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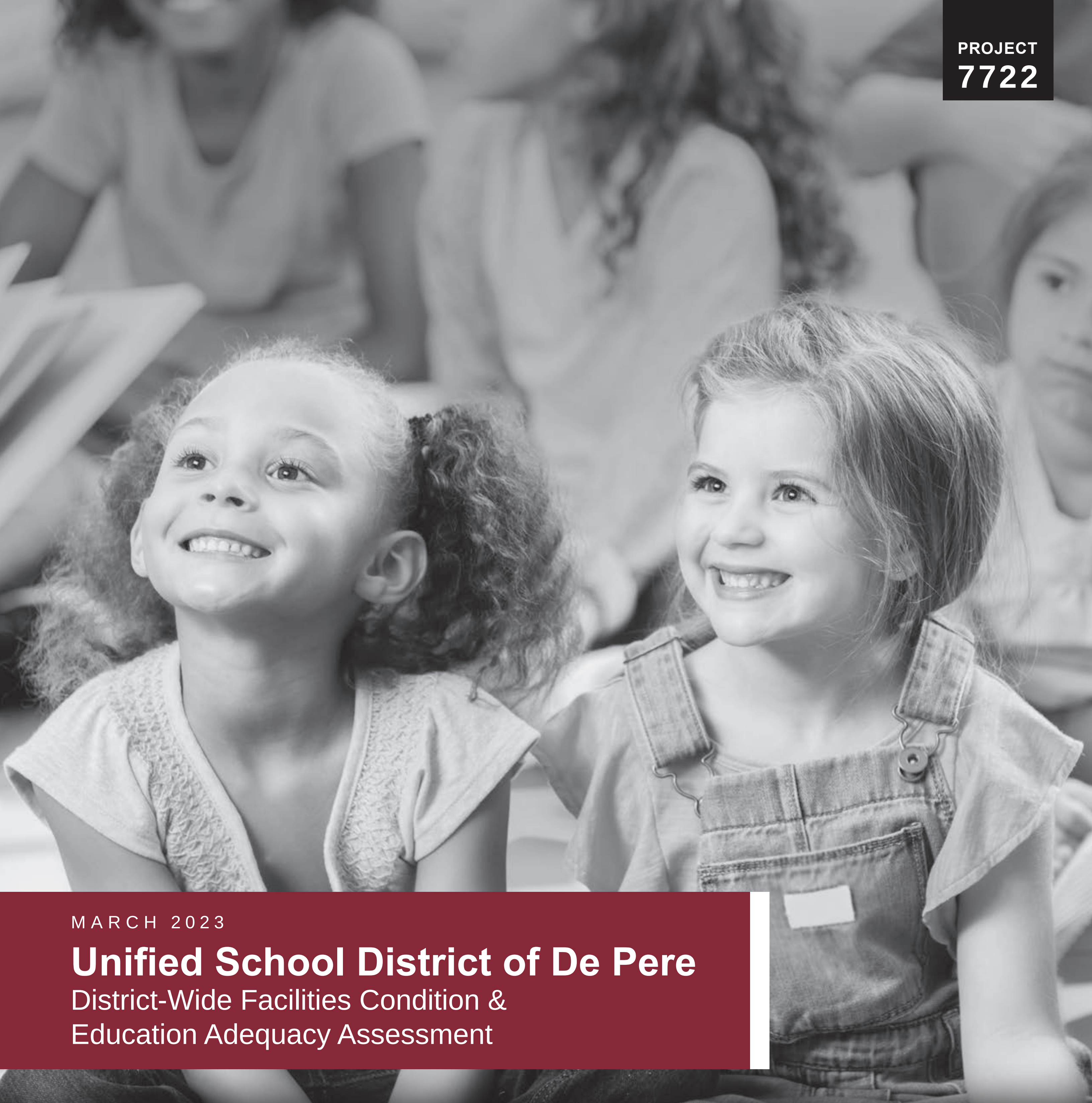

MARCH 2023

Unified School District of De Pere

District-Wide Facilities Condition & Education Adequacy Assessment

design matters℠

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ADMINISTRATIVE CONTACT INFORMATION

SCHOOL	NAME	TITLE	PHONE	E-MAIL
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	Dawn Foeller	Director of Business Services	920-337-1032	dfoeller@depere.k12.wi.us
	Pat Meyer	Building & Grounds Manager	920-337-1032	pmeyer@depere.k12.wi.us
Altmayer Elementary	Mark Kirst	Principal	920-338-1894	mkirst@depere.k12.wi.us
Dickinson Elementary	Luke Herlache	Principal	920-337-1027	lherlache@depere.k12.wi.us
Heritage Elementary	Kathy Van Pay	Principal	920-337-1035	kvanpay@depere.k12.wi.us
Foxview Intermediate	Andy Bradford	Principal	920-337-1036	abradford@depere.k12.wi.us
De Pere Middle School	Adam Kraemer	Principal	920-337-1024	akraemer@depere.k12.wi.us
De Pere High School	Nick Joseph	Principal	920-337-1020	njoseph@depere.k12.wi.us

SCHOOL BOARD MEMBERS

NAME	POSITION	ELECTED IN	EMAIL ADDRESS
David A. Youngquist	President	2014	dyoungquist@depere.k12.wi.us
Doug Seeman	Vice President	2009	dseeman@depere.k12.wi.us
Jeff Mirkes	Treasurer	2019	jeffmirkes@depere.k12.wi.us
Dan Van Straten	Clerk	2012	dvanstraten@depere.k12.wi.us
Brittony Cartwright	Member	2022	bcartwright@depere.k12.wi.us
Adam Clayton	Member	2022	aclayton@depere.k12.wi.us
Chad Jeskewitz	Member	2022	cjeskewitz@depere.k12.wi.us

EXECUTIVE SUMMARY

The Unified School District of De Pere currently includes six existing facilities:

De Pere High School
Grades 9-12
1700 Chicago Street, De Pere WI

De Pere Middle School
Grades 7 & 8
700 Swan Road, Ledgeview, WI

Foxview Intermediate School
Grades 5 & 6
650 South Michigan St. De Pere, WI

Altmayer Elementary School
Grades 4K - 4
3001 Ryan Road De Pere, WI

Dickinson Elementary School
Grades 4K - 4
435 South Washington Street, De Pere WI

Heritage Elementary School
Grades 4K - 4
1250 Swan Road, De Pere WI

INTRODUCTION

Somerville Inc. was hired by The Unified School District of De Pere (USDD) to provide a Facility Assessment (FA) of the schools listed above. The FA follows the scope of services outlined in the Request for Proposal released by USDD on October 7th, 2022.

The purpose of the Facility Assessment is to assist the USDD in ascertaining the condition of their existing buildings, as they are today, and to have a better understanding of the current and future replacement and/or repair needs for building components and systems. The assessment has been broken into six separate chapters for each respective school. Additionally, base line cost estimates are provided to help the district prepare for ongoing capital and maintenance costs and for future master planning efforts.

METHODOLOGY

Somerville Inc. visited the properties over the course of several weeks during December and January of 2022 and 2023. During our site visit we visually observed the building and inherent systems that were exposed to view or accessible above suspended ceilings. This was a non-intrusive and non-destructive evaluation. We are not authorized or licensed to inspect for hazardous materials, however, we have pointed to a few areas in this report where further investigation may be needed to ascertain the presence of asbestos.

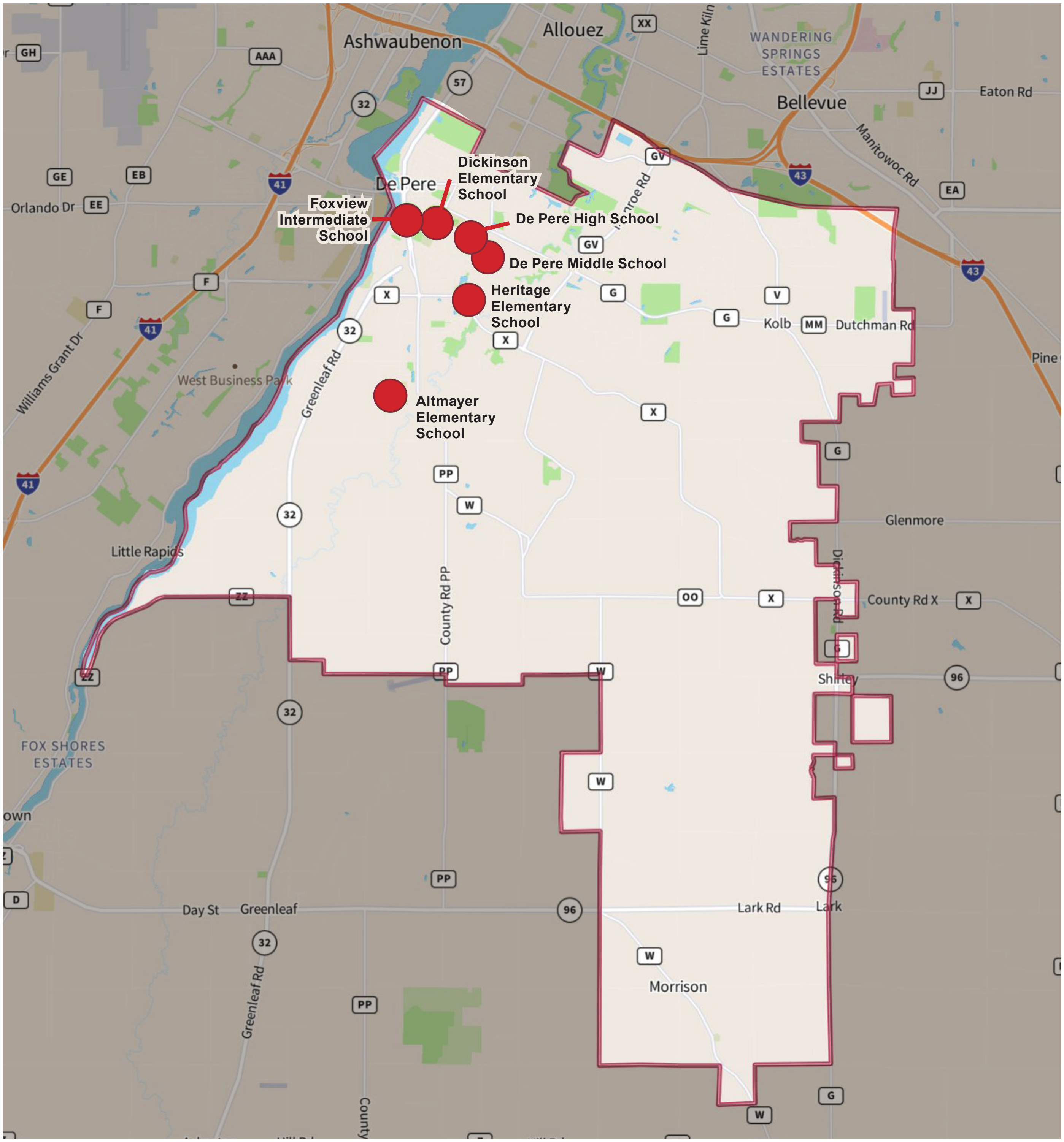
No facility assessment can eliminate all the uncertainty regarding the property and building deficiencies and their dependent systems. The walkthrough was based on visual observations of the building and the respective systems. The standard for FA's recognizes the subjective nature associated with defining the condition, quality and workmanship of the building components and their respective systems.

Somerville did limited research reviewing existing drawings and specifications, and detailed condition reports provided to us by USDD related to roofing and exterior building envelope. In addition to meetings with Pat Meyer, Director of Buildings and Grounds, we also met with representatives of each school. We interviewed administration staff to help facilitate viewpoints about the existing conditions from the end users.

Somerville Team Members:
Melanie Parma, Vice President, Education Studio Leader
Duane Grove, Architect, Architectural Project Manager
Sam Graner P.E. Vice President, Senior Mechanical Project Engineer
Aaron Baumgartner P.E. Senior Mechanical Project Engineer
Troy Theis, Senior Electrical Project Designer

Point of Beginning Team Members:
Dan St. Pierre, Professional Civil Engineer

AERIAL VIEW OF THE ENTIRE DISTRICT
63.46 SQUARE MILES



Educational Adequacy Assessment

EXECUTIVE SUMMARY

The educational adequacy assessment is based on Somerville's observation and tour of each school building, along with information collected by interviewing building-level administration. The education adequacy assessment focuses on teaching and learning needs in a modern learning environment.

The report focuses on the following:

1. Space and Program Needs
2. Capacity
3. Flexible and Collaborative Spaces
4. Visual Connection
5. Sense of Belonging
6. Safety and Security

Recommendations noted in this section of the report will be further explored in the Strategies section of the Educational Adequacy report.

To assist Somerville in preparing the Educational Adequacy Assessment, the Unified School District of De Pere (District) provided the following Recommended Capacity and Student Population for each school building, and the Applied Population Lab's (APL) School Enrollment Projects dated January 2023.

School	Recommended Capacity	Students Attending
Altmayer Elementary	638	422
Dickinson Elementary	594	520
Heritage Elementary	638	574
Foxview Intermediate	650	658
De Pere Middle School	675	675
De Pere High School	1500	1458

SPACE AND PROGRAM NEEDS

- Space needs to support programming and curriculum vary based on the grade level and individual building.
- All the school buildings lacked flexible, collaborative space and spaces to promote hands-on, inquiry-based learning.
- At the Middle and High School levels, the current programming space for Career and Technical Education (CTE) is undersized. Expanded CTE programming, at the upper grade levels, continues to be a priority in many districts. It introduces students to workplace competencies, while providing academic content to students through hands-on opportunities.
- The District's 4K programming is currently offered at both on-site and off-site locations. There is currently insufficient space at the District's elementary school buildings to support the 4K needs in the District.

CAPACITY

- The Applied Population School Enrollment Projection Series indicates in five years the Unified School District of De Pere's elementary school enrollment is likely to decrease 5.8%, intermediate school enrollment is likely to decrease 7.2%, the middle school enrollment will likely increase 4.2% and the high school will increase an average of 3.0%. This enrollment projection does not include consideration for the future construction of the South Bridge Connector.
- The APL series indicates the enrollment will remain relatively steady over the next 5 years. However, with the other considerations, including the future South Bridge Connector, the current capacity challenges at the Intermediate and Middle Schools, and the District's desire to move the current off-site 4K programs into the District's buildings, the District should consider construction of additions or new buildings to alleviate crowding and prepare for the future.
- The District will need to determine the goal student size for the schools at each level (elementary, intermediate, middle and high school), as well as number of building transitions students will encounter from 4K to graduation within the District. This will provide additional context to the District's strategy moving forward for the school buildings and grade level alignment.
- The site size recommendations are based on historical experience and industry standards in Wisconsin. The is determined by a base site size, depending on the school level, and an additional acre per 100 students in the school.
    - Elementary School = 10 acres plus 1 acre per 100 students
    - Middle School = 20 acres plus 1 acre per 100 students
    - High School = 30 acres plus 1 acre per 100 students

FLEXIBLE AND COLLABORATIVE SPACES

- Across the District the school buildings have traditional school designs indicative of the time they were constructed. With a few exceptions, the buildings consist of double loaded corridors and lack flexible, collaborative spaces. Modern learning environments include a variety of study and collaboration spaces throughout the school building. These spaces often include a mix of small, medium, and large group spaces. Spaces maybe open to classrooms and corridors or separate closed rooms; regardless of type or location of these spaces they must be designed with visibility for supervision.
- Along with the traditional building designs, the majority of the furnishings in the buildings are standard in nature. Modern classroom design and furnishings focus on flexibility and ease of reconfiguring spaces to support a variety of activities or learning needs.

- Flexibility and collaboration should not be isolated to student spaces, consideration should be given for such staff spaces as well. Professional development and staff collaboration centers are lacking in most of the buildings.

VISUAL CONNECTION

- Visual connection includes transparency for learning to be seen, visibility into spaces for supervision, as well as a connection to the outdoors.
- The traditional design of the school buildings does not include visual connection to learning occurring in the classrooms and labs. The double loaded corridors are locker lined, blocking opportunities to see into classrooms.
- There are minimal collaborative learning areas. Those observed in the District (i.e. at the high school) are open areas outside of classrooms with transparency allowing for supervision from adjacent classrooms and offices.
- With the exception of the High School classrooms, the majority of the classrooms within the District have windows to the exterior offering a good connection to the outside.

SENSE OF BELONGING

- *When students feel a sense of belonging in a classroom, it can increase their educational success and motivational outcomes in multiple ways, and teachers can help create this feeling of belonging by building connections between classroom and community* (DeLeon Gray, Ph.D. NC State College of Education, Ask the Expert online series, 10/21/2021) The student's sense of belonging is a result of more than the physical environment, however, the physical environment may help to support the philosophy and culture of the school. Modern school buildings do this in multiple ways, two of which are displaying a strong school identity and pride within the building, as well as creating a welcoming and useable space for community engagement.
- Each school building has a sense of identity and includes some signage or environmental graphics; however, there are opportunities within the physical environment to increase a sense of belonging and ownership among students.
- There are a variety of community spaces, including parent/volunteer rooms, throughout the District. Consideration should be given to ensuring all buildings have appropriate community spaces for their school, including family conference and meeting spaces.

SAFETY AND SECURITY

- Creating a safer school extends well beyond the built, physical environment of the building. A safe school addresses a range of topics including bullying, cybersecurity, mental health, violence and emergency planning. There are a number of resources and security experts to assist the District in their overall safety and security measures. This report focuses on the secure entry sequence and site safety (i.e. general traffic flow of pedestrians and vehicles).
- The District has addressed secure entrance sequences at the schools in previous remodel and additions projects.
- There are safety concerns at Dickinson Elementary and Foxview Intermediate due to the small site sizes.

SUSIE C ALTMAYER ELEMENTARY SCHOOL

Educational Adequacy Observations / Recommendations

OVERVIEW

The Susie C. Altmayer Elementary school is the district's newest school constructed in 2007. The gross building floor area is 110,287 sq.ft. with 2 levels. The building's capacity is 638 students with a current enrollment of 422 students. The building currently houses 4K to 4th grade, as well as rental space for the Head Start program.

SPACE AND PROGRAM NEEDS

SPACE AND PROGRAM NEEDS

- The spaces are currently functioning very well for the program needs in the building.
- There is a small maker space (Thinkering Studio), however it was noted to take full advantage of the maker space additional staff is needed to program and facilitate the use of the space.
- The elementary school's Ready Body, Learning Minds program has been implemented after the building's original design, the spaces were not designed for the programming specifically and is not centrally located.
- There is not a shared staff development area, teachers currently use their classrooms for collaboration.

SPACE AND PROGRAM NEEDS RECOMMENDATIONS

- Maximize the maker space (Thinkering Studio) with flexible furnishings and hard flooring to promote different activities/ hands-on learning opportunities within the space.
- Create a dedicated space for the Ready Body, Learning Minds program in a central location of the building. Designed and dedicated space for this program would benefit the students and ensure the space would not be absorbed by other needs if they surface.
- Recommend exploring opportunities to create a staff collaboration and professional development center within the building.

CAPACITY

CAPACITY NEEDS

- The building is currently under capacity.
  - Building capacity is 638 = 173 sq. ft. per student
  - Current enrollment is 422 = 261 sq.ft. per student
- The site has ample space for future expansion.
  - Site is 24.7 acres
  - Design guidelines for a 600 student elementary school are 16 acres minimum
  - There is additional District owned property across the street from the school.

CAPACITY RECOMMENDATIONS

- There is currently one classroom open and available at each grade level. This additional space is presently used for special education programming; the space is often over-sized and under-utilized. This space provides opportunities:
  - These additional classrooms could be used for collaborative learning environments, through remodeling and/or the implementation of flexible furniture.
  - These classrooms could be used for future growth.
  - These classrooms could be used to accommodate additional 4K programming, to assist in moving 4K from off-site facilities.

FLEXIBLE AND COLLABORATIVE SPACES

FLEXIBLE AND COLLABORATIVE SPACES NEEDS

- The building is lacking collaborative learning environments.
- The library and classrooms have traditional furniture.

FLEXIBLE AND COLLABORATIVE SPACES RECOMMENDATIONS

- Provide collaborative learning environments:
  - As noted above, the additional classrooms could be used for collaborative learning environments at each grade level. This could be achieved by removing walls and opening these spaces up, addition glass to allow for visibility and supervision or simply with the implementation of flexible furniture and technology.
- Provide a variety of flexible furnishings in the library, maker space (Thinkering Studio) and classrooms to create opportunities for spaces to be configured differently to support a variety of activities and learning styles.

VISUAL CONNECTION

VISUAL CONNECTION NEEDS

- The traditional design of the building does not include large expanses of glass between learning spaces and the corridor.
- There is good connection to the exterior with natural lighting in all grade level classrooms.

VISUAL CONNECTION RECOMMENDATIONS

- As collaborative learning areas are implemented into the building, visibility will be key for connection and supervision.

SENSE OF BELONGING SUMMARY

SENSE OF BELONGING NEEDS

- There are some signage and murals that provide a connection to the school and common goals/values, however there is opportunity to build an additional sense of belonging through branding and environmental graphics.
- Altmayer has a nice community room with kitchenette facilities, located in an easily accessible location for the public.
- Altmayer has a good parent / volunteer workroom.

SENSE OF BELONGING RECOMMENDATIONS

- Provide signage and murals that creates a sense of belonging and ownership through branding and environmental graphics.

SAFETY AND SECURITY NEEDS SUMMARY

SAFETY AND SECURITY NEEDS

- The school has a secure entry sequence where visitors must check-in through the main office prior to being granted access to the remainder of the school.
- The site layout and the school's process and procedures appear to create a safe site for traffic flow.

DICKINSON ELEMENTARY SCHOOL

Educational Adequacy Observations / Recommendations

OVERVIEW

The Dickinson Elementary school is located on approximately 9.3 acres. It's the District's 2nd oldest school, originally constructed in 1956. The gross building floor area is 73,136 sq.ft. on 1 primary level. Building's capacity is 594 students with current enrollment at 520 students in K to 4th grade.

SPACE AND PROGRAM NEEDS

SPACE AND PROGRAM NEEDS

- Many of the spaces in the school are too small to function appropriately, including the instructional spaces, storage areas, activity rooms, logic lab, and office space.
- The classrooms varied in size within the building and are smaller than the classrooms in Altmayer and Heritage Elementary Schools.
- There is not a community room or parent/volunteer workroom in the building.
- Storage is inadequate throughout the building. Physical education storage is offsite.
- Small logic lab/maker space does not provide adequate square footage or flexibility for programming and use.
- Office space is inadequate, staff is sharing office space. The office space has a poor, linear layout and does not promote collaboration.
- There is no custodial work space and the receiving area is undersized.
- The elementary school's Ready Body, Learning Minds program has been implemented after the building's original design, the spaces were not designed for the programming specifically and is not centrally located.
- There is not a shared staff development area, teachers currently use their classrooms for collaboration.
- There is no onsite 4K in this building.

SPACE AND PROGRAM NEEDS RECOMMENDATIONS

- Addressing all the needs noted above will require additional square footage to accommodate the space and programming needs, however the site is undersized, and additions would not be recommended at Dickinson Elementary.
- The other option to address the needs within the existing square footage of the building would require the student enrollment to be reduced. Reducing the number of students within the school would free up space to allow for existing spaces to be remodeled accordingly.

- Without remodeling or additions, the maker space (Thinkering Studio) could be maximized by providing flexible furnishings and hard flooring to promote different activities/hands-on learning opportunities within the space.

CAPACITY

CAPACITY NEEDS

- The building is currently under capacity, however the square foot per student numbers at Dickinson Elementary are significantly lower than at Altmayer and Heritage Elementary Schools.
  - Building capacity is 594 = 123 sq. ft. per student
  - Current enrollment is 520 = 140 sq .ft. per student
- The site is not adequate for expansion.
  - Site is 9.3 acres
  - Design guidelines for a 600 student elementary school are 16 acres minimum
  - The site is adjacent to the high school and athletic fields.
  - Parking is limited.

CAPACITY RECOMMENDATIONS

- Based on the current enrollment, the building technically has room for additional students, however the building is deficient in a variety of space and program needs. The square footage per student numbers at Dickinson Elementary are significantly lower than Altmayer and Heritage Elementary Schools; even when comparing the recommended capacity numbers.
- As previously noted, the site is already undersized, and additions would not be recommended to accommodate the space and programming needs given the site constraints.

FLEXIBLE AND COLLABORATIVE SPACES

FLEXIBLE AND COLLABORATIVE SPACES NEEDS

- The building lacks collaborative learning environments. There is one maker space (Logic Lab) adjacent to the library.
- The library and classrooms in general have traditional furniture.

FLEXIBLE AND COLLABORATIVE SPACES RECOMMENDATIONS

- Provide collaborative learning environments, however this can only be done if current enrollment is reduced allowing existing space to become available to remodel. Recommendation is to have grade level collaborative space.
- Provide a variety of flexible furnishings in the library, maker space (Thinkering Studio) and classrooms to provide for spaces to be configured to support a variety of activities and learning styles.

VISUAL CONNECTION

VISUAL CONNECTION NEEDS

- The traditional design of the building does not include large expanses of glass between learning spaces and the corridor.
- There is good connection to the exterior with natural lighting in grade level classrooms, with the exception of two interior kindergarten classrooms.

VISUAL CONNECTION RECOMMENDATIONS

- As collaborative learning areas are implemented into the building, visibility will be key for connection and supervision.

SENSE OF BELONGING SUMMARY

SENSE OF BELONGING NEEDS

- There are some signage and murals that provide a connection to the school and common goals/values, however there is opportunity to build an additional sense of belonging through branding and environmental graphics.
- The building does not have a community room or parent/volunteer room, and meeting space is limited to one conference room.

SENSE OF BELONGING RECOMMENDATIONS

- Provide signage and murals that creates a sense of belonging and ownership through branding and environmental graphics.
- Identify a strategy to create equity across the district by creating a community room, parent/volunteer room, and adequate meeting spaces.

SAFETY AND SECURITY NEEDS SUMMARY

SAFETY AND SECURITY NEEDS

- The school has a secure entry sequence however, the design does not allow for visitors to travel through the main office prior to being granted access to the remainder of the school.
- The site is undersized causing traffic flow and safety concerns.
- Parking is lacking.
- There is not a secure entry that requires a visitor to traverse through the office prior to having access to the remainder of the school.

SAFETY AND SECURITY RECOMMENDATIONS

- Remodeling to create a better secure entrance would be recommended, however this would likely require absorbing additional space within the building or adding on the front of the building. Both options require significant ramifications to the building or student enrollment population to achieve optimal results.

HERITAGE ELEMENTARY SCHOOL

Educational Adequacy Observations / Recommendations

OVERVIEW

Heritage Elementary School is located on 22.4 acres and was constructed in 1997. The gross building floor area is 105,576 sq.ft. on 1 primary level. Building's capacity is 638 students, with a currently enrollment of 574 students in 4K to 4th grade.

SPACE AND PROGRAM NEEDS SUMMARY

SPACE AND PROGRAM NEEDS

- The spaces are currently functioning very well for the program needs in the building.
- The library size has space for modern learning environment opportunities to create an inviting and engaging space with integrated technology.
- The Thinkering Studio is a nice sized space adjacent to the library and is shared with some art classes, which is currently working. However, the furniture and finishes in the space should be updated to provide for a variety of programs.
- The elementary school's Ready Body, Learning Minds program has been implemented after the building's original design, the spaces was not designed for the programming specifically and is not centrally located.
- The building does have a nice staff center that was created in the most recent remodeling proje

SPACE AND PROGRAM NEEDS RECOMMENDATIONS

- Update existing Thinkering Studio with new finishes (hard flooring) and flexible furniture to accommodate a variety of hands-on, art and STEM activities.
- Create a dedicated space for the Ready Body, Learning Minds program in a central location in the building; designed and dedicated space for this program would benefit the students and ensure the space would not be absorbed by other needs if they surface.

CAPACITY

CAPACITY NEEDS

- The building is currently under capacity.
  - Building capacity is 638 = 165 sq. ft. per student
  - Current enrollment is 574 = 184 sq. ft. per student
- The site is adequate for expansion.
  - Site is 22.4 acres
  - Design guidelines for a 600 student elementary school are 16 acres minimum

CAPACITY RECOMMENDATIONS

- The building has some room for growth.
- The site is adequate for expansion, however if additional classrooms were to be added, the core spaces would need to be addressed as well. The commons is currently adequate; to accommodate additional students the building would require additional commons and kitchen space or a modification of the school lunch schedule.
- Recommendation is to keep the building at 5 sections per grade level (K-4th grade) to allow for additional 4K classrooms in the building. This would also provide flexibility as student needs and programming changes.

FLEXIBLE AND COLLABORATIVE SPACES

FLEXIBLE AND COLLABORATIVE SPACES NEEDS

- The building is planned well with core space in each classroom wing for collaborative opportunities. Two of the wings currently use the space for special education and the Ready Body, Learning Minds program. Moving or creating space for these programs in another location within the building would free up these areas for flexible and collaborative opportunities.
- With some exceptions, the library and classrooms have traditional furniture.

FLEXIBLE AND COLLABORATIVE SPACES RECOMMENDATIONS

- Provide collaborative learning environments, however this can only be done within the existing building footprint if enrollment is modified.
- Provide a variety of flexible furnishings in the library, maker space (Thinkering Studio) and classrooms to provide for spaces to be configured to support a variety of activities and learning styles.

VISUAL CONNECTION

VISUAL CONNECTION NEEDS

- The design of the building does include some large expanses of glass between learning spaces and the corridor, specifically at the remodeled art and music rooms, however they have covered with graphics to avoid distraction from the commons.
- There is good connection to the exterior with natural lighting in all grade level classrooms.

VISUAL CONNECTION RECOMMENDATIONS

- As collaborative learning areas are implemented into the building, visibility will be key for connection and supervision.

SENSE OF BELONGING SUMMARY

SENSE OF BELONGING NEEDS

- There are some signage and murals that provide a connection to the school and common goals/values; there is opportunity to build an additional sense of belonging through branding and environmental graphics.
- Heritage Elementary does have nice parent / volunteer space, but it does not have a community room.

SENSE OF BELONGING RECOMMENDATIONS

- Identify a strategy to create equity across the district by creating a community room.
- Provide signage and murals that creates a sense of belonging and ownership through branding and environmental graphics.

SAFETY AND SECURITY NEEDS SUMMARY

SAFETY AND SECURITY NEEDS

- The school has a secure entry sequence where visitors must check-in through the main office prior to being granted access to the remainder of the school.
- The site layout and the school’s process and procedures appear to create a safe site for traffic flow.

FOXVIEW INTERMEDIATE SCHOOL

Educational Adequacy Observations / Recommendations

OVERVIEW

The Foxview Intermediate School is located on 6.0 acres. It is the District's oldest school, originally constructed in 1930. The gross square footage is 108,044 on two primary levels. Building's capacity is 650 students, with current enrollment at 658 students in grades 5th and 6th. The building has historic significance, architectural details, and is located with a beautiful view of the Fox River. It is a very traditional design, narrow corridors, without flexible and collaborate space.

SPACE AND PROGRAM NEEDS SUMMARY

SPACE AND PROGRAM NEEDS

- The building is over capacity, requiring spaces to be used for functions other than the original intended use.
  - A science room is being used for a grade level classroom. The room is undersized and does not have exterior windows. This is not an optimal space for a grade level classroom.
  - There are two narrow classrooms, without sinks, one is being used for a grade level classroom. All other classrooms do have sinks. These rooms are remote from the other grade level classrooms.
  - A grade level classroom is being housed in a space originally designed as an art room, it is adequately sized, however it is remote from the other grade level classrooms.
  - The stage in the auditorium is being used as a choir classroom. This is not an ideal instructional space and causes scheduling issues during times when the auditorium is needed for other activities. Other music department spaces (i.e. practice rooms) are being underutilized.
  - Areas designed for staff centers are being used as student learning spaces, leaving the staff without dedicated staff centers.
  - Parent volunteer spaces have been repurposed for programming; the location of this space, across from the gym, is not appropriate for a learning space.
- Special education spaces are not flexible and are located remote from grade level classrooms.
- The library is adequately sized. There is a maker space / STEM zone of the library, it is not a separate room and is not designed specifically for a variety of activities (i.e. hard flooring, ample electrical receptacles, flexible furnishings). The library had six columns added for power/data in a previous remodel, however these columns over oversized and limit the flexibility of the library.
- Office space is being shared, there are not spaces for off-site services (i.e. counseling) to occur, and other open areas of the main office are underutilized.

- The gym is sized sufficiently and is often used beyond the school day. The locker rooms are undersized, not enough lockers for the student enrollment. The shower space is being used for storage.
- There is not a staff professional development or meeting area.

SPACE AND PROGRAM NEEDS RECOMMENDATIONS

- Addressing all the needs noted above require additional square footage to accommodate the space and programming needs, however the site is already undersized, and additions would not be recommended at Foxview Intermediate School.
- The other option to address the needs within the existing square footage of the building would require the student enrollment to be reduced. Reducing the number of students within the school would free up space to allow for existing spaces to be remodeled accordingly.

CAPACITY

CAPACITY NEEDS

- The building is currently over capacity.
  - Building capacity is 650 = 166 sq.ft. per student
  - Current enrollment is 658 = 164 sq.ft. per student
- The site is not adequate for expansion.
  - Site is 6.0 acres
  - Design guidelines for a 650 student intermediate school are 16 acres minimum
- The site is a significant challenge, parking and outdoor activity / playground space is not adequate in its current state.

CAPACITY RECOMMENDATIONS

- Recommendation is to keep this school an intermediate school, where the playground space needs are less intensive than at an elementary school.
- Recommendation to address the overcrowding in the building and on the site.
- Recommend the District consider opportunities to acquire adjacent property to expand parking and outdoor opportunities at this site.

FLEXIBLE AND COLLABORATIVE SPACES

FLEXIBLE AND COLLABORATIVE SPACES NEEDS

- The building is lacking collaborative learning environments. The maker space is within the existing the library.
- The library and classrooms in general have traditional furniture.

FLEXIBLE AND COLLABORATIVE SPACES RECOMMENDATIONS

- Provide collaborative learning environments, however this can only be done if current enrollment is reduced allowing existing space to become available to remodel. Recommendation is to have grade level collaborative space.
- Provide a variety of flexible furnishings in the library, maker space/STEM and classrooms to provide for spaces to be configured to support a variety of activities and learning styles.

VISUAL CONNECTION

VISUAL CONNECTION NEEDS

- The traditional design of the building does not include large expanses of glass between learning spaces and the corridor.
- There is good connection to the exterior with natural lighting in the originally designed grade level classrooms. As noted above, some grade level classrooms are being held in spaces not originally designed for that purpose.

VISUAL CONNECTION RECOMMENDATIONS

- As collaborative learning areas are implemented into the building, visibility will be key for connection and supervision.

SENSE OF BELONGING SUMMARY

SENSE OF BELONGING NEEDS

- There are some signage and murals that provide a connection to the school and common goals/values; there is opportunity to build an additional sense of belonging through branding and environmental graphics.
- The activity room located adjacent to the commons is used for a variety of purposes (community room, small testing, storage for the Y program, and parent volunteer space).

SENSE OF BELONGING RECOMMENDATIONS

- Identify a strategy to create equity across the district by creating a community room.
- Provide signage and murals that creates a sense of belonging and ownership through branding and environmental graphics.
- The activity room is undersized for its multi-purpose use. Freeing up other space in the building would allow for some of the functions to be appropriately relocated. Finishes in the activity room should be updated for multi-purpose use (hard flooring in lieu of carpeting)

SAFETY AND SECURITY NEEDS SUMMARY

SAFETY AND SECURITY NEEDS

- The site is undersized causing traffic flow and safety concerns; currently cones are used on the blacktop playground surface to manage vehicle traffic.
- Parking is limited.
- There is a secure entry that requires a visitor to enter the office prior to having access to the remainder of the school, however all visitors walk through the playground outside to get to the secure entrance doors.
- The receiving area access cuts off the green space from the remainder of the playground, which is completely paved. The green space is extremely limited.

SAFETY AND SECURITY RECOMMENDATIONS

- Schools on tight sites can exist, but thorough planning, design and implementation has to occur for them to function properly and provide a safe school environment.
- Recommendation is to address the site issues with thoughtful design and implementation; creating an attractive playground with secure exterior entrance sequence that satisfies both the needs of the students, staff and visitors, while complementing this historically significant building.

DE PERE MIDDLE SCHOOL

Educational Adequacy Observations / Recommendations

OVERVIEW

The De Pere Middle School is located on 28.9 acres and was constructed in 1997. The gross building floor area is 119,723 sq.ft. on 1 primary level. Building's capacity is 675 students, with a current enrollment of 675 students in grades 7 and 8.

SPACE AND PROGRAM NEEDS SUMMARY

SPACE AND PROGRAM NEEDS

- The classrooms are adequately sized; however class sizes are currently at 28 students, not the recommended 25.
- The building is efficiently laid out and has good opportunity for collaborative learning in the classroom wings; however with the building at enrollment capacity, these opportunities are limited given the amount of classrooms needed. There are no empty classrooms.
- The office is lacking individual office spaces.
- The library is undersized and does not have any collaborative learning furnishings, individual, group or media rooms. One media room, off the library, is multipurposed with stage storage, making it unusable.
- The gym is used frequently outside of school hours, everynight and every weekend. When the divider curtain is closed in the gym, each side becomes too small for many activities. The department is short on storage. Showers in the locker room are used for storage.
- Music department is functionally well, adequate space.
- Tech Ed space is undersized. The tight shop space causes safety concerns.
- Art room is good size; could you some additional storage.
- Family and Consumer Science room size is adequate, however the equipment is outdated.
- The 'auditeria', the multi-use commons and auditorium, is difficult to use well for both an auditorium and a commons. The stage area is used for seating during a typical school day for approximately 100 students, however when the stage needs to be prepared and used for an event, the seating is lost.
- Overall building storage is lacking.
- The classroom wings have staff center space dedicated in each classroom wing.

SPACE AND PROGRAM NEEDS RECOMMENDATIONS

- Addressing all the needs noted above will require additional square footage to accommodate the space and programming needs. Additions are possible at this school based on the site size, however additional investigation is needed regarding the stormwater management and the flooding that occurs on the site. The initial recommendation is to avoid adding on to the classroom wings due to the proximity of the existing stormwater ponds.
- The other option to address the needs of the building would require the student enrollment to be reduced. Reducing the number of students within the school would free up space to allow for existing spaces to be remodeled accordingly.

CAPACITY

CAPACITY NEEDS

- The building is currently at capacity.
  - Building capacity is 675 = 177 sq. ft. per student
  - Current enrollment is 675 = 177 sq. ft. per student
- The site may be adequate for expansion; additional stormwater design investigation needed. Existing stormwater ponds are close to the classroom wings and the site currently experiences flooding.
  - Site is 28.9 acres
  - Design guidelines for a 600 plus student middle school are 27 acres minimum
  - The site green space is shared with the high school.

CAPACITY RECOMMENDATIONS

- Recommendation to address the overcrowding in the building by either adding on or addressing the number of students in the building.

FLEXIBLE AND COLLABORATIVE SPACES

FLEXIBLE AND COLLABORATIVE SPACES NEEDS

- The building is lacking flexible and collaborative spaces.
- The building is designed with core space in each classroom wing that could be easily converted from classroom shared flexible, collaborative space. These spaces are currently used for classrooms.
- The LMC and classrooms have traditional furniture.

FLEXIBLE AND COLLABORATIVE SPACES RECOMMENDATIONS

- Provide collaborative learning environments, however this can only be done within the existing building footprint if enrollment is modified.
- Provide a variety of flexible, purposeful furnishings in the LMC and classrooms to provide for spaces to be configured to support a variety of activities and learning styles.

VISUAL CONNECTION

VISUAL CONNECTION NEEDS

- The traditional design of the building does not include large expanses of glass between learning spaces and the corridor; however there are borrowed lites between some of the areas and the corridor.
- There is good connection to the exterior with natural lighting in the majority classrooms. There are still some classrooms that are in the core of the classroom wings that do not have exterior natural light.

VISUAL CONNECTION RECOMMENDATIONS

- As collaborative learning areas are implemented into the building, visibility will be key for connection and supervision.

SENSE OF BELONGING SUMMARY

SENSE OF BELONGING NEEDS

- There are some signage and murals that provide a connection to the school and common goals/values; there is opportunity to build an additional sense of belonging through branding and environmental graphics.
- The building does not include a community or parent/volunteer room.

SENSE OF BELONGING RECOMMENDATIONS

- Identify a strategy to create equity across the district by creating a community room or parent/volunteer room.
- Provide signage and murals that creates a sense of belonging and ownership through branding and environmental graphics.

SAFETY AND SECURITY NEEDS SUMMARY

SAFETY AND SECURITY NEEDS

- The school has a secure entry sequence where visitors must check-in through a transaction window from the vestibule to the main office prior to being granted access to the remainder of the school.
- The site layout and the school's process and procedures appear to create a safe site for traffic flow.

DE PERE HIGH SCHOOL

Educational Adequacy Observations / Recommendations

OVERVIEW

The High School is located on 35.201 acres. The gross building floor area is 296,311 sq.ft. on 2 primary levels. The building houses the district offices on the 2nd level, at the west side of the building. Building's capacity, provided by the District, is 1,500 students, current enrollment is 1,450 students

SPACE AND PROGRAM NEEDS SUMMARY

SPACE AND PROGRAM NEEDS

- The building is at capacity and is short on classroom space to adequately accommodate the program needs in the building. It was noted the building started to feel at capacity when 1300 students were enrolled.
- The building is currently housing a daycare and has 4K programming on the second level of the building.
- The building accommodates 'at risk' student needs; classrooms and offices.
- The District Office is located on the west side of the building, with its own entrance. The district office appears to overflow into the high school, taking over some spaces for storage and office needs.
- The classrooms differ in size throughout the building and a number of them are interior spaces without natural light.
- There are two areas of collaborative spaces that are used frequently; additional collaborative spaces in the building are desired.
- The building has limited meeting and conference space.
- The counseling offices' location is not conducive for adult visitors; poor way-finding.
- The commons is split into two, with the restrooms located in the middle, this causes issues with supervision and flexibility of the space.
- The gym is adequately sized and divides into multiple areas when the curtains are down. There are currently 5 physical education teachers.
    - There is a community/dance and physical education (PE) fitness room (non weight room) on the second floor that can be used for PE classes.
    - The original lockers are now in a remote location away from the gym, making monitoring difficult. The athletic teams use these locker rooms.
    - Gym bleachers do not accommodate the current enrollment, need more bleacher seating for an all-school assembly.
    - The weight room is undersized for the use it receives; for PE and athletic needs and lacks cardio fitness equipment.

  - There is not a classroom for the PE department, resulting in student taking notes and tests sitting on the floor.
  - Wrestling is below orchestra and choir and the sound transfer has been an issue.
- Tech ed is undersized.
  - Mobile modulars are stored in the corridors due to space limitations. The use of the mobile modulars is not ideal, but there is not space to provide the programming as desired, to simulate real world conditions.
  - The spaces are difficult to supervise.
  - Construction classes are utilizing space in the receiving area, causing safety concerns.
  - Program offerings aren't available due to space constraints.
- Foods Labs include: one lab with traditional residential cooking stations, one commercial kitchen area and one classroom space. There is also one lab that is shared with family and consumer science and art. It was noted that these spaces are not adequate to accommodate the number of students wanting to enroll in these classes.
- Music department space are recently new and expanded, however band is remote from the orchestra and choir. Band needs additional practice space.
- Auditorium is inadequately sized. House seating is inadequate. The stage, storage, and back off house components are all too small. The space is 'landlocked' within the building and there is no 'main entrance' to the auditorium.
- The LMC has some flexible and booth seating, it is popular with students and frequently used. The LMC needs 5-6 collaborative group study rooms. The library is in the core of the building and does not have any natural light.
- The science rooms vary in size and amenities, including lack of ventilation and lab stations, with two of the science rooms being isolated from the remainder of the department, making collaboration and sense of department identity difficult.
- There is not a staff professional development or meeting area. The staff center is too small on the second floor to accommodate the staff on that level.
- The traditional school design with double loaded, locker lined corridors, creates hallway congestion during passing times.
- The building does not have the ability to lock down the school during gym or auditorium events to keep event attendees out of the rest of the school.

SPACE AND PROGRAM NEEDS RECOMMENDATIONS

- Similar to a number of the other schools in the District, addressing all the needs noted above require additional square footage to accommodate the space and programming needs in the building. Additions are possible at this school based on the site size, however the sloping of the site and the existing layout of the building on the site creates a number of challenges. The expansion is limited to the north due to the sloping site and proximity to Chicago Street, there is some room for expansion to the south at the Tech Ed area of the building. Expansion to the east is limited by parking, which theoretically could be relocated but is not a logical move, and the football stadium. The west side of the building would be the most reasonable location for expansion.
- The other option to address the needs of the building would require the student enrollment to be reduced. Reducing the number of students within the school would free up space to allow for existing spaces to be remodeled accordingly.

CAPACITY

CAPACITY NEEDS

- The building is currently at capacity.
  - Building capacity is 1500 = 198 sq. ft. per student
  - Current enrollment is 1458 = 203 sq. ft. per student
- The site may be considered for building expansion. Athletic field and/or parking would be impacted.
  - Site is 35.201 acres
  - Design guidelines for a 1500 student high school are 45 acres minimum
  - The high school uses middle school green space

CAPACITY RECOMMENDATIONS

- The site is currently undersized based on design guidelines for a high school of this size. As noted with Foxview Intermediate, schools on tight sites can exist, but thorough planning, design and implementation has to occur for them to function properly and provide a safe school environment.
- To accommodate the need for additional building on the existing site, the District could relocate outdoor activities to another District owned site. This does require consideration and planning regarding safety, transportation, maintenance and convenience.

FLEXIBLE AND COLLABORATIVE SPACES

FLEXIBLE AND COLLABORATIVE SPACES NEEDS

- The building contains two areas of collaborative spaces that are frequently used. Additional open collaborative space should be implemented through the school, as well as group study rooms in the LMC.

FLEXIBLE AND COLLABORATIVE SPACES RECOMMENDATIONS

- Provide additional collaborative learning environments, however this can only be done within the existing building footprint if enrollment is modified.
- Provide a variety of flexible, purposeful furnishings in the classrooms and collaborative spaces which provide for spaces to be configured to support a variety of activities and learning styles.

VISUAL CONNECTION

VISUAL CONNECTION NEEDS

- The traditional design of the building does not include large expanses of glass between learning spaces and the corridor; however there are borrowed lites between some of the areas and the corridors and the collaborative spaces.
- There is good connection to the exterior with natural lighting in a lot of the classrooms. However, there are quite a few interior classrooms, as well as the LMC, that do not receive natural light.

VISUAL CONNECTION RECOMMENDATIONS

- As more collaborative learning areas are implemented into the building, visibility will be key for connection and supervision.

SENSE OF BELONGING SUMMARY

SENSE OF BELONGING NEEDS

- There are some signage and murals that provide a connection to the school and common goals/values. The sense of identity is strong at the entrance and in the gym, with the large environmental wall graphics. There is opportunity to build an additional sense of belonging and ownership through branding and environmental graphics throughout the remainder of the school.
- The building does have one large community room, but is lacking in overall meeting space for meeting internally and with students and families.

SENSE OF BELONGING RECOMMENDATIONS

- Provide signage and murals that creates a sense of belonging and ownership through branding and environmental graphics.

SAFETY AND SECURITY NEEDS SUMMARY

SAFETY AND SECURITY NEEDS

- The school has a secure entry sequence where visitors must check-in through the main office prior to being granted access to the remainder of the school.
- The building does not have the ability to lock down the school during gym or auditorium events to keep event attendees out of the rest of the school.
- The site layout and the school's process and procedures appear to create a safe site for traffic flow.

SAFETY AND SECURITY RECOMMENDATIONS

- Analysis should be performed to investigate the opportunities to secure the rest of the building during gym and auditorium events.

Educational Adequacy Strategies

EXECUTIVE SUMMARY

The educational adequacy strategies presented in this report are provided for the District's consideration and require additional evaluation of the pros and cons of each strategy and option based on the overall strategic plan of the District. In the Executive Summary of the Educational Adequacy portion of the report, it was noted that the District will need to determine the goal student size for the schools at each level (elementary, intermediate, middle and high school), as well as number of building transitions students will encounter from 4K to graduation within the District. These decisions will help guide the District in selecting the appropriate strategy to be further vetted through conceptual design, detailed budgeting and community engagement meetings and surveys.

ADDITIONAL INFORMATION TO CONSIDER WHEN REVIEWING THE STRATEGIES AND OPTIONS

- It is not recommended to add to the building at Foxview Intermediate unless additional property nearby is acquired for parking and/or playground/green space.
- It is not recommended to add to Dickinson Elementary due to the site constraints.
- The two major issues identified at the existing buildings in the Educational Adequacy Study are capacity and lack of flexible, collaborative space.
    - Only Heritage Elementary and the High School have flexible, collaborative spaces, and they are not adequate to serve the student population.
    - Foxview Intermediate and the Middle School are over recommended student capacity.
    - Heritage Elementary, Dickinson Elementary, and the High School are at 90%, 87%, and 97% of the recommended student capacity, respectively.
- The District owns land across from Altmayer Elementary and on Chicago Street near Ledgeview Golf Course.

STRATEGIES – ADDRESSING FLEXIBLE, COLLABORATIVE ENVIRONMENTS AND POTENTIAL FUTURE GROWTH

- New High School
  - Building a new high school would allow the District to design a modern school to meet their current programming and curriculum needs, while planning for future growth.
  - Building a new high school provides an opportunity for the student population at different schools to be moved into different buildings to meet their programming, space and future growth needs.
  - Consideration should be given to the pros/cons of building on the existing high school site or a new site.
  - Building a new high school on the existing site does have its challenges since the site is limited.
  - Keeping it on the existing site would keep the school in the current Chicago Street corridor, centrally located, with a number of the other District buildings.
  - The existing location also keeps the high school near the existing athletic fields. However, the baseball diamonds would likely need to be relocated to accommodate the new building and parking.
  - Baseball diamonds, along with the softball diamonds, could be located to other district-owned property. This would cause additional transportation, safety, and maintenance considerations for the District.
  - To create more space on the existing site for a new high school, Dickinson Elementary could be removed and replaced with a new elementary school on district-owned land.
  - Building a new high school on a new right-size site would provide the opportunity to design the building and site as needed without potential site constraints of the existing site. Athletic fields would either be built on the new site or left in their current location remote from the new high school.

- Middle School relocates to the existing high school building
  - Moving the middle school to the existing high school building would address the capacity situation in the current middle school and give them room for growth.
  - The existing building has significant amenities that are well-suited for a middle school.
  - Provide more exposure to CTE (tech ed) opportunities.
  - The auditorium is better suited for the middle school than the auditeria.
  - Provide more physical education, athletic, and wellness opportunities.
  - The existing middle school has a 675 student capacity and the high school has a 1500 capacity. There is room for growth and opportunity for creating collaborative learning environments. There is still significant opportunity to share this building with additional services.
  - Adding an Early Learning Center in this building is an option.
  - Expanding the District office as needed. There would be space to expand District offerings as well (i.e. onsite employee clinic, wellness, counseling services, etc.)

- Address the overcrowding at Foxview Intermediate
  - Foxview Intermediate population splits and half of the intermediate students relocate to the existing middle school building.
  - Move the 4th graders out of the elementary schools to the intermediate school.
  - Provides additional capacity for flexible, collaborative learning environments and future growth at the elementary schools.
  - Right-sizes the student enrollment at the intermediate schools.
  - The District should keep their options open to expanding the site at this location for playground and parking opportunities.

- Create an Early Learning Center. Move the youngest learners, Head Start programming and 4K from District buildings and off-site locations to an early childhood learning center.
  - Create the early learning center in the existing high school building, shared with the middle school. The early learning center could be separate from the middle school on the second floor, with its own entry on the west side of the building near the District Office.
  - Build a new separate building to house an early learning center on other district-owned property.
  - On a district-owned site with a new elementary school, if Dickinson Elementary were to be replaced for new high school site layout.
  - This strategy allows for all elementary schools to remain the same size. Removing Head Start and 4K students from the elementary schools would provide space for growth as well as opportunities to create flexible, collaborative learning opportunities.

- New Elementary School. In lieu of a new high school.
  - Building a new elementary school would allow the District to design a modern school to meet their current needs at the elementary school level.
  - Alleviates space needs at the elementary level.
  - Allows for remodeling to accommodate flexible, collaborative learning environments,
  - Provides space to move 4K students from off site, non-district owned buildings.
  - This option alone does not alleviate the overcrowding at the intermediate school, middle school and high school. Additions and grade realignment would be required at these schools to accommodate the current capacity situations and provide for future growth.

OPTION 1 – NEW HIGH SCHOOL

- New High School (9-12)
- Middle School (7-8) relocates to existing high school building
- Intermediate Schools (4-5-6) at Foxview Intermediate and the existing middle school building
- Altmayer, Dickinson, and Heritage Elementary schools (K-3)
- Early Learning Center (Head Start and 4K)

Remodeling to create flexible, collaborative learning environments would be required at all existing schools.

OPTION 2 – NEW ELEMENTARY SCHOOL

- Additions and remodeling at the High School (9-12)
- Additions and remodeling at the Middle School (7-8)
- Remodeling at Foxview Intermediate School (5-6) does not address capacity – remains at current capacity
  - Consider moving one grade out of the intermediate school; however, leaving only one grade at a building is not recommended.
    - Example: Move 5th grade to the elementary schools, leaving a 6th grade only intermediate school.
- New Elementary School on District Owned Property (Head Start, 4K-4)
- Remodeling Dickinson Elementary School (Head Start, 4K-4)
- Remodeling Altmayer Elementary School (Head Start, 4K-4)
- Remodeling Heritage Elementary School (Head Start, 4K -4)

OPINION OF PROBABLE COST

OPTION 1 – NEW HIGH SCHOOL – $148,500,000

- New High School (9-12)
  - Approximately $140,000,000 construction cost based on 2000 student capacity
  - Assumes district-owned site
- Middle School (7-8) relocates to existing high school building
- Intermediate Schools (4-5-6) at Foxview Intermediate and the existing middle school building
- Altmayer, Dickinson, and Heritage Elementary schools (K-3)
- Early Learning Center at the existing high school building (Head Start and 4K)

Assuming 5% of each school would be remodeled to address the recommendations of the Educational Adequacy report, approximately $8,500,000 would be needed for remodeling.

OPTION 2 – NEW ELEMENTARY SCHOOL - $73,500,000

- Additions and remodeling at the High School (9-12)
  - Approximately $20,000,000 based on 50,000 square feet of addition to address programming and space needs
- Additions and remodeling at the Middle School (7-8)
  - Approximately $9,000,000 based on 20,000 square feet of addition to address programing and space needs.
- Remodeling at Foxview Intermediate School (5-6)
- New Elementary School (Head Start, 4K-4)
  - Approximately $40,000,000 construction cost based on 650 student capacity
  - Assumes district-owned site
- Remodeling Dickinson Elementary School (Head Start, 4K-4)
- Remodeling Altmayer Elementary School (Head Start, 4K-4)
- Remodeling Heritage Elementary School (Head Start, 4K -4)

Assuming 5% of each existing elementary and intermediate school would be remodeled to address the other components of the Educational Adequacy recommendations, approximately $4,500,000 would be needed for remodeling.

Opinion of Probable cost based on 2023 construction costs. Based on construction timeline, add approximately 3-5% for each year for inflation.

Opinion of Probable cost is construction cost only, does not included design and engineering fees and FFE (furniture, fixtures, and equipment).

Susie C. Altmayer Elementary School

FLOOR PLANS

Susie C. Altmayer Elementary School

FLOOR PLANS

Dickinson Elementary School

FLOOR PLANS

Heritage Elementary School

FLOOR PLANS

Foxview Intermediate School

FLOOR PLANS

Foxview Intermediate School

FLOOR PLANS

De Pere Middle School

FLOOR PLANS

De Pere High School

FLOOR PLANS

De Pere High School

FLOOR PLANS

Facilities Assessment – Building Conditions

EXECUTIVE SUMMARY

The following building condition assessments look to document current physical conditions as of our field visits in December 2022 – February 2023, and includes the following:

- Site - Parking lots, sidewalks, and hard surface playgrounds
- Building Exterior – Walls, windows, roof, exterior doors
- Building Interiors – Floors, walls, ceilings, interior doors
- ADA and code deficiencies
- Plumbing Systems
- Heating/ventilating/air conditioning Systems (HVAC)
- Electrical Systems – Power, lighting, fire alarm, telecommunications

EVALUATION

Each assessment looks to comment on the general state of the building as well as point out deficiencies. The condition of each deficiency was evaluated and assigned a priority.

1. Immediate, requires attention within the next 3-6 months
2. Should be addressed in the next 2 years.
3. Should be addressed in the next 3 – 5 years.
4. 10 years – noted for planning purposes
5. 20 years – noted for long term planning purposes

A graph at the end of each section shows graphical summary of the costs involved by priority and by discipline. In the appendix there are additional graphs to explain the data, as well as the entire cost matrix for all items found at all (6) schools. The costs are in today dollars and are not pro-rated to account for inflation.

Susie C. Altmayer Elementary School

3001 RYAN ROAD DE PERE, WI

Susie C. Altmayer Elementary School

EXECUTIVE SUMMARY

CIVIL

Some asphalt surfaces around the school have reached their life cycle use and require replacement. Most of the concrete surfaces continue to be functional and only show localized areas of failures that require replacement. There were multiple locations with water running over sidewalks and ponding within the playground areas that require drainage improvements. Multiple locations around the school have ADA compliance issues and will need to be replaced to achieve compliance.

ARCHITECTURAL

The building's shell, and interior and exterior finishes are in good condition overall. Ongoing regular maintenance needs to continue to address issues as they arise. The hollow metal exterior door frames need to be replaced due to corrosion at the door threshold.

PLUMBING

The water heaters and main thermostatic mixing valve are nearing the end of their service life and should be replaced soon. The domestic hot water return balance valves and thermostatic mixing valves at individual fixtures should be reviewed to ensure hot water is available at all fixtures within the building. The grease interceptor will likely need to be replaced soon.

FIRE PROTECTION

The fire protection system within the school is in good condition. No concerns at this time.

HVAC

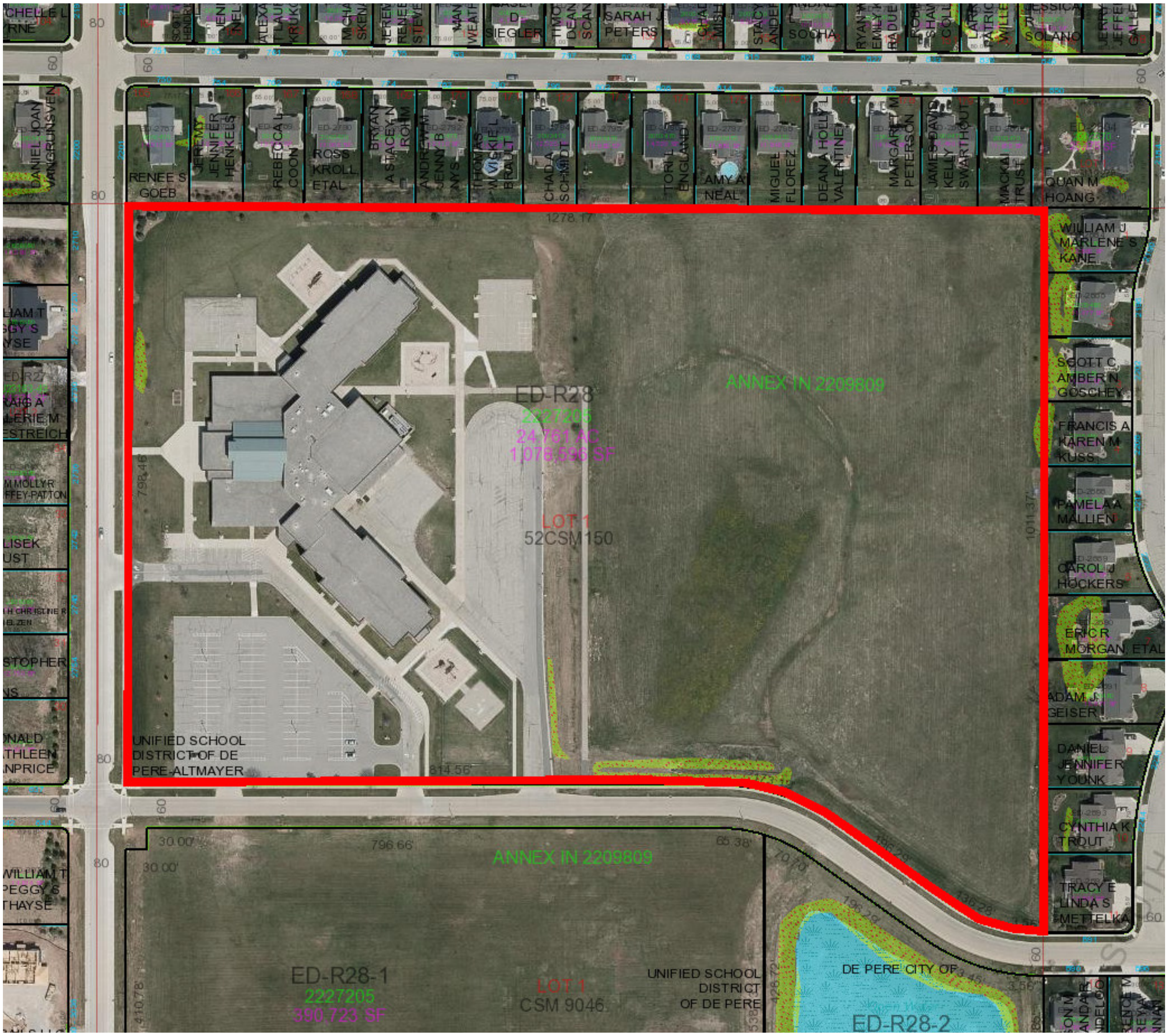
The facility's HVAC system is generally in good condition. There are items throughout which require maintenance or repair, but most deficiencies noted are minor. The most concerning aspect of this facility is the lack of redundancy in the heating plant and the historical reliability issues of the existing boilers. Consideration should be given to replacing or significantly reworking the boiler plant in this facility. The building temperature controls are aging and will require ongoing capital investment to keep the controls up to date.

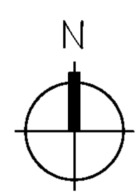
ELECTRICAL

The electrical distribution equipment, as well as other systems, at this facility are original to the building from 2007 and are in very good condition. The back-up generator is in very good condition; it is important to continue general maintenance for extended service life. The fire alarm system appears to be in very good condition and meets the code requirements of when it was installed. The lighting technology is mainly fluorescent type throughout the building, with the exception of some exterior luminaires being L.E.D. type. Luminaires could be converted over to L.E.D. type for energy and cost savings. Lighting controls should also be upgraded as the luminaires are switched over to L.E.D. Telecommunication system equipment is current and there is an equipment upgrade schedule by the Owner's I.T. personnel. The paging / bell and clock systems appear to be in very good condition and fully operational.

Susie C. Altmayer Elementary School

SITE PLAN





Susie C. Altmayer Elementary School

FLOOR PLANS

FIRST
FLOOR PLAN

SECOND
FLOOR PLAN

SUSIE C ALTMAYER ELEMENTARY SCHOOL

Building Description / Condition

OVERVIEW

The Susie C. Altmayer Elementary school is located on 24.7 acres in the City of De Pere and is the district's newest school constructed in 2007. The gross building floor area is 110,287 sq.ft. with 2 primary levels. Building's capacity, provided by the District, is 638 students, with a current enrollment of 422 students in grades 4K – 4th.

