for each area of the building. Smoke detectors or manual pull stations were observed and while detection coverage is not full, it appears to be compliant with the codes in effect at the time of construction for each area of the building. The fire alarm control panel is manufactured by Silent Knight and is an addressable IFP-1000 series. The system appears to be in fair condition, but this particular control panel has been discontinued by the manufacturer.

Telecommunication System

The telecommunication system consists of an MDF rack in Room 13 and IDF's throughout the building. The horizontal structured cabling is CAT6. The system appears to be functional and in good condition.

The existing school intercom system is a Dukane MCS 350. This system is discontinued and is obsolete. Parts are scarce for this system as the manufacturer no longer exists and thus, there is no factory support.

Revision Recommendations

Thermal imaging service is recommended at the panels as a preventative measure to ensure all connections are secure and properly terminated.

There are a limited number of open junction boxes that require covers.

Additional pull stations should be required at egress doors where they are missing.

Replace non-functional exit signs and provide additional EM lights and exit signs where required.

Replace existing obsolete intercom system head end equipment.

Replace existing fire alarm system and upgrade to Voice Evacuation based system, providing additional notification coverage.

Meadowbrook Elementary School
Mechanical, Electrical & Plumbing
Existing Conditions & Revisions Recommendations
Project 2023.016
December 11, 2023

HVAC
Existing Conditions
Central Heating Plant
The central heating plant consists of (2) Bryan HECL-300 gas fired forced draft boilers with modulating burners located in the first floor mechanical room. Each boiler was installed in 2001 and has an input capacity of 3,000 MBH. Each boiler has a Bell & Gossett boiler circulation pump installed in 2001. The secondary hot water system is circulated by (2) Bell & Gossett hot water pumps with variable frequency drives installed in 2001 in a lead/stand by configuration. The hot water system serves air handling unit coils, unit ventilator coils, fan coil unit coils, and hot water terminal units throughout the building.

Central Chilled Water Plant
The central chilled water plant consists of a Quantech QTC3150 air cooled water chiller located on grade with remote evaporator located in the second floor mechanical room. The chiller has nominal 150 tons capacity and was installed in 2023. There is an MSA refrigerant detection system installed due to the quantity of refrigerant in the system resulting in the mechanical room being designated as a "refrigeration machinery room". The chiller circulation pump is an Armstrong installed in 2023 and is located in the second floor mechanical room. The secondary chilled water system is circulated by (2) Bell & Gossett chilled water pumps with variable frequency drives installed in 2001 in a lead/stand by configuration. The chilled water system serves air handling unit coils, unit ventilator coils, and fan coil unit coils throughout the building.

Air Handling Unit AHU-1
The gymnasium and adjacent offices are heated, cooled, and ventilated by an indoor Trane MCC-12 constant volume air handling unit that was installed in 2001 in the second floor mechanical room. It has a chilled water coil and hot water coil with integral return/exhaust fan section.

The air distribution system utilizes a single Trane Variable Air Volume box installed in 2001 with hot water coil to provide a single zone of temperature control to 4 offices on the first and second floors.

Air Handling Unit AHU-2

The multi-purpose room is heated, cooled, and ventilated by an indoor Trane MCC-06 constant volume air handling unit that was installed in 2001 suspended in the adjacent storage room. It has a chilled water coil and hot water coil. There no return fan for the system, instead there is a roof mounted exhaust fan installed in 2001 to provide pressure relief.

Offices 15 & 15A-15D

The offices are heated, cooled, and ventilated by a ceiling suspended ducted unit ventilator installed in 1998. The unit ventilator has a separate hot water coil and DX cooling coil with associated Nordyne JS5BD air cooled condensing unit mounted at grade. The condensing unit has nominal 3 tons cooling capacity, utilizes R22 refrigerant, and was installed in 2015.

Classroom Unit Ventilators

The classrooms are heated, cooled, and ventilated by (39) Carrier under-the-window unit ventilators installed in 2001. Each unit ventilator has a separate hot water coil and chilled water coil. Some units are equipped with adjacent shelving and integral relief venting. The remainder of the classrooms have individual gravity relief vents or are part of a combined powered exhaust fan relief.

Second Floor Office Fan Coil Units

There are (4) offices on the second floor that are heated, cooled, and ventilated by Trane fan coil units installed in 2002. Each unit has a heating coil and DX cooling coil with associated Trane air cooled condensing unit on the roof installed in 2002 utilizing R22 refrigerant.

Administrative Offices Rooftop Unit

The administrative offices are cooled and ventilated by a York ZXE08 packaged rooftop unit with indoor duct mounted hot water coil providing heating. The unit was installed in 2022.

Miscellaneous Heating

Hot water finned tube radiation is located in various offices beneath glass. Hot

water cabinet unit heaters and convectors are located in vestibules and toilet rooms. Hot water suspended unit heaters are located in mechanical and storage rooms. A Trane gas fired unit heater is installed in the boiler room and was installed in 2001.

Maintenance Office Duct Free Split System
The Maintenance Office is cooled by a Sanyo duct free split system consisting of a high wall fan coil unit and roof mounted air cooled condensing unit utilizing R22 refrigerant. It was installed in 2000 with nominal 2.0 tons cooling capacity.

MDF Room Duct Free Split System
The MDF Room is cooled by a Mitsibushi Mr. Slim duct free split system consisting of a high wall fan coil unit and roof mounted air cooled condensing unit utilizing R410a refrigerant. It was installed in 2001 with nominal 1.5 tons cooling capacity.

Exhaust Fans
Roof mounted exhaust fans serve toilet rooms and general building exhaust. All roof exhaust fans appear to be 22 years old or newer. and shouldn't need to be replaced for over 20 years.

Temperature Controls
The building has an existing Honeywell Tridium N4.7 JACE with BACnet controllers residing on its own front end, not connected to the District Tridium Virtual Server. The 2023 air cooled water chiller controls are Schneider I/A series controls installed by Precision Controls of Chicago.

Revision Recommendations

Central Heating Plant
The Bryan hot water boilers are 22 years old and shouldn't need to be replaced for 18 years. To extend their life, we recommend inspection and repair if required to the refractory within the next 2 years. The variable frequency drives serving the main system circulation pumps are 22 years old, at the end of their useful life, and should be scheduled for replacement in the next 2 years.

Central Cooling Plant

The Quantech air cooled water chiller with remote evaporator and associated Armstrong chilled water pump are 6 months old and shouldn't need to be replaced for 20 years. The variable frequency drives for the system chilled water pumps are 22 years old, at the end of their useful life, and should be scheduled for replacement in the next 2 years.

Air Handling Unit AHU-1
The Trane indoor air handling unit serving the Gymnasium is 22 years old and shouldn't need to be replaced for 18 years.

Air Handling Unit AHU-2
The Trane indoor air handling unit serving the Multipurpose Room 22 years old and shouldn't need to be replaced for 18 years.

Offices 15 & 15A-15D
The ceiling suspended ventilator is 25 years old and the associated Nordyne air cooled condensing unit is 8 years old. Both the unit ventilator and the condensing unit should be scheduled for replacement in 12 years. At the time of replacement, the refrigeration piping will need to be replaced as well since it utilizes banned R22 refrigerant.

Classroom Unit Ventilators
The 39 Carrier classroom unit ventilators are 22 years old and shouldn't need to be replaced for another 18 years.

Second Floor Office Fan Coil Units
The 4 Trane fan coil units serving the second floor offices are 21 years old. The associated Trane air cooled condensing units are 21 years old, utilize banned R22 refrigerant, and are at the end of their useful life. The fan coil units, associated air cooled condensing units, and refrigerant piping should be scheduled for replacement in the next 2 years.

Administrative Offices Rooftop Unit
The York rooftop unit serving the administrative offices is 1 year old and shouldn't need to be replaced for another 19 years.

Miscellaneous Heating

The hot water cabinet unit heaters and convectors appear to be original to the areas of the building they serve, which means some of them could be 56-69 years old. The older units should be replaced if found to be not functional. The gas fired unit heater in the boiler room is 22 years old and should be scheduled for replacement in the next 8 years.

Maintenance Office Duct Free Split System

The Sanyo duct free split system serving the Maintenance Office is 23 years old, utilizes banned R22 refrigerant, and is beyond the end of its useful life. Replacement of the indoor fan coil unit, roof mounted air cooled condensing unit, and refrigeration piping should be scheduled in the next 2 years. At the time of replacement, the new system will be required to provide outside air ventilation to the office since currently none exists as it was not required by code at the time.

MDF Room Duct Free Split System

The Mitsubishi Mr. Slim duct free split system serving the MDF room is 22 years old and is beyond its useful life. Replacement of the indoor fan coil unit and roof mounted air cooled condensing unit should be scheduled for the next 2 years. As this system utilizes R410a refrigerant, it may not be necessary to replace the refrigeration piping as long as the new equipment also utilizes R410a refrigerant.

Exhaust Fans

Roof mounted exhaust fans serving toilet rooms and general building exhaust appear to be 22 years old or newer and shouldn't need to be replaced for over 20 years.

Temperature Controls

The license for the Tridium JACE's should be upgraded to N4 latest revision and integrated to the District Virtual server.

PLUMBING

Existing Conditions

Water Service

There is a single 4" water service entering the building into the boiler room serving both domestic and fire protection systems. A 4" domestic water service with meter

and Wilkins 975 Reduced Pressure Zone backflow preventer is provided.

Domestic Water Distribution Piping
The domestic water piping appears to be a mix of galvanized and copper piping. Copper piping was observed to have replaced galvanized hot water piping at one janitor closet service sink where the original cold water galvanized piping was still in place.

Sanitary and Storm
Below grade areas of the first floor are protected by drain tile on the exterior of foundation wall.

Room 020A in the 1956 addition has both storm and sanitary basins that appear to be original to the addition. The pumps appear to have been replaced at some point, though their age is unclear.

Domestic Water Heaters
There are two locations of domestic water heaters in the building. One is located in the Boiler Room serving the toilet rooms and sinks on the south end of the building. It is an A.O. Smith GCG-50 400, 50 gallons of storage, 40,000 BTU/HR input, tank type gas fired domestic water heater without an expansion tank. The water heater was installed in 2016.

The second is located in the second floor mechanical room serving the toilet rooms and sinks in the north area of the building. The water heater is a Vanguard with 50 gallons of volume, 4.5KW input, tank type electric domestic water heater with no expansion tank observed. The water heater was installed in 2021.

Domestic hot water from each water heater has a recirculation piping system with recirculation pump.

Plumbing Fixtures
Public toilet room plumbing fixtures are commercial quality fixtures in good condition. The toilet rooms in the 1963 and 1967 areas appear to be original. In these rooms, water closets are floor mounted or wall hung with sensor operated flush valves, urinals are floor mounted with sensor operated valves, lavatories are

wall hung china with metering faucets and no mixing valve. Kindergarten rooms have floor mounted flush tank toilets. On both floors of the 1967 north addition there is an old china service sink in the corridor that has cold water only. There are a number of janitor closet mop basins that have splitters with shut-off valves for chemical dispensing. Art room sinks have plaster traps.

Electric water coolers are wall mounted, many recently replaced which include bottle fillers.

Some exterior wall hydrants are original with no integral vacuum breakers.

Revision Recommendations

Galvanized water piping in the older areas of the building is beyond its useful life and should be replaced with copper piping.

Room 020A in the 1956 addition storm and sanitary basins that appear to be original to the addition and pump age is unknown. Replace pumps that are over 20 years old.

The A.O. Smith domestic water heater in the boiler room is 7 years old and should be scheduled for replacement in the next 8 years. This water heater has no expansion tank which is required since there is an RPZ backflow preventer at the water service.

The Vanguard domestic water heater located in the second floor mechanical room is 2 years old and shouldn't need replacing for 13 years. This water heater has no expansion tank which is required since there is an RPZ backflow preventer at the water service.

Thermostatic mixing valves are not provided at lavatories and sinks that were not recently remodeled. Provide thermostatic mixing valves at all lavatories to prevent water temperature from exceeding 110 degrees.

Service sinks in the first and second floor corridors of the 2-story classroom wing have cold water only. Extend hot water to these fixtures.

Existing janitors closets and service sinks should have splitter removed from faucet to prevent cross connection.

Existing janitor closets and service sinks should not have chemical soap system directly connected to the service sink faucet per IDPH and Illinois Plumbing Code Cross Connection requirements. An independent water connection and RPZ backflow preventer should be provided at all chemical soap systems.

Provide screw-on vacuum breakers at all exterior hose bibs without integral vacuum breaker.

FIRE PROTECTION

Existing Conditions

Certain portions of the building are protected by sprinkler system, including the 1993 Teacher's Lounge addition and the 1995 classroom additions.

The water enters the building as a 4" combined water service within the boiler room and then splits to separate 4" fire protection and 4" domestic water services.

The fire protection service is equipped with an Ames 3000SS double check detector assembly backflow preventer.

Fire department connection is located on the south wall near the building entry doors with alarm bell and visual fire alarm notification.

Revision Recommendations

The fire protection system does not protect the entire building. If desired, extend the sprinkler system to serve the entire building.

ELECTRICAL

Existing Conditions

Electrical Service

The main electrical services are fed from a pad mounted utility transformer

located at the east side of the building. The service entrance conductors are routed underground to (2) outdoor service metering compartments located on the exterior wall. Each metering cabinet serves a 1200A distribution board within the building. The distribution boards are rated at 1200A each and operate at 208/120V 3 phase, 4 wire. The distribution boards are located in Room 114A.

One main service distribution board is configured as what is commonly referred to a sequence style switchboard. A sequence style distribution board has no one singular main disconnect, but contains a group of main switches. To achieve complete shut down of the building, all main switches have to be disconnected. The National Electric Code provides a limitation of a maximum of (6) switches in a sequence style service. The existing distribution board currently has (4) of the possible (6) switches. The board is fusible switch construction and there is no space for additional switches.

The second service distribution board has a main breaker and is of circuit breaker construction. The board has limited space for additional breakers. Both boards are in good condition

Electrical Power Distribution

Electrical distribution throughout the building consists of distribution panels and branch circuit panelboards located throughout the building. In most cases, the panels are grouped in strategic locations. The majority of panels are in good condition, however there are panels that are in need of replacement either based on age or condition. There is one panel in which mechanical equipment has been installed which violates the code required working clearance of a panel.

An outdoor, natural-gas generator is installed at grade on the west side of the building. It feeds an ASCO transfer switch located in an Electrical/Storage Room in the middle of the building. The transfer switch appears to serve two branch circuit panels. The generator appears to be in good condition. It is rated 45kW at 208/120V-3Ph and is manufactured by Caterpiller. The panels appear to serve some lighting and other select loads in the buildings. The generator is a smaller unit and likely has no additional capacity for additional loads.

Lighting

There are varying styles of luminaires inside the building including lay-in troffers, strip lights, recessed round downlights, suspended/recessed linear lights, decorative pendants, etc. The majority of the lighting is fluorescent with a few rooms where LED fixtures have been installed. The District is in the process of an LED lighting retrofit project for the remaining fluorescent fixtures. Overall, the interior lighting appears to be in good condition and provides adequate light levels throughout the building.

Exterior lights are installed around the outside of the building including wall packs, decorative lights, and parking lot poles. The majority of exterior lighting has HID sources. Exterior lighting is controlled by a relay panel or time clock. The exterior lights appear to be in fair condition.

Exit signs and emergency lighting appears to be adequately provided throughout the building. A mixture of integral battery units and generator backed circuits are used as the emergency power source for the exit signs and emergency lighting. There are a few locations where existing exit signs and emergency lights are non-function or missing.

Fire Alarm System

The building is has audio/visual notification devices that are tied to a control panel located in the main main mechanical room. Notification coverage is not full, but appears to be compliant with the codes in effect at the time of construction for each area of the building. Smoke detectors or manual pull stations were observed, Detection coverage is not full, but appears to be compliant with the codes in effect at the time of construction for each area of the building. The fire alarm control panel is manufactured by Silent Knight and is an addressable IFP-1000 series. The system appears to be in fair condition, but this particular control panel has been discontinued by the manufacturer.

Telecommunication System

The telecommunication system consists of IDF racks in Room 254 and Room 54. The horizontal structured cabling is CAT6. The system appears to be functional and in good condition.

The existing school intercom system is a Dukane MCS 350. This system is discontinued and is obsolete. Parts are scarce for this system as the manufacturer

no longer exists and thus, there is no factory support.

Revision Recommendations

Thermal imaging service is recommended at all electrical equipment to ensure all connections are secure and properly terminated.

Replace obsolete distribution and branch panelboards.

There are a limited number of open junction boxes that require covers.
Provide additional pull stations and notification devices where they are missing.

Provide wire guards on Life Safety devices in the multipurpose room.

Replace non-functional exit signs and provide additional emergency lights where required.

Replace existing obsolete intercom system head end equipment.

Replace existing fire alarm system and upgrade to Voice Evacuation based system, providing additional notification coverage.

Westmoor Elementary School
Mechanical, Electrical & Plumbing
Existing Conditions and Revision Recommendations
Project 2023.016
December 11, 2023

HVAC
Existing Conditions
Central Heating Plant

The central heating plant consists of (2) LES HW-2200 gas fired forced draft boilers with modulating burners located in the boiler room. Each boiler was installed in 2003 and has an input capacity of 2,650 MBH. Each boiler has a Bell & Gossett boiler circulation pump installed in 2003. The primary boiler loop is circulated by (2) Bell & Gossett hot water pumps with variable frequency drives installed in 2003 in a lead/stand by configuration. The hot water system serves air handling unit coils, unit ventilators, and hot water terminal units throughout the building.

Gymnasium Air Handling System

The gymnasium is heated, cooled, and ventilated by an indoor Trane single zone constant volume air handling unit that was installed in 1993 in a mezzanine. Originally, it only had a hot water coil, but a DX cooling coil and associated Trane air cooled condensing unit with nominal 10 tons of cooling was installed in 2003. There is a Woods return fan installed.

Art Room Air Handling System

The Art Room and adjacent office/storage/kiln rooms are heated, cooled, and ventilated by an indoor Trane multizone constant volume air handling unit that was installed in 1993 in a mezzanine. It has a hot water coil and a DX cooling coil with associated Trane air cooled condensing unit with nominal 7.5 tons cooling capacity utilizing R22 refrigerant installed in 1993. There is a Woods return fan installed.

Science 172 Rooftop Unit RTU-1

Science Room 172 is heated, cooled, and ventilated by a Carrier gas fired packaged heating/cooling rooftop unit with assumed 3 tons of cooling capacity. It was installed in 1997.

Administrative Offices Rooftop Unit RTU-2

The administrative offices at the southeast of the building are heated, cooled, and ventilated by a Trane YHC102 gas fired packaged heating/cooling rooftop unit

with nominal cooling capacity of 8.5 tons. It was installed in 2014.

Classroom P-2 ELS 105 RTU-3
Science Room 172 is heated, cooled, and ventilated by a Carrier 48TCEA04 gas fired packaged heating/cooling rooftop unit with nominal 3 tons of cooling capacity. It was installed in 2011.

Multipurpose 174 RTU-4
Multipurpose Room 174 is heated, cooled, and ventilated by a horizontal discharge Trane YHC102 gas fired packaged heating/cooling rooftop unit with nominal 8.5 tons of cooling capacity. It was installed in 2003.

LMC 107 RTU-5
LMC 107 is heated, cooled, and ventilated by a horizontal discharge Trane gas fired packaged heating/cooling rooftop unit with assumed nominal 8.5 tons of cooling capacity. It was installed in 2014.

Computer 109 RTU-6
Computer 107 is heated, cooled, and ventilated by a horizontal discharge Trane YHC060 gas fired packaged heating/cooling rooftop unit with nominal 5 tons of cooling capacity. It was installed in 2003.

Reading Specialist Area RTU-7
Reading Specialist Area is heated, cooled, and ventilated by a horizontal discharge Trane gas fired packaged heating/cooling rooftop unit with assumed nominal 3 tons of cooling capacity. It was installed in 2014.

Conference 160 RTU
Conference 160 is heated, cooled, and ventilated by a Carrier 48TCEA04 gas fired packaged heating/cooling rooftop unit with nominal 3 tons of cooling capacity. It was installed in 2010.

Pre-K Classroom RTU
The Pre-K Classroom addition at the east side of the building is heated, cooled, and ventilated by a Trane YSD300 gas fired packaged heating/cooling VAV rooftop unit with nominal 25 tons of cooling capacity. It was installed in 2014.

Dehumidification Units
The west and north classroom corridors are dehumidified by (2) Trane THD210 cooling only rooftop units with nominal 17.5 tons of cooling each. The units were installed in 2014.

2014 Addition Classroom Unit Ventilators
The (3) 2014 south wing addition classrooms and LRA 123 are heated, cooled, and ventilated by Trane VUVE under-the-window classroom ventilators. Each unit ventilator has a hot water coil and a DX cooling coil with associated roof mounted Trane air cooled condensing unit with 2.5 tons of cooling capacity utilizing R410a refrigerant. All equipment was installed in 2014.
West and North Classroom Unit Ventilators
The (20) west and north wing classrooms are heated, cooled, and ventilated by Trane VUV under-the-window classroom ventilators. Each unit ventilator has a hot water coil and a DX cooling coil with associated roof mounted Trane air cooled condensing unit with 2.5 or 3 tons of cooling capacity utilizing R22 refrigerant. All equipment was installed in 2003.

Offices 125/127/169 Packaged Terminal Air Conditioners
These spaces are heated, cooled, and ventilated by (4) Trane packaged terminal air conditioners installed in 2003.

Storage 176/Work Room 178 Duct Free Split System
The rooms are cooled by a Sanyo duct free split system consisting of (2) indoor 3/4 ton fan coil units and (1) 1.5 ton air cooled condensing unit on the roof. The equipment was installed in 2003.

Book Storage 128 (MDF) Duct Free Split System
The room is cooled by a Sanyo duct free split system consisting of (2) indoor fan coil units and (1) air cooled condensing unit on the roof. The equipment was installed in 1990.

Storage Room 169A Duct Free Split System
The room is cooled by a Sanyo duct free split system consisting of an indoor fan coil unit and air cooled condensing unit on the roof. The equipment was installed

in 1990.

Miscellaneous Heating
Hot water heating elements including finned tube radiation, cabinet unit heaters, convectors and suspended unit heaters provide heating to vestibules, toilet rooms, and miscellaneous storage rooms.

Exhaust Fans
Toilet rooms are exhausted by a combination of ceiling mounted and roof mounted exhaust fans. Most exhaust fans are original to the area of the building they are located in.

Temperature Controls
The Building Automation System consists of a Tridium AX JACE with Schneider I/A series BACnet controllers residing on its own front end.

Revision Recommendations

Central Heating Plant
The (3) LES HW-2200 gas fired forced draft boilers with modulating burners located in the boiler room are 20 years old and nearing the end of their useful life. The boilers should be scheduled for replacement within the next 5 years. The ABB variable frequency drives installed in 2003 are at the end of their useful life and should be scheduled for replacement in the next 2 years.

Gymnasium Air Handling System
The Trane indoor air handling unit and return fan serving the gymnasium are 30 years old and should be scheduled for replacement in 10 years. The associated 10 ton Trane air cooled condensing unit is 20 years old, utilizes banned R22 refrigerant, and is at the end of its useful life. Schedule replacement of the condensing unit, DX cooling coil, and refrigerant piping in the next 2 years.

Art Room Air Handling System
The Trane multizone indoor air handling unit and return fan serving the Art Room and adjacent office/storage/kiln rooms are 30 years old and should be scheduled for replacement in the next 10 years. The associated Trane air cooled condensing unit is 30 years old, utilizes banned R22 refrigerant, is well beyond its useful life, and

should be scheduled for replacement in the next 2 years. At the time of replacement, the refrigeration piping and DX cooling coil in the air handling unit will need to be replaced as well.

Science 172 Rooftop Unit RTU-1
The Carrier rooftop unit with nominal 3 tons cooling capacity serving Science Room 172 is 26 years old, well beyond its useful life, and should be scheduled for replacement in the next 2 years.

Administrative Offices Rooftop Unit RTU-2
The Trane rooftop unit with nominal 8.5 tons cooling capacity serving the administrative offices at the southeast of the building is 9 years old and should be scheduled for replacement in 11 years.

Classroom P-2 ELS 105 RTU-3
The Carrier rooftop unit with nominal 3 tons cooling capacity serving Classroom P-2 ELS 105 is 12 years old and should be scheduled for replacement in the next 8 years.

Multipurpose 174 RTU-4
The Trane rooftop unit with nominal 8.5 tons cooling capacity serving Multipurpose Room 174 is 20 years old, at the end of its useful life, and should be scheduled for replacement in the next 2 years. Associated exposed horizontal ductwork is in poor condition and should be resealed or replaced at the same time.

LMC 107 RTU-5
The Trane rooftop unit with nominal 8.5 tons cooling capacity serving LMC 107 is 9 years old and should be scheduled for replacement in 11 years. Associated exposed horizontal ductwork should be evaluated at that time and resealed or replaced if it is in poor condition.

Computer 109 RTU-6
The Trane rooftop unit with nominal 5 tons cooling capacity serving Computer 107 is 20 years old, at the end of its useful life, and should be scheduled for replacement in the next 2 years. Associated exposed horizontal ductwork is in poor condition and should be resealed or replaced at the same time.

Reading Specialist Area RTU-7
The Trane rooftop unit with 3 tons of cooling capacity serving the Reading Specialist Area is 9 years old and should be scheduled for replacement in the next 11 years. Associated exposed horizontal ductwork should be evaluated at that time and resealed or replaced if it is in poor condition.

Conference 160 RTU
The Carrier rooftop unit with 3 tons of cooling capacity serving Conference 160 is 13 years old and should be scheduled for replacement in the next 7 years.

Pre-K Classroom RTU
The Trane variable volume rooftop unit with 25 tons of cooling capacity serving the Pre-K Classroom addition at the east side of the building is 9 years old and should be scheduled for replacement in the next 11 years.

Dehumidification Units
The (2) Trane dehumidification rooftop units serving the west and north classroom corridors are 9 years old and should be scheduled for replacement in the next 11 years.

2014 Addition Classroom Unit Ventilators
The (3) Trane VUVE under the window classroom unit ventilators serving the south wing addition classrooms and LRA 123 are 9 years old and shouldn't need to be replaced for 31 years. Their associated Trane air cooled condensing units are 9 years old and should be scheduled for replacement in the next 11 years.

West and North Classroom Unit Ventilators
The (20) Trane VUV under-the-window classroom unit ventilators serving the west and north wing classrooms 20 years old and should be scheduled for replacement in 20 years. Their associated Trane air cooled condensing units are 20 years, utilize banned R22 refrigerant, and are at the end of their useful life. Schedule replacement of these air cooled condensing units, DX cooling coils in the unit ventilators, and associated refrigerant piping within the next 2 years.

Offices 125/127/169 Packaged Terminal Air Conditioners

The (4) Trane packaged terminal air conditioners serving Offices 125/127/169 are 20 years old, at the end of their useful life, and should be scheduled for replacement in the next 2 years.

Storage 176/Work Room 178 Duct Free Split System

The Sanyo duct free split system consisting of (2) indoor 3/4 ton fan coil units and (1) 1.5 ton air cooled condensing unit serving Storage 176 & Work Room 178 is 20 years old, at the end of its useful life, and should be scheduled for replacement in the next 2 years.

Book Storage 128 (MDF) Duct Free Split System

The Sanyo duct free split system consisting of (2) indoor fan coil units and an air cooled condensing unit serving Book Storage 128 (MDF) is 33 years old, utilizes banned R22 refrigerant, is well beyond its useful life and should be scheduled for replacement in the next 2 years.

Storage Room 169A Duct Free Split System

The Sanyo duct free split system consisting of an indoor fan coil unit and air cooled condensing unit on the roof serving Storage 169A is 33 years old, utilizes banned R22 refrigerant, is well beyond its useful life and should be scheduled for replacement in the next 2 years.

Miscellaneous Heating

The hot water cabinet unit heaters and convectors appear to be original to the areas of the building they serve, which means some of them could be 56-58 years old. The older units should be replaced if found to be not functional.

Exhaust Fans

Roof exhaust fans original to the 1965 or 1967 areas are 56-58 years old and should be replaced within the next 2 years.

Temperature Controls

The existing Tridium AX JACE's are obsolete and should be replaced with current technology Tridium N4 latest revision and then integrated into the new District Virtual server.

PLUMBING

Existing Conditions

Water Service

There is a single 6" water service entering the building into a closet in the conference room of the 2014 addition where it splits to separately serve the domestic and fire protection systems. A 3" domestic water meter is located within the closet and then the 3" is routed to the boiler room where a 3" Watts 957 Reduced Pressure Zone backflow preventer is provided.

Domestic Water Distribution Piping

The domestic water piping appears to be a mix of galvanized and copper piping. Copper piping was observed in the 2014 addition and at renovated toilet rooms in the original building.

Sanitary and Storm

No storm or sanitary pumps are utilized since the building is at grade.

Domestic Water Heater

There is a single domestic water heater serving the building located in the Boiler Room. It is an A.O. Smith GCRT-50 400, 50 gallons of storage, 50,000 BTU/HR input, tank type gas fired domestic water heater without an expansion tank. It has 2 recirculation pumps installed. The water heater was installed in 2021.

Plumbing Fixtures

Public toilet room plumbing fixtures are commercial quality fixtures in good condition. The toilet rooms in the 1965 and 1967 areas that were not remodeled in 2014 appear to be original. In these rooms, water closets are floor mounted with manual flush valves, urinals are wall mounted with sensor operated valves, lavatories are wall hung china with metering faucets and no mixing valve.

