Montgomery Area School District

District Wide Facility Study

August 2022

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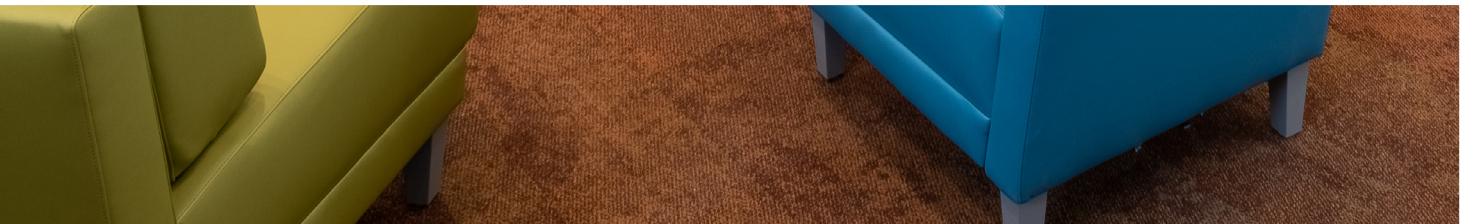
EXECUTIVE SUMMARY



1 | Executive Summary

Forward

Crabtree, Rohrbaugh & Associates is pleased to present this Facilities Study Report to the Montgomery Area School District. This report has been developed to assist the School District Board of Directors, staff and community in the decision-making process regarding the utilization and disposition of its educational facilities.

This study is designed to be utilized as a comprehensive planning tool for school boards and administrators. The study provides decision makers with comprehensive analysis and information which they can use to make operational, financial, and most importantly educational decisions related to facilities.

The primary goal is to help the district best assure that their buildings and grounds are a physical representation of a district's educational vision, a reflection of what is best about the community they serve and are a sound investment for taxpayers. In pursuit of this goal this study documents existing conditions and pertinent information, analyzes the data and information, establishes needs within the district facilities, and generates options to meet those needs. The components of the study are as follows:

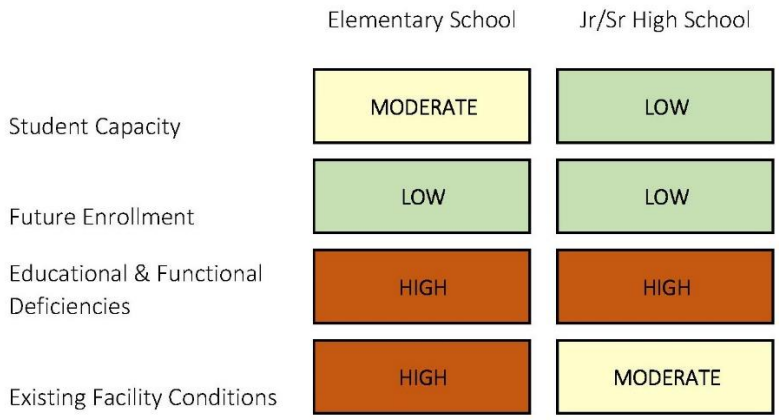
- General overview of the district
- Overview of the Educational Program
- Analysis of each facilities ability to adequately accommodate the educational program, functional operations, and student enrollment
- Analysis of the anticipated growth/decline in enrollment in the district and at each school and its impact to each facility
- Analysis of the existing conditions of the buildings and grounds for each facility
- Cost to upgrade each facility to current standards
- Analysis of construction options to meet the established need

This study includes all of the elements required by the Pennsylvania Department of Education (PDE) to meet the criteria established in the PlanCon district-wide facility study guidelines. Adhering to these guidelines is necessary for submittal to PDE if the district is pursuing reimbursement from the Commonwealth. The full requirements to meet PlanCon district-wide facility study guidelines is found in *Appendix A: Department of Education Requirements* at the end of the study.

Executive Summary

The Montgomery Area School District is a small school district with a small tax base. As with any district of this size, it is difficult to balance all needs throughout the district with limiting funds. The district has done a good job over the years maintaining their facilities with the funds available. However, their current K-12 facility can no longer meet the needs of the district and be maintained as-is. Refer to the matrix of needs which was established based the information gather and analyzed during the feasibility study process.

Matrix of Montgomery Area School District Needs



The educational programmatic needs of the elementary secondary grade levels cannot be met with the existing space available. In addition, the existing facility is in need of a comprehensive renovations to existing components and systems to bring them up to current construction standards.

Construction options were developed to meet these needs. The district is currently at a crossroads and must make a decision to maintain the existing facility as a K-12 facility or relocate the secondary grade levels to the MAACC site. With each option there are pros and cons. Keeping the K-12 facility at its current location will allow the district to upgrade many of the existing building components, however it will max out the existing site and greatly limit future expansion. Moving the secondary grade levels to the MAACC will align the secondary students with the athletic facilities and will also free up space at the existing building to allow the elementary educational program to be met. However, this option will delay major improvement being made to the existing building components and systems until additional funds are available. In the end, the district must make the decision that is best for the long-term future of its students, staff, and community.

Contributors:

Crabtree, Rohrbaugh & Associates is grateful for the support of the administration, staff, members of the Board of School Directors, and community members who partnered with our team to complete this analysis. A Steering Committee was formed to assist in the development of the study and creation of construction options. Six committee meetings were held during the process to review content, gather feedback, and guide the overall study process and goals.

Steering Committee Members

Tony Wright, School Board President
Paul Stryker Jr., School Board Member
Daphne Bowers, Superintendent
James Brecht, Director of Buildings and Grounds
Karen Snyder, Elementary Principal
Kelly Concini, Dir. of Instr.Tech. & Curriculum
Gary Yocum, Board Member
John DeSantis, School Board Member
Grant Evangelisti, Business Manager
Mike Snyder, Athletic Director
Joe Stoudt, High School Principal
Brad Harding, Community Member

Jason Ottman, Community Member
Jason Beckley, Community Member
Danielle Hugar, Community Member
Brett Taylor, Community Member

Guiding Principles:

At the onset of the study, the committee developed guiding principles. Guiding Principles collectively describe the district's vision for its buildings and grounds. They are broad statements of purpose and function that explain how schools and campuses should support students, faculty, staff, families, and the community. Further they describe what the District requires and aspires their schools, libraries, classrooms, play areas, athletic fields and gymnasiums, creative and digital/vocational spaces, performance areas, technology, and campuses to do, how they should "feel", and what is needed of them to support all stakeholders, most importantly students.

The following guiding principles were established:

1. The design and location of educational facilities will be the result of a comprehensive planning process, with expenditures aligned with our financial resources.
2. The educational facilities will provide a comfortable, stimulating learning environment that is conducive to collaboration, meets the diverse learning styles of individual students, and supports an equal educational opportunity for all.
3. The educational facilities will respond to current, and future information, communication and technology needs that will empower staff to deliver a high quality rigorous instructional program blended for the needs of all students.
4. The educational facilities will support community use and educational partnerships with local business and industry.
5. The educational facilities will be inspirational in design features that cultivate the critical thinking, communication, collaboration and creativity of our students.
6. The educational facilities will allow space to encourage academic, athletic and social/emotional growth of our students.
7. The District facilities will be adaptable to future demographic, educational, and community needs.

GEOGRAPHIC AND DEMOGRAPHIC OVERVIEW

2 | Geographic and Demographic Overview

Summary

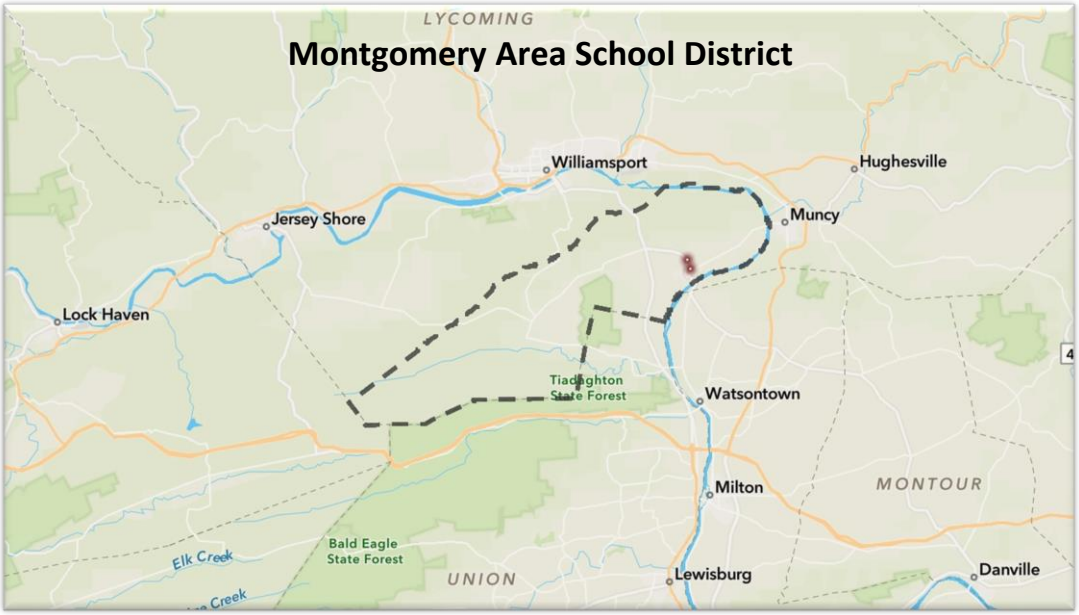
The Montgomery Area School District is a small, rural, public school district in Lycoming County, Pennsylvania. The district's schools are centered on the borough of Montgomery and also serve Clinton Township, Brady Township, and Washington Township. The district encompasses approximately 87 square miles that includes approximately 900 students in one elementary school and one Junior/Senior High School.

A review of the demographic characteristics indicates that since the 2010 census the Montgomery Area School District has had consistent and stable enrollment. This is evidenced by school district enrollments, student retention rates, and students as a percentage of total population, households, and housing units.

Students per residential housing unit and per household have remained constant over the last twelve years averaging 0.36 students per residential housing unit and 0.40 students per household. When considering the impact of potential housing developments, as a rule of thumb, the district can anticipate 0.36 students per new residential unit or 90 students per 250 residential units. Given the time necessary to plan, permit, construct, and occupy a new residential development and given students would be spread across the 13 grade levels, the likelihood of a sudden overwhelming influx of students is low.

District Geography & Distinguishing Characteristics

The Montgomery Area School District is a small, rural, public school district in Lycoming County. The district's schools are centered on the borough of Montgomery and also serve Clinton Township, Brady Township, and Washington Township. The district encompasses approximately 87 square miles.



Properties in Montgomery Area School District

The Montgomery Area School District serves approximately 900 students in one elementary school and one Junior/Senior High School. The school's names, addresses, enrollments, and grade alignments are shown in the tables below.

Elementary School:	Montgomery Elementary School
Grade Alignment:	(Pre K,K-6)
Current Enrollment	528
Street Address of School:	120 Penn Street
City, State, and Zip Code	Montgomery, PA 17752

Secondary School:	Montgomery Jr/Sr High School
Grade Alignment:	7-12
Current Enrollment	404
Street Address of School:	120 Penn Street
City, State, and Zip Code	Montgomery, PA 17752

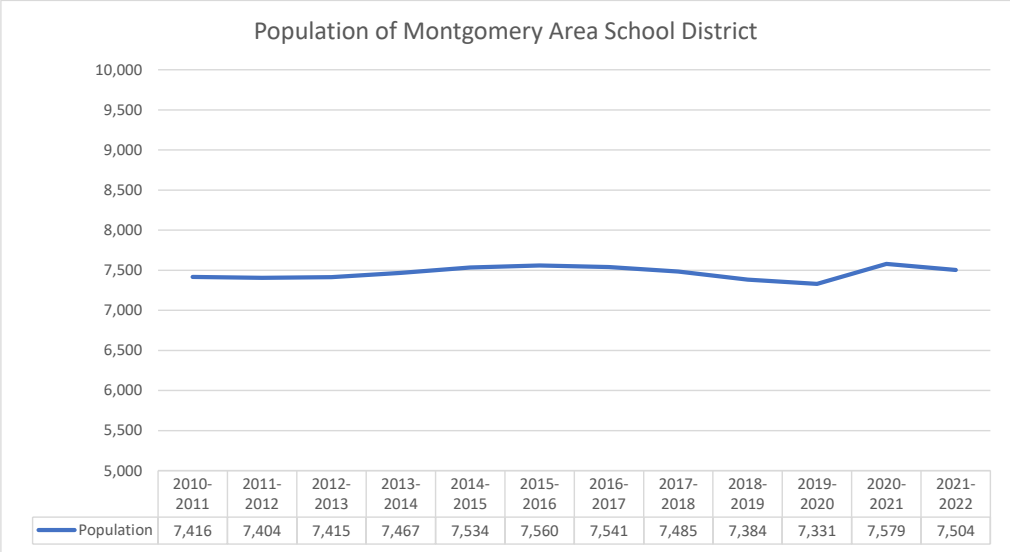
District Population Statistics

Population Size, Median Age, and Growth

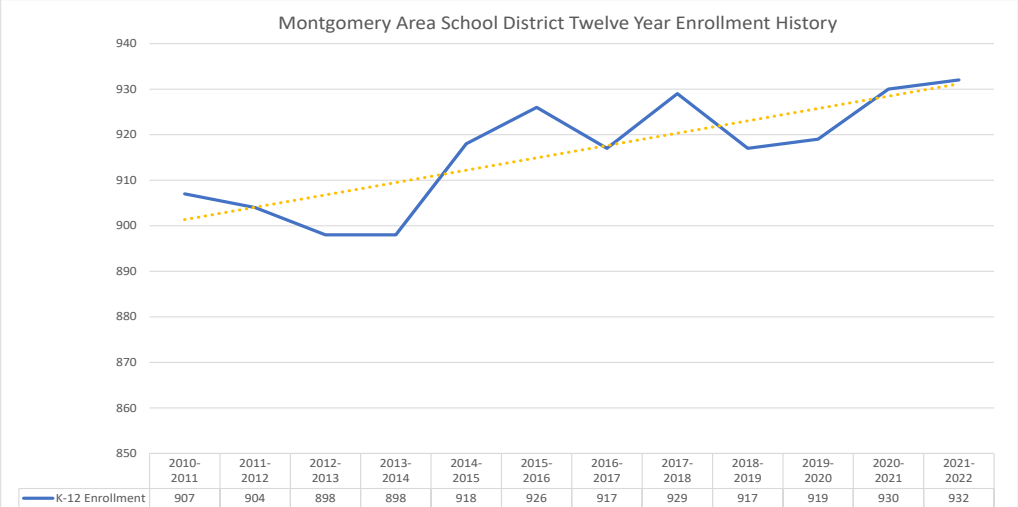
As shown in the table below, in 2021, Montgomery Area School District had an estimated population of 7,504 residents with a median age of 39.6 years. Over the last decade the population of the district increased by 1.17% (88 residents) and now represents 6.63% of Lycoming County's population. In 2010 the district represented 6.39% of the county's population which has declined by -2.55% since 2010.

School District and County Population Size, Median Age, and Growth			
Montgomery Area School District	**Current Median Age**	**2010 Population**	**2021 Population**
	39.6	**7,416**	**7,504**
	District Population Growth Since 2010:		1.17%
	Montgomery Area School District % of County Population:	6.39%	6.63%
County Population Size, Median Age, and Growth			
Lycoming County	**Current Median Age**	**2010 Population**	**2021 Population**
	42.8	**116,089**	**113,202**
		County Population Growth Since 2010:	-2.55%
U.S. Census Department, 2022, July			

Over the past twelve years the annual rate of growth of the total district population averaged 0.10%; approximately 7 new residents per year.



Over the past twelve years the annual rate of enrollment growth averaged 0.30%; approximately 2 new students per year. From the school year 2010/11 to the school year 2021/22 the district gained 25 students.



As discussed in the Enrollment Section of this report the enrollment is projected to decline slightly, but overall remain stable over the next five years.

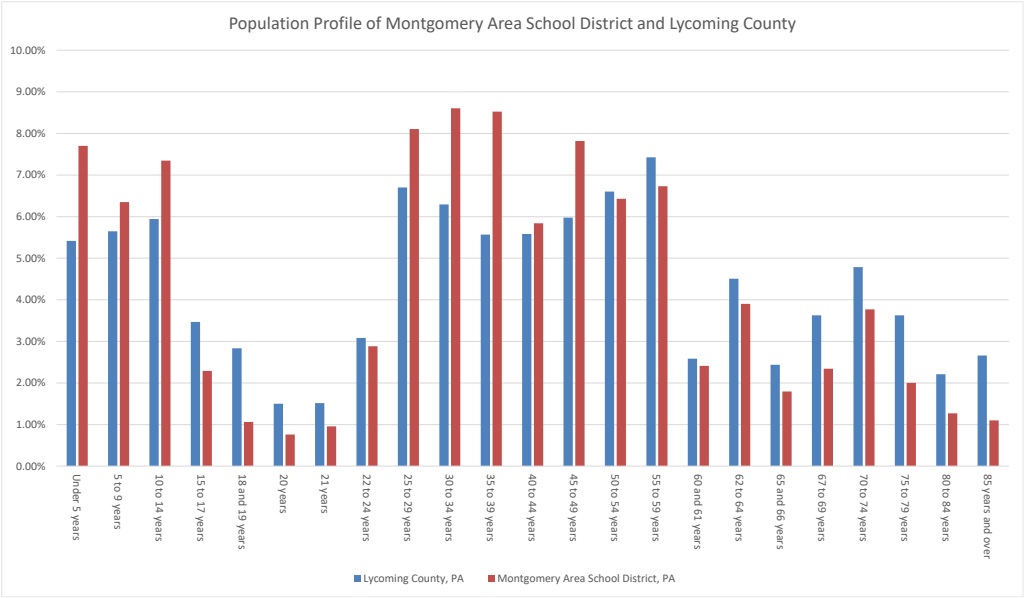
County and District Population Distribution

Age Distribution

As shown in the table and chart below 24.8% of the population in the school district is under 19 years of age and potentially attending or are recent graduates of Montgomery Area School District. 56.7% of the population are adults in age bands that can be acting as single or joint heads of households with children attending public schools and 18.6% of the population represent adults who are supporting public schools intergenerationally.