SITE SUMMARY

Susie C Altmayer Elementary School is bounded by Ryan Road and Diversity Drive. Staff and visitor parking are located on the south side of the building. Bus drop off is located on the east side of the building. The campus includes hard surface and soft surface play areas.

PARKING LOT

SITE CONCERNS – ASPHALT

- Some areas have alligator cracking where concentrated traffic flow
- Various wide, unsealed, longitudinal and transverse cracks throughout the pavement.

SITE RECOMMENDATIONS

- Sawcut and remove distressed pavement areas
- Base repairs as needed
- Pave 4" of asphalt in distressed locations removed
- Crack filling and seal coat surface
- Install pavement markings

DROP OFF LANE

SITE CONCERNS – ASPHALT

- Many areas have alligator cracking where concentrated traffic flow and signs of significant base failures
- Various wide unsealed longitudinal and transverse cracks throughout the pavement.
- Slope correction in pavement is require to maintain adequate drainage to inlets

SITE RECOMMENDATIONS

- Remove existing pavement
- Remove 18" of base/subgrade
- Install drain tile along edge of pavement to existing inlet
- Add geotextile fabric
- Add 12" of breaker run
- Add 6" of base
- Pave 4" of asphalt
- Add pavement markings

RECEIVING AREA

SITE CONCERNS – ASPHALT

- Some locations of settlement and rutting
- Many unsealed transverse and longitudinal cracks throughout the surface
- Most of the pavement has alligator cracking and signs of the base failing
- Edge of pavement is cracking and breaking off
- Asphalt is settling in front of receiving dock and difficult to unload trucks with forklift

SITE CONCERNS – CONCRETE

- Concrete pads have narrow cracks

SITE RECOMMENDATIONS

- Remove existing pavement
- Crack fill narrow cracks in concrete pads
- Remove 18" of base/subgrade
- Install drain tile under the edge of pavement and daylight out to basin
- Add geotextile fabric
- Add 12" of breaker run
- Add 6" of base
- Pave 4" of asphalt

BUS LOT

SITE CONCERNS – ASPHALT

- Multiple wide unsealed longitudinal cracks at the paving joints
- An area of pavement is shoving and sliding between paved layers

SITE RECOMMENDATIONS

- Crack seal all joints
- Sawcut and remove asphalt area this is sliding
- Pave 4” of asphalt

PLAYGROUND LOTS

SITE CONCERNS – ASPHALT

- Multiple unsealed transverse and longitudinal cracks throughout the surface
- Most cracks are sealed, or have been sealed, in the past
- A few areas where the edge of pavement is cracking
- Multiple areas around playgrounds and fields had standing water throughout

SITE RECOMMENDATIONS

- Crack Seal and Seal Coat Surfaces
- Drainage improvements
- Add pavement markings

SIDEWALK

SITE CONCERNS – ASPHALT SIDEWALK

- Multiple unsealed wide transverse and diagonal cracks throughout the pavement
- Edges of pavement have alligator cracking
- Multiple areas have settlement and rutting in the pavement
- Suggest replacing asphalt paths with concrete

SITE CONCERNS – CONCRETE SIDEWALK

- Multiple concrete panels cracked and some with minor spalls
- Many concrete panels with a vertical deviation greater than ½”
- Some concrete panels have aggregate pop outs on the surface
- Multiple concrete entrance pads have surface deterioration and pop outs with longitudinal cracks
- Multiple concrete footings at entrances have medium cracks with surface deterioration and pop outs
- Bus lot concrete apron is deteriorating at the joints and has medium abrasion

SITE RECOMMENDATIONS

- Remove asphalt pavement
- Crack filling narrow cracks in concrete panels
- 4” concrete sidewalk
- Site grading around side walk
- Remove and replace cracked or spalled panels
- Remove and replace concrete sidewalk panels that have a vertical deviation greater than ¼”
- Remove and replace damaged concrete entrance/exit aprons

CURB & GUTTER

SITE CONCERNS – CONCRETE CURB & GUTTER

- Some sections have cracks through the curb and gutter.
- Multiple areas of curb and gutter have medium abrasion and spalls
- One section of raised sidewalk curb has abrasion and small spalls

SITE RECOMMENDATIONS

- Remove and replace all damaged curb and gutter areas
- Sawcut raised concrete sidewalk 2’ back
- Remove concrete sidewalk
- Pour 24” curb and gutter

ADA COMPLIANCE

SITE CONCERNS – CONCRETE SIDEWALK

- The concrete sidewalk, on the west entrance of the school, has a slope of 1:18. This section of sidewalk exceeds the maximum slope of 1:20 and the max rise of 30” before a landing pad or railing needs to be installed.

SITE RECOMMENDATIONS

- Remove and replace panels with adequate landing areas.

SITE CONCERNS – CONCRETE CURB RAMPS

- 6 curb ramps on site do not meet the requirements for ADA Compliance. Slopes are too steep or there is a vertical deviation greater than a ¼” where it meets the pavement.
- Multiple missing detectable warning fields.
- Many detectable warning fields have air and water under them between the concrete and warning field plate
- Some of the detectable warning fields have lots all paint and domes are starting to deteriorate

SITE RECOMMENDATIONS

- Remove and replace non-compliant curb ramps
- Install detectable warning fields

STRUCTURAL SUMMARY

The building's structural systems is primarily load bearing CMU interior and exterior walls. The second floor framing is concrete over metal deck over steel beams.

STRUCTURAL CONCERNS

- There are no structural concerns

EXTERIOR WALLS

The exterior wall construction consists of brick veneer and concrete block accents over an air cavity, with 2" of rigid insulation against the CMU bearing wall. The wall construction of the gym is load bearing, precast wall panels. Overall, the exterior cladding appears in excellent condition.

EXTERIOR CONCERNS

- Two overflow roof drains appear to be active enough to stain the wall below. East side gym at precast wall panel, and west side of the building, east of door 4. Relief drains are intended to provide drainage only when the main drains are not functioning.
- Efflorescence noted on the southwest canopy column outside door 7. Efflorescence is a chalky white powder that is drawn out of the joint mortar when moisture within the wall evaporates. This is a sign that moisture is, or has been, within the interior cavity of the wall.

TWO LOCATIONS OF STAINING FROM ROOF OVERFLOW WATER

EFFLORESCENCE IN BLOCK COLUMN

CLOSE UP OF EFFLORESCENCE

EXTERIOR RECOMMENDATIONS

- Evaluate the roof condition further to see why drainage is using the relief drains instead of the main drains. Additional roof insulation might be needed to provide proper drainage to the primary drains. Provide water dam within relief drain. See plumbing comments.
- It appears that mortar repairs have already been done at this location. The efflorescence should be cleaned off the building and monitored to be sure the condition is not getting worse.

WINDOWS

The windows are extruded aluminum frames with double pane insulated glass. Between glass panes are integral mini blinds accessible via removable glass pane. Exterior sealant around the perimeter of windows appears in good condition.

WINDOW CONCERNS

- The sealant at the interior, solid surface window sills, shows signs of degradation. The typically smooth, flexible, sealant is soft, sticky, dirty, and crumbling apart. This could be caused by repeated cleaning with a liquid cleanser or disinfectant which is chemically deteriorating the sealant. While not a concern for a failure, the soft caulk does attract dirt which promotes additional cleaning. Removal and reinstallation of sealant is recommended.

INTERIOR WINDOW SILL SEALANT JOINT

DOORS/ FRAMES

Exterior doors and frames are painted hollow metal construction.

RUST AT EXTERIOR HOLLOW METAL DOOR FRAME

DOOR/ FRAME CONCERNS

- A majority of the exterior door frames have visible rust near the threshold where they meet the concrete. There is evidence that some of these frames have had spray paint applied to cover the rust. This is a cosmetic remedy, but won't stop the rust from continuing. The hollow metal doors are in acceptable condition.

DOOR/ FRAME RECOMMENDATIONS

- The rusting of the hollow metal door frames will likely worsen in the coming years. These frames could last another 5-10 years but will eventually need to be replaced. Fiberglass reinforced plastic is a good alternative to hollow metal and will not rust out like the existing metal frames.

ROOFING

The roof construction is composed of a 45 mil EPDM roof membrane covered with ballast stones over 4" of rigid board insulation. The pitched roofs over the Commons are standing seam metal over 4" of rigid insulation board.

ROOFING CONCERNS

- No roofing concerns. Craft's Inc. did a maintenance inspection on 6/6/22 and found areas of worn caulk, missing "T" joints, and where metal flashing had punctured the membrane. These areas were fully repaired as part of an on-going maintenance program. Roof life expectancy is approximately 20 years, placing it's possible replacement in 2027-2030 depending on the findings of yearly maintenance inspections.

HIGH CEILING AT THE COMMONS

LIBRARY COMPUTER STATIONS

GYMNASIUM

TYPICAL CLASSROOM CASEWORK

COMMON AREAS

The common use areas appear in good condition. The Commons flooring is terrazzo, and the gym floor is wood, both appear to be in good shape.

COMMON AREAS CONCERNS

- No common area concerns.
- No food service or kitchen concerns.

CLASSROOMS, LABS, ART STUDIO, AND TEACHING AREAS

The classrooms in general are in good condition. The plastic laminate casework looks good, the acoustic ceiling tile appears clean, with no visible sagging.

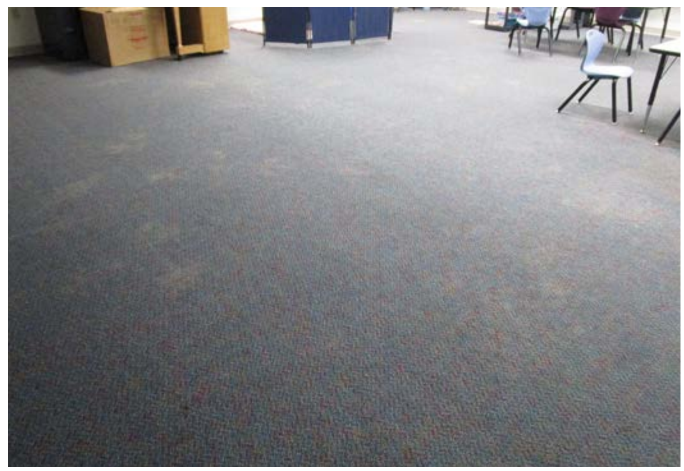
TEACHING AREA CONCERNS

- The plastic laminate countertops around several classroom sinks are fading in color. Perhaps due to use by students and repeated cleaning. While the material is still serving it’s purpose, the lighter color does make it look unclean.
- The roll carpeting is in-tact without fraying at the seams or delamination from it’s backer, there are areas however, of staining in various rooms.

TEACHING AREA RECOMMENDATIONS

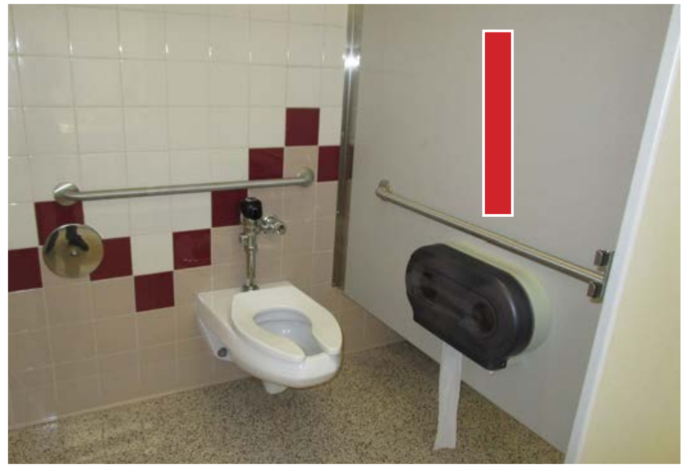
- No concerns overall. Budget for new carpet flooring in the future.

FADED PLASTIC LAMINATE COUNTER



STAINS ON CARPET

TYPICAL STUDENT RESTROOMS



LOCATION OF PROPOSED VERTICAL GRAB BAR

RESTROOMS

The main student restrooms are terrazzo flooring with full tile walls and appear in good condition.

RESTROOM CONCERNS

- While not part of the building code in 2007, vertical grab bars are now required in ADA accessible toilet rooms and stalls.

RESTROOM RECOMMENDATIONS

- Add vertical grab bars to all ADA accessible toilet rooms and stalls.

ADMINISTRATIVE AND COUNSELOR OFFICES

- No Administrative Office concerns

CORRIDORS, STAIRWELLS AND ELEVATOR- CIRCULATION

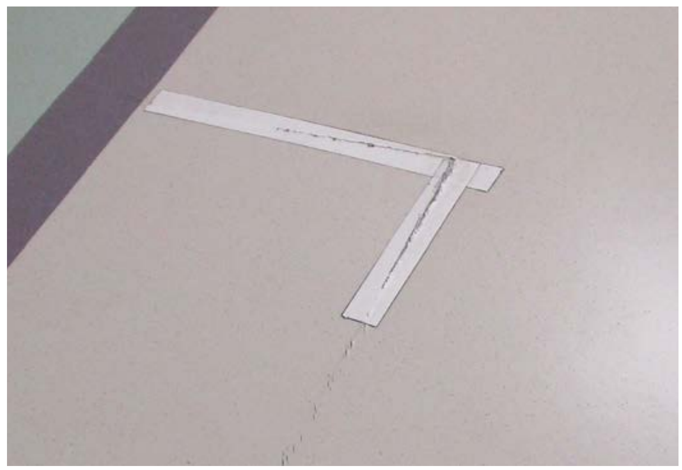
The corridor flooring in the classroom wings is sheet rubber with welded seams. These floors have held up well in the last 15 years. There are only a few areas where welded seams have come apart and should be repaired.

CIRCULATION CONCERNS

- On the 2nd floor, the floor structure joints between different sections of the building were not honored, and the sheet rubber was installed over these joints. Considering there is an open gap under the rubber flooring at these joints, continued pressure from foot traffic and cleaning machines has compressed on the joint, causing cracking of the material as it degrades due to age. This condition will likely worsen over time.

CIRCULATION RECOMMENDATIONS

- Monitor the joints for continued wear. Since a dedicated metal expansion joint cover would be hard to install in an existing building, a 4'-6' section of the rubber could be replaced and centered over the joint, with filler material added under the flooring within the concrete joint below the flooring for strength.



JOINTS BELOW RUBBER FLOORING SHOWING THROUGH

ACCESSIBILITY OBSERVATIONS

The American with Disabilities Act (ADA) of 1992 is a civil rights law, which protects individuals with disabilities, against discrimination in buildings classified as public, due to physical barriers that may impede them from accessing the site, elements of a building or floors of a certain size or use. There were no noticeable accessibility issues found in the building.

SUSIE C ALTMAYER ELEMENTARY SCHOOL

Plumbing Description / Condition

SANITARY SEWER LATERAL

The sanitary sewer lateral is an 8” diameter that exits the building to the southeast. The condition of the sanitary is unknown given it is located underground. However, with the school being constructed in 2007, it could be assumed that it is in good condition. In discussions with the facilities staff, there have not been any sewer blockages that they are aware of since the school was constructed. The 8” diameter sanitary is more than adequate to serve a building of this size, and based on the drainage values indicated on the original design documents, it could handle subsequent additions.

SANITARY SEWER LATERAL RECOMMENDATION

- No recommendations at this time. The systems are relatively new and there are no known issues with this system.

WATER SERVICE LATERAL

The water service lateral is a 6” diameter main which enters the building on the south wall of the receiving room. The existing water meter is 4” with a 4” diameter bypass. The water meter and service entrance piping appear to be in good condition. There are signs of insulation damage near the meter, and the flange located on the incoming side of the water meter appears to have a very slow leak. At the time of the site visit there was a small drain pan placed below the leak. The water pressure observed on the day of the site visit was 52 psi. This pressure reading was taken at a pressure gauge near the water heaters in the second level mechanical room.

WATER SERVICE ENTRANCE

WATER SERVICE LATERAL CONCERN

- The damaged insulation near the water meter could cause condensation to build up on the piping, leading to potential corrosion on the piping.
- The leak at the flange of the water meter should be repaired.

WATER SERVICE LATERAL RECOMMENDATION

- Recommend repairing or replacing damaged insulation near water meter.
- Recommend repair of the flange at the water meter to seal up leak.

WATER METER LEAK

GENERAL STORM / ROOF DRAINAGE

The school has internal storm drainage which extends below grade, exits the building to the southeast, and discharges to a retention pond on site. The storm drain exits the building as an 18” diameter pipe sloped at 1/16” per foot and appears to be adequately sized. Overflow drainage is accomplished with relief roof drains within 4’ of the main roof drains which are piped to lambs-tongues located on the exterior of the building.

CAULK JOINT AT LAMBS-TONGUE

It was noted during the site visit that drainage from a few of the lambs-tongues is leaving discoloration on the exterior of the building. It was also noted that the relief roof drains did not have a water dam within the drain, which allows any water flowing past the relief roof drain to flow into the piping and out the lambs tongue. Though this is a small amount of water it can cause discoloration below the lambs-tongue and require exterior cleaning on a more regular basis.

In a few locations, the caulk at the trim ring of the lambs-tongue was showing signs of wear and had separated from the façade of the building.

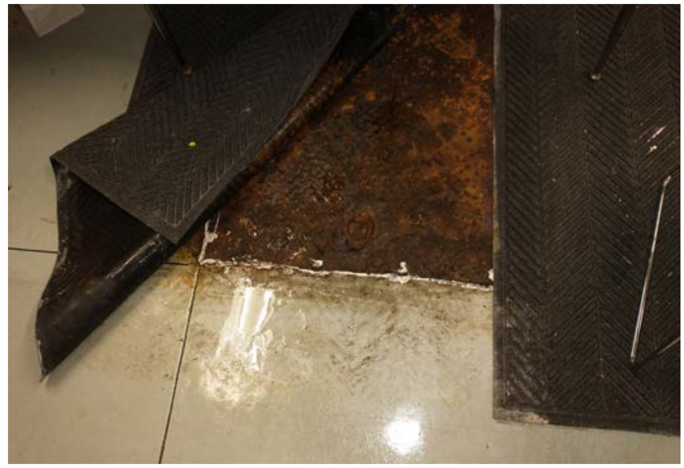
GENERAL STORM/ ROOF DRAINAGE CONCERNS

- There was no sign of a water dam within the relief roof drains to ensure water does not flow through the relief roof drains when the main drain is not clogged.
- The sealant between the lambs-tongue trim rings and the façade of the building have separated in a few locations.

GENERAL STORM/ ROOF DRAINAGE RECOMMENDATIONS

- Provide a 2” water dam within the relief roof drains.
- Caulk the trim rings at all lambs-tongue locations.

SANITARY DRAINAGE



GREASE INTERCEPTOR COVER

The school has an 8” diameter sanitary which exits the building, along with the storm piping, to the southeast. Given that the school was constructed in 2007, it can be assumed that much of the underground piping is in good condition. During our meeting with the facilities group for this school, there was no mention of any issues with the sanitary drainage at this building.

There is a grease interceptor located in the break area, which is near the receiving dock. The cover of the interceptor was hidden with loose carpets under the break room table. The cover of the interceptor felt warm to the touch and was quite corroded. When we removed the carpet, there was quite a bit of moisture build up on the bottom side of the carpet, which would be causing the corrosion. This would indicate that the cover of the grease interceptor is not sealing correctly to the basin and will require maintenance or replacement.

SANITARY DRAINAGE CONCERNS

- Rust is forming on the cover of the grease interceptor due to an incorrect seal between the cover and the basin.

SANITARY DRAINAGE RECOMMENDATIONS

- Remove the cover of the grease interceptor and repair the seal between the basin and the cover so it will seal properly. Remove the carpeting over the top so any heat from the interceptor can dissipate into the room and not cause condensation.

DOMESTIC WATER DISTRIBUTION SYSTEMS

WATER SOFTENERS

The school has a 4” diameter domestic water distribution system. All water to interior plumbing fixtures, with the exception of electric water coolers, is softened by (2) Hellenbrand water softeners located in the receiving room. The softeners appear to be in good condition and the brine tank was full on the day of our site investigation.

The original building plans indicate that the domestic water heater should heat and store water at 140°F. The 140°F hot water is provided to the pre-rinse and pot/pan wash in the kitchen. There is a domestic water booster heater, located in Mechanical Room A203, which serves the dishwashing machine. The remainder of the domestic hot water was intended to be mixed down to 120°F, via a large thermostatic mixing valve located in the boiler room, and recirculated through the rest of the school. In general, the hot water return branch lines are relatively close to the furthest fixture on each branch. In fact, the return lines are much closer than would have been required by code when the school was built. There are also thermostatic mixing valves at each fixture within the building, which prevent scalding occupants with 120°F water.

All of that being said, during our site investigation, the water heater storage temperature was at approximately 125°F. Also, despite running the water for a few minutes at each location, we were also not able to get hot water out of any classroom fixtures.

THERMOSTATIC MIXING VALVE

The domestic water distribution piping is copper, and the piping and insulation appear to be in excellent condition.

DOMESTIC WATER DISTRIBUTION CONCERNS

- The hot water temperature does not appear to be meeting the original design intent. Verify with kitchen staff if 140°F water is required in the pot and pan rinse, or if they utilize chemicals for sanitization.
- No hot water available at classroom sinks.

DOMESTIC WATER DISTRIBUTION RECOMMENDATIONS

- Adjust water heater temperatures to meet original system design intent.
- Verify flow at each branch of domestic hot water return piping, and confirm settings at thermostatic mixing valves at classroom sinks meet design temperatures. Based on the piping layout, hot water should be readily available at each sink within a few seconds.

RESTROOM FIXTURES

Overall, the plumbing fixtures within the school are in very good condition. With the school being constructed in 2007, this puts the plumbing fixtures at approximately 16 years old. This is near the time when faucets and flush valves start to show signs of age and will either require maintenance or replacement.

The water closets are wall mounted, flush valve type, and appear to be in good condition. The flush valves are sensor operated with a manual flush option, and all appear to be in good condition.

The urinals are wash down, wall outlet style, with sensor operation. The urinals are also mounted at lower heights to accommodate the age of the children within the school. The flush valves on the urinals appear to be in good condition as well.

The building has multi-station wash fountains in the group restrooms, and porcelain lavatories in individual restrooms. All lavatories of both styles appear to be in good condition. All individual lavatories and multi-station hand wash fountains have an ASSE 1017 thermostatic mixing valve.

The stainless steel sinks within the classrooms are in good condition.

As mentioned previously, during the time of our site visit, we were not able to get hot water at any of the classroom sinks or lavatories within the building.

The school has several sets of water cooler and bottle fill stations, these fixtures appear to be in good condition.

Plumbing fixtures have a service life of 30 years, but the faucets and valves have a service life of between 10 and 15 years, with regular maintenance and parts replacement.

RESTROOM FIXTURE RECOMMENDATIONS

- No fixture recommendations at this time.

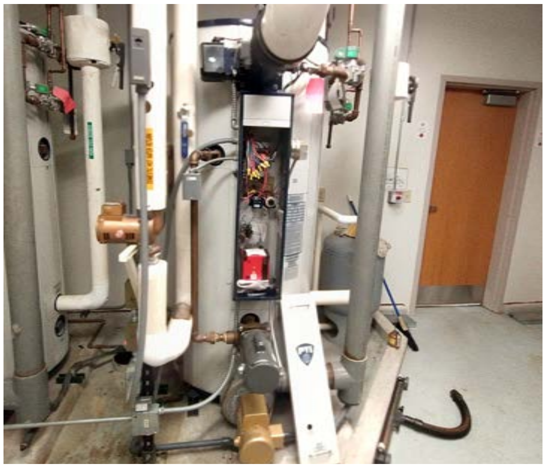
WATER CLOSET

MULTI-STATION WASH FOUNTAIN

EQUIPMENT

The school has (2) 125 gallon natural gas water heaters, located in one of the second level mechanical rooms. The water heaters were installed during the construction of the school which puts them at approximately 16 years old. According to maintenance personnel during the time of our site visit, there are issues with the water heater control panels, and parts are becoming difficult to purchase from the manufacturer. Overall, the water heaters appear to be in fair condition. During the time of our site visit, one of the control panel covers was removed for maintenance purposes. The temperature gauges near the water heaters were reading 126°F during the time of our site visit.

CLASSROOM SINK



WATER HEATER WITH COVER REMOVED

BOOSTER HEATER

The main mixing valves which take 140°F hot water and mix it down to 120°F appear to be in poor condition. There is quite a bit of corrosion forming on the mixing valves. Maintenance personnel indicated during our meeting that the valves do not work well and are a constant maintenance issue.

The booster heater for the dishwasher appears to be in good condition. Some of the pipe insulation near the booster heater appears to have been damaged during routine maintenance. The side panel of the booster heater was also removed during the time of our site visit.

The recirculation pumps appear to be in good condition, but have surpassed their expected service life and will likely need to be replaced soon.

The expected service life of water heaters is 10 – 20 years depending upon water quality and maintenance.

The expected service life of recirculation pumps is 10 years depending upon water quality and maintenance.

EQUIPMENT CONCERNS

- Water heaters are nearing the end of the expected service life and require frequent maintenance.
- Replace the thermostatic mixing valves to temper the water delivered throughout the school.

EQUIPMENT RECOMMENDATIONS

- Consider replacement of the water heaters, recirculation pumps, and thermostatic mixing valves.

FIRE PROTECTION

The fire protection system is served by the combined fire protection and water service which enters the school on the south wall of the receiving room. The school has (3) risers, which serve different wings of the school. The backflow preventer, and piping surrounding the risers, appears to be in good condition. The sprinkler heads within the school are semi-recessed heads with chrome escutcheons and appear to be in good condition.

FIRE DEPARTMENT CONNECTION

FIRE PROTECTION RECOMMENDATIONS

- No recommendations at this time. The systems are relatively new and there are no known issues with this system.

SUSIE C ALTMAYER ELEMENTARY SCHOOL

Electrical Systems Description / Condition

ELECTRICAL SERVICE/ POWER DISTRIBUTION

The building electrical service is provided by W.P.S. and is a 277/480V, 2000A, 3-phase main distribution panel, located in the main electrical room. The existing utility transformer is located outside of the main electrical room to the east of the building. All switchgear and branch panels are Square-D equipment, original to building construction in 2007.

MAIN DISTRIBUTION PANEL

MAIN SWITCH

SERVICE/ POWER DISTRIBUTION CONCERNS

- No Service/ Power Distribution Concerns at this time.

Service/ Power Distribution Recommendations

- No Service/ Power Distribution Recommendations at this time. System appears to be in very good physical and operational order.
- Electrical service equipment typically has a service life of approximately 30-40 years. The primary cause of the replacement is the inability to procure breakers which properly fit and operate within the existing branch and distribution panels toward the end of life.

GENERATOR SYSTEM

The generator is a 120/208V, 100 KW, natural gas unit manufactured by Kohler, and installed at time of building construction in 2007. This unit feeds both Life Safety and Equipment branch circuits through automatic transfer switches located next to main electrical room. Power circuits and systems that are backed up by the generator include: corridor lighting, exit signage, telecommunications, fire alarm system, HVAC control systems and various receptacles.

GENERATOR CONCERNS

- No Generator Concerns at this time.

GENERATOR RECOMMENDATIONS

- Continue Generator maintenance. Regular scheduled maintenance is of high importance since this is a system that will energize other operating systems within the building (fire alarm, security, etc.) when there is a normal power outage.
- Generators typically have a service life of approximately 20-25 years, with the issue of finding replacement parts that will keep the generator operating properly.

FIRE ALARM

The Fire Alarm system is Simplex 4010, installed in 2007. The fire alarm control panel (FACP) is located in the second floor mechanical/electrical room. There is a fire alarm annunciator panel (FAAP) located at main entrance of the building. Several extender panels are located throughout the building.

FIRE ALARM CONCERNS

- No Fire Alarm concerns at this time. The system appears to be fully operational and meeting codes that were in place at time of installation in 2007.

GENERATOR TRANSFER SWITCHES

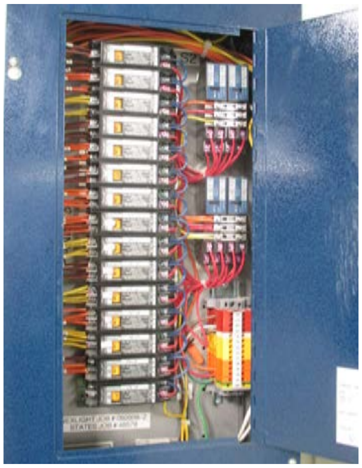
FIRE ALARM CONTROL PANEL AND EXTENDER PANELS

FIRE ALARM EXTENDER PANELS

FIRE ALARM RECOMMENDATIONS

- Continue system maintenance as required per code and manufacturer.
- Current code requirements call for a voice / mass notification system with annunciation devices that allow a central station to broadcast a verbal warning for directions to evacuate the building or property. Existing system is “grandfathered” in to when it was installed, but any major remodel or additions would require the system to be upgraded or be able to communicate with any new installations in remodeled areas.
- Fire Alarm systems typically have a service life of approx. 20-30 years, with the issue of finding replacement parts that will keep the system operating properly.

LIGHTING CONTROL PANEL



LIGHTING CONTROL PANEL

LIGHTING / LIGHTING CONTROLS

All lighting appears to be fluorescent tube and compact fluorescent lamps with the exception of some exterior lighting which has been converted to L.E.D. luminaires.

Lighting is controlled thru a NexLight low voltage control system, with various relay panels located next to the branch circuit panels throughout the building. The main control panel is located in the second floor mechanical room B205. This system was installed in the building construction in 2007.

Exit signage and emergency egress path have generator connections to provide back-up power when there is an electrical outage.

EXTERIOR LUMINAIRE

LIGHTING / LIGHTING CONTROLS CONCERNS

- Lighting control system was installed at time of building construction. System appears to function as designed, through local switching and controls; however, it was noted that there is a lack of documentation for the circuitry of luminaires, and this can cause additional time and labor when servicing the system to locate where circuits are being controlled from. The system is outdated or reaching the end of it’s service life due to newer technology design; and parts can be difficult to find for replacement.

LIGHTING / LIGHTING CONTROLS RECOMMENDATIONS

- Consider replacing fluorescent lighting with newer technology of Light Emitting Diode (L.E.D.) lighting. Fluorescent tubes would need to be disposed of properly due to their mercury content. L.E.D. luminaires use approximately two-thirds of the energy or less compared to fluorescent.
- Consider replacing or eliminating the lighting control system. New lighting control systems in conjunction with new L.E.D. fixtures could require additional wiring of CAT 6 cabling for communication and wireless controls.
- Verify the path of egress lighting in all corridors and exits have proper illumination.

TELECOMMUNICATIONS

Telecommunication appears to be adequate and serves the needs of the school. This system is original to building construction in 2007.

TELECOMMUNICATIONS CONCERNS

- No Telecommunications concerns at this time.

TELECOMMUNICATIONS RECOMMENDATIONS

- No Telecommunications recommendations at this time.
- Telecommunication systems typically have a service life of approximately 20-30 years. Keeping up to date with the latest technology along with finding replacement parts are the most challenging issues for this system.
- The schools I.T. department has scheduled a data rack switch replacement for the 2024-2025 school year with a 5-year rotation/ replacement moving forward.

DATA SERVER RACK

DATA SERVER RACK

MISCELLANEOUS ITEM(S)

Existing Primex wireless clock system, installed in 2007, appears to be fully operational without any issues.

Existing paging system, original to building construction, appears to be fully operational without any issues.

MISCELLANEOUS CONCERNS

- No clock system concerns at this time.
- No paging system concerns at this time.

MISCELLANEOUS RECOMMENDATIONS

- No clock system recommendations at this time.
- No clock system recommendations at this time.

TYPICAL CLOCK

SUSIE C ALTMAYER ELEMENTARY SCHOOL

HVAC Description / Condition

Susie C. Altmayer is the district's newest school, constructed in 2007. The gross building floor area is 110,287 sq. ft. with 2 primary levels. The heating and cooling system utilizes a variable air volume system with hot water reheat for both heating and cooling. The facility has several shared spaces, including a large commons, kitchen, 2-station gymnasium, and LMC. Classrooms are present serving specialty classes, as well as primary grade levels 4K-4th Grade. Mechanical spaces are generally located on the second floor, including (4) mechanical rooms housing (6) total indoor air handling units and a boiler room providing heating hot water for the facility.

The table below provides applicable values of service life as compared to the actual age and condition of the equipment in question. Service life is defined as the economic life of a system or component as it relates to obsolescence, reduced reliability, excessive maintenance cost, changed system requirements, or failure.

Equipment	Actual Equipment Age	ASHRAE Estimated Service Life[1]	Observed Condition
Indoor Central Air Handling Units	15 Years	20 Years	Excellent
Air-Cooled Water Chiller	15 Years	20 Years	Good
Chilled Water Pumps	15 Years	10 Years	Excellent
VAV Air Terminals	15 Years	20-25 Years	Excellent
Boilers	15 Years	30 Years	Fair/Repair
Burners	15 Years	21 Years	Good
Heating Pumps	15 Years	10 Years	Fair
Exhaust Fans	15 Years	20 Years	Poor

[1] 1999 ASHRAE APPLICATIONS HANDBOOK

COOLING AND VENTILATION

The ventilation system includes several duct distribution systems served by (7) indoor central station air handling units. Generally speaking (with exception to AHU-6 serving the kitchen), each unit includes an integral return/relief fan, economizer mixed air dampers, a hot water heating coil, chilled water cooling coil, and a supply fan. Freeze protection is accomplished via face-and-bypass dampers on units with a high percentage of outside air. Return air is circulated via ducted return configuration above the lay-in ceiling. The air handling unit provides conditioned supply air through distributed VAV boxes with hot water reheat coils for zoning purposes. This configuration allows for not only individual zone heating and cooling control, but the capability to dehumidify the facility during summer months. Reduction in airflow is via Variable Frequency Drives which lower the supply and associated return fan speeds in response to VAV box modulation. All ventilation fresh air is provided through the air handling units. Exhaust air is provided via powered roof ventilators which are distributed throughout the facility.

Chilled water for cooling and dehumidification is provided by a single Trane air-cooled screw chiller, located on grade. This system circulates a mixture of 40% Ethylene Glycol to chilled water coils on each air handling unit. The chilled water

DAMAGED LOW RETURN GRILLE AT COMMONS

MISSING PIPE INSULATION AT REPAIR LOCATION

DRYER EXHAUST REQUIRES CLEANING

TORN FABRIC DUCT AT GYMNASIUM

distribution system is a primary-secondary pumping configuration, which provides consistent flow through the chiller with varying system demand conditions. The pumps are selected with partial redundancy, so some amount of cooling can be provided if any single pump has failed. However, full redundancy is not present.

COOLING AND VENTILATION CONCERNS

- It was discussed that AHU-3 (serving the LMC) has experienced multiple freeze / burst events on the heating coil. The outside air percentage and associated freeze risk is relatively low, which seems to indicate an operational issue with this AHU.
- Several locations are present in which low return grilles are damaged (for example, in Commons A128) due to accessibility at height of students. Replacement of these grilles with heavy duty gymnasium grade grilles will prevent future damage.

- Insulation vapor barrier issues are present throughout on chilled water pipe insulation, particularly at isolation valves. Recommend diligent repair of vapor barrier issues to prevent condensation on chilled water piping, as this could lead to moisture and corrosion issues in the future.
- Vibration and loose belts were observed on a selection of powered roof ventilators. Roof Ventilator EF-3 was noted to be non-operational with the cover missing. This exhaust fan serves toilet rooms on the North wing of the school.
- A dryer vent located near the receiving area was noted to be clogged with lint. This could pose a fire hazard if not cleared.
- One location was identified in which “Duct-Sox” fabric duct product within gymnasium has been damaged due to interference with structural bracing.

COOLING AND VENTILATION RECOMMENDATIONS

- Recommend testing and revision to control device installation and programming strategy to fix issues with existing AHU-3.
- Replace low return grilles where damage is present. In addition to the aesthetic benefit, this will provide additional return air where free area has been reduced by damage.
- Consider tune-up of roof mounted exhaust fans including replacement of belts.
- Clean dryer vent and associated ductwork. It is likely that lint has settled in the duct given the current condition.
- Recommend repair of fabric duct segment to prevent further damage and improve air distribution.

WORN BELT AT ROOF FAN

HEATING

Heating within the facility is accomplished through the heating hot water distribution system. This system includes (2) +/- 3-Million BTUH horizontal counter-flow condensing boilers with stainless heat exchangers. This boiler type is suitable for very high efficiency operation when coupled with low return water temperature. The original peak design day hot water temperature is 180°F, which will not provide high efficiency operation. Pumping is a variable-primary pumping configuration including (2) primary pumps which appear to be sized to provide adequate flow rate for a single boiler at full capacity. It does not appear that redundancy was considered with the primary pump design, and it appears that operation of both boilers may be required for heating on a design day. The heating hot water system is designed with a high ΔT philosophy, which utilizes a lower flow rate than traditional HVAC design practice. This philosophy, when implemented properly, uses less pumping power to distribute hot water throughout the facility and allows for higher boiler efficiency at the plant.

The indoor air handling units each include one or more hot water heating coils to temper the outside air for distribution throughout the facility. Additional heating capability is present at all VAV boxes, which provides the ability to distribute varying temperature and airflow to each zone served by the common air handling equipment. This is an excellent configuration for both performance and limiting energy consumption. Supplemental heat is included at the primary entrances, including both cabinet unit heaters and in-floor heat. Supplemental heat is also provided at other locations including toilet rooms, meeting rooms, and areas with high perimeter heating loads.

BOILER UNDER REPAIR FOR CRACKED HEAT EXCHANGER

HEATING CONCERNS

- Facilities staff indicated that both heating boilers have experienced issues with leaking heat exchangers. One boiler is currently disassembled and under warranty repair by the manufacturer.
- Lack of redundancy in heating plant can be a concern in our climate. The risk of catastrophic boiler failure increases with age of a facility.
- Supplementary panel radiators are present in several locations, including areas occupied by students. The panel radiators are served by the heating hot water plant which has a design supply temperature of 180°F. Due to the age of students at this school, we feel this configuration provides a burn risk for the students. Temperatures warm enough to provide burns was noted during survey.
- While condensing boilers were used for the original design, the terminal heating coils are selected with a 180°F entering water temperature, which is not low enough (even with a 40°F ΔT), to provide condensing conditions and the associated efficiency benefit.

PRIOR LEAK AT HEATING PUMP

POTENTIAL BURN RISK FOR SMALL CHILDREN

HEATING RECOMMENDATIONS

- Consideration for addition of a single boiler for emergency heating only, or a formalized plan of action in case both boilers have failed, is recommended. This plan could include load shedding (removal of outside air and exhaust load from the facility), sourcing and connection of an emergency boiler, or a combination of items. The priority or urgency of this item can be determined by facility staff observation – for example, if both boilers regularly are required to run to meet heating load during the winter, a failure scenario may be more severe.
- Consider adding a tertiary loop to mix down supply water temperature to panel radiators exposed to students, to limit burn risk.
- Recommend implementing an aggressive hot water reset schedule to limit supply water temperature to as low as 120°F during shoulder seasons. This will encourage condensing operation and will dramatically improve boiler efficiency. Trend and adjust reset schedule for at least 1 year to confirm adequate performance with lower water temperature. Alternatively, implement a trim-and-respond control strategy to automatically reset water temperature as low as possible based on terminal unit valve positions.

HVAC CONTROLS

The facility originally included an Invensys/Schneider Electric TAC I/A control system. It appears that terminal equipment is still served by these original controllers. Since original construction, a new Honeywell WEB-700 supervisory controller and several Honeywell field controllers have been added. These devices are Tridium Niagara N4 compatible, which provides additional flexibility and integration on a district level. Thermostats throughout the facility are generally adjustable with a temperature display, but all control is accomplished via the Direct Digital Controls (DDC).

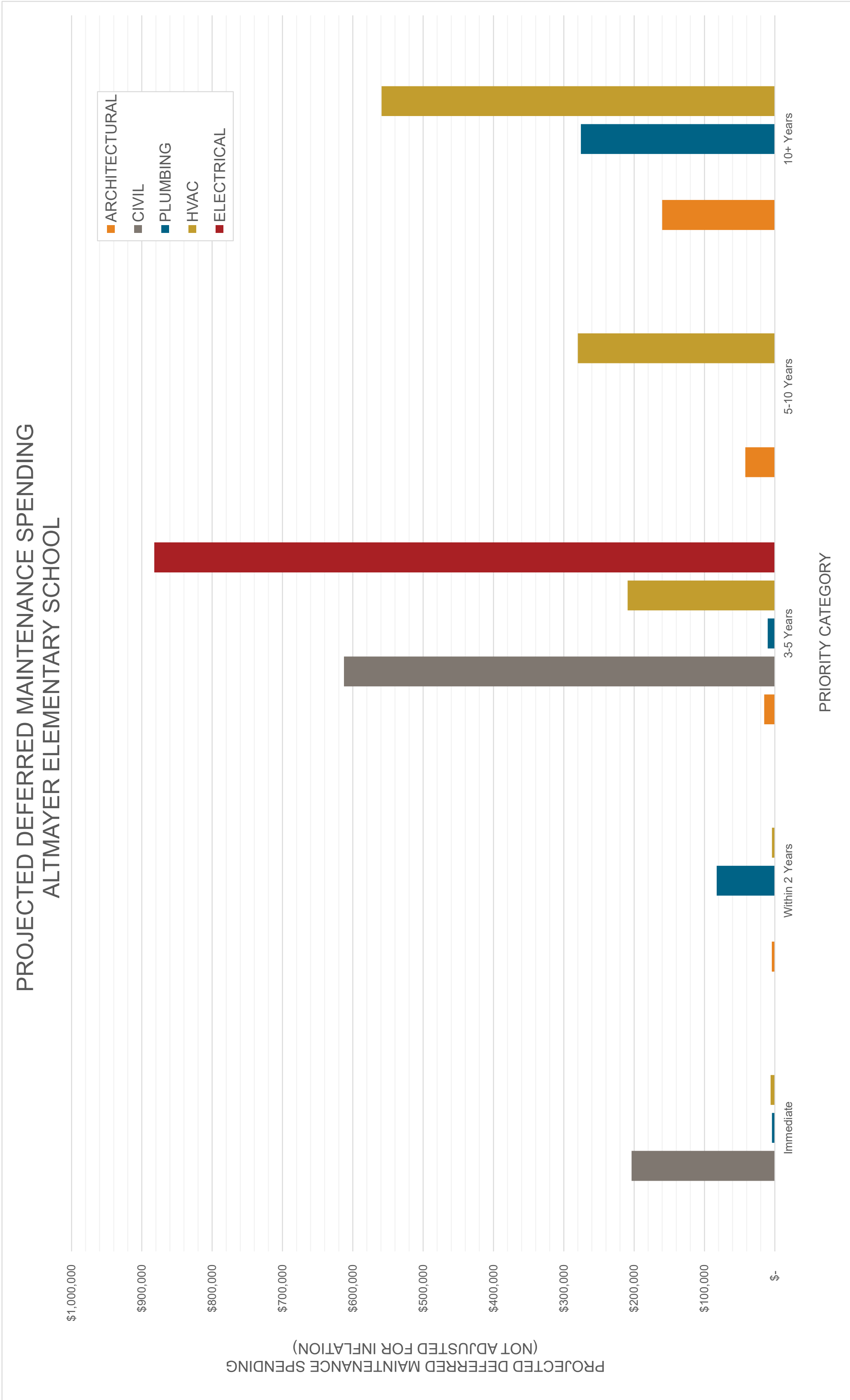
SUPERVISORY CONTROLLER

HVAC CONTROLS CONCERNS

- In discussion with facilities staff and observation of the operating equipment, it appears there are several control sequences which are not optimal for energy savings or system performance.
- Some areas, including several cabinet unit heaters, are not functioning properly, leading to noticeably hot or cold spots throughout the building. This includes multiple stairways, especially Stair D128, and Electrical Room A120.

HVAC CONTROLS RECOMMENDATIONS

- Consider conducting Retro-commissioning survey to “tune-up” and confirm proper operation of all control sequences. This may qualify for a Focus on Energy incentive.
- Recommend hiring a Testing, Adjusting, and Balancing contractor to periodically read out and calibrate outside air airflow measuring stations to confirm accuracy. It is common for this style of airflow measuring station to become fouled with dirt and debris and read artificially low, causing more outside air to be brought in than desired. This may help explain coil freeze conditions noted by facilities staff.


PROJECTED DEFERRED MAINTENANCE SPENDING
ALTMAYER ELEMENTARY SCHOOL
ARCHITECTURAL
CIVIL
PLUMBING
HVAC
ELECTRICAL
$1,000,000
$900,000
$800,000
$700,000
$600,000
$500,000
$400,000
$300,000
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$100,000
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PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)
Immediate
Within 2 Years
3-5 Years
5-10 Years
10+ Years
PRIORITY CATEGORY

Dickinson Elementary School

435 SOUTH WASHINGTON STREET, DE PERE, WI

Dickinson Elementary School

EXECUTIVE SUMMARY

CIVIL

The asphalt surfaces around the school have reached their life expectancies and require replacement. Most of the concrete surfaces continue to be functional and only show localized areas of failures that require replacement. ADA compliance around the school has many issues and requires multiple areas to be replaced to achieve compliance.

ARCHITECTURAL

Renovations to the school in the past few years has been improving the building, but many needs still exist. Overall, the exterior walls and windows are in good shape. Interior finishes in the corridors are durable and in good condition, but are original to 1958 and 1965, and therefore give the school an old, outdated feel. Six classrooms contain asbestos floor tile and original yellowing ceiling tile and grid. The entire roof should be stripped down to the metal roof deck and rebuilt, as well as the metal wall panels above the main roof. Cafeteria skylights have been a constant issues and should be filled in.

PLUMBING

The sanitary and water mains for the building are original to the construction from 1958 and 1965, these systems are well into their expected service life and should be considered for replacement if there are any major renovations planned within the school. The floor drain in the mezzanine serving the water softener should be replaced, along with the floor in that area. The natural gas water heater has long surpassed its expected service life and should be replaced prior to failure. The solar thermal panels and piping on the roof should be maintained to ensure maximum efficiency of that system. Plumbing fixtures, faucets and flush valves are at the end of their expected service life and should be replaced.

FIRE PROTECTION

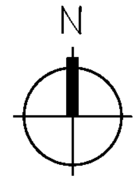
The school does not currently have a fire protections system. Consider adding a fire protection system to fully protect the building from fire.

HVAC

Significant revisions to the school's HVAC system were made in 2010, including the conversion of the primary heating and cooling system to a geothermal water-source heat pump system. Several older pieces of equipment still remain, which will require replacement soon. The original unit ventilators have been abandoned in-place, but are leaking cold air into each classroom during the winter months. A supplemental heating plant is present, which has already endured a boiler heat exchanger failure despite being well within its expected service life. The geothermal heat pumps are difficult for staff to maintain and will likely require periodic component replacement throughout their service life. Revision to the control strategies currently used in this facility could result in a significant decrease in energy consumption within this school. Ongoing capital investment into building temperature controls can be expected to keep the controls systems up to date.

ELECTRICAL

The electrical distribution equipment at this facility varies in age and condition. The main General Electric distribution has been upgraded in 2001 and is in very good condition. The original 1958 panels should be replaced. The back-up generator is in very good condition but is in its second half of its service life. The fire alarm system control panel and various devices were installed in 2001 and are in good condition, but could be upgraded to meet current code requirements. The fluorescent lighting technology is in the process of changing over to L.E.D. type luminaires, and should continue to do so. Lighting controls should also be upgraded as the luminaires are switched over to L.E.D. Telecommunication system equipment is fairly current and there is an equipment upgrade schedule by the Owner’s I.T. personnel. The paging / bell system has some issues in various parts of the school and is outdated; replacement should be considered in the near future.



Dickinson Elementary School

SITE PLAN

Dickinson Elementary School

FIRST FLOOR PLAN

DICKINSON ELEMENTARY SCHOOL

Building Description / Condition

OVERVIEW

The Dickinson Elementary school is located on approximately 9.3 acres in the heart of De Pere located just southeast of downtown. It's the District's 2nd oldest school, originally constructed in 1956, with additions in 1965, and renovations in 1992, 2001, 2019 and 2020. The gross building floor area is 73,136 sq.ft. on 1 primary level. Building's capacity, provided by the District, is 594 students with current enrollment at 520 students in grades K – 4th.

SITE SUMMARY

Dickinson Elementary School is bounded by Merrill Street, S. Ontario Street, and S. Washington Street. All parking lots are located on the south side of the building. Parent and bus drop off are also located on the south side of the building. The campus includes multiple hard and soft surface play areas.

ELEMENTARY PARKING & BUS LOT

SITE CONCERNS - ASPHALT

- Many locations throughout the traveled lanes have alligator cracks with signs of failing base.
- Various unsealed longitudinal and transverse cracks throughout the pavement.

SITE RECOMMENDATIONS

- Remove existing pavement
- Stormwater management improvements
- Base repairs as needed
- Pave 4" of asphalt in parking lot
- Install pavement markings

ELEMENTARY PLAYGROUND LOT

SITE CONCERNS - ASPHALT

- Excessive settlement and rutting throughout the pavement
- Many unsealed transverse and longitudinal cracks throughout the surface
- Entire surface has severe alligator cracking
- Water ponding in various locations in the field next to playground lot

SITE RECOMMENDATIONS

- Remove existing pavement
- Remove 12” of base/subgrade
- Install drain tile along edge of pavement to existing inlet
- Add geotextile fabric
- Add 12” of dense graded base
- Pave 3.5” of asphalt
- Drainage Improvements/site grading to field
- Add pavement markings for school recess activities

ELEMENTARY RECEIVING LOT

SITE CONCERNS - ASPHALT

- Excessive settlement and rutting throughout the pavement
- Many unsealed transverse and longitudinal cracks throughout the surface
- Entire surface has severe alligator cracking and base has failed

SITE RECOMMENDATIONS

- Remove existing pavement
- Remove 18” of base/subgrade
- Install drain tile under the pavement to existing inlet
- Add geotextile fabric
- Add 12” of breaker run
- Add 6” of base at
- Pave 4” of asphalt

ELEMENTARY DROP OFF/PICK UP AREA

SITE CONCERNS - ASPHALT

- Multiple unsealed transverse and longitudinal cracks throughout the surface
- Some alligator cracking starting to appear along the gutter flange in a few locations

SITE RECOMMENDATIONS

- Crack seal transverse and longitudinal cracks (yearly)

ELEMENTARY SIDEWALK

SITE CONCERNS – CONCRETE SIDEWALK

- Multiple concrete panels cracked and some with minor spalls
- Settlement of the entrance footing with a vertical deviation greater than ½”
- South edge of the sidewalk, north of the playground, has abrasion and small spalls from snow plowing
- Concrete aprons at the SE entrance have slopes of 12%
- Concrete pad, for garbage dumpster, has multiple narrow cracks with some areas of light map cracking
- Asphalt surface behind the curb, and at entrance No. 4 have some diagonal cracks.

SITE RECOMMENDATIONS

- Remove and replace broken panels
- Repair shallow spalls at concrete surface
- Crack seal narrow cracks in the concrete panels and retaining wall
- Remove and replace concrete pad for dumpster with 6” reinforced concrete
- Remove and replace concrete entrance aprons at a 6% or less.
    - Remove adjacent 2-3 concrete sidewalk panels
- Replace asphalt sidewalk with concrete in SW corner of school
- Replace asphalt pavement and pave 4” of concrete at entrance No. 4 behind curb and gutter

CURB & GUTTER

SITE CONCERNS – CONCRETE CURB & GUTTER

- Multiple sections have cracks through the curb and gutter.
- Some areas of curb and gutter have spalls
- Multiple sections of raised sidewalk curb have abrasion and small spalls
- Vertical cracks on the retaining wall and railing section on the SW corner of the school

SITE RECOMMENDATIONS

- Remove and replace all damaged curb head sections
- Sawcut raised concrete sidewalk 2' back
- Remove concrete sidewalk
- Pour 24" curb and gutter

ADA COMPLIANCE

SITE CONCERNS – CONCRETE SIDEWALK

- The concrete sidewalk, on the NW corner the school, has two sections of sidewalk that have a slope of 1:15 and 1:11. These sections of sidewalk exceed the maximum slope of 1:20 and the max rise of 30" before a landing pad or railing needs to be installed.
- Some detectable warning fields are deteriorating and no longer have effective domes.
- 2 curb ramps have cracks and spalls in the concrete

SITE RECOMMENDATIONS

- Remove and replace panels with adequate landing areas.

SITE CONCERNS – CONCRETE CURB RAMPS

- 6 curb ramps on site do not meet the requirements for ADA Compliance.

SITE RECOMMENDATIONS

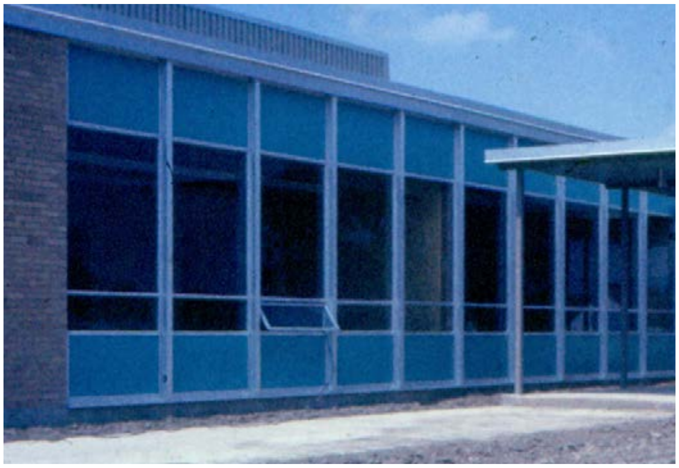
- Remove and replace all cracked sidewalk ramps panels
- Remove and replace non-compliant curb ramps

STRUCTURAL SUMMARY

The building's structural system is primarily load bearing concrete masonry units (CMU) at interior and exterior walls.

STRUCTURAL CONCERNS

- There are no structural concerns



THE 1956 CLASSROOM WINDOW SYSTEM WAS REPLACED WITH NEW WALLS AND SMALLER WINDOWS

EXTERIOR WALLS

The exterior wall construction consists of veneer brick on CMU back up walls. In the original 1956 classroom area, the aluminum curtain wall glazing system was removed prior to 1998 and a smaller aluminum window was provided in each classroom, with a new wall covered with EIFS (exterior insulation finish system) cladding. A similar window replacement was done to the rest of the 1965 classrooms. The gym is load bearing insulated precast wall panels re-built in 2001. The exterior walls appear in good condition and there are no concerns on the classroom level.`

EXTERIOR WALL CONCERNS

- There are concerns at the roof level with the metal panel wall construction enclosing the high ceiling spaces at the roof level. In center area of the building, the walls at the cafeteria are clad with metal panels. Due to water infiltration issues, the vertical joints in the panels were sealed with caulk on the north, west side, and east side which, staff report this appears to have stopped water leaks.

CAULKING USED TO SEAL METAL WALL PANELS

SUCCESSIVE LAYERS OF ROOF COPING TRIM WITH VISIBLE GAPS

However, there are also large gaps in the layers of existing wall flashing at the high roof which are potential points of water infiltration. This layering of flashing suggests that the contractor installed the new metal panels and roofing material over the existing construction, rather than removing the old materials and covering the intersection of the wall and roof with a single flashing system.

Above the Library, there are existing metal panels that meet the roofing ballast. The metal panels and roofing membrane should be above the roofing ballast a minimum of 8”-12”. This condition also would be suspect for water infiltration.

See roofing section for plan view of locations mentioned above.

METAL WALL PANELS TOO CLOSE TO THE ROOF

EXTERIOR WALL RECOMMENDATIONS

- Repairs to the vertical metal wall panels and metal wall flashing should be addressed as part of a total building re-roofing project. See the roofing comments below.

WINDOWS

As noted earlier, the windows are aluminum frames with double pane insulated glass. Interior and exterior caulking around the windows appears in good condition.

WINDOW CONCERNS

- There are no window concerns.

DOORS/ FRAMES

Most exterior doors and frames are painted hollow metal. The balance of the exterior doors are full glass aluminum with aluminum frames.

RUST AT HOLLOW METAL DOOR FRAMES

DOOR/ FRAME CONCERNS

- A majority of the hollow metal exterior door frames show extensive rust and corrosion at the threshold where they meet the concrete. The doors themselves appear average condition.

DOOR/ FRAME RECOMMENDATIONS

- The rusting of the hollow metal door frames will likely worsen in the coming years. Due to the severity of the deterioration, in all probability, they will all need to be replaced within the next 5-10 years. Fiberglass reinforced plastic is a good alternative to hollow metal and will not corrode like the existing frames.

ROOFING

The roof construction is composed of a 45 mil EPDM roof membrane covered with ballast stones over layers of rigid insulation board. Craft’s Inc. completed a maintenance inspection on 6/23/22 and 6/24/22 and found areas of worn caulk, missing “T” joints and metal flashing issues. Holes, voids, fish mouths, and open corners were patched. While the roofing membrane is being maintained by Craft’s Inc., there are issues with roof flashing and roofing insulation board.

ROOFING CONCERNS

- Ponding water and areas that are not adequately pitched to reach a roof drain were observed. In two areas on the 1956 classroom wing, there is apparently no slope to allow water to reach the roof drains which is creating ponding.
- At areas under the roof top air handlers, the roof membrane is depressed and ponding water.
- Staff report constant issues with water leaking at the skylights and the at the raised roof areas of the cafeteria and library.
- There are a few areas where the insulation has lifted up from the deck and is pushing up on the roof membrane.

RECESSED ROOFING AT HVAC PENETRATION

RAISED INSULATION PUSHING UP ON MEMBRANE

EXCESSIVE PONDING WATER NOT REACHING A DRAIN

SKYLIGHTS ON ROOF ABOVE CAFETERIA

- Staff report continuing issues with the skylights over the cafeteria. Rain water and moisture from condensation are seeping into the drywall side walls of the light well, damaging the drywall and blistering the paint. Cracks in the skylight's plastic dome have been fixed with sealant applied to the exterior of the dome. The dark streaks in the photos are from this sealant.

INTERIOR OF SKYLIGHT WELL

SEALANT AT CRACKED SKYLIGHT

- Facilities reports indicate that the current roofs were installed during the 2001addition and renovation.

ROOFING RECOMMENDATIONS

- Address the concerns above with a comprehensive re-roofing project for the entire Building.
- Add additional roofing insulation where needed to create the proper slope to roof drains.
- Investigate areas of insulation push-up to determine cause. Repair/replace defective insulation.
- Remove skylights and roof over the openings.
- Replace the metal panel walls on the roof with an entirely new wall system that provides the proper flashing into the roofing membrane.

CAULKING AT CRACKED SKYLIGHT

VIEW OF CAFETERIA

VIEW OF LIBRARY

COMMON AREAS

COMMON AREAS CONCERNS

- The cafeteria flooring is vinyl tile and appears in good condition. The library is spacious and inviting with decorative pendant light fixtures.

CLASSROOMS, LABS AND ART STUDIO- TEACHING AREAS

Typical Classroom floor finishes consist of broadloom carpet with a small strip of resilient flooring along the casework containing the sink. Wooden casework installed during the original 1956 construction and 1965 additions, appears in overall fair shape.

TYPICAL CLASSROOM WITH CASEWORK ALONG ONE WALL

1958 CASEWORK DOORS AT SINKS

ROOF LEAK STAINS ON YELLOWING CEILING TILES

TEACHING AREA CONCERNS

- 6 classrooms in the southern wing, currently still have 9" x 9" asbestos floor tile with original, yellowing ceiling tiles and metal grid.
- While the overall casework in the 1956 section appears OK, the wood veneer on the doors, under the sink, is pealing off, either naturally or with help from students.

TEACHING AREA RECOMMENDATIONS

- Asbestos floor tile should be abated, and new carpet installed.
- Replace ceiling tile and grid.
- Replace the cabinet doors under the sinks in the 1956 section as needed.

RESTROOMS

The main student restrooms are porcelain floor tile with full height wall tile which appear in good condition. There is a staff restroom, adjacent to the office and another in the nurse's office which are fully ADA compliant.

RESTROOM CONCERNS

- There are currently no wheelchair accessible toilet stalls in the main student restrooms. They do contain one larger stall that has side grab bars which met code in when constructed in 1965.

RESTROOM RECOMMENDATIONS

- While the main level of classrooms have access to an ADA compliant restroom, the eastern wing of 13 classrooms does not. An accessible restroom should be considered to avoid the need to travel up and down the 41' long, 3'-4" high ramp.

ADMINISTRATIVE AND COUNSELOR OFFICES

Administrative Office were newly remodeled in 2017 and 2020 and contain new broadloom carpet, lights, and ceilings. There are currently no concerns.

CORRIDORS - CIRCULATION

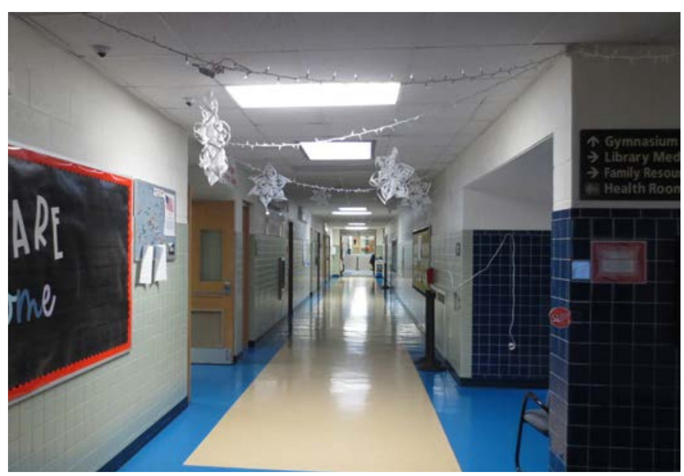
The corridor flooring is mostly a mix of 1"x1", 1"x2", and 2"x2" porcelain tile in the original classroom areas and appears in excellent shape. Corridor walls are glazed wall tile. The corridor that surrounds 2 sides of the cafeteria is sheet rubber without welded seams installed in 2001. It appears in good condition aside from one area where the glue has released and curled up the at a seam. Staff report being told by a flooring contractor that the floor has reached its end of life and should be replaced. The cafeteria flooring is vinyl tile and appears in good condition, except for 2 areas that span across a floor construction joint which have visible cracking.

CIRCULATION CONCERNS

- In one of the entry vestibules adjacent to the kindergarten classrooms, there is a teaching area with a table, chairs, and teaching materials. It's apparent that this is being used as an area for one-on-one, specialized instruction. The other vestibule is being used for playground equipment storage. This demonstrates the need for both storage and one on one instructional space. Per the building code, these vestibules cannot contain these types of stored items as they may hinder the emergency evacuation of the building.