Areas renovated in 2014 have wall hung water closets with hands-free flush valves, wall hung lavatories with hands-free faucets and mixing valves, Kindergarten rooms have floor mounted flush tank toilets.

Electric water coolers are wall mounted, many recently replaced which include

bottle fillers.

Revision Recommendations

Galvanized water piping in the older areas of the building is beyond its useful life and should be replaced with copper piping.

The A.O. Smith domestic water heater in the boiler room is 2 years old and should be scheduled for replacement in the next 13 years. This water heater has no expansion tank which is required since there is an RPZ backflow preventer at the water service.

Thermostatic mixing valves are not provided at lavatories and sinks that were not recently remodeled. Provide thermostatic mixing valves at all lavatories to prevent water temperature from exceeding 110 degrees.

Existing janitors closets and service sinks should have splitter removed from faucet to prevent cross connection.

Existing janitor closets and service sinks should not have chemical soap system directly connected to the service sink faucet per IDPH and Illinois Plumbing Code Cross Connection requirements. An independent water connection and RPZ backflow preventer should be provided at all chemical soap systems.

FIRE PROTECTION

Existing Conditions

The entire building is protected by sprinkler system.

The water enters the building as a combined 8" water service in the storage closet of the conference room at the south wall of the 2014 addition and then splits to separate 6" fire protection and 3" domestic water service.

The fire protection service is equipped with a Wilkins 375ASTDA Reduced Pressure Zone backflow preventer. There are 2 zones with control valves and flow switches.

Fire department connection is located on the west wall at the northwest corner of the building facing Oak Park Avenue. The fire department connection is a Storz fitting on the south wall at the east side with alarm bell located above.

Revision Recommendations

No revisions required.

ELECTRICAL

Existing Conditions

Electrical Service

The main electrical service is fed from a pad mounted utility transformer located at the east side of the building. The service entrance conductors are routed underground to an indoor service entrance switchboard located in the boiler room. The switchboard has an integral utility metering compartment. The switchboard rated at 2000A and operates at 208/120V 3 phase, 4 wire.

The main service switchboard is configured as what is commonly referred to a sequence style switchboard. A sequence style switchboard has no one singular main disconnect, but contains is a group of main switches. To achieve complete shut down of the building, all main switches have to be disconnected. The National Electric Code provides a limitation of a maximum of (6) switches in a sequence style switchboard. The existing switchboard currently has (2) of the possible (6) switches. One of the disconnect switches appears to be ahead of a small distribution section below the main switches. It appears there is adequate space in the main compartment for one additional main disconnect. The main switchboard utilizes circuit breaker construction. The switchboard is in good condition and has a production date code of 2003.

Electrical Power Distribution

Electrical distribution throughout the building consists of distribution panels and branch circuit panelboards located throughout the building. In most cases the panels are grouped in strategic locations. All panels are in good condition. Although ages may vary slightly, the majority appear to be from 2003.

An outdoor, natural-gas generator is installed on the roof of the building. It feeds

an ASCO transfer switch located in a Electrical/Storage Room in the middle of the building. The transfer switch appears to serve two branch circuit panels. The generator appear in good condition. It is rated 35kW at 208/120V-3Ph and is manufactured by Cummins Onan. The panels appear to serve some lighting and other select loads in the buildings. The generator is a smaller unit and likely has no additional capacity for additional loads.

There is a location in which a foreign pipe system is routed directly over panelboards and violates the code required dedicated space of a panelboard.

Lighting

There are varying styles of luminaires inside the building including lay-in troffers, strip lights, recessed round downlights, suspended/recessed linear lights, decorative pendants, etc. The majority of the lighting is fluorescent, however there are a few rooms where LED fixtures have been installed. The District is in process of an LED lighting retrofit project for the remaining fluorescent fixtures. Overall, the interior lighting appears to be in good condition and provides adequate light levels throughout the building.

Exterior lights are installed around the outside of the building including wall packs, decorative lights, and parking lot poles. The majority of exterior lighting has HID sources. Exterior lighting is controlled by a relay panel or time clock. The exterior lights appear to be in fair condition.

Exit signs and emergency lighting appear to be adequately provided throughout the building. A mixture of integral battery units and generator backed circuits are used as the emergency power source for the exit signs and emergency lighting. There are a few locations where existing exit signs and emergency lights are non-function or missing.

Fire Alarm System

The building has audio/visual notification devices that are tied to a control panel located in the main main mechanical room. Notification coverage is not full, but appears to be compliant with the codes in effect at the time of construction for each area of the building. Smoke detectors or manual pull stations were observed. Detection coverage is not full, but appears to be compliant with the

codes in effect at the time of construction for each area of the building. The fire alarm control panel is manufactured by Silent Knight and is an addressable IFP-1000 series. The system appears to be in fair condition, but this particular control panel has been discontinued by the manufacturer.

Telecommunication System

The telecommunication system consists of an MDF rack in Room 128 and IDF racks in Room143 and Room 109. The horizontal structured cabling is CAT6. The system appears to be functional and in good condition.

The existing school intercom system is a Dukane MCS 350. This system is discontinued and is obsolete. Parts are scarce for this system as the manufacturer no longer exists and thus, there is no factory support.

Revision Recommendations

Thermal imaging service is recommended at all electrical equipment to ensure all connections are secure and properly terminated.
There are a limited number of open junction boxes that require covers.

Additional pull stations should be required at egress doors where they are missing.

Provide wire guards on Life Safety devices in the multipurpose room

Replace non functional exit signs and provide additional emergency lights where required.

Replace existing obsolete intercom system head end equipment

Reconfigure roof top unit screening that obstructs access to electrical pull box.

Provide additional supports for roof top conduits.

Replace existing fire alarm system and upgrade to Voice Evacuation based system, providing additional notification coverage.

HVAC

Existing Conditions

Central Heating Plant

The central heating plant consists of (2) gas fired forced draft boilers with modulating burners located in the basement boiler room. One boiler is an Aerco Benchmark 3.0 installed in 2009 with an input capacity of 3,000 MBH. The other is an Aerco Benchmark 2.0 installed in 2007 with an input of 2,000 MBH. Water circulation through the boiler plant is provided by the dual temperature pumps.

Central Chilled Water Plant

The central chilled water plant consists of (2) McQuay WMC035T indoor water cooled centrifugal chillers located in the basement boiler room. Each chiller has nominal 170 tons capacity and was installed in 2007. Water circulation through the chiller plant is provided by the dual temperature pumps.

Heat rejection is provided by a Marley 2 cell cooling tower located at grade. Each fan is provided with an ABB variable frequency drive installed in 2007 to control fan speed. Water circulation through the tower is provided by twinned Armstrong 8x8x8 pumps circulating 550 gpm. Each cooling tower pump is provided with an ABB variable frequency drive installed in 2007 to vary pump speed.

Dual Temperature Hot/Chilled Water System

The building is provided with a 2-pipe dual temperature hot/chilled water system. Water circulation through the boiler plant, chiller plant, and all heating/cooling elements in the building is provided by twinned Armstrong pumps. Each dual temperature pump is provided with an ABB variable frequency drive installed in 2009 to vary pump speed. Diverting valves determine which central plant is in operation to provide hot or chilled water to the dual temperature system..

Cafeteria/Kitchen Air Handling System AHU-1

The Cafeteria is heated, cooled, and ventilated by a Trane CCDB12 single zone constant volume indoor air handling unit installed in 1989. It has a single dual temperature hot/chilled water coil. There is no return fan for the system, instead

outside air introduced through the system is relieved into the kitchen were it is exhausted through the kitchen exhaust fan serving the range hood and dishwasher.

Offices 221A/223 Air Handling System AHU-2
The offices are heated, cooled, and ventilated by a Trane CCDB03 constant volume indoor air handling unit located in Prep Room 221B installed in 1989. It has a single dual temperature hot/chilled water coil.

Office 216 Air Handling System AHU-3
The office is heated, cooled, and ventilated by a Trane CCDB03 constant volume indoor air handling unit located in Storage 216A installed in 1989. It has a single dual temperature hot/chilled water coil.

Offices 321A/323 Air Handling System AHU-4
The offices are heated, cooled, and ventilated by a Trane CCDB03 constant volume indoor air handling unit located in Prep Room 221B installed in 1989. It has a single dual temperature hot/chilled water coil.

Library Air Handling System AHU-5
The library is heated, cooled, and ventilated by a Trane CCCE08 constant volume indoor air handling unit located in Work Room 316 installed in 1989. It has a single dual temperature hot/chilled water coil.

2000 Science Wing Addition Air Handling System AHU-6
The west 2000 Science Wing Ground Floor and Second Floor classrooms are heated, cooled, and ventilated by an indoor York BA006 multizone air handling unit located in the basement mechanical room. It has a dual temperature hot/chilled water coil and was installed in 2000. Each of the supply and return fans has a Danfoss variable frequency drive that was installed in 2000.

District Administration Offices Air Handling System AHU-7
The interior rooms of the district administration area are heated, cooled, and ventilated by a Trane CCDB03 constant volume indoor air handling unit located in Storage 206D and installed in 1991. It has a single dual temperature hot/chilled water coil.

Community Room 206 Air Handling System AHU-8
The Community Room of the district administration area is heated, cooled, and ventilated by a Trane CCDB03 constant volume indoor air handling unit located in Mechanical 206A and installed in 1991. It has a single dual temperature hot/chilled water coil.

School Administration Offices Air Handling System AHU-9
The offices are heated, cooled, and ventilated by a Trane LPCAD08 variable volume indoor air handling unit located in Mechanical Room 210A installed in 2002. It has a single dual temperature hot/chilled water coil. The supply fan has a Yaskawa variable frequency drive installed in 2002.

1991 Addition Air Handling System AHU-10
The 1991 addition areas are heated, cooled, and ventilated by a Webco custom variable volume air handling unit located in the addition's penthouse installed in 2007. It has a single dual temperature hot/chilled water coil. The supply and return fans each have a variable frequency drive installed in 2007.

2009 Addition Air Handling System AHU-11
The 2009 addition areas are heated, cooled, and ventilated by a Trane VCPAID017 variable volume air handling unit located in the addition penthouse installed in 2009. It has a single dual temperature hot/chilled water coil. The unit has (2) plenum supply fans and (2) plenum return fans and each fan has a Danfoss variable frequency drives installed in 2009.

Supply and return ductwork for the addition exits the penthouse east wall and is exposed on the roof until it is routed down through the roof to serve the addition. This ductwork is externally insulated with an aluminum jacket.

Gymnasium & 1975 South Addition Air Handling System AHU-12
The gymnasium and the 1975 south addition is heated, cooled, and ventilated by a Trane TCPAID037 variable volume air handling unit located in the south addition penthouse installed in 2009. It has a single dual temperature hot/chilled water coil. The unit has (2) plenum supply fans and (2) plenum return fans and each fan has a Danfoss variable frequency drives installed in 2009.

Ductwork for the gymnasium exits the penthouse north wall and is exposed on the roof until it is routed down through the roof to serve the gymnasium. This ductwork is externally insulated with an aluminum jacket.

Orchestra Room Rooftop Unit

The second floor Orchestra Room just north of the gymnasium is heated, cooled, and ventilated by an AAON constant volume rooftop unit manufactured in 2007. The unit originally served the 1975 addition south of the gymnasium, but was relocated in 2009 to on top of steel grillage just north of the orchestra room on the low roof. This was done because the unit is a downflow configuration.

Supply and return ductwork from the unit is routed down from the bottom of the unit and then horizontally in through the Orchestra room north wall. This ductwork is externally insulated with an aluminum jacket.

Cafeteria Extension Rooftop Unit

The 2 offices at the south side of the cafeteria on either side of the entrance are heated, cooled, and ventilated by a Trane XL1600 rooftop unit installed in 2005.

Classroom Unit Ventilators

There are (43) Trane unit ventilators serving classrooms throughout the building. They are a mix of under-the-window and ceiling suspended types, all installed in 1989. Each unit has a dual temperature hot/chilled water coil.

Classroom 100 Unit Ventilator

Classroom 100 is heated, cooled, and ventilated by a Carrier 40UVA4 under-the-window classroom ventilator with a dual temperature hot/chilled water coil. The unit was installed in 2001.

Woodshop 116 Unit Ventilator

Woodshop 116 is partially heated and cooled by an American Air Filter ceiling suspended unit ventilator with a dual temperature hot/chilled water coil. The unit was installed in 2007.

District Administration Area Fan Coil Units

The perimeter offices in the district administration area on the ground floor as well as 4 offices and a conference room on the second floor are heated, cooled, and ventilated by 15 fan coil units with a dual temperature hot/chilled water coil. All units are assumed to have been installed in 1991.

Work Room 102A Duct Free Split System

Work Room 102a is cooled by a Friedrich duct free split system with nominal 3/4 ton cooling capacity consisting of a high wall fan coil unit installed in the room and an air cooled condensing unit installed in the adjacent Storage Room 102. The equipment was installed in 2006.

Maintenance Office 115A Duct Free Split System

Maintenance Office 115A is heated and cooled by an LG duct free split system with nominal 3/4 ton cooling capacity consisting of a high wall fan coil unit installed in the room and a heat pump unit. The equipment was installed in 2015.

MDF 230A Duct Free Split System

MDF 230A is heated and cooled by a Daikin duct free split system with nominal 1 ton cooling capacity consisting of a high wall fan coil unit installed in the room and a heat pump unit. The equipment was installed in 2009.

Music Storage 410A Duct Free Split System & Humidifier

Music Work Room 102a is heated and cooled by a Daikin duct free split system with nominal 3/4 ton cooling capacity consisting of a high wall fan coil unit installed in the room and a heat pump unit in the roof utilizing R410a refrigerant. The equipment was installed in 2009.

The room also has a Nortec Resdelux wall mounted humidifier that was installed in 2009.

Miscellaneous Heating

Many hot water cabinet unit heaters, convectors, and finned tube radiation appear to be original to the area of building they are installed in. Certain rooms have electric baseboard heaters.

Exhaust Fans

The kitchen exhaust fan is a Peerless utility set located on the roof which appears original to the building, thus installed in 1959. There is no bird screen at the outlet of the fan.
Toilet rooms are exhausted by roof mounted exhaust fans. Approximately 10 fans appear to be 30-35 years old.

Abandoned Equipment & Piping
Abandoned steam & steam condensate piping and equipment was observed in the basement. On the roof, there are abandoned condensing units and there appears to be an abandoned air handling unit and ductwork.

Temperature Controls
A existing Building Automation System consists of a Tridium JACE N4.7 with LON & obsolete Barber Colman Network 8000 controllers residing on the new District's Tridium Virtual server.

Revision Recommendations

Central Heating Plant
The Aerco Benchmark 2.0 boiler is 16 years old and should be scheduled for replacement in the next 5 years. The Aerco Benchmark 3.0 boiler is 14 years old and should be scheduled for replacement in the next 7 years.

Central Chilled Water Plant
The (2) McQuay WMC035T indoor water cooled centrifugal chillers located in the basement boiler room are 16 years old and should be scheduled for replacement in the next 14 years.

The Marley 2 cell cooling tower is 16 years old and should be scheduled for replacement in the next 9 years. The (2) ABB variable frequency drives for the cooling tower fans are 16 years old and should be scheduled for replacement in the next 4 years. The (2) ABB variable frequency drives for the condenser water pumps are 16 years old and should be scheduled for replacement in the next 4 years.

Dual Temperature Hot/Chilled Water System
The (2) ABB variable frequency drives for the dual temperature hot/chilled water

pumps are 16 years old and should be scheduled for replacement in the next 4 years.

Cafeteria/Kitchen Air Handling System AHU-1
The Trane CCDB12 single zone constant volume indoor air handling unit serving the Cafeteria is 34 years old and should be scheduled for replacement in the next 6 years.

Offices 221A/223 Air Handling System AHU-2
The Trane CCDB03 constant volume indoor air handling unit located in Prep Room 221B serving Offices 221A/223 is 34 years old and should be scheduled for replacement in the next 6 years.

Office 216 Air Handling System AHU-3
The Trane CCDB03 constant volume indoor air handling unit located in Storage 216A serving Office 216 is 34 years old and should be scheduled for replacement in the next 6 years.

Offices 321A/323 Air Handling System AHU-4
The Trane CCDB03 constant volume indoor air handling unit located in Prep Room 221B serving Offices 321A/323 is 34 years old and should be scheduled for replacement in the next 6 years.

Library Air Handling System AHU-5
The Trane CCCE08 constant volume indoor air handling unit located in Work Room 316 serving the Library is 34 years old and should be scheduled for replacement in the next 6 years.

2000 Science Wing Addition Air Handling System AHU-6
The York BA006 multizone air handling unit located in the basement mechanical room serving the west 2000 Science Wing Ground Floor and Second Floor classrooms is 23 years old and shouldn't need replacement for another 17 years. The (2) Danfoss variable frequency drives serving the supply and return fans are 23 years old, beyond their useful life, and should be scheduled for replacement in the next 2 years.



District Administration Offices Air Handling System AHU-7
The Trane CCDB03 constant volume indoor air handling unit located in Storage 206D serving the interior rooms of the district administration area is 32 years old and should be scheduled for replacement in the next 8 years.

Community Room 206 Air Handling System AHU-8
The Trane CCDB03 constant volume indoor air handling unit located in Mechanical 206A serving the Community Room of the district administration area is 32 years old and should be scheduled for replacement in the next 8 years.

School Administration Offices Air Handling System AHU-9
The Trane LPCAD08 variable volume indoor air handling unit located in Mechanical Room 210A serving the school administration offices is 21 years old and shouldn't need to be replaced for another 19 years. The Yaskawa variable frequency drive serving the supply fan is 21 years old, at the end of its useful life, and should be scheduled for replacement in the next 2 years.

1991 Addition Air Handling System AHU-10
The Webco custom variable volume air handling unit located in the 1999 addition's penthouse serving the 1991 addition areas is 16 years old and shouldn't need to be replaced for another 24 years. The (2) variable frequency drives serving the supply and return fans are 16 years old and should be scheduled for replacement in the next 4 years.

2009 Addition Air Handling System AHU-11
The Trane VCPAID017 variable volume air handling unit located in the addition penthouse serving the 2009 addition areas is 14 years old and shouldn't need to be replaced for another 26 years. The (4) Danfoss variable frequency drives serving the supply and return fans are 14 years old and should be scheduled for replacement in the next 6 years.

The aluminum jacket on the exterior supply and return ductwork exposed on the roof is damaged and allowing water into the insulation. The insulation and aluminum jacket should be removed and replaced with new insulation and a VentureClad 1577CW jacket.

Gymnasium & 1975 South Addition Air Handling System AHU-12

The Trane TCPAID037 variable volume air handling unit located in the south addition penthouse serving the gymnasium and the 1975 south addition is 14 years old and shouldn't need to be replaced for another 26 years. The (4) Danfoss variable frequency drives serving the supply and return fans are 14 years old and should be scheduled for replacement in the next 6 years.

The aluminum jacket on the exterior supply and return ductwork exposed on the roof is damaged and allowing water into the insulation. The insulation and aluminum jacket should be removed and replaced with new insulation and a VentureClad 1577CW jacket.

Orchestra Room Rooftop Unit

The AAON constant volume rooftop unit serving the second floor Orchestra Room just north of the gymnasium is 16 years old and should be scheduled for replacement in the next 4 years. When it is replaced, it should be replaced with a horizontal discharge unit to simplify the ductwork.

The aluminum jacket on the exterior supply and return ductwork exposed on the roof is damaged and allowing water into the insulation. The insulation and aluminum jacket should be removed and replaced with new insulation and a VentureClad 1577CW jacket.

Cafeteria Extension Rooftop Unit

The Trane XL1600 rooftop unit serving the 2 offices at the south side of the cafeteria on either side of the entrance is 18 years old and should be scheduled for replacement in the next 2 years.

Classroom Unit Ventilators

The (43) Trane unit ventilators serving classrooms throughout the building are 34 years old and should be scheduled for replacement in the next 6 years.

Classroom 100 Unit Ventilator

The Carrier 40UVa4 unit ventilator serving Classroom 100 is 22 years old and shouldn't need to be replaced for 18 years.

Woodshop 116 Unit Ventilator
The American Air Filter ceiling suspended unit ventilator serving Woodshop 116 is 16 years old and shouldn't need to be replaced for another 24 years.

District Administration Area Fan Coil Units
The (15) fan coil units serving the perimeter offices in the district administration area on the ground floor as well as 4 offices and a conference room on the second floor are 32 years old and should be scheduled for replacement in the next 8 years.

Work Room 102A Duct Free Split System
The Friedrich duct free split system serving Work Room 102a is 17 years old and should be scheduled for replacement in the next 3 years.

Maintenance Office 115A Duct Free Split System
The LG duct free split system serving the Maintenance Office 115A is 8 years old and should be scheduled for replacement in the next 12 years.

MDF 230A Duct Free Split System
The Daikin duct free split system serving MDF 230A is 14 years old and should be scheduled for replacement in the next 6 years.

Music Storage 410A Duct Free Split System & Humidifier
The Daikin duct free split system serving Music Work Room 102a is 14 years old and should be scheduled for replacement in the next 6 years.

The Nortec Resdelux wall mounted humidifier is 14 years old and should be scheduled for replacement in the next 6 years.

Miscellaneous Heating
Hot water cabinet unit heaters, convectors, and finned tube radiation appear to be original to the area of building they are installed. Units that are 60-64 years old should be replaced if non-functional. Damaged toilet room finned tube radiation covers in these areas should be replaced.

Exhaust Fans

The kitchen exhaust fan is 64 years old and beyond the end if its useful life. Replace fan with an upblast roof exhaust fan with grease trough.

Approximately 10 toilet exhaust fans that are 30-35 years old should be replaced in the next 8 years.

Abandoned Equipment & Piping

We recommend removal of all abandoned steam & steam condensate piping, condensate receiver/pump sets, and roof mounted equipment not currently in use.

Temperature Controls

The existing license for the Tridium JACE should be upgraded to Tridium N4 latest revision. All the obsolete Barber Colman Network 8000 controllers should be replaced with new BACnet compatible controllers. This includes the following equipment: FCU-3 thru 14, FCU-18 thru 22, FCU-31, FCU-37 thru 42, FCU-45, AHU-1, AHU-6 with associated zones, AHU-7, and AHU-8.

PLUMBING

Existing Conditions

Water Services

There are 3 water services to the building.

There is 6" domestic water service entering the building from the west into the maintenance garage. It is routed near the garage floor to basement Mechanical room 115C and back down through the floor and out of the building to the east essentially looping the city mains on the west and east side. Where it is exposed in basement Mechanical room 115C, there is a 3" branch take-off valved on both sides of the main with a 3" water meter installed with no backflow preventer.

There is a 6" water service in the basement Mechanical Room 128 in the 2009 Science addition serving the addition's fire protection system. There is a 6" Watts 709 Double Check Detector installed.

There is a 6" water service in the ground floor Mechanical Room 243A with outside

access serving the 2009 addition's fire protection system. There is a 6" Ames 3000SS Reduced Pressure Zone (RPZ) backflow preventer installed.

Domestic Water Distribution Piping

The domestic water piping appears to be a mix of galvanized and copper piping. The pre-2007 areas of the building appear to be galvanized piping except where toilet room remodeling has occurred. Copper piping has been utilized in the 2007 and 2009 additions and remodeled areas.

Sanitary and Storm

Below grade areas of the building are protected by drain tile on the exterior of foundation wall.

The basement Storage Room 101 has a settling basin and duplex storm pump basin serving drain tile. The pumps are Metropolitan self-priming type and appear to be newer.

The basement Storage Room 109 has a duplex sanitary basin with Weil pumps installed, age unknown.

The basement Boiler Room 117 has a small storm basin with dual submersible pumps near the chillers. There is a leak in one of the discharge pips resulting in water recirculating back into the basin and the pump running excessively. There is also a larger storm basin manufactured by Tramco with 2 pumps, age unknown.

The basement Mechanical Room 128 in the 2007 addition has a storm basin with single Metropolitan self-priming pump as well as a sanitary basin with single Metropolitan self-priming pump. Pumps appear to be original to the addition.

Domestic Water Heaters

There are 3 locations of gas fired domestic water heaters in the building. One is located in the 1991 penthouse in the 1991 addition. It serves the toilet and locker rooms adjacent to the gymnasiums. It consists of 2 tank-type water heaters and an AO Smith 400 gallon vertical storage tank manufactured in 1991. One of the heaters is an AO Smith BTP-199A manufactured in 1991 with 199,000 BTUH input and 86 gallons of storage. The other is an AO Smith BTR-180 manufactured in 2011 with 180,000 BTUH input and 81 gallons of storage. There are 2 recirculation pumps on

the system, but no expansion tank is installed.

The second is located in the basement Boiler Room 117 assumed to be serving the toilet rooms in the 3-story classroom wing. The water heater is a Rheem-Ruud G50-98 manufactured in 2011 with 98,000 BTUH input and 50 gallons of storage. There is a recirculation pump, but no expansion tank installed.

The third is located in the basement Mechanical Room 115C assumed to be serving the kitchen and the toilet rooms in the athletic areas in the south wing of the original building. The water heater is an AO Smith BTR-197-118 manufactured in 2020 with 199,000 BTUH input and 100 gallons of storage. There are 2 recirculation pumps, but no expansion tank is installed.

Plumbing Fixtures

Public toilet room plumbing fixtures are commercial quality fixtures in good condition. Toilet rooms in the 3-story classroom wing have a mix of wall hung and floor mounted water closets, some with sensor operated flush valves and others with manual flush valves. Urinals are wall hung with sensor operated flush valves. Lavatories are wall hung with metering faucets in older toilet rooms and integral solid surface bowl with metering faucets in renovated toilet rooms. Classroom sinks are stainless steel. Mixing valves were not observed at any lavatories or classroom sinks.

Some toilet rooms in the 3 story classroom wing are located on the stair landing and are not accessible. Old china drinking fountains are outside these toilet rooms.

The kitchen has 2 triple compartment sinks, both are connected directly to sanitary piping. The dishwasher is connected directly to sanitary. An RPZ backflow preventer has been installed at the triple compartment pot washing sink. Some floor drains in the walking path are missing grates.

Showers in the locker rooms appear to be unused. A Lawler model 802 master mixing valve tempers water to the showers. Shower drains are not spaced to prevent water from one bather from passing over feet of another bather which is against current code.

There are a number of janitor closet mop basins that have splitters with shut-off valves for chemical dispensing.

At Art Room 118 there are 2 triple compartment sink which have no plaster traps.

Science lab sinks have acid dilution traps.

Science labs are equipped with a combination emergency shower/eyewash.

Electrical Room 107 has a hose bib with no vacuum breaker and hose attached.

Electric water coolers are wall mounted, some have been recently replaced which include bottle fillers.

Revision Recommendations

There is no backflow preventer on the 3" domestic water service serving the building. Provide a Reduced Pressure Zone type backflow preventer and add expansion tanks to the domestic water heaters only if required by the village.

The insulation on the exposed 6" water main routed through the garage into basement Mechanical Room 115C is damaged. Replace insulation and provide with protective PVC jacket.

Galvanized water piping in the older areas of the building is beyond its useful life and should be replaced with copper piping.

Repair leak in small storm sump pump near chillers in basement Boiler Room 117 to prevent pump from running excessively.

The (2) domestic water heaters and 400 gallon storage tank in the penthouse of the 1991 addition serving the athletic toilets and locker rooms are likely oversized if the showers are not utilized. One of the AO Smith water heaters is 32 years old, well beyond its useful life and should be replaced in the next 2 years. The other AO Smith water heater is 12 years old and should be scheduled for replacement in the next 3 years. The storage tank is 32 years old and should be scheduled for replacement in the next 8 years. If the showers are not utilized, the storage tank

and one of the heaters can be eliminated.

The Rheem-Ruud domestic water heater located in the basement Boiler Room 117 assumed to be serving the toilet rooms in the 3-story classroom wing is 12 years old and should be scheduled for replacement in the next 3 years.

The AO Smith domestic water heater located in the basement Mechanical Room 115C assumed to be serving the kitchen and the toilet rooms in the athletic areas in the south wing of the original building is 3 years old and should be scheduled for replacement in the next 12 years.

Thermostatic mixing valves are not provided at lavatories and sinks throughout the building. Provide thermostatic mixing valves at all lavatories to prevent water temperature from exceeding 110 degrees.

Both triple compartment sinks at the kitchen are directly connected to sanitary piping and should be provided with floor sinks with sanitary routed to over the floor sink with an air gap.

Provide grates where missing at kitchen floor drains in the walking path.

Existing janitors closets and service sinks should have splitter removed from faucet to prevent cross connection.

Existing janitor closets and service sinks should not have chemical soap system directly connected to the service sink faucet per IDPH and Illinois Plumbing Code Cross Connection requirements. An independent water connection and RPZ backflow preventer should be provided at all chemical soap systems.

Provide a screw-on vacuum breaker at hose bib in basement Electrical Room 107.

FIRE PROTECTION

Existing Conditions

There are 2 fire sprinkler systems in the building.

The 2007 Science Wing is protected by sprinkler system. There is a 6" water service in the basement Mechanical 128 serving the fire protection system. There is a 6" Watts 709 Double Check Detector installed. There are 3 separate risers, one for the basement, one for the ground floor and one for the second floor. The fire department connection is a siamese type located on the west wall with alarm bell and visual notification.