AGE DISTRIBUTION			
Population Distribution	Lycoming County x by Age American Community Survey 5- % of Population	Montgomery Area School District Month, Year % of Population	Montgomery Area School District Age Bands % of Population
Under 5 Years	5.4%	7.7%	% of Children Potentially Attending Public Schools **24.8%**
5 to 9 Years	5.7%	6.4%	
10 to 14 Years	5.9%	7.4%	
15 to 19 Years	6.3%	3.4%	
20 to 24 Years	6.1%	4.6%	% of Adults Potentially in Households with Students Attending Public Schools **56.7%**
25 to 34 Years	13.0%	16.7%	
35 to 44 Years	11.2%	14.4%	
45 to 54 Years	12.6%	14.3%	
55 to 59 Years	7.4%	6.7%	
60 to 64 Years	7.1%	6.3%	% of Adults in Households Supporting Public Schools Intergenerationally **18.6%**
65 to 74 Years	10.9%	7.9%	
75 to 84 Years	5.8%	3.3%	
85 Years +	2.7%	1.1%	
U.S. Census Department,	*(2016-2020). Sex by Age American Community Survey 5-year estimates*		

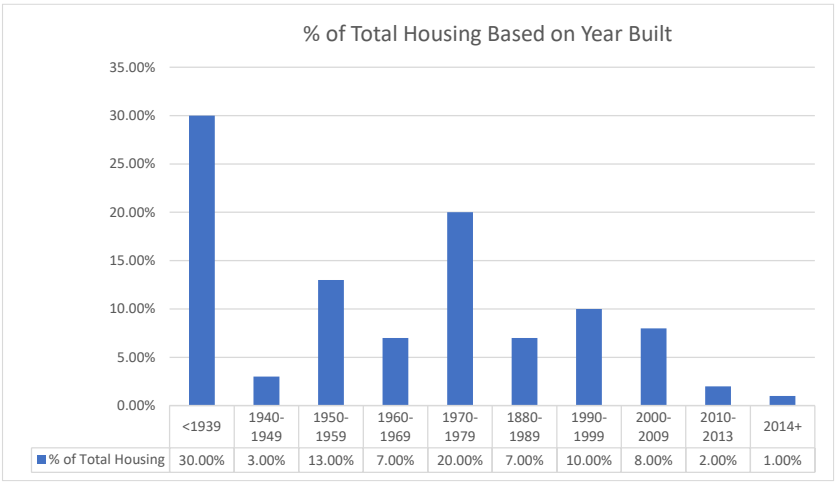
The age distribution of the population of the school district does not mirror the age distribution of the Lycoming County. The percent of the population that represents elementary and middle school students ages 5-14 and adults ages 25 to 59 is higher for Montgomery Area School District than Lycoming County. The opposite is true for high school students and young adults ages 15-24 and adults over 60 years of age.



Though this population profile could be indicative of a district at the onset of a period of enrollment increases, as evidenced by historic growth and enrollment projections there are factors that are keeping that preventing that from occurring. The most likely is the availability of housing units and diverse economic opportunity.

County and District Housing Statistics

97% of the residential units in the Montgomery Area School District were built prior to 2009. Since 2010 only 3% of the total housing inventory was constructed. The following information is provided by the U.S. Census Bureau.



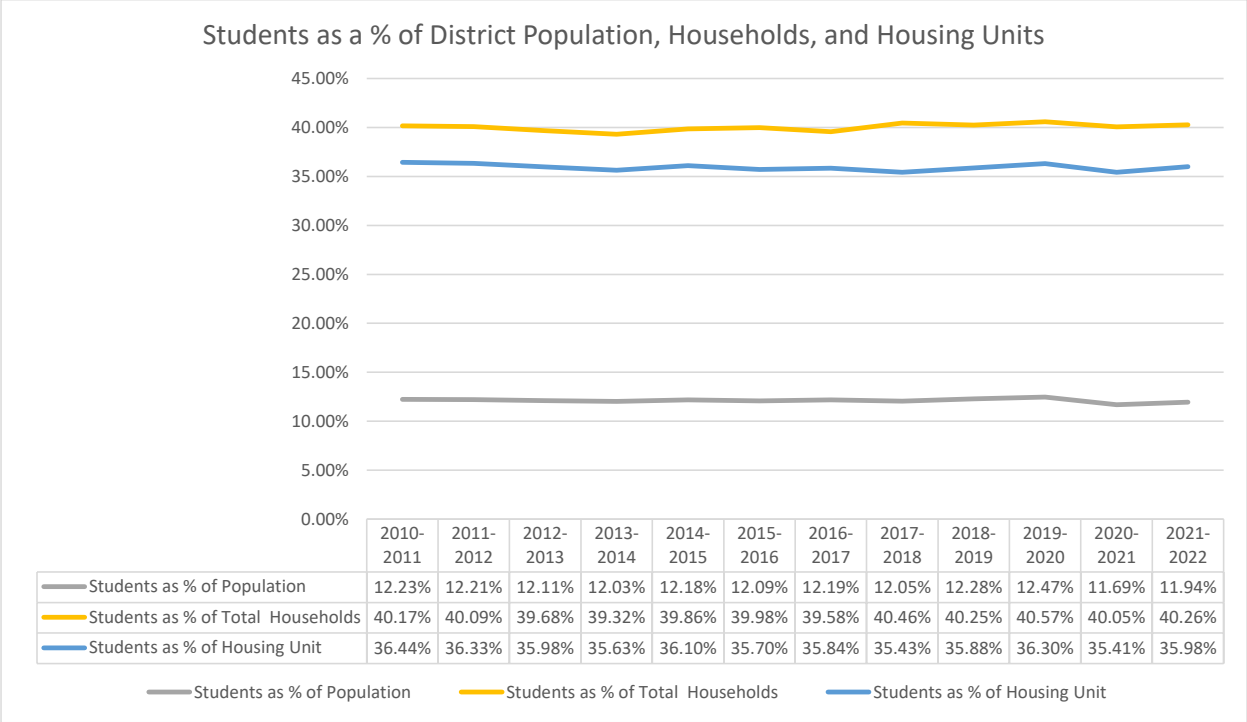
In 2020, the median value of owner-occupied housing units in Montgomery Area School District was $157,700 and slightly below the median value in Lycoming County of $161,900. As a whole and shown in the table below, the district and the county mirror the percent of properties within each price band.

HOUSING UNITS AND HOUSEHOLDS		
Name of Entity	Lycoming County	Montgomery Area School District
Year of Census Data	2,020	2,020
Median Home Value (Owner Occupied)	$161,900.00	$157,700.00
Number of Housing Units	53,533	2,406
Number of Households	46,160	2,134
Price Range	% of Units in Range	% of Units in Range
Under $100K	22.6%	27.3%
$100K - $200K	42.4%	41.4%
$200K - $300K	21.5%	18.1%
$300K - $400K	7.8%	6.4%
$400K - $500K	2.6%	1.2%
$500K - $1M	2.5%	5.3%
Over $1M	0.3%	0.1%
U.S. Census Department, 2020		

Students, per residential housing unit has remained constant over the last twelve years ranging from 0.36 to 0.37 students per unit and averaging 0.36 students per residential unit. Likewise, students as a percentage of households have also remained constant ranging from 0.39 students per household to 0.41 and averaging 0.40 students per household. The average students per housing unit and per household was not impacted when the pandemic years were included in the averages since 2010/11.

Measure	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2010/11 to 2021/22			2010/11 to 2019/20		
													Minimum	Maximum	Average	Minimum	Maximum	Average
Students as % of Population	12.23%	12.21%	12.11%	12.03%	12.18%	12.09%	12.19%	12.05%	12.28%	12.47%	11.69%	11.94%	11.69%	12.47%	12.12%	12.03%	12.47%	12.18%
Students Per Household	0.40	0.40	0.40	0.39	0.40	0.40	0.40	0.40	0.40	0.41	0.40	0.40	0.39	0.41	0.40	0.39	0.41	0.40
Students Per Housing Unit	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.37	0.37	0.36	0.37	0.36	0.36	0.36	0.36
School District Enrollment	907	904	898	898	918	914	919	902	907	914	886	896	886	919	905	898	919	908
Annual Enrollment Change		(3)	(6)	0	20	(4)	5	(17)	5	7	(28)	10	-28	20	-1	-17	20	1

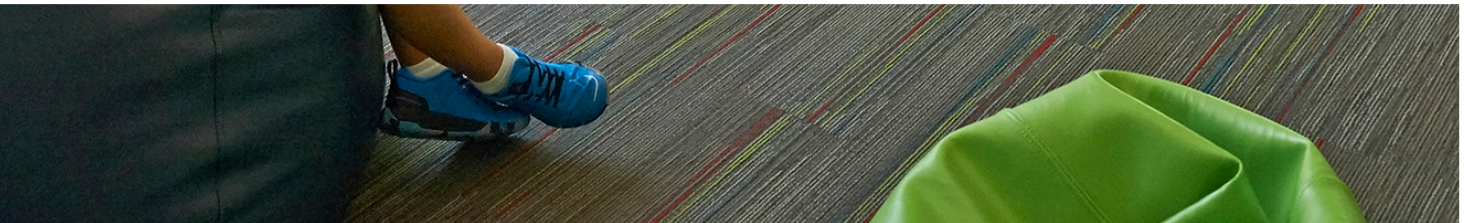
The same data viewed as enrollment as a percentage of total district population, housing units, and households has been very consistent over the past decade. This supports enrollment projections that indicate student enrollments will remain stable.



When considering the impact of potential housing developments, as a rule of thumb, the district can anticipate 0.36 students per new residential unit. While this is an average and can vary depending on the type of unit (single family, multi-family townhouses, one- or two-bedroom apartments, 50+) it will result

in a baseline that can be adjusted up or down depending on the type of housing and price range. For example, a 250-unit development can be anticipated to produce 90 students. If the development was single family homes in the $200,000 price range a 10% increase from the baseline would yield for planning purposes 99 new students. 99 students represent an average of less than 8 students per grade level. It is important to keep in mind that given a development of 250 homes is typically built-in phases and can take more than five years from start to completion, the district would not realize 99 additional students all at once, but more likely 20 per year over the 13 grade levels. This will provide for the district to consider how best to absorb the increase in the student body.

EDUCATIONAL PROGRAM OVERVIEW



3 | Educational Program Overview

Overview

The Montgomery Area School District is a small, rural, public school district in Lycoming County, Pennsylvania. The district's schools are centered on the borough of Montgomery and also serve Clinton Township, Brady Township, and Washington Township. The district encompasses approximately 87 square miles that includes approximately 900 students in one elementary school and one junior/senior high school.

The table below contains data collected by the Pennsylvania Department of Education during the 2021/2022 school year providing a profile of the district's student body:

Student Body Profile				
Grade Alignment and District Enrollment	Elementary	Middle	High School	District
	Pre-K-6	7-8	9-12	K-12
	511	139	265	915
Unique Populations		Race and Ethnicity		
Economically Disadvantaged	54.50%	White		93.40%
English Language Learner	0.20%	Black or African American		0.90%
Special Education	12.80%	American Indian and Alaska Native		0.10%
Percent of Gifted Students	0.30%	Asian		0.70%
Students in Foster Care	0.30%	Islander		0.00%
Homeless Students	0.10%	Hispanic or Latino		2.90%
Military Connected Students	0.00%	Two or More Races		2.00%
% HS Industry Based Learning	40.70%			
Graduation Rates				
Four Year Graduation Rate	94.40%	Five Year Graduation Rate		95.70%
Pennsylvania Department of Education		*2021/2022 School Year*		

District Vision:

Students in the Montgomery Area School District will meet the standards necessary to compete in a global economy

District Mission Statement:

The mission of the Montgomery Area School District, as the leader of an educational partnership with the community, is to ensure that all students will become independent learners, will acquire respect for self and others, and will attain the knowledge and skills needed to become successful, productive members in the ever-changing global community.

District Goals:

- Improve student achievement and outcomes.
- Ensure that students are career and college ready.
- Ensure that the Montgomery Area School District has the most talented staff.
- Ensure that the Montgomery Area School District is financially stable and evidences financial stewardship.

Belief Statements:

What matters most to us is our students and their educational experiences, opportunities, preparation and achievements, therefore; the Montgomery Area School District is committed to providing educational programs that meet the individual needs of all students, whatever it takes. We believe that:

- Educators must be passionate about their subjects and compassionate toward students.
- Educators embrace all aspects of professionalism and the "Montgomery Area School District Standards Based Best Practices"
- Effective educators set high expectations for all students.
- Effective educators provide opportunities for all students to become high achievers.
- All students possess the ability to learn.
- All students possess a natural desire to learn.
- Students are engaged when the learning is relevant and interesting.
- Students learn in different ways and at different rates.
- Education is a professional learning community responsibility.
- A Community that values education prospers.

Curriculum Overview

The Montgomery Area School District offers a Pennsylvania standard aligned curriculum differentiated to meet the needs of all learners. The curriculum is focused on preparing all students for graduation and post-secondary college and career opportunities. The curriculum aligned with state standards, is regularly reviewed and updated, and available to all parents and the community.

The curriculum is comprehensive, providing students with an education in the arts, business education, computer science, English, family and consumer sciences, foreign languages, health, language arts, mathematics, physical education, the sciences, and social studies. Technology instruction has been integrated throughout the K-12 curriculum and all high school students are required to take courses to prepare them to be college and/or career ready after graduation.

The Montgomery Area School District strives to ensure equity and access for all students.

With the help of a supportive community, ample resources, a strong staff, curriculum, and instruction to meet the needs of diverse learners, and many supplemental programs, the Montgomery Area School District is clearly proud of the educational opportunities that it provides for students.

Elementary

At the elementary level the English language arts, math, social studies, and science ground the core curriculum. In addition, classes are provided in music, art, library, technology, and physical education by full-time certified teachers. Students with special needs are provided with the resources necessary to succeed. Additional support in reading/language arts is provided through Title I teachers and programs. Remedial and enrichment opportunities are offered during the school day. Fifth and six graders change classes to begin to ready them for middle school.

Students are afforded access to comprehensive counseling services to assist with academic, career, social and emotional development through leadership, advocacy, and collaboration.

Extra-curricular activities include choral music, band, art displays and demonstrations, field trips, and Odyssey of the mind.

Middle School

The Montgomery Area Middle Level program serve students in grades 7 and 8. The professional staff is dedicated to helping students gain the knowledgeable to become lifelong learners, who will be responsible, productive members of society.

Though grades 7 and 8 are embedded with the high school, middle level students are teamed and the curriculum, instruction, activities, and social events are all designed for young adolescents. English language arts, math, social studies, and science comprise the core curriculum. Opportunities exist within the core curriculum for students who demonstrate readiness to advance into high school level work. In addition to core academics, classes are provided in music, visual arts, technology education, family and consumer science, library, guidance, health and physical education, and skills classes for the adolescent learner. The goal of the special education program is to motivate students to strive to reach their maximum potential, utilizing their own abilities and support services provided by the educational community of the Montgomery Area School District.

A full range of athletic, artistic, and academic extra-curriculars are offered to middle level students including an opportunity to participate in a robust music program.

High School

The Montgomery Area Senior High School offers a continuum of educational opportunities for its students. The curriculum focuses on college and career readiness while maintaining emphasis on mastery of the skills necessary to gain proficiency on the Pennsylvania Keystone Exams.

The graduation requirements of the Montgomery Area School District are consistent with the requirements set forth in Chapter 4 of the PA School Code which establishes rigorous academic standards and assessments, applicable only to the public schools in the Commonwealth, to facilitate the improvement of student achievement and to provide parents and communities a measure by which school performance can be determined.

Students will be required to pass twenty-five (25) credits of academic study in the following areas:

Mathematics	4 Courses
Science	4 Courses
English	4 Courses
Social Studies	3 Courses
Health	1 Course
Physical Education	2 Courses

Career and Technical Education and/or Elective Area courses to fulfill the twenty-five (25) credit requirement are required in addition to the core courses listed above. Career and Technical Education programs include Agricultural Science and Mechanics, Broadcast Communication, Business, Construction, Culinary Arts, and Engineering and Manufacturing.

Students must demonstrate proficiency in meeting standards as measured by the Keystone Exams as determined by the Pennsylvania Department of Education. Students must also successfully complete the Graduation Project: College and Career Readiness Portfolio in order to meet all indicators identified in the PA Future Ready Index. The district offers Advanced Placement High School programs and has developed a dual enrollment articulation agreement with the Pennsylvania College of Technology in Williamsport, PA.

The goal of the special education program is to motivate students to strive to reach their maximum potential, utilizing their own abilities and support services provided by the educational community of the Montgomery Area School District.

Extra-curricular offerings provide a comprehensive program of inter-scholastic sports for boys and girls. Many students participate in multiple activities, including music organizations, such as bands and choruses; musical/drama opportunities; school yearbook and newspaper; and a number of clubs, service organizations, and booster groups.