TOILET STALL IN STUDENT RESTROOM

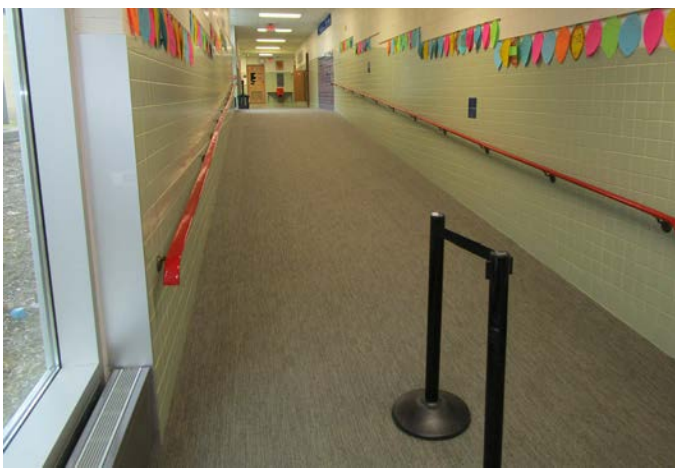
TYPICAL TILE CORRIDOR



RUBBER FLOORING AROUND THE CAFETERIA

EXIT VESTIBULE USED AS INSTRUCTIONAL SPACE

EXIT VESTIBULE USED TO STORE PLAYGROUND EQUIPMENT



RAMP TO EASTERN CLASSROOMS

ROUND DOOR KNOBS NOT ADA COMPLIANT

- Existing wood doors contain round knobs which are not ADA compliant. The door latch/knob hardware sits further away from the edge of the door compared to modern latch sets. Parts are not available for theses, and the entire wood door needs to be replaced to fix door latch issues and meet ADA code compliance.

CIRCULATION RECOMMENDATIONS

- Infill the joint in the concrete subfloor and replace the vinyl floor tile where it is depressed.
- Replace wood doors and non-compliant round knob door hardware to meet ADA requirements.

VCT DEPRESSED INTO FLOOR JOINT IN SLAB

RUSTING DISH ROOM CEILING GRID

VIEW OF KITCHEN

FOOD SERVICE EQUIPMENT AND KITCHEN

The food service area was updated as part of the 2001 renovation and appears in good condition.

FOOD SERVICE CONCERNS

- The stair in the kitchen area which accesses an air handler room does not meet today's code. Staff report that the washer and dryer that were recently relocated from the upstairs area to the main school level due to safety concerns.
- The metal ceiling grid in the dish washing room is rusting.

FOOD SERVICE RECOMMENDATIONS

- Replace the dish washing room ceiling grid and tiles with an aluminum grid and vinyl covered gypsum board ceiling tiles; these will not rust or hold moisture.

ACCESSIBILITY OBSERVATIONS

The American with Disabilities Act ADA) of 1992 is a civil rights law that protects individuals with disabilities against discrimination in buildings classified as public due to physical barriers that may impede them from accessing the site, elements of a building or floors of a certain size or use.

The nearest accessible parking stall is over 350' feet from the schools main entry. Code typically mandates that the accessible stall be located within the shortest route to the main entry. The existing parking lot layout and site grading does not allow this accessible stall to be any closer to the main entry. However, door #3 there is a video intercom to allow access to the building from this door at only 60' from the accessible parking stalls.

The second important factor in the accessibility of a building is the entry into the building from an accessible route. All of the school's entrances are at grade and are attached to either an accessible public sidewalk or parking area that leads to a public way.

The third important factor is having an accessible route to common amenities and public spaces such as classrooms, restrooms, lunchrooms, open offices and shared work areas. Currently, all spaces are accessible. The round door knobs, as mentioned earlier, should be changed to lever handles to increase accessibility.

The fourth important factor would be to provide accessibility within all common spaces including classrooms, restrooms, locker/ shower rooms, gymnasiums. As previously outlined, there are accessibility issues with the current student restrooms due to clearance constraints and barriers around the toilets. Future renovations would mandate that up to 20% of the overall construction budget be allocated to increasing the accessibility of the buildings. Making these restrooms ADA compliant should be considered.

DICKINSON ELEMENTARY SCHOOL

Plumbing Description / Condition

SANITARY SEWER LATERAL

The school is served by two separate sanitary mains. The first sanitary main is a 6” diameter which was installed during the original construction in 1958. The second is a 6” diameter and was installed during the addition in 1965. Both of the mains exit the building to the northwest and run to Washington Street.

The condition of these sanitary mains is unknown given they are located underground, but considering the age of the original school and the addition, it can be assumed that the sanitary piping is in fair condition.

During our meeting with the facilities staff, there were no known issues with the sanitary mains.

SANITARY SEWER LATERAL RECOMMENDATION

- Considering the age of the sanitary sewer laterals, we would recommend televising the sanitary mains prior to any addition or modifications.

WATER SERVICE ENTRANCE

WATER SERVICE LATERAL

The water service lateral is a 4” diameter, installed during the original construction in 1958. The water service runs underground below the building at the nurse room and stubs up through the floor in an adjacent closet. The water meter is a 3” meter with a 3” diameter valved bypass.

The water meter appears to be leaking from one of the service ports and dripping onto the floor. Scale and build-up was seen running down the meter body. The water pressure observed on the day of the site visit was 54 psi. The pressure reading was taken at the hot water storage tank near the gas fired water heater.

WATER SERVICE LATERAL CONCERNS

- Repair the leaking service port on the water meter.

WATER METER LEAK

GENERAL STORM / ROOF DRAINAGE

This school has internal roof drainage. The storm drainage extends below grade and exits the building in two locations, which are adjacent to the sanitary sewer exits. One storm sewer is a 10” diameter from the original construction in 1958, the second is a 10” diameter installed during the addition in 1965. Both of the mains exit the building on the northwest and run to Washington St.

There was no overflow storm drainage observed on site. The school has no parapet walls, so it is likely that in the event of a main roof drain blockage, the excess water would flow over the edge of the roof.

It was noted that there was ponding of water on the roof during our site investigation. In the northwest corner of the building, there is an area where the roof drain is higher than the adjacent roof, which causes water to continuously pond. Also, in several locations near the rooftop units, water is ponding at the duct penetrations, which is an indication that the roof was never pitched properly from installation.

Based on the information listed on the existing plans, the main roof drain piping is adequately sized.

WATER PONDING NEAR ROOF DRAIN

GENERAL STORM/ ROOF DRAINAGE CONCERNS

- No overflow roof drains were observed during the site investigation, this could cause water to pond on the roof in the event of a main roof drain blockage.
- Water was ponding at rooftop unit duct penetrations.

GENERAL STORM/ ROOF DRAINAGE RECOMMENDATIONS

- Rework roof insulation to pitch to roof drains.

SANITARY DRAINAGE

The school has two sanitary drainage exits. Much of the piping from the classroom and main restroom groups is original to the 1958 construction and 1965 addition. That makes the piping in those areas approximately 65 years old and 58 years old respectively. These values are well into the service life of sanitary piping. We would recommend the sanitary piping be televised prior to any additions or renovations being completed to ensure the integrity of the piping.

The facilities personnel mentioned that the staff restroom water closet, which was added in 2019, has backed up several times since installation. It is believed this could be from staff flushing items down the toilet which should be thrown in the trash. Other than that water closet, there were no other known sanitary drainage issues reported by facilities personnel.

WATER SOFTENER DRAIN

GREASE INTERCEPTOR

There is a water softener located on the mezzanine above the kitchen. The floor drain which the water softener discharges into is heavily corroded, and in very poor condition. During our site investigation it was noted that the floor deck directly below this floor drain, which is in the outdoor storage area, is in poor condition. It can be assumed that the floor drain is leaking into the concrete surrounding the drain, and is corroding the metal decking in that area.

The school has a grease interceptor located in the outdoor storage room. The grease interceptor was installed during the 2001 addition/renovation. The cover of the grease interceptor appears to be in fair condition, facilities staff indicated that there are no known issues with the grease interceptor.

SANITARY DRAINAGE CONCERNS

- The floor drain on the mezzanine is leaking and corroding the floor deck directly below the drain.

SANITARY DRAINAGE RECOMMENDATIONS

- Replace the section of floor deck and drain in the area of that floor drain.
- Consider televising the sanitary mains prior to any system modifications to ensure the integrity of the piping.

DOMESTIC WATER DISTRIBUTION SYSTEMS

The school is served by a 3” diameter domestic cold water main. Based on our site investigation and existing documents, it appears that portions of the existing domestic cold water piping serving the classroom wings is run below the floor. This makes renovation of these spaces very difficult, and opens the door for leaks below grade to go unnoticed for a long period of time.

The school has a few different sources of domestic hot water. The original school, the northern portion of the 1965 addition, and the kitchen area, are served by a domestic hot water boiler which is pumped to a storage tank. This area is also connected to a solar thermal hot water system which was installed during the 2010 addition/renovation. The solar thermal system consists of a solar array, which is connected to two large storage tanks via a heat exchanger and a pump. These large storage tanks are then connected to the domestic hot water system. There are three domestic hot water recirculation pumps which circulate water to these parts of the school. During our site investigation the return water temperature was 110°F, which is a typical return water temperature found within a school.

SOLAR THERMAL STORAGE TANKS

The southern wing of the school is served by two 50 gallon natural gas water heaters, and a separate recirculation pump.

The domestic hot water piping runs through the ceiling cavity within each wing and the connection to the recirculated mains are relatively close to each fixture. A majority of fixtures tested had hot water within a timely manner. It was noted at a few of the classroom sinks that only lukewarm water was available. This could be caused by the thermostatic mixing valve located below the sinks getting plugged up with sediment and not working correctly. The domestic hot and cold water running to classroom sinks from the 1965 addition was run exposed down the wall within the classroom. The piping insulation on these branches was in fair condition.

BOOSTER HEATER

A 180°F domestic hot water loop was installed during the 2001 addition/renovation. This 180°F water serves the dishwasher and has its own recirculation pump. This is accomplished with a booster heater located in the mezzanine above the kitchen. The 180°F domestic hot water loop is also softened by a small water softener located on the mezzanine above the kitchen. The booster heater serving the dishwasher had a temperature setting of 175°F on the day of our site investigation.

The domestic water distribution piping is copper. The insulation on some of the original equipment is showing signs of wear, or degradation, where maintenance was performed. In general, piping insulation above the ceiling appeared to be in good condition.

DOMESTIC WATER DISTRIBUTION CONCERNS

- The cold water mains extend below the floor slab and run down the corridors. The condition of this piping is unknown, but considering it is 58 to 65 years old, it can be assumed some degradation has happened from the interior and exterior of the piping.
- A few of the classroom sinks had only lukewarm water available.

DOMESTIC WATER DISTRIBUTION RECOMMENDATIONS

- Consider verifying that the domestic water system has no flow when the building is unoccupied to check for leaks on the below floor piping.
- Consider repair or replacement of the thermostatic mixing valves to provide adequate domestic hot water.
- Consider replacing piping insulation that is damaged or showing signs of wear.

CLASSROOM SINK

RESTROOM FIXTURES

Overall, the plumbing fixtures within the school are in fair condition. It is evident many of the fixtures are original to the 1958 construction and the 1965 addition. Most flush valves and faucets have likely been replaced at some point over the life of the fixture.

The classroom sinks have surpassed their expected service life and are showing signs of age. These items should be replaced in the near future. The strainer at the bottom of most of the classroom sinks appears to be corroded, and the chrome is delaminating. It was noted that many of the classroom sinks, and casework, were separating from the exterior wall. These fixtures should be caulked to the wall to prevent any backsplash from getting behind the casework.

The water closets in main restroom groups are wall hung with sensor operated flush valves and appear to be in fair condition. Based on the style of flush valves, it can be assumed that the flush valves were replaced at some point over the life of the fixtures. The flush valves are sensor type, with a manual flush option, and appear to be in good condition. The water closets in individual restrooms are floor mounted with manual operated flush valves.

WALL AT CLASSROOM SINK

WATER CLOSET

URINALS

The urinals are wash down floor outlet style. There is a mix of manual flush valves and sensor flush valves on the urinals. All flush valves appear to have been replaced at some point over the life of the fixtures. The flush valves on the urinals appear to be in good condition.

The lavatories are wall mounted porcelain with metering faucets. It appears that the metering faucets have been replaced at some point over the life of the fixtures. Most metering faucets are in good condition, however, a few of them stay on longer than needed. The chrome on a few of the metering faucet handles is delaminating. Located near each restroom, is a single thermostatic mixing valve which provides tempered water for the lavatories. These thermostatic mixing valves are located a good distance away from the outlets of the lavatories, which means it takes a while to get tempered water, especially because in some instances the tempered water lines run below the floor slab.

LAVATORIES

LAVATORY FAUCET DELAMINATING

The school has several sets of drinking fountains, these fixtures appear to be in good condition.

Plumbing fixtures have a service life of 30 years, but the faucets and valves have a service life of between 10 and 15 years, with regular maintenance and parts replacement.

RESTROOM FIXTURE CONCERNS

- Many of the fixtures have surpassed their expected service life of 30 years and will likely require replacement soon.

EQUIPMENT

The original school, the northern portion of the 1965 addition, and the kitchen area are provided hot water by a natural gas domestic hot water boiler and storage tank. Based on the water heater serial number, it was built in 1983. This water heater has surpassed its expected service life and should be replaced prior to failure. The storage tank is 350 gallons and is connected to the water heater by a recirculation pump. This area also has a solar thermal domestic hot water system. The system consists of (3) solar arrays connected to an 80 gallon drain back tank, which is pumped through a heat exchanger. The building side of the heat exchanger is pumped into (2) 425 gallon storage tanks which are connected to the building domestic cold water supply and domestic hot water supply systems. A three way control valve determines whether the domestic hot water is provided from the solar thermal system or the original domestic hot water boiler and storage tank system.

The solar array and associated piping are in fair to poor condition. In a few locations on each array, the piping is no longer supported from the framework and is free floating. This puts additional stress on soldered pipe joints and could cause leaks. The piping insulation is also falling apart at many elbows and joints.

NORTH WATER HEATER

NORTH STORAGE TANK

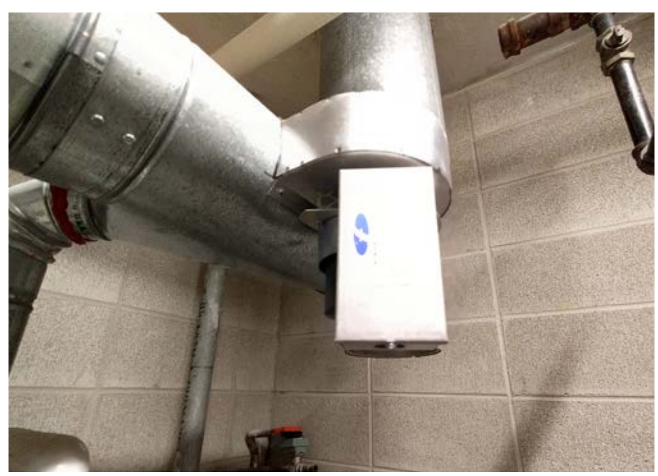
SOLAR ARRAY PIPE INSULATION

SOLAR ARRAY PIPE SUPPORT

SOLAR ARRAY PIPING

SOUTH WATER HEATERS

The southern wing of the school is served by two 50 gallon natural gas water heaters and a separate recirculation pump. Based on the serial number of the water heaters they were built in 2003. This means these water heaters are at the expected service life and the school should consider replacement prior to failure. These two water heaters are also connected to a single flue up through the roof. Common flue venting may be allowed based on the manufacturer, however, on the flue there is a draft inducing fan, which is currently not connected to electricity. This means that the fan is obstructing the flow of the combustion gases whenever either of these water heaters is in operation. This installation should be reviewed by a master plumber to ensure this meets the manufacturer's installation instructions.



DRAFT INDUCER FAN

The booster water heater, located on the second floor, appears to be in good condition. This water heater was manufactured in 2009, which puts it at about the mid-point of its expected service life.

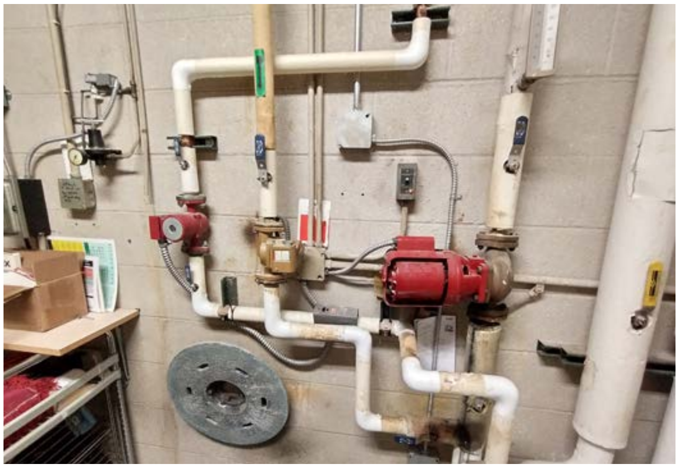
The water softener, located on the mezzanine near the kitchen, is in fair condition. The age of the water softener is unknown, but it appears to be quite old. The water softener was in service on the day of our site investigation and the salt storage bin was full.

The domestic hot water recirculation pumps appear to be in good condition and a few of them may have been replaced since the addition/renovation from which they were installed. That being said they are likely nearing the end of their expected service life and will likely need to be replaced soon. The recirculation loops appear to be meeting the original design intent in keeping water temperatures consistent throughout the school.

The expected service life of water heaters is 10 – 20 years depending upon water quality and maintenance.

The expected service life of recirculation pumps is 10 years depending upon water quality and maintenance.

WATER SOFTENER



RECIRCULATION PUMPS

EQUIPMENT CONCERNS

- The piping on the solar array is not supported or insulated adequately. This puts additional stress on the joints of the piping and also loses efficiency when the system is in operation.
- The draft inducer on the water heaters serving the south end of the school is not connected to electricity. Consider having a master plumber review the installation to ensure it meets the manufacturer’s installation instructions.

EQUIPMENT RECOMMENDATIONS

- The domestic hot water boiler and storage tank water heater has surpassed its expected service life. Consider replacement of the water heater prior to failure as preventative maintenance.
- The recirculation pumps have surpassed their expected service life. Consider replacement of the recirculation pump prior to failure as preventative maintenance.

FIRE PROTECTION

Dickinson elementary school does not have a fire suppression system. To provide a fire suppression system, the school would need to provide a larger water service to the building.

DICKINSON ELEMENTARY SCHOOL

Electrical Systems Description / Condition

ELECTRICAL SERVICE/ POWER DISTRIBUTION

The building electrical service is provided by W.P.S. and is a 120/208V, 2000A, 3-phase main distribution panel, located in the main electrical room. The main distribution was upgraded in 2001. The existing utility transformer is located outside of the main electrical room to the north of the building. All main switchgear is manufactured by G.E. Electronics. Branch panels are a mixture of Siemens and Square-D equipment.

MAIN DISTRIBUTION PANEL

ORIGINAL MAIN DISTRIBUTION PANEL

SERVICE/ POWER DISTRIBUTION CONCERNS

- The original 1958 Square-D distribution panel is still in operation. These panels are out of date and need replacing.
- The original distribution does not have a proper lock-out mechanism to limit unauthorized persons from entering the energized equipment bay.
- Several of the branch panels are original to the building. These panels are showing signs of rust and over-use; and are past their life expectancy.

- In the “A” wing of the building, an employee/contractor received an electrical shock from touching one of the structural steel-beams above the ceiling. This person did not incur any injury, but it does highlight an area that should be looked at for possibly having an open ground, since panels or circuits typically utilize the nearest metal column as a source of ground.
- None of the electrical gear has the proper PPE (Personal Protective Equipment) labeling.

BRANCH PANEL

SERVICE/ POWER DISTRIBUTION RECOMMENDATIONS

- Replace existing Square-D distribution and branch panels with new equipment.
- Provide lock-out/tag-out latching on original distribution.
- Provide the proper PPE labeling.
- Electrical service equipment typically has a service life of approximately 30-40 years. The primary cause of the replacement is the inability to produce breakers which properly fit and operate within the existing branch and distribution panels toward the end of life.

BRANCH PANEL

GENERATOR SYSTEM

The generator is a 120/208V, natural gas unit manufactured by Cumins. Installed in 2001, this unit feeds both Life Safety branch circuits and Equipment branch circuits through two automatic transfer switches and dedicated branch panels located in the main electrical room. Power circuits, that are backed up by the generator, include emergency corridor lighting, exit signage, fire/ security alarm panels, and circulation pumps and a boiler. Generator does get tested on a routine basis.

GENERATOR

GENERATOR TRANSFER SWITCH

GENERATOR CONCERNS

- No major Generator Concerns at this time. Generator appears to be in very good condition, but is starting to reach the end of it's service life.

GENERATOR RECOMMENDATIONS

- Continue Generator maintenance. Regular scheduled maintenance is of high importance since this is a system that will energize other operating systems within the building (fire alarm, security, etc.) when there is a normal power outage.
- IBC code 1008 and NFPA 101 require the path of egress to be illuminated during a power outage for the occupants to have a safe path of travel for a time of 90 minutes, to exit the building. Testing of the emergency lighting should be done by a licensed electrician.

FIRE ALARM

The Fire Alarm system is a Simplex 4010. Installed in 2001. The fire alarm control panel (FACP) is located in the electrical room. There is a fire alarm annunciator panel (FAAP) located near the west main entrance adjacent to the front office area. Several extender panels are located throughout the building.

FIRE ALARM CONTROL PANEL

FIRE ALARM EXTENDER PANEL

FIRE ALARM ANNUNCIATION PANEL

FIRE ALARM CONCERNS

- Overall, the system appears to be fully operational and meeting codes that were in place at time of installation. The system does appear to be outdated and replacement parts and service could be challenging.
- Current code requirements call for a voice / mass notification system with annunciation devices that allow a central station to broadcast a verbal warning for directions to evacuate the building or property. Existing system is “grandfathered” in to when it was installed, but any major remodel or additions would require the system to be upgraded or be able to communicate with any new installations in remodeled areas.

FIRE ALARM RECOMMENDATIONS

- Replace existing system to meet current code requirements.
- Fire Alarm systems typically have a service life of approx. 20-30 years, with the issue of finding replacement parts that will keep the system operating properly.

LIGHTING/ LIGHTING CONTROLS

A majority of the lighting appears to be fluorescent tube and compact fluorescent lamps with the exception of some exterior lighting which has been converted to L.E.D. luminaires. Most interior lighting is controlled through occupancy sensors and manual switching. Exterior lighting is controlled through timers and photo-cell devices.

EXTERIOR LIGHTING FIXTURE

TYPICAL CLASSROOM LIGHTING

LIGHTING / LIGHTING CONTROLS CONCERNS

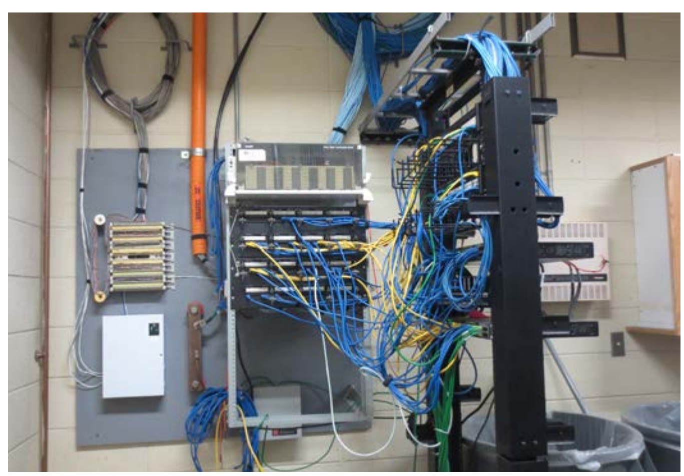
- Automated lighting controls could be utilized more. The installation of additional occupancy sensors and L.E.D. lighting could result in as much as a 30% energy savings compared to fluorescent fixtures.

LIGHTING / LIGHTING CONTROLS RECOMMENDATIONS

- Consider replacing fluorescent lighting with newer technology of L.E.D. (Light Emitting Diode) lighting. Fluorescent tubes would need to be disposed of properly due to their mercury content. L.E.D. luminaires use approx. two-thirds of the energy, or less, compared to fluorescent.
- Consider installing additional occupancy sensors in offices, classrooms, restrooms and corridors.
- Verify the path of egress lighting, in all corridors and exits, have proper illumination per code requirements of IBC 1008 and/or NFPA 101 section 7.9.

TELECOMMUNICATIONS

Telecommunication appears to be adequate and serves the needs of the school.



MAIN DISTRIBUTION FRAME

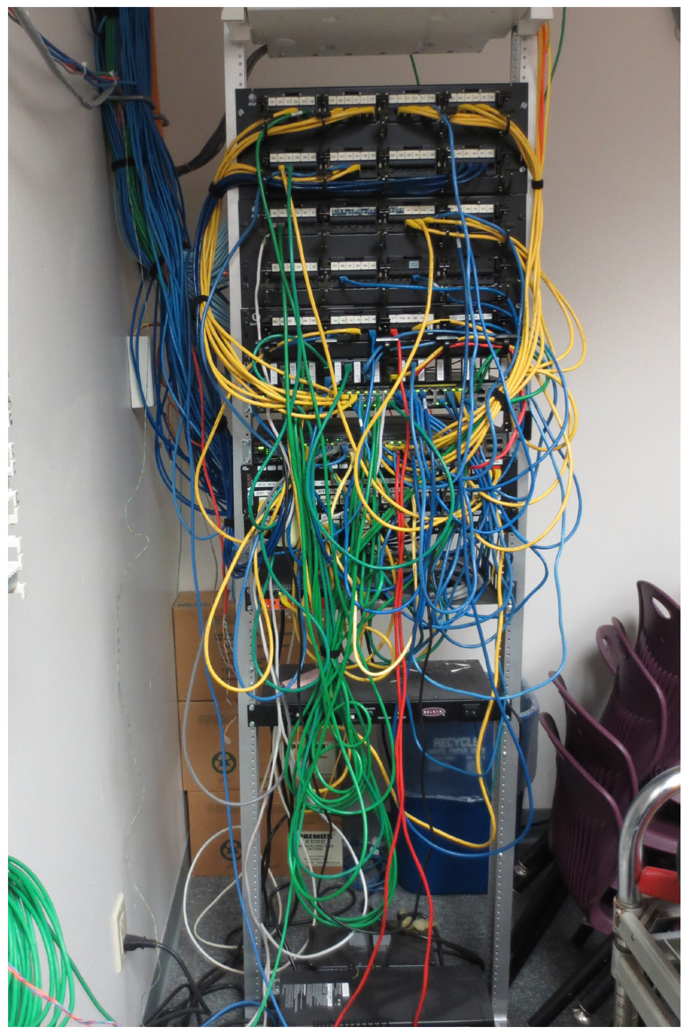
TELECOMMUNICATIONS CONCERNS

- No Telecommunications concerns at this time.

TELECOMMUNICATIONS RECOMMENDATIONS

- No Telecommunications recommendations at this time.
- Telecommunication systems typically have a service life of approximately 20-30 years. Keeping up to date with the latest technology, along with finding replacement parts, are the most challenging issues for this system.
- The schools I.T. department has scheduled a data rack switch replacement for the 2024-2025 school year with a 5-year rotation/replacement moving forward.

DATA SERVER RACK IN CLASSROOM



DATA SERVER RACK

MISCELLANEOUS ITEM(S)

The existing Rauland paging and bell system appears to be the original system installed in the 1997 remodel.

MISCELLANEOUS CONCERNS

- Paging and bell system does not appear to work in all areas of the school.

MISCELLANEOUS RECOMMENDATIONS

- Replace existing paging and bell system.

WIRELESS CLOCK TRANSMITTER

PAGING / BELL CONTROL UNIT

DICKINSON ELEMENTARY SCHOOL

HVAC Description / Condition

Dickinson is the district's oldest elementary school, originally constructed in 1956 with additions in 1965, 1992 and 2001. Significant upgrades to the building's HVAC system were conducted in 2010 including replacement of hot water boilers and conversion of the school to a hybrid geothermal heating and cooling system. Small interior renovation projects have been completed since, in 2019 and 2020. The gross building floor area is 73,136 sq. ft. with 1 occupied level.

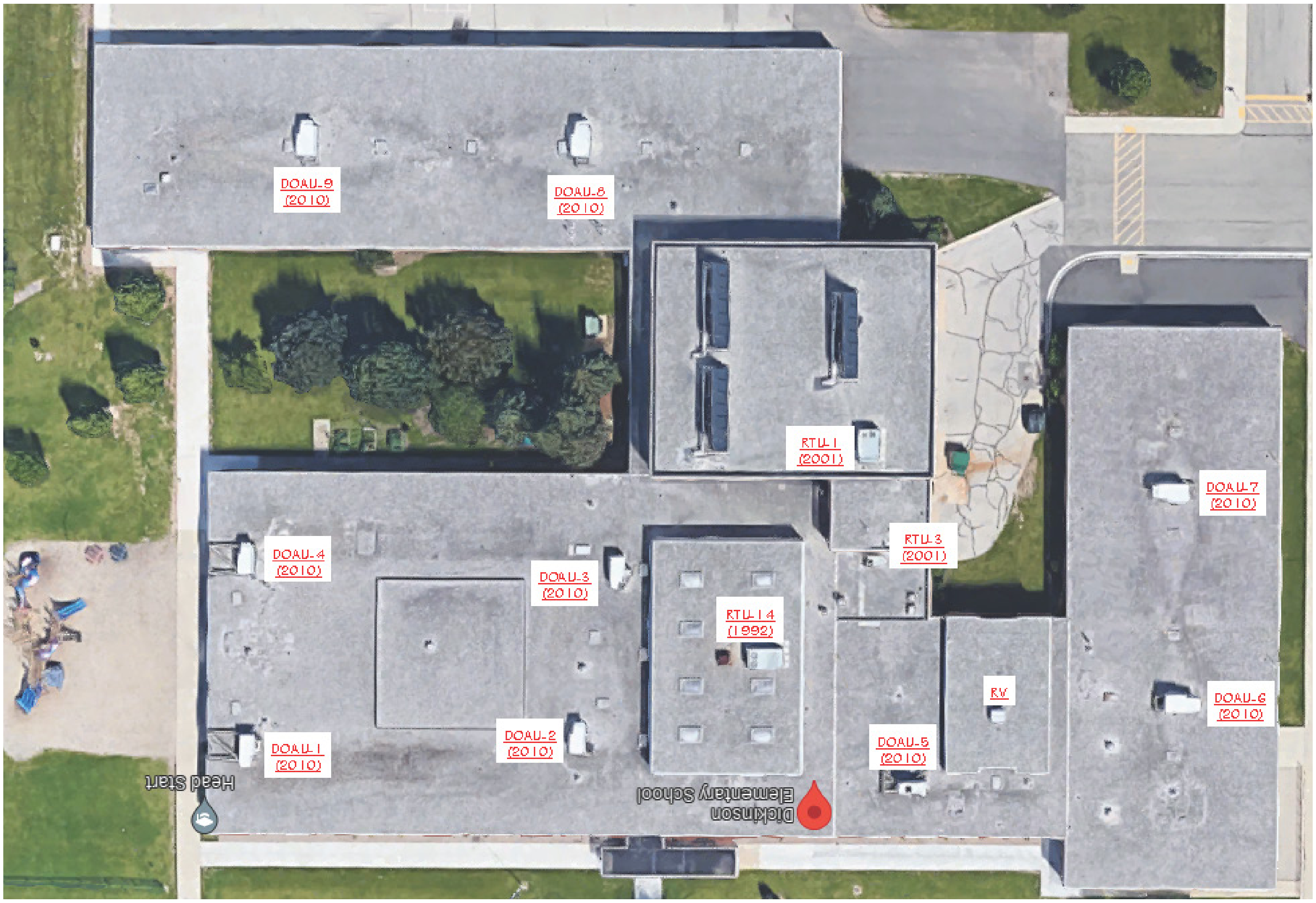

GEOTHERMAL FIELD VAULT ACCESS MANHOLE

The heating and cooling system utilizes a geothermal system with distributed heat pumps and dedicated outside air rooftop units. Hot water supplementary heat is provided by gas-fired hot water boilers. Existing unit ventilators are abandoned in place within classrooms. Classrooms are distributed throughout, in addition to shared spaces including a commons, kitchen, 2-station gymnasium, and LMC. Classrooms currently serve primary grade levels 4K-4th Grade as well as specialty classes including art and music. Mechanical spaces are located on the main floor and second floor, with the majority of air handling equipment located on the roof.

The table below provides applicable values of service life as compared to the actual age and condition of the equipment in question. Service life is defined as the economic life of a system or component as it relates to obsolescence, reduced reliability, excessive maintenance cost, changed system requirements, or failure.

Equipment	Actual Equipment Age	ASHRAE Estimated Service Life[1]	Observed Condition
Dedicated Outside Air Units	13 Years	20 Years	Fair
Packaged Rooftop Units	22/24 Years	20 Years	Poor
Water-to-Air Heat Pumps	13 Years	19 Years	Good
Geothermal Pumps	13 Years	10 Years	Great
Copper Fin Boilers	13 Years	20 Years	Good
Cast Alum. Condensing Boilers	13 Years	25 Years	Poor/Repair
Heating Pumps	13 Years	10 Years	Good
Exhaust Fans	Varies	20 Years	Poor/Fair

[1] 1999 ASHRAE APPLICATIONS HANDBOOK



ROOF LAYOUT

COOLING AND VENTILATION

The cooling and ventilation system has been modified a number of times since original construction. The gymnasium, kitchen, and commons areas are currently served by packaged rooftop units which provide both cooling and ventilation to each space. The commons rooftop unit was installed in 1999 to serve the original gymnasium and relocated in 2001 to serve the commons. The remainder of the school, including the classrooms, LMC, offices, and other ancillary spaces, is cooled by a geothermal heating and cooling system installed in 2010. This system is based on distributed heat pumps to serve each zone, which utilizes a compressor to provide local cooling and rejects heat to the common geothermal piping system. Ventilation air is provided separately to each space via outside air ductwork supplied by roof-mounted dedicated outside air units (DOAU). This configuration means the air-side economizer functionality is limited to providing ventilation air only and all cooling is achieved using mechanical compressors.

WATER INFILTRATION INTO DOAU CABINET

LOW CLEARANCE TO OUTSIDE AIR INTAKE FROM ROOF

FLUE LOCATED NEAR OUTSIDE AIR INTAKE

CLOGGED OUTSIDE AIR INTAKE ON DOAU

COOLING AND VENTILATION CONCERNS

- Facility staff indicated several leaks are present through ductwork at air handling units. It was noted that outside air intakes for older rooftop units are very close to roof surface. It is likely that rain and snow is pulled in through intakes especially when windy conditions are present.
- DOAU-3 intake is adjacent to water heater flue. Recommend relocating flue to prevent contamination for ventilation air.

TYPICAL DUCT LEAKAGE AT SEAMS

- Condition of packaged rooftop units is poor. Consider replacement including serving from geothermal system.
- Condition of DOAU units varies. Several outside air intakes are clogged, components are beginning to rust, and variable frequency drive reliability is low.
- Maintenance and repair of distributed heat pumps is challenging for facilities staff.
- Ductwork throughout the facility is in poor condition with large air leaks, particularly at connection to heat pumps.

COOLING AND VENTILATION RECOMMENDATIONS

- Replace (3) existing packaged rooftop units.
- Perform general preventative maintenance throughout the facility (duct sealing, sensor repair, etc.) to prevent more serious issues in the future.
- Provide new variable frequency drives for all dedicated outside air units to improve reliability.

DOAU UNIT DETERIORATION AT MULTIPLE COMPONENTS

HEATING

Heating within the facility is accomplished through several means. First, heating hot water is generated via (3) natural gas boilers located in the East wing of the school. The (3) boilers include a 1.5 Million BTUH copper tube boiler, a 300,000 BTUH cast aluminum condensing boiler, and a 1.05 Million BTUH cast aluminum condensing boiler. The larger condensing boiler has failed due to a corroded heat exchanger and is no longer usable. The condensing boilers are suitable for very high efficiency operation when coupled with low return water temperature, which is a great supplement to a geothermal system when implemented effectively. Hot water distribution is via primary-secondary pumping configuration with (1) primary pump per boiler and (2) base-mounted secondary pumps in parallel, each sized for the full building load. This is a traditional pumping configuration which allows flexibility for varying load profiles at the expense of a small efficiency penalty.

FAILED BOILER B-1

Heating hot water is distributed to hot water reheat coils at locations served by the packaged rooftop units. Each classroom has perimeter finned tube radiation served by the boiler system to provide supplemental heat. This finned tube radiation is located within the original unit ventilator enclosures, which were abandoned in place during the geothermal upgrade project. Significant air infiltration was noted at these locations during our survey. In addition to the hot water heating system, the geothermal distributed heat pumps also provide air-side heating to each zone served. While this is the more efficient method of heating, it appears based on our observation that the facility is primarily heated by the boiler system.

HEATING CONCERNS

- Larger condensing boiler is currently failed and non-functional.
- Several heating devices appear to be non-functional including hot water cabinet unit heaters at vestibules.
- Significant cold air infiltration occurs at abandoned unit ventilators and is resulting in high heating load in classrooms.

HEATING RECOMMENDATIONS

- Remove existing unit ventilators or, at minimum, seal the outside air louvers permanently to limit air infiltration.
- Repair heat exchanger or replace failed condensing boiler.
- Recommend implementing an aggressive hot water reset schedule to limit supply water temperature to as low as 120°F during shoulder seasons and for use to supplement geothermal heating system (instead of use as primary heat source). This will encourage condensing operation and will dramatically improve boiler efficiency. Trend and adjust reset schedule for at least 1 year to confirm adequate performance with lower water temperature. Alternatively, implement a trim-and-respond control strategy to automatically reset water temperature as low as possible based on terminal unit and booster heating coil valve positions.

ABANDONED UNIT VENTILATOR OUTSIDE AIR LOUVER

HVAC CONTROLS

The facility has received numerous controls upgrades over the years. The majority of HVAC controls are from the 2010 geothermal upgrade project to the facility. This includes Schneider Electric terminal controls and Tridium based supervisory controls by Honeywell. Thermostats throughout the facility are generally sensors with no local adjustment or display.

Several anomalies were noted during the site visit. First, it was noted that all geothermal valves on the DOAU units were fully opened and the associated valve actuators were removed. It also appears that many of the heat pump actuators have failed and are also fully opened. De-commissioning these valves is resulting in higher pump energy consumption and will lower the efficiency of the geothermal system. During the site visit, the dedicated outside air units were frequently cycling on and off. It is anticipated that the operation would provide a steady source of ventilation air during occupied times. It was also noted that radiant heat from the boiler system was active in nearly all classrooms, and each zone was warm. However, it was rarely observed that any of the heat pumps were active for heating. The geothermal heating system is significantly more efficient than hot water heat from natural gas boilers, so should be used as the first stage of heating whenever possible. Finally, observed operation of the DOAU units was not as expected. There were times in which the energy recovery wheels were observed to be spinning actively while the associated fans were off and coils were isolated.

HVAC CONTROLS CONCERNS

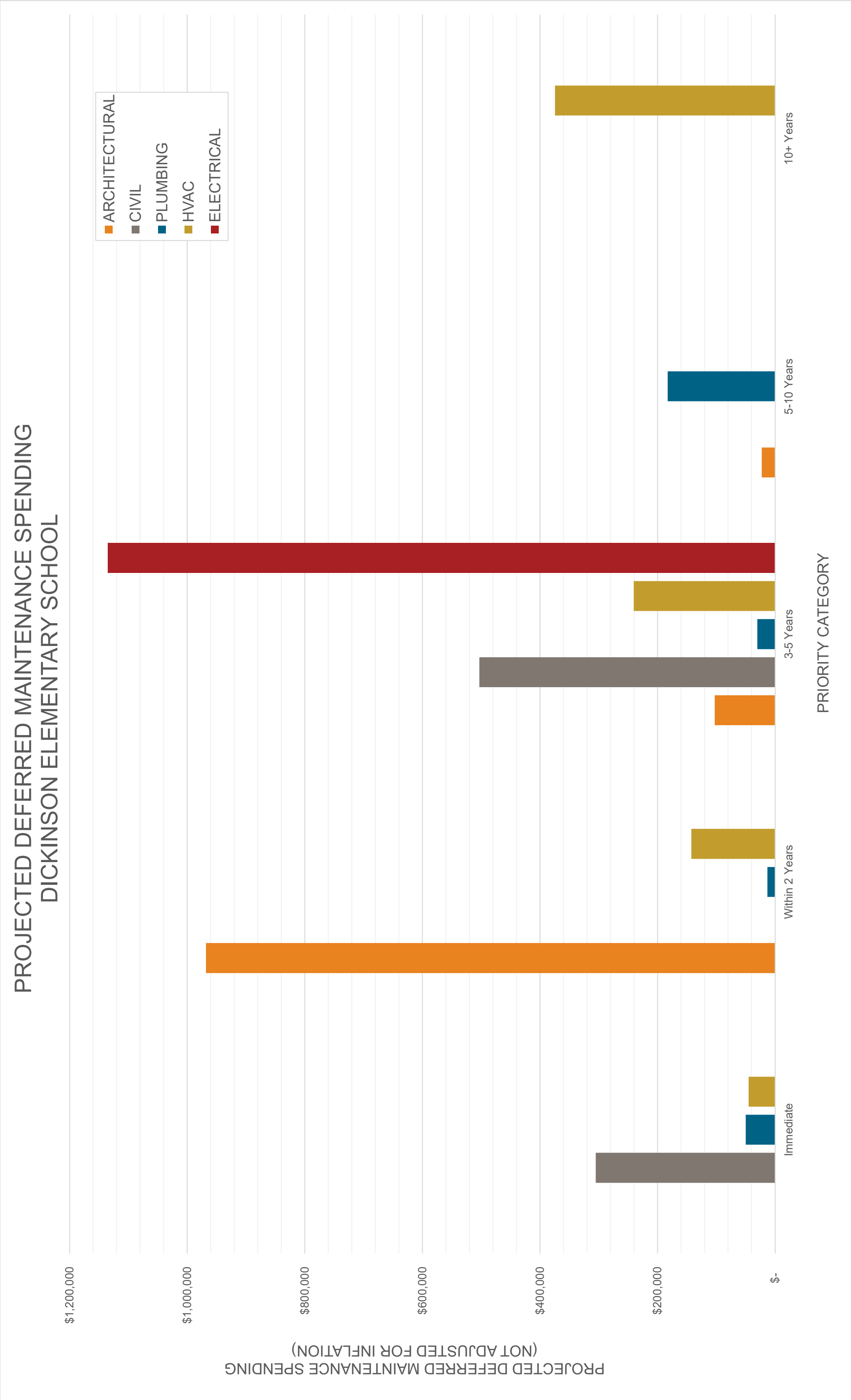
- Use of natural gas boilers as primary heat source is not efficient and should be reconsidered.
- Bypassing of geothermal water through DOAU units and heat pumps is resulting in excess energy consumption.
- In discussion with facilities staff and observation of the operating equipment, it appears there are several control sequences which are not optimal for energy savings or system performance.
- Some areas, including several cabinet unit heaters and terminal units, are not functioning properly, leading to noticeably hot or cold spots throughout the building.


DOAU UNIT WITH GEOTHERMAL VALVE LOCKED OPEN

HVAC CONTROLS RECOMMENDATIONS

- Recommend that a thorough review and revision to HVAC control sequences is considered. The system type is likely capable to provide much more efficient operation than it is currently achieving. Consider conducting Retro-commissioning survey to “tune-up” and confirm proper operation of all control sequences. This may qualify for a Focus on Energy incentive.
- Replace all geothermal actuators and implement a sequence of operations to lower geothermal pump speed at low load conditions.


HEAT PUMP VALVE ACTUATOR WIRING HARNESS REMOVED


PROJECTED DEFERRED MAINTENANCE SPENDING
DICKINSON ELEMENTARY SCHOOL
ARCHITECTURAL
CIVIL
PLUMBING
HVAC
ELECTRICAL
$1,200,000
$1,000,000
$800,000
$600,000
$400,000
$200,000
$-
PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)
Immediate
Within 2 Years
3-5 Years
5-10 Years
10+ Years
PRIORITY CATEGORY

Heritage Elementary School

1250 SWAN ROAD, DE PERE, WI

Heritage Elementary School

EXECUTIVE SUMMARY

CIVIL

Most of the asphalt surfaces around the school have reached their life expectancies and require replacement. Many areas of the concrete surfaces are failing and will require replacement. ADA compliance around the school has many issues and requires multiple areas to be replaced to achieve compliance.

ARCHITECTURAL

The building's shell and exterior finishes are in good condition overall. There is an ongoing problem with water infiltrating the walls above the classroom windows. The interior finishes date to the original construction in 1997 and are in good condition considering their age. As with other schools, the hollow metal exterior door frames need to be replaced due to corrosion at the door threshold.

PLUMBING

The water heater is leaking and should be replaced immediately. Upgrading the splash blocks where the storm piping drains to grade should be considered to keep the exterior of the building protected. Consider rerouting the storm drain which discharges to the sidewalk at the gym storage area to avoid slip and fall issues during freeze/thaw cycles. A few of the multi-station wash fountains are corroding on the surface, consider replacement prior to development of leaks. Faucets and flush valves are nearing the end of their expected service life and will require replacement soon.

FIRE PROTECTION

Janitor E17F does not currently have a sprinkler within the room. The fire protection system should be reviewed to ensure every room is properly protected.

HVAC

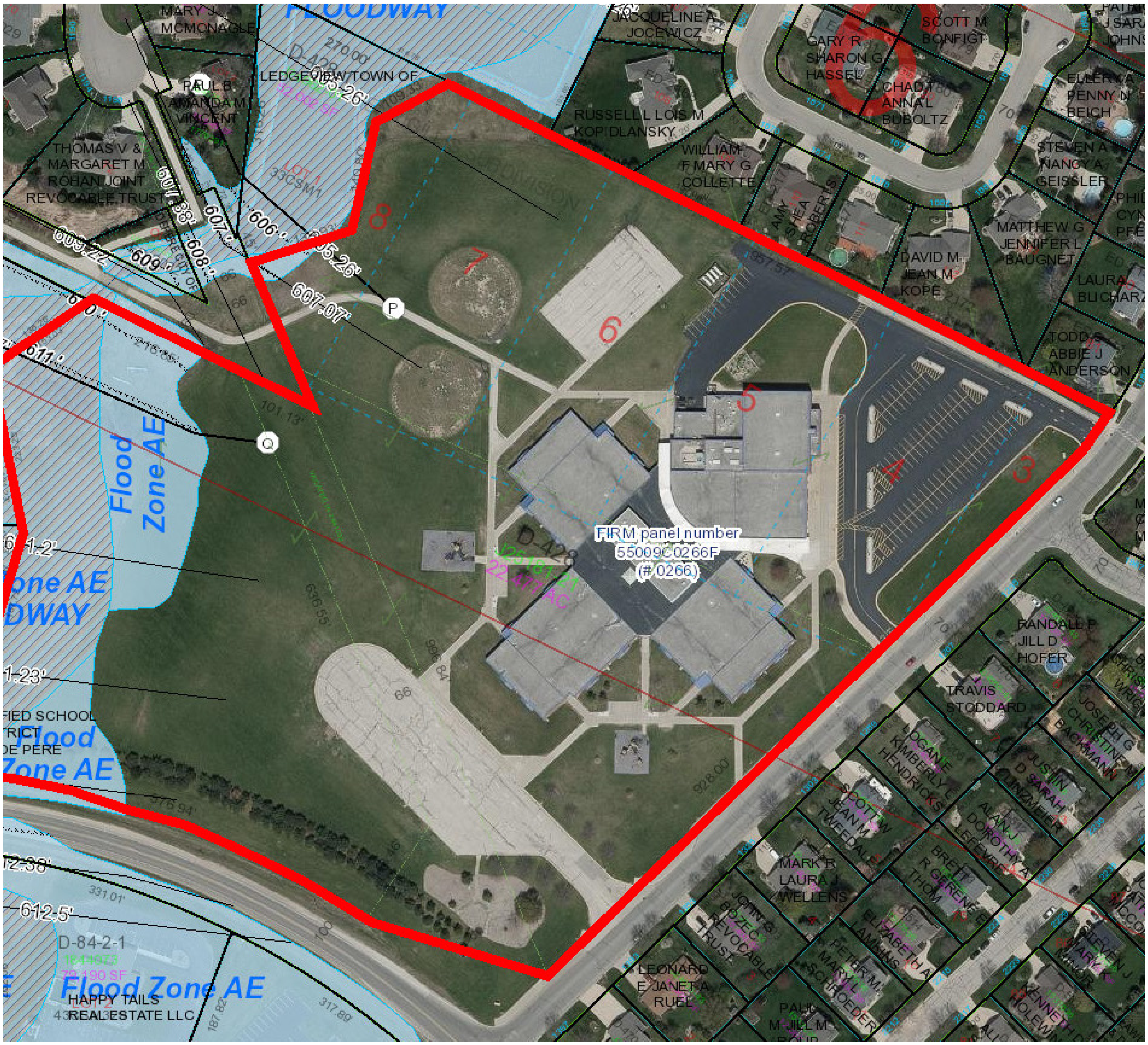
Given the age of this facility, it is likely that a number of systems will require replacement or significant capital investment in repairs in the near future. It appears that the original hot water boilers have already been replaced. Replacement of the chilled water plant, including the pumps, chiller, and cooling tower, is likely necessary within the next 10 years. Air-side systems are in fair condition, but can have their life expectancy extended with a moderate investment. The building temperature controls are aging and will require ongoing capital investment to keep the controls up to date.

ELECTRICAL

The electrical distribution equipment, as well as other systems, at this facility are original to the building from 1997 and are in very good condition. There isn't a back-up generator for this facility. A generator should be considered for emergency power in case normal power is lost. The fire alarm system appears to be in very good condition and meets the code requirements of when it was installed. The lighting technology is mainly fluorescent type throughout the building, with the exception of some exterior luminaires being L.E.D. type. Luminaires could be converted over to L.E.D. type for energy and cost savings. Lighting controls should also be upgraded as the luminaires are switched over to L.E.D. Telecommunication system equipment is current and there is an equipment upgrade schedule by the Owner's I.T. personnel. The paging / bell system has some issues in various parts of the school and replacement should be considered in the near future.

Heritage Elementary School

SITE PLAN



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Heritage Elementary School

FIRST FLOOR PLAN

HERITAGE ELEMENTARY SCHOOL

Building Description / Condition

OVERVIEW

Heritage Elementary School is located on 22.4 acres in the City of De Pere and was constructed in 1997 with an entry addition and interior renovation in 2016. The gross building floor area is 105,576 sq.ft. on 1 primary level. Building's capacity, provided by the District, is 638 students, with a currently enrollment of 574 students in grades 4K – 4th.

SITE SUMMARY

Heritage Elementary School is bounded by Swan Road and Heritage Road. Staff and visitor parking are located on the east side of the building. Parent drop off is located on the east side of the building. The campus includes multiple hard and soft surface play areas.

DROP OFF LANE/PARKING LOT

SITE CONCERNS – ASPHALT

- Multiple areas have alligator cracking where concentrated traffic flow.
- Various wide unsealed longitudinal and transverse cracks throughout the pavement.
- Parking lot may benefit from improving the stormwater management by adding additional inlets.

SITE RECOMMENDATIONS
(Option 1 – Pavement Replacement – 15+ Year Fix)

- Remove existing pavement
- Base repairs as needed
- Stormwater Improvements
- Pave 4” of asphalt in parking lot
- Install pavement markings

(Option 2 – Routine Maintenance – 2-5 Year Fix)

- Sawcut and remove distressed pavement areas
- Base repairs as needed
- Pave 4” of asphalt in distressed locations removed
- Crack filling and seal coat surface
- Install pavement markings

RECEIVING AREA

SITE CONCERNS – ASPHALT

- Settlement and rutting throughout the pavement
- Many unsealed transverse and longitudinal cracks throughout the surface
- Most of the pavement has alligator cracking and signs of the base failing
- Edge of pavement is cracking and breaking off
- Asphalt is settling in front of receiving dock and difficult to unload trucks with forklift

SITE CONCERNS – CONCRETE

- Concrete pads have narrow/medium cracks
- Install larger loading area with concrete for trucks and garbage dumpsters
- Some concrete parking blocks are damaged

SITE RECOMMENDATIONS

- Remove existing pavement
- Crack filling concrete panels
- Remove 18” of base/subgrade
- Install drain tile under the edge of pavement and daylight out to basin
- Add geotextile fabric
- Add 12” of breaker run
- Add 6” of base
- Pave 4” of asphalt
- Install 6” Reinforced Concrete Pavement
- Replace damaged concrete parking blocks

SCHOOL BUS LOT

SITE CONCERNS – ASPHALT

- Many areas of settlement and rutting throughout the pavement
- Multiple wide unsealed transverse and longitudinal cracks throughout the surface
- Most of the surface has severe alligator cracking and base has failed
- Edge of pavement cracking and breaking off
- Drainage issues were observed during the site visit

SITE RECOMMENDATIONS

- Remove existing pavement
- Remove 18” of base/subgrade
- Stormwater management improvements
- Install drain tile along edge of pavement to existing inlet
- Add geotextile fabric
- Add 12” of breaker run
- Add 6” of base
- Pave 4” of asphalt
- Add pavement markings

PLAYGROUND LOT

SITE CONCERNS – ASPHALT

- Multiple unsealed, transverse and longitudinal cracks, throughout the surface
- Most cracks are sealed, or have been sealed, in the past
- A few areas where the edge of pavement is cracking
- 6 Basketball hoops are leaning over and footings look to be overturning

SITE RECOMMENDATIONS

- Replace basketball hoops and footings
- Crack Seal and Seal Coat Surface
- Add pavement markings

DROP OFF LANE/PARKING LOT

SITE CONCERNS – ASPHALT

- Multiple wide, unsealed, transverse and diagonal cracks throughout the pavement
- Edges of pavement have alligator cracking
- Most areas have settlement and rutting in the pavement
- Suggest replacing asphalt paths with concrete
- Add sidewalk adjacent to the building connecting the main sidewalk area to the receiving area.
- Drainage issues along the path as standing water was seen throughout the path

SITE CONCERNS – CONCRETE SIDEWALK

- Multiple concrete panels cracked and some with minor spalls
- Many concrete panels with a vertical deviation greater than ½”
- Concrete panels, along the NE corner of the school, have a 3” deep void with a ½”-1” gap at the joint
- Multiple concrete footings at entrances have medium cracks
- Concrete apron at the parking lot exit is deteriorating at the joints and has medium abrasion
- Concrete apron at the parking lot exit has a 1:9 slope into the lot.
- Concrete apron at bus lot entrance is deteriorating at the joints and has medium abrasion




SITE RECOMMENDATIONS

- Remove asphalt pavement
- Crack fill narrow cracks in concrete panels
- 4” concrete sidewalk
- Site grading around side walk going to west towards Jordan Rd
- Drainage Improvements
- Remove and replace cracked or spalled panels
- Remove and replace concrete sidewalk panels which have a vertical deviation greater than ¼”
- Install joint sealer in the void between the concrete panels along the NE corner of the school
- Remove and replace damaged concrete entrance/exit aprons at a 6% or less.
- Remove adjacent 2-3 concrete sidewalk panels

CURB & GUTTER

SITE CONCERNS – CONCRETE CURB & GUTTER

- Multiple sections have cracks through the curb and gutter.
- Multiple areas of curb and gutter have medium abrasion and spalls
- Many sections of curb have settled along Swan Rd from vehicle parking and driving on them

SITE RECOMMENDATIONS

- Remove and replace all damaged curb and gutter areas

ADA COMPLIANCE

SITE CONCERNS – CONCRETE CURB RAMPS

- 7 curb ramps on site do not meet the requirements for ADA Compliance. Slopes are too steep or there is a vertical deviation greater than a ¼" where it meets the pavement.
- Multiple missing detectable warning fields.
- Some of the detectable warning fields have lost all paint and domes are starting to deteriorate

SITE RECOMMENDATIONS

- Remove and replace non-compliant curb ramps
- Install detectable warning fields

STRUCTURAL SUMMARY

The building's structural system is primarily load bearing concrete masonry units at the interior and exterior walls.

STRUCTURAL CONCERNS

- There are no structural concerns


BUMP OUT AT CLASSROOMS


CRACKED MORTAR AT BRICK SETBACK


SPRAY FOAM INSULATION


EXTERIOR CAULKING REPAIRS

EXTERIOR WALLS

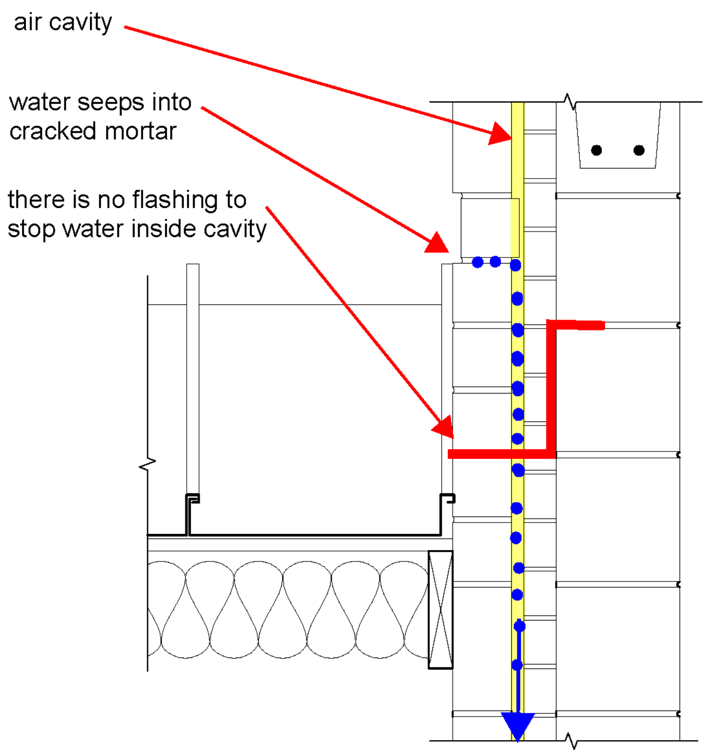
The exterior wall construction consists of brick veneer, with an air cavity, and 2” of rigid insulation against the CMU bearing walls.

EXTERIOR CONCERNS

- In the typical classroom, there are bump outs that contain windows. These are covered by a standing seam metal roof. Staff reports continual issues with leaking, depending on the magnitude and direction of wind driven rain. Water is entering the brick cavity through cracked and deteriorating mortar joint at the brick setback above the metal roofing, and running the interior face of the CMU wall and on to the classroom ceiling tile.

EXTERIOR RECOMMENDATIONS

- A review of the roof flashing condition and the examination of the construction detailing, suggests that water is infiltrating the brick entering the air cavity and running down the wall. In a June 2021 report, Specialty Engineering Group evaluated the exterior walls and concluded the cavity should contain a flashing membrane to stop water from going below the level of the metal roofing. Evidence of repeated applied sealant at the roofing trim and on the bricks themselves may have helped to keep some water out, however it has not addressed the root cause of the issue.
- On the inside of the bump out under the roof, spray foam insulation has been applied to increase the thermal performance of the roof. This foam is diverting the water into the cavity causing it to reappear in a different location. Secondary, spray foam is flammable, and per code, needs to be covered with 1/2" drywall or intumescent paint, and cannot be exposed to the inside of a building. Reference International Building Code section 2603.4.
- The proper solution is to open up the brick wall and properly flash the cavity between the brick and the CMU. Specialty Engineering Group estimates this could cost approximately $162,000 – $216,000 to repair all these conditions in the building.



MISSING FLASHING ALLOWS WATER INSIDE THE BUILDING

WINDOWS

The windows are extruded aluminum frames with double pane insulated glass. Interior sealant at the perimeter windows appears to be fairly new and in good condition. There are several locations where the sealant did not adhere properly, or has cracked and is leaving a gap. These gaps need touch up sealant as part of regular maintenance.

CRACKED CAULKING AT INTERIOR WINDOW FRAMES

INTERIOR SIDE OF RUSTING DOOR FRAMES

CENTER MULLION AT ALUMINUM DOORS

DOORS/ FRAMES

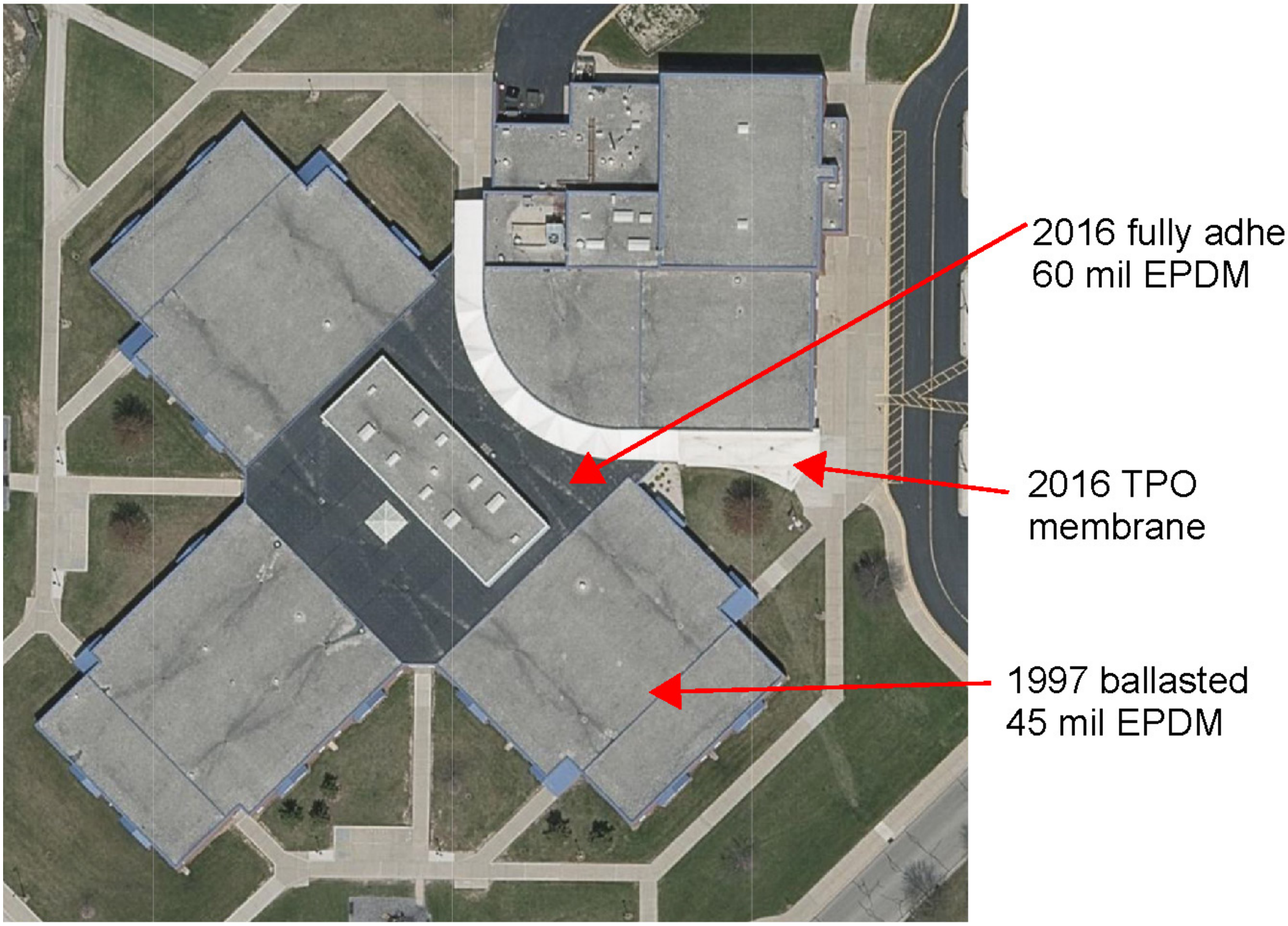
The exterior entry doors are double-leaf, full glass insulated glazing panels in an extruded aluminum frame. However, the center mullion between the doors is metal. The remainder of the building's exterior doors in the gym and in the receiving area are painted, hollow metal doors and frames.