The 2009 addition is protected by a sprinkler system. There is a 6" water service in ground floor Mechanical 243A room with outside access serving the fire protection system. There is a 6" Ames 3000SS RPZ backflow preventer installed. There are 2 separate zones, one for the ground floor and one for the second floor. The fire department connection is a Storz type located on the east wall with alarm bell and visual notification.

Revision Recommendations

The fire protection system does not protect the entire building. If desired, extend the sprinkler system to serve the entire building.

ELECTRICAL

Existing Conditions

Electrical Service

The main electrical service is fed from a pad mounted utility transformer located at the east side of the building. The service entrance conductors are routed underground to an indoor service entrance switchboard located in the boiler room. The switchboard has an integral utility metering compartment. The switchboard is rated at 2000A and operates at 208/120V 3 phase, 4 wire.

The main service switchboard is has a main breaker and is of circuit breaker construction. The switchboard was manufactured by Eaton. There is limited space for additional breakers to serve future loads. The switchboard is in good condition.

Electrical Power Distribution

Electrical distribution consists of distribution panels and branch circuit panelboards located throughout the building. In most cases, the panels are grouped in

strategic locations. The majority of panels are in good or fair condition. There are a few locations where panelboards have working clearance violations.

An outdoor, natural-gas generator is installed at grade on the east side of the building. It feeds a Generac transfer switch located in the basement electrical room. The transfer switch appears to serve branch circuit panels. The generator appears in good condition. It is rated 60kW at 208/120V-3Ph and is manufactured by Generac. The panels appear to serve some lighting and other select loads in the building. The generator is a smaller unit and likely has no additional capacity for additional loads.

Lighting

There are varying styles of luminaires inside the building including lay-in troffers, strip lights, recessed round downlights, suspended/recessed linear lights, decorative pendants, etc. The majority of the lighting is fluorescent, there are a few rooms where LED fixtures have been installed. The District is in process of an LED lighting retrofit project for the remaining fluorescent fixtures. Overall, the interior lighting appears to be in good condition and provides adequate light levels throughout the building.

Exterior lights are installed around the outside of the building including wall packs, decorative lights, and parking lot poles. The majority of exterior lighting has HID sources. Exterior lighting is controlled by a relay panel or time clock. The exterior lights appear to be in fair condition.

Exit signs and emergency lighting appears to be adequately provided throughout the building. A mixture of integral battery units and generator backed circuits are used as the emergency power source for the exit signs and emergency lighting. There are a few locations where existing exit signs and emergency lights are non-functional or missing. There are some older incandescent exit signs that are in need of replacement.

Fire Alarm System

The building has audio/visual notification devices that are tied to a control panel located in the main main mechanical room. Notification coverage is not full, but appears to be compliant with the codes in effect at the time of construction for each area of the building. Smoke detectors or manual pull stations were

observed and while detection coverage is not full, it appears to be compliant with the codes in effect at the time of construction for each area of the building. The fire alarm control panel is manufactured by Silent Knight and is an addressable IFP-1000 series. The system appears to be in fair condition, but this particular control panel has been discontinued by the manufacturer.

Telecommunication System

The main communication rack is located in Storage 216. There are small IDF's throughout the building. The horizontal structured cabling is CAT6. The system appears to be functional and in good condition.

The existing school intercom system is a Valcom Class Connect. This system is currently still in production and supported by the manufacturer.

Revision Recommendations

Thermal imaging service is recommended at all electrical equipment to ensure all connections are secure and properly terminated.

Relocate panelboards with working clearance violations.

There are a limited number of open junction boxes that require covers.

Replace existing plug-in extension cord reels with hardwired industrial cord reels.

Remove existing track lighting being used to power receptacles.

Provide additional pull stations and notification devices where they are missing.

Replace non-functional and antiquated exit signs and provide additional emergency lights where required.

Replace existing fire alarm system and upgrade to Voice Evacuation based system, providing additional notification coverage.

Northbrook School District 28

Door Hardware Summary

Purpose

Allegion visited the schools in April 2023 and summarized the door hardware at the four Northbrook School District 28 schools. Code references are included below for issues seen regularly.



Observed Items

The 2018 Illinois Accessibility Code section 309.4 states, "Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5 pounds (22.2N) maximum." This code requires the district to replace the door knobs (where installed) should be replaced with levers whenever possible.

The 2018 Illinois Accessibility Code Section 404.2.8.1 states that doors with closers "shall be adjusted so that from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum." The same code states in Section 404.2.9 that exterior hinged doors and gates have a pushing force of 8.5 pounds. This requirement does not include the force to press the push pad on an exit device. Most of the doors tested closed too fast.

The 2018 International Fire Code 705.2 states, "Opening protectives in fire-resistance-rated assemblies shall be inspected and maintained per NFPA 80." NFPA 80 is freely available for online viewing at NFPA.org. All the fire door assemblies reviewed by Allegion had issues that would fail an inspection. Allegion does offer training on performing these inspections.

Most perimeter doors can be "dogged" open using a hex key. Being able to "dog" the hardware open is not ideal, as anyone can "dog" the doors with the appropriately sized hex wrench. Alternatives include flipping the cover on the exit devices, changing the dogging to a key cylinder, or electrified retraction.



A few areas had material stored so that the path of egress was obstructed, and one or more doors were rendered unusable. NFPA 101 Life Safety Coder Section 7.1.3.2.3 states, "An exit enclosure shall not be used for any purpose that has the potential to interfere with its use as an exit and, if so designated, as an area of refuge."

Most door closers were missing the 5th screw on the header. These are needed to prolong the closer's useful life and prevent damage to the doors. These adapters can be installed at any time.

SECTION 10
PAVEMENT ANALYSIS EXHIBIT
GREENBRIAR ELEMENTARY

ADA Signs missing.
Code requires 3 ADA spaces, but only 2 are striped.

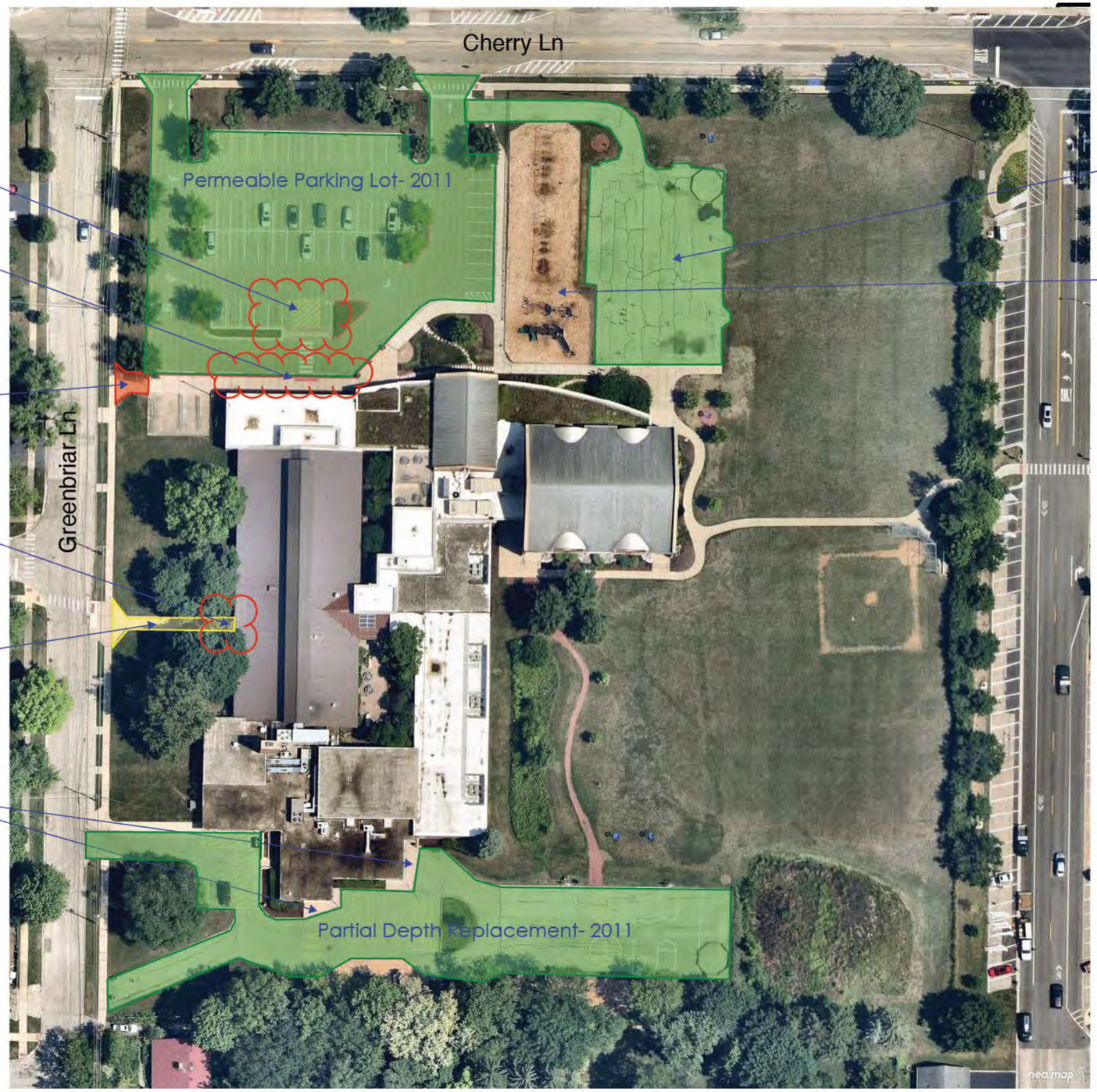
Large lip at Curb, ADA route not compliant. Appears to be settlement of pavers. Remove and reset.

Sidewalks are trip hazards, to be replaced.

Doorway threshold appears not to be ADA compliant, remove and replace stoop.

Main pedestrian sidewalk in fair condition with scattered broken panels

Both entrances to hardscape play do not meet ADA compliant route. Consider adding ADA ramp at one of the entrances.



Good condition and structurally acceptable for plan area with limited traffic.

Playground does not have ADA compliant access. Provide ramp into mulch area and/or replace with ADA compliant flush surface to hardscape area.

All 3 playground areas do not have ADA ramps and/or ADA path access. Add sidewalk and ramp into mulch (or replace mulch w/ ADA compliant flush surface)

PAVEMENT ANALYSIS - GREENBRIAR

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SECTION 10
PAVEMENT ANALYSIS EXHIBIT
MEADOWBROOK ELEMENTARY



Erosion/drainage issues, to be repaired and improved.

Playground does not have ADA access. Provide ramp into mulch area and/or replace with ADA compliant flush surface to hardscape area.

No ADA compliant access, Provide ramp into mulch area and/or replace with ADA compliant flush surface to hardscape area.

Entrance stoop is cracked and needs to be replaced.

Heaved sidewalk causing a trip hazard near the bench to be replaced.

Parking lot requires 4 ADA spaces. To be restriped and ADA signs installed.

Sidewalk has heaved causing cross slope to not meet ADA requirements, to be replaced.

PAVEMENT ANALYSIS - MEADOWBROOK

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WESTMOOR ELEMENTARY

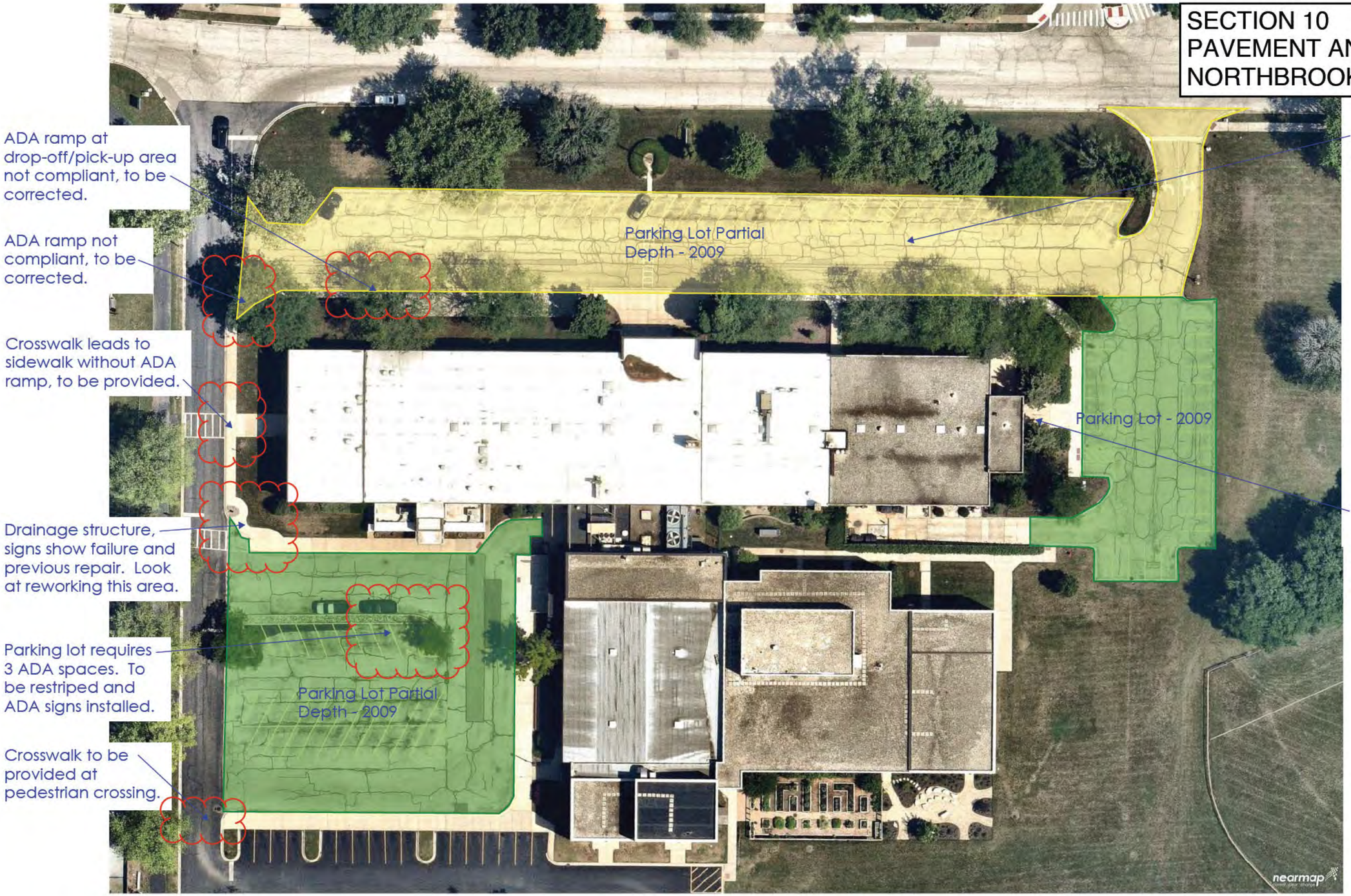


PAVEMENT ANALYSIS - WESTMOOR

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NORTHBROOK JUNIOR HIGH



PAVEMENT ANALYSIS - NORTHBROOK JUNIOR HIGH

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Roofing Inventory Inspection Report

Northbrook District 28
1600 Walters Ave. Northbrook, IL






Prepared for:
Joel Gallegos
Director of Buildings and Grounds
Northbrook District 28
1475 Maple Ave.
Northbrook, IL 60062

Prepared by:
John McCafferty, CSI, CDT
Brian Tow, CSI, CDT
Tremco Roofing and Building Maintenance

July 16, 2020

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TREMCO

Joel Gallegos
Director of Buildings and Grounds
Northbrook District 28
1475 Maple Ave.
Northbrook, IL 60062

July 16, 2020

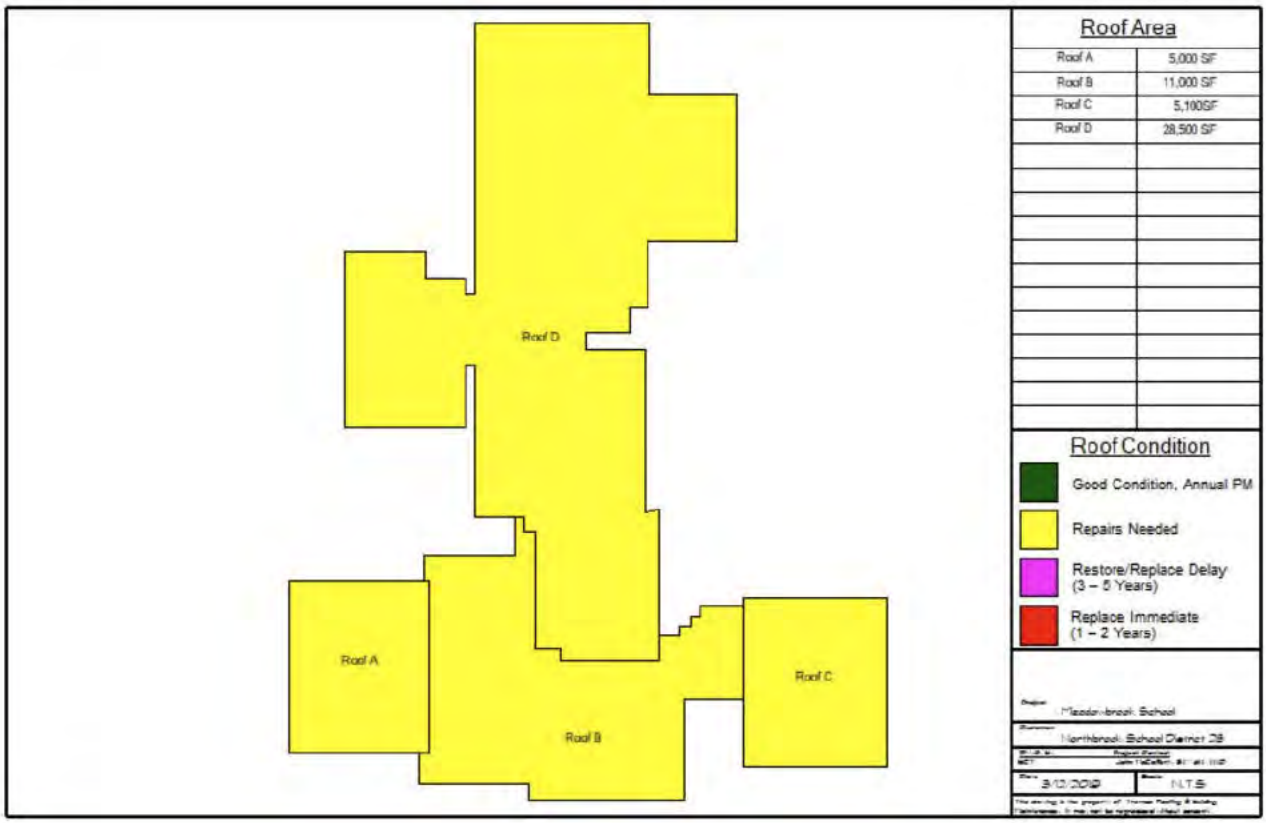
RE: Northbrook School District 28 Roofing Inventory Inspection Report

Mr. Gallegos,
An analysis of the Districts four (4) schools was conducted on the roofing systems and related components. The purpose was to determine the overall condition and provide recommendations for maximizing service life. The individual school results are as follows, see roof plans and photos as reference.

Meadowbrook School

Rationale:
The current construction is a sprayed in place polyurethane foam roof. This system consists of a urethane sprayed to an existing roof system with then a membrane coating and a surface aggregate applied to complete the application.

Key Plan:

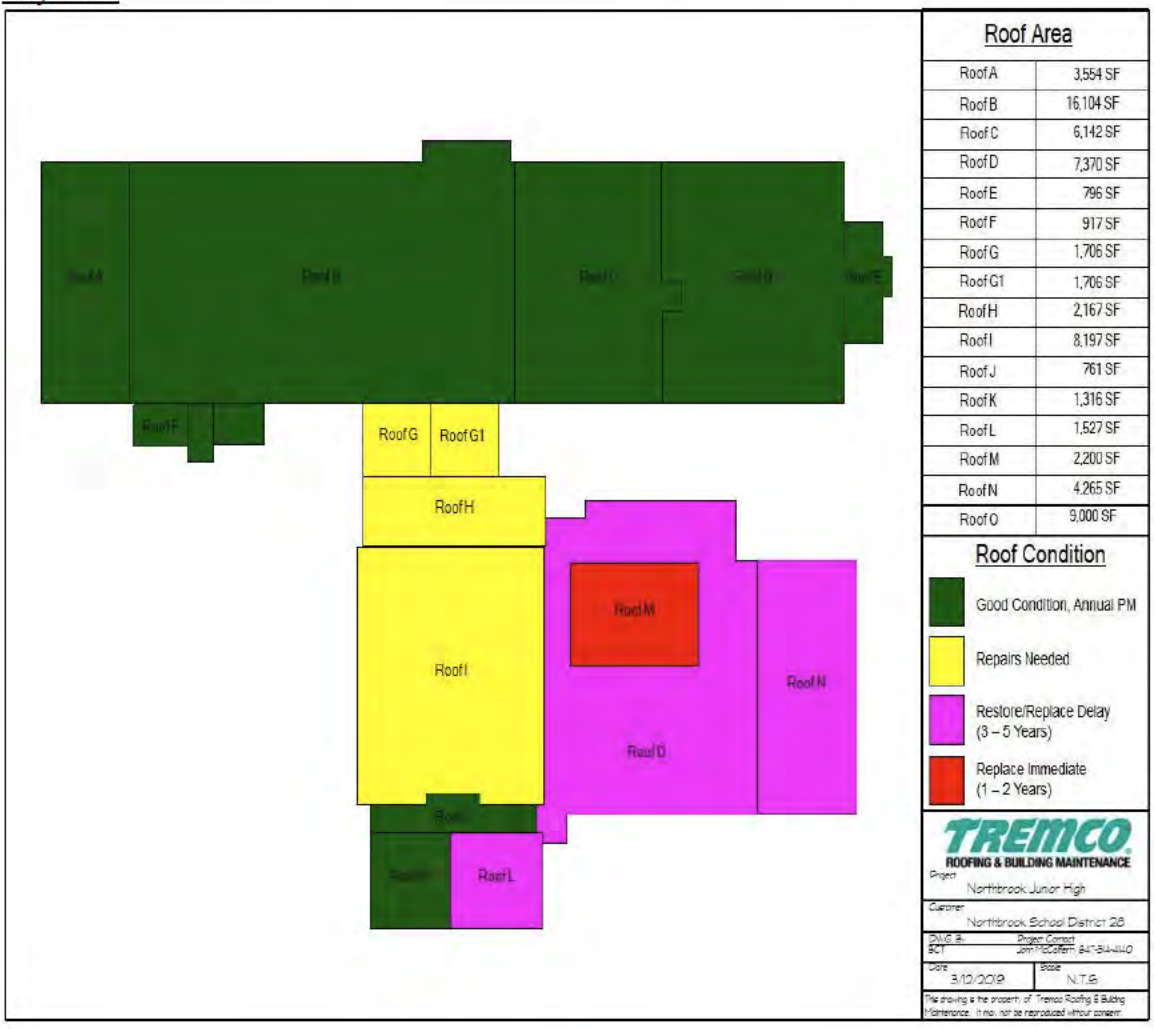


NORTHBROOK JUNIOR HIGH

Rationale:

The current construction of the existing roof areas consists of fully adhered and ballasted EPDM membranes which are the predominant systems on this school. There also is a modified bitumen roof system on a large gymnasium section. One ballasted roof area, Roof M, has an installation date extending back to 1992 and is experiencing significant shrinkage and trapped water around a roof drain. On the south perimeter of Roof Area M, the freeze/thaw cycling caused the brick to fracture behind the flashing membrane. There are approximately five (5) active roof leaks noted on multiple roof sections and apparently more subtle leaks contained within the walls and stone coping system. A common and consistent problem with the south roof areas is the failure of the stone coping joints. As a whole, the joints, both mortar and caulking have failed and created a widespread problem that needs to be addressed in the near future. This has resulted in deterioration of the coping bed joints on Roof Areas L, M, N, & O. Water is infiltrating through the wall and creating interior leaks and masonry damage.

Key Plan:

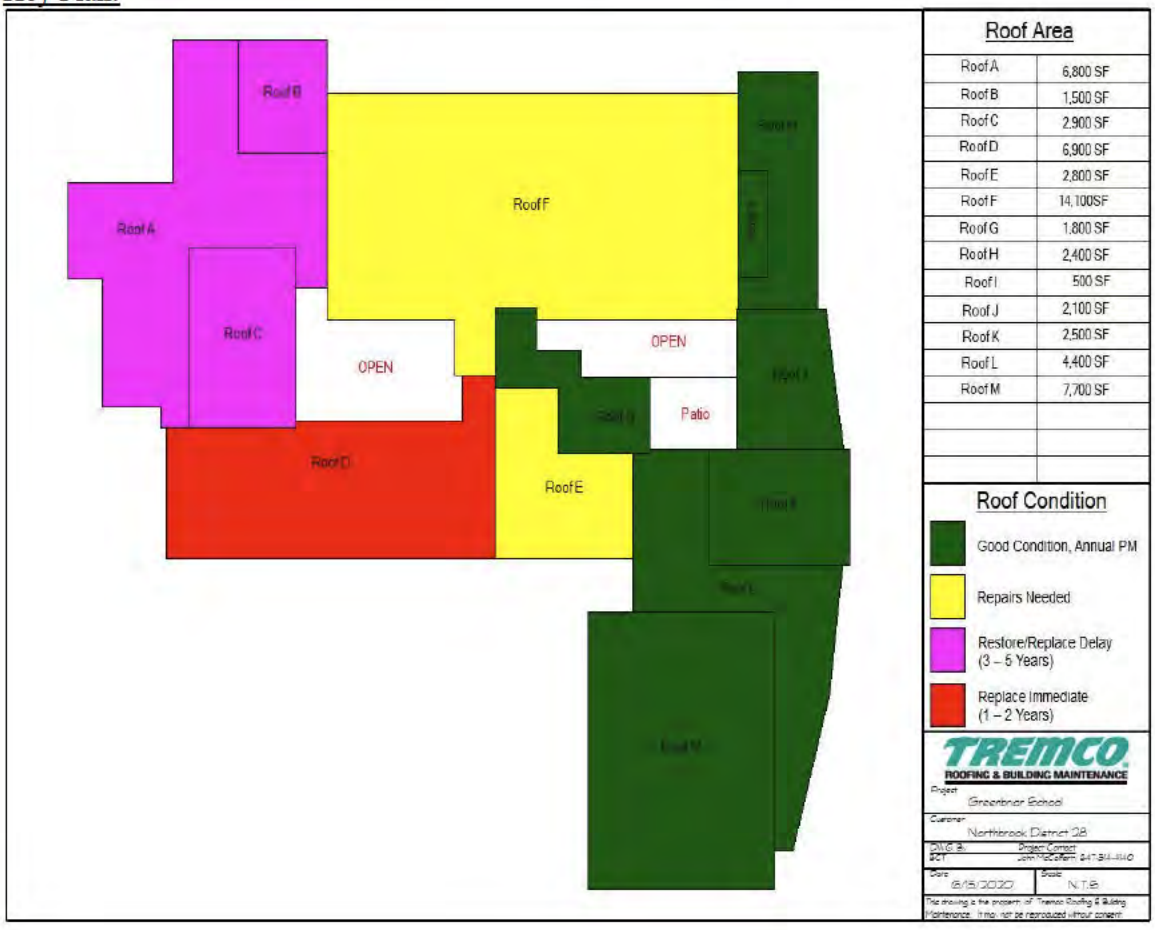


GREENBRIAR SCHOOL

Rationale:

The current construction of the existing school roof areas consists of a variety of systems. The original membrane systems on Roof Areas A, B, C, & D consist of gravel coal tar built-up roofing systems with an estimated age of over 35 years. These roofs have widespread membrane ridging, felt slippage and open blisters. Perimeter edge details have moved over the years resulting in areas of fragile and ridged flashings. These roofs are in serious to critical condition with one (1) reported leak. A large building area received a new metal roof in approximately 2002 which is showing wear and deterioration, especially on the details. A school expansion took place in approximately 2011 to the north and east of the original building. These roofs consist of a white thermoplastic membrane with some areas covered with ballast and others with vegetative planter trays. One area which appears to be part of this expansion was ballasted and is showing signs of membrane shrinkage which has pulled the perimeter flashings from the wall. This should be monitored for changes in condition and repaired if the condition worsens.