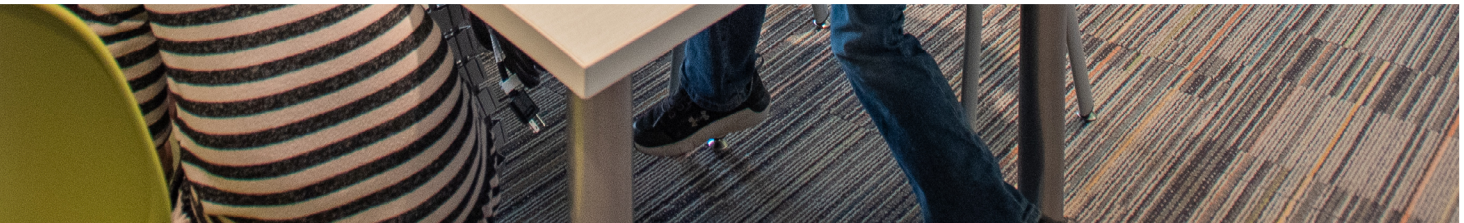
Instructional Practices

The district grounds its expectations for instructional strategies in research-based best practices. The district strives to integrate technology in a variety of ways in order to enhance learning and manage schools and classrooms. Assessment is on-going and utilized to make "real-time" instructional decisions with a focus on meeting the needs of individual learners. The district uses a combination of formative, summative, benchmark, and diagnostic assessments to make decisions regarding student achievement.

The district operates a Virtual Academy open to students K-12. The Academy provides a rigorous, standards-aligned curriculum that is similar to Montgomery's in-person curriculum. The district is committed to expanding the program to provide core, elective, enrichment, and remediation courses. The Virtual Academy was developed initially to provide students with a quality education in a remote learning environment during the pandemic. However, the Academy is also Montgomery's next step in our ongoing mission to provide our students with the knowledge and skills needed to become successful, productive members of society in an ever-changing global community. Students in the Virtual Academy have the flexibility to learn anytime, anywhere.

Parents/guardians have the opportunity to review instructional materials and have access to information about the curriculum, including academic standards to be achieved, instructional materials, curriculum maps, and assessment techniques.

EXISTING FACILITY CONSIDERATIONS



4 | Existing Facility Considerations

Overview

This section is used to understand the functional strengths and concerns of a district's educational facility(s) particularly with respect to the educational program and enrollment. This section evaluates the degree to which each facility and the instructional spaces they contain meet the needs of teaching and learning and their overall efficiency in delivering the educational program.

There are two main factors this section analyzes. The existing building capacity and the educational and functional adequacy. The capacity is simply how many students can the building fit or accommodate through the space allocated for education. PDE guidelines are used to determine this capacity. Educational and Functional Adequacy goes beyond capacity and looks at how the types, size, configuration, and adjacency of spaces serve the educational program and overall functionality of the building.

Summary

This section will show that from a PDE capacity standpoint there are no significant deficiencies in the elementary or secondary grade groupings. However, the adequacy of these spaces falls far short of being able to properly implement the district's educational program. Support spaces are lacking such as special education, staff support, physical education, and collaborative learning environments. Many spaces are undersized such as Technology Education, science, staff offices, library, and storage. Lastly, the layout of the building is not conducive to allow the separation of elementary and secondary grade groupings with many of the elementary spaces being co-located among the secondary areas of the building.

Capacity

An important step in educational planning is determining if a school is adequately sized for both current and projected student enrollment. It requires an understanding of the educational program that it wishes to deliver to students. The following standards are general recommendations and serve as a baseline.

Educational Capacity

Educational capacity is the number of students and staff deemed educationally appropriate by the school district to occupy classroom or educational support space. The calculation for educational capacity is driven by the curriculum, needs of the students, number of adults required, instructional strategies, equipment and technology utilized, services provided, and budgetary constraints.

Utilization Rate

Utilization rate is the percentage of the total educational capacity at which the school can be expected to efficiently operate. In practice, schools represent a collection of instructional spaces and at any point in the school day/year some instructional spaces are being scheduled above their educational capacity and others below. The number and types of educational spaces being scheduled, both over and under capacity, fluctuate. This is a result of many variables including, but not limited to, the size of the student body, the size of a particular grade (bubble), how students are distributed between grades, academic programs, instructional strategies, resources, technology required, scheduling, staffing, contractual obligations, state and federal mandates, and educational needs of groups or individual or students. Therefore, it should not be expected that every single classroom can be occupied at every single point in the day at its maximum educational capacity.

Given adequate instructional and support spaces and proper staffing, elementary schools can operate with minor impact to educational programming at 90% Review with District of their capacity and secondary schools at a utilization rate of 85% Review with District of capacity.

Functional Capacity

Functional capacity is the product of the educational capacity multiplied by the utilization rate. This capacity tells educators and planners in practice, how many students an educational or support space or the school as a whole will be supporting given the size and distribution of the student body, academic programming, and regular use. As schools' student enrollment approaches or surpasses their functional capacity there is a negative impact on educational programming and the ability to meet student needs.

PDE Reimbursement Factor

PDE utilizes a weighted factor in its formula to calculate capacity within their reimbursement calculation. However, it is important to note that the weighting system is for reimbursement purposes and does NOT reflect the way elementary and secondary school buildings are programmed or scheduled. The weighting system provides higher reimbursement for instructional spaces that are more costly to construct.

For a detailed discussion on calculating capacity see Appendix B: Calculating Capacity.

Educational and Functional Adequacy

Buildings should meet the intent of the educational program, the functional needs of the facility, and the long range or strategic plan. Spaces should be of adequate size, quantity, configuration, and adjacency to properly support general education, special education, and extracurricular needs of the school. Any area where the facility does not meet the needs of the educational program of functional needs of the district, it shall be noted as a deficiency in the following adequacy analysis. Refer to the educational program overview in section 3 for educational program criteria which each facility shall meet.

In general, buildings shall meet the following criteria:

Elementary School Criteria	
Layout	The elementary schools should support the educational programs and contain sufficient space to accommodate specialized support programs and services.
Site	The elementary schools should be located on a site adequately sized to provide for safe student pick-up and drop-off, visitor and staff parking, and athletic fields for student and community use. According to the Pennsylvania Department of Education guidelines, an elementary school site should contain a minimum of 10 acres, plus one additional acre for each 100 students.
Core Spaces	Core spaces for special subjects and support spaces should be centrally located and easily accessible. Core spaces shall meet or exceed Pennsylvania Department of Education guidelines. All schools should have rooms designed for art and music instruction. All schools should have a space suitable for physical education. Schools with a capacity in excess of 250 students should have a separate room suitable for physical education or have a multi-purpose room large enough to allow for simultaneous use of each side of the multi-purpose room.

Middle School Criteria	
Layout	The middle school should support the educational programs and contain sufficient space to accommodate specialized support programming and services.
Site	The middle school should be located on a site adequately sized to provide for safe student pick-up and drop-off, visitor and staff parking and athletic fields for students and community use. According to the Pennsylvania Department of Education guidelines, a middle school site should contain a minimum of 20 acres, plus one additional acre for each 100 students.
Core Spaces	Core spaces for special subjects and support spaces should be centrally located and easily accessible. Core spaces shall meet or exceed Pennsylvania Department of Education guidelines.
High School Criteria	
Layout	The high school should facilitate specialization by students to achieve their future educational career goals. The high school should support the educational program and contain sufficient space to accommodate specialized support programming and services.
Site	The senior high school should be located on a site adequately sized to provide for safe student pick-up and drop-off; visitor, staff and student parking and athletic fields for student and community use. According to the Pennsylvania Department of Education guidelines, a high school site should contain a minimum of 30 acres plus one additional acre for each 100 students.
Core Spaces	Core spaces for the special subjects and supporting spaces used by all students should be centrally located and easily accessible. Core spaces shall meet or exceed Pennsylvania Department of Education guidelines.

4 | Montgomery Area Elementary School

Capacity

The Montgomery Area Elementary School serves grades Pre-K through 6th. There are 26 general classrooms which have an educational capacity of 650 students. When applying a utilization rate of 90%, the functional building capacity of the elementary school is 585 students. The current 2021/22 enrollment is 528. The enrollment is close to the functional capacity and the district could experience difficulties balancing differing enrollments between grade levels.

Montgomery Area School District

Montgomery Elementary School		Grade Alignment:		PK-6
Educational Spaces		No. of Rooms	Educational Capacity	Total Educ. Capacity
Pre-K/Kindergarten Classrooms				
	Pre-K Classrooms (Full Day)	3	25	75
	Kindergarten Classrooms (Full Day)	4	25	100
General Classrooms				
	1st Grade Classrooms	4	25	100
	2nd Grade Classrooms	3	25	75
	3rd Grade Classrooms	3	25	75
	4th Grade Classrooms	3	25	75
	5th Grade Classrooms	3	25	75
	6th Grade Classrooms	3	25	75
	Unassigned Classrooms	0	25	0
	Undersized Classrooms <660 Sq. Ft.	0	0	0
Special/Alternative Education Classrooms and Small Group Instruction				
	Special Educ. Classroom	2	0	0
	Special Educ. Classroom (Autistic Support)	1	0	0
	Special Educ. Classroom (Emotional Support)	1	0	0
	Special Educ. Classroom (Sensory Room)	1	0	0
	Title I Reading	1	0	0
	Small Group Instruction Rooms	0	0	0
Art and Music Classrooms				
	Art Classrooms	1	0	0
	Music Classrooms	1	0	0
	Band Room	0	0	0
	Chorus Room	0	0	0
	Orchestra Room	0	0	0
Labs				
	Science Lab	0	0	0
	Computer Lab	0	0	0
	STEM Lab	0	0	0
Support Spaces				
	Library	1	0	0
	Multipurpose (Cafeteria/Gymnasium)	1	0	0
	Cafeteria	0	0	0
	Gymnasium	0	0	0
	Auditorium	0	0	0
	Large Group Instruction	0	0	0

Total Educational Capacity	650
Utilization Rate	90%
Functional Building Capacity	585
Current Enrollment (2021/22)	528

Existing Utilization Floor Plan

FLOOR PLAN OMMITTED FOR SECURITY REASONS

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

First Floor Plan

Existing Utilization Floor Plan

FLOOR PLAN OMMITTED FOR SECURITY REASONS

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

Second Floor Plan

Existing Utilization Floor Plan

FLOOR PLAN OMMITTED FOR SECURITY REASONS

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

Ground Floor Plan

Educational Program Deficiencies

The educational program outlined in the section 3 cannot be adequately implemented in the existing space available for the Elementary School. There are a variety of deficiencies ranging from undersized rooms to no space available at all for certain programs.

Proper space does not exist to implement STEM curriculum. Collaborative areas are not present for students and teachers to break out in smaller groups or bring multiple classes together.

Many of the special education spaces are undersized and do not have the appropriate adjacencies. The sensory room is not located close to the Emotional Support Classroom. All the Title one reading support staff is in one classroom making it acoustically difficult to teach. The life Skills Classroom does not have a lab area for teaching students activities of daily living. Lastly, a safe room does not exist.

General Classrooms are of appropriate size and quantity, however, there are some amenities within the classrooms that are deficient. The casework and furniture are dated and in disrepair. Some classrooms do not contain the size and configuration of storage to meet their needs. Additionally, there is very little power to serve the technological needs of todays students, including the current 1 to 1 initiative.

There are dedicated classrooms for Music and Art, however they are undersized for the number of students they serve.

The library is appropriately size for the Elementary students.

The support space for staff is deficient in some areas. Space does not exist for the itinerant support staff that serve the students (OP/PT, Speech, Early Intervention, Mental Health, etc.). Meeting/conference space does not exist. A Staff workroom exists for the teachers; however, it is not adequately sized to also serve as a staff planning or dining area. The administrative offices are undersized.

These deficiencies are graphically illustrated as space needs on the deficiency floor plan at the end of this section.

Recommendations:

- Add STEM Classroom
- Add collaboration spaces
- Increase size of special education classrooms
- Relocate the sensory classroom adjacent to emotional Support
- Add small group instruction rooms for Title One reading and other support spaces
- Add Life Skills Lab
- Add Safe Room
- Increase size of Music and Art classrooms
- Replace classroom furniture and casework to meet current needs
- Add power to classrooms
- Add Itinerant Offices
- Add conference rooms
- Add staff planning/dining room
- Increase size of administrative offices

Facility Functional Deficiencies

Site:

The existing site is located within a semi-urban residential area and is bound on four sides by public streets. Given the size restrictions of the site, many deficiencies exist. The playground area is grossly undersized for the student body it serves and there is no hard surface play space available. A softball field is located on the property and can be used for outdoor physical education needs.

Parking is adequate for the elementary school staff. The bus drive is located close to the main entrance; however, it is undersized and poorly configured. The parent drop-off and pick-up area is severely inadequate and results in extensive back-up of cars onto public streets. It is not located adjacent to the main entrance and administrative suite.

Recommendations:

- Increase size of playground
- Add hard surface play area
- Reconfigure bus loop
- Add adequate parent drop-off/pick-up circulation adjacent to the main entrance.

Building:

The flow and organization of the Elementary classroom wing of the building works well. The stairs and corridors are of adequate width.

To accommodate the appropriate quantity of elementary classrooms and specials spaces, some Elementary classrooms are located within the Jr/Sr High School portions of the building. The existing multi-purpose room does not have the size or capabilities due to scheduling to accommodate all elementary students for lunch and physical education. Therefore, the Elementary students must use the Jr/Sr high school cafeteria for lunch and gymnasium for physical education. Due to these factors, there is an intermixing of Elementary and Secondary students. Given the vast difference of maturity level and other factors, this creates and undesirable environment for the Elementary students.

Some storage space exists; however, it is insufficient to serve all the needs from educational to facilities maintenance.

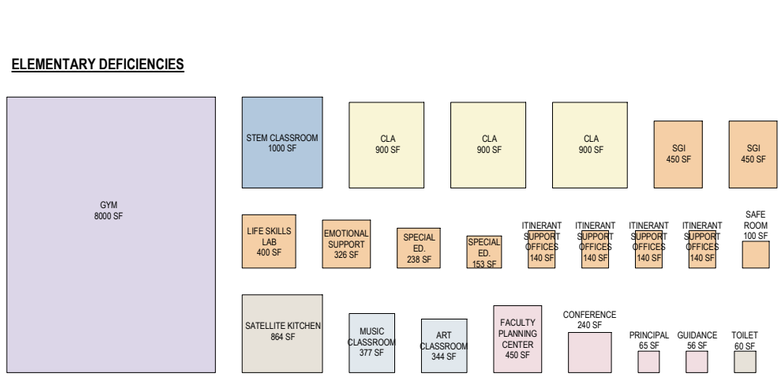
The main entrance and administrative suite have been recently renovated to incorporate secure vestibules and the arrangement and functionality of the entrance meet the current needs.

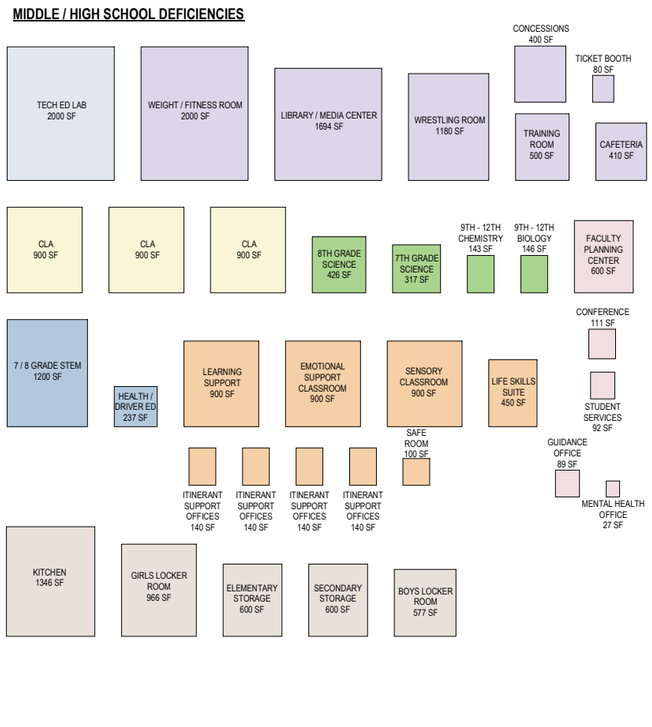
Individual toilet rooms exist in most of the Elementary classrooms that need them, however there are very few gang toilet rooms accessible outside of the classrooms.

Recommendations:

- Relocate Elementary spaces located in Jr/Sr High to be adjacent with the Elementary School
- Create separate cafeteria and gymnasium that are adequately sized
- Add storage space
- Add gang toilet rooms off corridors

Existing Deficiencies Floor Plan





FLOOR PLAN OMMITTED FOR SECURITY REASONS

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

First Floor Plan

4 | Montgomery Area Jr. / Sr. High School

Capacity

The Montgomery Area Jr. / Sr. High School serves grades 7th – 12th. The educational capacity of the school is 795 students. When applying a utilization rate of 80%, the functional building capacity is 636 students. The current 2021/22 enrollment is 404. The functional building capacity when compared to the student enrollment is not an issue at the secondary level.