DOOR/ FRAME CONCERNS

- A majority of the exterior hollow metal door frames show extensive rust and corrosion at the threshold where they meet the concrete. In some locations this rust has completely rotted through the metal on both the exterior, and interior sides, of the frame. The doors appear in good condition.

DOOR/ FRAME RECOMMENDATIONS

- The rusting of the hollow metal door frames will likely worsen in the coming years. Due to the severity of the deterioration, a few of these frames should be replaced immediately, especially in the gym, where they are adjacent the wood flooring. The remainder of the frames will, in all probability, need replacement within the next 5 years. Fiberglass reinforced plastic is a good alternative to hollow metal and will not corrode out like the existing frames.
- At the aluminum doors, the center mullion is steel. Consider having these steel mullions sandblasted and repainted with a salt water resistant, high performance coating. Painting over the rust will only encapsulate the rust and allow it to hold water. The center mullion could also be replaced with aluminum.



AGE OF EXISTING ROOFING

ROOFING

A majority of the roof construction is original to the 1997 construction and is composed of a 45 mil EPDM roof membrane covered with ballast stones, over 2" rigid board insulation (this is the light gray in the photo). The roof construction around the penthouse is a fully adhered 60 mil EPDM roof membrane over 4" of rigid board insulation (black), and the entry addition is TPO membrane over 4" of rigid board insulation (white). Both of these roofs were installed as part of the 2016 addition / renovation project.

ROOFING CONCERNS

- A 2014 assessment of the roofing by Industrial Roofing Services concluded, with proper preventative maintenance, the original 1997 ballasted section of the roofing could last until 2020 when replacement would be needed.
- Craft's Inc. completed a maintenance inspection on 6/21/22 and found areas of worn caulk, missing "T" joints, and where metal flashing had punctured the membrane. Holes, voids, fishmouths, and open corners were patched. They also caulked all worn areas, edge metal, screwheads and pipe boots. These areas were fully repaired as part of an on-going maintenance program.

ROOFING RECOMMENDATIONS

- Act in accordance with the 2014 Industrial Roofing Services recommendations and replace 89,880 sq.ft. of the original 1997 ballasted roofing. Maintain yearly inspections by Craft's Inc. to monitor roofing performance until these roofs are replaced.

COMMON AREAS

The Commons is a semi-circular space with 12x12 porcelain tile floors. The art room and music rooms were part of the 2016 renovation and are in good condition.

COMMONS AREA SHOWING THE KITCHEN ON THE LEFT

COMMON AREAS CONCERNS

- There are no common area concerns.

CLASSROOMS, LABS, AND TEACHING AREAS

Typical classroom floor finishes consist of broadloom carpet with an area of vinyl tile the full width of the room, extending from the entry door along the casework.

TEACHING AREA CONCERNS

- There are no Teaching Area Concerns


TYPICAL CLASSROOM


TYPICAL CLASSROOM CASEWORK


TYPICAL STUDENT RESTROOM


ADA ACCESSIBLE TOILET

RESTROOMS

The main student restrooms are 2x2 porcelain floor tile with 4” porcelain tile wainscot.

RESTROOM CONCERNS

- While not part of the building code in 1997, vertical grab bars are now required in ADA accessible toilet rooms and stalls.

RESTROOM RECOMMENDATIONS

- Add vertical grab bars to all ADA accessible toilet rooms and stalls.

ADMINISTRATIVE AND COUNSELOR OFFICES

ADMINISTRATIVE AND COUNSELOR OFFICE CONCERNS

- The Administrative Office area was renovated in 2016 as part of an area swap: the Main Offices moved into the music area at the front of the building, and the music area moved across from the Commons where the offices were. A new secure vestibule and entry addition was added at that time.
- There are no office area concerns.

CORRIDORS - CIRCULATION

The corridor flooring in the classroom wings is the original broadloom carpet, which appears in good condition aside from a few noticeable stains. The remainder of the main corridors and Commons area is 12”x12” porcelain tile, with LVT flooring in the renovated office area corridors near the gym.

CIRCULATION RECOMMENDATIONS

- Although the classroom wings carpet is holding up well, warn and dirty areas are becoming more visible and funds should be set aside to begin the process of replacing all the carpet.

FOOD SERVICE SERVING AREA

FOOD SERVICE AND KITCHEN

Overall, the kitchen and serving areas appear in good condition.

FOOD SERVICE CONCERNS

- None

DISH ROOM IN KITCHEN

ACCESSIBILITY OBSERVATIONS

The American with Disabilities Act ADA) of 1992 is a civil rights law that protects individuals with disabilities against discrimination in buildings classified as public due to physical barriers that may impede them from accessing the site, elements of a building or floors of a certain size or use.

ACCESSIBILITY CONCERNS

- The adult restrooms across from the Media Center, B132 and B134, contain the proper accessible toilet and lavatory fixtures, however the door leading into the room does not meet the code required pull side clearance of 18” required for wheelchair maneuvering space.

RESTROOM WITHOUT THE REQUIRED PULL SIDE DOOR CLEARANCE

ACCESSIBILITY RECOMMENDATIONS

- For doors that do not have proper maneuvering space, overhead power door operators can be installed.

HERITAGE ELEMENTARY SCHOOL

Plumbing Description / Condition

SANITARY SEWER LATERAL

The sanitary sewer lateral is a 5" diameter that exits the building to the southeast. The condition of the sanitary is unknown given it is located underground. The original school was designed and constructed in 1996, which makes the underground sanitary piping approximately 28 years old. In discussion with the facilities staff at the school, there are no known issues with the sanitary sewer lateral. The 5" diameter sanitary is adequate to serve a building of this size, and based on drainage values indicated on the original design documents, it could handle subsequent additions.

SANITARY SEWER LATERAL RECOMMENDATION

- No recommendations at this time. The systems are relatively new and there are no known issues with this system.

WATER SERVICE ENTRANCE

WATER SERVICE LATERAL

The water service lateral is a 6" diameter main which enters the building on the north wall of the boiler room. The existing water meter is a 4" meter with a 4" diameter bypass. The water meter and service entrance piping appear to be in good condition. The water pressure observed on the day of the site visit was 73 psi. This pressure reading was taken at the water service entrance in the boiler room.

WATER METER

WATER SERVICE LATERAL RECOMMENDATION

- No recommendations at this time.

ROOF DRAIN WITH OVERFLOW

LEAKING ROOF DRAIN

MAIN DRAIN ICE ON SIDEWALK

MAIN DRAIN CAUSING DISCOLORATION

GENERAL STORM/ ROOF DRAINAGE

The school has internal roof drainage. In several areas of the school, the main storm drain discharges to grade via a downspout nozzle. In other areas, the storm drainage extends below grade and exits the building in two locations, one to the northwest, and one to the west. Based on information listed on the existing plans, the storm piping appears to be adequately sized.

A roof drain located above the art room near the commons, had shown signs of leaking and dripping onto the ceiling tiles located directly below. This was not a major leak by any means, but enough to damage the ceiling tile within the room.

Overflow storm drainage is accomplished with relief roof drains that terminate above grade, via lambs-tongues, on the exterior of the building. The lambs-tongues which are used as the main drain have caused discoloration and mold growth on the exterior of the building. The main drain coming from the storage area adjacent to the gym, discharges to the sidewalk and could create a slip hazard during the winter freeze/thaw cycles.

GENERAL STORM/ ROOF DRAINAGE CONCERNS

- Repair leaking roof drain above the art room near the commons.
- Main drains discharging to lambs-tongues cause discoloration on exterior of the building.
- Evaluate options for main drain discharging to sidewalk near gym storage.

GENERAL STORM/ ROOF DRAINAGE RECOMMENDATIONS

- Update splash blocks to prevent discoloration of building exterior.
- Reroute storm discharge at lambs-tongue near gym storage to prevent slip and fall accidents during freeze thaw cycle.

SANITARY DRAINAGE

The school has a 5” diameter sanitary which exits the building to the east. The school was constructed in 1996, with a major renovation done in 2016. It can be assumed based on the age of the building, that much of the underground piping is in good condition. During our meeting with the facilities group at the school, there was no mention of any issues with the sanitary drainage at this building.

The school has a grease interceptor located within the kitchen. It was noted during our site investigation that the cover of the grease interceptor had been replaced, but that the basin of the original unit remains. According to the facilities group that replaced the cover, the interior of the grease interceptor was in good condition, and only the cover needed repair.

SANITARY DRAINAGE RECOMMENDATIONS

- No recommendations at this time. The sanitary system is in good condition and there are no known issues at this time.

DOMESTIC WATER DISTRIBUTION SYSTEMS

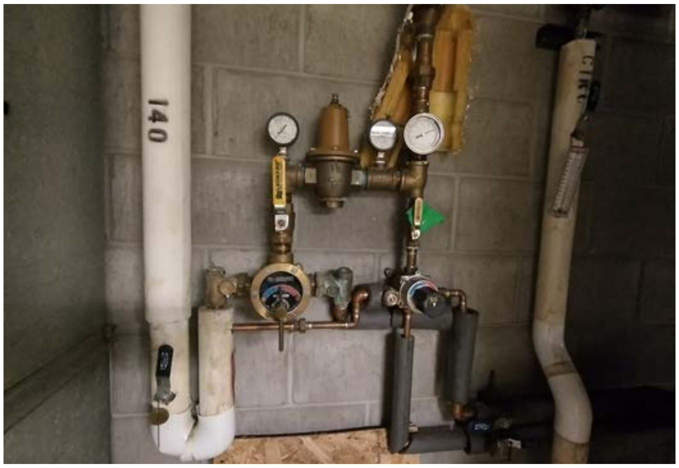
The school has a 4” domestic water distribution system. All water to interior plumbing fixtures is softened by (1) Hellenbrand water softener, located in the boiler room. The brine tank was nearly full on the day of our observation. When the original softener was replaced, the domestic cold water piping surrounding the softener was not reinsulated. This could cause corrosion of the piping and lead to early pipe failure.

WATER SOFTENER

The original building plans indicate that the domestic water heater should heat and store water at 140°F. The 140°F hot water is provided to the pre-rinse and pot/pan wash in the kitchen. The remainder of the domestic hot water was intended to be mixed down to 120°F, via a large thermostatic mixing valve located in the boiler room, and recirculated through the rest of the school. In general, the hot water return branch lines are relatively close to the furthest fixture on each branch.

During our site investigation, the water heater storage temperature was at approximately 130°F. On all of the fixtures we tested during the site investigation, hot water was available within a timely manner.

The domestic water distribution piping is copper, and the piping and insulation appear to be in excellent condition.



THERMOSTATIC MIXING VALVE

DOMESTIC WATER DISTRIBUTION CONCERNS

- Lack of insulation on domestic cold water piping at the water softener.
- The hot water temperature does not appear to be meeting the original design intent. Verify with kitchen staff if 140F water is required in the pot and pan rinse, or if they utilize chemicals for sanitization.

DOMESTIC WATER DISTRIBUTION RECOMMENDATIONS

- Insulate the domestic cold water piping at the water softener.
- Adjust water heater temperatures to meet original system design intent.

RESTROOM FIXTURES

Overall, the plumbing fixtures within the school are in fair to good condition. With the school being constructed in 1996, this puts the plumbing fixtures at approximately 28 years old. The faucets and flush valves are at or near their expected service life and are showing signs of age. These items will likely require maintenance or replacement in the near future.

The water closets are wall mounted flush valve type and appear to be in good condition. The flush valves are sensor operated with a manual flush option, and all appear to be in good condition.

WATER CLOSET

The urinals are wash down floor outlet style with sensor operation. The flush valves on the urinals appear to be in good condition.

The stainless steel sinks within the classrooms are in fair condition. Some of the goose necks on the faucets are loose and some have calcium deposits at the base of the faucet.

The building has multi station wash fountains in the group restrooms and porcelain lavatories in individual restrooms. The individual lavatories appear to be in good condition. It was noted that at a few of the multi station hand wash fountains, the basin appears to be corroding where water tends to sit for long periods of time. This could lead to leaks in the future.

The school has several sets of water cooler and bottle fill stations, these fixtures appear to be in good condition.

Plumbing fixtures have a service life of 30 years, but the faucets and valves have a service life of between 10 and 15 years, with regular maintenance and parts replacement.

URINALS

CLASSROOM SINK

WASH STATION CORROSION

RESTROOM FIXTURE CONCERNS

- Faucets and flush valves are at or near their life expectancy.
- Multi station wash fountains are being corroded where water sits for long periods of time.

RESTROOM FIXTURE RECOMMENDATIONS

- Consider replacement of faucets and flush valves.
- Repair or replace multi station wash fountains prior to leaks forming at drains.

EQUIPMENT

WATER HEATER LEAK

The school has (1) 600 gallon natural gas water heater located in the boiler room. The water heater was installed during the original construction of the school, which puts it at approximately 28 years old. At the time of our site visit, the water heater had a steady stream of water leaking from around the burner unit. The facilities personnel had created a gutter out of sheet metal for the water to flow to the floor drain within the room. This is obviously a waste of water and energy as it is dumping heated water down the drain.

The combustion air ductwork was also disconnected from the burner on the water heater and was hanging freely within the boiler room. The water heater flue also has quite a bit of corrosion leaking from all of the joints. In general, the water heater, burner, and associated ductwork appear to be in poor condition and should be replaced immediately. The hot water temperature delivered from the water heater at the time of our site visit was 130°F.

COMBUSTION AIR DUCTWORK DISCONNECTED

WATER HEATER FLUE

The main mixing valve which takes 140°F hot water and mixes it down to 120°F, was recently replaced and appears to be in good condition. No issues were noted with the mixing valve from facility maintenance personnel.

The domestic hot water recirculation pumps appear to be in fair condition, but does have some fluid dripping from the point where the pump and motor connect. The recirculation pumps have surpassed their expected service life and will likely need to be replaced soon.

The expected service life of water heaters is 10 – 20 years depending upon water quality and maintenance.

The expected service life of recirculation pumps is 10 years depending upon water quality and maintenance.

EQUIPMENT CONCERNS

- The water heater is leaking a steady stream of heated water down the drain.

EQUIPMENT RECOMMENDATIONS

- The water heater should be replaced immediately.
- The recirculation pump has surpassed its expected service life. Consider replacement of the recirculation pump prior to failure as preventative maintenance.

RECIRCULATION PUMP

FIRE PROTECTION

The fire protection system is served by the combined fire protection and water service which enters the school on the south wall of the receiving room. The school has (3) risers, which serve different wings of the school. The backflow preventer and piping surrounding the risers appears to be in good condition. The sprinkler heads within the school are semi-recessed heads with chrome escutcheons and appear to be in good condition.

Janitor closet E17F did not appear to have any fire suppression within the room.

FIRE PROTECTION CONCERNS

- No fire suppression in Janitor E17F.

FIRE PROTECTION RECOMMENDATIONS

- Review fire suppression system in the rest of the school to ensure the building is completely protected and meets current code requirements.

FIRE PROTECTION RISER MAP

HERITAGE ELEMENTARY SCHOOL

Electrical Service Description / Condition

ELECTRICAL SERVICE / POWER DISTRIBUTION

The building electrical service is provided by W.P.S. and is a 277/480V, 1600A feed with two 800A, 3-phase main distribution panels. One located in the main electrical room near receiving and the other on the mezzanine. This system was installed original to the building in 1997. The existing utility transformer is located outside of the main electrical room to the north of the building. All of the switchgear and branch panels are Siemens equipment.

MAIN DISTRIBUTION PANEL

SUB DISTRIBUTION PANELS

SERVICE / POWER DISTRIBUTION CONCERNS

- No service / power distribution concerns at this time.

SERVICE / POWER DISTRIBUTION RECOMMENDATIONS

- Electrical service equipment typically has a service life of approximately 30-40 years. The primary cause of the replacement is the inability to produce breakers which properly fit and operate within the existing branch and distribution panels toward the end of life.

GENERATOR SYSTEM

There is no backup generator at this school.

GENERATOR CONCERNS

- Not having a generator or battery lighting units for lighting of the path of egress is a concern.

GENERATOR RECOMMENDATIONS

- Provide a generator, battery lighting units, or integral light fixture batteries to energize the lighting in the corridors, restrooms, exits, etc. when there is a normal power outage.
- IBC code 1008 and NFPA 101 require the path of egress to be illuminated during a power outage for the occupants to have a safe path of travel to exit the building.

FIRE ALARM

The Fire Alarm system is a Simplex 4020. The fire alarm control panel (FACP) is located in the Receiving area. There is a fire alarm annunciator panel (FAAP) located in the front office area. Several extender panels are located throughout the building.

FIRE ALARM CONCERNS

- No Fire Alarm concerns at this time. Overall, the system appears to be fully operational and meeting codes that were in place at time of installation.

FIRE ALARM CONTROL PANEL

FIRE ALARM RECOMMENDATIONS

- Continue system maintenance as required per code and manufacturer.
- Current code requirements call for a voice / mass notification system, with annunciation devices, that allow a central station to broadcast a verbal warning for directions to evacuate the building or property. Existing system is “grandfathered” in to when it was installed, but any major remodel or additions would require the system to be upgraded or be able to communicate with any new installations in remodeled areas.

FIRE ALARM ANNUNCIATOR PANEL

- Fire Alarm systems typically have a service life of approx. 20-30 years, with the issue of finding replacement parts that will keep the system operating properly.

LIGHTING / LIGHTING CONTROLS

A majority of the lighting appears to be fluorescent tube and compact fluorescent lamps with the exception of some exterior lighting which has been converted to L.E.D. luminaires.

Lighting controls are limited mainly to switches and a few occupancy sensors. Additional occupancy sensor controls were added during the 2016 remodel project.

LIGHTING / LIGHTING CONTROLS CONCERNS

- Lighting controls are not being utilized to their full potential. The installation of occupancy sensors and L.E.D. lighting could result in as much as a 30% energy savings compared to fluorescent fixtures.
- Lack of emergency lighting, along the path of egress, when there is a power outage.

LIGHTING / LIGHTING CONTROLS RECOMMENDATIONS

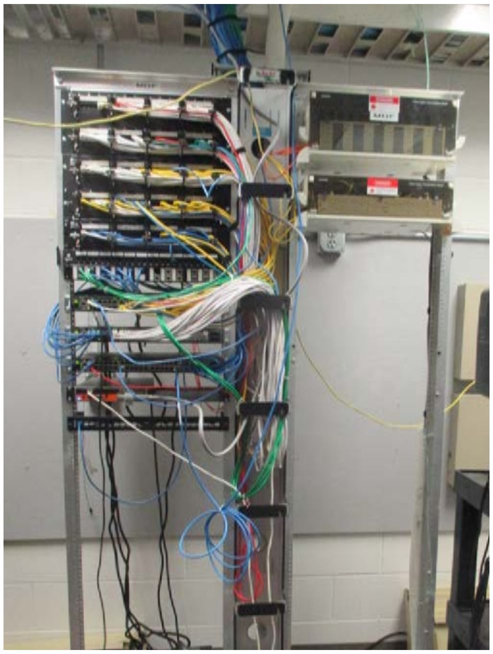
- Consider replacing fluorescent lighting with newer technology of Light Emitting Diode (L.E.D.) lighting. Fluorescent tubes would need to be disposed of properly due to their mercury content. L.E.D. luminaires use approx. two-thirds of the energy or less compared to fluorescent.
- Provide battery lighting units, or integral light fixture battery to energize the lighting in the corridors, restrooms, etc. for when there is a normal power outage.
- Consider installing additional occupancy sensors in offices, classrooms, restrooms and corridors.
- Verify the path of egress lighting in all corridors and ensure exits have proper illumination per code requirements of IBC 1008 and/or NFPA 101 section 7.9.

TELECOMMUNICATIONS

Telecommunication appears to be adequate and serves the needs of the school.

TELECOMMUNICATIONS CONCERNS

- No Telecommunications concerns at this time.



MAIN DISTRIBUTION FRAME

TYPICAL DATA SERVER RACK

TELECOMMUNICATIONS RECOMMENDATIONS

- No Telecommunications recommendations at this time.
- Telecommunication systems typically have a service life of approximately 20-30 years. Keeping up to date with the latest technology along with finding replacement parts are the most challenging issues for this system.
- The schools I.T. department has scheduled a data rack switch replacement for the 2024-2025 school year with a 5-year rotation/ replacement moving forward.

MISCELLANEOUS ITEM(S)

Existing Rauland paging, clock and bell system appears to be the original system installed in 1997.

CONTROL UNIT

MISCELLANEOUS CONCERNS

- Paging system does not appear to work in all areas of the school. Communications in some areas are made utilizing the phone system.

MISCELLANEOUS RECOMMENDATIONS

- Upgrade existing paging, clock and bell system.

TYPICAL CLOCK

HERITAGE ELEMENTARY SCHOOL

HVAC Description / Condition

Heritage Elementary is one of the district's neighborhood elementary schools. It was originally constructed in 1996, along with the Middle School, with a significant renovation/addition project completed in 2016. The gross building floor area is 113,229 sq. ft. and is generally a single story with mechanical penthouses. The heating and cooling system utilizes a variable air volume system with hot water reheat for both heating and cooling. The facility has several shared spaces, including a commons, kitchen, 2-station gymnasium, and LMC. Classrooms are generally distributed in (3) separate wings, while common specialty classrooms such as music and art are at the center of the school. The school office was moved to the front of the facility in 2016 to provide a secure entry area. The heating and cooling plants are on the first floor and generally do not have excess space for future equipment. The facility has (2) mechanical penthouses, accessible by stairs, which house (7) air handling units. The North Penthouse is very congested, while the South Penthouse has more space for maintenance.

The table below provides applicable values of service life as compared to the actual age and condition of the equipment in question. Service life is defined as the economic life of a system or component as it relates to obsolescence, reduced reliability, excessive maintenance cost, changed system requirements, or failure.

Equipment	Actual Equipment Age	ASHRAE Estimated Service Life[1]	Observed Condition
Indoor Central Air Handling Units	28 Years	20 Years	Fair
Water-Cooled Water Chiller	28 Years	23 Years	Fair
Cooling Tower	28 Years	20 Years	Poor
Chilled Water Pumps	28 Years	10 Years	Poor
VAV Air Terminals	28 Years	20-25 Years	Great
Boilers	5 Years	30 Years	Excellent
Heating Pumps	28 Years	10-20 Years	Poor
Exhaust Fans	7/28 Years	20 Years	Good/Fair

[1] 1999 ASHRAE APPLICATIONS HANDBOOK

COOLING AND VENTILATION

The ventilation system includes several duct distribution systems served by (7) indoor central station air handling units. Generally speaking (with exception to AHU-1 serving locker rooms and AHU-2 serving the gymnasium), each unit includes an integral return/relief fan, economizer mixed air dampers, a hot water heating coil, chilled water cooling coil, and a supply fan. Freeze protection is accomplished via face-and-bypass dampers on units with a high percentage of outside air. Return air is circulated via plenum return including use of egress paths as a return air plenum. This is no longer a code compliant ducting arrangement, as a fire within an occupied space will spread smoke into the path of egress and prevent safe exiting from the facility. Consideration should be taken to revising the return air path arrangement.

The air handling unit provides conditioned supply air through distributed VAV boxes with hot water reheat coils for zoning purposes. This configuration allows for not only individual zone heating and cooling control, but capability to dehumidify the facility during summer months. Reduction in airflow is via Variable Frequency Drives which lower the supply and associated return fan speeds in response to VAV box modulation. All ventilation fresh air is provided through the air handling units. Exhaust air is provided via powered roof ventilators which are distributed throughout the facility. Mechanical cooling is provided to all spaces with exception of the gymnasium and locker rooms. In addition to occupant comfort, the addition of cooling would provide more stable conditions for the wood gymnasium flooring.

ABANDONED THERMAL STORAGE TANKS

Chilled water for cooling and dehumidification is provided by a single 127 Ton nominal size Trane water-cooled screw chiller, located inside the facility. This system circulates a mixture of 25% Ethylene Glycol to chilled water coils on each air handling unit. The chiller system was originally designed with the capability of thermal energy storage, with (6) thermal storage tanks located below grade. However, it appears that the thermal storage tanks have been abandoned in place due to deterioration. The chilled water distribution system is a primary-secondary pumping configuration, which provides consistent flow through the chiller with varying system demand conditions. A single pump is provided for each loop (condenser water, primary chilled water, and secondary chilled water), so the failure of any pump will prevent circulation of chilled water through the facility. Condenser water is circulated through a single cell cooling tower on the roof.

COOLING AND VENTILATION CONCERNS

- Excessive positive building pressure was observed during the site visit. It is likely that this is the result of HVAC controls issues, but it is possible that equipment failures are contributing.
- Maintenance burden and cost of chemical treatment is high for cooling tower operation. It is likely that the efficiency gained by using a water-cooled chiller is not justified for this facility size and type.
- Local pressure issues are present, including doors slamming, ceiling tiles being lifted when doors are closed, etc. This is indicative of design issues and is primarily present in the areas renovated in 2016.
- General deferred maintenance items were noted. Items such as failed or abandoned sensors, water leaks, air leaks, etc. were present and prominent. Repair of these items can boost performance and efficiency of the HVAC system.

ALGAE GROWTH WITHIN COOLING TOWER MEDIA

- Cooling tower condition is generally poor. Fill material is damaged in places. Evidence of biological growth is present which could be a safety issue for building occupants. The cooling tower basin has rust typical of its age but has evidence of leaking through the basin on to the roof. It is likely that annual maintenance cost for the cooling tower will rise in the coming years.
- Pump condition for chilled water and condenser water pumps is poor. There is evidence of leaking seals throughout. It is likely that pumping efficiency has deteriorated over time. Accessories for the chilled water system, particularly the condenser loop, are in poor condition and are excessively corroded and leaking. This is likely due to the chemical treatment required.
- Lack of cooling within the gymnasium and locker rooms is not typical for other district facilities.
- Egress corridors are used as return air plenums currently. This is no longer a code compliant practice due to the inherent risk to building occupants during a fire situation.

DETERIORATING COOLING TOWER SUMP

DUCT INSULATION DAMAGE

COOLING AND VENTILATION RECOMMENDATIONS

- While more efficient, water-cooled chillers have a significantly higher cost and maintenance burden than air-cooled chillers. For a facility of this size and the number of days cooled, we would recommend consideration of conversion to an air-cooled chiller when replacement is needed.
- Replace pumps in the near future to improve reliability and efficiency of the water distribution system.
- Perform general preventative maintenance throughout the facility (insulation repair, sensor repair, etc.) to prevent more serious issues in the future.
- Consider adding cooling coils to the gymnasium and locker room air handling units to match the capability of other schools within the district.
- Consider revising the plenum configuration to use the ceiling cavity space for return air instead of egress corridors. Alternatively, consider fully ducting the return air for best performance.

HEATING

Heating within the facility is accomplished through the heating hot water distribution system. This system includes three (3) hot water boilers which were installed in 2018 to replace the original (2) 3.2 Million BTUH boilers. The new boiler configuration includes (2) 1.82 Million BTUH eutectic cast iron boilers and (1) 1.95 Million BTUH cast aluminum condensing boiler. It is assumed that this configuration provides flexibility to modulate the condensing boiler to provide lower water temperature operation during shoulder seasons. This configuration is suitable for very high efficiency operation when coupled with low return water temperature, but the original terminal equipment was selected using 205°F water temperature conditions. During the survey, it was noted that condensate was leaking from the condensing boiler. This seems to indicate either damage to the heat exchanger or a plugged condensate line. In addition, it was noted that the flue for this boiler has evidence of leaking condensate. Hot water distribution is via primary-secondary pumping configuration with (1) primary pump per boiler and (2) base-mounted secondary pumps in parallel, each sized for the full building load. This is a traditional pumping configuration which allows flexibility for varying load profiles at the expense of a small efficiency penalty.

The indoor air handling units each include one or more hot water heating coils to temper the outside air for distribution throughout the facility. Air Handling Unit AHU-3 (serving the school office and commons) has a pumped coil configuration for freeze protection. Additional heating is provided at each VAV box, which provides the ability to supply varying temperature and airflow to each zone served by the common air handling equipment. This is an excellent configuration for both performance and limiting energy consumption. Supplemental heat is included at the primary entrances via cabinet unit heaters and other unitary terminal units. Supplemental heat is also provided at other locations, including toilet rooms, meeting rooms, and areas with high perimeter heating loads.

It was noted at several locations that the heating hot water system has been repaired, particularly at Victaulic grooved pipe fittings, due to the development of leaks. At repair locations, insulation has not been repaired or replaced. In addition, it was identified that several terminal coils have been isolated by closing their manual ball valves. An example of this condition occurs within the Art room, where it was noticeably colder during our survey than surrounding rooms.

REPAIRED SEGMENT OF LEAKING PIPING

TYPICAL PUMP CONDITION

HEATING CONCERNS

- General deferred maintenance items were noted, such as pipe leaks, missing insulation, missing sensors, etc. Repair of these items can improve reliability and limit risk of failure of the heating system.
- Secondary pumps are nearing their expected useful life and are likely losing efficiency and reliability due to age.

HEATING RECOMMENDATIONS

- Repair apparent condensate leaks within condensing boiler and associated flue.
- Replace secondary heating pumps in the near future to improve reliability and efficiency of the water distribution system.
- Perform general preventative maintenance throughout the facility (insulation repair, sensor repair, etc.) to prevent more serious issues in the future.

CONDENSATE LEAKING FROM BOILER

HVAC CONTROLS

The facility was originally constructed to include a Trane Tracer Summit building automation system. This style system is largely prescriptive and is not as customizable as more modern control systems. It appears that this Trane Tracer system has been abandoned and replaced with a Tridium N4 compatible Honeywell supervisory controller on top of Schneider Electric TAC terminal controls. Thermostats throughout the facility are generally adjustable with a temperature display, but all control is accomplished via the Direct Digital Controls (DDC).

Existing control devices and Trane controllers appear to be abandoned in place throughout the facility. Sensors and control devices vary in condition. Building pressure reference sensors appear to be non-functional, while an outdoor air pressure reference device appears to be installed within the gymnasium. It is likely, due to the previously indicated building pressurization issues, that the airflow sensors, pressure sensors, or HVAC programming is not functioning properly to maintain building pressure. It is also worth noting that several anomalies were present, such as a thermostat installed above the ceiling.

THERMOSTAT INSTALLED ABOVE FINISHED CEILING

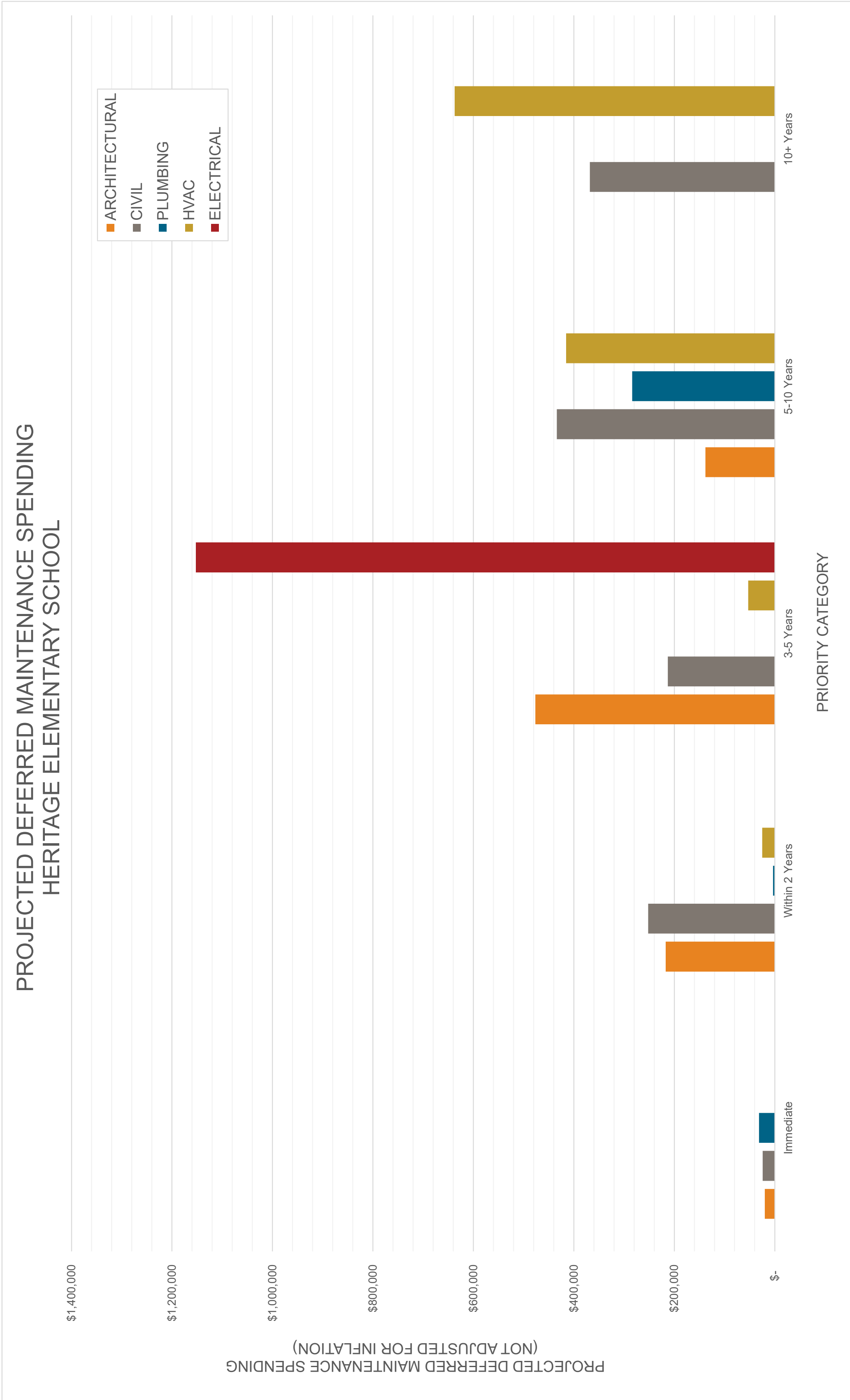
Facility staff commented that, when certain conditions are present, the duct smoke detectors have an issue with nuisance trips. It was also noted that temperature control between classrooms, particularly in the “D-Wing” was poor, even with classrooms set to a common setpoint. Some staff expressed dis-satisfaction at the performance of their classroom’s HVAC system during our survey.

HVAC CONTROLS CONCERNS

- In discussion with facilities staff and observation of the operating equipment, it appears there are several control sequences which are not optimal for energy savings or system performance.
- Lack of control of some terminal zones could be symptomatic of equipment failures (valve actuators, etc.) or could be due to control strategies and programming.
- High water-side delta T observed within cold classrooms could indicate issues with water-side balancing.

HVAC CONTROLS RECOMMENDATIONS

- Consider conducting Retro-commissioning survey to “tune-up” and confirm proper operation of all control sequences. This may qualify for a Focus on Energy incentive.
- Recommend hiring a Testing, Adjusting, and Balancing contractor to periodically read out and calibrate outside air airflow measuring stations to confirm accuracy. It is common for this style of airflow measuring station to become fouled with dirt and debris and read artificially low, causing more outside air to be brought in than desired.
- Recommend hiring a Testing, Adjusting, and Balancing contractor to investigate water-side balancing for improved heating performance.


PROJECTED DEFERRED MAINTENANCE SPENDING
HERITAGE ELEMENTARY SCHOOL
ARCHITECTURAL
CIVIL
PLUMBING
HVAC
ELECTRICAL
$1,400,000
$1,200,000
$1,000,000
$800,000
$600,000
$400,000
$200,000
$-
Immediate
Within 2 Years
3-5 Years
5-10 Years
10+ Years
PRIORITY CATEGORY
PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)

Foxview Intermediate School

650 SOUTH MICHIGAN STREET, DE PERE, WI

Foxview Intermediate School

EXECUTIVE SUMMARY

CIVIL

All of the asphalt surfaces around the school have reached their life expectancies and require replacement. The concrete surfaces show many areas of failures that require replacement. The right of way between the sidewalk and street require concrete pavement instead of asphalt pavement per the city ordinances and codes. Most locations around the school have ADA compliance issues and will need to be replaced to achieve compliance. Traffic flow and parking were determined to be a large issue for the school.

ARCHITECTURAL

The ongoing maintenance work on the building's exterior envelope will reduce the damaging effects of water infiltration into the building. Replacement of the single pane aluminum clad wood windows would be the next major undertaking to complete the work on the building's exterior walls. Over 50% of the building's roofing has reached the end of it's service life and should be replaced.

PLUMBING

Much of the plumbing systems were replaced during the 2001 renovation and are generally in good condition. The grease interceptor will need to be replaced within the next few years. The natural gas water heater is nearing the end of its expected service life and will need to be replaced soon. Faucets and flush valves are nearing the end of their expected service life and will require replacement soon.

FIRE PROTECTION

Only the kitchen and the boiler room have a fire protection system. Consider providing a fire protection system to cover the entire building. There are no known issues with the existing system.

HVAC

While all original or obsolete HVAC equipment has been replaced, the facility's current equipment is reaching an age at which systems will start to require replacement or significant repair. The boilers are reaching the end of their expected service life and should be replaced. The existing chiller has experienced a controller failure and is currently undergoing a repair. Heating and cooling energy consumption is high due to single pane windows throughout the facility. Facilities staff and building occupants had complaints about the temperature controls between classrooms. Several devices were noted to be non-functional, including 3 air handling unit hot water heating coils. Performance of the heating system can be improved with revision to the existing controls programming. The building temperature controls are aging and will require ongoing capital investment to keep the controls up to date.

ELECTRICAL

The electrical distribution equipment at this facility varies in age and condition. The majority of power is distributed through Square-D equipment and is in very good condition, installed in 2001. The back-up generator is outdated and is planned for a 2023 replacement. The fire alarm system has been modified several times and consists of various manufacturers. This inconsistency can create issues with programming, maintenance and serviceability. The fluorescent lighting technology is in the process of changing over to L.E.D. type luminaires and should continue to do so. Lighting controls should also be upgraded as the luminaires are switched over to L.E.D. Telecommunication system equipment is fairly current and there is an equipment upgrade schedule by the Owner's I.T. personnel. The paging / bell system has some issues in various parts of the school and is outdated; replacement should be considered in the near future. Classrooms in older sections of the school require additional power/receptacles for daily lessons.

N

Foxview Intermediate School

SITE PLAN

Foxview Intermediate School

FIRST FLOOR PLAN

Foxview Intermediate School

SECOND FLOOR PLAN

FOXVIEW INTERMEDIATE SCHOOL

Building Description / Condition

OVERVIEW

The Foxview Intermediate School is located on 6.0 acres, just east of the Fox River. It is the Districts oldest school, originally constructed in 1930, with the auditorium addition in 1939, and a classroom addition around 1965. In 2001 the school underwent a complete renovation with the addition of the gym, commons, offices and band and orchestra rooms. The gross square footage is 108,044 on two primary levels. Building's capacity, provided by the District, is 650 students, with current enrollment at 658 students in grades 5th and 6th.

SITE SUMMARY

Foxview Intermediate School is bounded by Merrill Road and Michigan Street. Staff and visitor parking are located on the northeast side of the building. Parent and bus drop off is located on the southeast side of the building. The campus includes hard surface and soft surface play areas.

STAFF PARKING / PLAYGROUND LOT

SITE CONCERNS – ASPHALT

- Many areas have alligator cracking and signs of base failures
- Multiple wide, unsealed, longitudinal and transverse cracks throughout the pavement.

SITE RECOMMENDATIONS

- Remove existing pavement
- Remove 12" of base/subgrade
- 12" of dense base
- Pave 4" of asphalt
- Install pavement markings

SITE RECOMMENDATIONS
(Re-Configure Staff Lot)

- Salvage light poles
- Remove light pole foundation
- Pour new light pole foundation 2.5' closer to fence with additional conduit for future surveillance growth
- Re-assemble light pole on new foundation
    - Allows an additional 2.5' width of through width in parking lot

SCHOOL BUS AND RECEIVING AREA

SITE CONCERNS – ASPHALT

- Settlement and rutting throughout the pavement
- Many unsealed transverse and longitudinal cracks throughout the surface
- Most of the pavement has alligator cracking and signs of the base failing
- Edge of pavement is cracking and breaking off
- Drainage issues were observed during the site visit
- Comments to add additional parking to the SW area of the school

SITE CONCERNS – CONCRETE

- Concrete pads have narrow/medium cracks
- Some concrete footings are starting to deteriorate and spall on the surface
- Most light pole concrete footings have surface deterioration and one footing appears to be tipping.

SITE RECOMMENDATIONS

- Remove existing pavement
- Epoxy crack filling narrow cracks in concrete pads
- Remove old concrete footings
- Remove and replace basketball hoop and footings
- Remove 18” of base/subgrade

- Install drain tile under the edge of pavement and daylight out to stormwater inlets
- Culvert pipes w/inlets
- Install curb and gutter along to fence to collect runoff
- Stormwater management basin
- Salvage light poles
- Remove light pole foundation
- Pour new light pole foundation 2.5’ closer to fence with additional conduit for future surveillance growth
- Re-assemble light pole on new foundation
- Add geotextile fabric
- Add 12” of breaker run
- Add 6” of base
- Pave 4” of asphalt
- Install pavement markings

R/W ASPHALT

SITE CONCERNS – ASPHALT

- Multiple unsealed transverse and longitudinal cracks throughout the surface
- Many areas have significant settling
- City requires these areas to be concrete instead of asphalt

SITE RECOMMENDATIONS

- Remove asphalt pavement
- Install 4” of concrete w/6” of dense base

SIDEWALK

SITE CONCERNS – CONCRETE SIDEWALK

- Multiple concrete panels cracked and some with minor spalls
- Many concrete panels with a vertical deviation greater than ½”
- Multiple concrete footings at entrances have medium cracks
- Some concrete panels joints are deteriorating with a 2” wide gap
- Multiple areas along Broadway St have standing water on sidewalk
- Some areas along side of the sidewalk have material washed out and a 4”-6” drop off
- Significant undermining on the stairs on the west side of the school
- NE concrete apron entrance is deteriorating and heaving

SITE RECOMMENDATIONS

- Remove concrete pavement
- 4” concrete sidewalk
- Epoxy crack filling narrow cracks
- Drainage Improvements
- Replace stairs and railing on the west entrance of building
- Remove and replace medium/wide cracked or spalled panels
- Remove and replace concrete sidewalk panels that have a vertical deviation greater than ¼”
- Remove and replace damaged concrete entrance aprons
  - Remove adjacent 2-3 concrete sidewalk panels
- Remove and replace concrete sidewalk along Broadway St to correct slopes and eliminate standing water

CURB & GUTTER

SITE CONCERNS – CONCRETE CURB & GUTTER

- Multiple sections have cracks through the curb and gutter.
- Multiple areas of curb and gutter have medium abrasion and spalls
- Some sections of curb are settling and tipping

SITE RECOMMENDATIONS

- Remove and replace all damaged curb and gutter areas

ADA COMPLIANCE

SITE CONCERNS – CONCRETE SIDEWALK

- The concrete sidewalk on the NW corner the school, near intersection has a slope of 1:14. This section of sidewalk exceeds the maximum slope of 1:20 and the max rise of 30” before a landing pad or railing needs to be installed.
- There is a section of a sidewalk ramp with railing that has a panel of sidewalk that has settled 1-¾”.
- North entrance sidewalk leading into the concrete apron exceeds to maximum slope of 1:20.

SITE RECOMMENDATIONS

- Remove and replace panels with adequate landing areas.
- Removed and replace concrete panel in the SW entrance to eliminate the vertical deviation greater than ¼”.
- Grading around SW entrance with raised concrete to eliminate drop off
- Remove and replace concrete entrance apron to achieve adequate slopes for adjacent sidewalk panels.
    - Remove adjacent 2-3 concrete sidewalk panels

SITE CONCERNS – CONCRETE CURB RAMPS

- 7 curb ramps on site do not meet the requirements for ADA Compliance. Slopes are too steep or there is a vertical deviation greater than a ¼” where it meets the pavement.
- Multiple missing detectable warning fields.
- Some of the detectable warning fields have lost all paint and domes are starting to deteriorate

SITE RECOMMENDATIONS

- Remove and replace non-compliant curb ramps
- Install detectable warning fields

STRUCTURAL SUMMARY

The original 1930 & 1939 buildings are load bearing masonry with a cast in place concrete floor and roof structures. The 2001 additions are primarily loadbearing concrete masonry units with brick veneer. The Commons is steel frame with Brick veneer, and the gym is loadbearing precast wall plank with brick veneer.

STRUCTURAL CONCERNS

- In the 1939 auditorium, the concrete block roof structure of the balcony storage room shows signs of prolonged water infiltration at the underside of the roof and on exterior walls.
- The wall above the doorway shows flaking paint and chalky plaster, also with signs of water infiltration. This wall continues up and emerges outside the building and receives two different roof planes flashing into the wall.

PROLONGED WATER INFILTRATION ON THE CEILING

STRUCTURAL RECOMMENDATIONS

- Structural issues related to water infiltration are currently being addressed based on conditions documented by Specialty Engineering Group. See section below.

WATER INFILTRATION BEHIND THE PAINT

EXTERIOR WALLS

The entire building is a brick veneer. The 2001 addition walls are cavity wall construction consisting of a structural CMU back up with a layer of R-12 rigid insulation and an air gap directly behind the brick. The wall construction of the original 1930's portions of the building is presumed to be mass wall construction and does not contain insulation or an air gap behind the exterior brick layer.

EXTERIOR CONCERNS

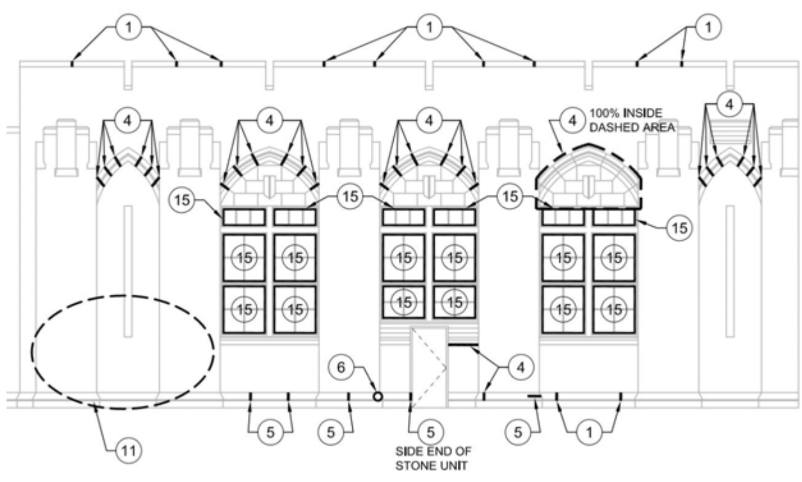
- A 2014 Industrial Roofing inspection found step cracking in various areas of mass wall construction in the 1930's buildings, as well as deterioration of sealant joints at the stone window sills. In June of 2021, Specialty Engineering Group conducted a Building Envelope Assessment. The report indicated the following issues: weathered and failed sealants; damage at brick masonry including cracked and spalled brick units, weathered and unbonded mortar joints, damage at limestone masonry accents including cracked, spalled, and shifted stone units and weathered and unbonded mortar joints. At the auditorium, moisture is being pulled into the building and evaporating leaving behind a whiteish power in a process called efflorescence.

VIEW OF AUDITORIUM BALCONY ROOF

EFFLORESCENCE ON THE INTERIOR OF THE AUDITORIUM

VIEW OF AUDITORIUM

- As identified in the 2021 Specialty Engineering Group report, and noted by staff during our assessment, leaking is occurring at several ceiling locations where walls are adjacent to lower roof to upper roof transitions. As brick is a porous material, absorbing water, the leaking can be traced back to deficiencies in the brick masonry construction and lack of proper flashing and drainage channels within the walls. This is confirmed by staff comments that not all locations are leaking during all rain events and varies depending on the direction of wind driven rain.



EXTERIOR VIEW OF THE AUDITORIUM, AND A CONSTRUCTION DOCUMENT FROM SPECIALTY ENGINEERING GROUP NOTING WORK TO REPLACE SEALANT, TUCKPOINTING MORTAR JOINTS, REPLACING LIMESTONE TRIM, AND RE-GASKETING WINDOW SEALS.

EXTERIOR RECOMMENDATIONS

- The District has currently completed phase one of the exterior rehabilitation work and is planning for phase two to be completed during the summer of 2023. The total cost for both phases will be approximately $480,000.

EXTERIOR ALUMINUM CLAD WOOD WINDOWS

WINDOWS

In 2001, all the existing windows were replaced with an aluminum clad wood window system. These windows do not contain insulated glazing. There is a fixed single pane of exterior glass separated by a 1” air gap and an interior removable layer of glass. Windows in the commons are standard aluminum storefront with a 1” panel of double pane insulated glass.

WOOD WINDOW FRAME WITH DELAMINATED POLYURETHANE FINISH IN THE CAVITY BEHIND THE STORM GLASS

WINDOW CONCERNS

- The aluminum clad wood windows allow moisture to enter the cavity between the layers of glass and condenses on the exterior face. This water then runs down the window and collects on the wooden window frame. Over time, this moisture has deteriorated the finish and stained the wood. In a few windows, the cavity is supporting mold growth.

WINDOW RECOMMENDATIONS

- Replace all the aluminum clad wood windows with thermally broken, all-aluminum frame, and argon filled 1” insulated glazing panels.
- Phase 1 and 2 of the Specialty Engineering Group exterior envelope rehabilitation will address the water infiltration around the sides of the window. However, the thermal performance of the system is still a single pane of uninsulated glazing.

VIEW OF MOLD WITHIN THE CAVITY

DOORS/ FRAMES

DOOR/ FRAME CONCERNS

- The school has a combination of aluminum, and hollow metal doors and frames. The aluminum doors and frames are at primary entrances, and the hollow metal are at emergency exits. A majority all of the exterior hollow metal door frames are showing rust and corrosion at the threshold where they meet the concrete. Exposure to salt laden water is the key factor leading to this deterioration.

DOOR/ FRAME RECOMMENDATIONS

- The rusting of the hollow metal door frames and corrosion of the aluminum frames will likely worsen in the coming years. In all probability, they all will need replacement within the next 5 years. Fiberglass reinforced plastic is a good alternative to hollow metal and will not rust like the existing frames.

ROOFING

The building's roof construction is a mix of ballasted 45 mil EPDM roof membrane with 2"-4" of rigid insulation board. A fully adhered 60 mil EPDM roof membrane is used at the vaulted roofs over the library and the auditorium. While the ballasted roofing dates to the 2001 renovation, the 1965 classroom wing, library, and auditorium roofs were not replaced in that renovation. In 2014, Industrial Roofing Services did a comprehensive roofing survey noting roofing life expectancy.

AT THE NORTHEAST ENTRY ALUMINUM DOORS

AT THE EAST GYM EXIT DOORS

ATTEMPTS HAVE BEEN MADE TO FIX THE FRAMES

ROOF PLAN OF AGE OF ROOFING

Craft’s Inc. conducted their preventative maintenance inspection in June of 2022, where they found and patched holes, voids, fishmouths, open seams, and open corners. Missing or worn caulk was also repaired.

ROOFING RECOMMENDATIONS

- Annual roofing inspections should continue with emphasis on the condition of wall flashings. Funds should be set aside for the replacement of the roofing as recommended in the 2014 Industrial Roofing Services report. This would include all the area shown above except the areas in green, approximately 64,794 square feet.

COMMON AREAS

The band and orchestra room additions were part of the 2001 renovation and are in good condition. The choir rehearses on the auditorium stage. The boys and girls locker rooms have poured epoxy flooring and are in good condition. Shower stalls are being used for storage.

COMMON AREAS CONCERNS

- The Commons has vinyl composite tile flooring which staff reports is at the end of it's serviceable life. The building expansion joint through the Commons was not honored causing the vinyl to crack along the joint extending the entire width of the room.

COMMON AREAS RECOMMENDATIONS

- Common flooring should be replaced within the next 5-10 years.

VIEW OF COMMONS

CLASSROOMS, ART STUDIO - TEACHING AREAS

Typical classroom floor finishes consist of broadloom carpet with an area of vinyl tile along one wall, both finishes in acceptable condition.

VCT FLOORING CRACKED OVER CONCRETE JOINT

TEACHING AREA CONCERNS

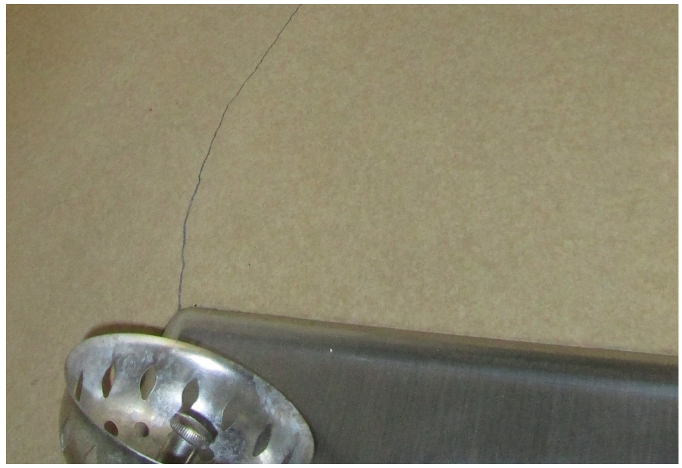
- The art room does not have any sinks which meet ADA for roll under access. In addition, the plastic laminate countertop has cracked in back of the sinks and extends the entire length of the countertop.

TEACHING AREA RECOMMENDATIONS

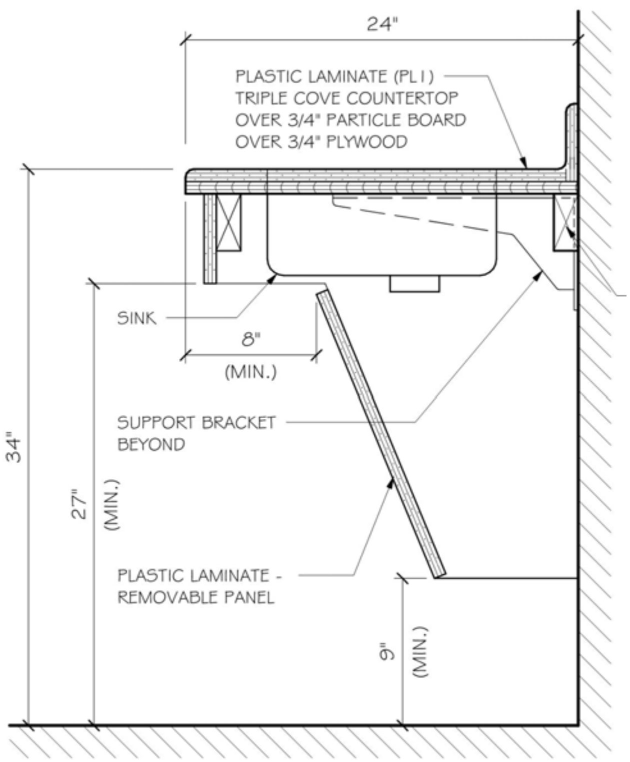
- Replace the Art room sink countertop and remodel a minimum of one sink station to meet ADA for roll under access.

VIEW OF GENERAL CLASSROOM

ART ROOM CASEWORK WITHOUT ADA SINK



CRACKED PLASTIC LAMINATE COUNTERTOP



EXAMPLE OF ROLL-UNDER ADA WORK SINK

RESTROOMS

Restrooms were remodeled in 2001 and are in good condition, with the proper ADA toilet stall dimensions and are only missing the vertical grab bar where the current toilet paper dispenser is located.

RESTROOM RECOMMENDATIONS

- Remove and relocate existing toilet tissue dispenser, install code compliant vertical grab bar to all ADA assessable toilets rooms and stalls.

TYPICAL MAIN STUDENT TOILET ROOM

ADMINISTRATIVE AND COUNSELOR OFFICES

These offices are in good condition except for the same window issues mentioned earlier. There are, however, dirty carpet ware patterns beginning to show at the main office entry.

ADMINISTRATIVE AND COUNSELOR RECOMMENDATIONS

- The main entry into the office should receive new carpet in the high traffic area in front of the receptionist's desk.

ADA TOILET MISSING VERTICAL GRAB BAR

CORRIDORS, STAIRWELLS AND ELEVATOR- CIRCULATION

The stair tread finish in the 1930's buildings is terrazzo, with rubber in the 1965 section and the 2001 remodeled area. Corridor flooring is terrazzo in the 1930's section and vinyl tile in the remainder of the building. All are in acceptable condition. The elevator was installed in 2001, cad finishes are also in good condition.

CARPET AT MAIN OFFICE ENTRANCE

KITCHEN VIEW

NEW FREEZER IN FOOD STORAGE PANTRY

DISHWASHING ROOM

RUSTING CEILING GRID

CIRCULATION CONCERNS

- No circulation concerns.

FOOD SERVICE EQUIPMENT AND KITCHEN

Floor finish at the kitchen is epoxy and is in good condition. A new freezer was recently installed in the Pantry across the corridor from the kitchen, where storage space is already at a premium.

FOOD SERVICE CONCERNS

- The steel grid of the suspended ceiling in the dish room is rusting.

FOOD SERVICE RECOMMENDATIONS

- The suspended ceiling in the dishwash room should be replaced with a new system of aluminum grid and vinyl covered gypsum panels.

ACCESSIBILITY OBSERVATIONS

The American with Disabilities Act (ADA) of 1992 is a civil rights law that protects individuals with disabilities against discrimination in buildings classified as public due to physical barriers that may impede them from accessing the site, elements of a building or floors of a certain size or use.

As this school was totally renovated in 2001, it appears to contain all of the accessibility features required by the code at the time. A few items were noted earlier in this report.

FOXVIEW INTERMEDIATE SCHOOL

Plumbing Description / Condition

SANITARY SEWER LATERAL

The school is served by three separate sanitary mains. All three of which were rerouted during the 2001 addition/renovation. Two of the sanitary mains are 6” diameter and exit to the north, one of which comes from the chorus area, while the other comes from the main classroom wing. The third sanitary main is a 6” diameter exits the building to the south from the commons area.

The condition of these sanitary mains is unknown given they are located underground, but considering that the renovation was completed in 2001, it can be assumed the sanitary piping is in relatively good condition. During our meeting with the principal and facilities staff, there were no known issues with the sanitary mains.

SANITARY SEWER LATERAL RECOMMENDATION

- No recommendations at this time. There are no known issues with this system.

WATER SERVICE ENTRANCE

WATER SERVICE LATERAL

The water service lateral is a 4” diameter main which enters the building from Merrill St. The existing water meter is a 4” meter with a 4” diameter bypass. The water meter appears to be leaking from one of the test ports, and dripping on the piping, and insulation below. The water pressure observed on the day of the site visit was 52 psi. This pressure reading was taken on an existing pressure gauge near the booster heater in the kitchen.

WATER SERVICE LATERAL CONCERNS

- Repair the leaking service port on the water meter

WATER METER

WATER SERVICE LATERAL RECOMMENDATION

- Replace damaged insulation near water meter after water meter leak is fixed.

GENERAL STORM/ ROOF DRAINAGE

This school has internal roof drainage. The storm drainage extends below grade and exits the building in four locations. One is a 10" diameter and exits from the chorus addition. The second is a 6" diameter which exits from the band addition, and is routed to a manhole towards Michigan St. The third is a 12" diameter and exits from the commons area and daylights to the low area at the south end of the property. The fourth storm is a 8" diameter and exits from the main classroom wing.

There was no overflow storm drainage from the 2001 additions observed on site. For the original school, this was likely accomplished with openings in the parapet wall. This is a concern if there is a main drain blockage, the roof may pond with water and cause a structural failure.

Based on the size information indicated on existing plans, the main roof drain piping is adequately sized.

GENERAL STORM/ ROOF DRAINAGE CONCERNS

- No overflow roof drains were observed during the site investigation, this could cause water to pond on the roof in the event of a main roof drain blockage.

GENERAL STORM/ ROOF DRAINAGE RECOMMENDATIONS

- Add overflow roof drainage, or scupper openings within parapet wall, to allow for adequate drainage.

SANITARY DRAINAGE

The school has multiple building exits for sanitary drainage. There was a major renovation completed in 2001 which updated all of the major bathroom groups and much of the sanitary piping within the school. Since the piping is only 22 years old, it can be assumed that much of it is in good condition.

The facilities staff mentioned several of the sanitary pipes serving the second floor urinals had to be replaced a few years ago. It was not identified if this was an installation error, or if the piping had corroded since the 2001 renovation.

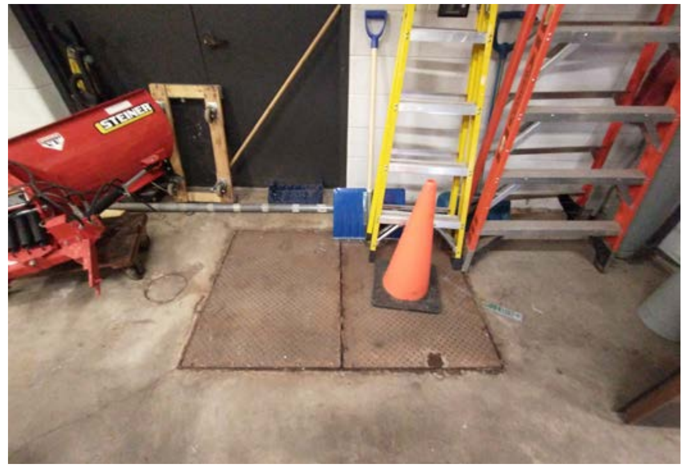
The school has a grease interceptor which is located in the receiving area. The facilities staff indicated that the cover is in poor condition and should be replaced. They also mentioned that the last time the grease interceptor was pumped out, the internals of the interceptor appeared to be in fair condition.

SANITARY DRAINAGE RECOMMENDATIONS

- The cover of the grease interceptor is in poor condition and sanitary smells often get into the receiving area.

SANITARY DRAINAGE RECOMMENDATIONS

- Replace the grease interceptor with an updated style which will tolerate chemicals used in the dishwashing equipment.



GREASE INTERCEPTOR

DOMESTIC WATER DISTRIBUTION SYSTEMS

The school is served by a 4” diameter domestic cold water system. Based on the existing plans, all water to interior fixtures, except for drinking fountains, is softened by (1) large Hellenbrand water softener, located near the water service entrance. The softener was in operation at the time of our site investigation and the brine tank was nearly full. It appears that the water softener had been replaced at some point in recent years, and the domestic cold water surrounding the water softener was never reinsulated. This could cause corrosion of the piping and lead to early pipe failure. The hose bibs located on the exterior of the building do not receive softened water.

The original plans indicate that the domestic water heater should heat and store water at 140°F. The 140°F hot water is provided to the pre-rinse sink, pot and pan sink and prep sink located within the kitchen. This 140°F hot water is also recirculated back to the water heater to ensure temperature is maintained. The remainder of the domestic hot water is mixed down to 120°F, via a large thermostatic mixing valve located in the boiler room. This 120°F hot water is also recirculated back to the boiler room to ensure temperature is maintained. The 120°F domestic hot water piping is recirculated directly above each classroom fixture, which makes hot water available relatively quickly at each sink location.