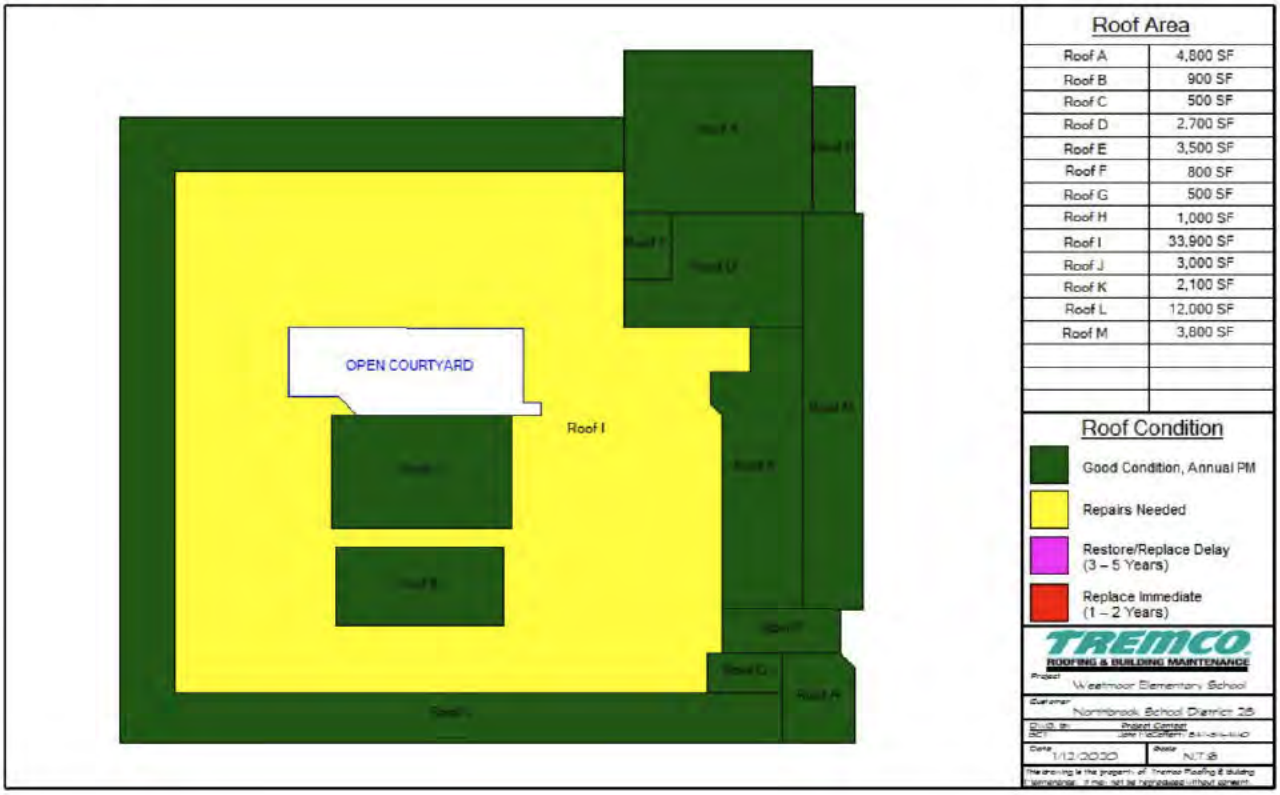
Key Plan:



WESTMOOR SCHOOL

Rationale:
The current construction of the school consists of an outer band of asphalt shingles spotted with flat sections of white thermoplastic membrane used to support the vegetative planter trays. The majority of the school consists of a white acrylic coated modified bitumen membrane. All areas appear to have been installed/replaced in 2014. This modified membrane area is reported to have 3 active roof leaks.

Key Plan:



Recommendations:

Meadowbrook Elementary School:
Overall, the roofing systems appears to be performing as intended. A review of the overall area did note several repair areas previously addressed and several more areas that are in immediate need of repair. These areas should be repaired to prevent further water infiltration into the system which can lead to larger costlier repairs. Additional areas of concern include masonry tuckpointing on the chimney. Moisture has penetrated the brick joints and has left pieces of mortar on the roof. A thorough inspection of the brick and chimney cap should take place and be repaired as needed. Recommend performing annual preventive maintenance and monitoring for changes in condition.

Northbrook Junior High:
Overall, the majority of the roofing systems are newer and appear to be performing as intended. Thorough investigations for each of the roof leaks should take place followed by completing the appropriate repairs. Repairs should also be completed for any visible defects including open fish mouths and to perimeter flashings where severely bridged. The water should be removed from the drain sump then compete repairs to the open seam edges. Repairs should be made to the coping bed joints on Roof Areas L, M, N, & O. A cap with a waterproofing underlayment should be installed over the copings to provide a maintenance free solution to the moisture infiltration through the porous coping cap stones and joints prior to the next winter cycle. Recommend performing annual preventive maintenance and monitoring for changes in condition.

Greenbriar Elementary School:
Overall, the majority of the roofing systems are performing as designed. Roof areas A, B, C, & D have aged and are in poor condition. Repairs should be completed for any visible defects including open blisters, pipe seals and gravel edges. Replacement should be a priority for Roof Section D, the area with severe blistering and open ridges in 2021. Recommend performing annual preventive maintenance and monitoring for changes in condition.

Westmoor Elementary School:
Overall, the roofing systems are in good condition and appear to be performing as intended. Leak investigations should take place followed by performing the appropriate repairs for each of the sources. Recommend performing annual preventive maintenance and monitoring for changes in condition.

Below are the scope and cost for repairs and preventive maintenance at the four district schools and the District Office.

Northbrook Junior High:
Investigate and repair 5 roof leaks.
Roof Area M - remove water from behind membrane around drain assembly.

Greenbriar Elementary:
Investigate and repair 1 roof leak.

Westmoor Elementary:
Investigate and repair 3 roof leaks.

All 4 District Schools:
Annual Preventive Maintenance and Housekeeping Scope of Work:

- Debris:
  - Remove and properly dispose of all debris from the roof surfaces, drains, gutters, and scuppers. Obsolete equipment and construction debris will be brought to your attention.
- Flashing & Details:
  - Repair flashing defects and kick holes
  - Reinforce flashing laps

- Seal open metal edge laps
- Reinforce tie-ins
- Seal open coping joints
- Seal expansion joint laps
- Re-fill pitch pans
- Seal storm collars

➢ Membrane:
- Repair minor splits, tears and breaks in the membrane. If extensive, note for remedy.
- Repair minor membrane blisters or those in danger of fracture due to traffic.

➢ Drains, Gutters and Scuppers:
- Tighten drain bolts and clamping rings (if possible), advise owner of missing drain strainers.
- Repair strip-in around drain leads.
- Seal open gutter joints
- Seal open joints in scuppers

➢ All repairs performed during the inspection will be minor and preventive; any additional repairs that may be recommended will be outlined in the report along with a budget amount for each item as listed below.

* All repair areas will be prepped, cleaned, and primed according to product specifications.
* All construction related debris will be removed from the rooftop and placed in the on-site dumpsters, provided by others.

Cost:
The outlined leak repairs, preventive maintenance, and housekeeping will be performed including all labor, materials, equipment, and insurance not to exceed: $14,470.00.

Roofing System Replacement Budgets:
Replacement budget figure represent complete removal of the existing roofing systems to the structural deck and replacement with a new system meeting current energy codes. Further investigation of the condition of the parapet wall at Roof Area D is necessary to determine the extent of the necessary repair. Recommend monitoring for changes in conditions and performance and adjusting replacement work accordingly.

2021
Northbrook Junior High Roof Area M
Greenbriar Elementary Roof Area D
Budget - $280,000

Our methodology in roofing and weatherproofing is a life-cycle approach. Each project is unique in that it has its own characteristics and conditions in need of attention. Proper investigation of the causes of conditions affecting performance and determination of proper solutions is necessary to ensure a successful result.

Thank you for the opportunity to be of service to you and Northbrook District 28. Please call with questions.

Sincerely,



John McCafferty, CSI, CDT
Tremco Incorporated

NORTHBROOK JUNIOR HIGH



Overview of a Ballasted roof installed in 1992.



Overview of south wall with freeze/thaw damage to brick under membrane flashing.



View of roof drain with a large amount of trapped water in the drain sump.



Isolated blisters in wall flashings.



Overview of the leak location at scupper area.



Typical open masonry mortar joints.



Damage to the mortar bed due to water infiltration at the stone joints.
(Note the staining on the stone)



Open joints at the through wall metal flashings.



Open joints at the through wall metal flashings.



Open joints at the cap wall metal flashings.



Failed joint sealant and deteriorated backer rod throughout the roof area.



Deteriorated coping bed joint.



Current leak location.



Overview of several roof areas.





Overview of several roof areas including the white EPDM roof installed in 2013.

GREENBRIAR ELEMENTARY SCHOOL



A view of a pitch pocket and adjoining area at a leak location.



Perimeter edge movement resulting in ridged and split flashings.



A view of the tar boils of the aged roof surface. This is caused by the oxidizing of the coal tar pitch material where it become brittle losing its adhesive and waterproofing properties.



Overview of Roof Area D with widespread ridging and exposed felts.



A close-up view of the open and slipped membrane plies.



Membrane bridging along the perimeter flashings on Roof Area E as a result of the membrane material shrinkage.



An overview of the metal roof area.



Open and deteriorated soil vent on metal roof.



An overview of the ballasted Thermoset membrane.



An overview of the adhered Thermoset membrane.



An overview of the adhered Thermoset membrane with vegetative planter trays.

MEADOWBROOK ELEMENTARY SCHOOL



Overview of the sprayed in place polyurethane foam roof.



Numerous holes in the roof membrane.



Widespread repairs with vegetative debris on roof surface.



Numerous holes in the roof membrane.



Widespread masonry mortar failure.



Widespread masonry mortar failure.



Widespread masonry mortar failure.



Active mortar falling on roof.

WESTMOOR ELEMENTARY SCHOOL



An overview of the main modified bitumen roof area.



A general overview of one (1) leak area in the modified bitumen roof area.



A current leak location at the corner of the library.



An overview of the shingle to modified bitumen area.



An overview of the vegetative planters on the outer edges of the shingled roof.



A view along the north side of the library roof with poor drainage.

Westmoor & Greenbriar Elementary School
Roofing Systems Inspection Report






Prepared for:
Joel Gallegos
Director of Buildings and Grounds
Northbrook District 28
1475 Maple Ave.
Northbrook, IL 60062

Prepared by:
John McCafferty, CSI, CDT
Brian Tow, CSI, CDT
Tremco Roofing and Building Maintenance

October 12, 2023

Building Life. Managed.
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TREMCO

Joel Gallegos
Director of Buildings and Grounds
Northbrook District 28
1475 Maple Ave.
Northbrook, IL 60062

October 12, 2023

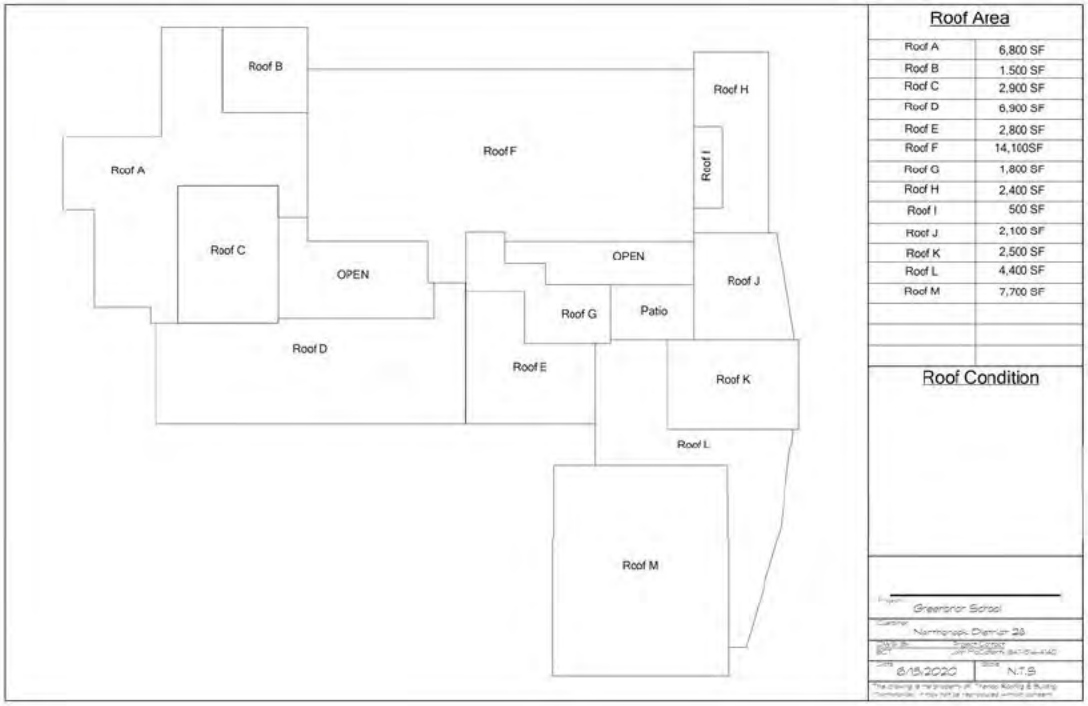
RE: Westmoor & Greenbriar Roof Inspection Report

Mr. Gallegos,
At your request, inspections of Greenbriar Roof Areas A, B, & C and the entire Westmoor School were conducted. The purpose was to determine the overall condition and provide recommendations for maximizing service life. The individual school results are as follows, see roof plans and photos as reference.

Greenbriar Elementary School Roof Areas A, B, & C:

Roof Areas A, B, & C consist of gravel coal tar built-up roofing systems with an estimated age of over 35 years. The built-up membrane is very brittle due to oxidation of the coal tar pitch material.and is blistering in areas. Perimeter edge detail is deteriorating and is collapsing in areas, see attached photos. These roofs remain in serious to critical condition.

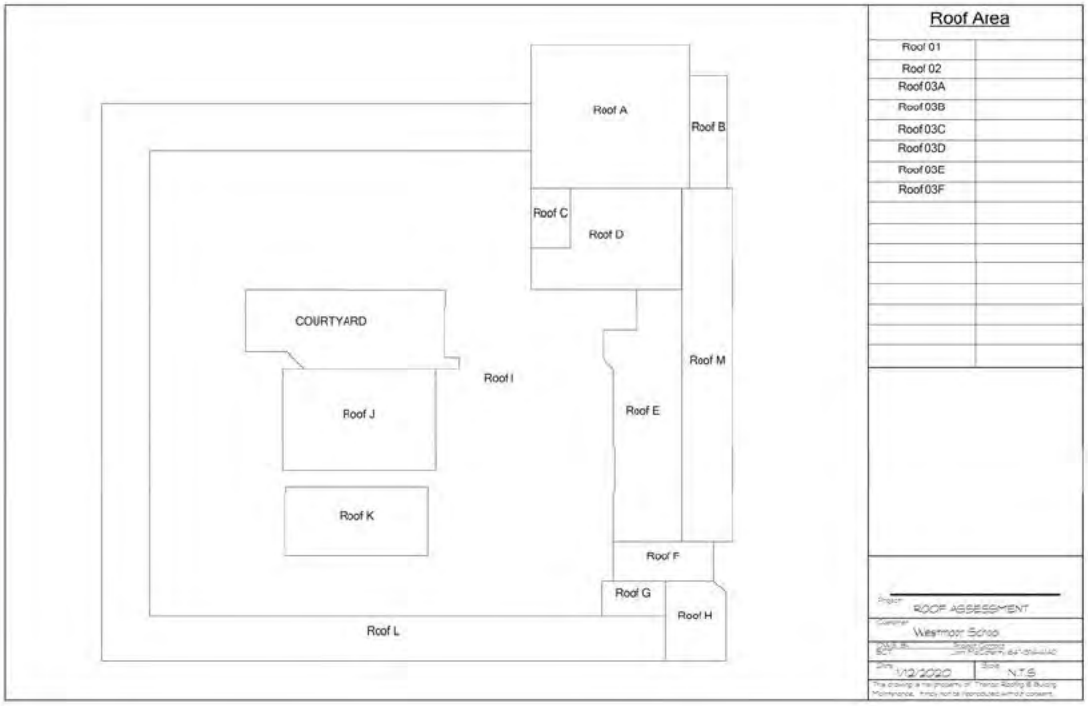
Roof Plan:



Westmoor Elementary School

The current roofing system construction consists of an outer band of asphalt shingles spotted with flat sections of white thermoplastic membrane used to support the vegetative planter trays. The majority of the school consists of a white acrylic coated modified bitumen membrane.

Roof Plan:



Recommendations:

Greenbriar Elementary School:
Roof areas A, B, & C continue to be in poor condition. The built-up membrane is very brittle due to oxidation of the coal tar pitch material. Repairs should be completed for any visible membrane and flashing defects. Recommend performing annual preventive maintenance and budgeting for replacement in 2024.

Westmoor Elementary School:
Overall, the roofing systems are in fair condition. Several areas of the coated modified bitumen were found to hold water. Some areas felt sponge possibly indicating the insulation is wet. A moisture survey is recommended to determine if any of the insulation is wet. The roofing system is a good candidate for Restoration. Restoration typically costs less than 50% of the cost of replacement without the disruption of roof removal and comes with a 20-year warranty. See included information on restoration. I also recommend performing annual preventive maintenance and monitoring for changes in condition.

Below is the scope and cost for preventive maintenance at the four district schools.

All 4 District Schools:
Annual Preventive Maintenance and Housekeeping Scope of Work:

- Debris:
  - Remove and properly dispose of all debris from the roof surfaces, drains, gutters, and scuppers. Obsolete equipment and construction debris will be brought to your attention.
- Flashing & Details:
  - Repair flashing defects and kick holes.
  - Reinforce flashing laps.
  - Seal open metal edge laps.
  - Reinforce tie-ins.
  - Seal open coping joints.
  - Seal expansion joint laps.
  - Re-fill pitch pans.
  - Seal storm collars.
- Membrane:
  - Repair minor splits, tears and breaks in the membrane. If extensive, note for remedy.
  - Repair minor membrane blisters or those in danger of fracture due to traffic.
- Drains, Gutters, and Scuppers:
  - Tighten drain bolts and clamping rings (if possible), advise owner of missing drain strainers.
  - Repair strip-in around drain leads.
  - Seal open gutter joints.
  - Seal open joints in scuppers.
- All repairs performed during the inspection will be minor and preventive; any additional repairs that may be recommended will be outlined in the report along with a budget amount for each item as listed below.

* All repair areas will be prepped, cleaned, and primed according to product specifications.
* All construction related debris will be removed from the rooftop and placed in an on-site dumpster, provided by others.

Cost:
The cost to perform preventive maintenance and housekeeping including all labor, materials, equipment, and insurance not to exceed as follows.

Northbrook Junior High: $4,015.00

Greenbriar Elementary: $4,015.00

Westmoor Elementary: $4,015.00

Meadowbrook Elementary: $4,015.00

Roofing System Replacement Budgets:
The replacement budget figure represents complete removal of the existing roofing systems to the structural deck and replacement with a new system meeting current energy codes. The budgets do not include architectural or engineering fees unless run through the OMNIA Partners Cooperative Contract. Recommend monitoring for changes in conditions and performance and adjusting replacement work accordingly.

OMNIA Partners Cooperative Contracts
Tremco is an OMNIA Partner. OMNIA Partners, Public Sector is a nationwide cooperative purchasing network reflecting the buying power of 87,000+ public agency participants across the country. OMNIA Partners, Public Sector provides a robust portfolio of cooperative contracts publicly awarded and competitively solicited by lead agencies throughout the country.
And because contracts are awarded to nationally recognized industry leaders (like Tremco), participants not only benefit from the efficiencies of a nationwide contract, they can be certain products and services meet the highest standards of quality and reliability. Participation also requires no fees or minimums. See attached information.

2024
Greenbriar Elementary Roof Areas A, B, &C.
Budget - $685,000

Our methodology in roofing and weatherproofing is a life-cycle approach. Each project is unique in that it has its own characteristics and conditions in need of attention. Proper investigation of the causes of conditions affecting performance and determination of proper solutions is necessary to ensure a successful result.

Thank you for the opportunity to be of service to you and Northbrook District 28. Please call with questions.

Sincerely,

John McCafferty, CSI, CDT
Tremco Incorporated

Overviews of Westmoor Roof Areas A, B, & C:








DAIKIN

Deteriorating Perimeter Flashing:





Overviews of Westmoor School Coated Modified Bitumen Roof Areas:





Dark areas on the membrane indicate ponding conditions.





Ponding areas continued:









Membrane laps and seams are showing signs of deterioration.





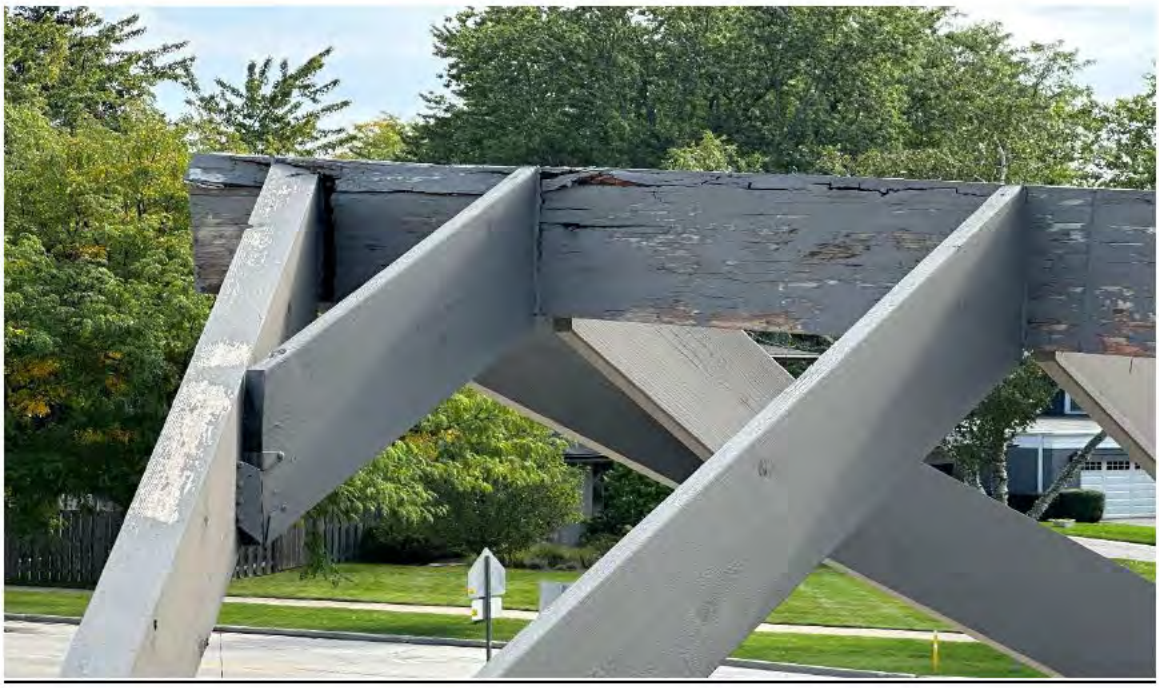
Wood canopies over Entrance A and D are showing signs of deterioration.





These should be repaired as they appear to be unstable.

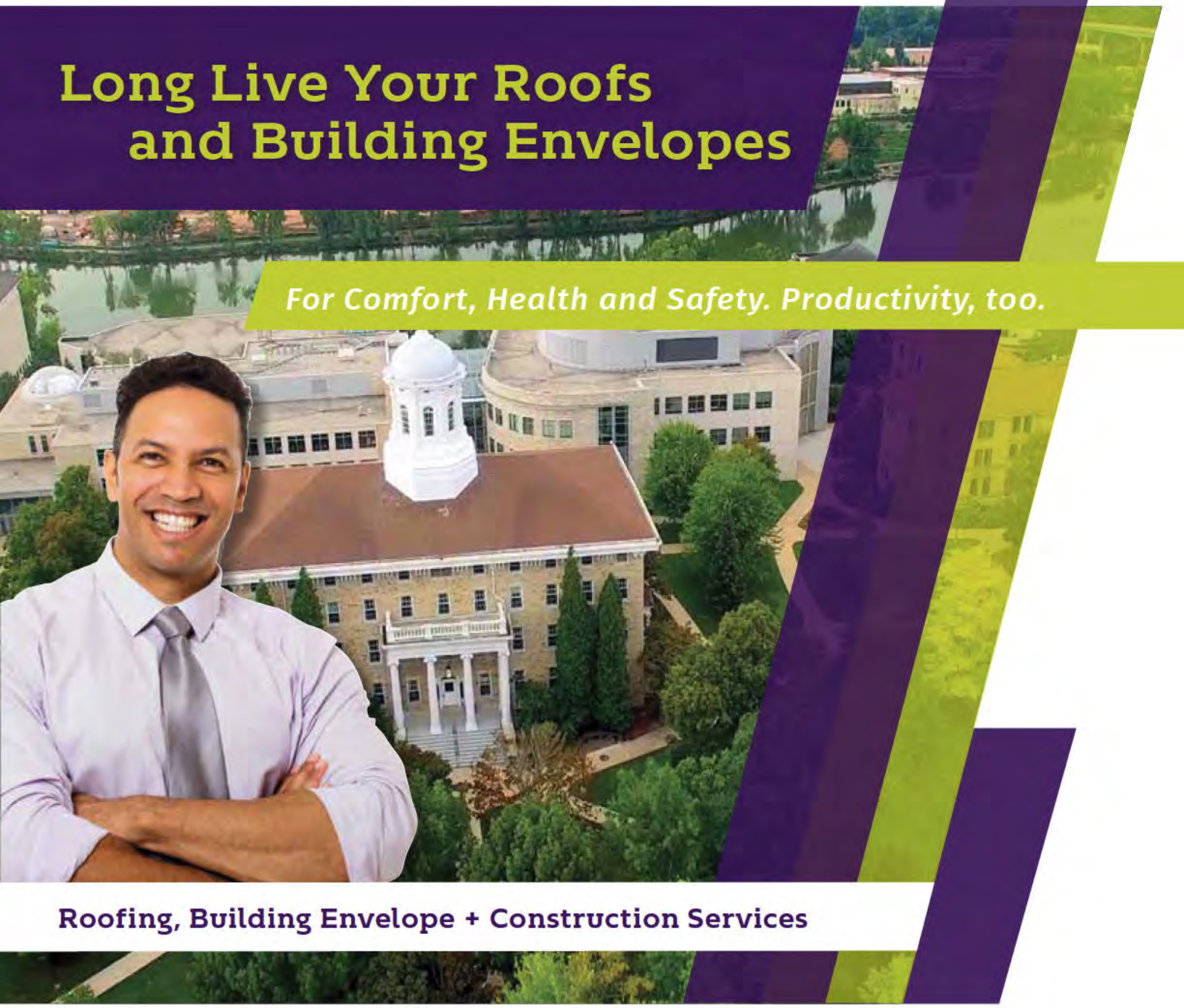








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As an industry leader since 1928, Tremco Roofing and Building Maintenance offers a breadth and depth of roofing systems for every environment and the technical know-how to solve our customers' biggest problems. And because our affiliated construction services company WTI* offers turnkey maintenance, repair, roof management and general contracting services for the entire building envelope, we have the unique ability to provide a total solution to maximize building performance and our customers' return on investment.

*WTI is a subsidiary of Tremco Incorporated.



OMNIA Partners, Public Sector Procurement Solutions

Speed. Quality. Compliance.

Managing buildings can be complex. Procuring roofing and building envelope products and services to keep them operating at their highest level shouldn't be. Which is why Tremco Incorporated has teamed up with OMNIA Partners, Public Sector to offer a cooperative contract that meets the diverse needs of public agency facility management, construction managers, maintenance staff and procurement officials.

At Tremco we recognize that identifying the problem and defining the technical solution only solves part of your problem. You need to procure products and services as quickly and economically as possible, without sacrificing quality, performance or transparency. That's where OMNIA Partners, Public Sector comes in.

Competitively Solicited, Publicly Awarded by Region 4 Education Service Center.
OMNIA Partners, Public Sector is a nationwide cooperative purchasing network reflecting the buying power of 87,000+ public agency participants across the country. OMNIA Partners, Public Sector provides a robust portfolio of cooperative contracts publicly awarded and competitively solicited by lead agencies throughout the country.

And because contracts are awarded to nationally recognized industry leaders (like Tremco), participants not only benefit from the efficiencies of a nationwide contract, they can be certain products and services meet the highest standards of quality and reliability. Participation also requires no fees or minimums.

Entities able to use contracts in the OMNIA Partners, Public Sector portfolio include:

- K-12 School Districts
- Public Schools
- Private Schools
- Charter Schools
- Joint Vocational Schools
- State Colleges and Universities
- Private Colleges and Universities
- Charitable Organizations
- Churches
- Non-Profits
- State Agencies
- Cities/Municipalities
- Counties
- Special Districts (Housing Authorities, Airports, Water Districts, etc.)











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If not already a participant, public entities are invited to register to participate in OMNIA Partners, Public Sector by calling 866.875.3299 or visiting www.omniapartners.com/publicsector.

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Here's a snapshot of our total capabilities available through OMNIA Partners, Public Sector.

PRODUCT INNOVATION engineered for greater long-term performance, reduced environmental impact, ease of application and lower labor costs. Our focus on sustainability is evident in new restoration products that eliminate the need for roof tear-off, while decreasing annual building energy consumption and enabling the acquisition of LEED® certification points.

DIAGNOSTICS, MAINTENANCE AND REPAIR comprise our proactive approach to preserving your healthy roofs and bringing the others up to standard. It's all about extending roof life via advanced diagnostics, early intervention, timely maintenance and repair.

ROOF MANAGEMENT PROGRAMS offer a range of customized, proactive roof maintenance and management plans designed to extend system performance and building life-cycles. In addition to regularly scheduled inspections, housekeeping and maintenance, our advanced options include expert inventory assessment and prioritized construction services.

GENERAL CONTRACTING SERVICES consist of construction project management from the bid process through completion, including daily on-site supervision. It's a single source solution with a proven record of excellence and centralized accountability.



HIGH PERFORMANCE BUILDING SOLUTIONS make facilities comfortable, safe, healthy and efficient. A whole building retrofit examines a wide range of building elements to transform the energy efficiency, cost of operation, indoor air quality and environmental impact ... all while delivering an attractive financial payback.

CANAM BUILDING ENVELOPE SOLUTIONS (our affiliate) uses precise testing methods to identify gaps, cracks and holes in the building envelope as the first step toward improving building performance. Eliminating air leaks can improve general comfort and safety, protect vital building components and greatly reduce energy consumption.