Montgomery Area School District

Montgomery Jr/Sr High School	Grade Alignment:		7-12
Educational Spaces	No. of Rooms	Educational Capacity	Total Educ. Capacity
General Classrooms			
General Classrooms (7/8 ELA)	2	25	50
General Classrooms (7/8 Math)	2	25	50
General Classrooms (7/8 Social Studies)	1	25	25
General Classrooms (9-12 ELA)	3	25	75
General Classrooms (9-12 Math)	4	25	100
General Classrooms (9-12 Social Studies)	2	25	50
General Classrooms (Foreign Language)	1	25	25
General Classrooms (Business)	1	25	25
General Classrooms (Health)	1	25	25
Unassigned Classrooms	0	25	0
Undersized Classrooms <660 Sq. Ft.	0	0	0
Special/Alternative Education Classrooms and Small Group Instruction			
Special Educ. Classroom	3	15	45
Alternative Education Classroom	0	20	0
Learning Support Small Group Instruction Rooms	0	0	0
Art and Music Classrooms			
Art Classrooms	1	20	20
Music Classrooms	0	25	0
Band Room	1	25	25
Chorus Room	0	25	0
Orchestra Room	0	25	0
Labs			
Science Labs (7/8)	2	20	40
Science Labs (9-12)	2	20	40
Computer Lab	0	20	0
Business Lab	0	20	0
FCS Lab	0	20	0
Career & Tech-Ed			
Tech Ed Lab (Construction)	1	20	20
Tech Ed Lab (Engineering/STEM)	1	20	20
Tech Ed Lab (Engineering/STEM)	1	20	20
Tech Ed Lab (Ag Science)	1	20	20
Tech Ed Lab/Classroom (Culinary)	1	20	20
Tech Classroom (Drafting/CAD)	1	25	25
Tech Classroom (Broadcasting/Drama)	1	25	25
Library			
Library	1	0	0
Physical Education			
Gymnasium	1	50	50
Auxiliary Gymnasium	0	0	0
Wrestling Room	1	0	0
Natatorium	0	0	0
Support Spaces:			
Cafeteria	1	0	0
Auditorium	1	0	0
Large Group Instruction	0	0	0

Total Educational Capacity	795
Utilization Rate	80%
Functional Building Capacity	**636**
Current Enrollment (2021/22)	**404**

Existing Utilization Floor Plan

FLOOR PLAN OMMITTED FOR SECURITY REASONS

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

First Floor Plan

Existing Utilization Floor Plan

FLOOR PLAN OMMITTED FOR SECURITY REASONS

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

Second Floor Plan

Existing Utilization Floor Plan

FLOOR PLAN OMMITTED FOR SECURITY REASONS

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

Educational Program Deficiencies

The general classrooms of the Jr/Sr High school are generally adequately sized, and the appropriate quantities exist. A variety of educational and support spaces are deficient. These deficiencies are graphically illustrated as space needs on the deficiency floor plan at the end of this section.

The science labs are undersized and outdated. The health classroom is undersized for the number of students it serves. There is no space for outdoor learning which is tied to the curriculum. Not all classrooms have interactive teaching technologies incorporated.

The robust programs in the Tech Ed area of the building cannot be properly implemented dure to inadequate space and poor configuration. These programs have expanded over time and exceed the capacity of the space that was originally designed. Middle School programs are being taught out of high school spaces creating safety concerns.

The special education services for the secondary level are underserved mainly due to lacking space to provide the program. Spaces do not exist for Emotional support, supplemental learning support, sensory, safe room, and life skills activities.

The casework and furniture in the classrooms do not align with the educational delivery. There is very little power to serve the technological needs of today's students, including the current 1 to 1 initiative.

Some of the deficiencies exist due to the expansion of the Elementary spaces into the JR/Sr High School area. A portion of the library was separated and allocated to elementary.

If the cafeteria was solely used by the secondary students, it would be appropriately sized. The kitchen is undersized for the number of students served and the serving line is antiquated. Some of the kitchen serving functions have spilled out into the cafeteria due to lack of space.

The auditorium and seating area are properly sized and configured. The lighting has been recently upgraded. The stage rigging is outdated, and needs replaced.

The MAACC provides many amenities for fitness and wellness, however, given its remote location these amenities can only serve athletics after school hours and not the rest of the student body for the physical education curriculum.

The support space for staff is deficient in some areas. The SRO office is not centrally located to be able to respond quickly to event. Meeting/conference space does not exist. Conference/meeting space does not exist. The Counselors' offices are undersized. A Staff workroom exists for the teachers; however, it is not adequately sized to also serve as a staff planning or dining area.

The main entrance and administrative suite have been recently renovated to incorporate secure vestibules and the arrangement and functionality of the entrance meet the current needs

Recommendations:

- Add additional space for Tech Ed and reconfigure existing Tech Ed spaces.
- Add dedicated 7^{th}/8^{th} grade STEM classroom
- Add collaboration space
- Add teaching technology to classrooms
- Increase the size of the science lab and update amenities

- Increase the size of the health classroom
- Add Emotional Support Classroom
- Add Sensory Classroom
- Add safe room
- Add supplemental Learning Support Classroom
- Add life skills activity of daily living suite
- Replace classroom furniture and casework to meet current needs
- Add power to classrooms
- Expand the Library
- Expand & update the kitchen and serving.
- Replace stage rigging
- Add a fitness and weight room
- Relocate SRO office
- Add conference rooms
- Increase size of Counselors' offices
- Add staff planning/dining room

Facility Functional Deficiencies

Site:

Parking is adequate for students and staff during school hours. Parking is inadequate for events (athletics and performing arts). The bus drive is located close to the main entrance; however, it is undersized and poorly configured. The parent drop-off/pick-up area is not adequate for the number of vehicles that utilize it. A softball field is located on the property and can be used for outdoor physical education needs. Athletics fields do not exist on-site and students are bused or drive to the MAACC for use of the fields.

Recommendations:

- Add parking for events
- Reconfigure bus loop
- Expand parent drop-off/pick-up

Building:

Corridors and stairs are generally of adequate size. Having many additions built over the years, the overall organization and circulation of the building is poor.

Restrooms facilities are not adequate for the entire building. The locker rooms are undersized and individual shower stalls are needed.

Athletics occur at the MAACC except for softball and wrestling. The wrestling room is in the basement are of the Elementary School and is undersized. There is no space for the Athletic Trainer. For athletic events, there is no ticket booth and concessions is undersized.

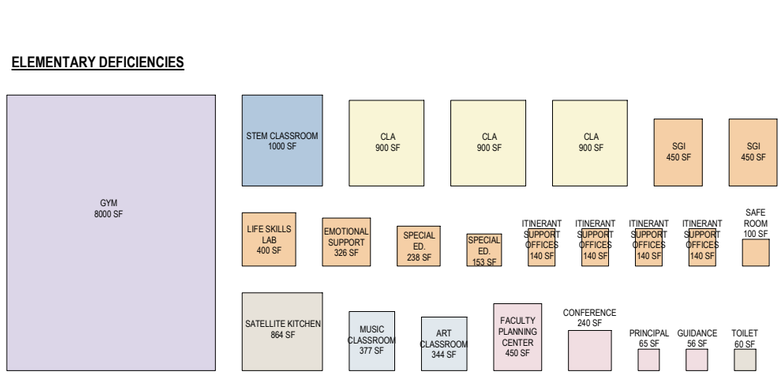
Space does not exist for deliveries and loading. Custodial, maintenance and general storage is inadequate. There is insufficient space to store outdoor equipment.

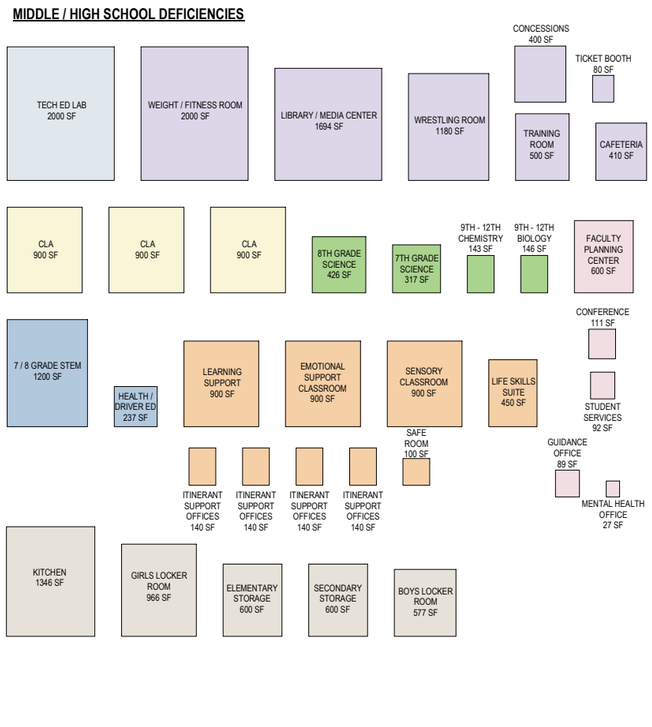
There is a space dedicated to the main servers, however all other IT/data equipment located throughout the building is housed in shared spaces.

Recommendations:

- Add toilet rooms
- Expand and upgrade locker rooms
- Expand and relocate the wrestling room
- Add ticket booth
- Expoand concessions
- Add Athletic Trainer room
- Add loading dock
- Add storage space
- Add dedicated IT closets

Existing Deficiencies Floor Plan





FLOOR PLAN OMMITTED FOR SECURITY REASONS

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

First Floor Plan

4 | Montgomery Area Athletics and Community Center (MAACC)

Capacity

Given this facility's remote location, it cannot be used during school hours for educational purposes. It is only used by the students for after school extracurricular and athletic activities. Therefore, the facility does not have an educational capacity.

Educational Program Deficiencies

The facility is used for extracurricular activities, athletics (practices and games) and community use. The building adequately meets these needs. No educational program deficiencies exist.

Facility Functional Deficiencies

Site:

The site is used for Athletic practices and games for all outdoor sports except softball. The parking is inadequate for larger attended events.

The track surface is cinders and not appropriate for High School athletics.

Recommendations:

- Expand the parking lot to accommodate events
- Resurface track

Building:

The overall flow and function of the building meet the use and needs. No building functional deficiencies exist.

Existing Utilization Floor Plan

FLOOR PLAN OMMITTED FOR SECURITY REASONS

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

First Floor Plan

Facility Functional Deficiencies

The district administrative offices have been recently renovated and have incorporated spaces and functions to meet the current needs. No deficiencies exist.

FLOOR PLAN OMMITTED FOR SECURITY REASONS

PROJECTED ENROLLMENT ANALYSIS

5 | Projected Enrollment Analysis

Overview

Enrollment projections through mathematical modeling are a critical part of developing, prioritizing, efficiently operating, and maintaining funding for school buildings and grounds. Regardless if a school district is increasing, decreasing, or maintaining enrollment, establishing and planning for an anticipated number of students at each grade level, grade alignment, in each attendance unit, and the district as a whole critical. The purpose of the enrollment modeling process is to:

1. Determine the most likely future enrollment for a school district, school, grade alignment, and/or attendance unit in order to compare the anticipated size of a student body against school(s) capacity given the district's educational program and objectives.

2. Provide the Board and administration data to develop a capital improvement plan necessary to meet the on-going physical needs of the students they serve and the community that supports them.

Summary

- Historically, the Montgomery Area School District has had a very stable enrollment pattern. Since 2010 the district gained 25 students averaging an increase of two students per year. Even as the county population declined, the district maintained consistent enrollment patterns. As discussed in Section 2 of this document, the stability of the enrollment pattern is supported by the consistent number of students per household and housing unit. Even during the COVID 19 pandemic, unlike many school districts in Pennsylvania, the district did not have a large fluctuation in enrollment.
- As discussed in Section 2 of this report, any influx of students due to new residential development beyond these projections is unlikely to require an immediate need for instructional space beyond what exists.
- The capacity of the elementary school is sufficient enough to allow the district to manage projected elementary enrollment.
- The capacity of the middle/high school is sufficient to allow the district to manage projected enrollment from the high to the low projection.

The Pennsylvania Department of Education (PDE) Projections

PDE provides School Districts with enrollment projections based on recent historic trends in births and trends in the progression of students form one grade to the next. The PDE model uses enrollment data reported annually through the Pennsylvania Information Management System (PIMS) and resident live birth data provided by the Pennsylvania Department of Health. Grade progression is determined by calculating retention rates for grades 2 to 12 using the most recent five years of enrollment data. Retention rates for kindergarten are determined by births five years earlier and for first grade from births six years earlier. These rates are evaluated to determine if a pattern is discernable, or if any retention rates are unusual. If a pattern is found, the pattern is continued in making the projections. Unusual retention rates are discarded, and the average of the remaining rates is used in making the projections. Information does not include Pre-Kindergarten figures. Every study must include and consider enrollment projections provided by PDE if district is pursuing reimbursement from the Commonwealth.

Crabtree, Rohrbaugh & Associates (CRA) Projections

CRA provides enrollment projections based on the concept that the recent progression of students through the district's different grade bands best represent the progression of students through the district over the next five to ten years. This model uses enrollment data reported by grade alignment, determines a three- and five-year average rate of growth within each grade band, and projects the size of the student body based on current enrollments. Rather than utilize live birth rates six years prior, this model assumes that the three and five-year average rate of growth of incoming kindergarten classes will continue into the near future. If an anomaly exists in number of incoming kindergarten classes within the past three or five years, the average rate of growth for the elementary program or district is applied as the growth rate of incoming kindergarten classes. This model is much more sensitive to changes to in- and out-migration, changes in policy, program, and state and federal statutes than models that utilize birth and cohort retention rates.

Best Fit Projections

CRA further analyzes our enrollment projections against modeling provided by the Pennsylvania Department of Education to develop "Best Fit Modeling". This modeling is based on the concept that each of the different methodologies represent a legitimate mathematic possibility and that an "average" of those models can represent the most likely of all possibilities.

APPENDIX C: LIMITATIONS OF ENROLLMENT MODELING USED IN STUDY provides a listing of the limitations of each of the methodologies utilized for enrollment projections.

Planning for Future Capacity

CRA strives to provide the data and recommendations necessary for each client to establish capacity based on the following standards:

Renovations, additions, or new construction of educational space typically takes 36 to 60 months to move through planning, approvals, financing, permitting, construction, and opening. Given that lead time school districts with elementary enrollments trending upward should begin to plan when a student body surpasses 90% of a school's utilization capacity or when critical infrastructure is reaching five years to end of life use.

- Enrollment projections have the highest degree of validity within 60 months of being calculated; beyond 60 months their margin of error increases greatly.

- As a baseline the capacity of an educational facility should be planned for 100% of the projected enrollment five years from point planning begins plus an additional 10% at the elementary level and 15% at the secondary level as a baseline to allow for:
    1. scheduling efficiencies,
    2. future growth, and
    3. PDE will not reimburse a district for work on that school for 20 years.

- The baseline applied to capacity is often adjusted based on (1) on how aggressively enrollment is trending and the historical experiences of a school district, (2) districts that have residential and commercial developments on the horizon that do not yet reflect mathematically in enrollment projections, (3) districts that have larger developmental grade spans within a building(s), (4) district's with growing numbers of special education and students who require small group support services, (5) district's that cannot easily accomplish a better balance through redistricting, and (6) combinations of these reasons Depending on these factors utilization rates are adjusted by 5% to 15% beyond projected at the elementary level and to 5% to 20% at the secondary level. In this study CRA has made the minimum adjustment assigning a utilization rate of 10% to the elementary schools and 15%

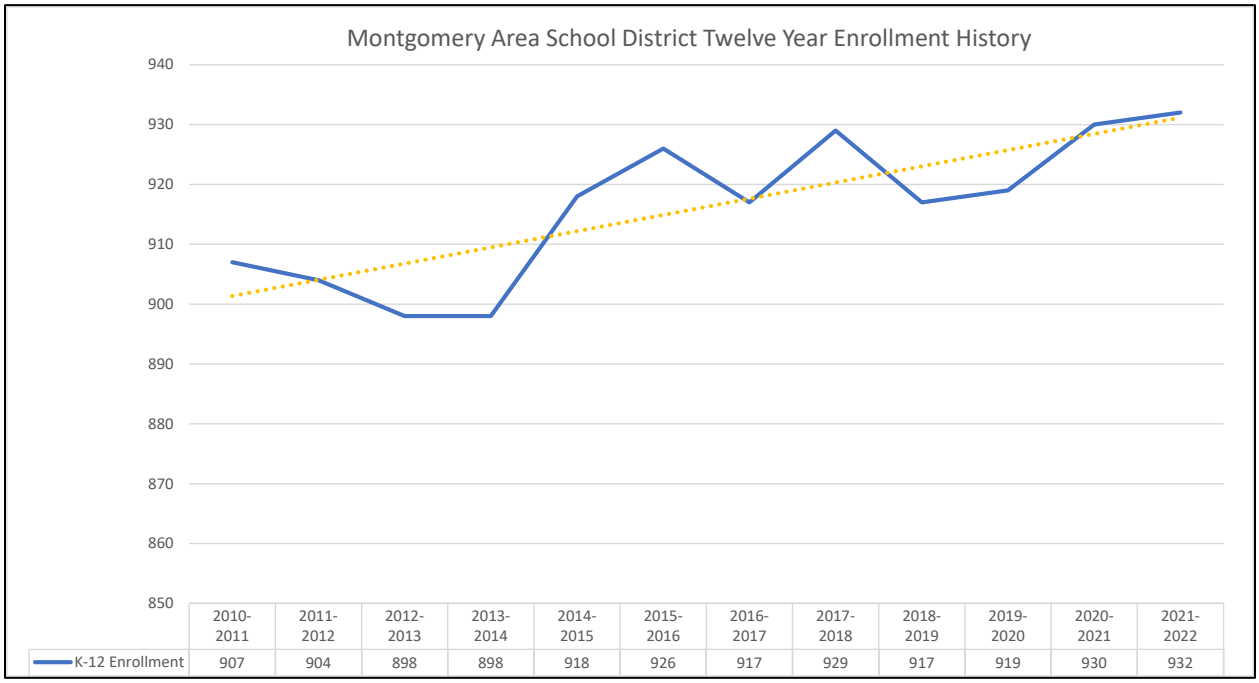
at that the secondary level in the Montgomery Area School District. While the District does exhibit many of the reasons that warrant a greater adjustment, the stability and consistency of the projections across the enrollment models does not warrant a more aggressive stance.