During our site investigation, the water heater storage temp was around 145°F. The recirculation loop serving the kitchen was 140°F and the recirulation loop serving the classrooms was 129°F. In general, hot water was available within a timely manner at every sink within the building.

WATER SOFTENER

The domestic water distribution piping is copper, the piping and insulation on the areas we checked appeared to be in good condition.

DOMESTIC WATER DISTRIBUTION CONCERNS

- Lack of insulation on domestic cold water piping at the water softener.

DOMESTIC WATER DISTRIBUTION RECOMMENDATIONS

- Insulate the domestic cold water piping at the water softener.

RESTROOM FIXTURES

Overall, the plumbing fixtures within the school are in fair to good condition. All of the plumbing were replaced during the major renovation in 2001. This puts the fixtures at approximately 22 years old. The faucets and flush valves are at, or near, their expected service life and showing signs of age. These items will likely require maintenance or replacement in the near future.

The water closets in main restroom groups are wall hung with flush valves and appear to be in good to condition. The flush valves are sensor type, with a manual flush option, and all appear to be in good condition. The water closets in individual restrooms were mostly floor mounted with manual operated flush valves.

WATER CLOSET

MULTI-STATION WASH FOUNTAIN

The urinals are wash down, floor outlet style, with sensor operation. The flush valves on the urinals appear to be in good condition as well.

The building has multi-station wash fountains in the group restrooms and porcelain lavatories in individual restrooms. The individual lavatories appear to be in good condition. It was noted that at a few of the multi station hand wash fountains, it took a while to get warm water out of the faucet. This could be an issue with the mixing valve for the wash fountain, or a recirculation issue in the domestic water piping.

The stainless steel sinks within classrooms are in fair condition. Some sink spouts are very loose and will require maintenance. Some faucet goose necks have minor leaks, which pool at the base of the faucet and leave a calcium deposit.

The school has several sets of water cooler and bottle fill stations, these fixtures appear to be in good condition. Facilities staff indicated that the style of drinking fountain which is inset within the wall causes issues at times. The push button on the face of the drinking fountain gets hit by students and ends up sticking. The other issue occurs when children twist the bubbler at the spout, which kinks the pipe inside the drinking fountain and causes leaks. The facilities staff indicated that this is more of a behavioral issue and is being resolved with student observation.

Plumbing fixtures have a service life of 30 years, but the faucets and valves have a service life of between 10 and 15 years, with regular maintenance and parts replacement.

CALCIUM DEPOSIT AT BASE OF FAUCET

DRINKING FOUNTAIN

RESTROOM FIXTURE CONCERNS

- Faucets and flush valves are at or near their expected service life.
- Drinking fountain issues with students damaging the fixture.

RESTROOM FIXTURE RECOMMENDATIONS

- Consider replacement of faucets and flush valves.
- Consider replacing drinking fountains with a more vandal proof style fixture.

WATER HEATER

HEAT EXCHANGER AND STORAGE TANKS

EQUIPMENT

The school has (1) 250 gallon natural gas water heater located in the boiler room. The water heater was installed during the 2001 renovation which puts it at 22 years old. This water heater is at the end of its expected service life and should be replaced soon.

There is also a second source of hot water consisting of a heat exchanger connected to the heating boilers, which is pumped into two storage tanks. This heat exchanger system was installed in 2015 and is meant to operate as the primary source of hot water during the winter months when the boiler system is operating at its highest temperature. During summer months, the building heating water system is set to a lower temperature which would not allow them to provide domestic hot water from that system.

During our site visit on 1/20/2023 the heat exchanger system was valved off and not in operation, which does not align with the original design intent for this system.

The main mixing valve which takes 140°F hot water and mixes it down to 120°F, appears to be in good condition. No issues were noted with the mixing valve from facility maintenance personnel.

The booster heater for the dishwasher appears to be in fair condition. It is located above the ceiling within the kitchen.

The 140°F and 120°F domestic hot water recirculation pumps appear to be in good condition. However, they are at the end of their expected service life and will likely need to be replaced soon. The recirculation loops appear to be meeting the original design intent by keeping water temperatures consistent throughout the school.

THERMOSTATIC MIXING VALVE AND RECIRCULATION PUMPS

The expected service life of water heaters is 10 – 20 years depending upon water quality and maintenance.

The expected service life of recirculation pumps is 10 years depending upon water quality and maintenance.

BOOSTER HEATER

EQUIPMENT RECOMMENDATIONS

- The water heater has surpassed its expected service life. Consider replacement of the water heater prior to failure as preventative maintenance.
- The recirculation pumps have surpassed their expected service life. Consider replacement of the recirculation pump prior to failure as preventative maintenance.

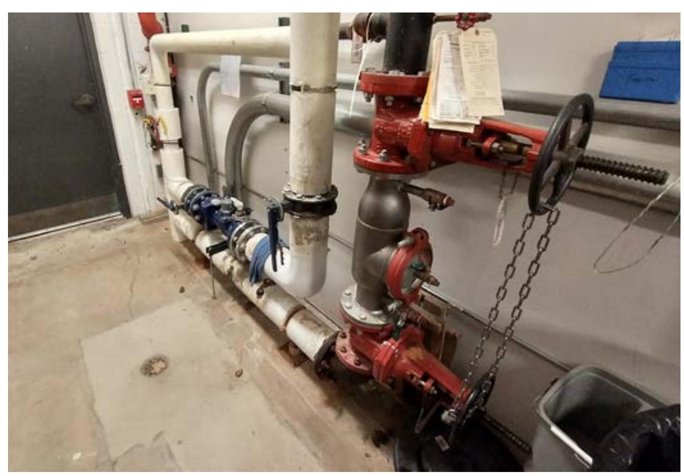
FIRE PROTECTION

The school has a partial fire sprinkler system which services the kitchen and second level boiler room. This system was installed as part of the 2001 addition and renovation. The system is served by the 4” diameter combined fire protection/water service which enters the building from Merrill St.

The fire protection system has a single riser. The backflow preventer, and piping near the water service entrance, appear to be in good condition. Sprinkler heads within the kitchen are fully exposed heads and appear to be in good condition. Sprinkler heads within the boiler room are upright heads given that there is no ceiling.

FIRE PROTECTION CONCERNS

- The building is not fully sprinklered, which met the code requirements when the most recent additions were completed. Subsequent additions will not be possible without a firewall or addition of a fire suppression system to the entire building.



FIRE PROTECTION RISER

FIRE PROTECTION RECOMMENDATIONS

- No recommendations at this time. There are no known issues with this system.

FOXVIEW INTERMEDIATE SCHOOL

Electrical System Description / Condition

ELECTRICAL SERVICE / POWER DISTRIBUTION

The building electrical service is provided by W.P.S. and is a 277/480V, 1600A, 3-phase main distribution panel, located in the main electrical room. Distribution system was installed in 2001. The existing utility transformer is located outside of the main electrical room to the north of the building. All switchgear and branch panels are Square-D equipment.

SERVICE/ POWER DISTRIBUTION CONCERNS

- No Service / Power Distribution Concerns at this time.

SERVICE / POWER DISTRIBUTION RECOMMENDATIONS

- No Service / Power Distribution Recommendations at this time. System appears to be in very good physical and operational order.
- Electrical service equipment typically has a service life of approximately 30-40 years. The primary cause of the replacement is the inability to produce breakers which properly fit and operate within the existing branch and distribution panels toward the end of life.

MAIN SWITCH

MAIN DISTRIBUTION PANEL

GENERATOR SYSTEM

The generator is a 277/480V, 30 KW, natural gas unit manufactured by Cumins. This unit mainly feeds Life Safety branch circuits through one automatic transfer switch located on second floor mechanical room. Power circuits which are backed up by the generator include: emergency corridor lighting, exit signage, Area of Rescue devices, fire protection alarm bell, and power operated doors. This existing generator is budgeted for replacement of this school year 2023.

GENERATOR

GENERATOR TRANSFER SWITCH

GENERATOR CONCERNS

- Generator is reaching the end of it's life expectancy.
- Current codes require two transfer switches and distributions if there is a need for equipment other than Life Safety devices. Life Safety devices would include: lighting for path of egress, fire alarm, door access control. Equipment devices would include: boilers, circulation pumps, air handling units, etc.
- The generator exhaust rain cap appears to be stuck in the open position, allowing rain and debris to enter exhaust system.

GENERATOR RECOMMENDATIONS

- This existing generator is budgeted for replacement this year, 2023; based on conversations with school staff.
- Continue Generator maintenance. Regular scheduled maintenance is of high importance since this is a system that will energize other operating systems within the building (fire alarm, security, etc.) when there is a normal power outage.
- Generators typically have a service life of approximately 20-25 years, with the issue of finding replacement parts that will keep the generator operating properly.

GENERATOR RAIN CAP

FIRE ALARM

The Fire Alarm system is mainly Simplex 4010, with other device manufacturers. The fire alarm control panel (FACP) is located adjacent to the Library. There is a fire alarm annunciator panel (FAAP) located at Main street entrance of the building. Several extender panels are located throughout the building. Partial updates to the system in 2001.

FIRE ALARM CONTROL PANEL

FIRE ALARM CONCERNS

- The Fire Alarm system appears to be operational and meeting codes that were in place at time of installation. However, it may be outdated and procuring parts and upgrading the system could be a challenge. There appears to be various manufactures of fire alarm devices that make up the complete system. This can sometimes be problematic at times of service and testing.

FIRE ALARM RECOMMENDATIONS

- Consider replacement of fire alarm system to meet current code requirements and have the system under one manufacturer for ease of maintenance and service.
- Maintain system maintenance as required per code and manufacturer(s).
- Current code requirements call for a voice / mass notification system, with annunciation devices, that allow a central station to broadcast a verbal warning for directions to evacuate the building or property. Existing system is “grandfathered” in to when it was installed, but any major remodel or additions would require the system to be upgraded or be able to communicate with any new installations in remodeled areas.
- Fire Alarm systems typically have a service life of approx. 20-30 years, with the issue of finding replacement parts that will keep the system operating properly.

AREA OF RESCUE ASSISTANCE

LIGHTING / LIGHTING CONTROLS

A majority of the lighting appears to be fluorescent tube and compact fluorescent lamps with the exception of some interior lighting that has been an ongoing conversion to L.E.D. luminaires. All exterior lighting appears to be L.E.D. luminaires.

EXTERIOR L.E.D. LIGHTING

EXTERIOR L.E.D. LIGHTING

Most classrooms use local room switches and occupancy sensors for lighting control. Corridors use switching only.

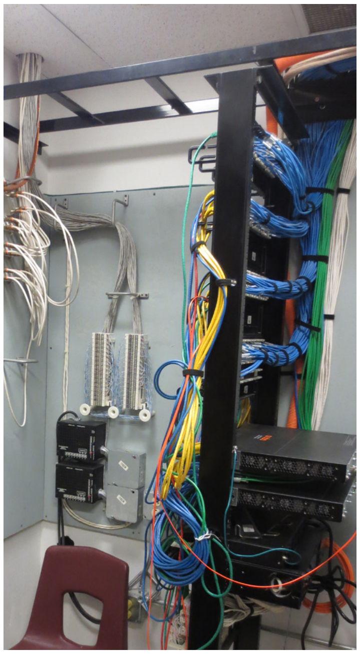
Exit signage and emergency egress path have generator connections to provide back-up power when there is an electrical outage.

LIGHTING / LIGHTING CONTROLS CONCERNS

- Maintain conversion to L.E.D. lighting for a more energy efficient building.
- Lack of automated controls such as occupancy sensors.

LIGHTING / LIGHTING CONTROLS RECOMMENDATIONS

- Consider replacing fluorescent lighting with newer technology of Light Emitting Diode (L.E.D.) lighting. Fluorescent tubes would need to be disposed of properly due to their mercury content. L.E.D. luminaires use approx. two-thirds of the energy or less compared to fluorescent.
- Provide occupancy sensors in corridors per IECC (International Energy Conservation Code) #C405.2.1 for additional energy savings.
- Verify the path of egress lighting in all corridors and that exits have proper illumination per code requirements of IBC 1008 and/or NFPA 101 section 7.9.



DATA SERVER RACK

DATA SERVER RACK

MAIN CLOCK / PAGING CONTROL UNIT

TELECOMMUNICATIONS

Telecommunication appears to be adequate and serves the needs of the school. Major telecommunication components were installed in 2001, and have been updated over the years since then.

TELECOMMUNICATIONS CONCERNS

- No Telecommunications concerns at this time.

TELECOMMUNICATIONS RECOMMENDATIONS

- No Telecommunications recommendations at this time.
- Telecommunication systems typically have a service life of approximately 20-30 years. Keeping up to date with the latest technology along with finding replacement parts are the most challenging issues for this system.
- The schools I.T. department has scheduled a data rack switch replacement for the 2024-2025 school year with a 5-year rotation/replacement moving forward.

MISCELLANEOUS ITEM(S)

Existing Rauland clock system head-end unit is located adjacent to the Library. Clocks are hardwired with low voltage system. System appears to have been installed in 2001, or earlier.

Existing paging system is also controlled through the Rauland clock system.

Security and door access system control panels are located adjacent to the Library and there is a control keypad located at the main street entrance of the building. The security system is provided by Martin Security, Inc.

There appears to be a lack of receptacles in the older classrooms, by evidence of extension cords/power strips.

TYPICAL CLOCK

MISCELLANEOUS CONCERNS

- Clock system is outdated and finding replacement parts and service is challenging.
- Paging system is controlled through the clock system.
- Security system has some communication issues at a couple door locations. Currently, the system is not able to unarm doors when the doors are in the OFF schedule mode.
- Existing floor boxes in Commons are abandoned and not used.

UNUSED FLOOR BOX (TYP.)

MISCELLANEOUS RECOMMENDATIONS

- Replace existing clock system with modern technology for more reliability and serviceability. Possibly a wireless/GPS system.
- Provide new paging system and utilize phone/VoIP for communication.
- Verify Security system operations with the local vendor on record as the installer, to have them perform a system test of proper terminations and programming.
- Existing floor boxes in Commons are considered a tripping hazard and cleaning obstacle. These devices should be removed and the flooring made flush with adjacent surface.

FOXVIEW INTERMEDIATE SCHOOL

HVAC Description / Condition

Foxview Intermediate School was originally constructed in 1930, with a significant renovation/addition project completed in 2001. The gross building floor area is 108,044 sq. ft. and includes two occupied stories. Mechanical rooms are generally on the second story adjacent to occupied classrooms. The heating and cooling system utilizes a variable air volume system with hot water reheat for both heating and cooling. The original heating infrastructure was based on steam distribution and, while no longer used, many of the terminal devices still remain. In addition to the classrooms, which primarily exist in the 2-story "B-Wing," the facility has a 2-station gymnasium, commons, LMC, science labs, art classrooms, and a large historic auditorium. The school office was reworked significantly in the 2001 project and now includes a secure entry. Most classroom windows are single pane, which is likely increasing the energy consumption of the facility considerably as compared to other district buildings. The heating plant is on the second floor in the South-East mechanical room and the cooling plant is on the first floor in the receiving area with the air-cooled chiller located on the roof. Generally speaking, there is very little excess space within the existing mechanical rooms for future equipment.

The table below provides applicable values of service life as compared to the actual age and condition of the equipment in question. Service life is defined as the economic life of a system or component as it relates to obsolescence, reduced reliability, excessive maintenance cost, changed system requirements, or failure.

Equipment	Actual Equipment Age	ASHRAE Estimated Service Life[1]	Observed Condition
Indoor Central Air Handling Units	22 Years	20 Years	Good
Air-Cooled Water Chiller	22 Years	20 Years	Poor
Chilled Water Pumps	22 Years	10 Years	Fair
VAV Air Terminals	22 Years	20-25 Years	Good
Boilers	22 Years	30 Years	Fair
Heating Pumps	22 Years	10 Years	Fair
Exhaust Fans	22 Years	20 Years	Fair

[1] 1999 ASHRAE APPLICATIONS HANDBOOK

COOLING AND VENTILATION

The ventilation system includes several duct distribution systems served by (7) indoor central station air handling units. Each unit includes an integral return/relief fan, economizer mixed air dampers, a hot water heating coil, chilled water cooling coil, and a supply fan. Variable frequency drives are provided for each fan with exception of AHU-2 (serving the auditorium) and AHU-7 (serving the gymnasium). Freeze protection is accomplished via external face-and-bypass dampers on all units. Return air is circulated through door grilles and via plenum return including use of egress paths as a return air plenum. This is no longer a code compliant ducting arrangement, as a fire within an occupied space will spread smoke into the path of egress and prevent safe exiting from the facility. Consideration should be taken to revising the return air path arrangement.

The air handling unit provides conditioned supply air through distributed VAV boxes with hot water reheat coils for zoning purposes. This configuration allows for not only individual zone heating and cooling control, but also the capability to dehumidify the facility during summer months. All air handling units are in good condition, with minor deterioration of wear items, some air and water leaks, and evidence of ongoing maintenance repairs. Multiple locations were present in which dampers were sloppy and not closing or opening fully. Reduction in airflow is via Variable Frequency Drives which lower the supply and associated return fan speeds in response to VAV box modulation. All ventilation fresh air is provided through the air handling unit. Exhaust air is provided via powered roof ventilators which are distributed throughout the facility. Mechanical cooling is provided to all spaces. A significant negative pressure was present during our survey, which was causing cold air to enter classrooms and corridors through exterior windows and doors without being conditioned.

AIR-COOLED CHILLER HAS EXPERIENCED MULTIPLE FAILURES

Chilled water for cooling and dehumidification is provided by a single 215-Ton nominal size Trane air-cooled chiller, located on the roof of the single story receiving area. This system circulates a mixture of 30% Ethylene Glycol to chilled water coils on each air handling unit. In discussion with facilities staff, the chiller has experienced multiple failures and has a significant repair project planned for spring 2023. The chilled water distribution system is a primary-secondary pumping configuration, which provides consistent flow through the chiller with varying system demand conditions. A single pump is provided for each primary chilled water and secondary chilled water, so the failure of either pump with prevent circulation of chilled water through the facility. Chilled water piping within mechanical rooms is welded carbon steel, but distribution throughout the facility is via Schedule 40 PVC pipe which is generally not as durable as carbon steel piping. At least one active leak was noted in the PVC piping above Girl's Restroom A207. Several locations within mechanical rooms were identified in which insulation has been removed from chilled water piping to fix leaks, but has not been replaced. This will lead to faster deterioration of chilled water piping and accessories due to condensation on piping.

COOLING AND VENTILATION CONCERNS

- Negative building pressure was observed during the site visit. It is likely that this is the result of HVAC controls issues, but it is possible that equipment failures are contributing.
- General deferred maintenance items were noted. Items such as failed or abandoned sensors, water leaks, air leaks, etc. were present and prominent. Repair of these items can boost performance and efficiency of the HVAC system.
- Pump condition for chilled water and condenser water pumps is fair. It is likely that pumping efficiency has deteriorated over time.
- Egress corridors are currently used as return air plenums. This is no longer a code compliant practice due to the inherent risk to building occupants during a fire situation.
- AHU-1 chilled water insulation is stained, indicating a potential current leak or vapor barrier issue. Other locations throughout have missing or stained insulation.

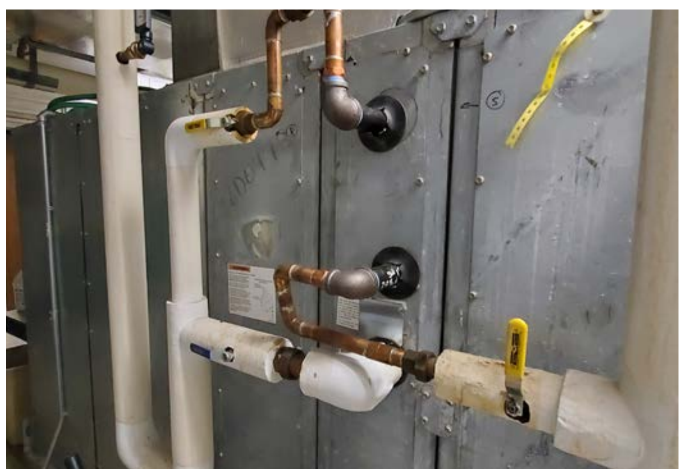
COOLING AND VENTILATION RECOMMENDATIONS

- Plan for chilled water pump replacement in the near future to improve reliability and efficiency of the water distribution system.
- Perform general preventative maintenance throughout the facility (insulation repair, sensor repair, etc.) to prevent more serious issues in the future.
- Consider revising the plenum configuration to use the ceiling cavity space for return air instead of egress corridors. Alternatively, consider fully ducting the return air for best performance.

CHILLED WATER PIPE LEAK

HEATING

Heating within the facility is accomplished through the heating hot water distribution system. This system includes four (4) hot water boilers which were installed in 2001. The boiler configuration includes (4) 1.9 Million BTUH copper fin boilers which appears to meet the building load with ease. Copper fin boilers are not expected to last much longer than the current age of the boilers, so we recommend planning for replacement. Heating coils are sized for 180°F and the boilers are not suitable for condensing operation, therefore improvement of heating efficiency will prove difficult. During the survey, it was noted that low return water temperature is present at the inlet to the operating boilers. This can lead to premature heat exchanger failure. Hot water distribution is via primary-secondary pumping configuration with (1) primary pump per boiler and (2) base-mounted secondary pumps in parallel, each sized for the full building load. This is a traditional pumping configuration which allows flexibility for varying load profiles at the expense of a small efficiency penalty.



AHU-4 HOT WATER COIL REPAIR IN PROGRESS

The indoor air handling units each include one or more hot water heating coils to temper the outside air for distribution throughout the facility. Freeze protection is via external face and bypass for all air handling units. Facilities staff commented that freezing of coils is relatively common at this school. This seems to indicate the control strategy for face & bypass operation is not correct or that damper leakage has become an issue over time. It was noted that a repair for AHU-4's heating coil was in progress during the site survey.

Additional heating is provided at each VAV box, which provides the ability to provide varying temperature and airflow to each zone served by the common air handling equipment. This is an excellent configuration for both performance and limiting energy consumption. Several zones were noted in which terminal valves have failed. Supplemental heat is included at the primary entrances via cabinet unit heaters and other unitary terminal units. Supplemental heat is also provided at toilet rooms, meeting rooms, and areas with high perimeter heating loads. It was noted that temperature control between classrooms is generally poor. Most notably, the (4) classrooms on the North end of “B-Wing” were significantly colder than adjacent classrooms. It was noted that the VAV was achieving very warm leaving air temperature rates, but airflow rate to these classrooms was low. We recommend review to the programming to ensure proper heating is being achieved throughout.

Facilities staff commented that several of the wings have a difficult time reaching a suitable temperature during morning warm-up. It was discovered that several air handling units have their heating coils isolated off, including AHU-1 (serving “A-Wing”), AHU-2 (serving “B-Wing”), and AHU-4 (serving “C-Wing” and the LMC).

HEATING CONCERNS

- General deferred maintenance items were noted, such as pipe leaks, missing insulation, missing sensors, etc. Repair of these items can improve reliability and limit risk of failure of the heating system.
- Secondary pumps are nearing their expected useful life and are likely losing efficiency and reliability due to age.
- (3) of the (7) total air handling unit heating coils were non-functional and have reported performance issues.
- Boilers are approaching the end of their expected service life.
- Reported difficulties by facilities staff regarding achieving suitable heating performance in classrooms is concerning.

BOILER COMPONENTS IN POOR CONDITION

HEATING RECOMMENDATIONS

- Replace full heating plant in the near future including all boilers and pumps.
- Perform general preventative maintenance throughout the facility (insulation repair, sensor repair, etc.) to prevent more serious issues in the future.
- Investigate and repair heating coil issues both at the air handling unit and terminal unit levels.

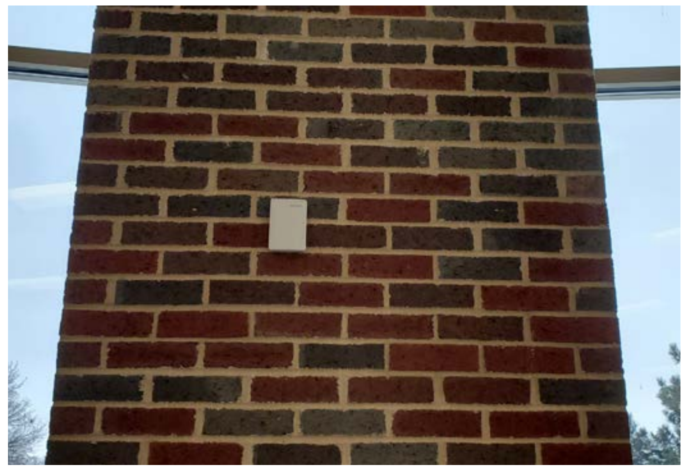
HVAC CONTROLS

The facility currently utilizes Tridium N4 compatible Honeywell supervisory controller on top of Schneider Electric TAC terminal controls. It appears that the controller-level devices have been replaced since the 2001 renovation project. However, it appears that terminal controllers, control valves, etc. are still from the 2001 renovation project. Thermostats throughout the facility are generally adjustable with a temperature display, but all control is accomplished via the Direct Digital Controls (DDC). Due to the age and failure rate of terminal unit reheat valves, consideration should be taken to replace all valves in a single project.

It was noted that classroom air temperature varied dramatically during our walkthrough in a single classroom. This seems to suggest that Proportional-Integral-Derivative (PID) loop programming is over-shooting setpoint and may require adjustment. Negative building pressure is present, which can present significant difficulty for temperature control, particularly in a facility of this age. It is recommended that investigation and corrective measures be taken to resolve this issue, which will help with zone temperature control as well.

HVAC CONTROLS CONCERNS

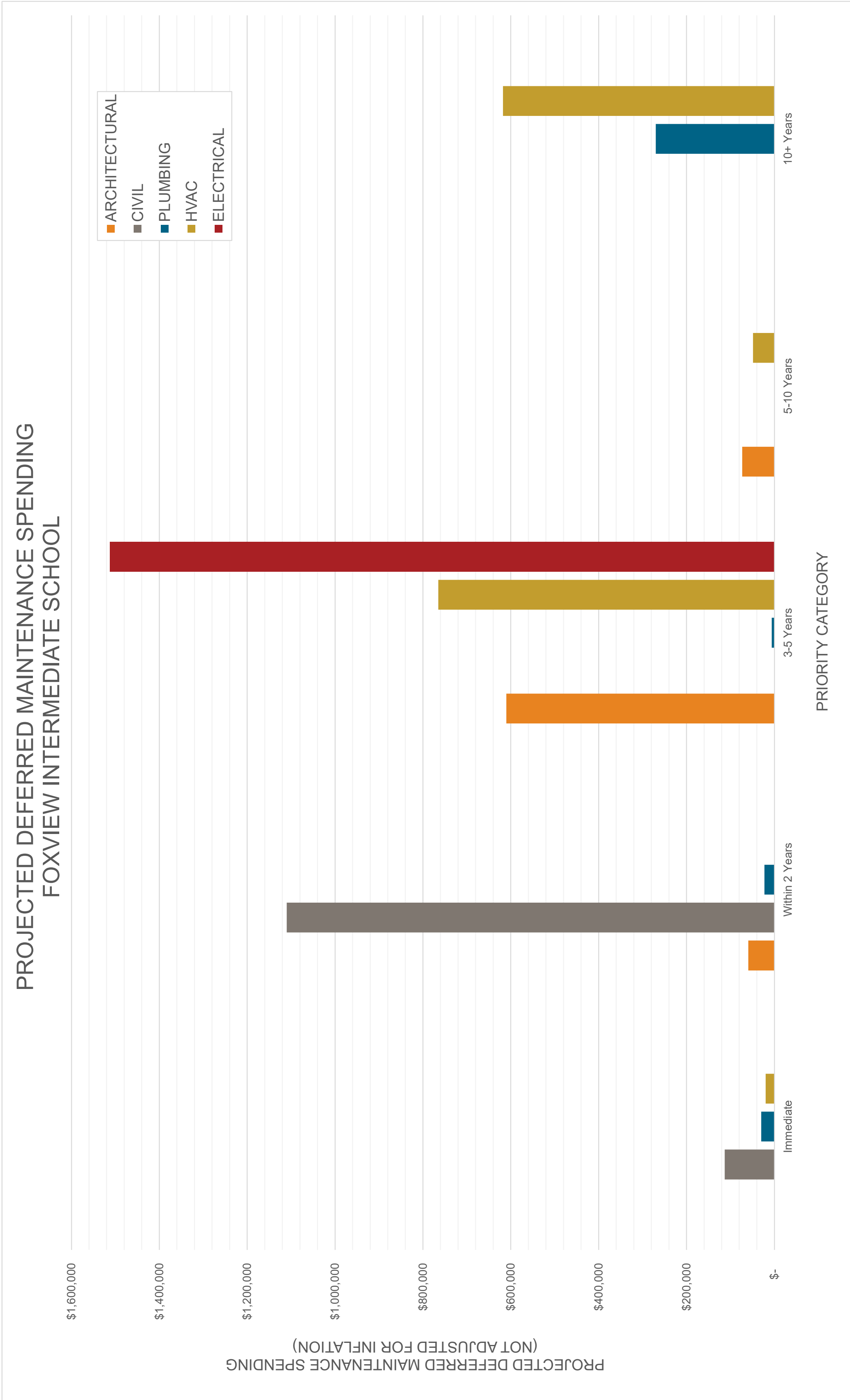
- In discussion with facilities staff and observation of the operating equipment, it appears there are several control sequences which are not optimal for energy savings or system performance.
- Lack of control of some terminal zones could be symptomatic of equipment failures (valve actuators, etc.) or could be due to control strategies and programming.



THERMOSTAT PLACEMENT ALONG EXTERIOR WALL

HVAC CONTROLS RECOMMENDATIONS

- Consider conducting Retro-commissioning survey to “tune-up” and confirm proper operation of all control sequences. This may qualify for a Focus on Energy incentive.
- Recommend hiring a Testing, Adjusting, and Balancing contractor to periodically read out and calibrate outside air airflow measuring stations to confirm accuracy. It is common for this style of airflow measuring station to become fouled with dirt and debris and read artificially low, causing more outside air to be brought in than desired. This may help explain coil freeze conditions noted by facilities staff.
- Recommend replacement of terminal reheat valves.


PROJECTED DEFERRED MAINTENANCE SPENDING
FOXVIEW INTERMEDIATE SCHOOL
ARCHITECTURAL
CIVIL
PLUMBING
HVAC
ELECTRICAL
$1,600,000
$1,400,000
$1,200,000
$1,000,000
$800,000
$600,000
$400,000
$200,000
$-
PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)
Immediate
Within 2 Years
3-5 Years
5-10 Years
10+ Years
PRIORITY CATEGORY

De Pere Middle School

700 SWAN ROAD, DE PERE, WI

De Pere Middle School

EXECUTIVE SUMMARY

CIVIL

All of the asphalt surfaces around the school have reached their life expectancies and show signs of saturated base below the pavement which specifically has caused the newer pavement to prematurely fail and require replacement. The concrete surfaces around the school show many areas of failures that require replacement. Most locations around the school have ADA compliance issues and will need to be replaced to achieve compliance.

ARCHITECTURE

Interior finishes overall are in fair to good condition. Building envelope concerns include water infiltration around the three entry vestibules, the solariums in the classroom wings, and windows in the main office. Replacement of corroding of hollow metal door frames also recommended.

PLUMBING

The storm water draining to grade is causing soil erosion and discoloration at the building exterior. Consider rerouting storm piping below grade to direct the water further away from the exterior wall. Plumbing fixtures, faucets, and flush valves are nearing the end of their expected service life and will require replacement soon. The domestic hot water return balance valves should be reviewed to ensure hot water is available at all fixtures within the building.

FIRE PROTECTION

The fire protection system is in good condition, no concerns at this time. Consider removing the fence at the fire department connection to allow easier access to the fire department in the event of a fire.

HVAC

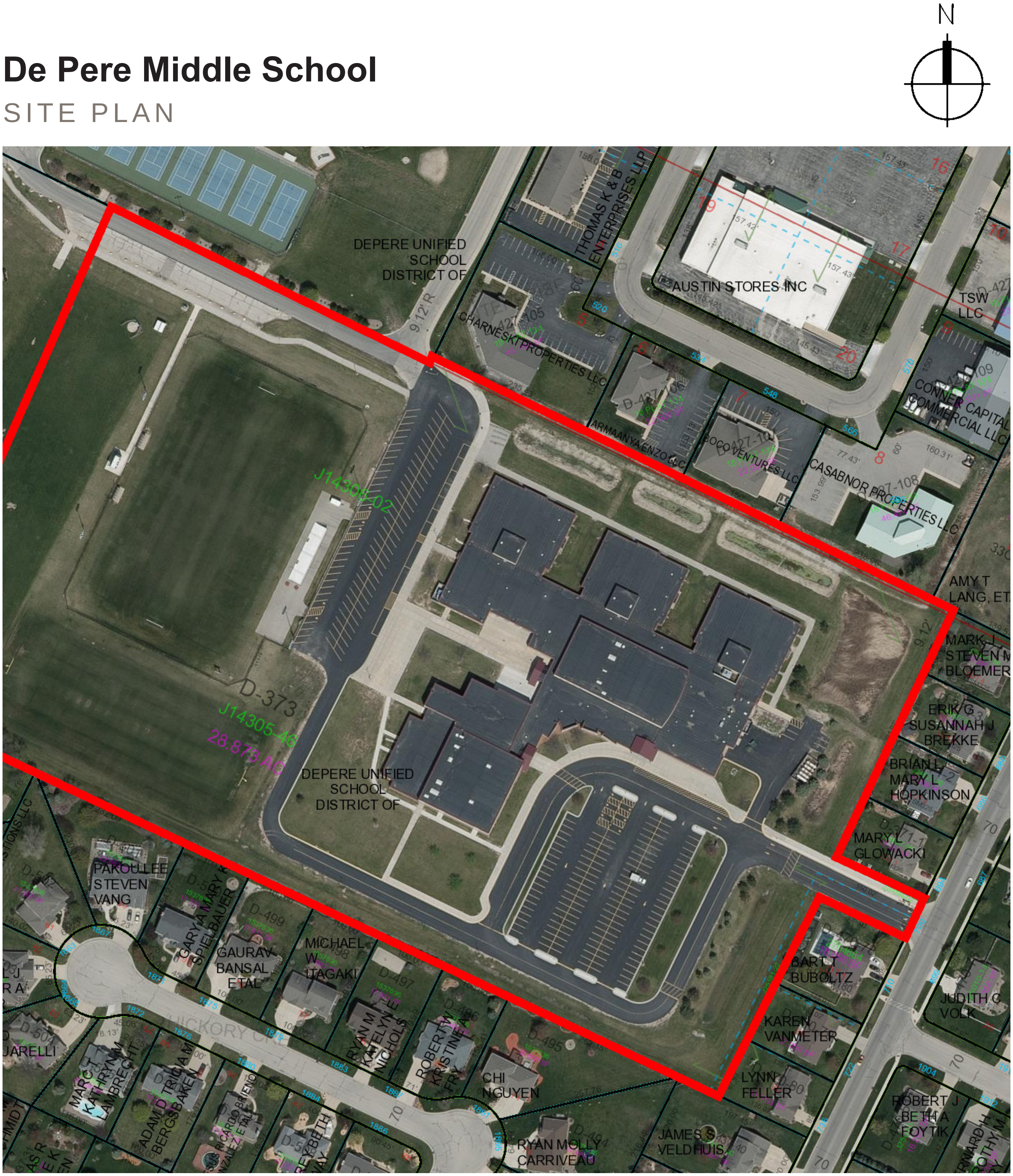
Given the age of this facility, it is likely that a number of systems will require replacement or significant capital investment in repairs in the near future. It appears that the original hot water boilers have already been replaced. However, the current heating plant does not have inherent boiler redundancy, which leaves the facility vulnerable to freeze risk in the event of a failure of the primary boiler. Replacement of the chilled water plant, including the pumps, chiller, and cooling tower, is likely necessary within the next 10 years. Air-side systems are in fair condition but can have their life expectancy extended with a moderate investment. The building temperature controls are aging and will require ongoing capital investment to keep the controls up to date.

ELECTRICAL

The electrical distribution equipment, as well as other systems, at this facility are original to the building from 1997 and are in very good condition. There isn't a back-up generator for this facility. A generator should be considered for emergency power in case normal power is lost. The fire alarm system appears to be in very good condition and meets the code requirements of when it was installed. The lighting technology is mainly fluorescent type throughout the building, with the exception of some exterior luminaires being L.E.D. type. Luminaires could be converted over to L.E.D. type for energy and cost savings. Lighting controls should also be upgraded as the luminaires are switched over to L.E.D. Telecommunication system equipment is current and there is an equipment upgrade schedule by the Owner's I.T. personnel. The paging / bell system has some issues in various parts of the school and replacement should be considered in the near future.

De Pere Middle School

SITE PLAN



De Pere Middle School

FIRST FLOOR PLAN

DE PERE MIDDLE SCHOOL

Building Description / Condition

OVERVIEW

The De Pere Middle School is located on 12.6 acres in the City of De Pere and was constructed in 1997. The gross building floor area is 119,723 sq.ft. on 1 primary level. Building's capacity, provided by the District, is 675 students, with a current enrollment of 679 students in grades 7 and 8. Overall the building is in good condition with some specific items that will need to be addressed in the coming years.

SITE SUMMARY

De Pere Middle School is bounded by Swan Road on the east side of the school. Staff and visitor parking are located on the south side of the building. Parent drop off is located on the south side of the building. The bus drop off is located on the north side of the building.

PARKING LOT

SITE CONCERNS – ASPHALT

- Multiple areas have alligator cracking where base is starting to fail
- Various unsealed longitudinal and transverse cracks throughout the pavement

SITE RECOMMENDATIONS

- Remove existing pavement
- Remove 12” of base/subgrade
- Stormwater Improvements
- Install drain tile under the pavement to existing inlet
- Add 12” of base
- Pave 4” of asphalt
- Add pavement markings

SCHOOL BUS / DROP OFF LANE

SITE CONCERNS – ASPHALT

- Excessive settlement and rutting throughout the pavement
- Many unsealed transverse and longitudinal cracks throughout the surface
- Most of the pavement has severe alligator cracking showing signs of base failures

SITE RECOMMENDATIONS

- Remove existing pavement
- Remove 18” of base/subgrade
- Stormwater Improvements
- Install drain tile along edge of pavement to existing inlet or daylight out
- Add geotextile fabric
- Add 12” of breaker run
- Add 6” of base
- Pave 4” of asphalt
- Add pavement markings

RECEIVING AREA

SITE CONCERNS – ASPHALT

- Excessive settlement and rutting throughout the pavement
- Many unsealed transverse and longitudinal cracks throughout the surface
- Most of the pavement has alligator cracking and base is failing
- Edge of pavement is cracking and breaking off
- Asphalt is settling in front of receiving dock and difficult to unload trucks with forklift

SITE CONCERNS – CONCRETE

- Two of the concrete pads have narrow/medium cracks
- Install larger loading area with concrete apron for trucks and garbage dumpsters

SITE RECOMMENDATIONS

- Remove existing pavement
- Crack filling concrete
- Remove 18” of base/subgrade
- Install drain tile under the edge of pavement and daylight out to basin
- Add geotextile fabric
- Add 12” of breaker run
- Add 6” of base
- Pave 4” of asphalt
- Install 6” Reinforced Concrete Pavement

SCHOOL BUS LOT

SITE CONCERNS – ASPHALT

- Many areas of settlement and rutting throughout the pavement
- Multiple unsealed transverse and longitudinal cracks throughout the surface
- Most of the surface has severe alligator cracking and base has failed
- Edge of pavement cracking and breaking off
- Drainage issues were observed during the site visit

SITE RECOMMENDATIONS

- Remove existing pavement
- Remove 18” of base/subgrade
- Stormwater Improvements
- Install drain tile along edge of pavement to existing inlet
- Add geotextile fabric
- Add 12” of breaker run
- Add 6” of base
- Pave 4” of asphalt
- Add pavement markings

SIDEWALK

SITE CONCERNS – ASPHALT SIDEWALK

- Multiple unsealed wide transverse and diagonal cracks throughout the pavement
- Edges of pavement have alligator cracking
- Most areas have settlement and rutting in the pavement
- Suggest replacing asphalt paths with concrete
- Add sidewalk adjacent to the building connecting, the main sidewalk area to the receiving area. Comments provided by custodian indicate that a many staff members cut through the grass, creating mud.

SITE CONCERNS – CONCRETE SIDEWALK

- Multiple concrete panels cracked and some with minor spalls
- Multiple concrete panels with a vertical deviation greater then ½”
- Concrete panels, along the bus lot, have a 4” deep void with a ½”-1” gap at the joint
- New concrete pads in the courtyard were poured too high and some doors cannot open properly
- Multiple hairline cracks in the new pavement in the courtyard behind the school

SITE RECOMMENDATIONS

- Remove and replace cracked or spalled panels
- Remove and replace concrete sidewalk panels that have a vertical deviation greater than ¼”
- Pour elastomeric hot joint sealer in the void between the concrete panels along the bus parking lot
- Crack filling with epoxy all hairline cracks in the new pavement in the courtyard

CURB & GUTTER

SITE CONCERNS – CONCRETE CURB & GUTTER

- Multiple sections have cracks through the curb and gutter.
- Multiple areas of curb and gutter have medium abrasion and spalls
- Isolated areas around inlets have spalls on the curb and gutter

SITE RECOMMENDATIONS

- Remove and replace all damaged curb and gutter areas

ADA COMPLIANCE

SITE CONCERNS – CONCRETE CURB RAMPS

- 6 curb ramps on site do not meet the requirements for ADA Compliance. Slopes are too steep or there is a vertical deviation greater than a ¼" where it meets the pavement.
- Multiple missing detectable warning fields.

SITE RECOMMENDATIONS

- Remove and replace non-compliant curb ramps
- Install detectable warning fields

SITE CONCERNS - BUILDING EXITS

- There are 7 emergency exit doors that open onto a concrete stoop which leads to an unimproved grass surface. The International Building Code section 1028.5, requires a direct and an obstructed access from the exit to a public way. This pathway must to be kept free of snow and be a smooth and hard surface to provide for those in wheelchairs to exit, and travel away from the building.

EXIT DOOR WITH NO CONNECTING SIDEWALKS

SITE RECOMMENDATIONS - BUILDING EXITS

- Install sidewalks from all 7 exits which currently do not lead to a public way. This will provide a code compliant path of egress out of the building.

EXIT DOORS WITH NO CONNECTING SIDEWALKS

STRUCTURAL SUMMARY

The building's structural systems is primarily load bearing concrete masonry unit (CMU) interior and exterior walls.

STRUCTURAL CONCERNS

- There are no structural concerns

EXTERIOR WALLS

The exterior wall construction consists of brick veneer with an air cavity and 2” of rigid insulation against the CMU bearing walls. At 15’ above grade the exterior material changes to surface applied Exterior Insulation Finish System (EIFS) for the Gym and Library

EXTERIOR CONCERNS

- There are several locations where the EIFS wall covering is in need of repair.
- The three (3) glass and exposed steel vestibules all display similar issues. The insulation at the roof level is thin, to non-existent, causing water vapor on the interior of the vestibule to condense on the steel and flow down onto the gypsum board below. The steel itself at the roof level is rusting in places and there is noticeable water damage at the gypsum board. Sealant has been applied on the exterior metal trim and glass to stop water exterior infiltration, but it can’t not stop condensation within the vestibule.

TYPICAL GLASS BOX ENTRY

SKYLIGHT ABOVE ENTRY VESTIBULE

WATER DAMAGE UNDER SKYLIGHT

SEALANT APPLIED TO EXTERIOR OF WINDOW SILL

Roof drains at the classroom wings flow down inside the building and exit to a lambs tongue at 36” above a concrete splash block. The splashing has allowed moss to grow on the building and the volume of water has eroded the grade at the end of the splash block.


EROSION UNDER ROOF DRAIN OUTLET

EXTERIOR RECOMMENDATIONS

- Repair selected area of EIFS and paint the entire surface with exterior waterproof paint to minimize future issues..
- Re-design the upper vestibule glazing and walls to increase the thermal efficiency of the vestibule and stop water infiltration.
- Add a pipe receiver to roof drain outlet to direct water down without excessive splashing, and add basin of crushed stone to receive water. Repair mortar joints that have been degraded due to moisture.

WINDOWS

The windows are extruded aluminum frames with double pane insulated glass. Interior and exterior sealant at the perimeter of the windows within CMU walls appears in good condition.

WINDOW CONCERNS

- At the west facing aluminum storefront and glass vestibule, several panels of glass have shifted within the gasket pocket of the frame to a point where there is now a visible gap directly to the exterior. The photo below shows how snow was able to slip through the gap.
- At the administration offices, there are two windows which are severely leaking during wind driven rain events, as described by staff. There is also cracked and missing mortar at the exterior masonry veneer of the wall below these windows. The primary cause of this water infiltration is likely through damaged roof flashing and/or above brick flashing located above the window.
- At the west entry corridor, staff reports water running down the window frame onto the window sill, during driving rain events.
- There are (3) three rooms with curved glass, solarium type bay, windows in the science storage rooms of each classroom wing. Water has made its way behind the paint on the CMU wall below the windows and bubbled the paint. The exterior wall shows visible evidence of water intrusion.

GAP IN GLAZING PANEL

GLAZING PANEL SHIFTED IN WINDOW FRAME

CRACKED MORTAR AT WINDOW SILL

BROKEN SEALANT TRYING TO SEAL WINDOW FRAME

WATER LEAKING FROM GLAZING PANEL GASKETS

DISCOLORED MORTAR AT SOLARIUM

CRACKED MORTAR AT THE EXTERIOR WALL OF THE SOLARIUM

BUBBLED AND MISSING PAINT AT THE INTERIOR SILL

WINDOW RECOMMENDATIONS

- Glass panels in the vestibules that have moved need to be removed and reinstalled correctly into the gasket pocket, ant to have the gasket material replaced per the manufacturer's requirements.
- Roof and window flashings at problem areas should be inspected and repaired/replaced.
- Solarium windows should be removed and a standard window and roof system installed.

DOORS/ FRAMES

At the main entry vestibule, the doors are aluminum frame with glass inserts. The rest of the exterior doors and frames are painted hollow metal.

DOOR/ FRAME CONCERNS

- A majority of the exterior hollow metal door frames show extensive rust and corrosion at the threshold where they meet the concrete. In some locations this rust has completely rotted through the metal both on the exterior and interior sides of the frame. The hollow metal doors appear in good condition.

RUSTED HOLLOW METAL INTERIOR DOOR FRAME

DOOR / FRAME RECOMMENDATIONS

- Replace all hollow metal exterior doors and frames with fiber reinforced plastic doors and frames. This is a good alternative to hollow metal and will not corrode like the existing frames.

ROOFING

The roof construction is composed of a fully adhered, 60 mil EPDM membrane covering (2) layers of rigid board insulation board (3-1/2” total thickness) over metal roof decking.

ROOFING CONCERNS

- No roofing concerns at this time. Craft’s Inc. did a maintenance inspection on 6/6/22 and found areas of worn caulk, missing “T” joints, and where metal flashing had punctured the membrane. These areas were fully repaired as part of an on-going maintenance program.

COMMON AREAS

The cafeteria is designed to double as the school’s auditorium. There are three 7” levels that drop down to the meet the stage. Each side of the room has a series of ramps, with handrails that lead to each level. Staff report the center section, without railings, is sometimes awkward for students and parents to navigate if they are not paying attention to the steps.

The IMC is centrally located within the building and has an exposed roof structure as it’s ceiling extending 26’ above the floor. Clerestory windows at 17’, above the floor face south, west, and north.

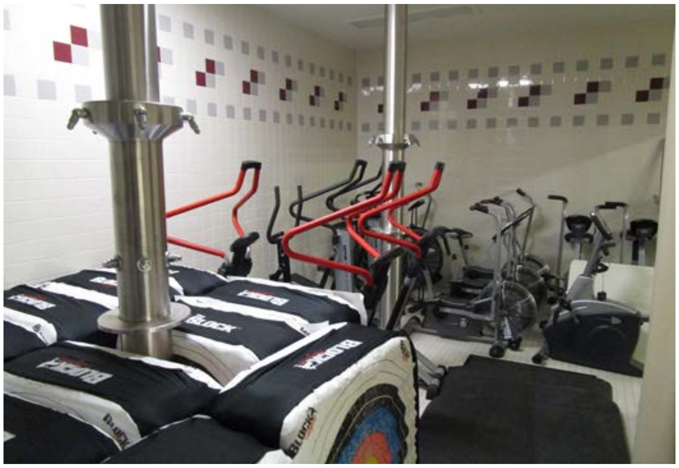
STEPPED SEATING PLATFORMS IN COMMONS

The Band Room has stepped, platform risers, that nearly fill the entire room. In order to change fluorescent light bulbs in the 20’ high ceiling, many of these risers must be disassembled and moved to allow for a lift to access the lights. The choir and orchestra rooms have a similar the same ceiling height but are without risers.

BAND ROOM WITH RISERS

ART ROOM

WOOD SHOP



GYM STORAGE IN SHOWER ROOMS

The art room is spacious with rolling, high density shelving for storage, and includes a required ADA roll-under work sink.

The wood shop is small and cluttered with worktables and equipment.

The gym locker room finishes and lockers are in good shape. However, it appear that the showers are primarily unused. These are now acting as storage areas for items such as exercise bikes, archery targets, and ping pong tables. A large storage room off the gym was turned into a gender natural changing area with 4 stalls and a wall of lockers, thus displacing items requiring storage.

COMMON AREAS CONCERNS

- The size and organization of the wood shop should be reviewed for safety and accessibility. Depending on class size, this space maybe too small.

COMMON AREA RECOMMENDATIONS

- Replace the band room lighting with LED's, for longer life without maintenance.
- Create several private showers in each locker room and utilize the remaining space for additional storage rooms. Build a dedicated storage room addition to the south of the gym.

CLASSROOMS, LABS, AND TEACHING AREAS

Typical classroom floor finishes consist of broadloom carpet with vinyl tile flooring adjacent to the sinks and entry door. Overall, the original carpet is in good condition, although some rooms do have noticeable stains/discolorations. Eventually, the carpet will need to be replaced.

TEACHING AREA CONCERNS

- No Teaching Area Concerns

RESTROOMS

The main student restrooms are 2"x2" tile flooring with 4"x4" full tile walls.

RESTROOM CONCERNS

- The hand washing station is located outside of the student toilet rooms and is partially separated from the corridor by a 6' high wall. This partial height wall obscures views of this area by staff.
- While not part of the building code in 1997, vertical grab bars are now required in ADA accessible toilet rooms and stalls.

TYPICAL CLASSROOM

TYPICAL CLASSROOM CASEWORK

HAND WASHING AREA AND ADJACENT CORRIDOR

RESTROOM RECOMMENDATIONS

- An increasing trend in school restroom design is to open the hand washing areas to direct view from the corridor, for staff monitoring of students behavior. Lowering the wall to 32” above the finished floor, would allow visibility to this space, without compromising the privacy of the toilet area itself.
- Add vertical grab bars to all ADA accessible toilet rooms and stalls.

ADMINISTRATIVE AND COUNSELOR OFFICES

- Generally no Administrative Office concerns. Refer to the window section for specific concerns.

CORRIDORS & CIRCULATION

Typical corridor flooring in the classroom wings is the original broadloom carpet which appears in fair condition aside from a few noticeable stains. The remainder of the main corridor flooring is porcelain tile, with painted epoxy floors in the gym area.

TYPICAL CLASSROOM WING CORRIDOR

CIRCULATION CONCERNS

- No concerns overall. Budget for new carpet flooring in the future.

FOOD SERVICE AND KITCHEN

Overall, the kitchen and serving areas appear in good condition.

KITCHEN AREA

FOOD SERVICE CONCERNS

- The suspended ceiling grid in the dishwashing area is rusting. Considering the cooking area and the dishwashing areas are in one continuous space, it’s recommended that entire the suspended ceiling be replaced with an aluminum grid and vinyl covered ceiling tile system.

- Staff indicated condensation forms on the CMU walls adjacent to the kitchen freezer. This is likely a result of incorrect insulation detailing in the freezer's floor which allows the adjacent wall to be chilled. Moisture in the air condenses and creates a condition for mold to form. Without dismantling the freezer, there is little that can be done to fix the issue. It would be best keep the walls along the freezer free from storage items to allow air to circulate against the wall, thus helping to prevent condensation.

RUSTY LAY-IN CEILING GRID

ACCESSIBILITY OBSERVATIONS

The American with Disabilities Act ADA) of 1992 is a civil rights law that protects individuals with disabilities against discrimination in buildings classified as public due to physical barriers that may impede them from accessing the site, elements of a building or floors of a certain size or use. There were no accessibility issues found in the building aside from the ones mentioned earlier.

DE PERE MIDDLE SCHOOL

Plumbing Description / Condition

SANITARY SEWER LATERAL

The school is served by two sanitary mains which exit the building on the east side. Both mains were installed during the school's original construction around 1996, which makes the sanitary laterals approximately 27 years old. The northern exit runs below the east/west main corridor to which all of the classroom pods are connected. The southern exit is run below the east/west hallway at the north end of the gymnasium.

Both sanitary laterals are listed as 5" diameter on the original plans, and given the drainage fixture units listed on the original prints, are adequately sized. The condition of these sanitary mains is unknown given that they are located underground. Taking into account the age of the building, it can be assumed that the sanitary piping is in good condition.

During our meeting with the facilities staff, there were no known issues with the sanitary mains.

SANITARY SEWER LATERAL RECOMMENDATION

- Given the age of the sanitary sewer laterals, we would recommend televising the sanitary mains prior to any addition or modifications.

WATER SERVICE LATERAL

The water service lateral is a 6" diameter combined fire protection water service, which enters the building in the northeast corner of the boiler room. The water service has a 4" water meter with a 4" diameter valved bypass.

WATER SERVICE ENTRANCE

WATER METER

The water meter and surrounding piping appear to be in good condition, with some corrosion forming on metallic components of the valves around the meter. The design water pressure based on the original plans was 62 psi.

WATER SERVICE LATERAL CONCERNS

- No recommendations at this time, there are no known issues with this system.

GENERAL STORM / ROOF DRAINAGE

The school has internal roof drainage. In the classroom pods at the north end of the school, the main storm drains discharge via lambs-tongues on the exterior of the building. The water is then surface drained to the collection ponds on the north end of the property. The lambs-tongues on the exterior of the building have caused discoloration and mold growth on the exterior of the building, as well as erosion issues at these locations. In other areas, the storm drainage is combined below grade and exits the building in three locations. Two of the locations are adjacent to the sanitary building exits, and based on the existing drawings appear to be 8” diameter. The third location is on the east end of the gymnasium and is a 6” diameter. Based on the information listed on the existing plans, the storm piping appears to be adequately sized.

LAMBS-TONGUE

LAMBS-TONGUE

There is internal overflow storm drainage provided for the south end of the school. The overflow storm drainage is combined below grade, and connected to the main roof drain outside of the building. For the classroom pods at the north end of the school, overflow drainage is accomplished with scuppers in the parapet wall.

During our meeting with facilities personnel, it was noted that the site drainage for this school has always been an issue, and that the floor elevation of the school should have been approximately 2’-0” higher to allow for proper sloping of the grades around the building. That being said, based on the size information on the existing plans, the internal roof drain piping is adequately sized.

GENERAL STORM / ROOF DRAINAGE CONCERNS

- Main drains discharging to lambs-tongues cause discoloration on the exterior of the building.

GENERAL STORM / ROOF DRAINAGE RECOMMENDATIONS

- Update splash blocks to prevent discoloration of building exterior.

SANITARY DRAINAGE

The school has two sanitary building exits. The sanitary piping has generally been untouched since the original construction in 1996, which makes the piping approximately 27 years old. This is fairly early in the life expectancy of sanitary piping, so it can be assumed that the sanitary drainage piping is in good condition. During our meeting with the facilities group at the school, there was no mention of any issues with the sanitary drainage at this building.

The school has a grease interceptor located in the yard storage room. The grease interceptor was replaced in 2021 because the interior of the old grease interceptor had collapsed. The facilities staff indicated that there are no known issues with the grease interceptor.

The school has two acid neutralization basins within area ‘A’ and area ‘B’. The covers of the basins appear to be in good condition. The facilities staff indicated that there are no known issues with either of the neutralization basins and that the most acidic liquid that is put down the drain is vinegar.

ACID NEUTRALIZATION BASIN

SANITARY DRAINAGE RECOMMENDATIONS

- No recommendations at this time. The sanitary drainage system is in good condition and there are no known issues at this time.

DOMESTIC WATER DISTRIBUTION SYSTEMS

The school is served by a 4” diameter domestic cold water main. All water supply to interior plumbing fixtures is softened by a triplex water softener system located in the boiler room. The softener system was installed when the school was constructed in 1996. During our site investigation, the water softener was in operation and the brine tank full. During our meeting with facilities personnel, it was noted that the current softener system does not work well and should be replaced.

The school has two water heaters which were installed in 2022. One water heater provides 120°F domestic hot water, and a second water heater provides 140°F hot water. The 140°F hot water is piped to the kitchen and to the thermostatic mixing valves which serve the locker room showers. The 120°F water serves the rest of the fixtures requiring domestic hot water within the building.

There are two recirculation pumps, located near the water heaters, which recirculate the 120°F and 140°F water throughout the school. In general, the recirculated mains are relatively close to each sink within the building. During our site visit while testing for hot water at fixtures within the school, it took quite some time to get any hot water out of the classroom sinks, if we were able to get any hot water. It seemed like sinks located closer to the main domestic hot water distribution mains could get hot water, and sinks located further into the classroom wings were not able to provide any hot water.

The domestic water distribution piping is copper, and the piping and insulation appear to be in good condition.

DOMESTIC WATER DISTRIBUTION CONCERNS

- Hot water was not available any many classroom sinks
- A few of the classroom sinks had only lukewarm water available.

DOMESTIC WATER DISTRIBUTION RECOMMENDATIONS

- Verify flow at each branch of domestic hot water return piping and verify settings at thermostatic mixing valves at classroom sinks. Based on the piping layout, hot water should be readily available at each classroom sink within a few seconds.

RESTROOM FIXTURES

Overall, the plumbing fixtures within the school are in good to fair condition. With the school being constructed in around 1996, this puts many of the plumbing fixtures at 27 years old. This is getting close to the service life expectancy of a majority of the plumbing fixtures. Faucets and flush valves are beyond their expected service life and will likely require maintenance or replacement relatively soon.

The water closets in main restroom groups are wall hung with flush valves and appear to be in good condition. The flush valves are sensor type with a manual flush option, and all appear to be in good condition. The water closets in individual restrooms are floor mounted with manual operated flush valves. The flush valves in individual restrooms appear to be in good condition.

INDIVIDUAL RESTROOM

CRACKED URINAL

URINAL

MULTI-STATION WASH FOUNTAIN

CLASSROOM SINK

The urinals are wash down floor outlet style with sensor operation. Many of the strainers at the bottom of the urinal are loose and are not in the correct spot. There are two urinals that are cracked near the bottom. One of the urinals was near the main entrance of the school, and the second is in the restroom group between classroom wings ‘A’ and ‘B’. These fixtures should be replaced. The flush valves on the urinals appear to be in good condition.

The school has a mixture of restrooms with multi-station wash fountains and restrooms with individual lavatories. The multi-station wash fountains have sensor operation and in general appear to be in good condition despite being close to the end of their expected service life. The individual porcelain lavatories have metered faucets and all appear to be in good condition.

CLASSROOM SINK CALCIUM DEPOSIT

The stainless steel sinks within the classrooms are in good to fair condition. Some of the goosenecks on the faucets are loose, and some wrist blade handles are difficult to turn. Many sinks have calcium deposits on the rim of the sink from the faucet leaking during operation. The sink basins are nearing the end of their expected service life, and the faucets have surpassed their expected service life.

The school has several sets of drinking fountains, many of these fixtures appear to be in good condition. There are a couple that appear to be leaking and it is causing corrosion from the copper piping to leach onto the fixture. The fixtures with the corrosion appear to be in locations where the fixture is not utilized often.

Plumbing fixtures have a service life of 30 years, but the faucets and valves have a service life of between 10 and 15 years, with regular maintenance and parts replacement.

DRINKING FOUNTAIN

RESTROOM FIXTURE CONCERNS

- Faucets and flush valves are at or near their life expectancy.
- Urinal in restroom near the main entrance is cracked.

EQUIPMENT

The school has (2) 119 gallon water heaters which were installed in 2022. As mentioned previously, one is providing 120°F domestic hot water to a majority of the fixtures within the school, the second is providing 140°F to the kitchen and locker room showers. At the time of our site visit, the temperatures of the separate water supplies was 118°F and 128°F.

The dishwasher has a small booster heater located below the casework adjacent to the dishwasher. This provides hot water for the sanitizing cycle of the dishwasher. The booster heater appears to be in fair condition, and was likely installed during the schools original construction in 1996.

WATER HEATERS

The water softener located in the boiler room is in fair condition. In our meeting with the facilities personnel, they noted that the water softener gives them trouble quite often. The water softener was in service on the day of our site investigation and the salt storage bin was full.

WATER SOFTENER

RECIRCULATION PUMPS

The domestic hot water recirculation pumps appear to be in air condition. The pumps appear to be original from the construction of the school. They have surpassed their service life expectancy and should be replaced. One of the pumps is set up with a tray to catch a slow leak that is coming from the pump.

The expected service life of water heaters is 10 – 20 years depending upon water quality and maintenance.

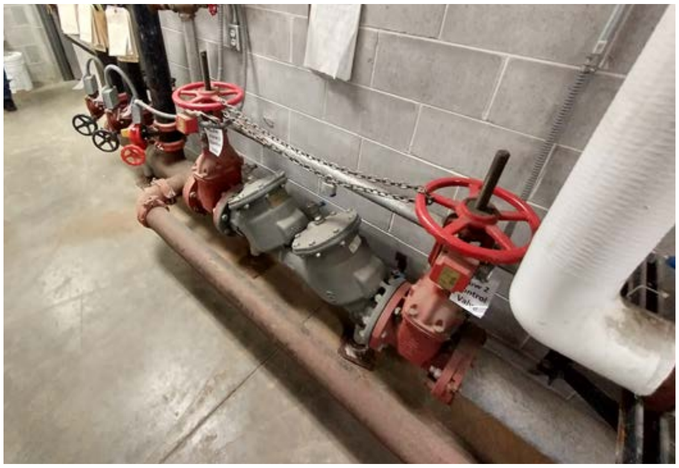
The expected service life of recirculation pumps is 10 years depending upon water quality and maintenance.

EQUIPMENT RECOMMENDATIONS

- The water softener has surpassed its expected service life. Consider replacement of the water softener prior to failure as preventative maintenance.
- The recirculation pumps have surpassed their expected service life. Consider replacement of the recirculation pump prior to failure as preventative maintenance.

FIRE PROTECTION

The fire protection system is served by the combined fire protection and water service which enters the school on the east wall of the boiler room. The school has (3) risers, which serve different wings of the school. The backflow preventer and piping surrounding the risers appears to be in good condition. The sprinkler heads within the school are semi-recessed heads with chrome escutcheons.


BACKFLOW PREVENTER


FIRE PROTECTION RISER

The fire department connection is located within the fenced in area on the east side of the school. The fence was to enclose the area around the chilled water storage tanks that were removed a few years ago. In our opinion, this fence is an additional layer that the fire department would need to work around to connect to the building in the event of a fire.