SUSTAINABILITY is an essential part of our history. Zero landfill and enhancing water conservation are among our top priorities today.

BEST IN CLASS, IN-NETWORK CONTRACTORS meet our standards for excellence in our product applications, safety performance and financial stability. Many of these companies have worked with us for decades and take advantage of Tremco Roofing's ongoing technical training program.

TREMCO'S S.M.A.R.T. PROGRAM makes achieving your diversity goals through outstanding contractors so much easier. We work with federally certified contractors from across the country who meet our high standards for quality, experience and reliability. Our teaming agreements with them are designed to deliver the results you need, on time and on budget.

ARCHITECTURAL EDUCATION PROGRAM offers architects and design professionals an opportunity to learn how our latest innovations can better serve their project needs. More than training, these "Lunch and Learns" demonstrate our deep commitment to collaboration; we're here to be the design community's best technical resource.



Work With Your Preferred Contractors Enrolled In The National Cooperative Contractor Network

Together with OMNIA Partners, Public Sector, Tremco is pleased to offer participants the unique ability to compliantly work with their preferred roofing and weatherization contractors regardless of project size. With this competitively solicited and publicly awarded contract, schools and public entities have the ability to award work to pre-approved, In-Network Contractors who meet a range of qualifications, including quality, past performance, financial stability, safety and insurance requirements.

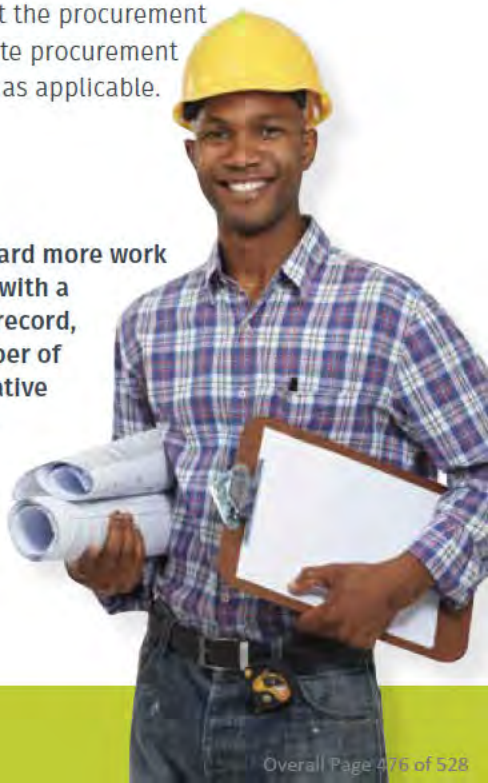
Designed to streamline construction projects while ensuring transparency and quality, the National Cooperative Contractor Network Program eliminates the need for "equal to" specifications that may result in inferior products and installation by an unqualified contractor because an open bid process was required. "In-Network Contractors" are pre-qualified and follow the competitive pricing offered through the Region 4 Contract.

As the Program Administrator, Tremco assumes responsibility for contractor enrollment and the management of this contract. Our goal is to ensure our public customers have direct access to the quality contractors of their choosing, with the added assurance that the procurement process meets all state procurement laws and regulations as applicable.

Competitive and Expedient

The National Cooperative Contractor Network Program was designed to deliver just what Tremco customers need, when you need it. Because the contract has been competitively solicited and publicly awarded, typical project cycle times can be dramatically reduced. And because local contractors can apply to become an In-Network Contractor at any time, public agencies with strong local relationships can continue to work with their preferred prime contractors.

So if you'd like to award more work to a local contractor with a strong performance record, ask if they're a member of the National Cooperative Contractor Network. If they're not, encourage them to apply by emailing nccnadministrator @tremcoinc.com.



To learn more about procuring Tremco Roofing and High Performance Building Solutions through OMNIA Partners, Public Sector, please:

- Visit www.omniapartners.com/publicsector and search "Tremco"
- Call Tremco at 888.657.7752
- Email educationsolutions@tremcoinc.com



It is the sole responsibility of the OMNIA Partners, Public Sector Participant organization to determine whether purchasing through a cooperative procurement vehicle is compliant with the respective procurement laws in that Participant's state or local municipality.

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Imagine never buying another new roof.

Sound too good to be true?

It's true, many of your district's current roofs may be perfect candidates for restoration versus replacement. At Tremco Roofing and Building Maintenance, we're changing the face of roofing with the industry's most innovative restoration systems that are making old roofs like new again. In fact, we're taking old roofs where they've never been before – decades into the future with warranties to match.

Why restore with Tremco Roofing whenever possible?

- We can **show you the money** - as much as 50% savings versus roof replacement. And often maintenance budgets can fund restoration, versus capital required for replacement.
- We offer low and no-odor options for **minimal classroom disruption**.
- Our fluid-applied restoration systems go on quickly and easily for efficient installation, resulting in **lower labor costs**.
- You can meet **sustainability goals** by reducing landfill waste from failed roof materials.
- Our white roof systems are the definition of cool, which means they not only look great, but reflect the sun to **reduce energy use**.
- We've rewritten the meaning of "**warranty**," so there's no question your restored roof is covered for life.
- Where state regulations allow, restoration systems by Tremco Roofing are available through **cooperative purchasing agreements** ensuring speed, quality and best value.
- Our restoration systems can be **repeatedly restored**, so roof performance can be extended for the life of the building.







Imagine comprehensive services to protect your investments.

The RoofTec High Performance Cleaning System prepares roofs for restoration in record time and is environmentally friendly. By using rotating jets of hot water to carefully and thoroughly scrub the roof surface with a detergent-free cleaning solution that's vacuumed up and removed, rather than run down a storm drain, RoofTec meets both sustainability and labor goals. The result? A superior clean, and roof restoration can often start the same day.

Once restored, optimizing the performance of your roofs is essential to maximizing your return on investment. With a lifetime commitment to our customers, Tremco Roofing and WTI offer unparalleled roof management services, including turnkey maintenance and repair customized to a school district's needs.

TremCare® is our proactive roof maintenance program created to help prevent premature deterioration and keep your roofing assets in top working order for as long as possible, including restored roofs. Extensively trained roofing technicians conduct scheduled inspections, housekeeping and maintenance to ensure potential problems are identified and corrected early to prevent costly emergency repairs.

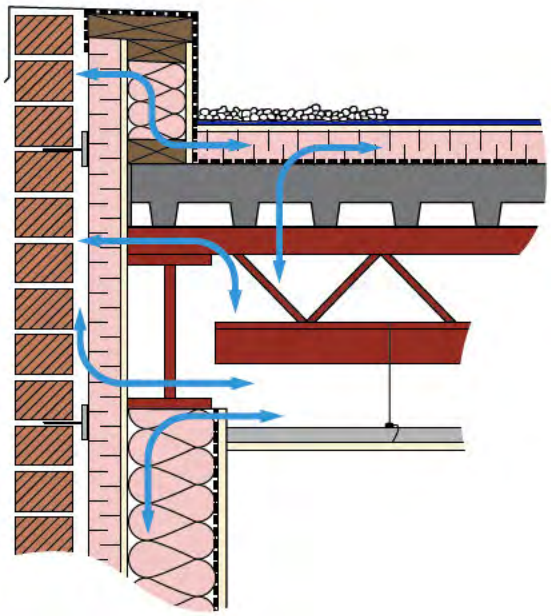
Tremco Roofing's goal of delivering world class services equals our commitment to superior products. Our promise to you? We'll replace no roof before its time, and once restored we'll help you take care of it for life.



Canam Building Envelope Specialists

an affiliate of Tremco Roofing brings a scientific approach to identifying and stopping air leaks that compromise roof and building envelope performance, including the critical space between the roof and wall intersection. When evaluating if a roof is restorable, only Tremco Roofing can also access and repair leaks in the building envelope within the scope of work.

canam
BUILDING ENVELOPE SPECIALISTS INC.



Arrows indicate air infiltration and exfiltration of the building.



Imagine restoring every type of roof, on any building.

If you're like most school districts across the country, your roof inventory varies in age, condition and construction quality. Which is why we've got you covered with restoration systems for all roof types, even metal.

For decades Tremco Roofing has been an innovation leader, introducing products and services engineered to enhance long-term performance while reducing environmental impact and overall costs. Today, whether your roof is asphalt coated, built-up or modified bitumen, concrete, metal, single-ply or foam, we have a restoration solution that delivers superior waterproofing that's commensurate with your overall plans for the building.



AlphaGuard™ MT when maximum performance life is your goal.
AlphaGuard MT offers superior durability, is low odor and rapidly cures for fast application. It's a very good restoration solution for the sensitive school environment, including tough to access rooftops. And because AlphaGuard MT's standard top-coat color is a highly reflective white, rooftop temperatures are lowered for potential energy savings. This top-of-the-line system performs exceptionally well in cold climates and resists chemicals, hail, mold and mildew.

AlphaGuard BIO (fully reinforced) and AlphaGuard BIO NR (partially reinforced) when no-odor is a top priority.
AlphaGuard BIO is a virtually odorless system utilizing a base layer of aromatic polyurethane and a top layer of aliphatic polyurethane; it is completely reinforced with polyester or glass reinforcement. Distinguished by its high bio-based content, AlphaGuard BIO is ideally suited for situations that demand high-performance roofs but where virtually no odor is allowed. AlphaGuard BIO NR has the qualities of AlphaGuard BIO but is reinforced only at the areas of the roof that need it most.



AlphaGuard Puma for cold environments.
This system has been engineered for great elongation, durability and abrasion resistance. It is waterproof within 30 minutes and can be installed in temperatures as low as minus 20 degrees Fahrenheit. Great in any climate, AlphaGuard Puma is a perfect choice for installation situations where the air temperature is below 50 degrees.

Geogard when budgets are tight and a roof is worth saving.
Here's Tremco Roofing's answer to extending system life with a high quality, low cost option. It bonds to most substrates, including EPDM, Hypalon, PVC and TPO. This budget-conscious thin film system performs for up to 12-plus years.



TremLock T-138 Shingle Recover System for a superior shingle alternative.
When a shingle roof is worn and ready for replacement, Tremco Roofing has the answer. This economical solution installs easily over existing shingles for improved weather-tightness with the ongoing option of individual panel replacement. TremLock T-138 metal roof's unique clip design provides a ventilated air space between the new and the old roof that can help reduce heat transfer in the summer by 30% to 45% and limit icing at gutter edges in the winter months.

Imagine making decisions based on reliable facts and figures.

Before investing another penny in your roofs, consider what you know for sure. Understanding roof construction, composition and condition is the first step toward deciding the future of any roof system. Together with our affiliated construction services company WTI, we always start with the simple question,

"Can this roof be saved?"

Our extensive diagnostics capabilities include what you would expect from an industry leader – visual inspections by experienced roofing technicians, thermal imaging technology with moisture verification and a full complement of laboratory tests to scientifically assess roof conditions.

And now, we've taken our diagnostic capabilities to the sky with the proprietary drone technology, SkyBEAM™. This groundbreaking whole building infrared scanning service makes it possible for school districts to scan roofs and entire building envelopes across the district to identify air and moisture leaks. With the HD camera, gaps, cracks, holes and safety issues can also be pinpointed.



Imagine a procurement solution that provides speed, quality and compliance.

If you are a member of a purchasing cooperative, you already understand the benefits of procuring products and services through cooperative contracts that allow you to streamline procurement with assured value and transparency.

Tremco/WTI has been awarded contracts with three of the education industry's leading cooperative agencies serving thousands of school districts across the country. Are you a member of a cooperative purchasing agency? If so, consider the many benefits of purchasing your roof restoration solution through the pre-competed contract.

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To download more information on Tremco Roofing solutions for schools, or request a complimentary consultation with a Tremco Roofing Field Advisor, visit **YourRoofExperts.com** or call 888.657.7752.

Additional information is also available at **tremcoroofing.com**

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#7066

Northbrook School District 28

Demographics Report Summary

Purpose

The following is a demographic study to help with anticipating student populations and assisting with planning for the District's future. The report begins with the current number of students, reviews future projections, and looks at long-term trends in the area.

The Northbrook Court Development increased the projected number of students by 44 for Pre-K through 5 and 22 students for 6 through 8 grades. In the report, these 66 additional students are spread over five years as families are expected to move in and grow over the five years.

Future Development

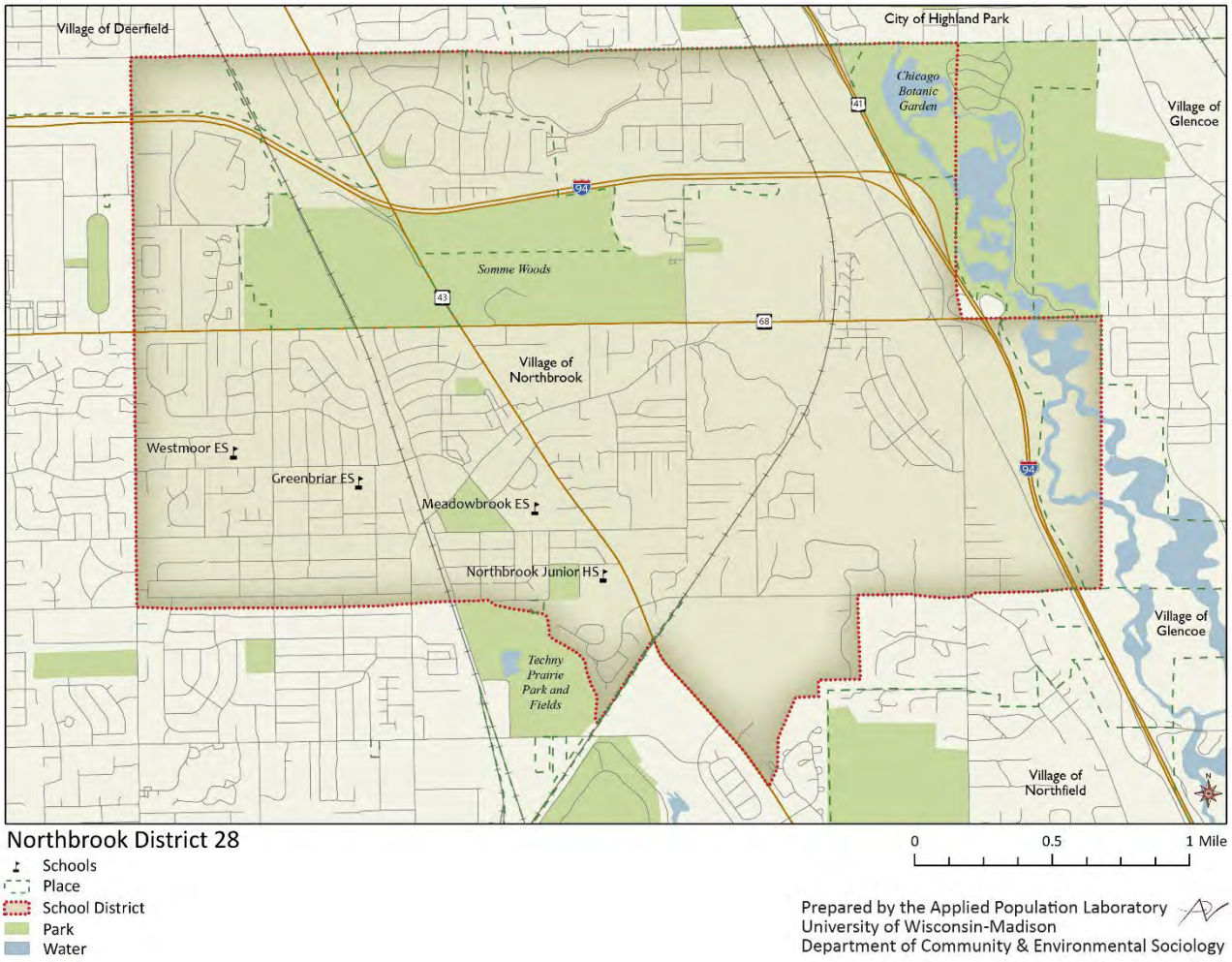
The Northbrook Court Development was not approved when the demographic report was initially done. The Village of Northbrook has since approved the development, bringing additional residential facilities to Northbrook School District. We have placed a further review at the end of the demographic report, which includes the details of the anticipated impact of the development on the number of students in the School District.



Summary

The report shows the additional projected students in general through the District and not at any particular school. As school boundaries are set, most new K through 5 students would go to Meadowbrook Elementary School sooner than the other schools. This increase could require renovations and additions at Meadowbrook to accommodate the growth of students. There is a possibility that the District can review and update the boundaries so the additional students may be shared through the other schools.

Planning for the Schools of Tomorrow



School Enrollment Projections Series
Northbrook 28 School District

May 2023

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Executive Summary

This report provides an enrollment projections analysis for the Northbrook 28 School District by the Applied Population Laboratory, University of Wisconsin-Madison. The district-wide PreK-8 enrollment for the current 2022/23 school year is 1,842 students. The report takes into consideration past enrollment, current and projected births, and overall trends in population and housing to determine future student growth.

- In the last five years, the district has seen a 0.6% increase in enrollment. Elementary school enrollment experienced a decline of 1.1%, while middle school enrollment has increased by 1.4% in the last five years.

- Recent and long-term trends in kindergarten classes have been increasing, while recent and long-term trends in births have remained steady. The growth in kindergarten may be due to increasing migration to the district or possibly a delay in enrolling children into kindergarten because of the pandemic.

- All four models project PreK-8 enrollment to increase, averaging a 3.2% growth in the next five years. Elementary school enrollment is likely to see increases of almost 8.5%, while middle school enrollment will likely decline by almost 5% over the next five years.

- In five years, Greenbriar elementary school enrollment will likely increase by 6.5% adding 22 students. Meadowbrook elementary school enrollment is expected to see growth of 10.6% increasing by 48 students. Westmoor elementary school enrollment will likely increase by 7.5% growing by 25 students.

Introduction

Enrollment projections for Northbrook 28 School District are presented district-wide, individually for each grade and for grade groupings. The projections process uses a combination of historical fall enrollment counts, birth trends and projections, and general population trends to create reasonable assumptions about future scenarios and the likely impact on enrollment.

District Enrollment History

Figure 1 and Tables 1 and 2 display the last ten years of enrollment in the Northbrook 28 School District. District PreK-8 enrollment has increased overall in the past ten years, from 1,677 students in the 2013/14 school year to 1,842 students in 2022/23. This is an increase of 165 students, or a 9.8% growth in the number of students attending Northbrook 28 schools.

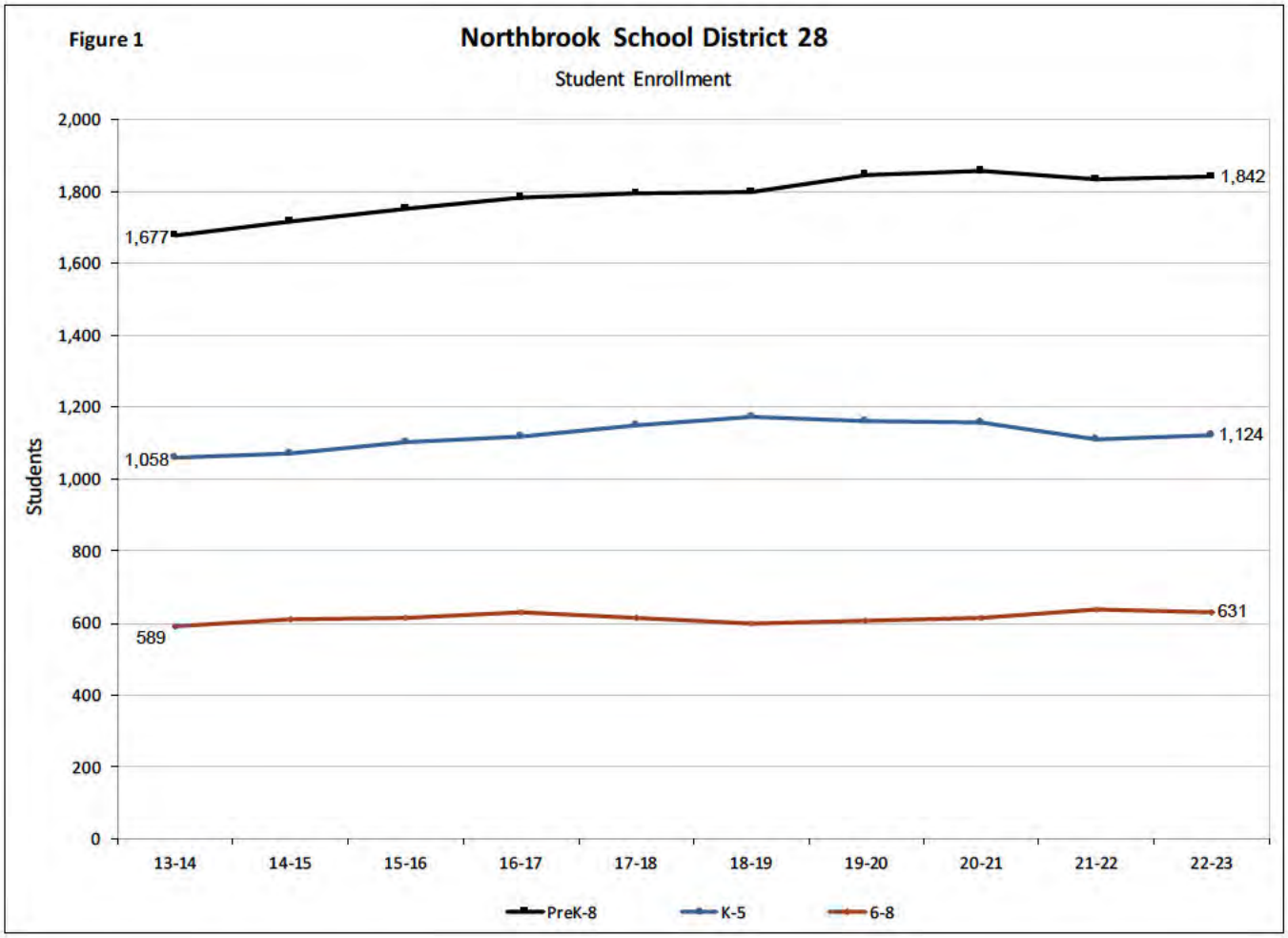


TABLE 1
Student Enrollment
Northbrook School District 28

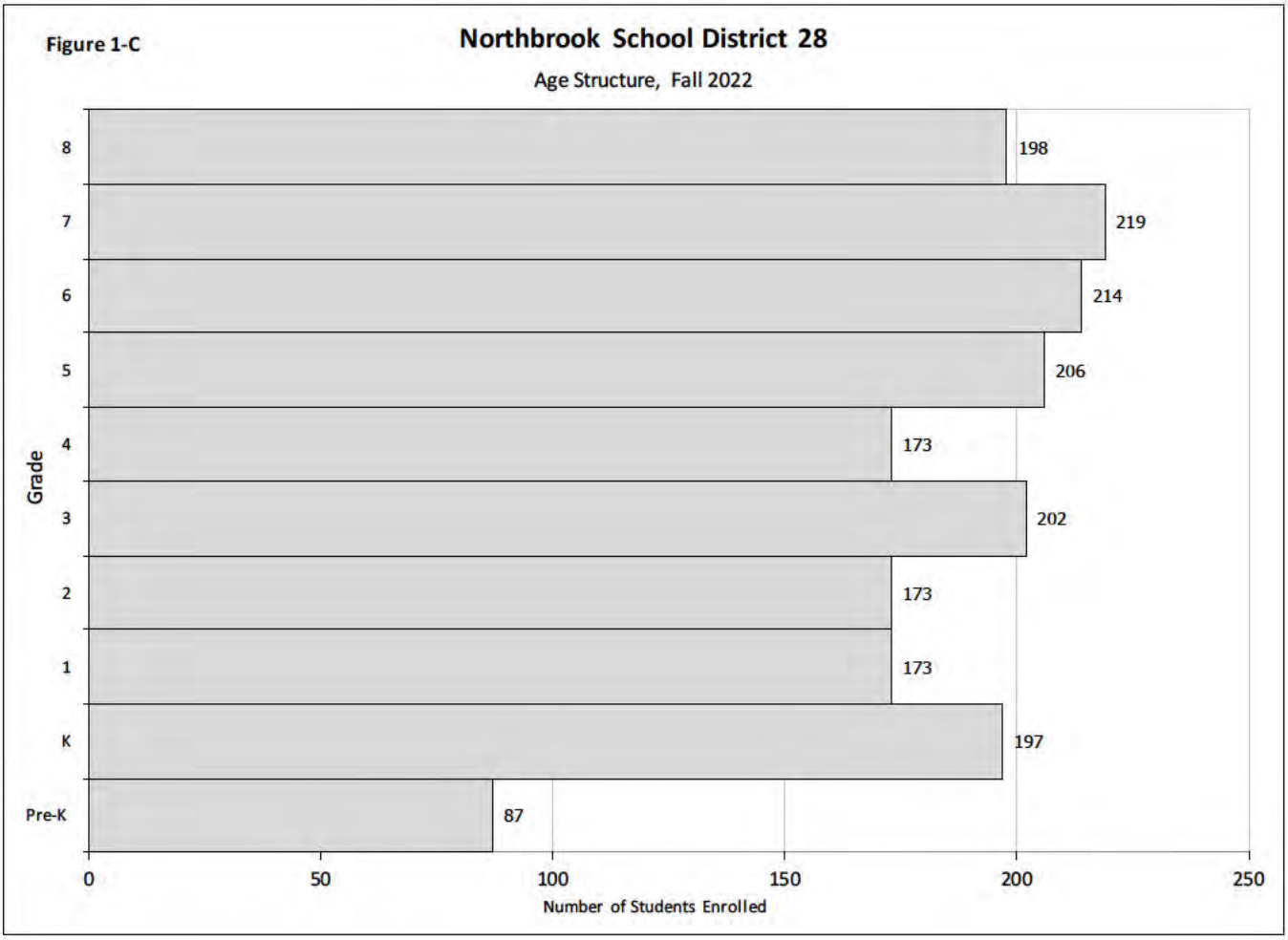
	SCHOOL YEAR									
	13-14	**14-15**	**15-16**	**16-17**	**17-18**	**18-19**	**19-20**	**20-21**	**21-22**	**22-23**
Pre-K	30	34	37	35	34	28	78	82	84	87
K	147	147	175	175	171	160	180	155	162	197
1	161	183	171	197	203	184	170	194	163	173
2	175	171	189	175	202	205	194	178	194	173
3	175	182	178	200	179	213	206	195	181	202
4	198	190	186	181	206	191	217	213	202	173
5	202	199	204	189	187	222	194	223	210	206
6	188	212	205	203	191	192	220	199	219	214
7	205	192	212	214	207	198	192	226	203	219
8	196	208	196	212	215	207	195	191	215	198
TOTAL	**1,677**	**1,718**	**1,753**	**1,781**	**1,795**	**1,800**	**1,846**	**1,856**	**1,833**	**1,842**
K-5	1,058	1,072	1,103	1,117	1,148	1,175	1,161	1,158	1,112	1,124
6-8	589	612	613	629	613	597	607	616	637	631

TABLE 2
Student Enrollment Changes
Northbrook School District 28

	ABSOLUTE CHANGE			PERCENT CHANGE			AVERAGE ANNUAL PERCENT CHANGE		
GRADE	**'13 to '22**	**'13 to '17**	**'18 to '22**	**'13 to '22**	**'13 to '17**	**'18 to '22**	**'13 to '22**	**'13 to '17**	**'18 to '22**
Pre-K	57	4	59	190.0	13.3	210.7	21.1	3.3	52.7
K	50	24	37	34.0	16.3	23.1	3.8	4.1	5.8
1	12	42	-11	7.5	26.1	-6.0	0.8	6.5	-1.5
2	-2	27	-32	-1.1	15.4	-15.6	-0.1	3.9	-3.9
3	27	4	-11	15.4	2.3	-5.2	1.7	0.6	-1.3
4	-25	8	-18	-12.6	4.0	-9.4	-1.4	1.0	-2.4
5	4	-15	-16	2.0	-7.4	-7.2	0.2	-1.9	-1.8
6	26	3	22	13.8	1.6	11.5	1.5	0.4	2.9
7	14	2	21	6.8	1.0	10.6	0.8	0.2	2.7
8	2	19	-9	1.0	9.7	-4.3	0.1	2.4	-1.1
TOTAL	**165**	**118**	**42**	**9.8**	**7.0**	**2.3**	**1.1**	**1.8**	**0.6**
K-5	66	90	-51	6.2	8.5	-4.3	0.7	2.1	-1.1
6-8	42	24	34	7.1	4.1	5.7	0.8	1.0	1.4

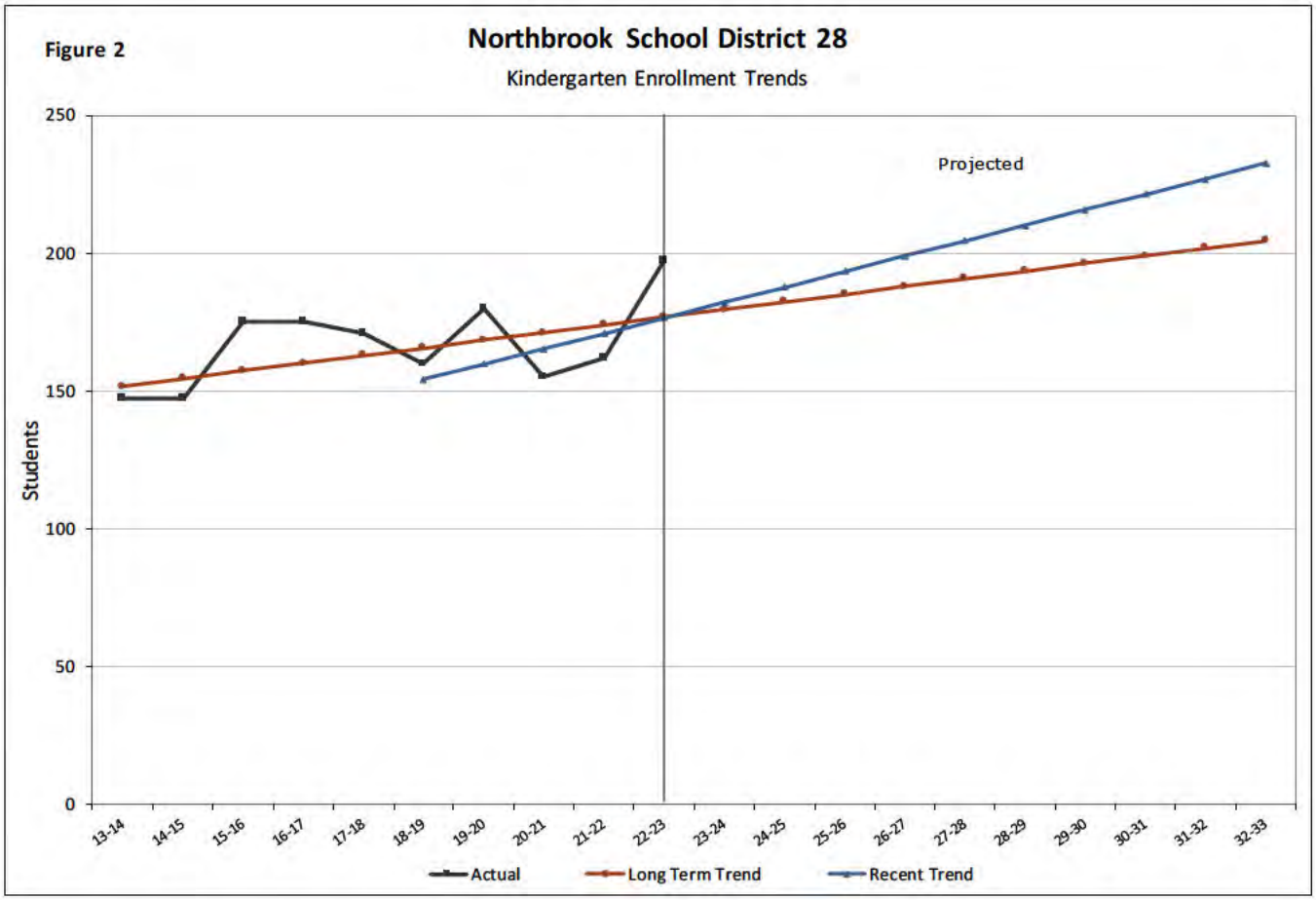
In the last ten years, pre-kindergarten enrollment has increased 21% annually. Elementary school enrollment has increased by 0.7% annually and middle school enrollment has increased over the past ten years by 0.8% annually over the last ten years.