- The allowance for scheduling efficiencies and future growth is referred to as the utilization rate.

Planned Capacity is the anticipated size of a school measured by the number of seats required given the projected increase/decrease in enrollment, grade alignment, academic programs being delivered (current and intended), and the utilization rate. It is the anticipated educational capacity of a school after renovations, additions, new construction, realignment, or consolidation.

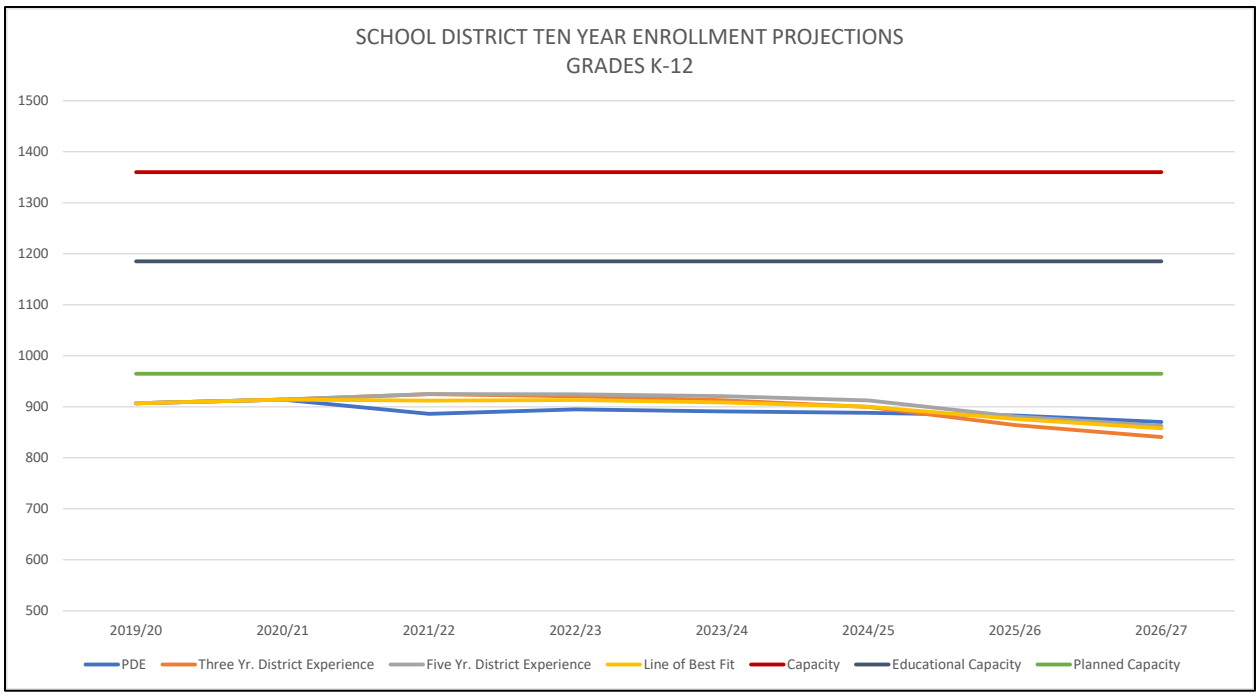
Montgomery Area School District Projections (K-12)

The Montgomery Area School District has historically had a very stable enrollment pattern. Since 2010 the district gained 25 students averaging an increase of two students per year. As discussed in Section 2 of this document, the stability of the enrollment pattern is supported by the consistent number of students per household and housing unit as well. Even during the COVID 19 pandemic, unlike many school districts in Pennsylvania, the District did not have a large fluctuation in enrollment.



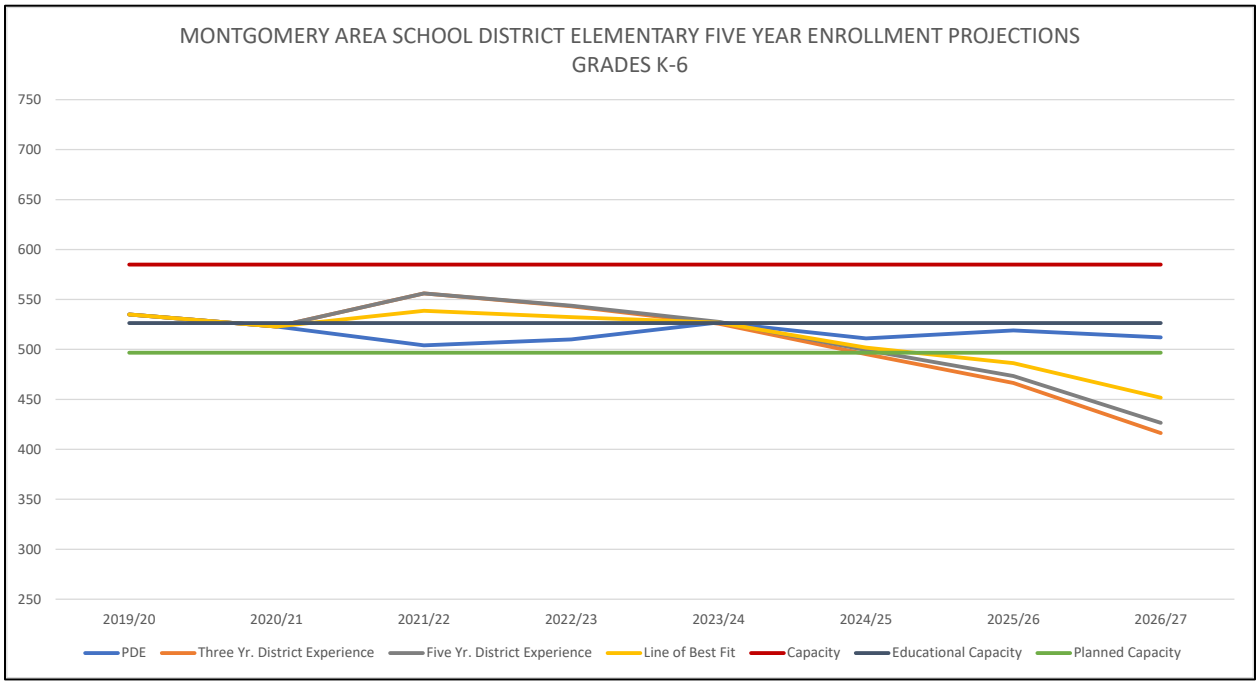
	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
K-12 Enrollment	907	904	898	898	918	926	917	929	917	919	930	932

Enrollment projections reflect the same stability as the historic pattern. Projections provided to the district by the PDE, and projections completed by CRA based on enrollments over the past three and five years are in close agreement lending validity to the strength of the projections. Over the next five years, the average of the enrollment projections indicates the district will remain within 16 students of 2021/22 enrollment.



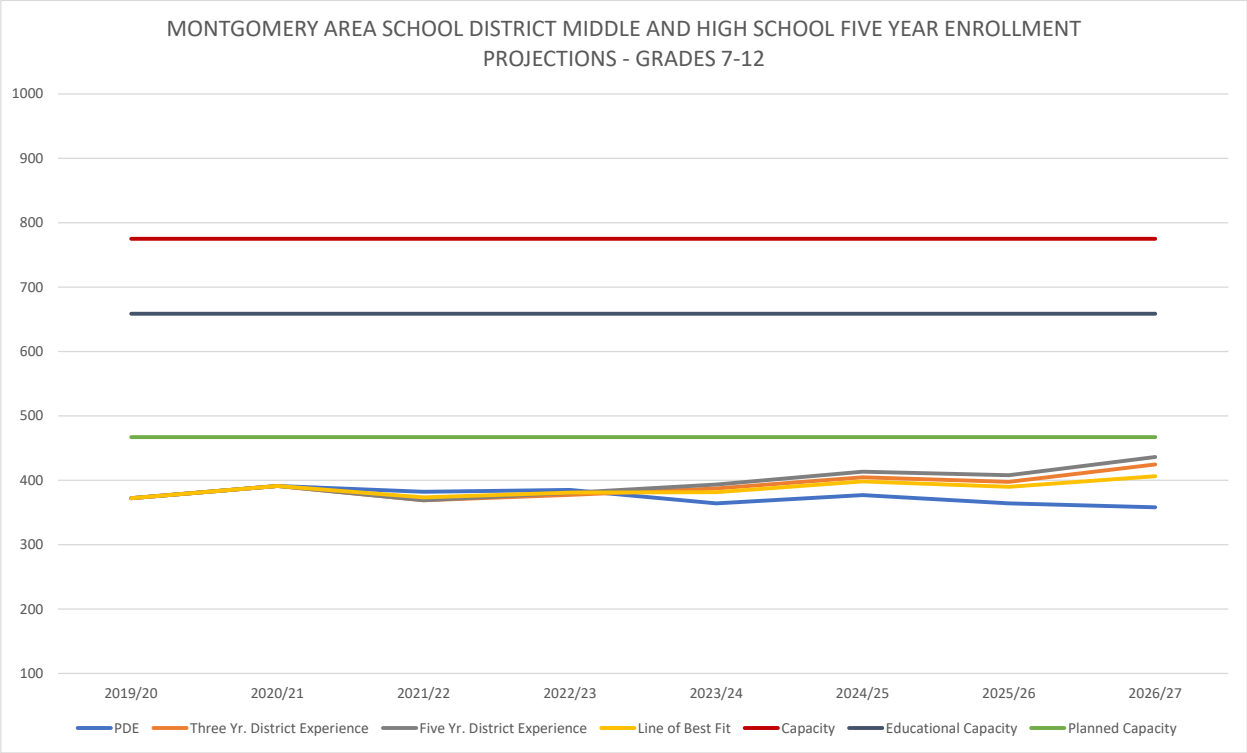
Elementary Projections (K-6)

Elementary enrollments provided by CRA and PDE are not in as close a level of agreement as the whole of the district. This is primarily due to the methodology utilized to project incoming pre-school and kindergarten classes. In 2026/27 the projections range by 93 students; approximately 13 per grade level. However, the capacity of the elementary school is sufficient enough to allow the district to manage elementary enrollment projections from the high to the low projection.

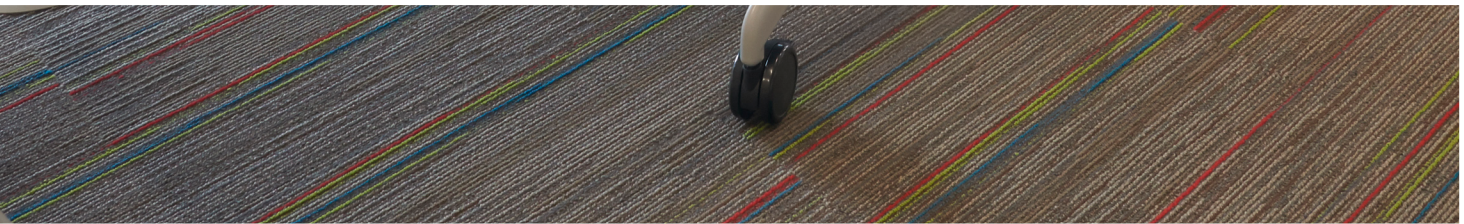


Middle and High School Projections (7-12)

Middle and High School enrollments provided by CRA and PDE are in close agreement and reflect the trend of the district as a whole. It is typical to see greater agreement in the projections of middle and high school students as they are based, in part, on students who are attending the school district rather than preschoolers who may attend. This is primarily due to the methodology utilized to project incoming kindergarten classes. In 2026/27. The capacity of the middle/high school is sufficient to allow the district to manage secondary enrollment from the high to the low projection.



EXISTING FACILITY CONDITIONS ANALYSIS



6 | Existing Facility Conditions Analysis

Overview

The Facility Condition assessment is used to understand the condition of existing components of the site and building and determine what upgrades to the existing are needed to meet today's standards. It is conducted by a team of architects and engineers of various disciplines. The evaluation is performed using existing data, facility staff interviews, facility walk-through assessments, and analysis.

The following categories were used to assess each building:

- Site
- Interior Building
- Exterior Building
- Systems – Electrical
- Systems – Plumbing & Fire Protection
- Systems – HVAC

Evaluation Methodology and Approach

In order to adequately assess the district facilities, it is imperative that a baseline, or benchmark be established, from which evaluations and any subsequent recommendations are based upon. In completing the facilities assessment and evaluation, Crabtree, Rohrbaugh & Associates, working with School District staff, developed and utilized several tools to assist in the process. They include the following:

- Building surveys and documentation
- Meetings with staff
- Use of an Evaluation Criteria as a benchmarking tool
- Lifespan of Building Components

The criteria are based on the educational program needs as well as life cycle costs and life span expectations, maintenance needs, energy efficiency, and current applicable accessibility, life safety and building code considerations. The following building codes are applicable:

1. International Building Code of 2015
2. International Existing Building Code of 2015
3. Chapter 11 of the International Building Code of 2018
4. International Mechanical Code of 2015
5. International Fuel Gas Code of 2015
6. International Plumbing Code of 2015
7. International Fire Code of 2015
8. International Energy Conservation Code of 2015
9. Accessible and Usable Buildings and Facilities - ICC / ANSI A117.1 of 2009
10. International Electrical Code of 2014
11. ASHRAE 90.1
12. PA Uniform Construction Code Amendments to the above listed model codes
13. Local municipal amendments, if any, to the above listed model codes

NOTE: Existing facilities meet codes applicable at the time of their construction. Code issues identified in this report are those that would be required to meet current codes. Some of the code required upgrades are considered safety issues and should be addressed by the school district.

Building Condition Criteria

Site	
Paving	Asphalt paving should be in good condition, showing no signs of deterioration or cracking. Storm water should be diverted to drainage inlets with no ponding.
Walkways	Concrete sidewalks should be in good condition, showing no signs of deterioration, major cracks or tripping hazards.
Play Equipment	Play equipment should be located in a safe area of the site with no broken or rusted equipment. It should be age appropriate.
Service Area	The service area should be properly located near food services, mechanical rooms and receiving/ storage areas. The service area should be separate from pedestrian and play areas, with trash and recycling containers away from the building and properly screened.
Student Loading	Adequate space should be provided for bus loading, as well as staff and visitor parking. Vehicular and pedestrian traffic are to be separated as much as possible.
Landscaping	Landscaping should be attractive, conducive to activity and well- maintained.
Exterior Building Envelope	
Foundations	All footings shall bear on suitable soil; concrete slabs on compact grade.
Structural System	Structural systems should be intact with no uncertified modifications. There should be no evidence of cracking or settling of structural components.
Energy	Buildings should meet or exceed ASHRAE 90.1 Standards.
Roofing System	Roofing systems should be in maintainable condition with adequate slope to roof drains or gutters and no ponding, roof leaks or visible damage.
Exterior Envelope	Exterior walls should be masonry cavity wall on masonry backup with adequate insulation or masonry cavity wall on metal stud and reinforced gypsum drywall with adequate insulation.
Exterior Trim	Exterior trim should be heavy gauge metal or wood with no rotted areas, completely painted and properly fastened.
Windows	Windows should be clear or tinted glass units, in thermally broken aluminum frames, or aluminum clad wood with undamaged finish. Windows should be easily operable and have proper caulking.
Exterior Doors	Exterior doors and frames should be galvanized hollow metal or finished aluminum. In addition, they must swing in the direction of egress travel, and be accessible.