FIRE PROTECTION CONCERNS

- Consider removing the fence which surrounded the previously removed chilled water storage tanks to allow the fire department direct access to the fire department connection.


FIRE DEPARTMENT CONNECTION

DE PERE MIDDLE SCHOOL

Electrical Systems Description / Condition

ELECTRICAL SERVICE / POWER DISTRIBUTION

The building electrical service is provided by W.P.S. and is a 277/480V, 800A, 3-phase main distribution panel, located in the main electrical room. The existing utility transformer is located outside of the main electrical room to the east of the building. All switchgear and branch panels are Siemens equipment and original to building construction in 1997.

MAIN DISTRIBUTION PANEL

MAIN SWITCH

SERVICE/ POWER DISTRIBUTION CONCERNS

- No service/ power distribution concerns at this time.

SERVICE/ POWER DISTRIBUTION RECOMMENDATIONS

- Electrical service equipment typically has a service life of approximately 30-40 years. The primary cause of the replacement is the inability to produce breakers which properly fit and operate within the existing branch and distribution panels toward the end of life.

BRANCH PANEL

GENERATOR SYSTEM

There is no backup generator at this school.

GENERATOR CONCERNS

- Not having a generator is a concern, but not a code requirement.

GENERATOR RECOMMENDATIONS

- Provide a generator to energize systems when there is a normal power outage. Systems such as lighting in corridors, restrooms and at exits for path of egress for the safety of the occupants; and equipment such as boilers, circulation pumps, etc. to avoid frozen pipes.
- IBC code 1008 and NFPA 101 require the path of egress to be illuminated during a power outage allowing occupants a safe path of travel for a time of 90 minutes, to exit the building.

FIRE ALARM CONTROL PANEL

FIRE ALARM

The Fire Alarm system is a Simplex 4020, original to 1997 construction. The fire alarm control panel (FACP) is located in the Receiving area. There is a fire alarm annunciator panel (FAAP) located in the front office area. Several extender panels are located throughout the building.

FIRE ALARM ANNUNCIATOR PANEL

FIRE ALARM CONCERNS

- No Fire Alarm concerns at this time. Overall, the system appears to be fully operational and meeting codes which were in place at time of installation.
- Current code requirements call for a voice / mass notification system, with annunciation devices, that allow a central station to broadcast a verbal warning for directions to evacuate the building or property. Existing system is “grandfathered” in to when it was installed, but any major remodel or additions would require the system to be upgraded or be able to communicate with any new installations in remodeled areas.

FIRE ALARM RECOMMENDATIONS

- Maintain system maintenance as required per code and manufacturer.
- Replace existing system to meet current code requirements.
- Fire Alarm systems typically have a service life of approx. 20-30 years, with the issue of finding replacement parts that will keep the system operating properly.

LIGHTING / LIGHTING CONTROLS

A majority of the lighting appears to be fluorescent tube and compact fluorescent lamps with the exception of some exterior lighting which has been converted to L.E.D. luminaires.

The lighting control system is a General Electric Lighting Control system which primarily controls the corridor lighting, other controls are limited to switches and a few occupancy sensors.

Additional occupancy sensor controls were added during in the 2016 remodel project.

LIGHTING CONTROL PANEL

LIGHTING / LIGHTING CONTROLS CONCERNS

- Lighting controls are not being utilized to their full potential. The installation of additional occupancy sensors and L.E.D. lighting could result in as much as a 30% energy savings compared to fluorescent fixtures.
- Lack of emergency lighting, along the path of egress, when there is a power outage.

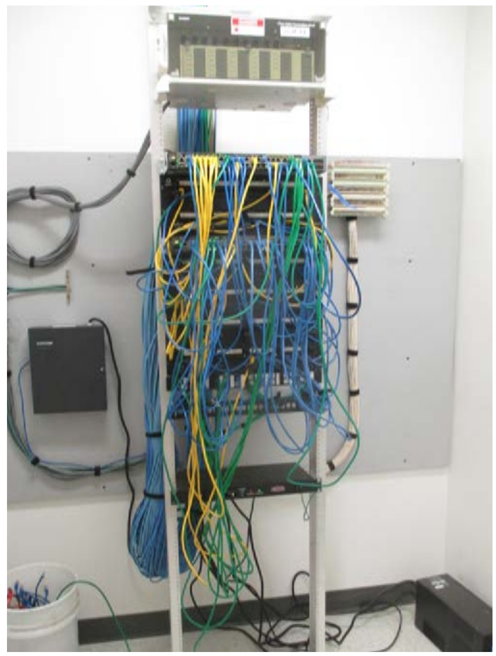
EXISTING LIGHT FIXTURE TO BE RE-MOUNTED

LIGHTING / LIGHTING CONTROLS RECOMMENDATIONS

- Consider replacing fluorescent lighting with newer technology of Light Emitting Diode (L.E.D.) lighting. Fluorescent tubes would need to be disposed of properly due to their mercury content. L.E.D. luminaires use approx. two-thirds of the energy or less compared to fluorescent.
- Provide battery lighting units, or integral light fixture battery to energize the lighting in the corridors, restrooms, etc. for when there is a normal power outage.

- Consider installing additional occupancy sensors in offices, classrooms, restrooms and corridors.
- Verify the path of egress lighting in all corridors and ensure exits have proper illumination per code requirements of IBC 1008 and/or NFPA 101 section 7.9.
- Re-mount an exterior wall mount light fixture which has become disconnected from the building mounts. It is located above the Main entrance, second level of EIFS.

DATA SERVER RACK



DATA SERVER RACK

TELECOMMUNICATIONS

Telecommunication system appears to be adequate and serves the needs of the school. This system is original to building construction.

TELECOMMUNICATIONS CONCERNS

- No Telecommunications concerns at this time.

TELECOMMUNICATIONS RECOMMENDATIONS

- No Telecommunications recommendations at this time.
- Telecommunication systems typically have a service life of approximately 20-30 years. Keeping up to date with the latest technology along with finding replacement parts are the most challenging issues for this system.
- The schools I.T. department has scheduled a data rack switch replacement for the 2024-2025 school year with a 5-year rotation/replacement moving forward.

MISCELLANEOUS ITEM(S)

Existing Rauland paging, clock and bell system appears to be the original system installed in 1997.

EXISTING CONTROL UNIT

MISCELLANEOUS CONCERNS

- Paging system does not appear to work in all areas of the school, based on conversations with the school staff.

MISCELLANEOUS RECOMMENDATIONS

- Upgrade existing paging, clock and bell system due to age and technology improvements with these types of systems.

TYPICAL CLOCK

DE PERE MIDDLE SCHOOL

HVAC Description / Condition

De Pere Middle School was designed and constructed at the same time as Heritage Elementary school in 1996. It was originally designed to house the district's 6th, 7th, and 8th graders, but currently only services the 7th and 8th graders due to a rise in district enrollment. The facility has remained largely unchanged since its original construction. The gross building floor area is 119,723 sq.ft. and is generally a single story with mechanical penthouses. The heating and cooling system utilizes a variable air volume system with hot water reheat for both heating and cooling. The facility has several common spaces, including an auditorium/cafeteria, kitchen, 2-station gymnasium, LMC, tech. ed. spaces, and science labs. Classrooms are generally distributed in 3 separate wings, with common specialty classrooms, such as music and art, either near the center of the school or near the gymnasium.

Several minor renovations appear to have been completed, particularly in the school office area at the front of the school. However, no record exists to our knowledge of the extents of renovation. The heating and cooling plants are on the first floor and generally do not have excess space for future equipment. The facility has (5) mechanical penthouses, accessible by stairs, which house (9) air handling units. Each classroom wing has its own penthouse with a single air handling unit and ample remaining space. The remaining (2) penthouses have (2) and (4) air handling units, respectively, and have limited remaining room.

The table below provides applicable values of service life as compared to the actual age and condition of the equipment in question. Service life is defined as the economic life of a system or component as it relates to obsolescence, reduced reliability, excessive maintenance cost, changed system requirements, or failure.

Equipment	Actual Equipment Age	ASHRAE Estimated Service Life[1]	Observed Condition
Indoor Central Air Handling Units	28 Years	20 Years	Fair
Water-Cooled Water Chiller	28 Years	23 Years	Fair
Cooling Tower	28 Years	20 Years	Poor
Chilled Water Pumps	28 Years	10 Years	Poor
VAV Air Terminals	28 Years	20-25 Years	Good
Boiler – Horiz. Fire Tube	19 Years	35 Years	Great
Boilers – Water Tube	22 Years	24 Years	Fair
Heating Pumps	28 Years	10-20 Years	Poor
Exhaust Fans	28 Years	20 Years	Fair

[1] 1999 ASHRAE APPLICATIONS HANDBOOK

COOLING AND VENTILATION

The ventilation system includes several duct distribution systems served by (9) indoor central station air handling units. Generally speaking (with exception to AHU-16 serving the gymnasium), each unit includes an integral return/relief fan, economizer mixed air dampers, a hot water heating coil, chilled water cooling coil, and a supply fan. Freeze protection is accomplished via either face-and-bypass dampers or coil circulation pumps on units with a high percentage of outside air. Return air is circulated via plenum return including use of egress paths as a return air plenum. This is no longer a code compliant ducting arrangement, as a fire within an occupied space will spread smoke into the path of egress and prevent safe exiting from the facility. Consideration should be taken to revising the return air path arrangement.

Each air handling unit provides conditioned supply air through distributed VAV boxes with hot water reheat coils for zoning purposes. This configuration allows for not only individual zone heating and cooling control, but capability to dehumidify the facility during summer months. Reduction in airflow is via Variable Frequency Drives which lower the supply and associated return fan speeds in response to VAV box modulation. All ventilation fresh air is provided through the air handling units. Exhaust air is provided via powered roof ventilators which are distributed throughout the facility. Mechanical cooling is provided to all spaces with exception of the gymnasium and locker rooms. In addition to occupant comfort, the addition of cooling would provide more stable conditions for the wood gymnasium flooring.

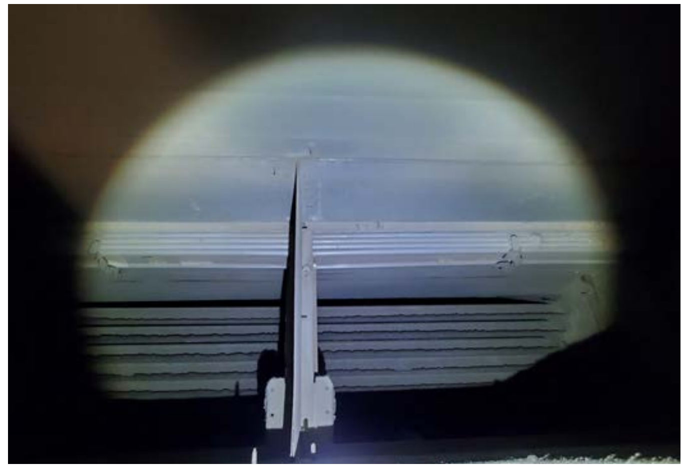
ABANDONED THERMAL STORAGE TANKS

Chilled water for cooling and dehumidification is provided by a single 160-Ton nominal size Trane water-cooled screw chiller, located inside the facility. This system circulates a mixture of 25% Ethylene Glycol to chilled water coils on each air handling unit. The chiller system was originally designed with the capability of thermal energy storage, with (7) thermal storage tanks located below grade. However, it appears that the thermal storage tanks have been abandoned in place due to deterioration. The chilled water distribution system is a primary-secondary pumping configuration, which provides consistent flow through the chiller with varying system demand conditions. A single pump is provided for each condenser water, primary chilled water, and secondary chilled water, so the failure of any pump will prevent circulation of chilled water through the facility. Condenser water is circulated through a single cell cooling tower on the roof. There is evidence of significant leakage from the cooling tower, which is a common high-maintenance item on systems of this type.

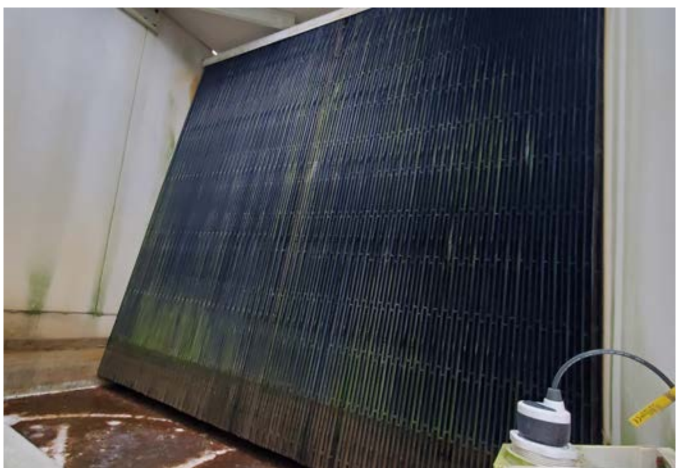
COOLING AND VENTILATION CONCERNS

- Excessive positive building pressure was observed during the site visit, particularly at the office area and main entrance. It is likely that this is the result of HVAC controls issues, but it is possible that equipment failures are contributing. This is likely masking some of the building envelope issues noted during our walkthrough.
- Maintenance burden and cost of chemical treatment is high for cooling tower operation. It is likely that the efficiency gained by using a water-cooled chiller is not justified for this facility size and type.
- General deferred maintenance items were noted. Items such as failed or abandoned sensors, water leaks, air leaks, etc. were present and prominent. Repair of these items can boost performance and efficiency of the HVAC system. It was noted that AHU-15 had its filter rack access door removed during the survey.

AHU-15 DOOR IS REMOVED



INTERIOR OF DUCTWORK IS DIRTY THROUGHOUT



ALGAE GROWTH ON COOLING TOWER MEDIA

COOLING TOWER FILL VALVE IN NEED OF REPAIR

- Some air handling unit coils were noted to be very dirty. While is was clear that routine filter changes are completed by maintenance staff, leakage around the filter rack blank-offs has caused deposits of dirt and debris.
- It was noted that supply ductwork was generally very dusty.
- Significant drafts and airflow issues are present in mechanical penthouses, particularly the gymnasium penthouse. This may be a symptom of broader building pressurization issues.
- Cooling tower condition is generally poor. Fill material is damaged in places. Evidence of biological growth is present which could be a safety issue for building occupants. The cooling tower basin has rust typical of its age, but has evidence of significant leaking through the basin on to the roof. In addition, it appears that the fill water float is not functional, which could describe the excessive leakage and staining noted. It is likely that annual maintenance cost for the cooling tower will rise in the coming years.
- Pump condition for chilled water and condenser water pumps is poor. There is evidence of leaking seals throughout. It is likely that pumping efficiency has deteriorated over time. Accessories for the chilled water system, particularly the condenser loop, are in poor condition and are greatly corroded and leaking. This is likely due to the chemical treatment required.

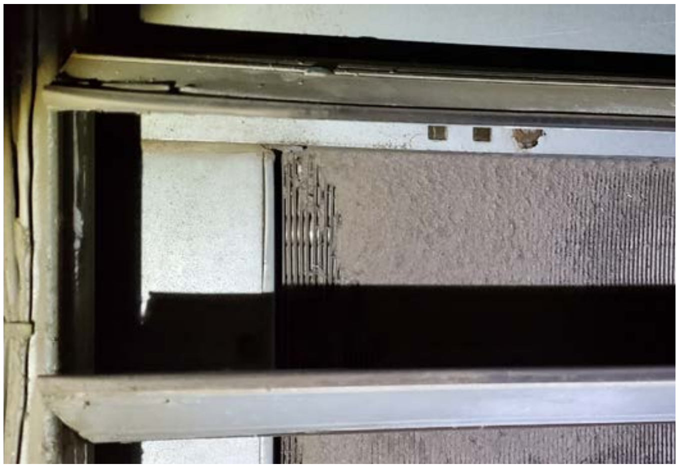
- Chilled water piping and plumbing piping insulation throughout the facility has minor mold/mildew present. It is possible that this is due to either vapor barrier issues on the insulation or, more likely, is a symptom of intermittent cooling and dehumidification in summer months. This type of control will lead to high humidity conditions which will cause moisture on cold surfaces.
- Lack of cooling within the gymnasium and locker rooms is not typical for other district facilities.
- Egress corridors are used as return air plenums currently. This is no longer a code compliant practice due to the inherent risk to building occupants during a fire situation.
- There is evidence of leaking below each of the classroom wing penthouses. In discussion with the owner, this appears to be leakage from the HVAC louver openings for outside air. It appears that this may be design or construction related and should be addressed.
- Science classrooms have increased ventilation rates, including fume hoods which are not used by teachers.

COOLING AND VENTILATION RECOMMENDATIONS

- While more efficient, water-cooled chillers have a significantly higher cost and maintenance burden than air-cooled chillers. For a facility of this size and the number of days cooled, we would recommend consideration of conversion to an air-cooled chiller when replacement is needed.
- Replace pumps in the near future to improve reliability and efficiency of the water distribution system.
- Perform general preventative maintenance throughout the facility (insulation repair, sensor repair, etc.) to prevent more serious issues in the future. Recommend adding air handling unit coil cleaning to preventative maintenance procedures.
- Consider adding cooling coils to the gymnasium and locker room air handling units to match the capability of other schools within the district.
- Consider revising the plenum configuration to use the ceiling cavity space for return air instead of egress corridors. Alternatively, consider fully ducting the return air system for best performance.

TYPICAL MOLD ON CHILLED WATER INSULATION

SCIENCE ROOM FUME HOOD NO LONGER USED



DIRTY AHU COIL FROM LEAKING FILTER RACK

HEATING

Heating within the facility is accomplished through the heating hot water distribution system. The heating system originally contained (2) boilers sized at 5 Million BTUH each. However, both boilers failed prematurely and were replaced with (1) 5.25 Million BTUH Cleaver Brooks horizontal fire-tube boiler and (2) 700,000 BTUH Patterson-Kelley water tube boilers. The current configuration has significantly less capacity than the original design. Facilities staff expressed that this is a concern with this facility and that, on very cold days, all (3) boilers need to run to meet the heating load. Hot water distribution is via primary-secondary pumping configuration with (1) primary pump per boiler and (2) base-mounted secondary pumps in parallel, each sized for the full building load. This is a traditional pumping configuration which allows flexibility for varying load profiles at the expense of a small efficiency penalty.

The indoor air handling units each include one or more hot water heating coils to temper the outside air for distribution throughout the facility. Air Handling Units AHU-9 (serving Art, FACE, and Tech Ed), AHU-12 (serving the cafeteria and LMC) and AHU-14 (serving band/choir), which all have particularly low expected mixed air temperatures, have pumped coil configurations for additional freeze protection. Additional heating is provided at each VAV box, which provides the ability to provide varying temperature and airflow to each zone served by the common air handling equipment. This is an excellent configuration for both performance and limiting energy consumption. Supplemental heat is included at the primary entrances via cabinet unit heaters and other unitary terminal units. Supplemental heat is also provided at toilet rooms, meeting rooms, and other areas with high perimeter heating loads.

It was noted at several locations that the heating hot water system has been repaired, particularly at Victaulic grooved pipe fittings, due to the development of leaks. At repair locations, insulation has not been repaired or replaced. It was discussed that leaks are most common during the summer months when the boiler plant is not run. Facilities staff indicated that frequent freeze-stat trips are a common occurrence at this facility. This could indicate that freeze protection measures (face & bypass dampers and pumped coils) are not operating correctly, controls programming is not performing well, or that outside air rates are higher than intended. Another freeze risk was identified, in that vestibules were set to maintain only 40°F zone temperature. On a cold day, zone temperature in this range is likely to result in freezing a sprinkler head or a similar failure. Low return water temperature (less than 140°F) was noted at the boilers during the site investigation. This condition will result in condensation at the boiler heat exchangers and could lead to premature heat exchanger failure.

LOW THERMOSTAT SETPOINT LEADS TO FREEZE RISK

CONDENSATION AT FLUE FOR BOILERS

TYPICAL LEAK REPAIR ON HOT WATER PIPING

UNDERSIZED SUPPLEMENTARY BOILERS

HEATING CONCERNS

- General deferred maintenance items were noted, such as pipe leaks, missing insulation, missing sensors, etc. Repair of these items can improve reliability and limit risk of failure of the heating system.
- Secondary pumps are nearing the end of their expected useful life and are likely losing efficiency and reliability due to age.
- Lack of redundancy in heating boilers is concerning, and failure of the main boiler during cold weather could result in significant damage to the facility.

HEATING RECOMMENDATIONS

- Replace secondary heating pumps in the near future to improve reliability and efficiency of the water distribution system.
- Replace (2) Patterson-Kelley water-tube boilers with higher capacity boiler as a suitable backup to the main Cleaver Brooks boiler. Consider a higher capacity condensing boiler which could provide energy savings and better dehumidification during the summer months.
- Perform general preventative maintenance throughout the facility (insulation repair, sensor repair, etc.) to prevent more serious issues in the future.
- Investigate and make corrections related to freeze risk conditions at air handling units.

HVAC CONTROLS

REMOVED HEATING VALVE ACTUATOR ON VAV

The facility was originally constructed to include a Trane Tracer Summit building automation system. This style system is largely prescriptive and is not as customizable as more modern control systems. It appears that this Trane Tracer system has been removed and replaced with a Tridium N4 compatible Honeywell supervisory controller on top of Schneider Electric TAC terminal controls. Thermostats throughout the facility are generally adjustable with a temperature display, but all control is accomplished via the DDC controls

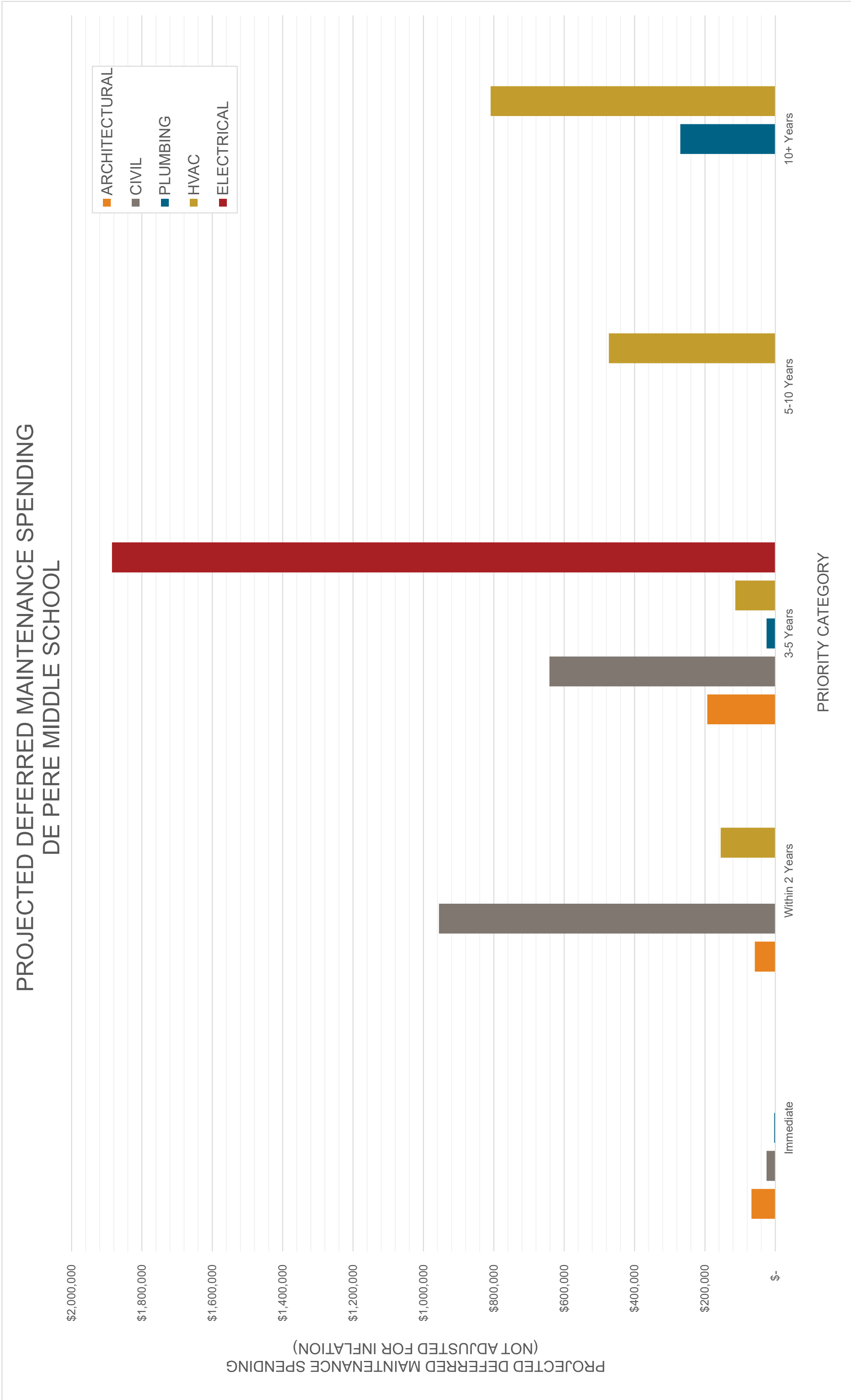
Sensors and control devices vary in condition. Some actuators on terminal device coil valves have been removed. It is likely, due to the previously indicated building pressurization issues, that the airflow sensors, pressure sensors, or HVAC programming is not functioning properly to maintain building pressure. Facility staff commented that, when certain conditions are present, the duct smoke detectors have an issue with nuisance trips.

HVAC CONTROLS CONCERNS

- In discussion with facilities staff and observation of the operating equipment, it appears there are several control sequences which are not optimal for energy savings or system performance.
- Lack of control of some terminal zones could be symptomatic of equipment failures (valve actuators, etc.) or could be due to control strategies and programming.

HVAC CONTROLS RECOMMENDATIONS

- Consider conducting Retro-commissioning survey to “tune-up” and confirm proper operation of all control sequences. This may qualify for a Focus on Energy incentive.
- Recommend hiring a Testing, Adjusting, and Balancing contractor to periodically read out and calibrate outside air airflow measuring stations to confirm accuracy. It is common for this style of airflow measuring station to become fouled with dirt and debris and read artificially low, causing more outside air to be brought in than desired. This may help explain coil freeze conditions noted by facilities staff.


PROJECTED DEFERRED MAINTENANCE SPENDING
DE PERE MIDDLE SCHOOL
ARCHITECTURAL
CIVIL
PLUMBING
HVAC
ELECTRICAL
PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)
$2,000,000
$1,800,000
$1,600,000
$1,400,000
$1,200,000
$1,000,000
$800,000
$600,000
$400,000
$200,000
$-
Immediate
Within 2 Years
3-5 Years
5-10 Years
10+ Years
PRIORITY CATEGORY

De Pere High School & District Office

1700 CHICAGO STREET, DE PERE WI

De Pere High School & District Office

EXECUTIVE SUMMARY

CIVIL

Some asphalt surfaces around the school have reached their life cycle use and require replacement. Most of the concrete surfaces continue to be functional and only show localized areas of failures that require replacement. Multiple locations have ADA compliance issues and will need to be replaced to achieve compliance.

ARCHITECTURE

The building's interior and exterior finishes are in good condition overall. Continuing water infiltration at roofing and flashing at windowsills, and corroding of hollow metal and aluminum exterior door frames should be addressed. Creating ADA accessible countertops and equipment in the science rooms and foods room is recommended as a high priority.

PLUMBING

The building has storm drainage issues with storm water backing up into the commons during heavy rain events. This issue should be investigated further and remedied before any other structural or bacterial issues arise. Based on the existing drawings, the sanitary mains appear to be undersized. The sanitary system should be studied prior to any modifications to ensure it is adequately sized. Some of the plumbing fixtures, faucets, and flush valves are well beyond their expected service life and should be replaced. The water heaters are nearing the end of their expected service life and should be replaced as part of regular maintenance.

FIRE PROTECTION

Building additions after 2001 have a fire protection sprinkler system. Consider providing a fire protection system to cover the entire building. There are no known issues with the existing system.

HVAC

The heating and cooling equipment at this facility varies dramatically in age and condition. Several original air handling units are still in service, which should be replaced. The majority of terminal equipment present at this facility was installed in 2001 and is in fair condition. Heating hot water pipe leaks are present throughout the facility, particularly at terminal control valves. A large scale project should be considered to replace all valves and associated controls. The heating plant equipment appears to be in good condition. Both air-cooled chillers appear to be in good condition, but replacement should be considered within the next 10-15 years. When replaced, a more central system design should be implemented to improve performance and add redundancy if desired. Temperature controls are present from 2 different manufacturers which appears to be causing controllability and device replacement issues. We recommend replacing controllers to standardize on a more modern controls platform throughout.

ELECTRICAL

The electrical distribution equipment at this facility varies in age and condition. Several original I.T.E. panels should be replaced. The majority of power is distributed through Square-D equipment and is in very good condition. The back-up generator is in very good condition but is in its second half of its service life. The fire alarm system has a new control panel, but the devices could be replaced. Lighting technology is in the process of changing over to L.E.D. type luminaires and should continue to do so. Lighting controls should also be upgraded as the luminaires are switched over to L.E.D. Telecommunication system equipment is fairly current and there is an equipment upgrade schedule by the Owner's I.T. personnel. The paging / bell system has some issues in various parts of the school and is outdated; replacement should be considered in the near future. Wireless clock system appears to serve the needs at this time.

De Pere High School & District Office

SITE PLAN

De Pere High School & District Office

FIRST FLOOR PLAN

De Pere High School & District Office

SECOND FLOOR PLAN

DE PERE HIGH SCHOOL AND DISTRICT OFFICE

Building Description / Condition

OVERVIEW

The High School is located on 35.2 acres, 1 mile east of the Highway 32 bridge over the Fox River. Originally constructed in 1976, with additions and renovations in 2001, 2006, and 2017. The gross building floor area is 296,311 sq.ft. on 2 primary levels. The building houses the district offices on the 2nd level, at the west side of the building. Building's capacity, provided by the District, is 1,500 students, current enrollment is 1,450 students

The major renovation and additions in 2001 added a new field house and converted the existing gym into the band room, classrooms, the Commons, and storage rooms. The original locker rooms now serve as team locker rooms and are located adjacent to the wrestling room which was added in 2017, along with the orchestra and choir rooms on the upper level.

SITE SUMMARY

De Pere High School is bounded by Merrill Street, Libal Street, and Chicago Street. Parking lots are located on the east and west side of the building. Parent and bus drop off is located on the east side of the building. The campus includes multiple athletic complexes that were not evaluated during this review.

PARKING LOT

SITE CONCERNS – ASPHALT

- Isolated areas have alligator cracking where concentrated traffic flow.
- Various unsealed longitudinal and transverse cracks throughout the pavement.

SITE RECOMMENDATIONS
(Option 1 - Routine Maintenance and Patching)

- Sawcut and remove distressed pavement areas
- Base repairs as needed
- Pave 4" of asphalt in distressed locations removed
- Crack filling and seal coat surface
- Install pavement markings

SITE RECOMMENDATIONS
(Option 2 – Within 5 Years–Pavement Replacement)

- Remove existing pavement
- Base repairs as needed
- Pave 4" of asphalt in parking lot
- Install pavement markings

DROP OFF LANE & ARTERIAL RD

SITE CONCERNS – ASPHALT

- Excessive settlement and rutting throughout the pavement
- Many unsealed transverse and longitudinal cracks throughout the surface
- Entire surface has severe alligator cracking

SITE RECOMMENDATIONS

- Remove existing pavement
- Remove 18" of base/subgrade
- Stormwater management improvements
- Install drain tile along edge of pavement to existing inlet
- Add geotextile fabric
- Add 12" of breaker run
- Add 6" of base
- Pave 4" of asphalt
- Add pavement markings

RECEIVING AREA

SITE CONCERNS – ASPHALT

- Excessive settlement and rutting throughout the pavement
- Many unsealed transverse and longitudinal cracks throughout the surface
- Entire surface has severe alligator cracking and base has failed

SITE CONCERNS – CONCRETE

- Many concrete pads have cracks and some spalling.
- Retaining wall is failing and leaning at 15.4%, likely due to saturated soil pressure behind the wall and no weeps for drainage.

SITE RECOMMENDATIONS (Option 1 – 10-15 Year Fix)

- Remove existing pavement
- Remove concrete pavement
- Remove retaining wall to the west corner
- Remove fence
- Remove 18” of base/subgrade
- Crack fill the remaining cracks on the west retaining wall that will remain
- Install drain tile under the pavement to existing inlet
- Install new retaining wall with proper drain tile
- Install Fence
- Add geotextile fabric
- Add 12” of breaker run
- Add 6” of base
- Pave 4” of asphalt
- 6” reinforced concrete pavement

SITE RECOMMENDATIONS (Option 2 – 20+ Year Fix)

- Remove existing pavement
- Remove concrete pavement
- Remove retaining wall to the west corner
- Remove fence
- Remove 18” of base/subgrade
- Crack fill the remaining cracks on the west retaining wall that will remain
- Install drain tile under the pavement to existing inlet
- Install new retaining wall with proper drain tile
- Install Fence
- Add geotextile fabric

- Add 12” of breaker run
- Add 6” of base
- Pave 4” of asphalt to the end of the retaining wall
- Install 6” reinforced concrete pavement from the retaining wall to the building

PARKING LOT

SITE CONCERNS – ASPHALT

- Many areas of settlement and rutting throughout the pavement
- Multiple unsealed transverse and longitudinal cracks throughout the surface
- Most of the surface has severe alligator cracking and base has failed

SITE RECOMMENDATIONS

- Remove existing pavement
- Remove 18” of base/subgrade
- Install drain tile along edge of pavement to existing inlet
- Add geotextile fabric
- Add 12” of breaker run
- Add 6” of base
- Pave 4” of asphalt
- Add pavement markings




SIDEWALK

SITE CONCERNS – CONCRETE SIDEWALK

- Multiple concrete panels cracked and some with minor spalls
- Multiple concrete panels with a vertical deviation greater than ½"
- South set of stairs in front of the school have small spalls with exposed rebar
- Section of concrete panels, on the NE corner of the district lot, have spalls at the joints
- Colored and stamped concrete panels has a narrow crack through corner
- The northern most set of stairs, in the front of the school, has some undermining of the adjacent sidewalk starting
- Concrete apron, an the south main entrance to the student lot, is at a 11.3% slope

SITE RECOMMENDATIONS

- Remove and replace cracked or spalled panels
- Concrete surface repair spalls on stairs
- Crack filling narrow cracks in the concrete panels
- Remove and replace concrete entrance apron at a 6% slope or less.
  - Remove adjacent 2-3 concrete sidewalk panels
- Remove and replace concrete sidewalk panels that have a vertical deviation greater than ¼”
- Add dense graded base, topsoil, seed, and emat around undermining sidewalk

CURB & GUTTER

SITE CONCERNS – CONCRETE CURB & GUTTER

- Multiple sections have cracks through the curb and gutter.
- Multiple areas of curb and gutter have medium abrasion and spalls
- Isolated areas around storm water inlets have spalls on the curb and gutter
- Concrete sloped curb, gutter and median have cracks and spalls
- Multiple areas of raised sidewalk have abrasions and spalls

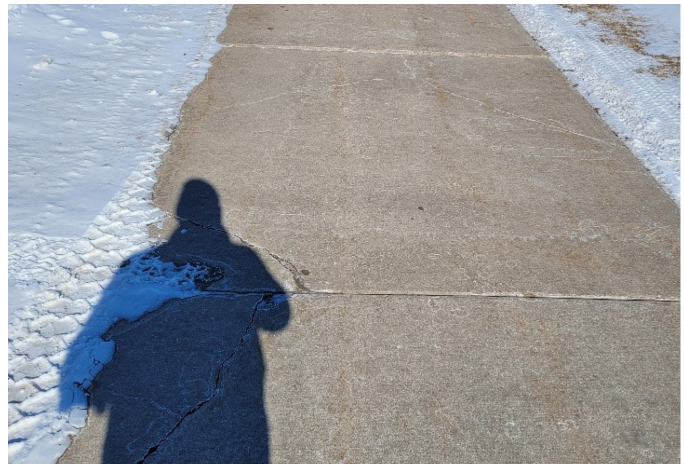
SITE RECOMMENDATIONS

- Remove and replace all damaged curb and gutter sections
- Sawcut raised concrete sidewalk 2’ back
- Remove concrete
- Pour 24” curb and gutter
- Install 6” reinforced concrete in the concrete median

ADA COMPLIANCE

SITE CONCERNS – CONCRETE SIDEWALK

- Concrete sidewalk south of district lot has a slope of 1:11. This section of sidewalk exceed the maximum slope of 1:20 and the max rise of 30” before a landing pad or railing needs to be installed.



SITE RECOMMENDATIONS

- Remove and replace panels with adequate landing areas.

SITE CONCERNS – CONCRETE CURB RAMPS

- 5 curb ramps on site do not meet the requirements for ADA Compliance. Slopes are too steep or there is a vertical deviation greater than a ¼” where it meets the pavement.
- Some detectable warning fields are deteriorating and no longer have effective domes.

SITE RECOMMENDATIONS

- Remove and replace non-compliant curb ramps

LIBAL STREET SITE SUMMARY

Libal Street is a private roadway that runs on the east side of De Pere High School. Libal Street frontage is approximately 800 feet in length and 36 feet wide.

SITE CONCERNS – ASPHALT

- Some areas have alligator cracking along the edge of curb and gutter and at pavement joints
- Various unsealed longitudinal and transverse cracks throughout the pavement.

SITE RECOMMENDATIONS

- Remove existing pavement
- Base repairs as needed
- Pave 4” of asphalt
- Install pavement markings

LIBAL STREET SIDEWALK

SITE CONCERNS – CONCRETE SIDEWALK

- Some concrete panels are cracked and have minor spalls
- A few concrete panels have a vertical deviation greater than ½”

SITE RECOMMENDATIONS

- Remove and replace cracked or spalled panels
- Concrete surface repair shallow spalls
- Crack filling narrow cracks in panels
- Remove and replace concrete sidewalk panels that have a vertical deviation greater than ¼”

LIBAL STREET CURB & GUTTER

SITE CONCERNS – CONCRETE CURB & GUTTER

- Some sections have minor cracks through the curb and gutter.
- A few areas of curb and gutter have medium abrasion and minor spalls

SITE RECOMMENDATIONS

- Surface repair areas of minor spalls

LIBAL STREET ADA COMPLIANCE

SITE CONCERNS – CONCRETE CURB RAMPS

- 3 curb ramps on site do not meet the requirements for ADA Compliance. Slopes are too steep or there is a vertical deviation greater than a ¼" where it meets the pavement.
- Some detectable warning fields are deteriorating and no longer has effective domes.

SITE RECOMMENDATIONS

- Remove and replace non-compliant curb ramps
- Remove adjacent sidewalk panels as necessary

STRUCTURAL SUMMARY

The building's primary structural system is steel columns and beams. The 2nd floor structure, in portions of the original 1976 building, is a 10-1/2" cast in place concrete flat slab, with the remainder of the building being 4-1/2" concrete slab and metal deck on steel joists in the rest of the building. The 2nd floor structure in the weight rooms located above the 2001 locker room addition is precast concrete plank with a bonded topping.

STRUCTURAL CONCERNS

- There are no structural concerns.

EXTERIOR WALLS

Exterior wall construction consists of brick veneer over an air cavity with 2" rigid board insulation, either over concrete masonry or metal studs. The 2017 addition of the orchestra and choir rooms are clad in a metal panel, and at stair 7. Overall, the exterior veneer appears in good condition.

REPLACEMENT WINDOWS WITH NEW SILLS

EXTERIOR CONCERNS

- See window section below.
- At the gym, the foundation insulation is exposed to view.

EXTERIOR RECOMMENDATIONS

- See window section below.
- While the exposed insulation is unsightly, the insulation within the wall extends 8" down below the floor line to protect the end of the floor slab. Adding a stainless steel cover to protect the insulation, similar to what was done at the 2017 music addition, or trimming back to insulation is also an option.

EXPOSED EXTERIOR WALL INSULATION

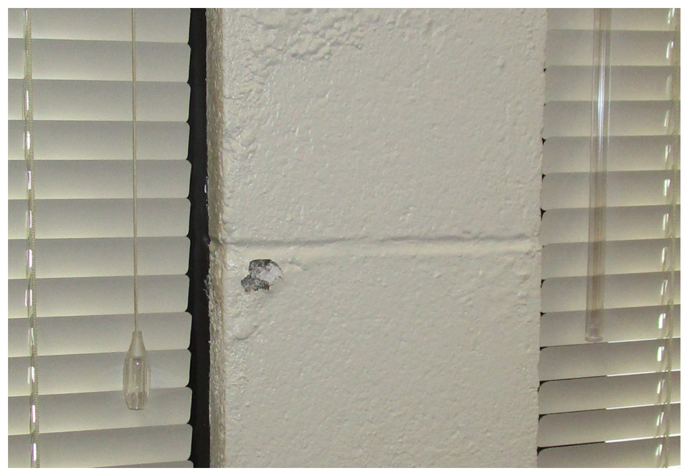
WINDOWS

Windows are center glazed, aluminum frame.

WINDOW CONCERNS

- Facility staff report that there are 36, east facing windows, in the A-wing courtyard which date to 1976 and need to be replaced, as they are single pane glass and contain asbestos in the glazing.
- Of concern is how moisture has gathered in the walls behind paint and drywall at the window sills. This has happened to both the windows installed in CMU block and in metal studs and drywall. At the time of our visit on December 28th, these areas were dry. It's probable that the moisture is from the exterior and is being pulled inside the building. At window jambs in CMU walls, the water has delaminated the interior paint and sealant. In some areas of the 1976 building, this delamination is on the interior wall face, suggesting that the water has migrated horizontally to the interior of the CMU walls.
- When the windows on the north and west of the 1976 building were replaced, the slopped brick exterior windows sills were replaced with an additional exterior brick and a flat metal sill. There is no pitch on the metal sill which allows water to pool against the window and brick veneer at the jambs. Without a pitch to force the water away the only barrier is the sealant joint to protect the inside of the wall.
- At metal stud walls in the 2001 addition, water has soaked into the drywall compound, rusted the metal drywall trim bead and delaminated the drywall filler and paint. The sealant joints between the frame and the wall have also split apart.

ORIGINAL WINDOWS YET TO BE REPLACED IN THE COURTYARD



INTERIOR DAMAGE FROM WATER INTRUSION BEHIND THE PAINT

FLAT WINDOW SILLS AT REPLACEMENT WINDOWS

INTERIOR DAMAGE FROM WATER INTRUSION BEHIND THE PAINT

WINDOW RECOMMENDATIONS

- The root cause of water infiltration is possibly within the wall itself which would require the a destructive evaluation by removal of the inner or outer covering of the walls to determine the issue. Continue inspection and recaulking of both the interior and exterior window frame. If water infiltration resumes on the frames with sufficient sealant , then there is an issue with the flashing within the wall.

WATER DAMAGE AT DRYWALL WINDOW JAMB

DOORS/ FRAMES

The main entry vestibule doors on the east side of the building are aluminum full glass panels in aluminum metal frames. The rest of the doors are insulated hollow metal with hollow metal frames.

DOOR/ FRAME CONCERNS

- At the aluminum doors at main entry, the base of the frames and associated steel support brackets are beginning to deteriorate due to moisture and salt.
- The hollow metal door frames are showing extensive rust and corrosion where they contact the concrete at the threshold. Some of these door frames are completely rusted through into the interior, as shown by the photo below in the gym.

ALUMINUM DOOR FRAME DETERIORATION – INTERIOR

RUSTING HOLLOW METAL DOOR FRAME - EXTERIOR

RUSTING HOLLOW METAL DOOR - EXTERIOR

RUSTING HOLLOW METAL DOOR FRAME – INTERIOR

DOOR/ FRAME RECOMMENDATIONS

- Aluminum door frames should be replaced.
- Replace all hollow metal exterior doors and frames with fiber reinforced plastic doors and frames. This is a good alternative to hollow metal and will not corrode like the existing frames.

ROOFING

The primary roof construction is composed of a 60 mil fully adhered EPDM roof membrane over rigid insulation board. Craft's Inc. did a maintenance inspection on 9/09/22 and found areas of worn caulk, missing "T" joints, and where metal flashing had punctured the membrane. These areas were fully repaired as part of an on-going maintenance program. The roof construction at the 2006 addition is a ballasted 45 mil EPDM roofing membrane over rigid insulation board.

ACTIVE RELIEF ROOF DRAINS STAINING EXTERIOR WALLS

ROOFING CONCERNS

- Above Mechanical rooms C201 and E214, relief roof drains are set too low. As a result, water from a section of the roof is bypassing the main drain and using the relief roof drain wall outlet. Continued water flow over the exterior wall face is collecting dirt, and staining the wall, and causing moss growth.
- Above stairway 7, at the northeast edge of the roof, there is insufficent pitch to allow the water to flow to the roof drain.
- Facilities Staff report roof leaks where the main office in "F" wing meets the Commons in "C" wing. Leaks mainly appear during a driving rain. Repairs have been made to the roofing, bricks, and flashing in this area, but leaks still persist.
- Staff reports that the west wall of the gym, above the corridor also leaks in a driving rain.

ROOFING RECOMMENDATIONS

- Raise the height of the two existing relief drains noted above to allow water to flow to the primary drains first.
- Leaking at walls that penetrate between two roofs are hard to pinpoint due to the fact that the water infiltration might be coming through the wall and wall flashing and not the actual roof membrane. A building envelope specialist should be hired to investigate persistent roof water infiltration issues.

COMMON AREAS

The vinyl tile flooring in the orchestra and choir rooms are in good condition. The vinyl tile flooring in the two cafeteria spaces are also in good shape. adding acoustic panels will help control the sound level. Staff report that the wood floor in the gym, installed in 2001, has reached it's lifespan and no further sanding and resealing is possible.

LOCKER ROOM CONCERNS

- The team locker rooms are from the original 1976 construction and show their age. Hollow metal door frames are rusting, the lockers are worn, damaged and rusting, and tile base is chipped and broken. Currently the showers and toilets do not meet ADA code compliance.
- The vanities in the main locker rooms are plastic laminate with surface mounted sinks. These are sagging downward and have been patched with caulk to prevent water from reaching the wood substrate under the laminate.

LOCKER ROOMS RECOMMENDATIONS

- The team locker rooms should be fully renovated to include a private shower option, new lockers, and ADA compliant toilets, showers, and locker/bench locations.
- Replace the main locker room vanities with new integral bowl solid surface units.

GANG SHOWERS

RUST ON ORIGINAL 1976 LOCKERS

LOCKER ROOM VANITY

SCRATCHED ON FLOOR FROM PLASTIC FOOT PAD

CLOSE UP OF DIRT EMBEDDED IN PLASTIC FOOT PAD

CLASSROOMS, LABS AND ART STUDIO- TEACHING AREAS

General classroom floor finishes appear overall in good shape. There is an ongoing issue however with furniture. Some desks and chairs have hard plastic feet which hold grit and scratch hard into the vinyl tile flooring. This can be seen in the "A" wing classrooms located at the northwest corner of the building and is most notable in vinyl tile that are dark in color, specifically A112. In some rooms the same model furniture has been fitted with metal feet, however the problem still exists.

SCIENCE ROOMS, FOODS LAB, AND ART ROOM CONCERNS

- Currently no ADA compliant countertops or sinks were observed in these areas.

TYPICAL SCIENCE ROOM

PROPOSED ADA ACCESSIBLE SCIENCE STATION

- The metal shop is congested with equipment and work benches. This area could be unsafe depending on the number of students using the space at the same time.

METALS SHOP WITH LIMITED EQUIPMENT CLEARANCE

RECOMMENDATIONS

- Work with furniture vendor to retrofit chair legs to eliminate floor scratching and preserve the useful life of the vinyl tile flooring.
- Renovate at least one station in these rooms to meet ADA. In science labs a sink area is needed which allows for the proper side approach reach to the faucet handles. In the Foods Room a roll under work sink, cook top. In art rooms, a roll under work sink. An ADA work surface/countertop should be provided at 34” above the floor.
- Increased space for the metal shop should be considered for any future expansion of the building.

RESTROOMS

Restrooms finishes are porcelain tile floors, and full height tile walls, both are in good shape.

ADA TOILET STALL.

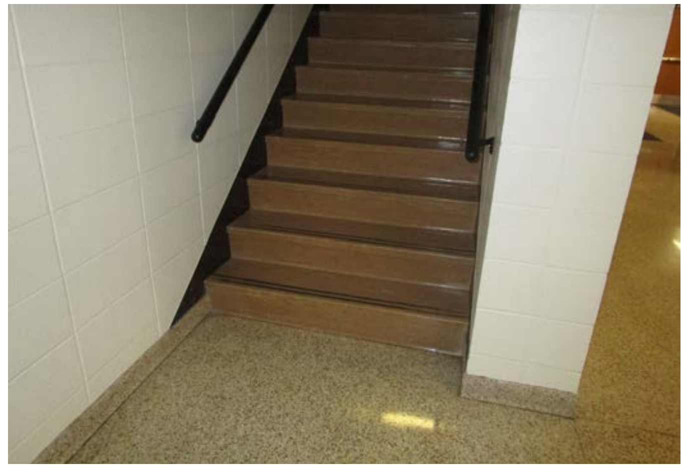
RESTROOM CONCERNS

- As the building was built and renovated under different codes through the years, some existing restrooms and single toilets do not meet today’s accessibility codes. While not required by code when the restrooms were constructed, vertical grab bars are now required at all accessible toilet stalls. See further discussion of accessibility observations below.

RESTROOM RECOMMENDATIONS

- In general, school districts are electing to install vertical grab bars at existing accessible toilet rooms and stalls to keep up with the changes in the code.

TERRAZZO STAIRS



STAIRS COVERED WITH VINYL

CORRIDORS, STAIRWELLS AND ELEVATOR - CIRCULATION

Corridor flooring is a combination of terrazzo and VCT, which appear in good condition. Main stairways are terrazzo and auxiliary stairways are sheet rubber or vinyl, which also appear in good condition.

CIRCULATION CONCERNS

- In areas of vinyl tile flooring, expansion and building floor joints were not honored. The flooring material was installed over the gap without support from below and/or a break in the material itself. These building joints are easy to see since the vinyl tile has cracked, pulled apart, and sunk in.

CIRCULATION RECOMMENDATIONS

- Proper floor joint/coverings should be installed that honor these building joints. Joints could be filled with grout and new flooring installed over the joint.

VCT FLOORING THAT CROSSES A BUILDING JOINT, THAT HAS NOW CRACKED

FOOD SERVICE SERVING AREA

FOOD SERVICE EQUIPMENT AND KITCHEN

Food service cooking area is separated from the serving area by a single door. The serving area is in good condition with terrazzo flooring and warm decorative lighting.

FOOD SERVICE CONCERNS

- There were no observed food service concerns, and none noted by Staff.

ACCESSIBILITY OBSERVATIONS

The American with Disabilities Act ADA) of 1992 is a civil rights law that protects individuals with disabilities against discrimination in buildings classified as public due to physical barriers that may impede them from accessing the site, elements of a building or floors of a certain size or use. There are four important factors when considering the accessibility of a building.

The first factor is the approach to a building from a parking lot. There are (8) accessible parking stalls, (4) are van accessible. The parking lot layout does not allow for the accessible stalls to be any closer to the main entrance.

The second important factor in the accessibility of a building is the entry into the building from an accessible route. The high school's main entrances are at grade and are attached to either an accessible public sidewalk or parking area that leads to a public way.

The third important factor is having an accessible route to common amenities and public spaces such as classrooms, restrooms, lunchrooms, open offices, shared work areas and to other levels if applicable. The high school has an accessible route to all common areas and classrooms. However, there are still rooms with knob style door handles. Future remodeling projects need to look at replacing this door hardware with lever style door handles.

The fourth important factor would be to provide accessibility within all common spaces including classrooms, restrooms, locker/ shower rooms, gymnasiums, weight rooms, etc. There are accessibility issues with some of the older restrooms and locker rooms due to their clearance constraints and barriers at doorways, and lack of accessible restroom fixtures. Future renovations will mandate that up to 20% of the overall construction budget be allocated to increasing accessibility features of the buildings. As for the restrooms, an accessible toilet room/stall should be within 500 feet of travel from every part of the school. It appears that this travel distance requirement is met with the exiting restroom locations. Any future restrooms will be constructed to be fully accessible.

DE PERE HIGH SCHOOL AND DISTRICT OFFICE

Plumbing Description / Condition

SANITARY SEWER LATERAL

The school is served by a single 8” diameter sanitary main which exits the building at the south side of the gymnasium. This sanitary sewer lateral was rerouted during the 2001 renovation, which makes the piping approximately 22 years old.

Based on the drainage fixture units (DFU) indicated on the 2001 drawings, the 8” main is slightly undersized. According to current Wisconsin Plumbing Code, an 8” diameter pipe pitched at 1/16” per foot can carry up to 1,400 DFU. The value indicated on the 2001 plans was 1,558 DFU, or approximately 10% undersized. This is slightly concerning because there have been a couple additions to the school since this time.

That being said, during our meeting with the facilities staff, there were no known issues with the sanitary mains.

SANITARY SEWER LATERAL CONCERNS

- Based on the drainage fixture values indicated on the existing plans, the sanitary sewer lateral is undersized.

SANITARY SEWER LATERAL RECOMMENDATION

- Given the age of the sanitary sewer laterals, we would recommend televising the sanitary mains prior to any addition or modifications.
- Prior to any additions or alternations, the existing fixture counts should be reviewed to determine if there is additional capacity available.

WATER SERVICE LATERAL

The water service lateral is a 4” diameter combined fire protection water service that enters the building in a storage room on the south side of the building near the gymnasium. The water service has a 4” water meter with a 4” diameter valved bypass.

The water meter and surrounding piping appear to be in good condition. The design water pressure based on one of the most recent plan sets was 52 psi.

WATER SERVICE ENTRANCE

WATER SERVICE LATERAL CONCERNS

- No recommendations at this time, there are no known issues with this system.

GENERAL STORM / ROOF DRAINAGE

The school has internal roof drainage. The main roof drains extend below grade and discharge from the building in several different locations. The portion of the school constructed in 1976 combines into a 12” diameter storm pipe and exits the building to the north towards Chicago St. The storm drainage for the classroom and gymnasium additions, constructed in 2001, discharge the building in three locations. Two 10” diameter storm drains, and one 12” diameter storm drain extend below grade and discharge from the building to the southeast. The district office addition from 2001 has a separate 6” diameter storm drain that leaves the building to the west. Based on information listed on the existing plans, the storm piping appears to be adequately sized.

During our meetings with facilities personnel, it was noted that during heavy rain events, ground water bubbles up through the floor in one particular area in the commons. The storm piping in that area was televised in the past and no issues were found with the piping. This issue should be investigated further to determine if there are issues with the slope of the piping, or issues with ground water in that area.

For the 1976 portion of the school, overflow storm drainage appears to be handled with low slope roofing and no parapet wall at the roof edge. For more recent additions, overflow storm drainage is handled through the use of scuppers through the parapet wall.

In the area to the southeast of the courtyard, it appears that an additional roof drain was added either during construction or shortly thereafter. This additional roof drain is terminated at a lambs-tongue which discharges into the courtyard. During any rain event, the lambs-tongue continually drips on the building exterior, which has resulted in dirt and mold growth on the side of the building in the courtyard.

The generator enclosure does not have a primary roof drain, the roof is scuppered and drains out the side wall to the south. The drainage from this scupper has caused dirt and mold growth on the building exterior.

COURTYARD LAMBS-TONGUE

GENERATOR ENCLOSURE ROOF SCUPPER

GENERAL STORM/ ROOF DRAINAGE CONCERNS

- Ground water bubbles up through the floor in the commons area during heavy rain events.
- Lambs-tongues and roof scuppers in a few locations are causing discoloration of the building exterior. This could lead to issues with brick spalling in the future.

GENERAL STORM/ ROOF DRAINAGE RECOMMENDATIONS

- Consider some destructive testing in the area when the floor in the commons will be replaced. Removal of the floor in this area could identify issues with the piping configuration, or determine if the issue associated with the storm piping or if it is a ground water issue.
- Consider rerouting the lambs-tongue near the courtyard to connect to the main storm drainage.
- Consider adding a primary roof drain in the generator enclosure.

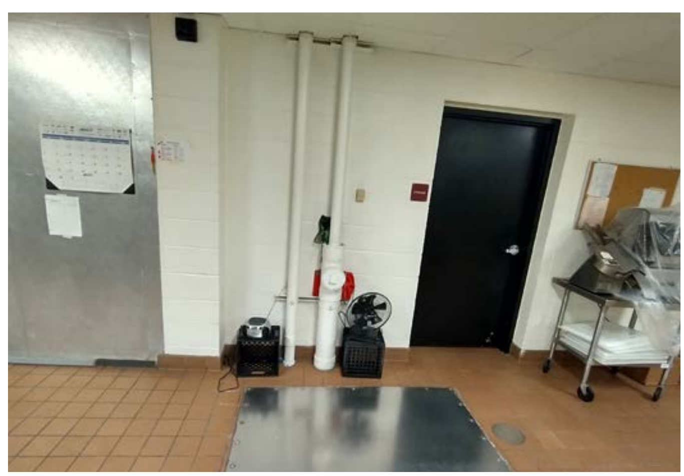
SANITARY DRAINAGE

The school has a single 8" diameter sanitary main that exits to the south from the gymnasium. A majority of the piping within the building is from the original construction in 1976, which puts the piping at about the mid-point of its expected service life. There were subsequent additions to the school in 2001, 2006, and 2017. The drainage piping for the more recent additions is early on in its life expectancy and can be assumed to be in good condition. During our meeting with facilities staff, there was no mention of any issues with the sanitary drainage at this building.

As mentioned previously, the existing sanitary main near the building exit appears to be undersized. The drainage fixtures units indicated on the existing plans are more than are allowed by code. We would recommend a study be done of all drainage fixtures at the school prior to adding any additional drainage fixtures to the existing sanitary piping.

The school has two grease interceptors. The first grease interceptor is located in the boiler room and serves the kitchen for the F.A.C.E. classroom. This grease interceptor is mounted above the floor and appears to be in good condition. The second interceptor is located in the food preparation area of the main kitchen, and serves the main kitchen. This interceptor is below grade, and appears to have a newer cover. During our meetings with

GREASE INTERCEPTOR



MAIN KITCHEN GREASE INTERCEPTOR

facilities staff, there were no known issues with either of the grease interceptors.

The school has multiple acid neutralization basins located near the banks of science rooms. The covers of the basins appear to be in good condition. The facilities staff indicated that there are no known issues with the acid neutralization basins.

SANITARY DRAINAGE CONCERNS

- Based on the drainage fixture values indicated on the existing plans, the sanitary sewer piping near the building exit is undersized.

SANITARY DRAINAGE RECOMMENDATIONS

- Prior to any addition or remodel, consider an evaluation of the existing sanitary piping to determine if the piping is undersized.
- Consider televising the sanitary mains from the original school prior to any system modifications to ensure the integrity of the piping.

WATER SOFTENER

DOMESTIC WATER DISTRIBUTION SYSTEMS

The school is served by a 4” diameter combined fire protection water service main. There is a water softener located within the boiler room which provides softened water for the domestic hot water system as well as soft cold water for the kitchen. The piping around the water softener is not currently insulated. This could cause corrosion of the piping and lead to early pipe failure.

The school has two 250 gallon water heaters located in the boiler room. The water heaters provide 140°F hot water. The 140°F hot water is piped to the kitchen fixtures, while the rest of the hot water is mixed down through a large thermostatic mixing valve to 120°F. The 120°F domestic hot water is then recirculated throughout the rest of the school. The insulation on the hot water and cold water piping surrounding the water heaters is in poor condition. This is likely due to regular maintenance on the water heaters being performed.

DAMAGED INSULATION

There are two recirculation pumps, located near the water heaters, which recirculate the 120°F and 140°F water throughout the school. There is a third domestic hot water recirculation pump located where an old water heater was stored in area B. In general, the recirculated mains are relatively close to each sink within the building. During our site visit while testing for hot water at fixtures within the school, it took quite some time to get hot water out of the classroom sinks.

The domestic water distribution piping is copper, in the locations we examined, it appeared that the pipe and insulation are in good condition. This is consistent across all ages of the piping within the school.

DOMESTIC WATER DISTRIBUTION CONCERNS

- Lack of insulation on domestic water piping at water softener
- Damaged pipe insulation at water heaters.

DOMESTIC WATER DISTRIBUTION RECOMMENDATIONS

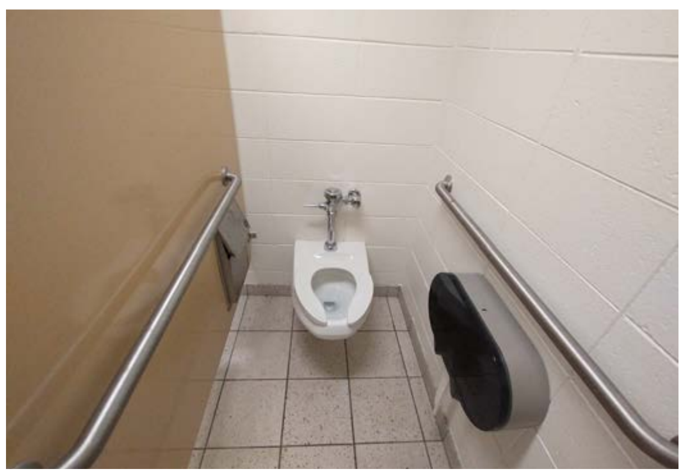
- Consider repairing or replacing all damaged or missing pipe insulation within the boiler room.

RESTROOM FIXTURES

Overall, the plumbing fixtures within the school are in fair condition. With the original school being constructed in 1976, this puts the plumbing fixtures within the original school at 47 years old. It is likely that some of the faucets and flush valves have been replaced over the years, but the fixture is still beyond its expected service life. The fixtures from the more recent additions are in somewhat better condition, but the faucets and flush valves are beyond their expected service life and will likely require maintenance or replacement relatively soon.

THERMOSTATIC MIXING VALVE AND RECIRCULATION PUMPS

ORIGINAL WATER CLOSET



2001 WATER CLOSET

The water closets in main restroom groups are wall hung with flush valves and appear to be in fair condition. The flush valves in the original school are manual type, while the fixtures within the more recent additions have sensor type flush valves, with a manual flush option. The flush valves from the more recent additions appear to be in good condition. The water closets in individual restrooms are floor mounted, with manual operated flush valves. The flush valves in individual restrooms appear to be in good condition.

The urinals are wash down floor outlet style with sensor operation. Some urinals have fully concealed flush valves while others have exposed sensor type flush valves with a manual flush option. The newer sensor style flush valves appear to be in good condition, but have likely surpassed their expected service life and will require replacement soon. One thing noted during our site investigation is that many of the wash down urinals splash water on the floor at the base of the urinal. This causes urine to be splashed on the floor when the urinal is flushed, which causes an odor within the restroom.

The school has a mixture of restrooms with multi-station wash fountains and restrooms with individual lavatories. The multi-station wash fountains have sensor operation and in general appear to be in good condition despite being close to the end of their expected service life. The individual porcelain lavatories have metered faucets and all appear to be in good condition. It was noted that several of the metering faucets do not stay on when the button is pushed, which makes it difficult to wash your hands properly at those lavatories.