Figure 1-C shows the grade structure in fall 2022 with the number of PreK students at the bottom and the number of 8th graders at the top. Grades 6-8 average grade size is 210 with 7th grade being largest among middle school grades. Grades K-5 average grade size is 187 with 3rd grade being largest among elementary school grades.



Kindergarten Enrollment Trends

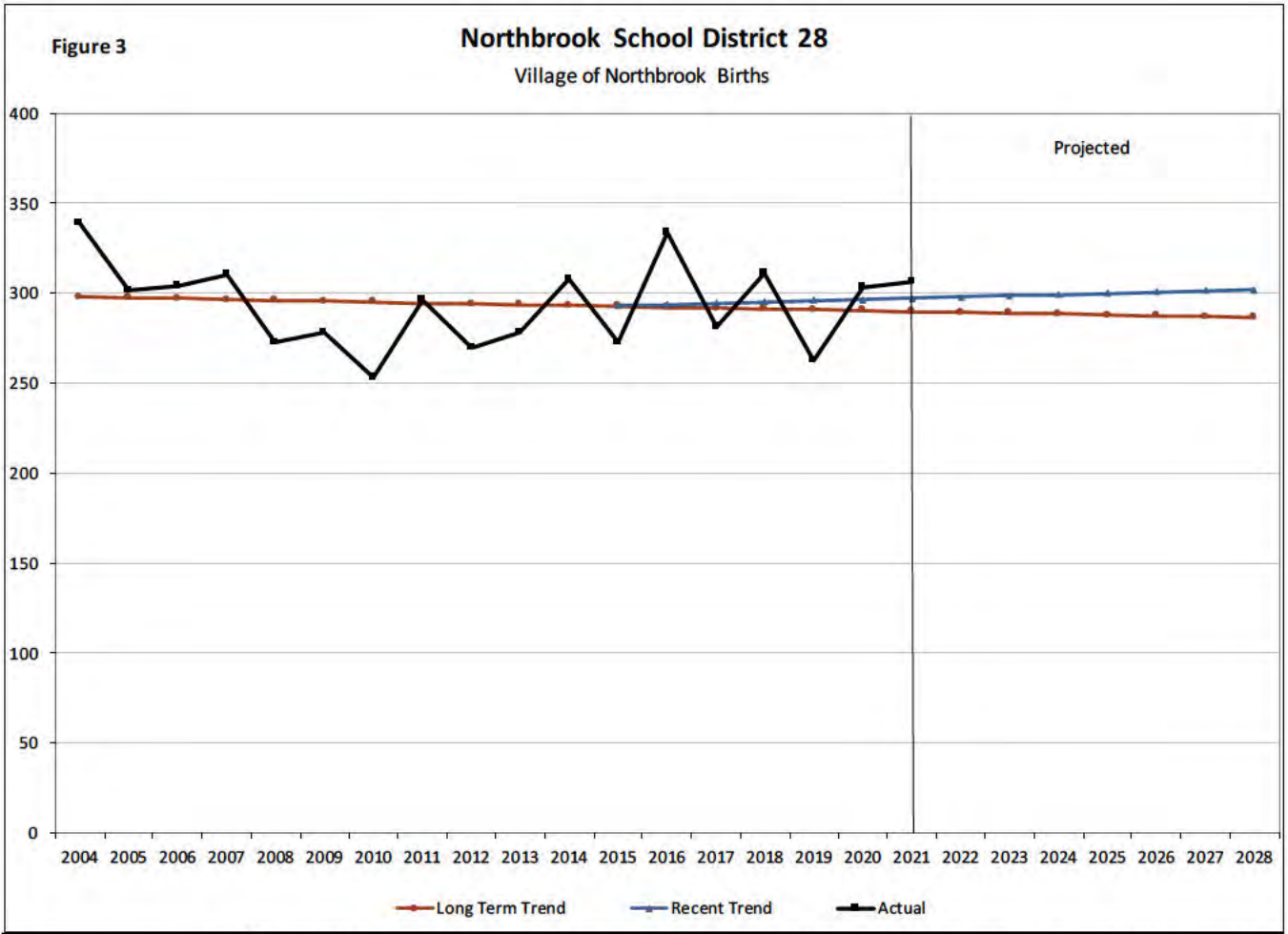
Examining trends in kindergarten enrollment is particularly informative for gaining perspective on future district enrollment, as today's kindergarteners will gradually make up tomorrow's students at the higher grade levels as they age and move through the school system. When kindergarten enrollment is increasing elementary school will increase, while middle school enrollment might be expected to increase farther in the future. Figure 2 shows kindergarten enrollment history in black, and trend lines depicting kindergarten enrollment in red and blue. The "Long Term Trend" line (shown in red) averages kindergarten enrollment changes between 2013/14 and 2022/23. The "Recent Trend" (shown in blue) line emphasizes kindergarten enrollment changes over the last five years. In the Northbrook 28 School District, long-term kindergarten trends show increasing enrollment, while recent kindergarten trends indicate a more significant increase.



Birth Trends and Projections

We use historical and projected birth data to forecast the number of PreK and 5K students who will enroll in the Northbrook 28 School District in future years. Birth data, as collected and summarized by the Illinois Department of Public Health, is available at the municipal level. Figure 3 shows the number of municipal births from the Village of Northbrook, by year, from 2004 through 2021.

Figure 3



Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
# of Births	339	302	304	310	273	278	253	296	270
Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
# of Births	278	308	273	334	281	311	263	303	306

Source: Illinois Department of Public Health

We extrapolate long- and short-range birth trends into the future to correspond with our baseline and recent trend models. Long-term birth trends indicate slightly decreasing births, while the recent trend shows slightly increasing births. The red line represents the birth trends over the past eighteen years and is utilized in the Baseline model. The blue line denotes birth patterns for the last seven years and is applied in the Five-Year and Three-Year trend models.

Population Estimates

This section examines population trends of the recent past for the Village of Northbrook. Changes in the total population of the district area, particularly when examined by age, provide clues into how the school-age population may be changing.

Table 3 provides the U.S. Census population counts for 2010 and 2020 and the American Community Survey annual estimates for 2015-2019 and 2021. Overall, the Village of Northbrook has increased significantly more than Cook County.

Table 3
Total Population by Municipality: 2010-2021
Northbrook School District 28

	POPULATION							
	Census 2010	est. 2015	est. 2016	est. 2017	est. 2018	est. 2019	Census 2020	est. 2021
V. Northbrook	33,170	33,572	33,538	33,591	33,463	33,343	35,222	35,108
Cook County	5,194,675	5,238,216	5,203,499	5,211,263	5,180,493	5,150,233	5,275,541	5,173,146
State of Illinois	12,830,632	12,859,995	12,801,539	12,802,023	12,741,080	12,671,821	12,812,508	12,671,469

	PERCENT CHANGE					
	2010 to 2015	2015 to 2016	2016 to 2017	2017 to 2018	2018 to 2019	2010 to 2020
V. Northbrook	1.2%	-0.1%	0.2%	-0.4%	-0.4%	6.2%
Cook County	0.8%	-0.7%	0.1%	-0.6%	-0.6%	1.6%
State of Illinois	0.2%	-0.5%	0.0%	-0.5%	-0.5%	-0.1%

Source: U. S. Census Bureau & American Community Survey

Figure 4 illustrates the population for the Northbrook 28 School District by age from 2013-17 American Community Survey and the 2017-21 American Community Survey (because detailed age data from the 2020 Census is not yet available). Children under the age of 5 have decreased while ages 5 to 19 have increased.

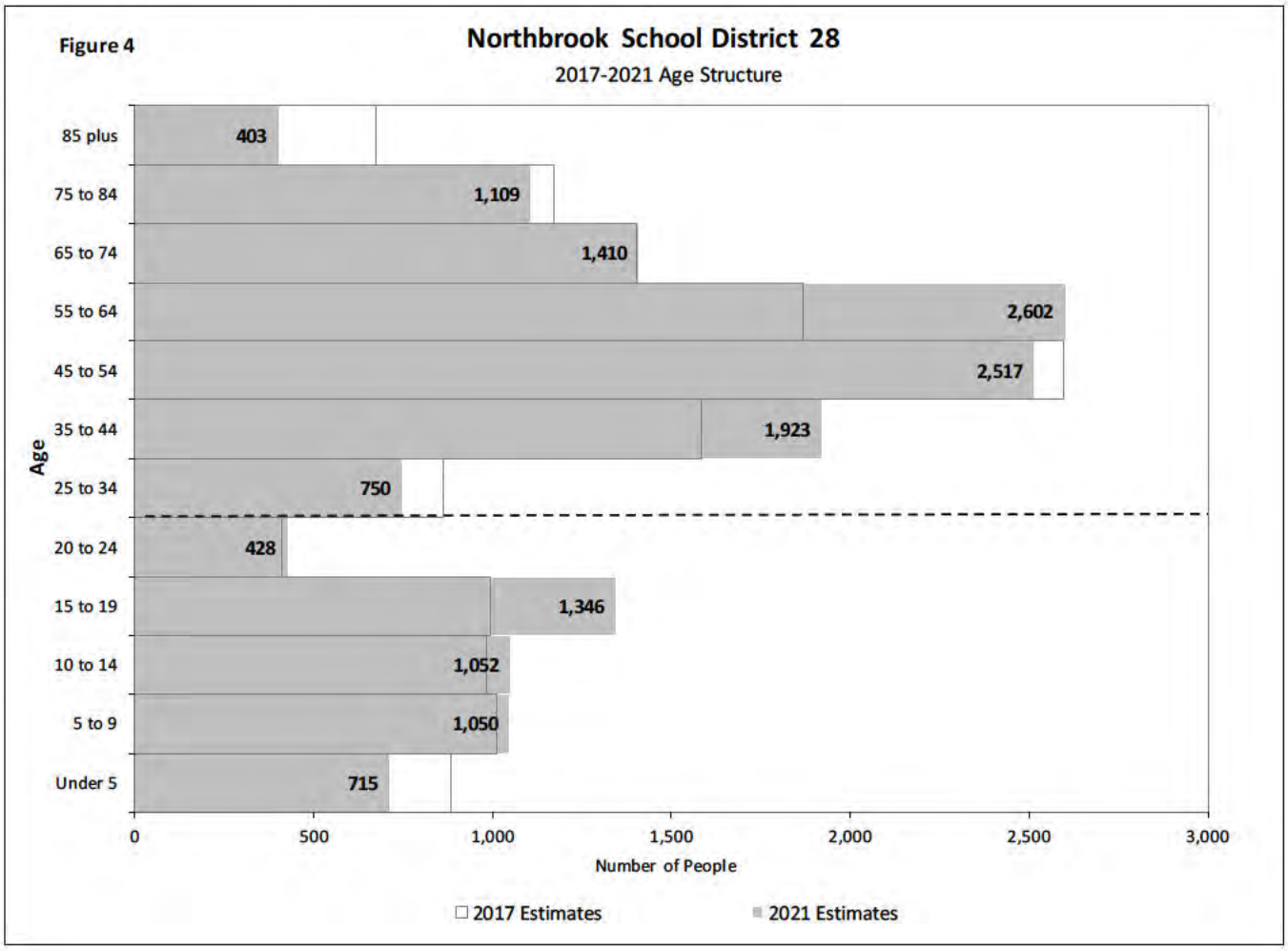


Table 4 also provides the population as estimated over the 2013-17 period and the 2017-21 period by the American Community Survey, showing the change in age structure. In the specific age groups:

- The number of young people ages 5 to 19 increased by an estimated 459, but children under age five have decreased by 170.
- Young adults ages 20 to 34 have decreased by an estimated 95.
- Adults ages 35 to 64 have increased by an estimated 993 residents.
- Adults ages 65 and over have decreased by 327 residents.

TABLE 4
Population by Age, 2017-2021
Northbrook School District 28

Age	2017	2021	Difference
Under 5	885	715	-170
5 to 9	1,013	1,050	37
10 to 14	984	1,052	68
15 to 19	992	1,346	354
20 to 24	412	428	16
25 to 34	861	750	-111
35 to 44	1,585	1,923	338
45 to 54	2,596	2,517	-79
55 to 64	1,868	2,602	734
65 to 74	1,403	1,410	7
75 to 84	1,170	1,109	-61
85 plus	676	403	-273
Total	14,445	15,305	860

Source: U. S. Census Bureau

Most in-migration to the district occurred with people ages 55 to 64, followed by 15 to 19 and 35 to 44 year old age group. The loss of 25 to 34 year olds and children under age five could reduce school enrollment in five to ten years. When the aging population over 75 declines and residents move out of single-family homes these homes potential become available for families.

Residential Development Trends

Past Housing Trends

In the last ten years homes in the Village of Northbrook have consisted of single-family homes only. Table 5-A shows the number of housing starts in the Village of Northbrook from 2012 to 2021 as collected from the U.S. Census Bureau Building Permits Survey. The table shows the number of new homes in the entire village, and we estimate that 60% of these new homes are in the district area. Over the last five years an average of 26 new homes were built in the district.

TABLE 5-A
School District Area Housing Starts
Northbrook School District 28

	Calendar Year									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
District Area										
TOTAL	**16**	**23**	**28**	**23**	**27**	**28**	**22**	**22**	**26**	**29**
Single Family	**16**	**23**	**28**	**23**	**27**	**28**	**22**	**22**	**26**	**29**
Multi-family	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
V. Northbrook										
TOTAL	**27**	**39**	**46**	**38**	**45**	**46**	**37**	**37**	**44**	**49**
Single Family	27	39	46	38	45	46	37	37	44	49
Multi-family	0	0	0	0	0	0	0	0	0	0

Source: U.S. Census Bureau

It is important to consider that turnover in ownership of existing housing stock also contributes to changes in enrollment. Enrollment may change depending upon the cycle of resident homeowners. For instance, a younger community will have a higher child-per-household ratio, whereas an older community will have a lower child-per-household ratio. Several factors make predicting housing turnover difficult. These include variables like attractiveness to young families (demand), as well as suitable and available rental and owner-occupied housing (supply). In addition, housing turnover depends on even more elusive variables determined by housing market conditions, the economy, and individual choices of homeowners.

Turnover in ownership in an older community may result in an increase in the child-per-household number. As younger families move into the area, the school district will tend to see new students enrolling into the district's schools. A change in home ownership may happen over the course of several years at varying rates and may differ between neighborhoods. Absent new housing development or housing turnover, householders age in place and the number of school-aged children ultimately declines.

Table 5-B shows the in-migration of the Northbrook 28 School District from the 2017-21 American Community Survey. 91% of district residents live in the home they lived in one year ago. This percentage is higher for owner-occupied homes at 93%, while predictably a smaller percentage of renters at 77% lived at their residence one year ago.

TABLE 5-B
In-migration, one year ago (2021)
Northbrook School District 28

	% Living in the Same House	% Moved within Same County	% Moved in from Different County	% Moved in from Different State or Country
Total	91.3	6.0	1.4	1.3
Owner-occupied	93.0	5.1	0.8	1.1
Renter-occupied	77.4	13.2	6.7	2.7
Median age (years)	47.2	37.4	38.5	31.5
Median income (dollars)	$59,907	$45,488	$83,971	-

Source: ACS 2017-2021

Table 5-C provides the number of housing structures by number of units and year built according to the American Community Survey estimated over the 2017-21 period. It is estimated that there were 6,353 total housing units in the school district. 80% of housing units are single-family homes. Households in single family homes, on average, contain more school-aged children than in multi-family complexes. The largest percentage of homes were constructed before 1950 at 36.5% followed by 1960 to 1969 at 17.3%.

TABLE 5-C
Housing Units by Type and Year Built
Northbrook School District 28

	School District		Village	
Units in Structure	**Number**	**Percent**	**Number**	**Percent**
Single-Family	5,087	80.0	11,797	78.9
2 or more Units	1,266	20.0	3,148	21.1
Total	6,353		14,945	
Year Structure Built				
Built 2014 or later	51	0.8	51	0.3
Built 2010 to 2013	777	12.2	1,146	7.7
Built 2000 to 2009	465	7.3	1,542	10.3
Built 1990 to 1999	306	4.8	1,070	7.2
Built 1980 to 1989	510	8.0	1,765	11.8
Built 1970 to 1979	824	13.0	3,214	21.5
Built 1960 to 1969	1,102	17.3	3,077	20.6
Built 1950 or earlier	2,318	36.5	3,080	15.1

Source: ACS 2017-2021

Table 5-D shows the housing value according to the American Community Survey estimated over the 2017-21 period. 43% of owner-occupied homes in the district are valued at $500,000 to $999,999.

TABLE 5-D
Housing Value
Northbrook School District 28

	Number	Percent
Less than $50,000	73	1.5
$50,000 to $99,999	12	0.2
$100,000 to $149,999	63	1.3
$150,000 to $199,999	101	2
$200,000 to $299,999	294	6
$300,000 to $499,999	1,540	31.2
$500,000 to $999,999	2,131	43.1
$1,000,000 or more	727	14.7
Owner-occupied units	4,941	
Median (dollars)	$560,600	

Source: ACS 2017-2021

Future Housing Trends

Currently, one approved development and one under-review development will be built in the coming years within the school district boundary. The Village of Northbrook is reviewing the Northbrook Court Development plan. The plan intends to preserve the Northbrook Court's role as a commercial anchor for the village and it will include a planned residential area that will be a mixed-use neighborhood of parks, open space, and walkability. The details of this residential development have not been released as of the writing of this report.

Another mixed-use development has been approved at 1657 Sherman Avenue. The development will consist of a 318-unit luxury residential apartment building and a 48 unit affordable and supportive housing apartment building to be constructed by Housing Opportunities Development Corporation (HODC). Timeline for groundbreaking has not yet been determined. Households in apartment buildings, on average, contain fewer school-aged children than in single-family homes.

Projections Method

To generate school enrollment projections, we rely on a commonly used demographic technique called the "cohort survival" method or the "grade progression ratio" method. This method advances current students through the school system over time and applies rates of transfer (or "survival") as the students who are now in school age from year-to-year and grade-to-grade. It is through these rates of transfer that we make assumptions about how migration into and out of the district and transfers to and from different school districts will impact future enrollment.

Grade Progression Ratios

Grade progression ratios are used to measure district enrollment changes that have occurred within the school district in the recent past. By examining these, we can better understand recent changes in enrollment. We use these ratios as the rates of transfer to inform future student projections.

Table 6 and Figure 5, on the following page, show the grade progression ratios for the Northbrook 28 School District. The ratios measure the effects of in- and out-migration and the transfer of students between private and public schools. The ratios are calculated for several pairs of years and then averages of these based on different time frames are calculated for each grade.

To predict future enrollment under different growth assumptions, three sets of grade progression ratios are calculated:

- Baseline averages ten years of progression ratios with outlying ratios excluded (those outside of one standard deviation of the mean).
- Five-Year Trend averages the past five years of progression ratios with the B:K ratio excluded for the 19/20 to 20/21 school year.
- Three-Year Trend averages the past three years of progression ratios with the B:K ratio excluded for the 19/20 to 20/21 school year.

When the ratio average is above 1.0 this indicates that enrollment tends to increase from year to year as each cohort of students advances. When the ratio average is below 1.0 this indicates that enrollment tends to decrease from year to year.

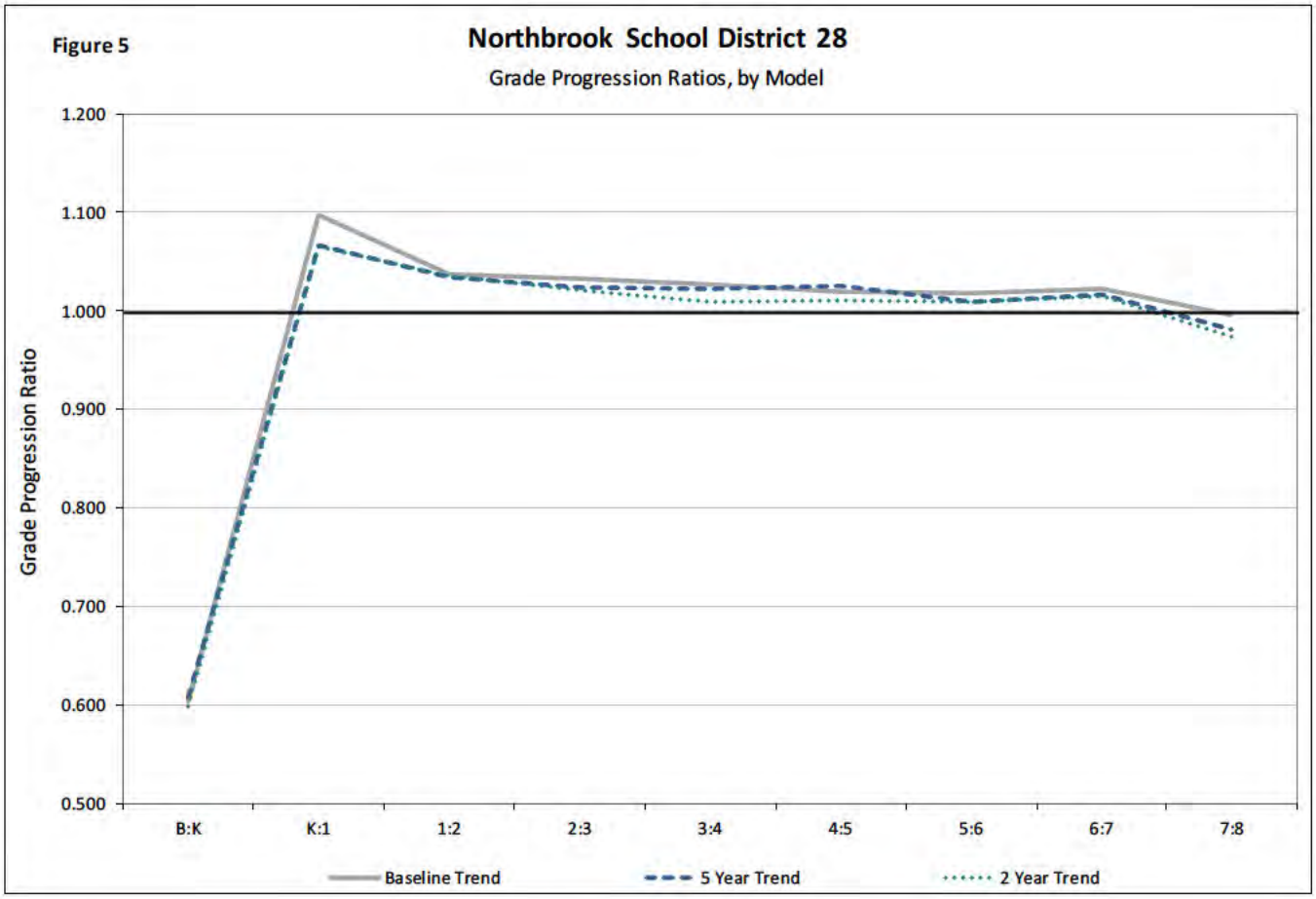
The grade progression ratios can be interpreted in the following manner. The Baseline ratio for 4:5 is 1.020. This means that on average, the fifth-grade classes are 2% larger than the fourth-grade classes from the previous year. The Baseline B:K ratio of .602 indicates that, on average, 60% of children born in the village attend school five years later in the Northbrook 28 School District. To generate PreK enrollment projections, the four-year grade progression ratio average of .277 is used to project PreK enrollment.

TABLE 6
Grade Progression Ratios
Northbrook School District 28

YEAR CHANGES	B:Pre-K	B:K	K:1	1:2	2:3	3:4	4:5	5:6	6:7	7:8
13-14/14-15		0.515	1.245	1.062	1.040	1.086	1.005	1.050	1.021	1.015
14-15/15-16		0.633	1.163	1.033	1.041	1.022	1.074	1.030	1.000	1.021
15-16/16-17		0.670	1.126	1.023	1.058	1.017	1.016	0.995	1.044	1.000
16-17/17-18		0.607	1.160	1.025	1.023	1.030	1.033	1.011	1.020	1.005
17-18/18-19		0.574	1.076	1.010	1.054	1.067	1.078	1.027	1.037	1.000
18-19/19-20	0.262	0.654	1.063	1.054	1.005	1.019	1.016	0.991	1.000	0.985
19-20/20-21	0.288	0.520	1.078	1.047	1.005	1.034	1.028	1.026	1.027	0.995
20-21/21-22	0.268	0.569	1.052	1.000	1.017	1.036	0.986	0.982	1.020	0.951
21-22/22-23	0.291	0.628	1.068	1.061	1.041	0.956	1.020	1.019	1.000	0.975
Baseline		**0.602**	**1.098**	**1.037**	**1.032**	**1.026**	**1.020**	**1.018**	**1.022**	**0.996**
Five-Year Trend	**0.277**	**0.606**	**1.067**	**1.035**	**1.025**	**1.022**	**1.025**	**1.009**	**1.017**	**0.981**
Three-Year Trend		**0.599**	**1.066**	**1.036**	**1.021**	**1.009**	**1.011**	**1.009**	**1.016**	**0.974**

*Shaded progression ratios are excluded from the Baseline Average

Figure 5



Comparison of Projections Models

When considering these projections for decision-making, it is important to recognize that population projections of all types, including school enrollment projections, are more accurate in the immediate future than they are farther into the future. This is especially true for grades K-5. These four models provide a comparison based on different assumptions regarding births and student progression from grade to grade.

Baseline Projections

The Baseline model projects enrollment using the assumption that long-term average trends year-to-year, grade-to-grade, will continue. This model assumes that the ten-year trend in enrollment and eighteen-year trend in births will be representative of future trends in the district. This model projects that PreK-8 enrollment will increase from 1,842 students in 2022/23 to 1,926 students in 2027/28, or a growth of 4.5%.

Five-Year Trend Projections

The Five-Year Trend model uses the grade progression ratios from the last five years and the five-year trend of births in the district area to project what future enrollment would look like if more recent patterns were representative of future trends. With recent migration rates and birth trends weighted more heavily, enrollment in the school district is projected to decline, increasing from 1,842 students in 2022/23 to 1,885 students in 2027/28, or a 2.3% increase.

Three-Year Trend Projections

The Three-Year Trend model uses the grade progression ratios from the last three years and the five-year trend of births in the district area to project what future enrollment would look like if even more recent patterns were representative of future trends. For the Three-Year Trend model, district enrollment is projected to remain the same.