Interior Walls	Interior partitions should be structurally sound, free of finish defects and have adequate acoustical properties.
Interior Doors	Interior doors should be solid core wood in painted metal frames. Doors should have undamaged finish and swing in the direction of egress.
Interior Glass	Interior glass should be 1/4' tempered or safety glass, or wire glass where required.
Kitchen Equipment	Equipment should be properly located to accommodate both safety and traffic. Equipment should be stainless steel in good working condition and in compliance with all applicable codes.
Athletic Equipment	Athletic equipment and bleachers should be in good working condition and meet the minimum code safety requirements. Basketball backstops and related equipment should be in good working condition with appropriate safety measures for operation.
Terrazzo	Floors should contain no large cracks and have smooth transition to adjacent floor surfaces with no stains or deteriorated areas.
Resilient Flooring	Resilient floor surfaces should be free of defects, with no cracks, open seams or missing tiles. Asbestos containing floor tiles should be identified and be included in the School District's operation and maintenance plan.
Carpeting	Carpet should have tight seams, with no unraveling or exposed/frayed ends. They should have anti-microbial treatment and be stain resistant where applicable. Area rugs should be non-slip type with no tripping hazards.
Ceramic Tile	Ceramic tile should be free of cracked, loose, missing or broken tiles with adequate waterproof grout.
Wood Flooring	Wood floors should have appropriate finish and smooth transition to adjacent floor surfaces. They must allow for movement without buckling or spreading. There should be no squeaky or soft spots.
Ceiling Tile	Ceilings should contain no stained, broken or warped tiles, and the grid should be adequately tied to structure.
Gypsum Wallboard	Wallboard should have smooth, clean surface with no damage or stains and appropriate transition to adjacent ceiling materials. Wallboard should not be used in areas subject to high student use or abuse.
Paint	Painted surfaces should have a smooth finish, with no peeling or stains. Appropriate colors should be chosen for reduction of glare, for light reflectivity and overall compatibility with use of space. Lead based paint should not be present.
Casework	Cabinets should have a solid wood or particleboard core with a high-density plastic laminate finish. Chemical resistant countertops should be provided in science labs

	where appropriate. Surfaces should be undamaged with properly functioning hardware.
Toilet Partitions	Partitions should be painted, galvanized metal or solid phenolic construction. Partitions should be floor supported or overhead braced. Panel surfaces should not be dented, bent or rusted and all hardware should be present and in good working condition.
Lockers	Lockers should be heavy gauge metal with painted finish. Athletic lockers should be extra-heavy duty or all welded construction, property vented. Lockers should be in good physical condition with no dents or rust and all hardware should be present and in good operating condition.
Operable Partitions	Partitions should be secured properly to the building structure. They should be easy and safe to operate. The sound transmission rating is to be suitable for its intended use.
Acoustics	Acoustic separation should be provided between assembly spaces and instructional areas. Large assembly areas, such as gymnasiums, multi-purpose rooms, cafeterias, music rooms and libraries should be designed to properly attenuate and distribute sound in order to reinforce the program use.
Systems – Plumbing & Fire Protection	
Distribution	Sanitary drainage, domestic water and gas piping should be in good condition and operating within system design. Hot water supply shall be provided to every hand sink within classrooms and restrooms.
Plumbing Fixtures	Plumbing fixtures should be well maintained and in good working condition to operate within the system design. They shall accommodate the adult or child dimensions and anthropometrics, respectively for their users.
Equipment	Plumbing equipment should be well maintained and in good working condition to operate within the system design.
Systems – Electrical	
Interior Fixtures	Light fixtures should have energy efficient long life lamps with non-PCB ballasts. Fixtures should have undamaged finishes and lens with no cracked or discolored items. Illumination levels should meet the minimum criteria based on foot-candle (fc) levels established by the Illuminating Engineers Society (IES). Applicable parameters are as follows:

Space	Foot Candles

	Classrooms	50 – 100 fc
	Libraries	20 – 50 fc
	Offices	20 – 50 fc
	Office Task	50 – 100 fc
	Toilets	10 – 20 fc
	Corridors	10 – 20 fc
	Cafeterias	10 – 20 fc
	Kitchens	50 – 100 fc
	Laboratories	50 – 100 fc
	M.P. Rooms	30 fc
	Parking	1 – 2 fc
Exterior Lighting	There should be LED wall mounted lights around the perimeter of building and the lights should be photocell or time clock controlled. There should be lights mounted on 35' high light poles providing 1 to fc to all parking areas.	
Power Supply	Power supply should be 480/277 volts, 3 phase, 4 wire from power company. The transformer should be located in a safe isolated area.	
Service	Service box should have a functional panel cover and lock, available replacement branch devices and expansion capacity.	
Distribution	Equipment should have functional panel covers and locks with 480 volts, 3 phase for power to HVAC and other heavy equipment; 277 volts, 3 phase for interior or lighting distribution; available replacement parts. All panel schedules shall be accurately labeled.	
Transformers	There should be 480 120/208 volts, 3 phase step-down transformers for power to receptacles and other small 12 volt equipment.	
Wiring	There should be no signs of deteriorating insulation or loose connections.	
Receptacles	Receptacles should be grounded type with no broken covers. They should be appropriately located for program needs. Shutter type safety receptacles should be provided in play areas; Ground fault interrupters are required at wet areas.	

Emergency Generator / Battery Packs	Emergency generators should be property located and sized to meet desired emergency load requirements
Public Address System	System should be fully automatic; main power should control all speakers and provides signals to bell system for fire drills and alarms.
Speakers/ Call Intercom System	Speakers should be provided in every classroom for two-way communications and safety.
Clocks/ Bells	Analog or digital clocks should be installed in each instructional space and should also be connected to the master clock system. Clocks and bells should be on the automatic system.
Telephone System	A telephone system should be provided and available within the capabilities of the Public Address System. Specific functioning and use of the system should be programmed from the central control unit.
Television/ AV CATV System	There should be empty conduits or cable trays to instructional areas to allow for television cables. Wiring and installation of a television system should be per the educational specifications. Every instructional space should be served by the system.
Data Transfer System	Data systems should be implemented to meet the educational needs of the facilities and a long-range technology plan. Systems should be flexible and adaptable for future technological changes. A building-wide cable distribution system should be provided for installation of present and future low voltage special systems cable. Provide racks for LAN distribution equipment at designated network hub locations.
Systems – Heating, Ventilation and Air Conditioning (HVAC)	
System Design	HVAC System installed should be one that is the most ideal and current for the type of building. Equipment and air distribution should contain fire protection devices such as fire dampers and duct smoke detectors to meet current local code and life safety requirements.
Ventilation	Outside air quantities should be designed per local code requirements.
Exhaust	Proper quantities of exhaust air should be provided in toilet rooms, science rooms, mechanical rooms, kitchen, maintenance closets, storage rooms and copy rooms.
Distribution	HVAC piping and ductwork should be in good condition.
Equipment	HVAC equipment should be well maintained and in good working condition to operate within the system design. Equipment should be designed to meet local building code requirements.

Energy	Automatic temperature control systems should be current and have energy management capabilities

Accessibility and Building Code Criteria

Recommendations in this report regarding upgrades related to the Americans with Disabilities Act are made when buildings or areas of a building can be made accessible without "undue burden". "Section 35.150 requires that each service, program, or activity conducted by a public entity, when viewed in its entirety, be readily accessible to and usable by individuals with disabilities." ADA Regulation for Title II, as printed in the Federal Register (7/26/91).

<table>
<tr><th colspan="3">Site</th></tr>
<tr><td>Vehicular Circulation</td><td colspan="2">Safe drop-off facilities should be provided for each bus, automobile, and service vehicle traffic. Cross traffic between vehicles and pedestrians should be eliminated or minimized.</td></tr>
<tr><td>Parking</td><td colspan="2">Vehicular parking shall be designed to meet local municipal authority requirements. An adequate amount of parking should be available for students, staff and visitors.</td></tr>
<tr><td>Drainage</td><td colspan="2">Storm water management shall be designed to meet local municipal authority requirements. Walks and drives shall be properly drained.</td></tr>
<tr><td>Pedestrian Circulation</td><td colspan="2">At least one accessible route shall be provided within the boundary of the site from accessible parking spaces, passenger loading areas and public streets and walks to an accessible building entrance.</td></tr>
<tr><td>Parking</td><td colspan="2">Property configured and marked accessible parking spaces shall be provided per code requirements.</td></tr>
<tr><td></td><td>Total Parking in Lot</td><td>Required Minimum Number of Accessible Spaces</td></tr>
<tr><td></td><td>1 to 25</td><td>1</td></tr>
<tr><td></td><td>26 to 50</td><td>2</td></tr>
<tr><td></td><td>51 to 75</td><td>3</td></tr>
<tr><td></td><td>76 to 100</td><td>4</td></tr>
<tr><td></td><td>101 to 150</td><td>5</td></tr>
<tr><td></td><td>151 to 200</td><td>6</td></tr>
<tr><td></td><td>201 to 300</td><td>7</td></tr>
<tr><td></td><td>301 to 400</td><td>8</td></tr>
<tr><td></td><td>401 to 500</td><td>9</td></tr>
</table>

	501 to 1000	2 Percent of Total
Exterior Signage	Proper signage shall be provided on-site to designate handicapped accessible route(s) to the building and related facilities.	
Interior Code Compliance		
Means of Egress	Interior elements comprising *means of egress* shall be continuous and unobstructed from any space within the building to the *exit discharge* in accordance with local building codes.	
Fire Extinguishers	Fire extinguishers shall be an approved type to meet local building code criteria for number and spacing and shall be mounted at the proper height. Fire extinguishers shall be annually serviced by licensed personnel and inspected monthly by building operations employees.	
Interior Accessibility		
Interior Routes	At least one accessible route shall connect accessible building or facility entrances with available programs within the building. The path of travel to an altered area and the restrooms, telephones, and drinking fountains serving the altered area, shall be readily accessible to and usable by individuals with disabilities.	
Railings	Handrails and railings on stairs and/or ramps shall be designed to meet code requirements. Ramps shall have a maximum slope of 1 to 12.	
Elevator	One passenger elevator shall serve each level providing programs to the public including mezzanines, in all multi-story buildings.	
Doors	At each accessible entrance to a building, at least one door shall meet code width and maneuvering clearances. Door openings are to be a minimum clear width of 32” and a minimum clearance of 4’-0” shall exist between pairs of entrance doors in vestibules. Each door that is an element of an accessible route or means of egress shall meet the width and maneuvering clearances per code requirements.	
Egress/ Area of Rescue Assistance	Areas of Rescue Assistance shall be provided where there is no direct egress to grade. The total number of areas per story shall be not less than 1 for every 200 persons of calculated occupant load served by the area of rescue assistance. Area of Rescue Assistance may not be required if the building is fully sprinklered.	
Interior Signage	Proper signage shall be placed throughout the building to adequately identify accessible routes and areas of rescue assistance. Room identification signs throughout the building shall be in compliance with ADA.	
Hardware	Door locksets to all accessible spaces should be lever-type accessible units. Door closers should meet pull load requirements.	

<table>
<tr><td>Toilet Rooms</td><td colspan="2">Existing toilet room facilities on each level of a building shall be accessible or an accessible toilet room shall be provided near the existing facilities. Additional toilet facilities shall be accessible when required by the program or service provided.</td></tr>
<tr><td>Drinking Fountains</td><td colspan="2">At least one accessible drinking fountain should be provided on each level of a building and 50% of the total number of drinking fountains provided shall be accessible. Two drinking fountains mounted side by side or on a single post, are usable by people with disabilities and people who find it difficult to bend over. Knee clearances shall not be required at units used primarily by children ages 12 and younger where clear floor space for a parallel approach is provided and where the spout is no higher than 30 in, measured from the floor or ground surface to the spout outlet.</td></tr>
<tr><td>Seating</td><td colspan="2">In places of assembly with fixed seating, accessible wheelchair locations shall be provided. At least one companion fixed seat shall be provided next to each wheelchair seating area. When the seating capacity exceeds 300, wheelchair spaces shall be provided in more than one location.</td></tr>
<tr><td></td><td>Capacity of Seating in Assembly Area</td><td>Number of Required Wheelchair Locations</td></tr>
<tr><td></td><td>4 to 25</td><td>1</td></tr>
<tr><td></td><td>26 to 50</td><td>2</td></tr>
<tr><td></td><td>51 to 300</td><td>4</td></tr>
<tr><td></td><td>301 to 500</td><td>6</td></tr>
<tr><td></td><td>over 500</td><td>6 plus 1 additional space for each total seating capacity increase of 100</td></tr>
<tr><td>Workstations</td><td colspan="2">Accessible workstations in core spaces in the elementary school level such as art rooms, the library/media center, computer labs and other core subject spaces in the secondary level should be provided.</td></tr>
<tr><td>Performance Areas</td><td colspan="2">An accessible route shall connect wheelchair-seating locations with performing areas, including stages and spaces used by the performers such as dressing rooms or locker rooms. An Assistive Listening System (ALS) should be provided and located within 50 feet viewing distance of the stage or performing area and shall have a complete view of the stage.</td></tr>
<tr><td colspan="3">Systems Code Compliance</td></tr>
<tr><td>Fire Alarm System</td><td colspan="2">There should be a NFPA 70 panel, connected to the local fire department for alarm with localized alarm stations as required with available spare parts and maintenance service.</td></tr>
</table>

Annunciator	There should be a NFPA 70 remote panel in an easily accessed area, well protected, with available parts and maintenance service.
Fire Suppression System	An automatic fire suppression system shall be installed throughout all buildings in accordance with local building codes.
Systems Accessibility	
Fire Alarm	Visual strobe alarms are to be provided in toilet rooms and other general use areas. (Meeting rooms, lobbies, corridors and common use areas.)

Typical Life Expectancy of Building Materials & Components

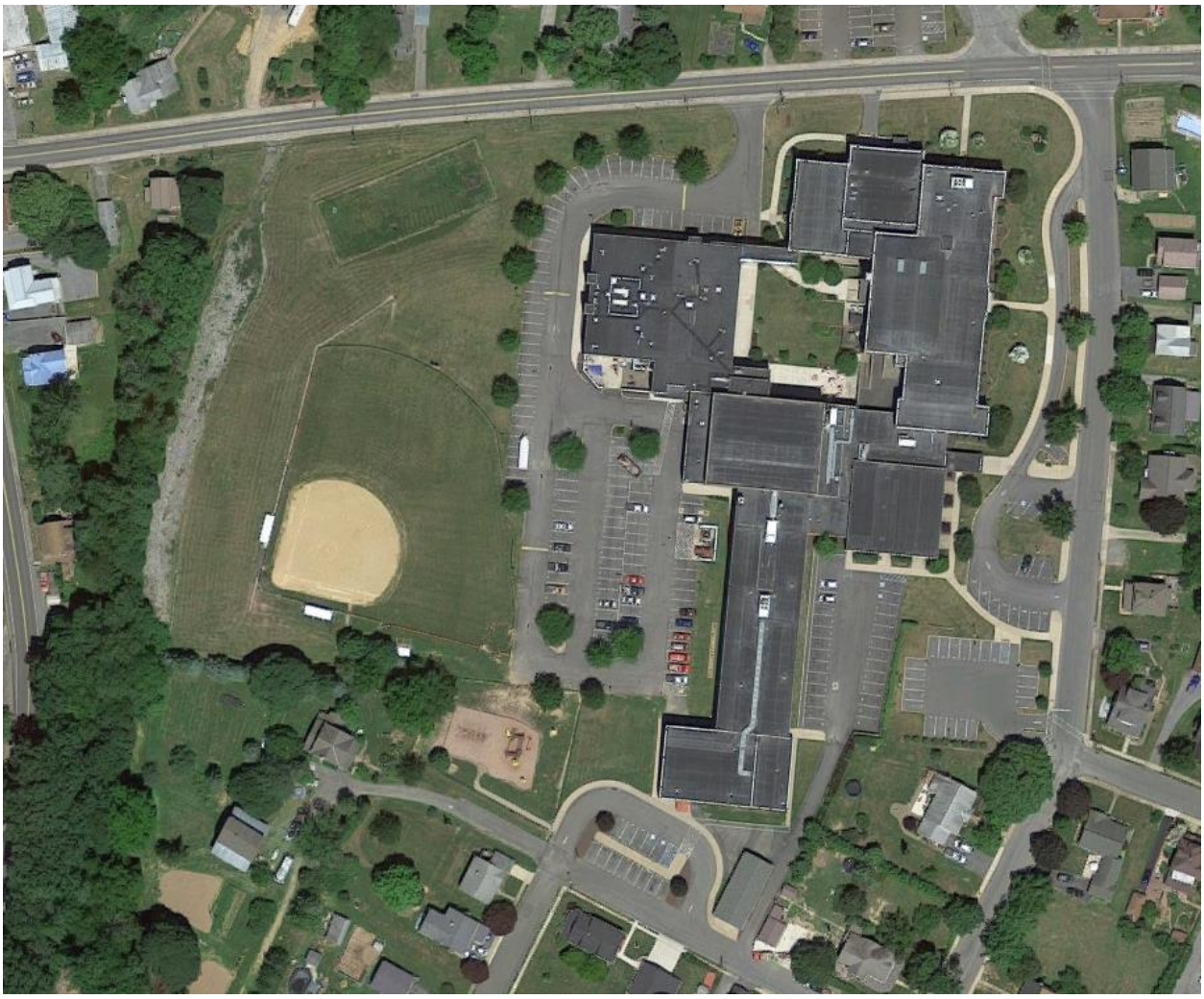
The below timeframes represent typical average life expectancy of building components. These will vary based on use of the building, maintenance procedures, and other factors specific to a certain facility.