The stainless steel sinks within the classrooms are in fair to poor condition. Some of the goosenecks on the faucets are loose, and some wrist blade handles are difficult to turn. Many sinks have calcium deposits on the rim of the sink from the faucet leaking during operation. The sink basins are nearing the end of their expected service life, and the faucets have surpassed their expected service life. One of the traps for the stainless steel wash basins in the shop area is being held together by tape.

URINAL FLUSH VALVE

ORIGINAL LAVATORIES

MULTI-STATION WASH FOUNTAIN

TAPED P-TRAP

SCIENCE ROOM SINK

DRINKING FOUNTAIN

CRACKED DRINKING FOUNTAIN

Science room sinks from the original 1976 construction are in poor condition. Many of the sinks do not work and the aerators spray water out of the side. The science room fixtures from the 2001 remodel are in good condition considering their age.

The school has several sets of drinking fountains. The porcelain basin drinking fountains from the original school are in poor condition. Many of them are out of order, cracked, or have loose components. These fixtures are 47 years old and have surpassed their expected service life.

Plumbing fixtures have a service life of 30 years, but the faucets and valves have a service life of between 10 and 15 years, with regular maintenance and parts replacement.

RESTROOM FIXTURE CONCERNS

- Faucets and flush valves are at or near their life expectancy.
- Urinals splash onto the floor when flushed, causing an unsanitary condition.

RESTROOM FIXTURE RECOMMENDATIONS

- Consider replacement of faucets and flush valves that have long surpassed their expected service life.

WATER HEATERS

EQUIPMENT

The school has (2) 250 gallon natural gas fired water heaters. One water heater was installed during the 2001 renovation, and the second water heater was installed during the 2006 renovation. The water heaters are in parallel and at the time of our site visit the supply water temperature was 124°F. The barometric damper on the newer water heater has been removed. This should be reinstalled to allow proper water heater vent control.

The dishwasher has a small booster heater located below the casework adjacent to the dishwasher. This provides hot water for the sanitizing cycle of the dishwasher. The booster heater appears to be in good condition, and was likely installed during the kitchen addition in 2001.

The water softener located in the boiler room is in good condition. Based on the existing drawings, the water softener was installed during the 2006 remodel. The water softener was in service on the day of our site investigation and the salt storage bin was full.

The domestic hot water recirculation pumps appear to be in good condition. Based on the existing drawings they were installed during the 2001 renovation. Given that information, they are likely close to their expected service life and should be replaced.

MISSING BAROMETRIC DAMPER

RECIRCULATION PUMP

There is a sanitary sewer ejector system located in the 2017 addition. The ejector removes waste from the addition and discharges to the sanitary system from the original school. Based on the age of the sanitary ejector system, it is likely in good condition. There is also a sump pump and sewage ejector located in the basement of the district office. This sump pump and sewage ejector were installed as part of the 2001 addition/renovation.

The expected service life of water heaters is 10 – 20 years depending upon water quality and maintenance.

The expected service life of recirculation pumps is 10 years depending upon water quality and maintenance.

2001 SUMP PUMP/SEWAGE EJECTOR

2017 SEWAGE EJECTOR

EQUIPMENT CONCERNS

- The water heater from the 2006 renovation does not have a barometric damper in the vent piping.

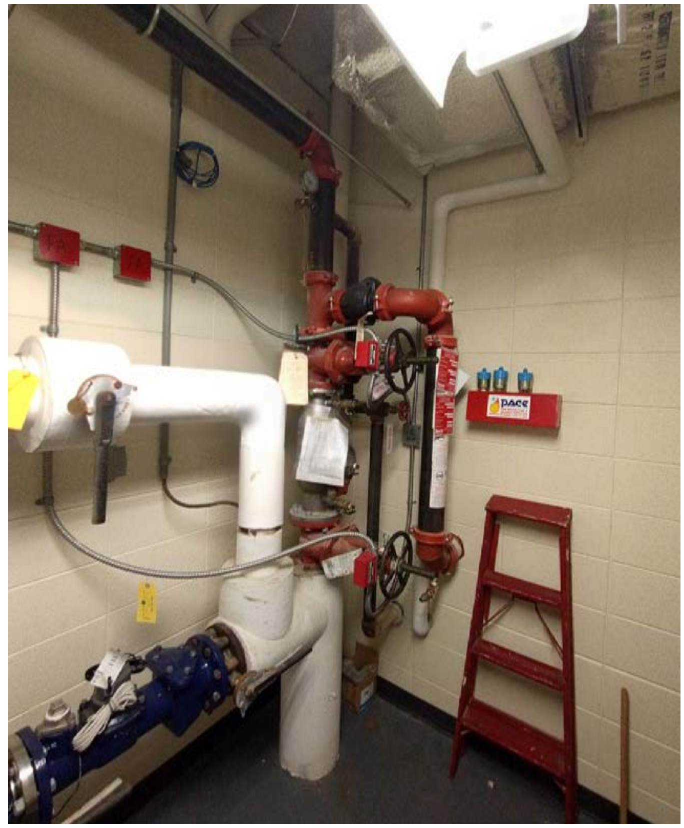
EQUIPMENT RECOMMENDATIONS

- The recirculation pumps have surpassed their expected service life. Consider replacement of the recirculation pump prior to failure as preventative maintenance.
- The recirculation pumps have surpassed their expected service life. Consider replacement of the recirculation pump prior to failure as preventative maintenance.

FIRE PROTECTION

The fire protection system is served by the combined fire protection and water service. The water service entrance and fire protection riser is located in a storage room on the south side of the building near the gymnasium. The fire protection system has a single riser. The backflow preventer and piping surrounding the risers appears to be in good condition. The sprinkler heads within the school are semi-recessed heads with chrome escutcheons.

The building has a partial fire protection system. The system covers the boiler room, the kitchen, the full addition from 2006 which includes area 'H' and area 'J'. The 2017 addition also has fire protection.



FIRE PROTECTION RISER

FIRE PROTECTION CONCERNS

- The building is not fully sprinklered, which met the code requirements when the most recent additions were completed. Subsequent additions will not be possible without a firewall or addition of a fire suppression system to the entire building.

FIRE PROTECTION RECOMMENDATIONS

- No recommendations at this time. There are no known issues with this system.

DE PERE HIGH SCHOOL AND DISTRICT OFFICE

Electrical Systems Description / Condition

ELECTRICAL SERVICE / POWER DISTRIBUTION

The building electrical service is provided by W.P.S. and is a 277/480V, 3000A, 3-phase main distribution panel, located in the main electrical room. This system was installed in 2000. The existing utility transformer is located just outside of the main electrical room to the west of the building. A majority of the switchgear and branch panels are Square-D equipment. There is approx. 20% of the electrical system that is the original 1960's I.T.E. equipment.

SERVICE / POWER DISTRIBUTION CONCERNS

- Existing I.T.E. equipment is outdated and finding parts for replacement or servicing will be difficult.

SERVICE / POWER DISTRIBUTION RECOMMENDATIONS

- Replace existing I.T.E. electrical panels with similar Square-D equipment.
- Electrical service equipment typically has a service life of approximately 30-40 years. The primary cause of the replacement is the inability to procure breakers which properly fit and operate within the existing branch and distribution panels toward the end of life.
- Replacement of the main switchgear of the electrical distribution system is not a requirement at this time. Preparations should be considered in a 20-25 year timeline.

MAIN DISTRIBUTION PANEL

OUTDATED I.T.E DISTRIBUTION PANEL

OUTDATED I.T.E DISTRIBUTION PANEL

EXISTING GENERATOR

EXISTING GENERATOR CONTROLS

GENERATOR SYSTEM

The generator is a 277/480V, 100 KW, natural gas unit manufactured by Cummins, installed November 2001. This unit feeds both Life Safety and Equipment branch circuits through automatic transfer switches located next to main electrical room. Power circuits and systems that are backed up by the generator include: corridor lighting, exit signage, fire alarm system, boilers and circulation pumps, and various receptacles.

GENERATOR CONCERNS

- No major Generator Concerns at this time. Generator appears to be in very good condition, but is starting to reach the end of it's service life.

GENERATOR RECOMMENDATIONS

- Continue Generator maintenance. Regular scheduled maintenance is of high importance since this is a system that will energize other operating systems within the building (fire alarm, security, etc.) when there is a normal power outage.
- Generators typically have a service life of approximately 20-25 years, with the issue of finding replacement parts that will keep the generator operating properly.

FIRE ALARM

The Fire Alarm system is Simplex 4100ES; with the control panel being updated approximately 2 years ago. The fire alarm control panel (FACP) is located in the first floor boiler room. There is a fire alarm annunciator panel (FAAP) located in the front office area. Several extender panels are located throughout the building. The control panel meets current code requirements but the devices it controls do not have the capability of voice communication.

FIRE ALARM CONTROL PANEL

FIRE ALARM CONCERNS

- System devices should be upgraded to current code requirements. Overall, the system appears to be fully operational and meeting codes which were in place at time of installation.
- It has been noted that the system occasionally will have a false trip, which appears to be from a wiring issue.

FIRE ALARM ANNUNCIATOR PANEL

FIRE ALARM RECOMMENDATIONS

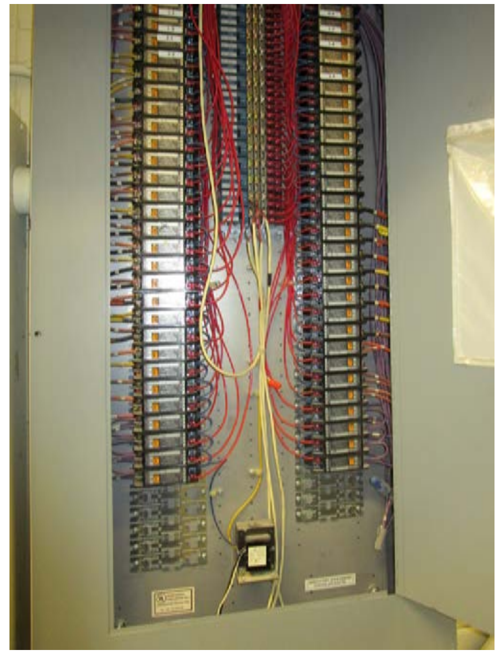
- Continue system maintenance as required per code and manufacturer.
- Current code requirements call for a voice / mass notification system, with annunciation devices, that allow a central station to broadcast a verbal warning for directions to evacuate the building or property. Existing system is “grandfathered” in to when it was installed, but any major remodel or additions would require the system to be upgraded or be able to communicate with any new installations in remodeled areas.
- Fire Alarm systems typically have a service life of approx. 20-30 years, with the issue of finding replacement parts that will keep the system operating properly.

LIGHTING / LIGHTING CONTROLS

Some lighting appears to be fluorescent tube and compact fluorescent lamps with the exception of some exterior lighting which has been converted to L.E.D. luminaires.

Lighting is controlled thru a NexLight low voltage control system with various relay panels located adjacent to the branch circuit panels throughout the building. The main control panel is located in the second floor mechanical room B205.

Exit signage and emergency egress path have generator connections to provide back-up power when there is an electrical outage.



LIGHTING CONTROL PANEL

LIGHTING / LIGHTING CONTROLS CONCERNS

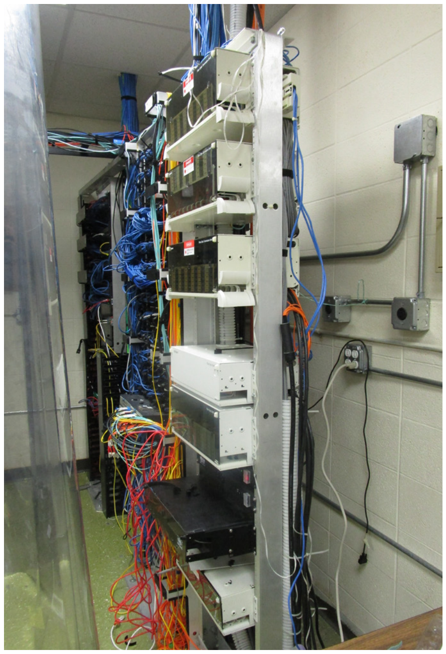
- Lighting control system was installed at time of building remodel. System appears to function as designed through local switching and controls; however, it was noted that there is a lack of documentation for the circuitry of luminaires, and this can cause additional time and labor when servicing the system to locate where circuits are being controlled from. The system is outdated or reaching the end of it's service life due to newer technology design; and parts can be difficult to find for replacement.

LIGHTING CONTROL SUB-PANEL

LIGHTING/ LIGHTING CONTROLS RECOMMENDATIONS

- Consider replacing fluorescent lighting with newer technology of Light Emitting Diode (L.E.D.) lighting. Fluorescent tubes would need to be disposed of properly due to their mercury content. L.E.D. luminaires use approx. two-thirds of the energy or less compared to fluorescent.
- Consider replacing or eliminating the lighting control system. New lighting control systems, in conjunction with new L.E.D. fixtures, could require additional wiring of CAT 6 cabling for communication and wireless controls.
- Verify the path of egress lighting in all corridors and exits have proper illumination per code requirements of IBC 1008 and/or NFPA 101 section 7.9.

DATA SERVER RACK



TELECOM MAIN DISTRIBUTION FRAME

MAIN BELL / PAGING CONTROLS

TELECOMMUNICATIONS

Telecommunication appears to be adequate and serves the needs of the school.

TELECOMMUNICATIONS CONCERNS

- No Telecommunications concerns at this time.

TELECOMMUNICATIONS RECOMMENDATIONS

- No Telecommunications recommendations at this time.
- Telecommunication systems typically have a service life of approximately 20-30 years. Keeping up to date with the latest technology along with finding replacement parts are the most challenging issues for this system.
- The schools I.T. department has scheduled a data rack switch replacement for the 2024-2025 school year with a 5-year rotation/replacement moving forward.

TYPICAL CLOCK TYPE #1

TYPICAL CLOCK TYPE #2

MISCELLANEOUS ITEM(S)

Existing Rauland paging and bell system appears to be original system installed at the major remodel in the early 2000's.

Clock system has been upgraded to a wireless type system and appears to be fully operational without any issues.

TYPICAL EXISTING CLOCK

MISCELLANEOUS CONCERNS

- Paging system does not appear to work in all areas of the school. Communications in some areas are made across the phone system where needed.
- No clock system concerns at this time. There are a couple of outdated Rauland clocks that are on the list to be replaced with new wireless type.

MISCELLANEOUS RECOMMENDATIONS

- Replace existing paging and bell system.
- No clock system recommendations at this time.

DE PERE HIGH SCHOOL AND DISTRICT OFFICE

HVAC Description / Condition

De Pere High School is the district's largest school. It was originally constructed in 1976, with subsequent additions in 2001, 2006 and 2017. The school is (2) stories with distributed mechanical rooms throughout. Due to the significant grade on the site, there are significant variations in load from an HVAC perspective. A significant portion of the school is interior space without exterior envelope load. The current gross building floor area is 296,311 sq. ft. Generally, the HVAC system utilizes a variable air volume system with hot water reheat for both heating and cooling. The facility has several shared spaces including a commons, kitchen, 4-station gymnasium, auditorium, tech. ed. spaces, science labs and an LMC. Classrooms are generally distributed throughout the facility, with wings roughly organized by subject. This facility also houses the district office which can be accessed separately from the secure entry at the front of the school. The heating plant is on the first floor in a mechanical space also used for maintenance vehicle storage. Cooling equipment is distributed throughout in mechanical rooms also used for other HVAC equipment.

The table below provides applicable values of service life as compared to the actual age and condition of the equipment in question. Service life is defined as the economic life of a system or component as it relates to obsolescence, reduced reliability, excessive maintenance cost, changed system requirements, or failure.

Equipment	Actual Equipment Age	ASHRAE Estimated Service Life[1]	Observed Condition
Indoor Central Air Handling Units (1976)	47 Years	20 Years	Poor
Indoor Central Air Handling Units (2001)	22 Years	20 Years	Good/Fair
Indoor Central Air Handling Units (2006)	17 Years	20 Years	Great
Indoor Central Air Handling Units (2017)	6 Years	20 Years	Excellent
Air-Cooled Water Chiller (2001)	22 Years	20 Years	Fair
Air-Cooled Water Chiller (2006)	17 Years	20 Years	Fair
Chilled Water Pumps	17/22 Years	10 Years	Fair
VAV Air Terminals	22 Years or less	20-25 Years	Fair
Horizontal Fire-Tube Boilers	22 Years	30 Years	Good
Water Tube Boiler	22 Years	20 Years	Fair
Heating Pumps	22 Years	10-20 Years	Good
Exhaust Fans	Varies	20 Years	Good/Fair

[1] 1999 ASHRAE APPLICATIONS HANDBOOK

COOLING AND VENTILATION

TORN FLEXIBLE CANVAS CONNECTION AT SUPPLY FAN

The ventilation system includes several duct distribution systems served by, primarily, indoor central station air handling units. There are (17) primary central air handling units which vary in age and condition. There are (4) air handling units which remain from the original 1976 construction. These have been partially upgraded to include some modern features, but are past their useful life and should be replaced. The remaining air handling units are from 2001 or sooner and are suitable for continued use with minor ongoing repairs. The older units utilize a single fan within the air handling unit and a separate relief fan within the space served. The remaining units vary in configuration based on the spaces served. Freeze protection is primarily accomplished via face-and-bypass dampers on units with a high percentage of outside air. Return air is circulated via plenum return including use of egress paths as a return air plenum in some circumstances. This is no longer a code compliant ducting arrangement, as a fire within an occupied space will spread smoke into the path of egress and prevent safe exiting from the facility. Consideration should be taken to revising the return air path arrangement.

Single zone applications (locker rooms, auditorium, etc.) have heating coils either in the air handling units or within the duct distribution system. Air handling units which serve multiple zones provide conditioned supply air through distributed VAV boxes with hot water reheat coils. This configuration allows for not only individual zone heating and cooling control, but also the capability to dehumidify the facility during summer months. Reduction in airflow is via Variable Frequency Drives which lower the supply and associated return fan speeds in response to VAV box modulation. All ventilation fresh air is provided through air handling units. Exhaust air is provided via powered roof ventilators which are distributed throughout the facility. Mechanical cooling is provided to all spaces except for the locker rooms and some ancillary spaces.

Chilled water for cooling and dehumidification is provided by a (2) roof mounted air-cooled water chillers. The older and larger chiller CH-1, located adjacent to the gymnasium, was installed in 2001 and serves the majority of the facility. Chiller CH-1 is a 340 nominal ton screw chiller. The smaller chiller CH-2, located on the roof of the “H-Wing,” was installed in 2006 and serves the North-East portion of the facility. Chiller CH-2 is a 160 nominal ton screw chiller. Both chillers are in fair condition given their age and their useful life can be extended with ongoing maintenance. Both chilled water systems circulate a mixture of Ethylene Glycol and water which is distributed to chilled water coils within each air handling unit served. The chilled water distribution systems are primary-secondary pumping configuration, which provides consistent flow through the chiller with varying system demand conditions. A single pump is provided for both primary chilled water and secondary chilled water, so the failure of any pump will prevent circulation of chilled water through the areas served.

DETERIORATING SEAL AT AIR HANDLING UNIT CASING

PIPE CORROSION DUE TO LACK OF INSULATION

CONDENSATION ON CHILLED WATER PIPING

DETERIORATION OF 1976 AHU

FLAMABLE MATERIALS STORED WITHIN RETURN AIR PLENUM

DETERIORATED PIPE INSULATION ON ROOF

COOLING AND VENTILATION CONCERNS

- Lack of outside air was observed at some air handling units. Recommend reconsidering current ventilation strategy during cold weather.
- General deferred maintenance items were noted. Items such as failed or abandoned sensors, water leaks, air leaks, etc. were present and prominent. Repair of these items can boost performance and efficiency of the HVAC system.
- Chilled water piping at multiple locations has missing insulation or compromised vapor barrier. This will lead to further deterioration of piping and insulation due to condensation on exposed cold piping during humid weather. Pipe insulation is currently saturated above the humidifier in the “H-Wing.”
- Duct insulation is deteriorating or missing at some locations throughout.
- Pressure differences were noted between areas of the school during our walkthrough. For example, air was blowing out of the art addition into the existing school at a higher than normal rate.
- The remaining original 1976 air handling units are in poor condition and should be replaced.
- Combustible materials are currently stored within the return air plenum in the gymnasium. This is a violation of Wisconsin codes and a potential life safety risk in the case of a fire.
- Egress corridors are used as return air plenums currently. This is no longer a code compliant practice due to the inherent risk to building occupants during a fire situation.
- Outside air intakes were observed to be dirty, including birds nesting in louvers.

COOLING AND VENTILATION RECOMMENDATIONS

- Perform general preventative maintenance throughout the facility (insulation repair, sensor repair, etc.) to prevent more serious issues in the future.
- Consider revising the plenum configuration to use the ceiling cavity space for return air instead of egress corridors. Alternatively, consider fully ducting the return air for best performance.
- Measure and confirm proper ventilation rates are provided at all locations as required by Wisconsin codes and regulations.

HEATING

Heating within the facility is accomplished through the heating hot water distribution system. This system includes (3) hot water boilers, which were installed in 2001, to replace the original (2) hot water boilers. The new boiler configuration includes (2) 6.28 Million BTUH horizontal fire-tube boilers and (1) 1.9 Million BTUH water-tube boiler. The boiler plant has a primary-secondary pumping configuration which provides constant water flow to the boilers, even with variable flow through the distribution system. There is also a 3-way valve which is used to limit the temperature provided to the school during shoulder seasons while maintaining a high temperature in the heating plant. An alternative to this configuration would be to replace the smaller water-tube boiler with a condensing boiler to boost the system efficiency during shoulder season and summer heating operation.

With few exceptions, the indoor air handling units each include one or more hot water heating coils to temper the outside air for distribution throughout the facility. Additional heating is provided at each VAV box, which provides the ability to provide varying temperature and airflow to each zone served by the common air handling equipment. This is an excellent configuration for both performance and for limiting energy consumption. Supplemental heat is included at the primary entrances via cabinet unit heaters and other unitary terminal units. Supplemental heat is also provided at toilet rooms, meeting rooms, and areas with high perimeter heating loads.

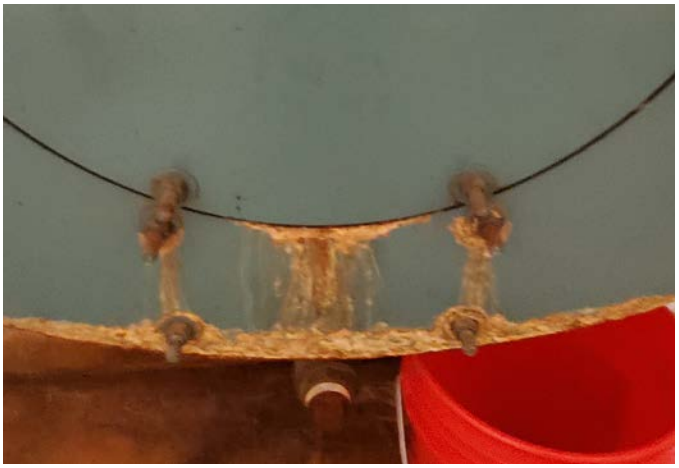
This facility appears to have significant issues with leakage at Victaulic grooved pipe fittings and threaded valves and devices. There is staining on the ceiling tiles below nearly all VAV boxes throughout the facility, indicating a widespread issue is present. It was also noted that, at locations with leaks, the copper piping is commonly corroded. An issue of this magnitude could be the result of water chemistry issues or the presence of excessive dissolved oxygen in the hot water distribution system. As leaks occur, a large quantity of make-up water is required which increases oxygen levels and decreases the concentration of corrosion inhibitors in the water system. We recommend conducting widespread repair efforts to break this cycle and improve the reliability of the hot water piping system. In addition to the leaking issues, it was identified that several terminal coils have been isolated by closing their manual ball valves or by removing valve actuators. Several classrooms were noted to be colder than surrounding rooms due to inactive VAV reheat coils.

HEAT WHEEL IN METALS AIR HANDLING UNIT

EVIDENCE OF CORROSIVE WATER LEAK

HEATING CONCERNS

- General deferred maintenance items were noted, such as pipe leaks, missing insulation, missing sensors, etc. Repair of these items can improve reliability and limit risk of failure of the heating system.
- Significant repairs are required throughout the school on hot water piping distribution.
- Perimeter finned tube radiation was active in some areas and not active in others. Some rooms were noted with cold temperatures and inactive fin tube.



EVIDENCE OF PRIOR BOILER LEAKAGE

- Natural gas smell is present in science classroom wing. Recommend survey to confirm leaks are not present.
- District office area has poor heating performance. Stratification was noted as well as low air flow rates. It is likely this performance can be improved with minor equipment modifications.
- Pumps and copper tube boiler are nearing their expected useful life and are likely losing efficiency and reliability due to age.

HEATING RECOMMENDATIONS

- Repair pipe fittings, valves, accessories, and insulation throughout where leaks have developed.
- Perform extensive water treatment regimen to reduce the corrosive nature of the heating water.
- Replace heating pumps and copper tube boiler in the near future to improve reliability and efficiency of the water distribution system.
- Perform general preventative maintenance throughout the facility (insulation repair, sensor repair, etc.) to prevent more serious issues in the future.

HVAC CONTROLS

The HVAC temperature controls in the original construction of the facility were pneumatic controls, which are largely considered obsolete by today's standards. A significant upgrade and replacement of the control systems was conducted in 2001 along with the other addition and renovation work. At that time, it appears that a Siemens Apogee Direct Digital Controls (DDC) system was installed. Subsequent controls work since that project appears to include primarily Schneider Electric terminal controllers with Honeywell supervisory controllers. In addition, it appears that Honeywell supervisory controllers are used on top of the existing Siemens terminal controllers to gather all controls data onto one Tridium-based platform. It is likely that access and controllability of the original Siemens controllers is limited due to this configuration. Sensors and control devices vary in condition. Different thermostats and temperature sensors are present throughout the facility, but many sensors are present which display the temperature to occupants.

Failures of terminal valve actuators, particularly within the additions and areas renovated during the 2001 project, were prevalent. In discussions with facilities staff, it was indicated that replacement parts for the present actuators are prohibitively expensive. As such, consideration should be made to replace all control valves to improve system performance and reliability. Conditions within occupied spaces varied during our site visit. Several rooms were noted to be very cold, while others were quite comfortable. Some control behavior was noted which requires correction. For example, one of the chilled water pumps was operating during the inspection, but the outdoor air temperature was less than 40°F.

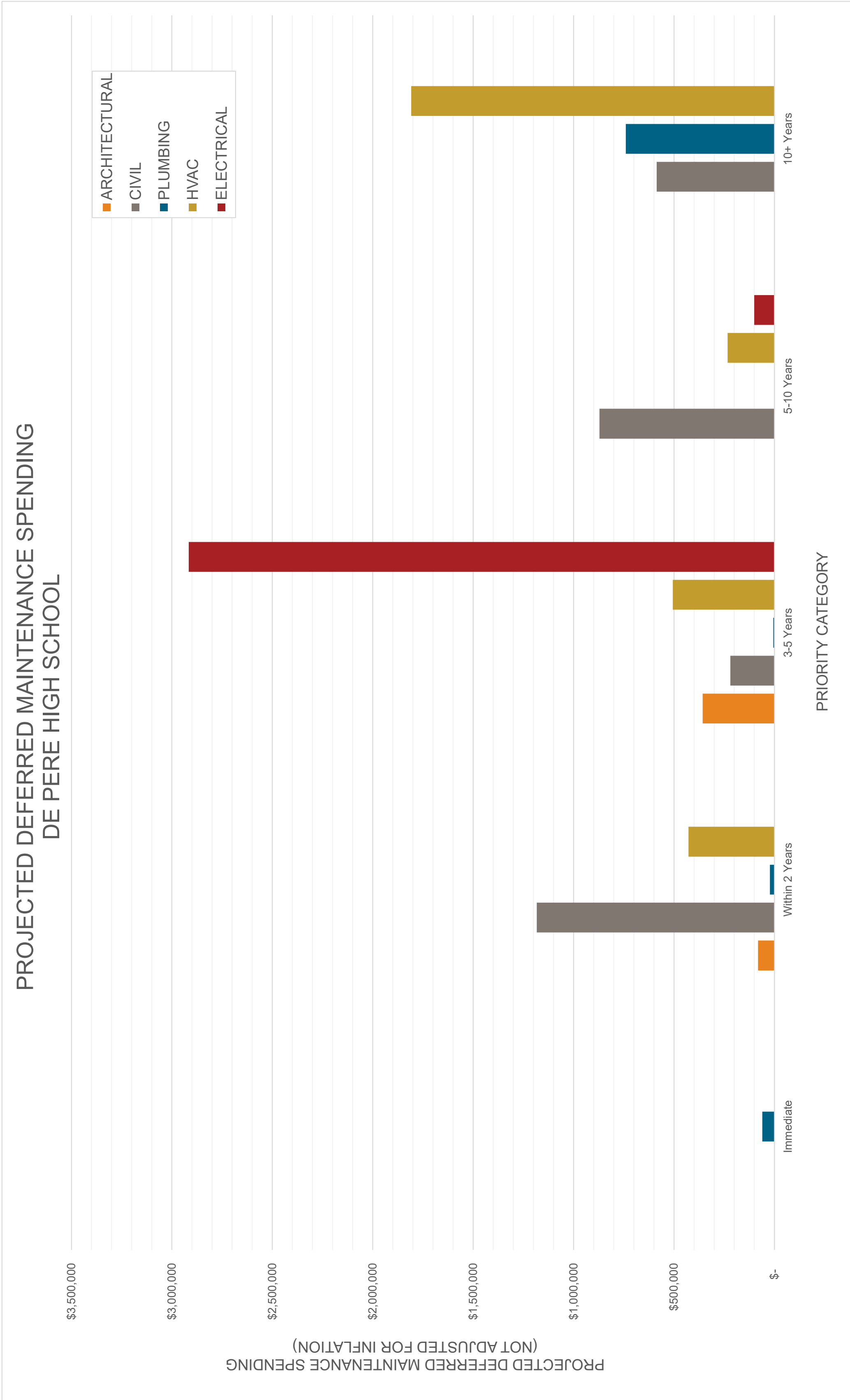
HVAC CONTROLS CONCERNS


VALVE ACTUATOR REMOVED FROM VALVE BODY

- In discussion with facilities staff and observation of the operating equipment, it appears there are several control sequences which are not optimal for energy savings or system performance.
- Lack of control of some terminal zones could be symptomatic of equipment failures (valve actuators, etc.) or could be due to control strategies and programming.
- Chilled water pump for CH-2 was observed running during cold temperatures.
- Fan speed for AHU-D1 was observed to be hunting, which can lead to wear on fan motor and other control components.
- Observed several air handling units with outside air dampers fully closed. Outside air is critical for building occupant health and preventing cold air infiltration at exterior zones.
- Existing controls, including terminal control valves, are failing and should be replaced.

HVAC CONTROLS RECOMMENDATIONS

- Consider conducting Retro-commissioning survey to “tune-up” and confirm proper operation of all control sequences. This may qualify for a Focus on Energy incentive.
- Recommend hiring a Testing, Adjusting, and Balancing contractor to periodically read out and calibrate outside air airflow measuring stations to confirm accuracy. It is common for this style of airflow measuring station to become fouled with dirt and debris and read artificially low, causing more outside air to be brought in than desired.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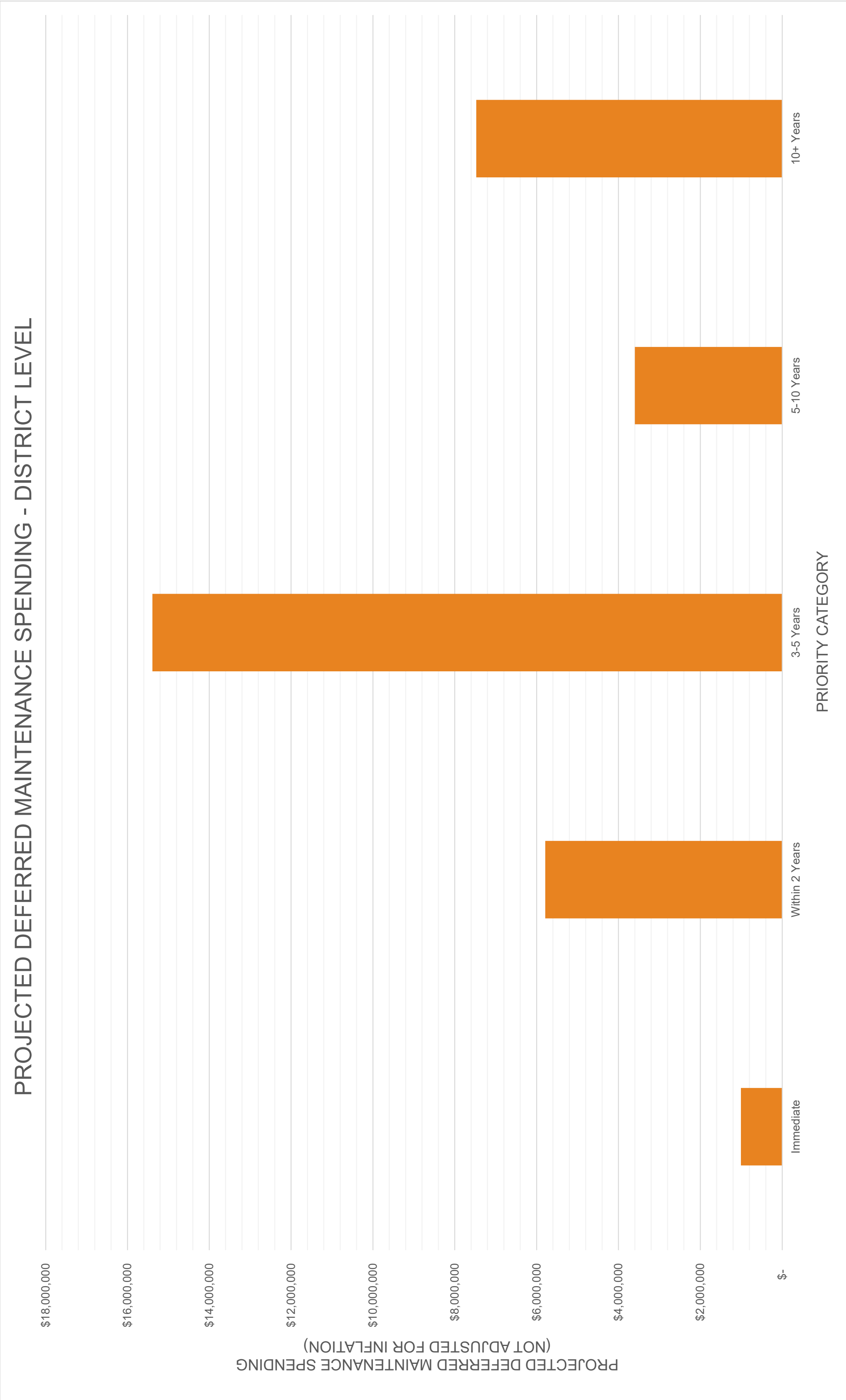
DE PERE HIGH SCHOOL
ARCHITECTURAL
CIVIL
PLUMBING
HVAC
ELECTRICAL
PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)
$3,500,000
$3,000,000
$2,500,000
$2,000,000
$1,500,000
$1,000,000
$500,000
$-
Immediate
Within 2 Years
3-5 Years
5-10 Years
10+ Years
PRIORITY CATEGORY

APPENDIX A

Visual Depiction of Data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$12,000,000
$10,000,000
$8,000,000
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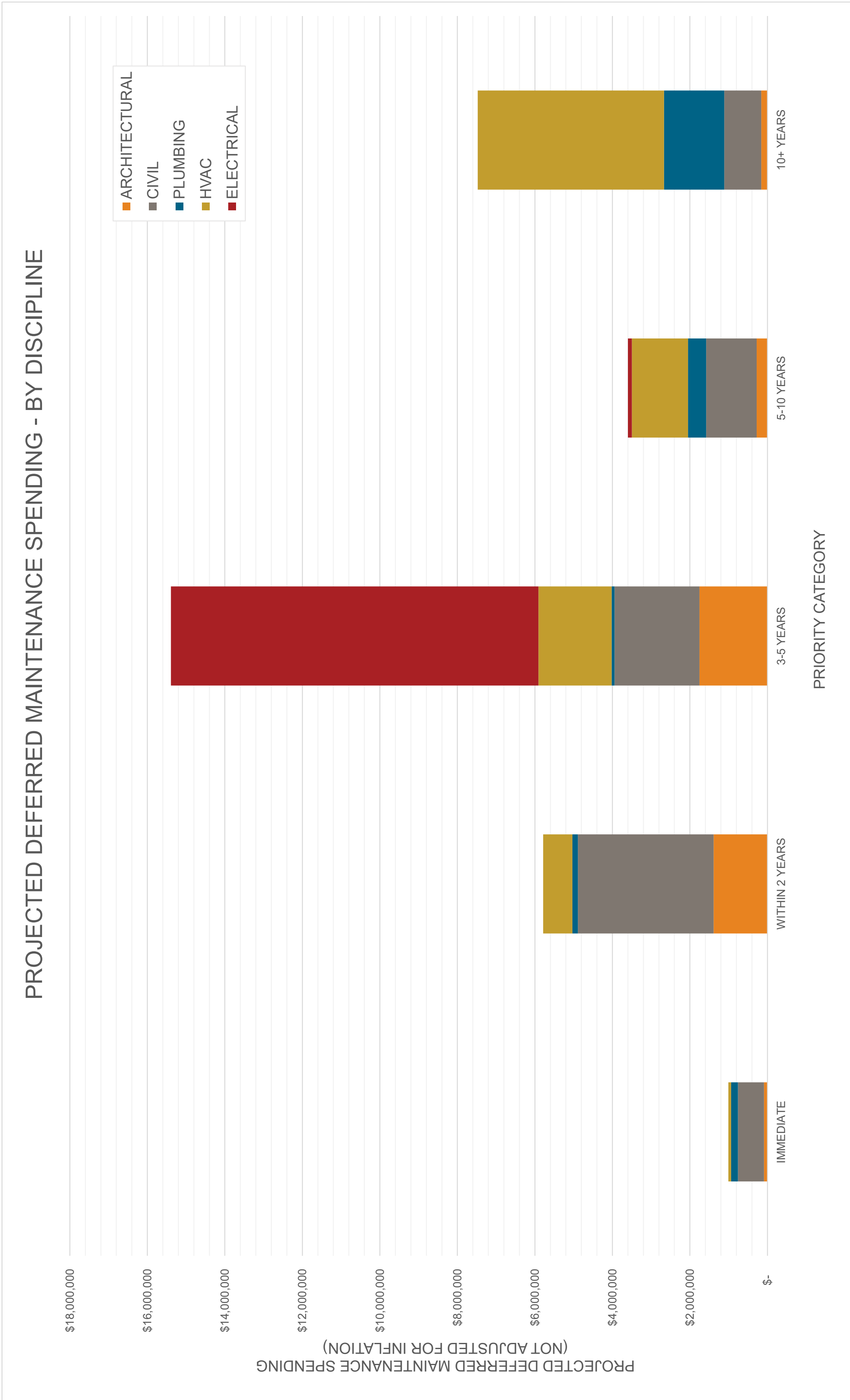
Immediate
Within 2 Years
3-5 Years
5-10 Years
10+ Years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ARCHITECTURAL
CIVIL
PLUMBING
HVAC
ELECTRICAL
PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)
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$16,000,000
$14,000,000
$12,000,000
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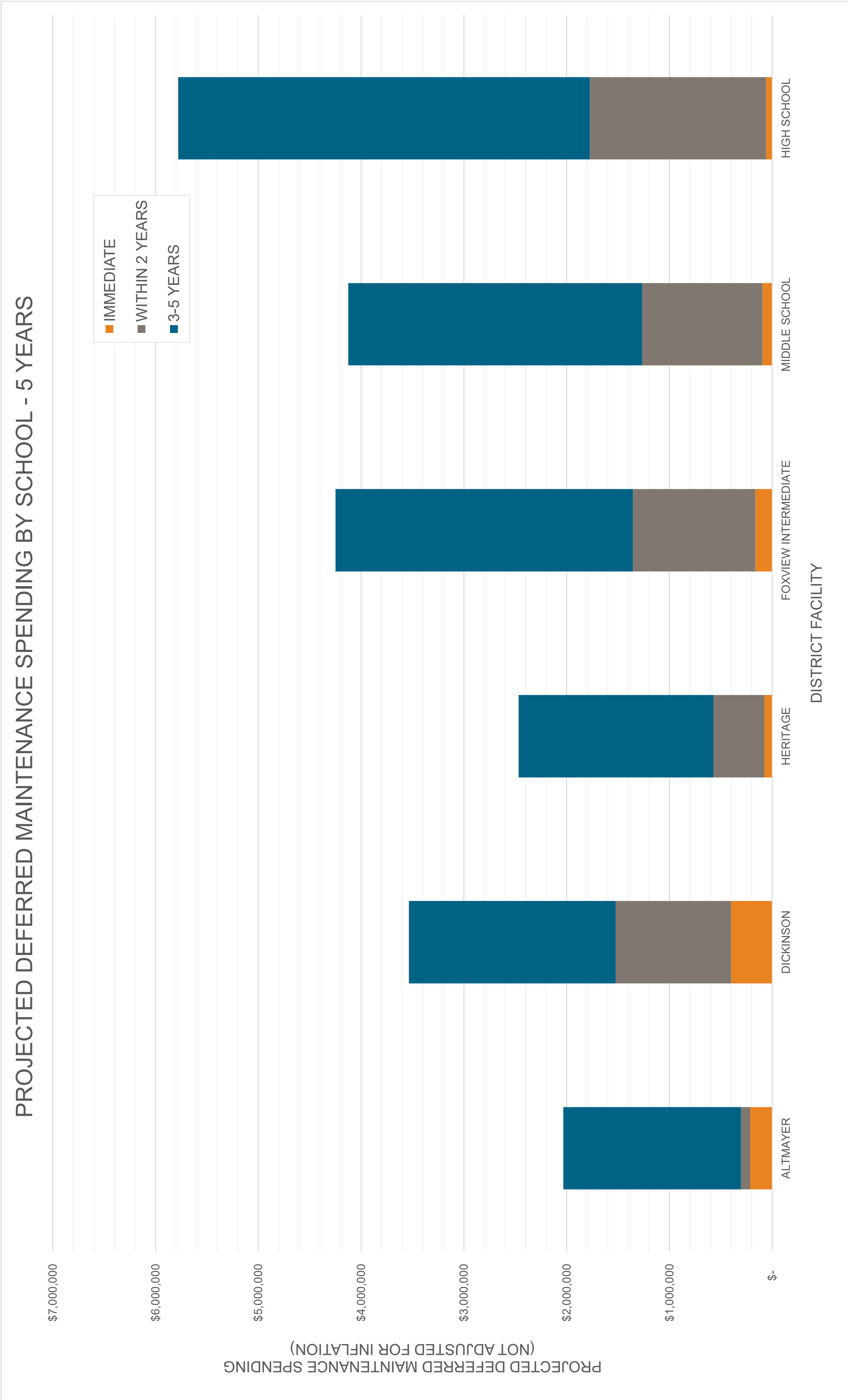
IMMEDIATE
WITHIN 2 YEARS
3-5 YEARS
5-10 YEARS
10+ YEARS
PRIORITY CATEGORY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WITHIN 2 YEARS
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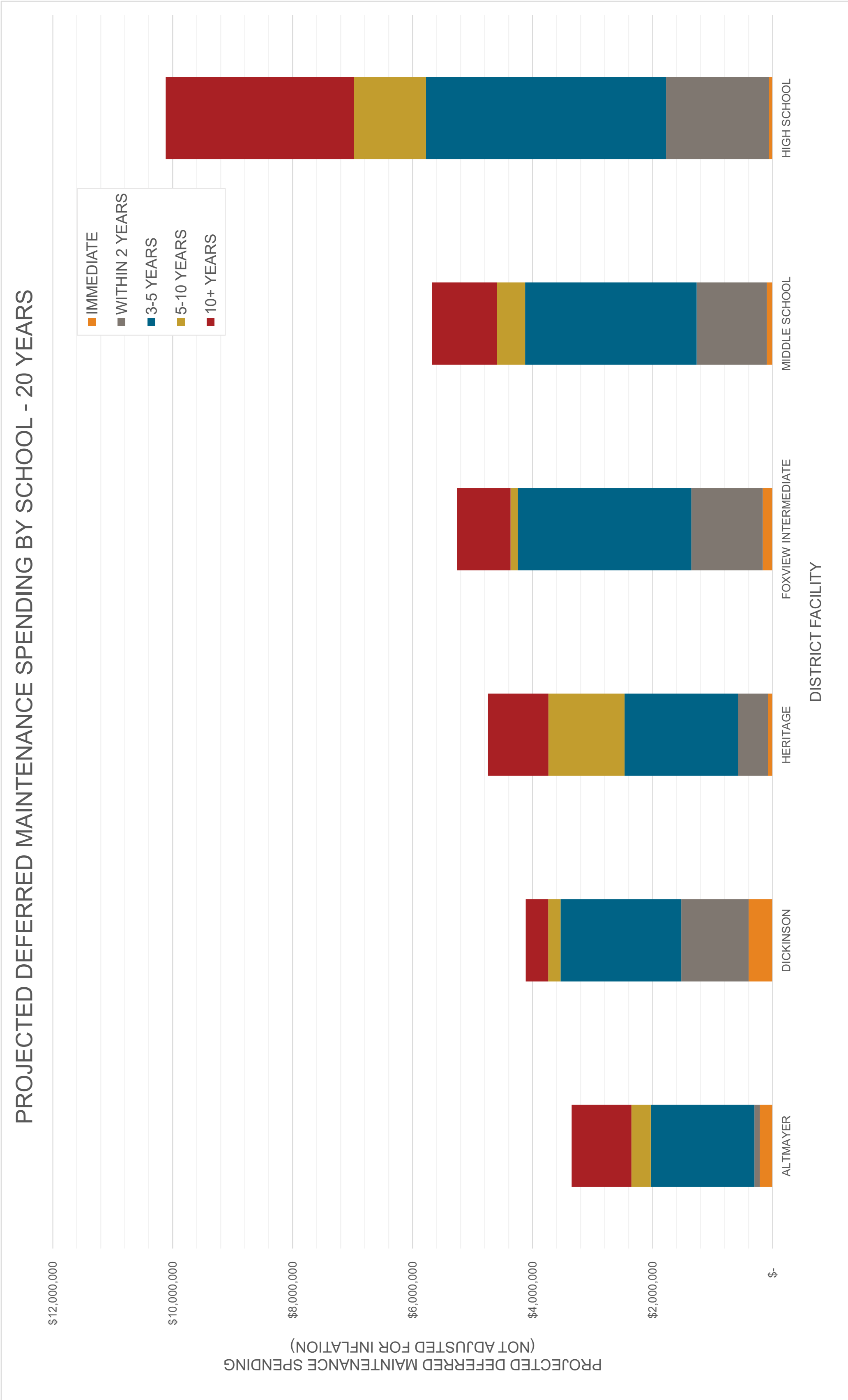
PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)
HIGH SCHOOL
MIDDLE SCHOOL
FOXVIEW INTERMEDIATE
HERITAGE
DICKINSON
ALTMAYER
DISTRICT FACILITY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WITHIN 2 YEARS
3-5 YEARS
5-10 YEARS
10+ YEARS
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$10,000,000
$8,000,000
$6,000,000
$4,000,000
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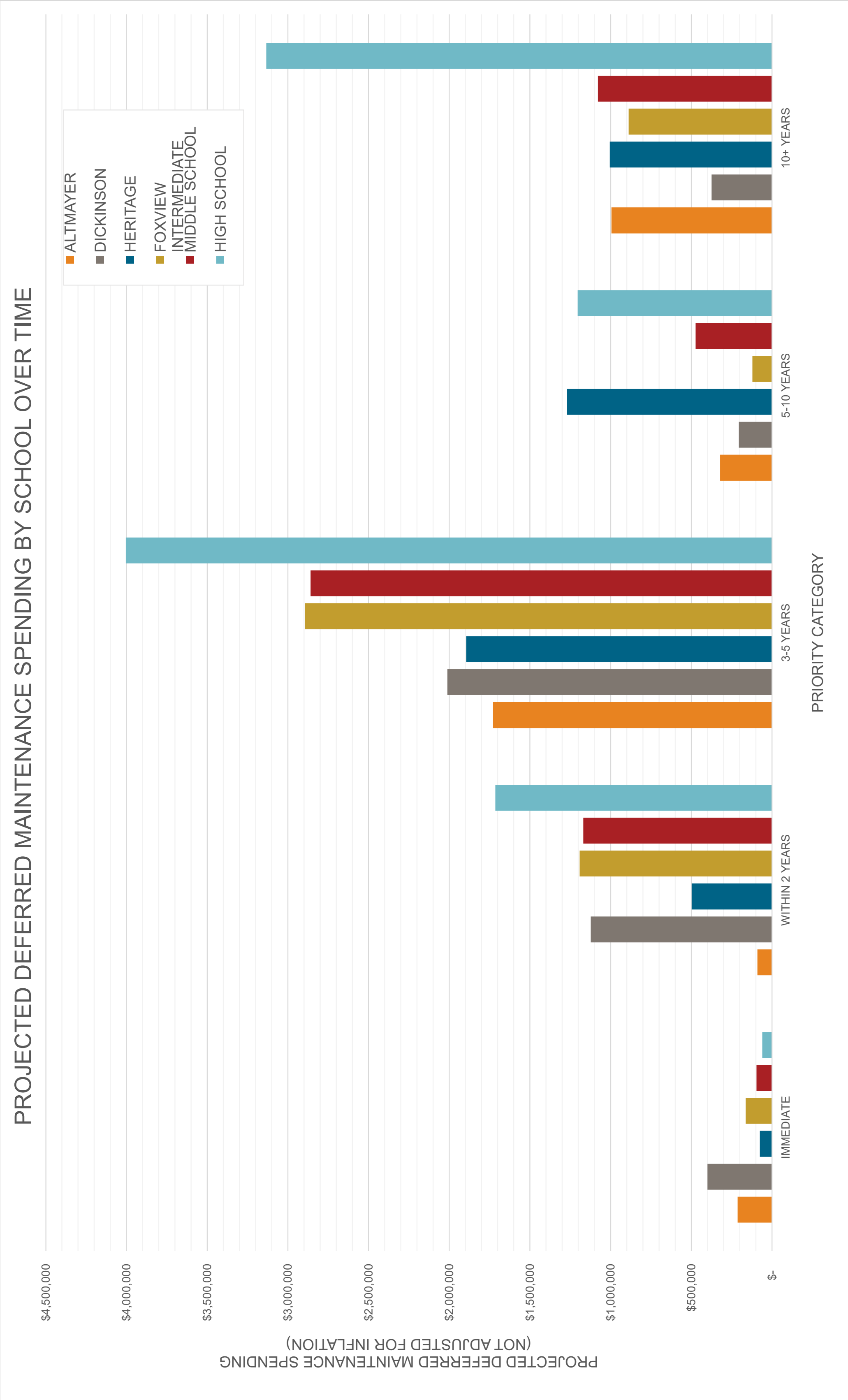
PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)
HIGH SCHOOL
MIDDLE SCHOOL
FOXVIEW INTERMEDIATE
HERITAGE
DICKINSON
ALTMAYER
DISTRICT FACILITY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DICKINSON
HERITAGE
FOXVIEW INTERMEDIATE
MIDDLE SCHOOL
HIGH SCHOOL
IMMEDIATE
WITHIN 2 YEARS
3-5 YEARS
5-10 YEARS
10+ YEARS
PRIORITY CATEGORY
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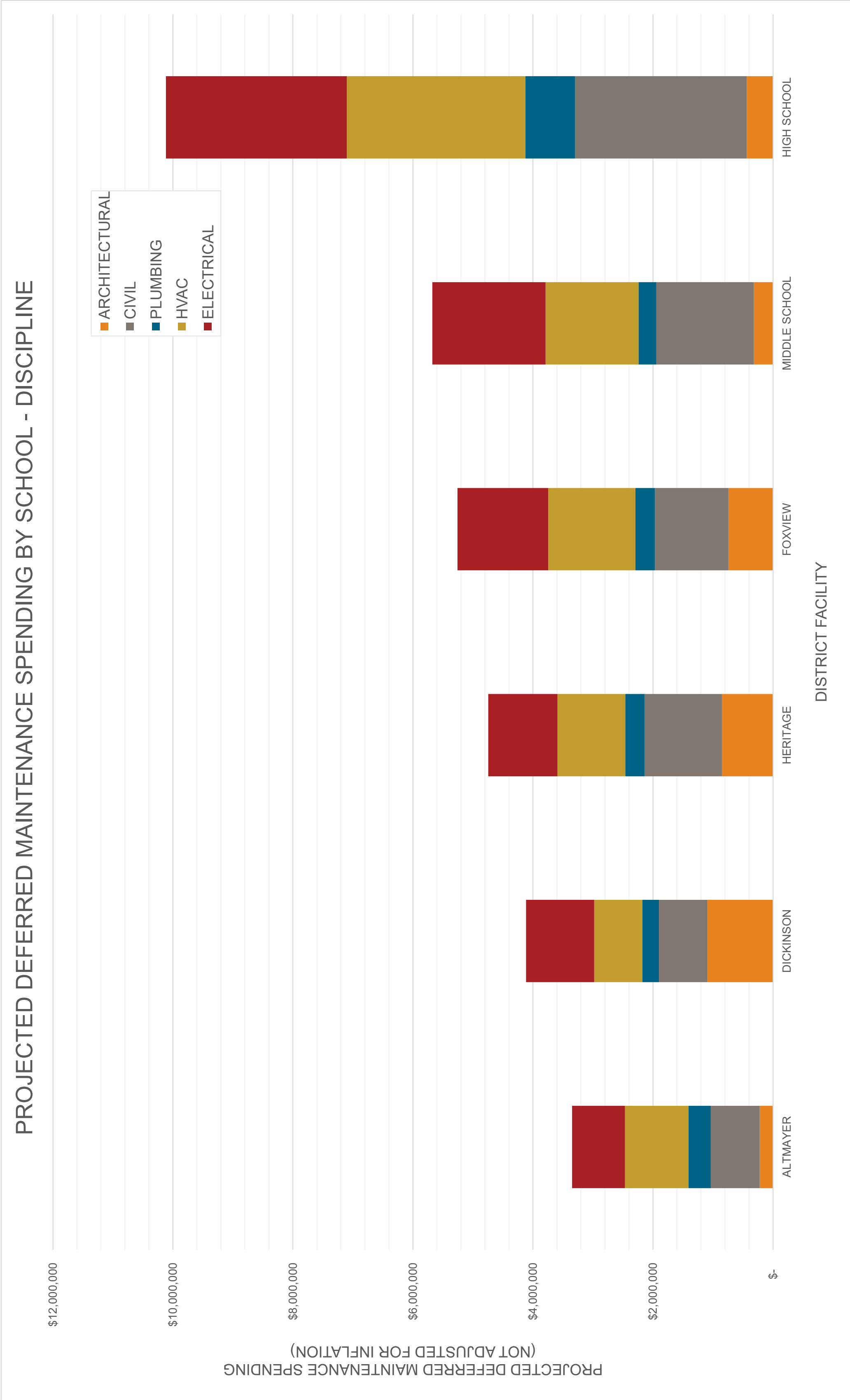
(NOT ADJUSTED FOR INFLATION)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CIVIL
PLUMBING
HVAC
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MIDDLE SCHOOL
FOXVIEW
HERITAGE
DICKINSON
ALTMAYER
DISTRICT FACILITY
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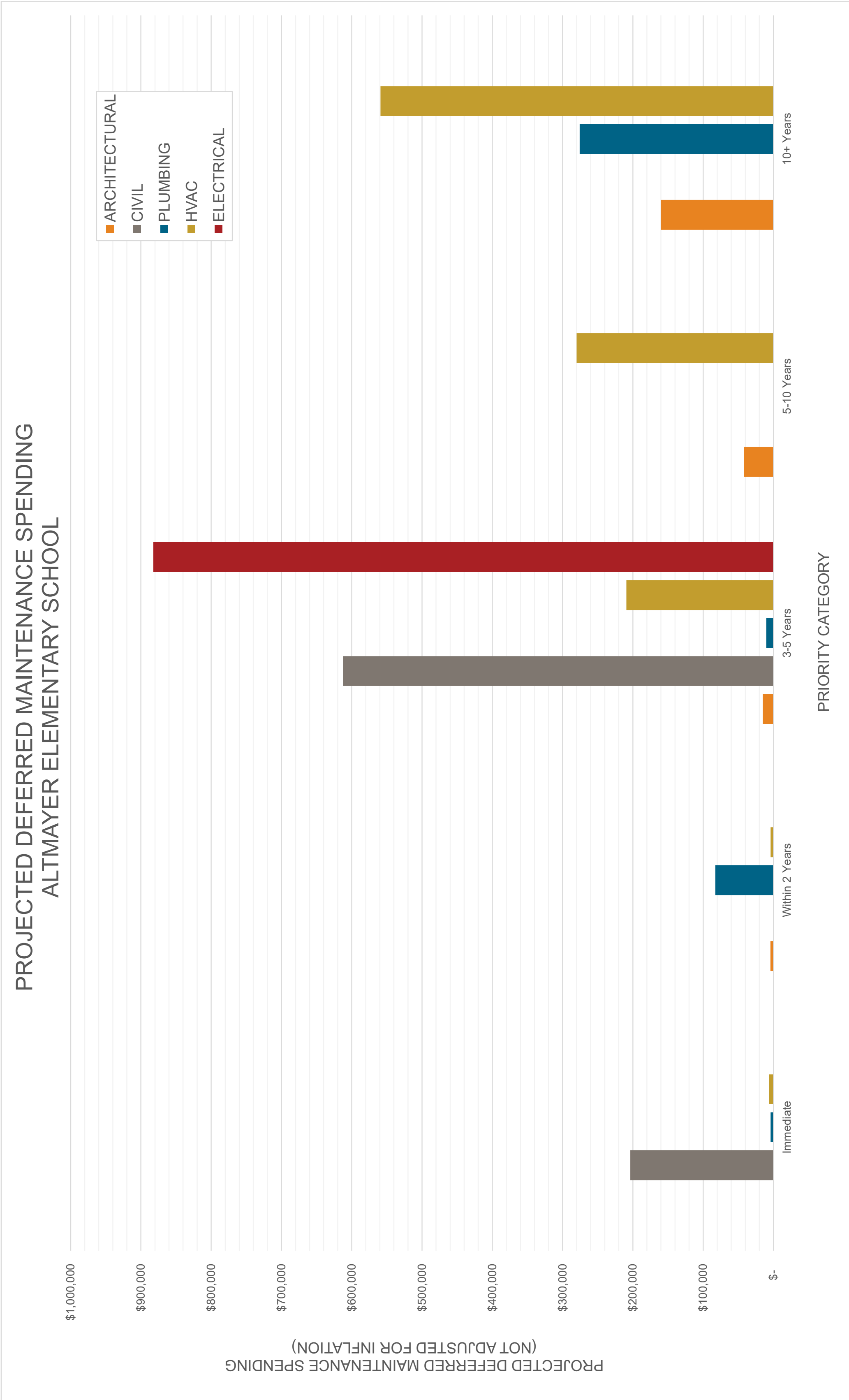
(NOT ADJUSTED FOR INFLATION)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ALTMAYER ELEMENTARY SCHOOL
ARCHITECTURAL
CIVIL
PLUMBING
HVAC
ELECTRICAL
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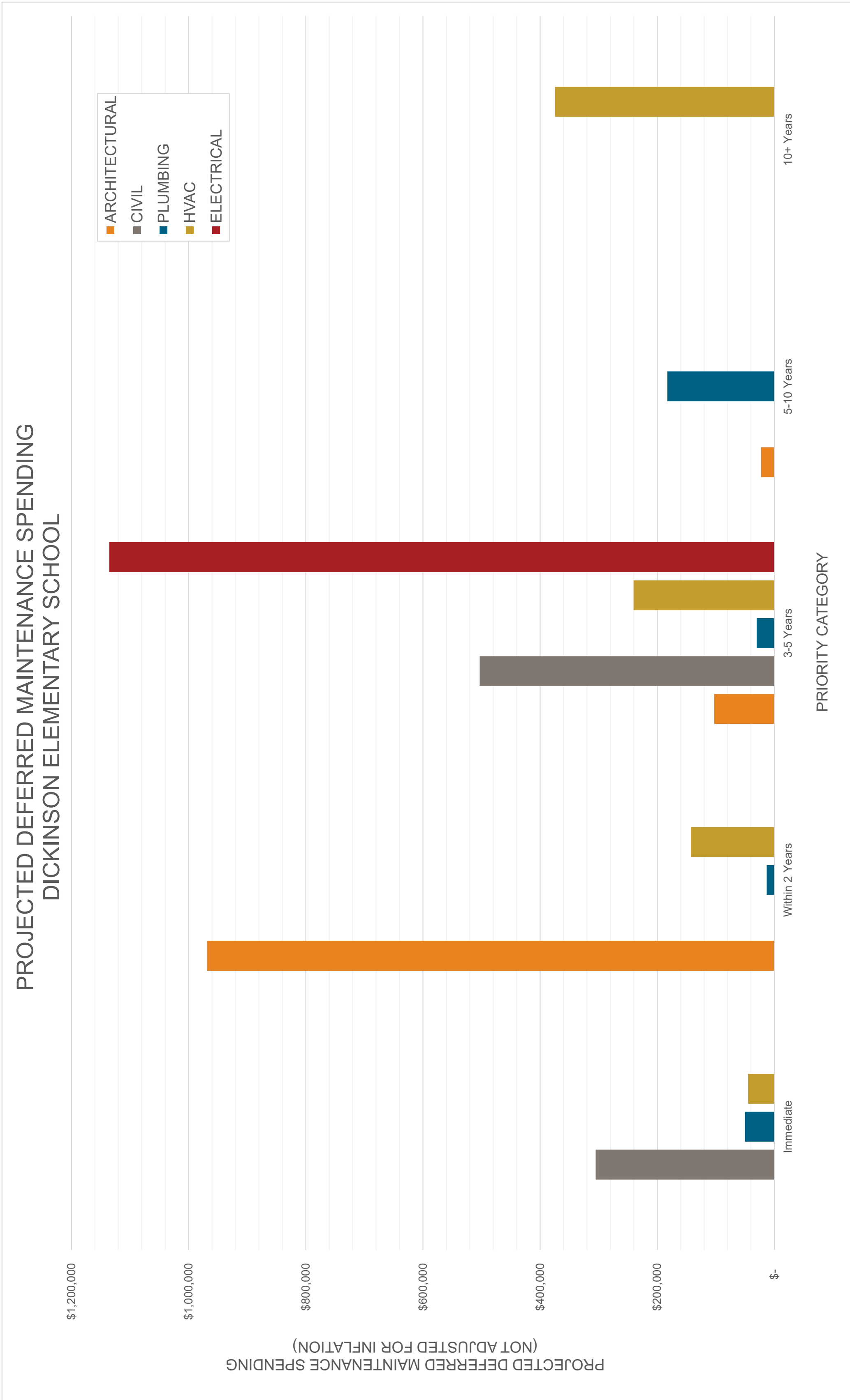
PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)
Immediate
Within 2 Years
3-5 Years
5-10 Years
10+ Years
PRIORITY CATEGORY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DICKINSON ELEMENTARY SCHOOL
ARCHITECTURAL
CIVIL
PLUMBING
HVAC
ELECTRICAL
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$800,000
$600,000
$400,000
$200,000
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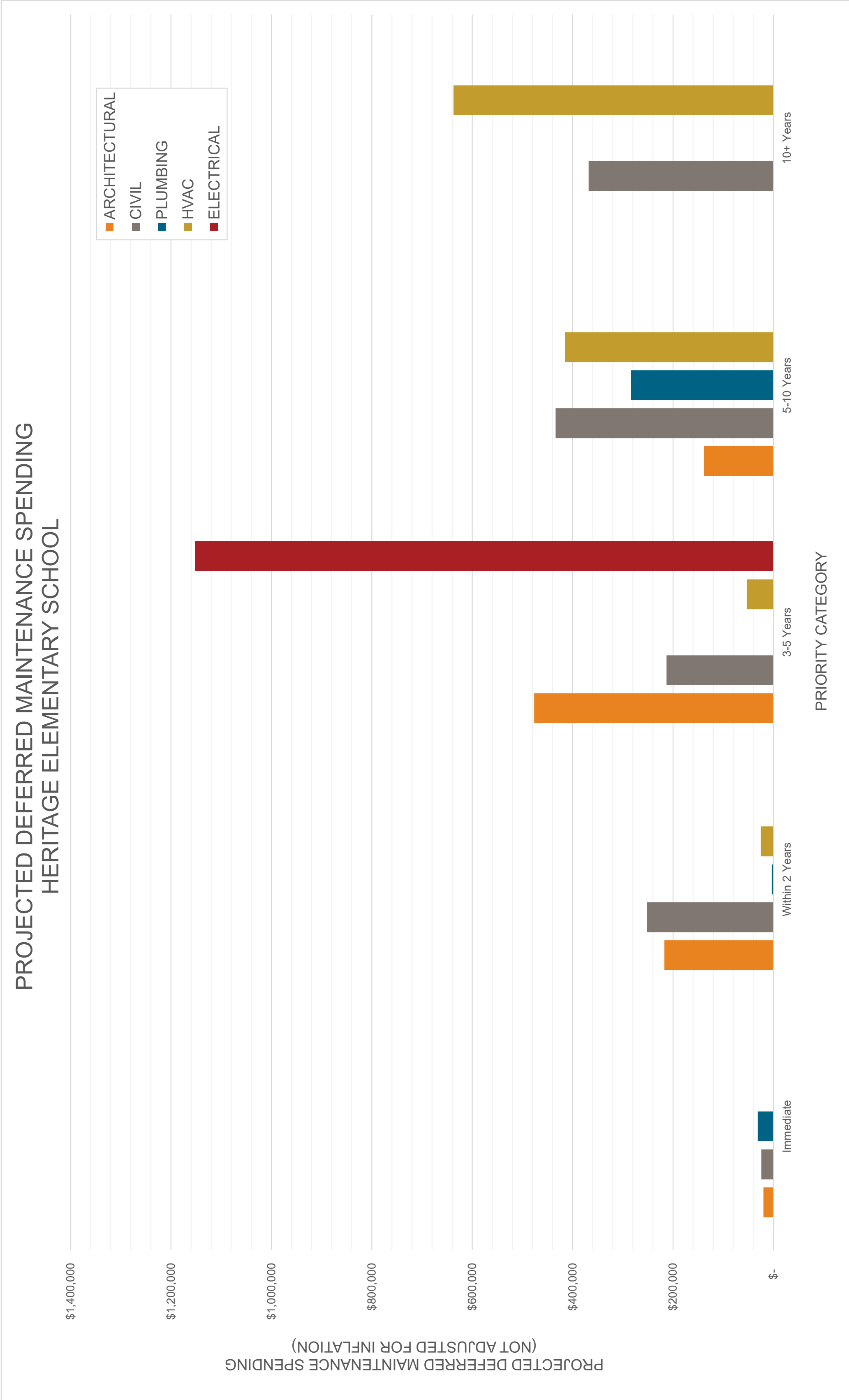
Immediate
Within 2 Years
3-5 Years
5-10 Years
10+ Years
PRIORITY CATEGORY
PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)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HERITAGE ELEMENTARY SCHOOL
ARCHITECTURAL
CIVIL
PLUMBING
HVAC
ELECTRICAL
PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)
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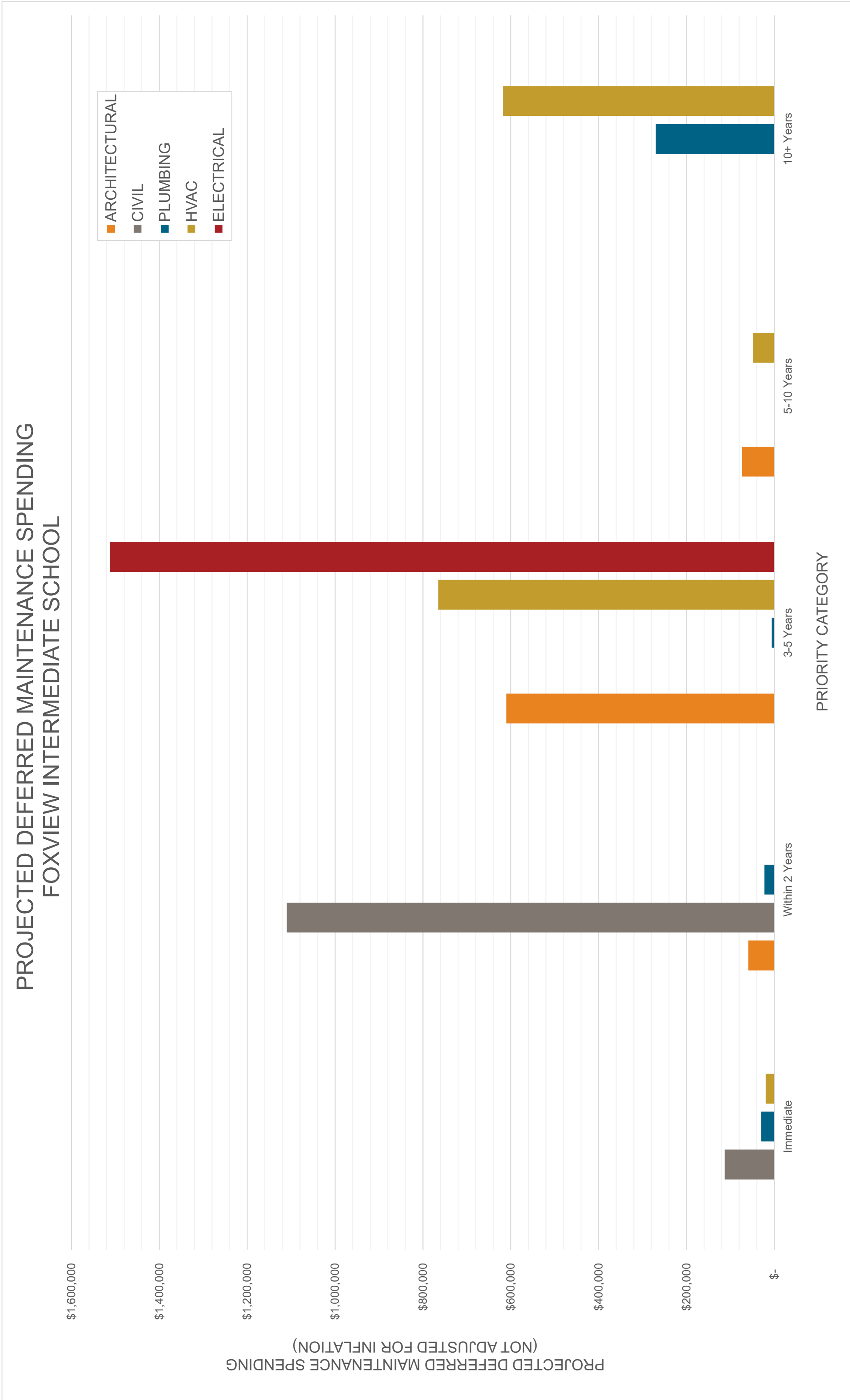
Within 2 Years
3-5 Years
5-10 Years
10+ Years
PRIORITY CATEGORY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FOXVIEW INTERMEDIATE SCHOOL
ARCHITECTURAL
CIVIL
PLUMBING
HVAC
ELECTRICAL
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PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)
Immediate
Within 2 Years
3-5 Years
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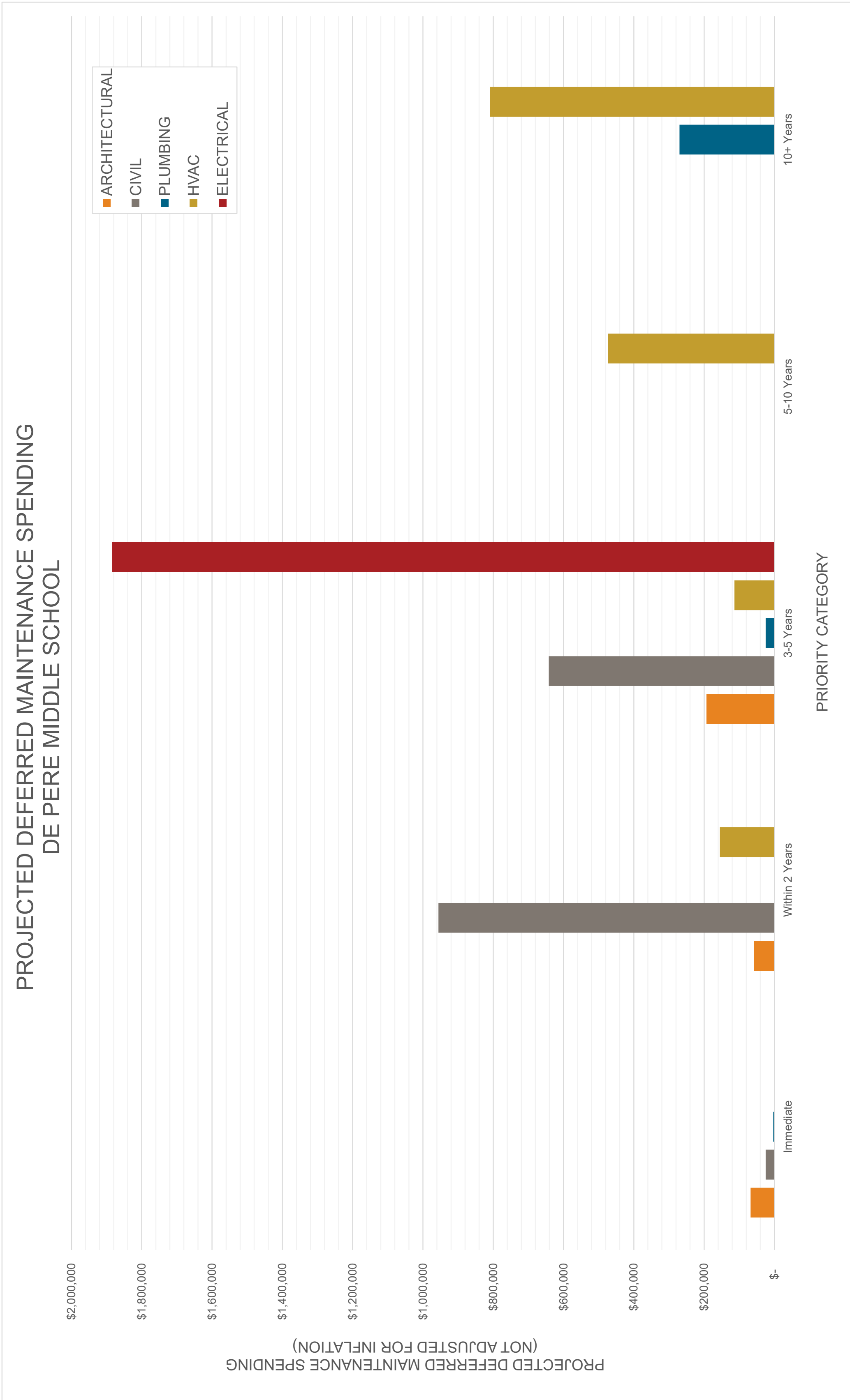
10+ Years
PRIORITY CATEGORY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DE PERE MIDDLE SCHOOL
ARCHITECTURAL
CIVIL
PLUMBING
HVAC
ELECTRICAL
Immediate
Within 2 Years
3-5 Years
5-10 Years
10+ Years
PRIORITY CATEGORY
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$400,000
$600,000
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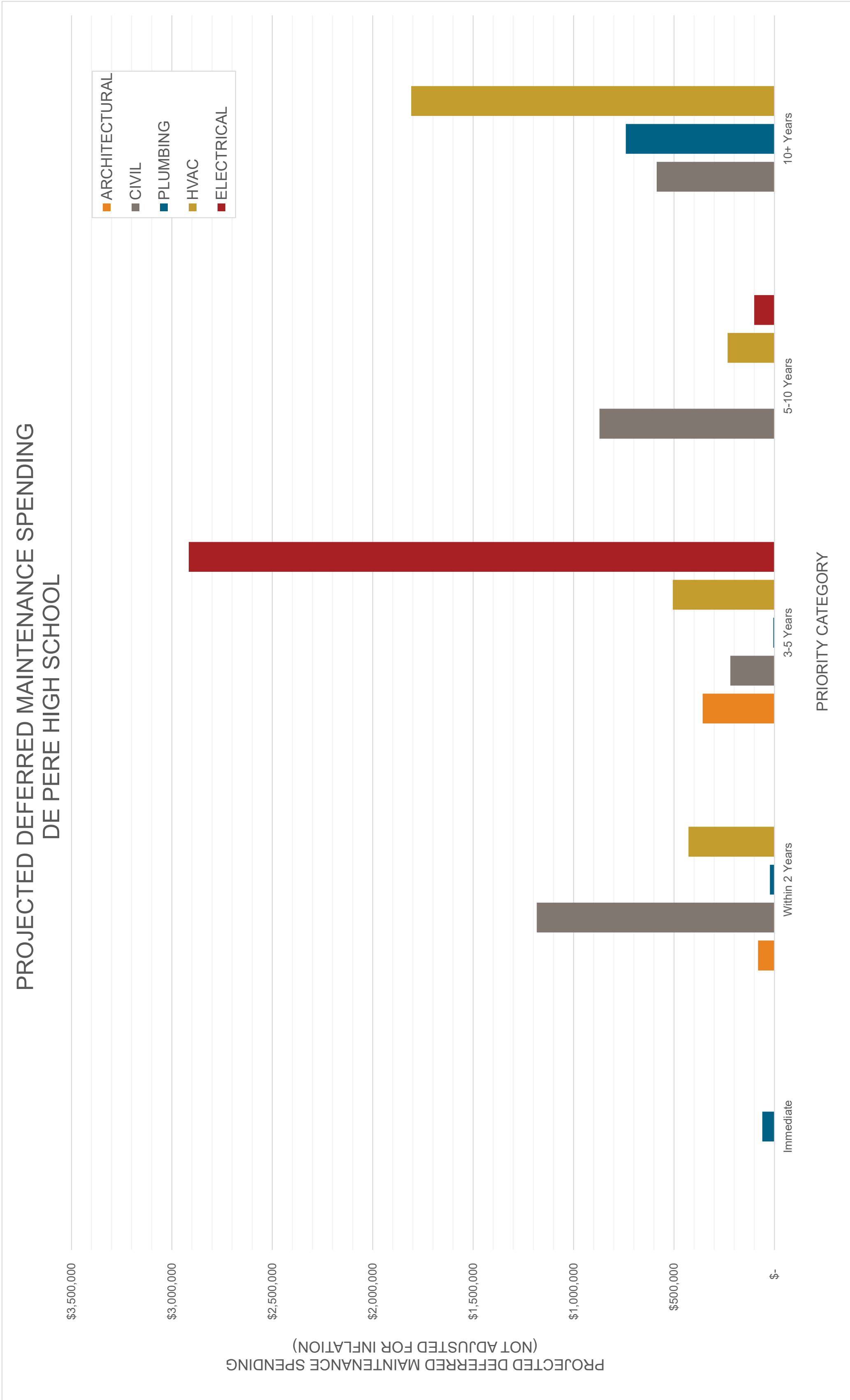
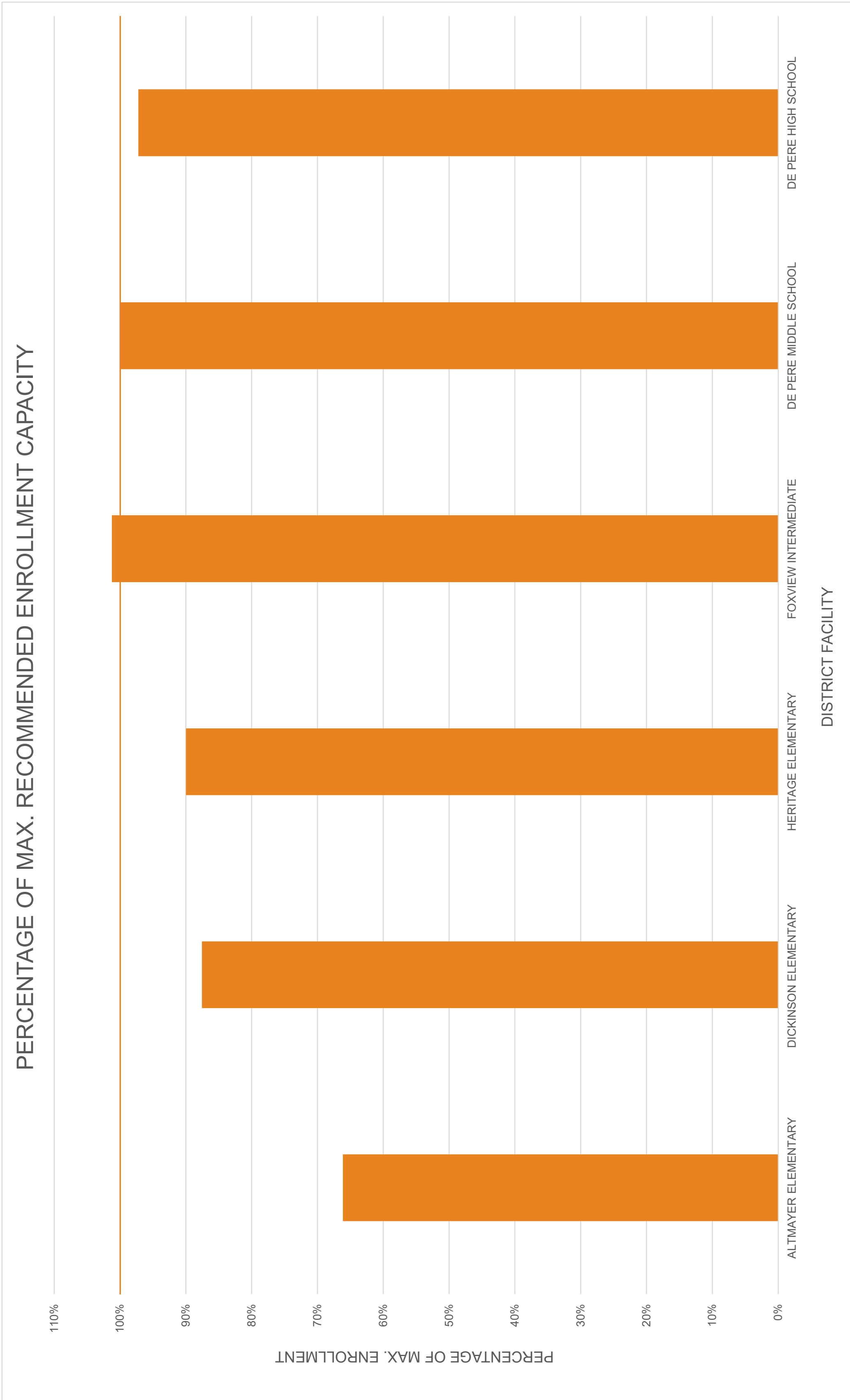
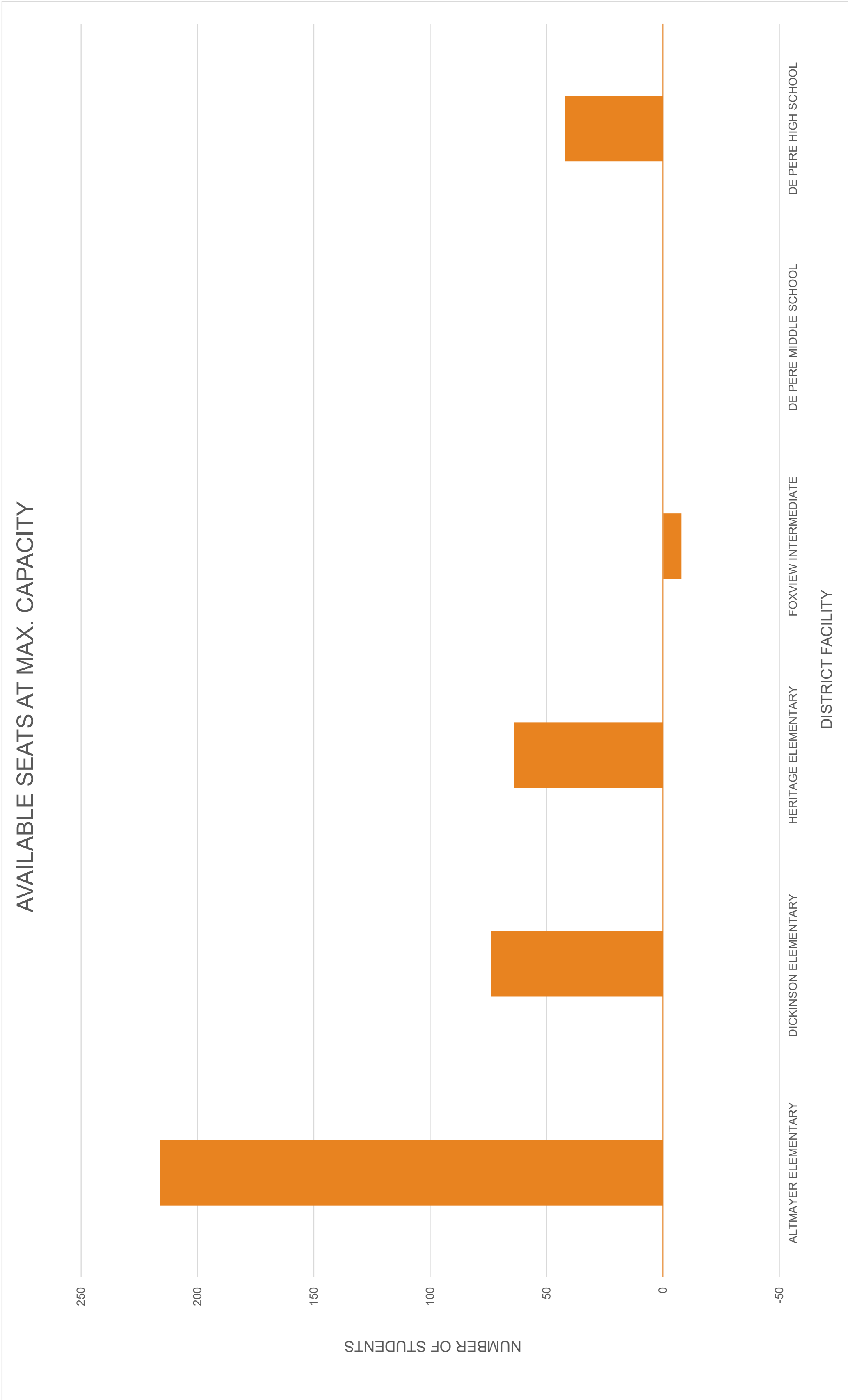
PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)