High Growth Projections

The High Growth model uses the grade progression ratios from the last five years in the district area as well as anticipated growth in kindergarten and housing to project what future enrollment will be in the district. Only five years of projections are provided instead of ten years because residential development and in-migration to the district is more difficult to project. This hybrid model, district enrollment is projected to increase from 1,842 students in 2022/23 to 1,952 students in 2027/28, or an increase of 6%.

Table 7 compares the four enrollment projection models for the districtwide PreK-8 enrollment.

TABLE 7
Summary of PreK-8 Enrollment Projections
Northbrook School District 28

	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Baseline	1,868	1,872	1,873	1,884	1,926	1,930	1,960	1,980	1,951	1,943
Five-Year Trend	1,855	1,851	1,843	1,849	1,885	1,887	1,918	1,939	1,921	1,921
Three-Year Trend	1,846	1,833	1,817	1,814	1,843	1,842	1,868	1,887	1,867	1,867
High Growth	1,884	1,879	1,887	1,905	1,952					

Figures 6-8 compare the enrollment projection models broken down by PreK-8 enrollment and by grade groupings (K-5 and 6-8).

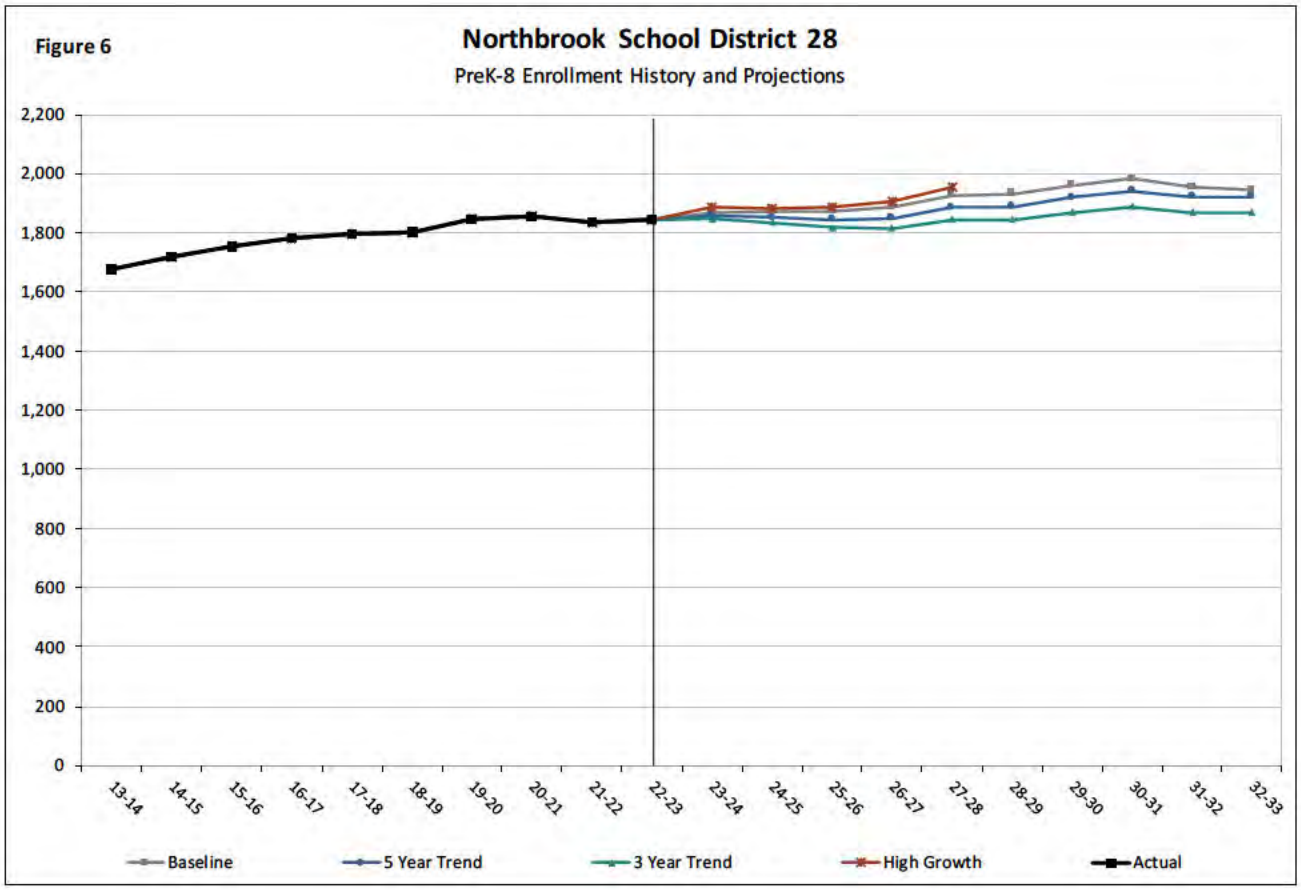


Figure 7

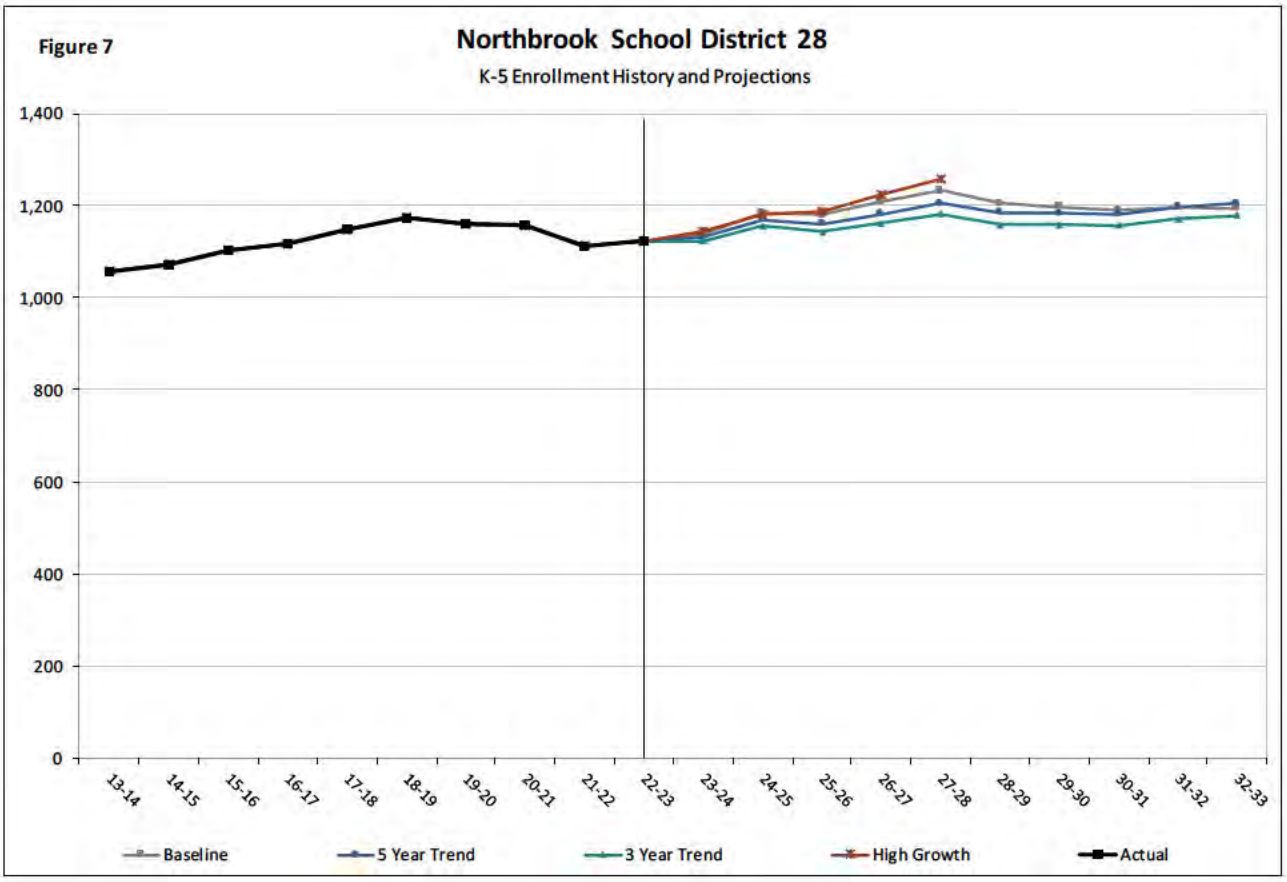
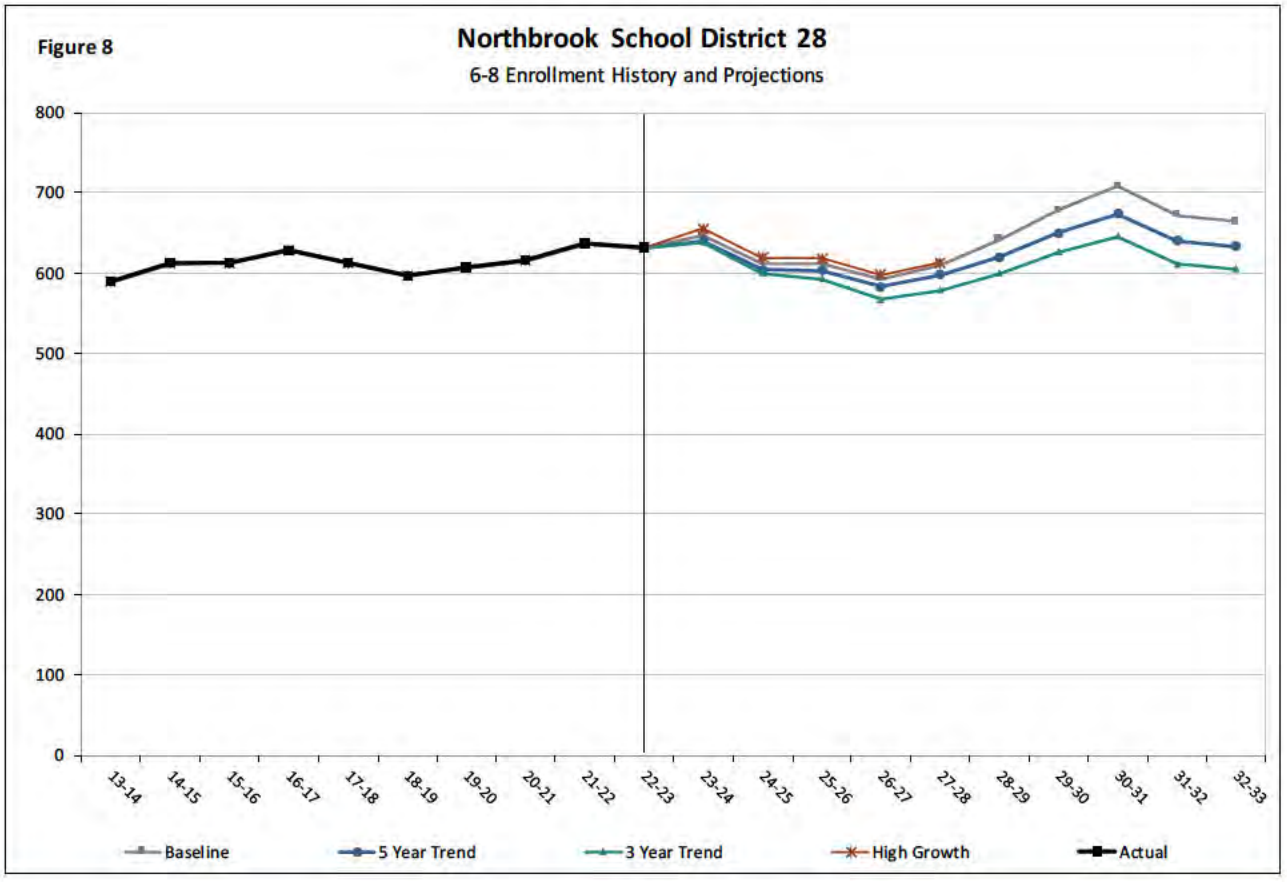


Figure 8



District-wide Projections

The district-wide enrollment projections are based on models that incorporate past and projected births and the district's own enrollment. Because most of the students in the district's schools over the next few years have already been born or are already in school, and because their grade progression from one year to another is reasonably predictable, the total district-wide projections should be viewed as having a high-level of accuracy. Table 8 provides the district projections using the average of all four models to project enrollment by total, grade grouping, and individual grades.

TABLE 8
Summary of District Projections by Grade
Northbrook School District 28

GRADE	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Pre-K	84	78	80	83	83	83	84	83	84	84
K	180	182	172	178	182	178	178	178	178	178
1	212	194	196	186	192	193	191	192	192	192
2	180	220	201	203	192	195	200	198	198	199
3	178	184	226	206	208	192	200	205	203	204
4	207	182	188	230	210	211	196	204	209	207
5	177	211	185	192	235	214	215	200	207	213
6	210	180	214	188	195	237	216	218	202	210
7	219	213	183	218	191	197	241	220	222	206
8	217	215	210	180	214	187	194	237	217	219
TOTAL	**1,863**	**1,859**	**1,855**	**1,863**	**1,902**	**1,887**	**1,915**	**1,936**	**1,913**	**1,911**
PreK-5	1,218	1,250	1,249	1,277	1,302	1,266	1,264	1,260	1,272	1,276
K-5	1,134	1,173	1,168	1,194	1,219	1,183	1,180	1,176	1,188	1,193
6-8	645	608	606	585	600	620	651	676	641	634
Yr to Yr Change	21	-5	-4	8	39	-15	29	20	-23	-2

District-wide enrollment projections point to the Northbrook 28 School District experiencing increased enrollment. In five years, the district might expect to gain 60 students or an increase of 3.2%. With births holding steady and kindergarten tends increasing, K-5 enrollment will likely see an increase of 8.5% or growing by 95 students in the next five years. As smaller cohorts of elementary students move to middle school, 6-8 enrollment shows a decrease of 4.9% or losing as many as 31 students.

Because the projections found in this report incorporate the consequences of migration to and from the district, any significant and sustained interruption of current or recent migration patterns will erode these models' accuracy from the initiation point of the new pattern. The district should continue to monitor enrollment change and compare it with these projections, to assess the district's trajectory of future student enrollment.

Elementary School Projections

The school enrollment projections are based on models that incorporate past and projected births and the elementary schools' enrollment. When considering these projections, it is important to remember that projections made for smaller units of geography, such as elementary attendance areas, are less reliable than those projections made for the district as a whole. Although the individual school projections are less reliable, these projections do serve as a reasonable guide for projecting future trends and to what extent enrollment will change in the individual elementary schools. Table 9 provides the total K-5 enrollment and individual grade projections.

TABLE 9
Summary of Elementary School Projections by Grade
Northbrook School District 28

	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
GRADE					**Greenbriar Elementary School**					
K	55	52	52	55	54	53	53	53	52	52
1	60	60	57	58	60	59	58	57	57	57
2	56	63	62	58	59	61	60	59	59	59
3	56	58	64	63	59	59	63	62	60	60
4	65	57	59	65	64	61	61	64	63	61
5	57	64	57	59	66	64	61	62	65	63
TOTAL	**349**	**354**	**351**	**358**	**362**	**357**	**356**	**357**	**356**	**352**
GRADE					**Meadowbrook Elementary School**					
K	70	73	68	69	72	72	71	71	72	73
1	92	76	80	74	75	77	77	77	78	78
2	84	96	80	83	78	76	81	80	81	82
3	69	86	99	83	86	78	77	83	84	85
4	81	71	88	100	85	88	78	78	85	85
5	64	84	74	91	103	88	92	80	79	87
TOTAL	**460**	**486**	**489**	**500**	**499**	**479**	**476**	**469**	**479**	**490**
GRADE					**Westmoor Elementary School**					
K	55	57	52	54	56	53	54	54	55	53
1	60	58	59	54	57	57	56	57	57	57
2	40	61	59	62	55	58	59	59	58	58
3	53	40	62	60	63	55	60	60	59	59
4	61	54	41	64	61	62	57	62	61	61
5	56	63	55	42	66	62	62	58	63	63
TOTAL	**325**	**333**	**328**	**336**	**358**	**347**	**348**	**350**	**353**	**351**

The three enrollment projections models (Baseline, Five-Year Trend and Three-Year Trend) and future kindergarten and housing trends were used to generate the final projections for each elementary school. The remaining pages of the report present the enrollment trends and grade progression ratios for each elementary school and the individual models used for the final projections.

Greenbriar Elementary School

Enrollment

The enrollment for Greenbriar Elementary School has decreased by 61 students over the last ten years or declining by 1.7% annually. The enrollment and change in enrollment are shown in Tables 10 and 11.

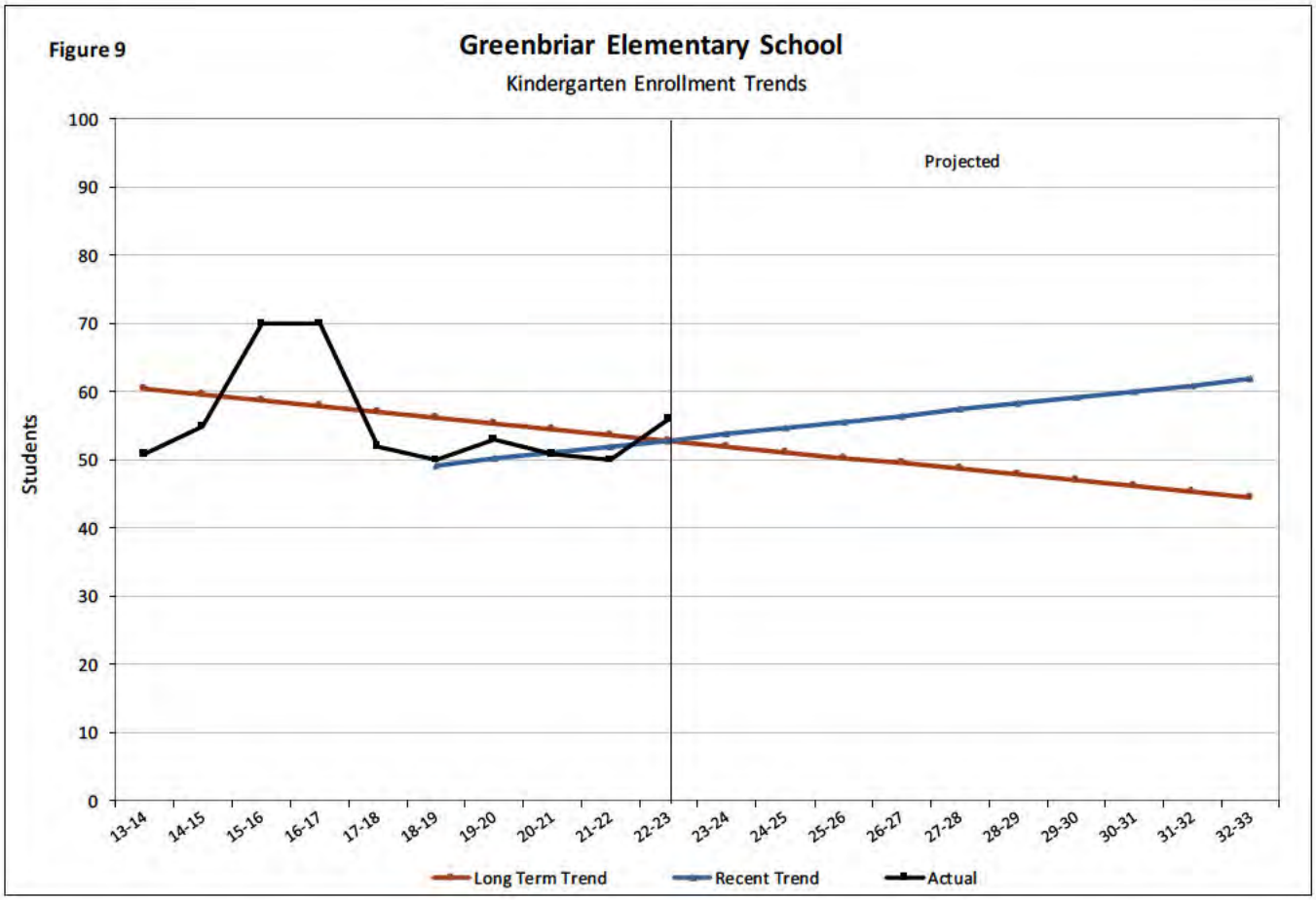
TABLE 10
Student Enrollment
Greenbriar Elementary School

	SCHOOL YEAR									
	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23
K	51	55	70	70	52	50	53	51	50	56
1	72	67	61	73	79	54	54	61	52	55
2	64	71	68	63	71	81	57	57	60	55
3	69	65	78	71	61	71	78	54	60	63
4	67	73	67	77	72	65	73	80	55	57
5	78	66	81	68	78	80	64	74	79	54
TOTAL	**401**	**397**	**425**	**422**	**413**	**401**	**379**	**377**	**356**	**340**

TABLE 11
Student Enrollment Changes
Greenbriar Elementary School

	ABSOLUTE CHANGE			PERCENT CHANGE			AVERAGE ANNUAL PERCENT CHANGE		
GRADE	'13 to '22	'13 to '17	'18 to '22	'13 to '22	'13 to '17	'18 to '22	'13 to '22	'13 to '17	'18 to '22
K	5	1	6	9.8	2.0	12.0	1.1	0.5	3.0
1	-17	7	1	-23.6	9.7	1.9	-2.6	2.4	0.5
2	-9	7	-26	-14.1	10.9	-32.1	-1.6	2.7	-8.0
3	-6	-8	-8	-8.7	-11.6	-11.3	-1.0	-2.9	-2.8
4	-10	5	-8	-14.9	7.5	-12.3	-1.7	1.9	-3.1
5	-24	0	-26	-30.8	0.0	-32.5	-3.4	0.0	-8.1
TOTAL	**-61**	**12**	**-61**	**-15.2**	**3.0**	**-15.2**	**-1.7**	**0.7**	**-3.8**

Figure 9 shows kindergarten enrollment trends for Greenbriar Elementary School. The long-term trend shows decreasing kindergarten enrollment, while the recent trend shows increases.



Grade Progression Ratios

Grade progression ratios depict enrollment changes, year to year and grade to grade, measuring the effects of in- and out-migration. 17.5% to 18% of the village's births attend kindergarten five years later. Table 12 shows the grade progression ratios for Greenbriar Elementary School.

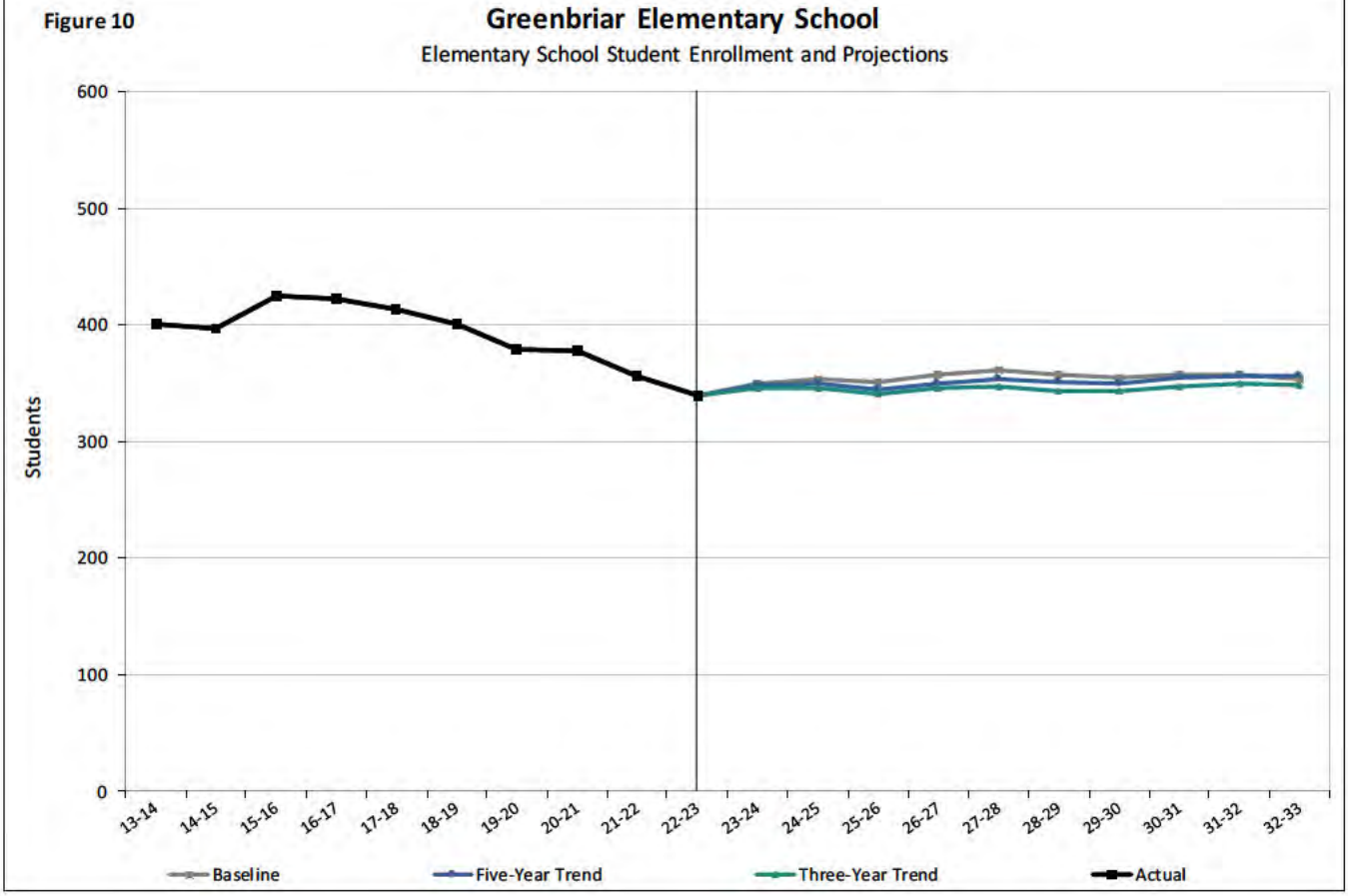
TABLE 12
Grade Progression Ratios
Greenbriar Elementary School

YEAR CHANGES	B:K	K:1	1:2	2:3	3:4	4:5
13-14/14-15	0.193	1.314	0.986	1.016	1.058	0.985
14-15/15-16	0.253	1.109	1.015	1.099	1.031	1.110
15-16/16-17	0.268	1.043	1.033	1.044	0.987	1.015
16-17/17-18	0.185	1.129	0.973	0.968	1.014	1.013
17-18/18-19	0.179	1.038	1.025	1.000	1.066	1.111
18-19/19-20	0.193	1.080	1.056	0.963	1.028	0.985
19-20/20-21	0.171	1.151	1.056	0.947	1.026	1.014
20-21/21-22	0.176	1.020	0.984	1.053	1.019	0.988
21-22/22-23	0.179	1.100	1.058	1.050	0.950	0.982
Baseline	**0.182**	**1.093**	**1.026**	**1.022**	**1.023**	**0.997**
Five-Year Trend	**0.179**	**1.078**	**1.036**	**1.003**	**1.018**	**1.016**
Three-Year Trend	**0.175**	**1.090**	**1.032**	**1.017**	**0.998**	**0.994**

*Shaded progression ratios are excluded from the Baseline

Figure 10 compares the different enrollment projection models for Greenbriar Elementary School. Enrollment projections for five years into the future range from a low of 348 students to a high of 362 students.

Figure 10



	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Baseline	350	353	350	358	362	358	355	357	357	353
Five-Year Trend	348	349	344	350	353	350	350	354	356	356
Three-Year Trend	346	345	340	345	348	343	343	347	349	348

Meadowbrook Elementary School

Enrollment

The enrollment for Meadowbrook Elementary School has increased by 91 students over the last ten years or growing by 2.8% annually. The enrollment and change in enrollment are shown in Tables 13 and 14.