General Building Systems	Range of Years						Range of Years				
	10 - 20	20 - 30	30 - 40	40 - 50	50 +		10 - 20	20 - 30	30 - 40	40 - 50	50 +
Site Work											
Concrete pads & sidewalks	■	■				Site sewage system	■				
Bituminous paving	■	■				Site electrical lines	■	■	■		
Site water lines	■	■	■			Fencing	■				
Site sewer lines	■	■	■			Playground equipment	■				
Site stormwater systems	■	■									
Foundations & Structure											
Foundation walls / footings	■	■	■	■	■	Steel floor structure	■	■	■	■	■
Concrete slab on grade	■	■	■	■	■	Steel roof structure	■	■	■	■	■
Concrete floor/metal deck	■	■	■	■	■						
Building Envelope Systems											
Exterior wall - masonry	■	■	■	■	■	Rainwater downspouts	■	■			
Exterior wall - wood clad	■	■				Rainwater gutters / spouting	■	■	■		
Aluminum windows	■	■				Skylights	■	■			
Aluminum / metal doors	■					Roofing - seamed metal	■	■			
Trim - soffit, fascia, etc.	■	■				Roofing - asphalt shingles	■				
Roofing - build-up system	■	■				Roofing - single-ply EPDM	■	■			
Interiors											
Walls - masonry	■	■	■	■	■	Ceilings - drywall / plaster	■	■	■	■	
Walls - drywall / plaster	■	■	■	■	■	Ceilings - acoustical tile	■				
Floors - terrazzo	■	■	■	■	■	Wall / ceiling paint	■				
Floors - wood	■	■	■			Doors - wood w/metal frame	■	■			
Floors - vinyl	■					Interior door hardware	■				
Floors - ceramic	■	■	■	■		Operable partitions	■	■			
Floors - carpet	■										
Specialty Equipment											
Casework - wood	■	■	■			Toilet partitions	■				
Casework - plastic laminate	■	■				Toilet accessories	■				
Chalkboards & tackboards	■	■	■			Cafeteria tables	■				
Projection screens	■					Auditorium seating	■	■			
Lockers	■					Library furniture	■	■			
Kitchen equipment	■					Gymnasium bleachers	■	■			

Mechanical, Plumbing & Electrical	Range of Years						Range of Years				
	10 - 20	20 - 30	30 - 40	40 - 50	50 +		10 - 20	20 - 30	30 - 40	40 - 50	50 +
Mechanical											
Steel Boilers						Expansion tanks					
Cast Iron Boilers						Rooftop air conditioners					
Unit ventilators						Hot water unit heaters					
Fan coil units						VAV boxes					
Steam heat system						Centrifugal exhaust fans					
Gas heat system						Water cooled centrifugal chillers					
Oil heat system						Air cooled chillers					
Central air conditioning						Galvanized cooling towers					
Local (window) air conditioning system						Water source / geothermal heat pumps					
Ductwork, diffusers, grilles						Evaporative coolers					
Dampers						HVAC insulation					
Burners						Base mounted pumps					
Controls						In-line pumps					
Valve actuators											
Plumbing											
Water piping - copper						Water piping - PVC					
Sanitary piping - cast iron						Sanitary piping - PVC					
Gas-fired tanks						Expansion loops					
Electric-fired tanks						Mixing valves					
Steam-fired tanks						Gas piping (low pressure)					
Backflow preventers						Gas meter / regulator					
Pumps - constant pressure						Sprinklers					
Pumps - recirculation						Standpipe					
Pumps - sewer						Neutralization tanks					
Fixtures - water coolers, drinking fountains						Fixtures - toilets, urinals, lavatories					
Electrical											
Power Supply						Public address system					
Power service						Fire alarm panel					
Distribution panels						Smoke / heat detection					
Wiring, receptacles, switches						Fire alarm - graphic annunciator					
Transformers						Telephone system					
Lighting - exterior						Television system					
Lighting - interior						Security system					
Generator						Clock / bell system					
Exit signs						Speakers					
Communication wiring						Electric motors					
Motor starters											

6 | Montgomery Area Elementary & Jr /Sr High School

Address:	**120 Penn St, Montgomery, PA**
Construction Timeline:	Original Construction 1930; Additions & Renovations; 1956, 1984, 2000; Renovations 2006
Building Square Footage:	183,051 SF
Site Acreage:	10.76 Acres



Building Summary

As with any building approaching 100 years old, the facility is in need of various repairs and upgrades. Some portions of the existing building components and systems have been upgraded over the years; however the building has not received a full comprehensive renovations in over 20 years. Recently renovated areas such as the district administrative offices and various special education support spaces, are in good condition and not need of upgrades. However, the rest of the building is in need of a full major renovation to meet current construction standards.

Site Conditions

Paving & Walkways:

Paving throughout the site is in fair to poor condition with spider cracking throughout much of the paved areas. There are a variety of locations where the paving is deteriorating beyond repair. Sidewalks are in fair condition. There are locations where spauling, cracking, or heaving has occurred.

Recommendations:

- Mill and resurface all parking and drives.
- Repair cracking and heaving sidewalks

Play Areas & Equipment:

The playground equipment is outdated and in need of upgrade or replacement. The playground area is undersized.

Recommendations:

- Replace playground equipment

Athletic Facilities:

A softball field existing on-site and is in good to fair condition. No upgrades are required.

Exterior Building Conditions

Exterior Walls:

Exterior walls are primarily masonry and in fair to poor condition. There are many areas of the façade where brick is spauling and the mortar is cracking and or missing. The brick is also stained in many areas. In the elementary wing, the concrete windows sills are beginning to deteriorate.

Recommendations:

- Clean the entire masonry façade
- Replace damaged bricks
- Repoint failing mortar
- Replace cast concrete sills

Roofing:

The roof is a flat low-sloped roof with single ply membrane roofing. Portions of roofing are nearing the end of useful life.

Recommendations:

- Replace roofing or apply a resurfacing coating over existing membrane.

Exterior Doors & Windows:

Exterior doors have recently been replaced with hollow metal or aluminum doors and are in good condition. Exterior windows are a combination of aluminum storefront framing and aluminum clad wood windows with integral blinds. Most of the wood windows are failing. The older integral blinds are not in working order.

Recommendations:

- Replace all wood clad windows with aluminum windows.

Interior Building Conditions

Structure:

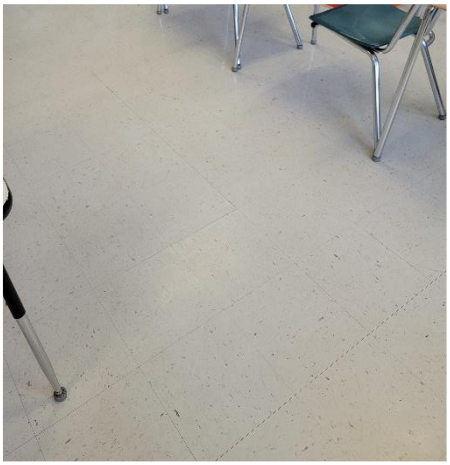
The building structure is a combination of load bearing walls and steel framed columns with steel joists and metal or gypsum decking. There is a portion of floor structure in the corridor and stage of the original 1930 construction that is undersized for the deflection loading of occupants. As a result, the flooring in this area flexes more than typical conditions causing flooring failures.

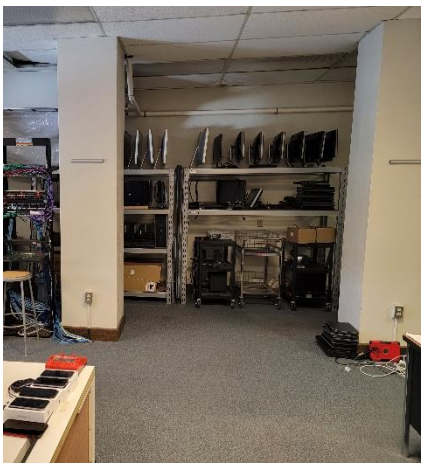
Recommendations:

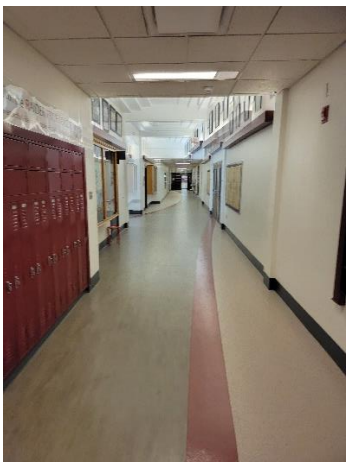
- Replace portion of floor structure in 1930 building.

Finishes:

Flooring is a combination of VCT, LVT, Carpet and Terrazzo. Where flooring was replaced with recent renovations the flooring is in good to fair condition. There are sections of flooring that are in poor condition. Older portions of carpet are in very poor condition.







Walls are painted CMU, gypsum board and plaster. Wall finishes are in fair condition. There are sections of the original 1930 building where the plaster is in disrepair due to water infiltration/damage.

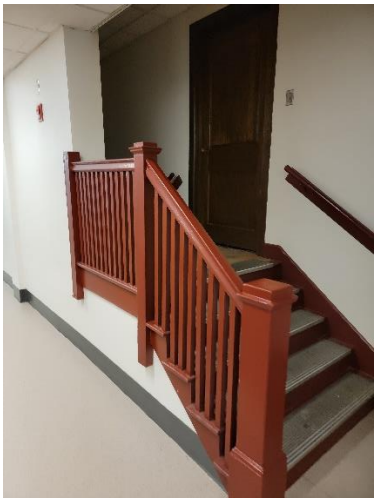
Ceilings are primarily acoustical tile and are in fair to poor condition. Some older sections of tile are sagging, stained, and damaged.

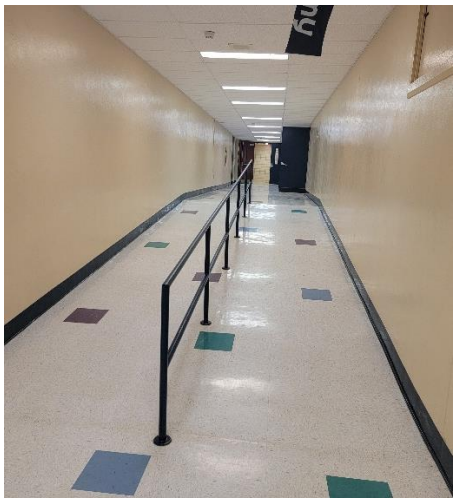
Recommendations:

- Replace older sections of flooring
- Repair damaged plaster and correct water infiltration
- Replace older areas of ceiling tile

Code & Accessibility:

There are various aspects of the existing building that do not meet current codes and standards. The majority of these are grandfathered and are not required to be upgraded. However, with a major renovation project, these codes upgrades may be required to be addressed. Note: a full code compliance survey was not conducted for the study and should be undertaken with any major project undertaken.





Recommendations:

- Provide grab bars on all single occupancy toilets to meet accessibility standards
- Correct ramp in ground floor of elementary wing that is too steep
- Replace showers with individual showers and dedicated drains for each user
- Replace handrails and guardrails that do not meet dimensional requirements
- Provide accessible route to stage

Doors:

Many of the door have been replaced over the years and are in fair condition. There are sections of the building where the doors and hardware have not been replaced and are in need of upgrade.

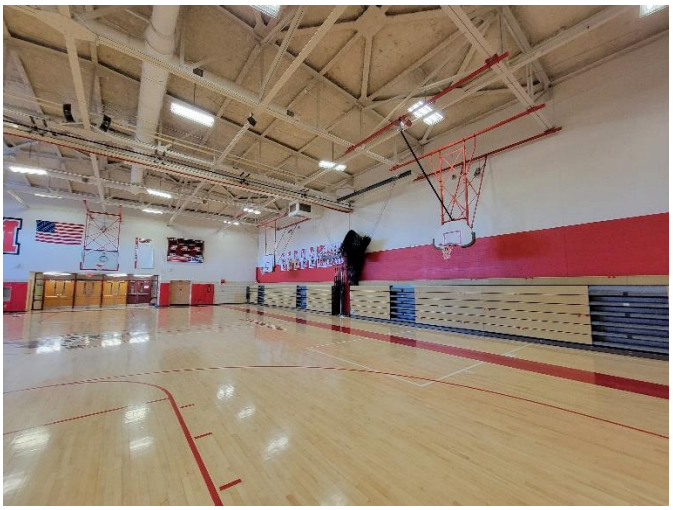
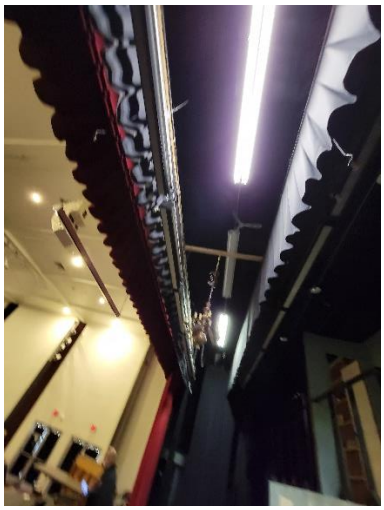

Recommendations:

- Replace older doors and hardware.

Casework & Built-in Equipment:

Most of the casework is outdated and in disrepair. The casework also does not meet the current storage and educational needs. Corridor lockers are in fair to good condition. Stage rigging and gymnasium equipment are out dated and do not properly serve the use.



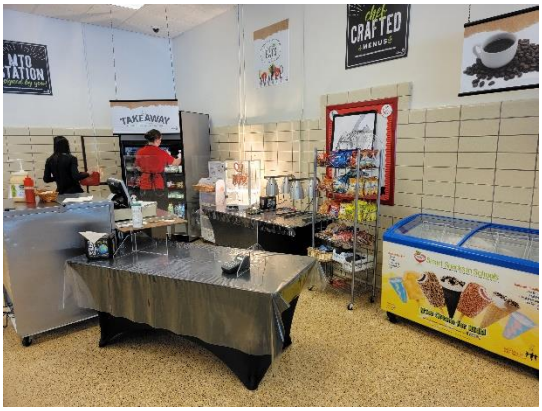



Recommendations:

- Replace classroom casework and furniture
- Replace gymnasium equipment and bleachers
- Replace stage rigging

Food Service Equipment:

Most of the food service equipment is at the end of its useful life.



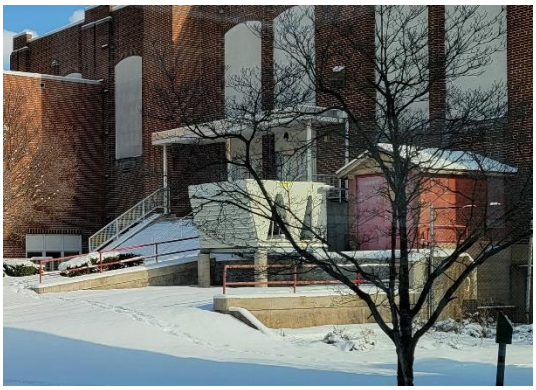
Recommendations:

- Replace food service equipment

Building Systems Summary

HVAC

The building is served by unit ventilators with condensing units, air handling units with condensing units, and rooftop units with VAV terminal units. Most of the units were installed in 2006. The equipment in the Technology wing of the building was installed in 2001.



The system has three gas-fired Fulton PulsePak boilers to provide hot water to the terminal equipment. The boilers have a modulating control system. This system was reported to not function properly. Base mounted pumps circulate hot water to all the terminal equipment in the building.

HVAC controls are by Automated Logic serving the building.

The kitchen is equipment with hoods and exhaust systems. The current make-up air and ventilation systems do not comply with current Codes. If renovations are done in this area, the ventilation system will need to be updated.

The shops are served by suspended heating and ventilating unit ventilators and heat only rooftop units. Mechanical cooling is not provided. The dust collector serving the area is original to the building and is at maximum capacity. The shops also have “smoke-eater” units suspended from the structure.

The kiln has a direct vent exhaust system. The system is likely not adequate for the space requirements.

Plumbing

The gang toilets contain wall and floor mounted flush valve water closets, wall mounted urinals, and wall mount lavatories. The fixtures have a combination of manual and handsfree control on the flush valves and faucets. Several fixtures were missing the ADA protective insulation.

There are water coolers with bottle fillers scattered around the building.

Domestic hot water is generated by a gas-fired storage Raypak water heater with storage tank. A mixing valve and hot water recirculation system is provided. There are several storage water heaters in remote areas of the building for local hot water supply.

Insulation on the piping system is damaged in many areas.

The kitchen drains are connected to interior mounted grease interceptors at each sink location.

A public water service is provided to the building.

The building is connected to public sewer. There were reported problems with the underground sanitary piping system.

The building has a natural gas service for the boilers, kitchen equipment, domestic water heating, and science classrooms.

The building is NOT protected by an automatic sprinkler system.

Electrical

Electrical service is provided by a 4000-amp 480/277-volt, 3 phase Cutler Hammer Eaton switchboard. This equipment was upgrade in 2006.

Emergency power is provided by 50 KW Kohler gas-fired generator. The generator powers emergency lights and life safety items. There were no reported issues with the unit.

Power and data systems in the building vary in age. There are no dedicated IT wiring closets. The network racks are located in general spaces throughout the building.

Issue noted with the capacity of the buss duct in the shop areas.

Lighting in most of the building is fluorescent fixtures. Most of the spaces have recessed mounted fixtures. Lighting control is through wall switches. There were no issues noted with this system.

Lighting and controls in the Auditorium are outdated and are difficult to maintain.

Exterior lighting is LED type with no reported issues.

The fire alarm system in the building is a EST system with manual and automatic devices throughout the building. The system was upgraded in 2019 and is Code compliant and no issues were reported.

There is a Dukane intercom system located in the main office to provide bell signals and to make voice announcements. There were no issues reported.

The clocks in the building are battery operated manual clocks. There is no auto-correcting system provided.

The main entrance has an Aiphone interconnection system and security door control to monitor visitors entering the building from the main office area. The building has multiple security cameras throughout the building with a video display in the main office. Card access is provided at multiple exterior entrances.

The building is connected to the IU fiber for telephone system.

The entire building is covered by the District wireless network as well as numerous hard-wired locations. This system is current with no reported issues.

The classrooms have either projectors and smart board or smart TVs.

Building Systems Recommendations:

The general recommendations are related to system maintenance. Due to the age of the systems, the District should budget for typical service maintenance such as HVAC unit filter changes, grease interceptor cleaning, etc. It is recommended that an annual maintenance budget be established to cover items like pumps, fan motors, plumbing trim, etc. replacement as these items have a shorter service life than the main equipment.