PROJECTED DEFERRED MAINTENANCE SPENDING
DE PERE HIGH SCHOOL
ARCHITECTURAL
CIVIL
PLUMBING
HVAC
ELECTRICAL
$3,500,000
$3,000,000
$2,500,000
$2,000,000
$1,500,000
$1,000,000
$500,000
$-
PROJECTED DEFERRED MAINTENANCE SPENDING
(NOT ADJUSTED FOR INFLATION)
Immediate
Within 2 Years
3-5 Years
5-10 Years
10+ Years
PRIORITY CATEGORY


PERCENTAGE OF MAX. RECOMMENDED ENROLLMENT CAPACITY
DE PERE HIGH SCHOOL
DE PERE MIDDLE SCHOOL
FOXVIEW INTERMEDIATE
HERITAGE ELEMENTARY
DICKINSON ELEMENTARY
ALTMAYER ELEMENTARY
DISTRICT FACILITY
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
110%
PERCENTAGE OF MAX. ENROLLMENT


AVAILABLE SEATS AT MAX. CAPACITY
ALTMAYER ELEMENTARY
DICKINSON ELEMENTARY
HERITAGE ELEMENTARY
FOXVIEW INTERMEDIATE
DE PERE MIDDLE SCHOOL
DE PERE HIGH SCHOOL
DISTRICT FACILITY
250
200
150
100
50
0
-50
NUMBER OF STUDENTS

APPENDIX B

Deferred Maintenance Items

ESTIMATED REMODEL COST SUMMARY

School	Priority	Discipline (A,H,P,E,C)	Description	Cost: Qty	Units	$/Unit	Estimated Total
Altmayer	2	A	Replace some rubber flooring joints	34	lf	$ 50.00	$ 1,700.00
Altmayer	2	A	Add vertical grab bars at ADA toilets	24	ea	$ 100.00	$ 2,400.00
Altmayer	3	A	Replace sealant at classroom window sills	480	lf	$ 25.00	$ 12,000.00
Altmayer	3	A	Replace PLAM countertops at some sinks	12	lf	$ 250.00	$ 3,000.00
Altmayer	3	A	Check roof drainage pitch on (2) active relief drains	2	ea		$ -
Altmayer	4	A	Replace exterior doors and frames with HM or FRP	22	ea	$ 1,900.00	$ 41,800.00
Altmayer	5	A	Develop schedule to replace carpet in classrooms	32,000	sf	$ 5.00	$ 160,000.00
Altmayer	1	C	Drop Off Lane Asphalt				$ 166,000.00
Altmayer	1	C	Bus Lot Asphalt				$ 11,500.00
Altmayer	1	C	ADA Concrete Sidewalks				$ 26,000.00
Altmayer	3	C	Parking Lot Asphalt				$ 117,000.00
Altmayer	3	C	Receiving Area Asphalt				$ 114,000.00
Altmayer	3	C	Playground Asphalt				$ 183,000.00
Altmayer	3	C	Sidewalk				$ 184,000.00
Altmayer	3	C	Concrete Curb & Gutter				$ 14,500.00
Altmayer	3	E	Replace existing lighting with L.E.D.	110,250	sq. ft.	$ 6.00	$ 661,500.00
Altmayer	3	E	Replace lighting controls	110,250	sq. ft.	$ 2.00	$ 220,500.00
Altmayer	1	H	Repair powered roof ventilators	1	ea	$ 6,000.00	$ 6,000.00
Altmayer	2	H	Repair damaged grilles and fabric ductwork	1	ea	$ 4,000.00	$ 4,000.00
Altmayer	3	H	Replace obsolete head-end Niagara controllers	2	ea	$ 12,000.00	$ 24,000.00
Altmayer	3	H	Install third boiler for redundancy	1	ea	$ 120,000.00	$ 120,000.00
Altmayer	3	H	Provide low temperature mixing for panel radiators	1	ea	$ 10,000.00	$ 10,000.00
Altmayer	3	H	Conduct facility retro-commissioning	110,250	sq. ft.	$ 0.50	$ 55,125.00
Altmayer	4	H	Replace boiler plant	1	ea	$ 280,000.00	$ 280,000.00
Altmayer	5	H	Replace 2007 Air Handling Units	7	ea	$ 79,871.43	$ 559,100.00
Dickinson	2	A	Re-roof and insulation for entire buiding	73,000	sq. ft.	$ 12.00	$ 876,000.00
Dickinson	2	A	Replace penthouse metal wall panels	2,500	sq. ft.	$ 10.00	$ 25,000.00
Dickinson	2	A	Remove skylights, infill structure	8	ea	$ 2,000.00	$ 16,000.00
Dickinson	2	A	Replace wood doors and round door knobs	34	ea	$ 1,500.00	$ 51,000.00
Dickinson	3	A	Replace exterior doors and frames with HM or FRP	12	ea	$ 1,900.00	$ 22,800.00
Dickinson	3	A	Replace dish washing area ACT	225	sq. ft.	$ 6.00	$ 1,350.00
Dickinson	3	A	Replace 1958 casework sink doors.	8	ea	$ 200.00	$ 1,600.00
Dickinson	3	A	Replace VCT tile south wing	7,000	sq. ft.	$ 5.00	$ 35,000.00
Dickinson	3	A	Replace ACT in South wing	7,000	sq. ft.	$ 6.00	$ 42,000.00

School	Priority	Discipline (A,H,P,E,C)	Description	Cost			
				Qty	Units	$/Unit	Estimated Total
Dickinson	4	A	Fix vct in the cafeteria at expasnion joint	35	lf	$ 80.00	$ 2,800.00
Dickinson	4	A	Add ADA stall to restrooms	1	ea	$ 20,000.00	$ 20,000.00
Dickinson	1	C	Playground lot - asphalt				$ 266,000.00
Dickinson	1	C	ADA compliance				$ 39,000.00
Dickinson	3	C	Parking and bus lot - asphalt				$ 384,000.00
Dickinson	3	C	Sidewalk area				$ 90,500.00
Dickinson	3	C	Curb and Gutter				$ 28,500.00
Dickinson	3	E	Replace original main distribution panel	1	ea	$ 20,000.00	$ 20,000.00
Dickinson	3	E	Replace Fire Alarm system	73,100	sq. ft.	$ 5.00	$ 365,500.00
Dickinson	3	E	Replace existing lighting with L.E.D.	73,100	sq. ft.	$ 6.00	$ 438,600.00
Dickinson	3	E	Replace lighting controls	73,100	sq. Ft.	$ 2.00	$ 146,200.00
Dickinson	3	E	Replace paging / bell system	73,100	sq. ft.	$ 2.25	$ 164,475.00
Dickinson	1	H	Replace failed condensing boiler	1	ea	$ 45,000.00	$ 45,000.00
Dickinson	2	H	Remove or patch abandoned unit ventilators	29	ea	$ 1,500.00	$ 43,500.00
Dickinson	2	H	Replace variable frequency drives for all DOAU units	18	ea	$ 5,500.00	$ 99,000.00
Dickinson	3	H	Replace obsolete head-end Niagara controllers	2	ea	$ 12,000.00	$ 24,000.00
Dickinson	3	H	Replace packaged rooftop units	3	ea	$ 60,000.00	$ 180,000.00
Dickinson	3	H	Conduct facility retro-commissioning	73,100	sq. ft.	$ 0.50	$ 36,550.00
Dickinson	5	H	Replace 2010 dedicated outside air units	9	ea	$ 41,600.00	$ 374,400.00
Foxview	2	A	Replace HM Door frames	9	ea	$ 800.00	$ 7,200.00
Foxview	2	A	Replace Alum. Door frames	1,919	sq. ft.	$ 20.00	$ 38,380.00
Foxview	2	A	Replace Art Room casework lowers, add ADA sink	30	LF	$ 350.00	$ 10,500.00
Foxview	2	A	Office Carpet	442	sq. ft.	$ 5.00	$ 2,210.00
Foxview	2	A	Kitchen dishroom ceiling	210	sq. ft.	$ 6.00	$ 1,260.00
Foxview	3	A	Replace aluminum clad wood windows	6,939	sq. ft.	$ 40.00	$ 277,560.00
Foxview	3	A	Replace roofing, add insulation at classroom wing	18,000	sq. ft.	$ 12.00	$ 216,000.00
Foxview	3	A	Replace VCT in Commons	6,680		$ 5.00	$ 33,400.00
Foxview	3	A	Replace fully adhered roofing at Auditorium and Library	6,922	sq. ft.	$ 12.00	$ 83,064.00
Foxview	4	A	Replace roofing at from 2001	12,200	sq. ft.	$ 6.00	$ 73,200.00
Foxview	1	C	Re-configure Staff Parking Lot				$ 20,000.00
Foxview	1	C	Right-of-way Asphalt				$ 63,000.00
Foxview	1	C	ADA Concrete Sidewalk				$ 30,000.00
Foxview	2	C	Replace Staff Parking Lot				$ 365,000.00
Foxview	2	C	Receiving Area				$ 612,000.00
Foxview	2	C	Concrete Sidewalk				$ 125,000.00
Foxview	2	C	Concrete Curb & Gutter				$ 8,000.00
Foxview	3	E	Replace fire alarm system	108,000	sq. ft.	$ 5.00	$ 540,000.00
Foxview	3	E	Replace existing lighting with L.E.D.	108,000	sq. ft.	$ 6.00	$ 648,000.00
Foxview	3	E	Replace clock / bell system	108,000	sq. ft.	$ 3.00	$ 324,000.00

School	Priority	Discipline (A,H,P,E,C)	Description	Cost			
				Qty	Units	$/Unit	Estimated Total
Foxview	1	H	Repair inactive heating coils	3	ea	$ 5,000.00	$ 15,000.00
Foxview	1	H	Repair chilled water piping leaks	1	ea	$ 5,000.00	$ 5,000.00
Foxview	3	H	Replace air-cooled chiller and pumps	108,000	sq. ft.	$ 3.25	$ 351,000.00
Foxview	3	H	Replace heating boilers and pumps	1	ea	$ 360,000.00	$ 360,000.00
Foxview	3	H	Conduct facility retro-commissioning	108,000	sq. ft.	$ 0.50	$ 54,000.00
Foxview	4	H	Revise plenum return configuration	108,000	sq. ft.	$ 0.45	$ 48,600.00
Foxview	5	H	Replace 2001 Air Handling Units	7	ea	$ 88,271.43	$ 617,900.00
Heritage	1	A	bay windows, cover spray foam with intumescent paint	18	ea	$ 750.00	$ 13,500.00
Heritage	1	A	Add power door operator to toilet rooms B132 & B134	2	ea	$ 3,200.00	$ 6,400.00
Heritage	2	A	Bay windows need proper flashing above the roof	18	ea	$ 12,000.00	$ 216,000.00
Heritage	2	A	Add vertical grab bars	12	ea	$ 100.00	$ 1,200.00
Heritage	3	A	Replace exterior doors and frames with HM or FRP	12	ea	$ 1,900.00	$ 22,800.00
Heritage	3	A	replace center mullion of aluminum doors	9	ea	$ 200.00	$ 1,800.00
Heritage	3	A	Touch up caulk at window sills in the classrooms	105	lf	$ 25.00	$ 2,625.00
Heritage	3	A	Replace ballasted roofing	89,880	sq. ft.	$ 5.00	$ 449,400.00
Heritage	4	A	Develop schedule to replace carpet in classrooms	27,600	sq. ft.	$ 5.00	$ 138,000.00
Heritage	1	C	ADA Concrete Curb Ramps				$ 24,000.00
Heritage	2	C	Bus Lot - Asphalt				$ 252,000.00
Heritage	3	C	Parking Lot Routine Maintenance - 2-5 year fix				$ 128,000.00
Heritage	3	C	Receiving Area Asphalt				$ 225,000.00
Heritage	3	C	Playground - Asphalt				$ 63,000.00
Heritage	3	C	Concrete Curb & Gutter				$ 22,000.00
Heritage	4	C	Drop Off Lane/Parking				$ 209,000.00
Heritage	5	C	Parking Lot Pavement Replacement - 15 year fix				$ 368,000.00
Heritage	3	E	Provide generator/backup electrical distribution	1	ea	$ 150,000.00	$ 150,000.00
Heritage	3	E	Replace existing lighting with L.E.D.	105,500	sq. ft.	$ 6.00	$ 633,000.00
Heritage	3	E	Replace paging / clock / bell system	105,500	sq. ft.	$ 3.50	$ 369,250.00
Heritage	2	H	Repair existing cooling tower	1	ea	$ 25,000.00	$ 25,000.00
Heritage	3	H	Conduct facility retro-commissioning	105,500	sq. ft.	$ 0.50	$ 52,750.00
Heritage	4	H	Replace chilled water plant	105,500	sq. ft.	$ 3.25	$ 342,875.00
Heritage	4	H	Add cooling to gymnasium	2	ea	$ 12,500.00	$ 25,000.00
Heritage	4	H	Revise plenum return configuration	105,500	sq. ft.	$ 0.45	$ 47,475.00
Heritage	5	H	Replace 1996 Air Handling Units	7	ea		$ -
High School	1	A	Hire expert to investigate down roof leaks				
High School	2	A	Recaulk exterior window sills	35	ea	$ 200.00	$ 7,000.00
High School	2	A	Repair drywall at window jambs above the sill	12	ea	$ 400.00	$ 4,800.00
High School	2	A	Recaulk and repaint CMU walls NW classroom window walls	28	ea	$ 150.00	$ 4,200.00
High School	2	A	Replace HM Doors and frames	7	ea	$ 2,000.00	$ 14,000.00

School	Priority	Discipline (A,H,P,E,C)	Description	Cost Qty	Units	$/Unit	Estimated Total
High School	2	A	Replace Aluminum double door frames	12	pairs	$ 1,700.00	$ 20,400.00
High School	2	A	Replace main locker room vanities (3) bowl sinks	20	LF	$ 350.00	$ 7,000.00
High School	2	A	Modify 1 science lab station to be ADA accessible w/sink	10	ea	$ 2,250.00	$ 22,500.00
High School	2	A	Add vertical grab bars	18	ea	$ 100.00	$ 1,800.00
High School	3	A	Replace HM Door frames	10	ea	$ 800.00	$ 8,000.00
High School	3	A	Provide ADA stall, ADA toilets	900	sq. ft.	$ 250.00	$ 225,000.00
High School	3	A	Replace team lockers with new	300	LF	$ 400.00	$ 120,000.00
High School	3	A	Fill floor joints and new VCT	50	LF	$ 80.00	$ 4,000.00
High School	2	C	Parking lot east side - Option #1 maintenance and patching				$ 192,000.00
High School	2	C	Drop off lane and road to Middle School				$ 392,000.00
High School	2	C	Parking lot west side				$ 524,000.00
High School	2	C	Sidewalks				$ 50,000.00
High School	2	C	ADA Concrete Curb Ramps				$ 12,000.00
High School	2	C	Libal Street - ADA concrete curb ramps				$ 13,000.00
High School	3	C	Curb and Gutter				$ 44,000.00
High School	3	C	Libal Street - Asphalt				$ 164,000.00
High School	3	C	Libal Street - Sidewalks				$ 9,000.00
High School	3	C	Libal Street - Curb and Gutter				$ 2,000.00
High School	4	C	Parking lot east side - Option #2 replacement				$ 871,000.00
High School	5	C	Receiving area - Option #1 10-15 year fix				$ 213,000.00
High School	5	C	Receiving area - Option #2 20+ year fix				$ 373,000.00
High School	3	E	Replace older electrical distribution panels	1	ea	$ 17,500.00	$ 17,500.00
High School	3	E	Replace older electrical branch panels	1	ea	$ 12,500.00	$ 12,500.00
High School	3	E	Fire Alarm, update everything except FACP	296,000	sq. ft.	$ 1.50	$ 444,000.00
High School	3	E	Replace existing lighting with L.E.D.	296,000	sq. ft.	$ 6.00	$ 1,776,000.00
High School	3	E	Replace paging / bell system	296,000	sq. ft.	$ 2.25	$ 666,000.00
High School	4	E	Replacement of existing generator	1	ea	$ 100,000.00	$ 100,000.00
High School	2	H	Replace 1976 Air Handling Units	4	ea	$ 100,593.75	$ 402,375.00
High School	2	H	Repair or replace piping insulation on chilled water pipe	1	ea	$ 25,000.00	$ 25,000.00
High School	3	H	Replace obsolete head-end Niagara controllers	3	ea	$ 12,000.00	$ 36,000.00
High School	3	H	Replace terminal controllers and hot water valve	230	ea	$ 1,400.00	$ 322,000.00
High School	3	H	Conduct facility retro-commissioning	296,000	sq. ft.	$ 0.50	$ 148,000.00
High School	4	H	Replace water-tube boiler with condensing boiler	1	ea	$ 100,000.00	$ 100,000.00
High School	4	H	Revise plenum return configuration	296,000	ea	$ 0.45	$ 133,200.00
High School	5	H	Replace 2001 Air Handling Units	11	ea	$ 77,463.64	$ 852,100.00
High School	5	H	Replace 2006 Air Handling Units	2	ea	$ 70,900.00	$ 141,800.00
High School	5	H	Replace 2001 Air-Cooled Chiller	1	ea	$ 425,000.00	$ 425,000.00

School	Priority	Discipline (A,H,P,E,C)	Description	Cost Qty	Units	$/Unit	Estimated Total
High School	5	H	Replace 2006 Air-Cooled Chiller	1	ea	$ 389,025.00	$ 389,025.00
Middle School	1	A	vestibule	552	LF	$ 40.00	$ 22,080.00
Middle School	1	A	New grid ceiling in the Kitchen and dishwashing room	1,885	sq. ft.	$ 6.00	$ 11,310.00
Middle School	1	A	Replace HM Door frames	43	ea	$ 800.00	$ 34,400.00
Middle School	2	A	Provide concrete sidewalks to exterior doors in courtyards	1,500	sq. ft.	$ 14.00	$ 21,000.00
Middle School	2	A	Misc. EIFS patching	100	sq. ft.	$ 14.00	$ 1,400.00
Middle School	2	A	Reinsulate the skylight walls in the main vestibules.	3	ea	$ 5,000.00	$ 15,000.00
Middle School	2	A	Add a pipe diverter to lambs tongues to stop splashing	10	ea	$ 2,000.00	$ 20,000.00
Middle School	2	A	Fix window leaks at office				$ -
Middle School	2	A	Add vertical grab bars at ADA toilets	10	ea	$ 100.00	$ 1,000.00
Middle School	3	A	Remove curved windows and replace with typical storefront	240	sq. ft.	$ 60.00	$ 14,400.00
Middle School	3	A	Remove gang showers. Make storage and 1-2 shower stalls	690	sq. ft.	$ 250.00	$ 172,500.00
Middle School	3	A	Remove upper parts of wash station walls	40	LF	$ 160.00	$ 6,400.00
Middle School	1	C	ADA Concrete Curb Ramp				$ 25,000.00
Middle School	2	C	Bus Drop Off Lane				$ 539,000.00
Middle School	2	C	Bus Lot - Asphalt				$ 417,000.00
Middle School	3	C	Asphalt				$ 340,000.00
Middle School	3	C	Receiving Area - Asphalt				$ 118,000.00
Middle School	3	C	Asphalt Sidewalk				$ 158,000.00
Middle School	3	C	Concrete Curb & Gutter				$ 26,000.00
Middle School	3	E	Provide generator/backup electrical distribution	1	ea	$ 150,000.00	$ 150,000.00
Middle School	3	E	Replace Fire Alarm system	119,700	sq. ft.	$ 5.00	$ 598,500.00
Middle School	3	E	Replace existing lighting with L.E.D.	119,700	sq. ft.	$ 6.00	$ 718,200.00
Middle School	3	E	Replace paging / clock / bell system	119,700	sq. ft.	$ 3.50	$ 418,950.00
Middle School	2	H	Install redundant boiler to replace 2 water-tube boilers	1	ea	$ 130,000.00	$ 130,000.00
Middle School	2	H	Repair existing cooling tower	1	ea	$ 25,000.00	$ 25,000.00
Middle School	3	H	Replace obsolete head-end Niagara controllers	2	ea	$ 12,000.00	$ 24,000.00
Middle School	3	H	Conduct duct cleaning	119,700	sq. ft.	$ 0.25	$ 29,925.00
Middle School	3	H	Conduct facility retro-commissioning	119,700	sq. ft.	$ 0.50	$ 59,850.00
Middle School	4	H	Replace chilled water plant	119,700	ea	$ 3.25	$ 389,025.00
Middle School	4	H	Add cooling to gymnasium	2	ea	$ 15,000.00	$ 30,000.00
Middle School	4	H	Revise plenum return configuration	119,700	sq. ft.	$ 0.45	$ 53,865.00
Middle School	5	H	Replace 1996 Air Handling Units	9	ea	$ 89,877.78	$ 808,900.00

UNIFIED SCHOOL DISTRICT OF DE PERE - FACILITY STUDY

ESTIMATED REMODEL COST SUMMARY

School	Priority	Discipline (A,H,P,E,C)	Description	Cost Qty	Units	$/Unit	Estimated Total
Altmayer	1	C	Drop Off Lane Asphalt				$ 166,000.00
Altmayer	1	C	Bus Lot Asphalt				$ 11,500.00
Altmayer	1	C	ADA Concrete Sidewalks				$ 26,000.00
Altmayer	1	H	Repair powered roof ventilators	1	ea	$ 6,000.00	$ 6,000.00
Dickinson	1	C	Playground lot - asphalt				$ 266,000.00
Dickinson	1	C	ADA compliance				$ 39,000.00
Dickinson	1	H	Replace failed condensing boiler	1	ea	$ 45,000.00	$ 45,000.00
Foxview	1	C	Re-configure Staff Parking Lot				$ 20,000.00
Foxview	1	C	Right-of-way Asphalt				$ 63,000.00
Foxview	1	C	ADA Concrete Sidewalk				$ 30,000.00
Foxview	1	H	Repair inactive heating coils	3	ea	$ 5,000.00	$ 15,000.00
Foxview	1	H	Repair chilled water piping leaks	1	ea	$ 5,000.00	$ 5,000.00
Heritage	1	A	bay windows, cover spray foam with intumescent paint	18	ea	$ 750.00	$ 13,500.00
Heritage	1	A	Add power door operator to toilet rooms B132 & B134	2	ea	$ 3,200.00	$ 6,400.00
Heritage	1	C	ADA Concrete Curb Ramps				$ 24,000.00
High School	1	A	Hire expert to investigate down roof leaks				
Middle School	1	A	vestibule	552	LF	$ 40.00	$ 22,080.00
Middle School	1	A	New grid ceiling in the Kitchen and dishwashing room	1,885	sq. ft.	$ 6.00	$ 11,310.00
Middle School	1	A	Replace HM Door frames	43	ea	$ 800.00	$ 34,400.00
Middle School	1	C	ADA Concrete Curb Ramp				$ 25,000.00
Altmayer	2	A	Replace some rubber flooring joints	34	lf	$ 50.00	$ 1,700.00
Altmayer	2	A	Add vertical grab bars at ADA toilets	24	ea	$ 100.00	$ 2,400.00
Altmayer	2	H	Repair damaged grilles and fabric ductwork	1	ea	$ 4,000.00	$ 4,000.00
Dickinson	2	A	Re-roof and insulation for entire buiding	73,000	sq. ft.	$ 12.00	$ 876,000.00
Dickinson	2	A	Replace penthouse metal wall panels	2,500	sq. ft.	$ 10.00	$ 25,000.00
Dickinson	2	A	Remove skylights, infill structure	8	ea	$ 2,000.00	$ 16,000.00
Dickinson	2	A	Replace wood doors and round door knobs	34	ea	$ 1,500.00	$ 51,000.00
Dickinson	2	H	Remove or patch abandoned unit ventilators	29	ea	$ 1,500.00	$ 43,500.00
Dickinson	2	H	Replace variable frequency drives for all DOAU units	18	ea	$ 5,500.00	$ 99,000.00
Foxview	2	A	Replace HM Door frames	9	ea	$ 800.00	$ 7,200.00
Foxview	2	A	Replace Alum. Door frames	1,919	sq. ft.	$ 20.00	$ 38,380.00
Foxview	2	A	Replace Art Room casework lowers, add ADA sink	30	LF	$ 350.00	$ 10,500.00
Foxview	2	A	Office Carpet	442	sq. ft.	$ 5.00	$ 2,210.00
Foxview	2	A	Kitchen dishroom ceiling	210	sq. ft.	$ 6.00	$ 1,260.00

School	Priority	Discipline (A,H,P,E,C)	Description	Cost			
				Qty	Units	$/Unit	Estimated Total
Foxview	2	C	Replace Staff Parking Lot				$ 365,000.00
Foxview	2	C	Receiving Area				$ 612,000.00
Foxview	2	C	Concrete Sidewalk				$ 125,000.00
Foxview	2	C	Concrete Curb & Gutter				$ 8,000.00
Heritage	2	A	Bay windows need proper flashing above the roof	18	ea	$ 12,000.00	$ 216,000.00
Heritage	2	A	Add vertical grab bars	12	ea	$ 100.00	$ 1,200.00
Heritage	2	C	Bus Lot - Asphalt				$ 252,000.00
Heritage	2	H	Repair existing cooling tower	1	ea	$ 25,000.00	$ 25,000.00
High School	2	A	Recaulk exterior window sills	35	ea	$ 200.00	$ 7,000.00
High School	2	A	Repair drywall at window jambs above the sill	12	ea	$ 400.00	$ 4,800.00
High School	2	A	Recaulk and repaint CMU walls NW classroom window walls	28	ea	$ 150.00	$ 4,200.00
High School	2	A	Replace HM Doors and frames	7	ea	$ 2,000.00	$ 14,000.00
High School	2	A	Replace Aluminum double door frames	12	pairs	$ 1,700.00	$ 20,400.00
High School	2	A	Replace main locker room vanities (3) bowl sinks	20	LF	$ 350.00	$ 7,000.00
High School	2	A	Modify 1 science lab station to be ADA accessible w/sink	10	ea	$ 2,250.00	$ 22,500.00
High School	2	A	Add vertical grab bars	18	ea	$ 100.00	$ 1,800.00
High School	2	C	Parking lot east side - Option #1 maintenance and patching				$ 192,000.00
High School	2	C	Drop off lane and road to Middle School				$ 392,000.00
High School	2	C	Parking lot west side				$ 524,000.00
High School	2	C	Sidewalks				$ 50,000.00
High School	2	C	ADA Concrete Curb Ramps				$ 12,000.00
High School	2	C	Libal Street - ADA concrete curb ramps				$ 13,000.00
High School	2	H	Replace 1976 Air Handling Units	4	ea	$ 100,593.75	$ 402,375.00
High School	2	H	Repair or replace piping insulation on chilled water pipe	1	ea	$ 25,000.00	$ 25,000.00
Middle School	2	A	Provide concrete sidewalks to exterior doors in courtyards	1,500	sq. ft.	$ 14.00	$ 21,000.00
Middle School	2	A	Misc. EIFS patching	100	sq. ft.	$ 14.00	$ 1,400.00
Middle School	2	A	Reinsulate the skylight walls in the main vestibules.	3	ea	$ 5,000.00	$ 15,000.00
Middle School	2	A	Add a pipe diverter to lambs tongues to stop splashing	10	ea	$ 2,000.00	$ 20,000.00
Middle School	2	A	Fix window leaks at office				$ -
Middle School	2	A	Add vertical grab bars at ADA toilets	10	ea	$ 100.00	$ 1,000.00
Middle School	2	C	Bus Drop Off Lane				$ 539,000.00
Middle School	2	C	Bus Lot - Asphalt				$ 417,000.00
Middle School	2	H	Install redundant boiler to replace 2 water-tube boilers	1	ea	$ 130,000.00	$ 130,000.00
Middle School	2	H	Repair existing cooling tower	1	ea	$ 25,000.00	$ 25,000.00
Altmayer	3	A	Replace sealant at classroom window sills	480	lf	$ 25.00	$ 12,000.00
Altmayer	3	A	Replace PLAM countertops at some sinks	12	lf	$ 250.00	$ 3,000.00
Altmayer	3	A	Check roof drainage pitch on (2) active relief drains	2	ea		$ -
Altmayer	3	C	Parking Lot Asphalt				$ 117,000.00
Altmayer	3	C	Receiving Area Asphalt				$ 114,000.00

School	Priority	Discipline (A,H,P,E,C)	Description	Cost			
				Qty	Units	$/Unit	Estimated Total
Altmayer	3	C	Playground Asphalt				$ 183,000.00
Altmayer	3	C	Sidewalk				$ 184,000.00
Altmayer	3	C	Concrete Curb & Gutter				$ 14,500.00
Altmayer	3	E	Replace existing lighting with L.E.D.	110,250	sq. ft.	$ 6.00	$ 661,500.00
Altmayer	3	E	Replace lighting controls	110,250	sq. ft.	$ 2.00	$ 220,500.00
Altmayer	3	H	Replace obsolete head-end Niagara controllers	2	ea	$ 12,000.00	$ 24,000.00
Altmayer	3	H	Install third boiler for redundancy	1	ea	$ 120,000.00	$ 120,000.00
Altmayer	3	H	Provide low temperature mixing for panel radiators	1	ea	$ 10,000.00	$ 10,000.00
Altmayer	3	H	Conduct facility retro-commissioning	110,250	sq. ft.	$ 0.50	$ 55,125.00
Dickinson	3	A	Replace exterior doors and frames with HM or FRP	12	ea	$ 1,900.00	$ 22,800.00
Dickinson	3	A	Replace dish washing area ACT	225	sq. ft.	$ 6.00	$ 1,350.00
Dickinson	3	A	Replace 1958 casework sink doors.	8	ea	$ 200.00	$ 1,600.00
Dickinson	3	A	Replace VCT tile south wing	7,000	sq. ft.	$ 5.00	$ 35,000.00
Dickinson	3	A	Replace ACT in South wing	7,000	sq. ft.	$ 6.00	$ 42,000.00
Dickinson	3	C	Parking and bus lot - asphalt				$ 384,000.00
Dickinson	3	C	Sidewalk area				$ 90,500.00
Dickinson	3	C	Curb and Gutter				$ 28,500.00
Dickinson	3	E	Replace original main distribution panel	1	ea	$ 20,000.00	$ 20,000.00
Dickinson	3	E	Replace Fire Alarm system	73,100	sq. ft.	$ 5.00	$ 365,500.00
Dickinson	3	E	Replace existing lighting with L.E.D.	73,100	sq. ft.	$ 6.00	$ 438,600.00
Dickinson	3	E	Replace lighting controls	73,100	sq. Ft.	$ 2.00	$ 146,200.00
Dickinson	3	E	Replace paging / bell system	73,100	sq. ft.	$ 2.25	$ 164,475.00
Dickinson	3	H	Replace obsolete head-end Niagara controllers	2	ea	$ 12,000.00	$ 24,000.00
Dickinson	3	H	Replace packaged rooftop units	3	ea	$ 60,000.00	$ 180,000.00
Dickinson	3	H	Conduct facility retro-commissioning	73,100	sq. ft.	$ 0.50	$ 36,550.00
Foxview	3	A	Replace aluminum clad wood windows	6,939	sq. ft.	$ 40.00	$ 277,560.00
Foxview	3	A	Replace roofing, add insulation at classroom wing	18,000	sq. ft.	$ 12.00	$ 216,000.00
Foxview	3	A	Replace VCT in Commons	6,680		$ 5.00	$ 33,400.00
Foxview	3	A	Replace fully adhered roofing at Auditorium and Library	6,922	sq. ft.	$ 12.00	$ 83,064.00
Foxview	3	E	Replace fire alarm system	108,000	sq. ft.	$ 5.00	$ 540,000.00
Foxview	3	E	Replace existing lighting with L.E.D.	108,000	sq. ft.	$ 6.00	$ 648,000.00
Foxview	3	E	Replace clock / bell system	108,000	sq. ft.	$ 3.00	$ 324,000.00
Foxview	3	H	Replace air-cooled chiller and pumps	108,000	sq. ft.	$ 3.25	$ 351,000.00
Foxview	3	H	Replace heating boilers and pumps	1	ea	$ 360,000.00	$ 360,000.00
Foxview	3	H	Conduct facility retro-commissioning	108,000	sq. ft.	$ 0.50	$ 54,000.00
Heritage	3	A	Replace exterior doors and frames with HM or FRP	12	ea	$ 1,900.00	$ 22,800.00
Heritage	3	A	replace center mullion of aluminum doors	9	ea	$ 200.00	$ 1,800.00
Heritage	3	A	Touch up caulk at window sills in the classrooms	105	lf	$ 25.00	$ 2,625.00

School	Priority	Discipline (A,H,P,E,C)	Description	Cost			
				Qty	Units	$/Unit	Estimated Total
Heritage	3	A	Replace ballasted roofing	89,880	sq. ft.	$ 5.00	$ 449,400.00
Heritage	3	C	Parking Lot Routine Maintenance - 2-5 year fix				$ 128,000.00
Heritage	3	C	Receiving Area Asphalt				$ 225,000.00
Heritage	3	C	Playground - Asphalt				$ 63,000.00
Heritage	3	C	Concrete Curb & Gutter				$ 22,000.00
Heritage	3	E	Provide generator/backup electrical distribution	1	ea	$ 150,000.00	$ 150,000.00
Heritage	3	E	Replace existing lighting with L.E.D.	105,500	sq. ft.	$ 6.00	$ 633,000.00
Heritage	3	E	Replace paging / clock / bell system	105,500	sq. ft.	$ 3.50	$ 369,250.00
Heritage	3	H	Conduct facility retro-commissioning	105,500	sq. ft.	$ 0.50	$ 52,750.00
High School	3	A	Replace HM Door frames	10	ea	$ 800.00	$ 8,000.00
High School	3	A	Provide ADA stall, ADA toilets	900	sq. ft.	$ 250.00	$ 225,000.00
High School	3	A	Replace team lockers with new	300	LF	$ 400.00	$ 120,000.00
High School	3	A	Fill floor joints and new VCT	50	LF	$ 80.00	$ 4,000.00
High School	3	C	Curb and Gutter				$ 44,000.00
High School	3	C	Libal Street - Asphalt				$ 164,000.00
High School	3	C	Libal Street - Sidewalks				$ 9,000.00
High School	3	C	Libal Street - Curb and Gutter				$ 2,000.00
High School	3	E	Replace older electrical distribution panels	1	ea	$ 17,500.00	$ 17,500.00
High School	3	E	Replace older electrical branch panels	1	ea	$ 12,500.00	$ 12,500.00
High School	3	E	Fire Alarm, update everything except FACP	296,000	sq. ft.	$ 1.50	$ 444,000.00
High School	3	E	Replace existing lighting with L.E.D.	296,000	sq. ft.	$ 6.00	$ 1,776,000.00
High School	3	E	Replace paging / bell system	296,000	sq. ft.	$ 2.25	$ 666,000.00
High School	3	H	Replace obsolete head-end Niagara controllers	3	ea	$ 12,000.00	$ 36,000.00
High School	3	H	Replace terminal controllers and hot water valve	230	ea	$ 1,400.00	$ 322,000.00
High School	3	H	Conduct facility retro-commissioning	296,000	sq. ft.	$ 0.50	$ 148,000.00
Middle School	3	A	Remove curved windows and replace with typical storefront	240	sq. ft.	$ 60.00	$ 14,400.00
Middle School	3	A	Remove gang showers. Make storage and 1-2 shower stalls	690	sq. ft.	$ 250.00	$ 172,500.00
Middle School	3	A	Remove upper parts of wash station walls	40	LF	$ 160.00	$ 6,400.00
Middle School	3	C	Asphalt				$ 340,000.00
Middle School	3	C	Receiving Area - Asphalt				$ 118,000.00
Middle School	3	C	Asphalt Sidewalk				$ 158,000.00
Middle School	3	C	Concrete Curb & Gutter				$ 26,000.00
Middle School	3	E	Provide generator/backup electrical distribution	1	ea	$ 150,000.00	$ 150,000.00
Middle School	3	E	Replace Fire Alarm system	119,700	sq. ft.	$ 5.00	$ 598,500.00
Middle School	3	E	Replace existing lighting with L.E.D.	119,700	sq. ft.	$ 6.00	$ 718,200.00
Middle School	3	E	Replace paging / clock / bell system	119,700	sq. ft.	$ 3.50	$ 418,950.00
Middle School	3	H	Replace obsolete head-end Niagara controllers	2	ea	$ 12,000.00	$ 24,000.00
Middle School	3	H	Conduct duct cleaning	119,700	sq. ft.	$ 0.25	$ 29,925.00

School	Priority	Discipline (A,H,P,E,C)	Description	Cost			
				Qty	Units	$/Unit	Estimated Total
Middle School	3	H	Conduct facility retro-commissioning	119,700	sq. ft.	$ 0.50	$ 59,850.00
Altmayer	4	A	Replace exterior doors and frames with HM or FRP	22	ea	$ 1,900.00	$ 41,800.00
Altmayer	4	H	Replace boiler plant	1	ea	$ 280,000.00	$ 280,000.00
Dickinson	4	A	Fix vct in the cafeteria at expasnion joint	35	lf	$ 80.00	$ 2,800.00
Dickinson	4	A	Add ADA stall to restrooms	1	ea	$ 20,000.00	$ 20,000.00
Foxview	4	A	Replace roofing at from 2001	12,200	sq. ft.	$ 6.00	$ 73,200.00
Foxview	4	H	Revise plenum return configuration	108,000	sq. ft.	$ 0.45	$ 48,600.00
Heritage	4	A	Develop schedule to replace carpet in classrooms	27,600	sq. ft.	$ 5.00	$ 138,000.00
Heritage	4	C	Drop Off Lane/Parking				$ 209,000.00
Heritage	4	H	Replace chilled water plant	105,500	sq. ft.	$ 3.25	$ 342,875.00
Heritage	4	H	Add cooling to gymnasium	2	ea	$ 12,500.00	$ 25,000.00
Heritage	4	H	Revise plenum return configuration	105,500	sq. ft.	$ 0.45	$ 47,475.00
High School	4	C	Parking lot east side - Option #2 replacement				$ 871,000.00
High School	4	E	Replacement of existing generator	1	ea	$ 100,000.00	$ 100,000.00
High School	4	H	Replace water-tube boiler with condensing boiler	1	ea	$ 100,000.00	$ 100,000.00
High School	4	H	Revise plenum return configuration	296,000	ea	$ 0.45	$ 133,200.00
Middle School	4	H	Replace chilled water plant	119,700	ea	$ 3.25	$ 389,025.00
Middle School	4	H	Add cooling to gymnasium	2	ea	$ 15,000.00	$ 30,000.00
Middle School	4	H	Revise plenum return configuration	119,700	sq. ft.	$ 0.45	$ 53,865.00
Altmayer	5	A	Develop schedule to replace carpet in classrooms	32,000	sf	$ 5.00	$ 160,000.00
Altmayer	5	H	Replace 2007 Air Handling Units	7	ea	$ 79,871.43	$ 559,100.00
Dickinson	5	H	Replace 2010 dedicated outside air units	9	ea	$ 41,600.00	$ 374,400.00
Foxview	5	H	Replace 2001 Air Handling Units	7	ea	$ 88,271.43	$ 617,900.00
Heritage	5	C	Parking Lot Pavement Replacement - 15 year fix				$ 368,000.00
Heritage	5	H	Replace 1996 Air Handling Units	7	ea		$ -
High School	5	C	Receiving area - Option #1 10-15 year fix				$ 213,000.00
High School	5	C	Receiving area - Option #2 20+ year fix				$ 373,000.00
High School	5	H	Replace 2001 Air Handling Units	11	ea	$ 77,463.64	$ 852,100.00
High School	5	H	Replace 2006 Air Handling Units	2	ea	$ 70,900.00	$ 141,800.00
High School	5	H	Replace 2001 Air-Cooled Chiller	1	ea	$ 425,000.00	$ 425,000.00
High School	5	H	Replace 2006 Air-Cooled Chiller	1	ea	$ 389,025.00	$ 389,025.00
Middle School	5	H	Replace 1996 Air Handling Units	9	ea	$ 89,877.78	$ 808,900.00

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