TABLE 13
Student Enrollment
Meadowbrook Elementary School

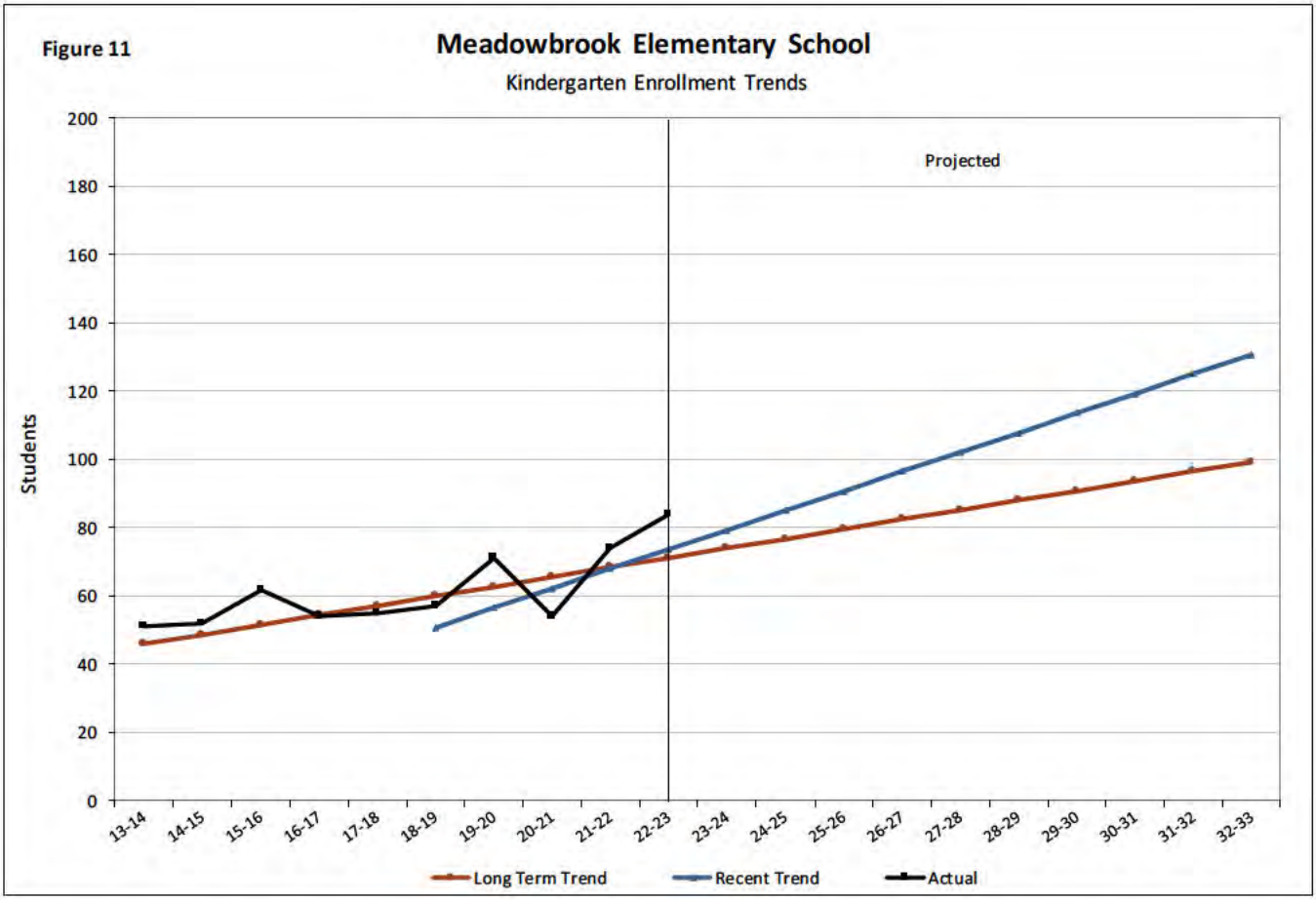
	SCHOOL YEAR									
	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23
K	51	52	62	54	55	57	71	54	74	84
1	47	61	58	77	65	62	61	74	63	80
2	61	56	63	60	78	65	70	64	76	66
3	62	64	56	70	65	86	67	73	64	79
4	66	69	65	59	75	69	85	71	76	61
5	73	68	71	68	63	82	72	88	69	81
TOTAL	**360**	**370**	**375**	**388**	**401**	**421**	**426**	**424**	**422**	**451**

TABLE 14
Student Enrollment Changes
Meadowbrook Elementary School

	ABSOLUTE CHANGE			PERCENT CHANGE			AVERAGE ANNUAL PERCENT CHANGE		
GRADE	'13 to '22	'13 to '17	'18 to '22	'13 to '22	'13 to '17	'18 to '22	'13 to '22	'13 to '17	'18 to '22
K	33	4	27	64.7	7.8	47.4	7.2	2.0	11.8
1	33	18	18	70.2	38.3	29.0	7.8	9.6	7.3
2	5	17	1	8.2	27.9	1.5	0.9	7.0	0.4
3	17	3	-7	27.4	4.8	-8.1	3.0	1.2	-2.0
4	-5	9	-8	-7.6	13.6	-11.6	-0.8	3.4	-2.9
5	8	-10	-1	11.0	-13.7	-1.2	1.2	-3.4	-0.3
TOTAL	**91**	**41**	**30**	**25.3**	**11.4**	**7.1**	**2.8**	**2.8**	**1.8**

Figure 11 shows kindergarten enrollment trends for Meadowbrook Elementary School. The long-term and recent trends show increasing kindergarten enrollment.

Figure 11



Grade Progression Ratios

Grade progression ratios depict enrollment changes, year to year and grade to grade, measuring the effects of in- and out-migration. 22% to 23.6% of the village's births attend kindergarten five years later. Table 15 shows the grade progression ratios for Meadowbrook Elementary School.

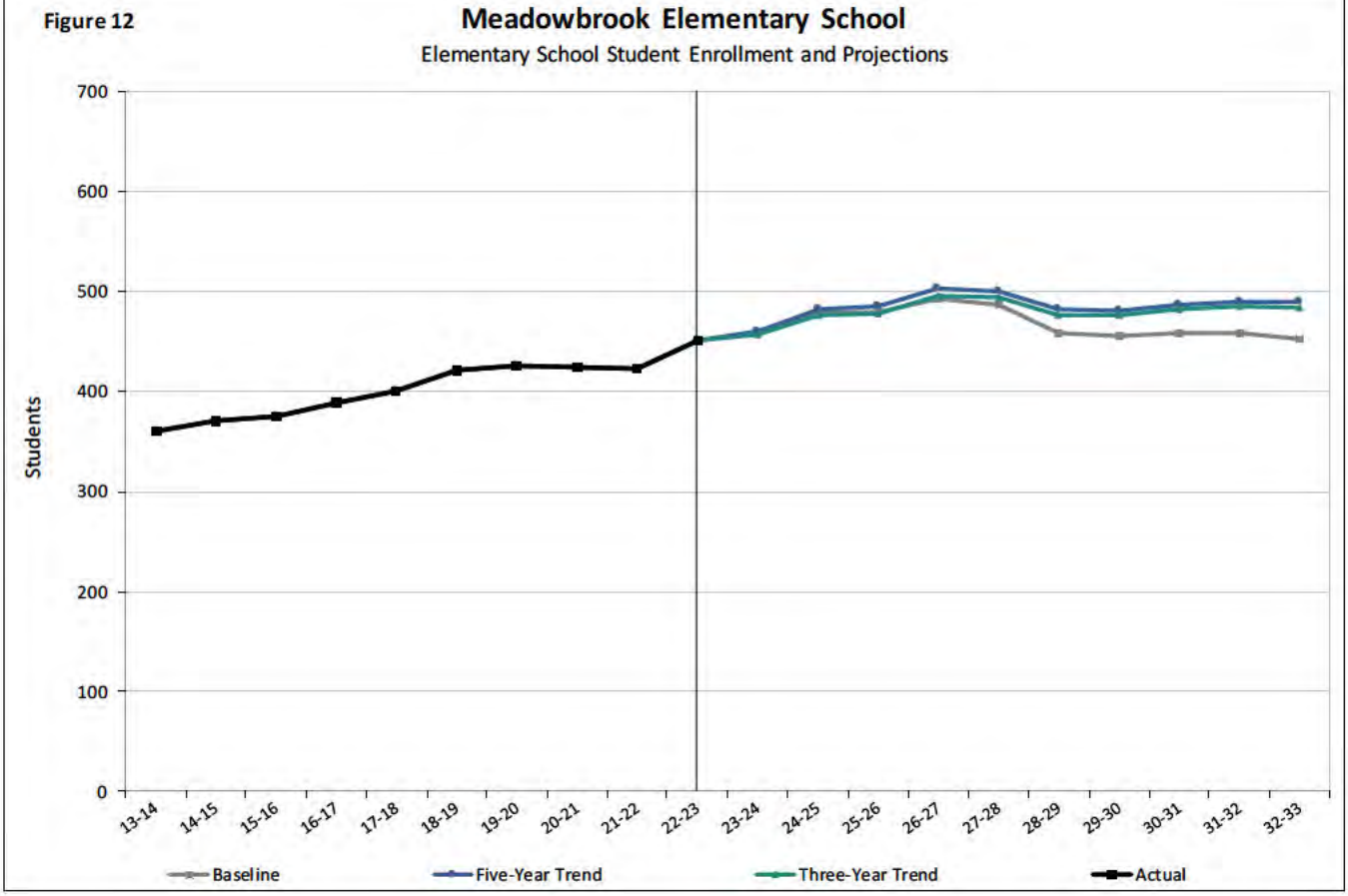
TABLE 15
Grade Progression Ratios
Meadowbrook Elementary School

YEAR CHANGES	B:K	K:1	1:2	2:3	3:4	4:5
13-14/14-15	0.182	1.196	1.191	1.049	1.113	1.030
14-15/15-16	0.224	1.115	1.033	1.000	1.016	1.029
15-16/16-17	0.207	1.242	1.034	1.111	1.054	1.046
16-17/17-18	0.195	1.204	1.013	1.083	1.071	1.068
17-18/18-19	0.205	1.127	1.000	1.103	1.062	1.093
18-19/19-20	0.258	1.070	1.129	1.031	0.988	1.043
19-20/20-21	0.181	1.042	1.049	1.043	1.060	1.035
20-21/21-22	0.260	1.167	1.027	1.000	1.041	0.972
21-22/22-23	0.268	1.081	1.048	1.039	0.953	1.066
Baseline	**0.219**	**1.133**	**1.029**	**1.049**	**1.050**	**1.045**
Five-Year Trend	**0.234**	**1.097**	**1.051**	**1.043**	**1.021**	**1.042**
Three-Year Trend	**0.236**	**1.097**	**1.041**	**1.027**	**1.018**	**1.024**

*Shaded progression ratios are excluded from the Baseline

Figure 12 compares the different enrollment projection models for Meadowbrook Elementary School. Enrollment projections for five years into the future range from a low of 486 students to a high of 500 students.

Figure 12



	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Baseline	459	479	479	493	486	458	455	458	458	453
Five-Year Trend	460	482	485	502	500	482	481	487	490	489
Three-Year Trend	457	477	478	495	493	477	476	482	485	484

Westmoor Elementary School

Enrollment

The enrollment for Westmoor Elementary School has increased by 36 students over the last ten years or growth by 1.3% annually. The enrollment and change in enrollment are shown in Tables 16 and 17.

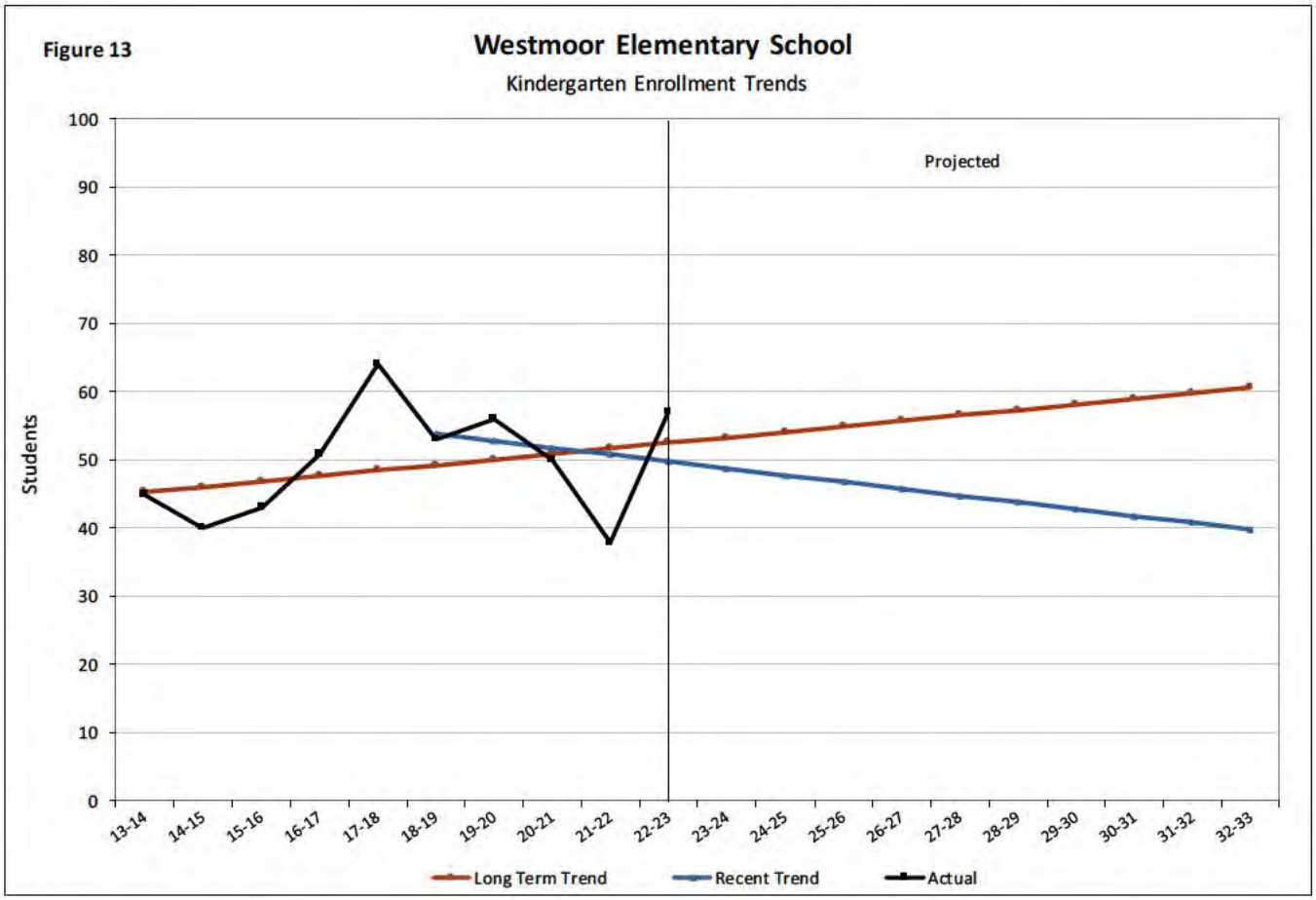
TABLE 16
Student Enrollment
Westmoor Elementary School

	SCHOOL YEAR									
	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23
K	45	40	43	51	64	53	56	50	38	57
1	42	55	52	47	59	68	55	59	48	38
2	50	44	58	53	53	59	67	57	58	52
3	44	53	44	59	53	56	61	68	57	60
4	65	48	54	45	59	57	59	62	71	55
5	51	65	52	53	46	60	58	61	62	71
TOTAL	**297**	**305**	**303**	**308**	**334**	**353**	**356**	**357**	**334**	**333**

TABLE 17
Student Enrollment Changes
Westmoor Elementary School

	ABSOLUTE CHANGE			PERCENT CHANGE			AVERAGE ANNUAL PERCENT CHANGE		
GRADE	'13 to '22	'13 to '17	'18 to '22	'13 to '22	'13 to '17	'18 to '22	'13 to '22	'13 to '17	'18 to '22
K	12	19	4	26.7	42.2	7.5	3.0	10.6	1.9
1	-4	17	-30	-9.5	40.5	-44.1	-1.1	10.1	-11.0
2	2	3	-7	4.0	6.0	-11.9	0.4	1.5	-3.0
3	16	9	4	36.4	20.5	7.1	4.0	5.1	1.8
4	-10	-6	-2	-15.4	-9.2	-3.5	-1.7	-2.3	-0.9
5	20	-5	11	39.2	-9.8	18.3	4.4	-2.5	4.6
TOTAL	**36**	**37**	**-20**	**12.1**	**12.5**	**-5.7**	**1.3**	**3.1**	**-1.4**

Figure 13 shows kindergarten enrollment trends for Westmoor Elementary School. The long-term trend shows increasing kindergarten enrollment, while the recent trend shows decreases.



Grade Progression Ratios

Grade progression ratios depict enrollment changes, year to year and grade to grade, measuring the effects of in- and out-migration. 16% to 18% of the village's births attend kindergarten five years later. Table 18 shows the grade progression ratios for Westmoor Elementary School.

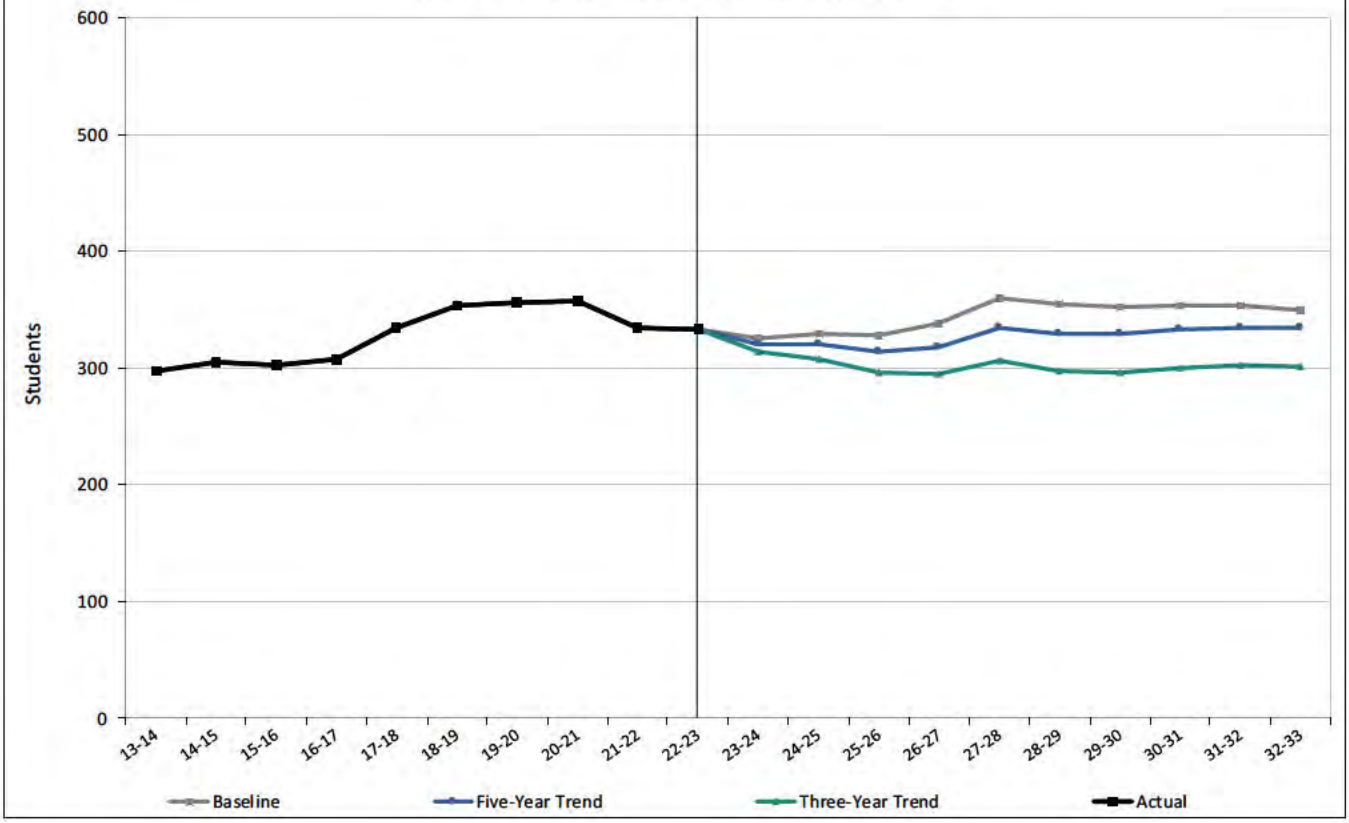
TABLE 18
Grade Progression Ratios
Westmoor Elementary School

YEAR CHANGES	B:K	K:1	1:2	2:3	3:4	4:5
13-14/14-15	0.140	1.222	1.048	1.060	1.091	1.000
14-15/15-16	0.156	1.300	1.055	1.000	1.019	1.083
15-16/16-17	0.195	1.093	1.019	1.017	1.023	0.981
16-17/17-18	0.227	1.157	1.128	1.000	1.000	1.022
17-18/18-19	0.190	1.063	1.000	1.057	1.075	1.017
18-19/19-20	0.203	1.038	0.985	1.034	1.054	1.018
19-20/20-21	0.168	1.054	1.036	1.015	1.016	1.034
20-21/21-22	0.133	0.960	0.983	1.000	1.044	1.000
21-22/22-23	0.182	1.000	1.083	1.034	0.965	1.000
Baseline	**0.182**	**1.067**	**1.040**	**1.014**	**1.026**	**1.013**
Five-Year Trend	**0.175**	**1.023**	**1.018**	**1.028**	**1.031**	**1.014**
Three-Year Trend	**0.161**	**1.005**	**1.034**	**1.016**	**1.008**	**1.011**

*Shaded progression ratios are excluded from the Baseline

Figure 14 compares the different enrollment projection models for Westmoor Elementary School. Enrollment projections for five years into the future range from a low of 307 students to a high of 359 students.

Figure 14



	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Baseline	325	329	328	338	359	354	352	354	353	350
Five-Year Trend	321	320	314	317	335	329	329	333	335	334
Three-Year Trend	314	307	297	295	307	297	297	300	302	301

Addendum to School Enrollment Projections Series, May 2023

Housing Development Impact Study
Northbrook 28 School District

November 2023

Prepared by:
Sarah Kemp, Researcher
Applied Population Laboratory
University of Wisconsin-Madison

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Introduction

This report is a response to a request made by DLA Architects, Inc. They asked that the Applied Population Laboratory (APL) at University of Wisconsin-Madison provide a study identifying the impact of the Northbrook Court development on enrollment for the Northbrook 28 School District. These updated projections are a supplement to the enrollment projections completed last school year by the Applied Population Laboratory. The updated housing unit projections provide reasonable assumptions about future growth scenarios and the likely impact on the school district. This updated model should be used in conjunction with the May 2023 APL report when planning for the district's future.

Housing Unit Multiplier

Table 1 shows the total number of houses counted by the 2017-2021 U.S. Census American Community Survey and the estimated number of new homes each year in the school district over the last eight years. The table also shows the student:housing unit ratio for the total district and by grade grouping for this time period. A student per housing unit ratio will be used to determine the number of additional students that may move-in due to new housing at the Northbrook Court development.

TABLE 1
Housing Unit Multiplier
Northbrook 28 School District

	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
TOTAL HOUSING	6,228	6,255	6,283	6,305	6,327	6,353	6,382	6,407
Est. # of homes	27	28	22	22	26	29	25	25
MULTIPLIERS								
students:h-unit	0.286	0.287	0.286	0.293	0.293	0.289	0.289	0.294
K-5:h-unit	0.179	0.184	0.187	0.184	0.183	0.175	0.176	0.179
6-8:h-unit	0.101	0.098	0.095	0.096	0.097	0.100	0.099	0.102

Future Housing Development

Young families seek out housing that is both affordable and can accommodate children. In general, young families have lower incomes and occupy less expensive housing than families with older, more established householders. In 2021, the school district's total number of housing units was 6,353. This includes single family and multi-family units. Multi-family households, on average, contain fewer school-aged children than in single family homes. Additional information on past housing trends can be found in the May 2023 report on pages 10-12.

Table 2 shows the approved housing development in the school district. It does not try to consider future development that has not been approved by the Village of Northbrook. This table provides the housing information on the Northbrook Court development but excludes the studio and one-bedroom apartments that will be constructed as part of the development. In APL's experience very few, if any, families with children move into studio or one-bedroom apartments. The table shows the type of unit to be constructed, the bedroom count, the number of units, and an estimated build-out over the next five years.

TABLE 2
Projected Housing Development
Northbrook 28 School District

Name	Housing Type	Bedroom Count	Units	24-25	25-26	26-27	27-28	28-29
Northbrook Court	Townhome	2 Bedroom	136	27	27	27	27	28
Northbrook Court	Townhome	3 Bedroom	91	18	18	18	18	19
Northbrook Court	Apartment/Condo	2 Bedroom	711	142	142	142	143	142
Northbrook Court	Apartment/Condo	3 Bedroom	123	25	25	25	24	24
			1,061	**212**	**212**	**212**	**212**	**213**

Housing Unit Projections

The Housing Unit projection model (Table 3) uses future housing development and the projections completed in May 2023 to project student growth. Additional students are determined by using the ratio of students to housing units from Table 1. A ratio of 0.179 will be used to project elementary students and a ratio of 0.102 will be used to project middle school students. The additional students that are added are smoothed throughout the grades over the next five years.

On average, when applying the ratio to the new housing units 44 additional PreK-5 students and 22 additional 6-8 students will result each year. These additional students are added to the previous projections and have been updated in Table 3. These projections can be compared to the other projection models that were provided in APL's May 2023 report.

TABLE 3
Housing Unit Projections Model
Summary of District Projections by Grade

GRADE	24-25	25-26	26-27	27-28	28-29
Pre-K	84	86	89	89	89
K	188	179	184	188	188
1	201	202	193	198	201
2	226	208	209	199	195
3	190	232	213	214	194
4	188	194	236	217	221
5	218	191	198	241	222
6	188	221	195	202	244
7	220	191	225	199	205
8	222	217	188	221	194
TOTAL	**1,925**	**1,921**	**1,930**	**1,968**	**1,953**
K-5	1,211	1,206	1,233	1,257	1,221
6-8	630	629	608	622	643

Recommended Net Square Footage Standards Per Student

Room / Space	State of Ilinois Board of Education (ISBE)	US Dept. of Edcuation Low	US Dept. of Edcuation High	CEFPI standards Low	CEFPI standards High	**D&L recommended Net S.F. per Student/ Staff**	Max. Occupancy	Typical Room Net Area	Remarks
Secondary General Classroom	30	29	35	25	30	**28.5**	28	800	30 is standard but for parity to East we are using 28.5. CEFPI secondary areas 600 low, 700 medium, 800 high.
Language Lab				45	50				
P.E. Lecture Classrooms (Health)				25	30		35		Per Athletic Director
P.E. Stations							35		Per Athletic Director
P.E. Dressing Rooms	ND			50	60				
Art Classroom / Lab	35	50	90	45	50	**62**	28	1,740	National Art Education Assoc. recommends 55 S.F./student
Graphics Computer Lab	35	48	80			**50**	28	1,400	
Kiln (electric)						**45**	2	90	45 S.F. per electric kiln
Family Consumer Sciences	60	60	100	40	50	**60**	28	1,680	
Science Labs w/ lecture	35	60	80	45	50	**70**	24	1,680	
Science Prep						**50**			30-50 per teacher
Physical Science & Horticulture						**60**			
Science Storage Room						**2**			2 S.F. per student
Special Education	50			35	45	**50**	12	600	Average Class size is 8-12 students
Music	25	23	40			**40**	90	3,600	
Choral				30	35	**25**	80	2,000	1800 minimum 60-80 students typ.
Band / Orchestra				40	50	**35**	80	2,800	2500 minimum 60-80 students typ. (CEFPI says min. is 2000 s.f.)
Small practice						**30**	2	60	
Ensemble						**40**	15	600	
Uniform storage						**3**	80	240	per uniform
Robe Storage						**2.5**	80	200	per robe
Instrument Storage						**4**	80	320	per instrument
Auditorium (audience space)				10	12	**8**	800	6,400	per seated capacity
Stage & total auxillary spacce				3750	4800				
Lobby						**2**	800	1,600	2 S.F per seat
Orchestra pit						**40**	30	1,200	
Computer Lab	40	40	63			**40**	28	1,120	
Foreign Language Lab	35	40	50			**40**	28	1,120	
Business/Shop/Technology						**75**	24		
Wood	75	100	150	100	110	**100**	24	2,400	
Auto	75	185	277	150		**150**	24	3,600	CEFPI min. is 2500 sf
Metals	75	140	225	100	110	**140**	24	3,360	
Technology	75	105	170			**100**	24	2,400	
Graphics	75	91	225			**75**	24	1,800	
Drafting (CAD computer Lab)	35	48	80	35	40	**45**	28	1,260	
Library		40	200			**4.5**	2000	9,000	CEFPI min. for a secondary school library is 1200 s.f. & seating min. is 15% w/ increase of 30 s.f/seated student as enrollment requires.
Cafeteria Student Dining area		11	15	10	14	**12**	650	7,800	95 LTHS Program used 20 S.F./student
Cafeteria - faculty						**40**			
Kitchen				2		**2**			2 sq. feet per meal served
Serving area				0.5	0.8	**0.8**			.5-.8 s.f. per capacity of the dining area
Office / Administration									
Executive Office							500		Principals
Extra Large Office							250		Assistant Principals & Directors
Large Office							200		Assist. Principals & Dept. Chairs
Medium Office							150		Deans & Counselors
Standard Office							120		Others
Small Office							100		
Shared Office						**30**			
Conference						**25**			
Workroom						**50**			S.F. Based on number of people using workroom at one time/ or staff assigned to room
Resource						**20**			
Storage						**10**			per person in Shared Office / Department
Individual Toilet Rooms						**60**			layout D max. + chase space
Public Toilets						**50**			
Exam Room						**75**			
Multipurpose Rooms						**20**	150	3,000	

	Fall Housing Report History				Current	Projections*				
	2010-11	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**
PreK:	162	152	155	154	147	147	149	151	148	151
K:	149	129	145	160	160	148	147	148	150	149
1:	108	148	138	139	139	162	150	149	147	148
2:	151	120	146	144	156	128	148	151	147	148
3:	149	147	125	146	146	162	139	142	146	147
4:	127	156	140	128	128	149	140	138	143	144
5:	119	126	150	137	135	130	145	140	135	139
6:	101	112	124	151	150	139	139	142	139	135
7:	126	101	114	128	130	152	143	145	138	140
8:	127	129	111	114	121	131	150	146	150	141
Total	**1319**	**1320**	**1348**	**1401**	**1412**	1,448	**1450**	**1452**	**1443**	**1442**

*Enrollment projections should be based on September 30th forecast in order to be consistent with historical data.
If your District has had an enrollment study completed please forward a copy in lieu of projections.

	1/2 Day	Full Day	
Kindergarten program(s)		X	(mark correct cell with "x")
	1/2 Day	Full Day	
If Both - How many students are			