- Aside from budgeting for annual system maintenance and consumables, a budget should be established for component failures as noted above.
- Perform camera scope of the existing underground sanitary and storm water piping to determine any issues. Correct any items identified.
- Replace the HVAC systems throughout the building. The equipment is nearing the end of it's expected life and units will begin to fail on a more frequent basis.
- As part of the HVAC equipment upgrade, add mechanical cooling to all areas of the building including the shops.
- Confirm the dust collector requirements and replace the unit and duct distribution.
- Replace the domestic water heating equipment.
- Replace the older plumbing fixtures
- Review the capacity of the existing electric services to verify ability to upgrade building systems.
- Upgrade the buss duct distribution in the shop areas.
- Replace the standby generator and increase the capacity to support life safety plus other essential systems such as kitchen cooler and freezer, boilers and pumps, IT closet HVAC, etc.
- Upgrade the Auditorium and Stage lighting and controls.
- Replace the existing fluorescent lighting fixtures with LED.
- Install a new lighting control system to eliminate switches and allow automatic fixture operation for energy efficiency.
- Provide dedicated IT wiring closet for the network racks and equipment. This would allow for better security as well as dedicated HVAC control.
- Provide a clock system with connection to a central correction system.

6 | Montgomery Area Athletic & Community Center (MAACC)

Address:	**537 Old Montgomery Road, Montgomery, PA**
Construction Timeline:	Original Construction 2002; Additions 2018
Building Square Footage:	24,835 SF
Site Acreage:	10.76 Acres

Building Summary

Having been constructed and added onto within the past 20 years, the building and overall complex are in good condition. Minimal upgrades are required.

Site Conditions

Paving & Walkways:

The existing site is served by one entrance. A portion of the main parking lot is paved, and the remaining lot is a base course binder surface. Sidewalks are in fair to good condition.

Recommendations:

- Final pave remaining gravel parking lot and drives

Athletic Facilities:

The grass surface athletic fields are in fair conditions. The main competition stadium field shows signs of ear due to overuse. Some of the fields in the rear have drainage issues and tend to remain wet after periods of rain.

Recommendations:

- Provide synthetic Track surface
- Consider providing a synthetic turf field at the stadium
- Improve drainage at baseball field

Exterior Building Conditions

Exterior Walls:

The building consists of masonry and metal panel with he latter being the majority of the building. The exterior materials are in good condition and no upgrades are required.

Roofing:

The roofing is sloped metal roofing with a small section of flat single ply membrane roof. The roof is in good condition and no upgrades are required.

Doors & Windows:

The exterior doors are hollow metal and are in good condition. No upgrades are required.

Interior Building Conditions

Structure:

The building structure is steel framed with steel joists or beams and metal deck. All portions of the structure system are in good condition. No upgrades are required.

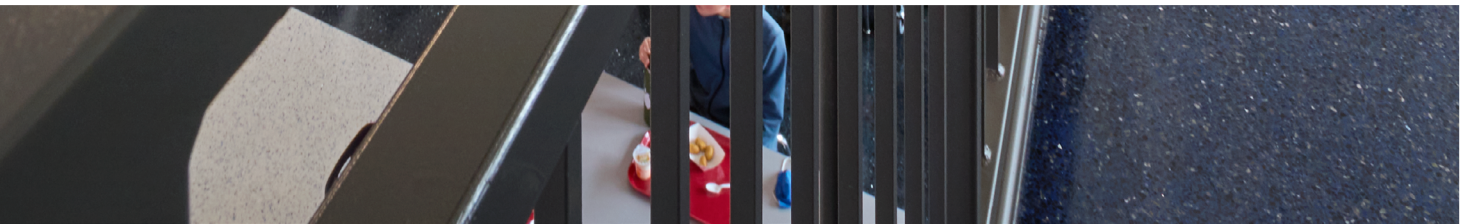
Finishes:

All finishes are in good condition and no upgrades are required.

Building Systems Summary

The mechanical, electrical, and plumbing systems are all in good condition and no upgrades are required.

EXISTING FACILITY COST TO UPGRADE



7 | Existing Facility Cost to Upgrade

Estimated Costs for Each Criteria

The estimated costs listed for each item of work are preliminarily based on visual observation of the condition present during the site inspections. In general, the costs are allowances for the construction cost associated with the improvement. These costs can fluctuate depending on how and when the work is procured. In addition, costs are construction only and do not include any additional soft costs which may be required, such as design fees, financing fees, contingency, etc. Costs should be adjusted for inflation from the date of this report.

It should be noted that the cost to upgrade address general existing facility conditions that need addressed to bring the building to current standards. The total costs to upgrade each facility are not representative of a total project costs should a comprehensive renovation of that facility be undertaken. They do not include soft costs, contingencies, and other fees that would be associated with a typical capital improvement project. Further, when undertaking a full comprehensive renovation, other items not included in these costs may be incorporated into that renovation project if they are foreseen to be upgraded or replaced in the future.

The facility cost to upgrade does not incorporate ongoing yearly maintenance items that can be expected at each building. These ongoing maintenance items should be budgeted in addition to the cost to upgrade.

Note the cost to upgrade does not address the deficiencies noted in the Existing Facility Considerations (section 4).

Refer to proposed construction options regarding estimates and scope of work for comprehensive projects.

MONTGOMERY AREA ELEMENTARY / JR & SR HIGH SCHOOL

May 5, 2021

ESTIMATED COSTS TO UPGRADE TO CURRENT STANDARDS

The following cost estimate includes upgrades to bring the existing components of the facility to current standards

Educational and functional deficiencies are not included in the below costs

Cost are estimated in a range of expected costs with the high costs being 1.15 times the low range.

EXISTING BUILDING AREA 183,051 SF

Existing Facility Upgrades	Unit	Quant		Cost	Cost Range LOW		HIGH
Sitework							
Paved Drives & Parking	SF	130,330	$	5.50	$716,815	-	$824,337
Sidewalks	LS	1	$	15,000	$15,000	-	$17,250
Athletic Fields							
Building Exterior							
Exterior Walls - Masonry Restoration	LS	1	$	65,500	$65,500	-	$75,325
Exterior Walls - Water infiltration	LS	1	$	32,000	$32,000	-	$36,800
Roofing - Resurface	LS	1	$	850,000	$850,000	-	$977,500
Exterior Windows	SF	150,547	$	7.50	$1,129,103	-	$1,298,468
Exterior Doors & Hardware							
Building Interior							
Structure - Supplement Floor Framing	SF	6,907	$	75.00	$518,025	-	$595,729
Finishes - Flooring	SF	6,907	$	6.50	$44,896	-	$51,630
Finishes - Ceilings	SF	20,000	$	11.00	$220,000	-	$253,000
Finishes - Walls	SF	183,051	$	1.75	$320,339	-	$368,390
Interior Doors & Hardware	EA	240	$	1,500	$360,000	-	$414,000
Accessibility Upgrades	LS	1	$	150,000	$150,000	-	$172,500
Casework	SF	183,051	$	4.00	$732,204	-	$842,035
Specialties & Equipment							
Food Service Equipment	LS	1	$	650,000	$650,000	-	$747,500
Gymnasium & Stage Equipment	LS	1	$	585,000	$585,000	-	$672,750
Elevator							
Building Systems - HVAC							
Central Plant Equipment	EA	3	$	65,000	$195,000	-	$224,250
Terminal Equipment and Air Distribution	SF	183,051	$	23.00	$4,210,173	-	$4,841,699
Piping & Pumps	SF	183,051	$	2.00	$366,102	-	$421,017
Exhaust Systems	LS	1	$	35,000	$35,000	-	$40,250
Controls	LS	1	$	75,000	$75,000	-	$86,250
Building Systems - Plumbing / Fire Protection							
Domestic Water System							
Sanitary & Storm Piping	LS	1	$	50,000	$50,000	-	$57,500
Plumbing Fixtures & Trim	SF	183,051	$	1.50	$274,577	-	$315,763
Water Heaters	EA	3	$	30,000	$90,000	-	$103,500
Fire Protection Systems							
Building Systems - Electrical							
Electrical Service & Switchgear							
Power Distribution	SF	183,051	$	4.50	$823,730	-	$947,289
Site Lighting							
Lighting & Controls	SF	183,051	$	14.00	$2,562,714	-	$2,947,121
Fire Alarm							
Telecomm/Data Systems	SF	183,051	$	5.00	$915,255	-	$1,052,543
Security Systems							
Clock & Intercom Systems	LS	1	$	125,000.00	$125,000	-	$143,750
Sound Systems	LS	1	$	35,000.00	$35,000	-	$40,250
SUBTOTAL					$16,146,431	-	$18,568,396
TOTAL ESTIMATED CONSTRUCTION COST TO UPGRADE					**$16,146,431**	-	**$18,568,396**
Cost/SF					$88	-	$101

The above costs are for construction only and do not include additional project related soft costs.

The above costs are representative of the costs at the time of the study. Add escalation factor for each year beyond the current year for projected inflation.

MONTGOMERY AREA ATHLETIC & COMMUNITY CENTER

March 1, 2022

ESTIMATED COSTS TO UPGRADE TO CURRENT STANDARDS

The following cost estiamte includes upgrades to bring the existing components of the facility to current standards

Educational and functional deficiencies are not included in the below costs

Cost are estimated in a range of expected costs with the high costs being 1.15 times the low range.

EXISTING BUILDING AREA 24,835 SF

	Unit	Quant		Cost	Cost Range		
Existing Facility Upgrades					**LOW**		**HIGH**
Sitework							
Paved Drives & Parking	SF	98,300	$	7.50	$737,250	-	$847,838
Track Sruface	LS	1	$	535,000	$535,000	-	$615,250
Building Exterior							
No Upgrades Needed							
Building Interior							
No Upgrades Needed							
Building Systems - HVAC/Plumbing/Electrical							
No Upgrades Needed							
SUBTOTAL					$1,272,250	-	$1,463,088
TOTAL ESTIMATED CONSTRUCTION COST TO UPGRADE					**$1,272,250**	-	**$1,463,088**

The above costs are for construction only and do not include additional project related soft costs.

The above costs are represenetive of the costs at the time of the study. Add escalation factor for each year beyond the current year for projected inflation.

MONTGOMERY AREA ELEMENTARY / JR & SR HIGH SCHOOL

ESTIMATED COSTS TO UPGRADE FOR CONSTRUCTION OPTIONS

The following cost estimate includes minimal upgrades to bring the existing components of the facility to current standards and exclude projects already planned, upgrades that can occur through capital improvement projects, and items that can be defered to a later date

Educational and functional deficiencies are not included in the below costs

Cost are estimated in a range of expected costs with the high costs being

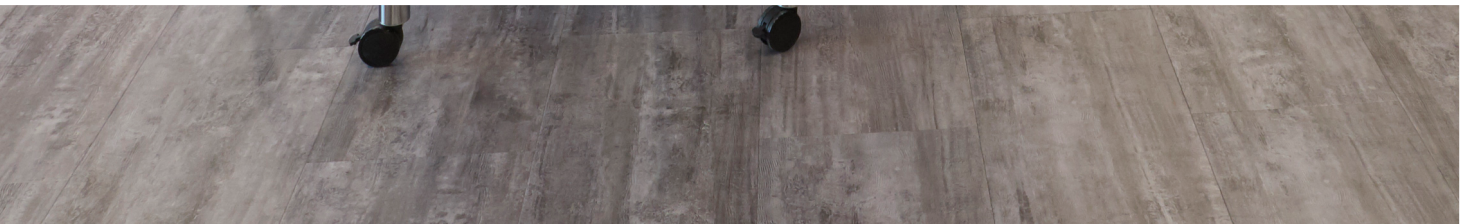
183,051 SF

Existing Facility Upgrades	Cost Range LOW		Cost Range HIGH	Cost for Construction Option	Description of Change
Sitework					
Paved Drives & Parking	$716,815	-	$824,337	0	Capital Improvement Upgrades
Sidewalks	$15,000	-	$17,250	0	Capital Improvement Upgrades
Athletic Fields					
Building Exterior					
Exterior Walls - Masonry Restoration	$65,500	-	$75,325	$36,000	Minimum scope required
Exterior Walls - Water infiltration	$32,000	-	$36,800	$36,800	High Priority - No Change
Roofing - Resurface	$850,000	-	$977,500	0	Capital Improvement Upgrades
Exterior Windows	$653,250	-	$751,238	$751,238	High Priority - No Change
Exterior Doors & Hardware					
Building Interior					
Structure - Supplement Floor Framing	$518,025	-	$595,729	$595,729	High Priority - No Change
Finishes - Flooring	$44,896	-	$51,630	$20,000	Minimum scope required
Finishes - Ceilings	$220,000	-	$253,000	0	Eliminated - Low Priority
Finishes - Walls	$320,339	-	$368,390	$50,000	Minimum scope required
Interior Doors & Hardware	$360,000	-	$414,000	$0	Eliminated - Low Priority
Accessibility Upgrades	$150,000	-	$172,500	$10,000	Minimum scope required
Casework	$732,204	-	$842,035	0	Address with furnishings
Specialties & Equipment					
Food Service Equipment	$650,000	-	$747,500	$747,500	High Priority - No Change
Gymnasium & Stage Equipment	$585,000	-	$672,750	$672,750	High Priority - No Change
Elevator					
Building Systems - HVAC					
Central Plant Equipment	$195,000	-	$224,250	$224,250	High Priority - No Change
Terminal Equipment and Air Distribution	$4,210,173	-	$4,841,699	$1,669,041	Reduce - Capital Improvement Upgrades
Piping & Pumps	$366,102	-	$421,017	$145,134	Minimum scope required
Exhaust Systems	$35,000	-	$40,250	$40,250	High Priority - No Change
Controls	$75,000	-	$86,250	$57,500	High Priority - No Change
Building Systems - Plumbing / Fire Protection					
Domestic Water System				$420,000	High Priority - Add
Sanitary & Storm Piping	$50,000	-	$57,500	$57,500	High Priority - No Change
Plumbing Fixtures & Trim	$274,577	-	$315,763	$189,458	Minimum scope required
Water Heaters	$90,000	-	$103,500	$103,500	High Priority - No Change
Fire Protection Systems					
Building Systems - Electrical					
Electrical Service & Switchgear					
Power Distribution	$823,730	-	$947,289	$500,000	Minimum scope required
Site Lighting					
Lighting & Controls	$2,562,714	-	$2,947,121	0	Eliminated - Low Priority
Fire Alarm					
Telecomm/Data Systems	$915,255	-	$1,052,543	0	Eliminated - Low Priority
Security Systems					
Clock & Intercom Systems	$125,000	-	$143,750	0	Eliminated - Low Priority
Sound Systems	$35,000	-	$40,250	$0	Eliminated - Low Priority
SUBTOTAL	$15,670,579	-	$18,021,166	$6,326,649	
Contingency				10% $632,665	
TOTAL ESTIMATED CONSTRUCTION COST TO UPGRADE	**$15,670,579**	-	**$18,021,166**	**$6,959,314**	
Cost/SF	$86	-	$98	$38.02	

The above costs are for construction only and do not include additional project related soft costs.

The above costs are representative of the costs at the time of the study. Add escalation factor for each year beyond the current year for projected inflation.

EXISTING FACILITY ENERGY PORTFOLIO



8 | Existing Facility Energy Portfolio

Overview

ENERGY STAR is a U.S. Environmental Protection Agency voluntary program that helps businesses and individuals save money and protect our climate through superior energy efficiency.

ENERGY STAR'S Portfolio Manager is a free, online tool to help building owners and operators benchmark and trend their building's energy consumption against similar buildings. From the energy usage reported on utility bills and from the gross floor area of the building, an energy use intensity (EUI) can be developed that highly influences the resulting Energy Star score. For a K-12 school, the data input into the program such as the number of students and faculty, and the months or operation also effects the score. The resulting score (range of 1-100) is an indication of how the building compares to other similar buildings. A score of 50 is the median and is representative of a building that performs better than 50% of less efficient similar buildings, as well as worse than 50% of more efficient similar buildings.

Energy Star Design Scores

Montgomery Area Elementary & Jr/Sr High School

Energy Star Design Score – 19

Montgomery Area Athletic & Community Center

Energy Star Design Score - 64

ENERGY STAR® Statement of Energy Performance

19

ENERGY STAR® Score[1]

Montgomery Elementary & Jr/Sr High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 183,051
Built: 1930

For Year Ending: July 31, 2022
Date Generated: August 15, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Montgomery Elementary & Jr/Sr High School 120 Penn St. Montgomery, Pennsylvania 17752	Barry Isett & Associates 2 Market Plaza Way Mechanicsburg, PA 17055 (____)____-_____	John Lewis 2 Market Plaza Way Mechanicsburg, PA 17055 7177958575 jlewis@barryisett.com

Property ID: 22124919

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
158.1 kBtu/ft²

Source EUI
166.8 kBtu/ft²

Annual Energy by Fuel	
Electric - Grid (kBtu)	81,725 (0%)
Natural Gas (kBtu)	28,852,766 (100%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	113.9
National Median Source EUI (kBtu/ft²)	120.2
% Diff from National Median Source EUI	39%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,540

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____Date: _____

Licensed Professional

____ _____
,
(____)____-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

64

ENERGY STAR® Score[1]

Montgomery Area Athletic Community Center

Primary Property Type: K-12 School
Gross Floor Area (ft²): 24,835
Built: 1990

For Year Ending: July 31, 2022
Date Generated: August 15, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Montgomery Area Athletic Community Center 506 Old Road Montgomery, Pennsylvania 17752	Barry Isett & Associates 2 Market Plaza Way Mechanicsburg, PA 17055 (____)____-_____	John Lewis 2 Market Plaza Way Mechanicsburg, PA 17055 7177958575 jlewis@barryisett.com

Property ID: 22124919

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
80.6 kBtu/ft²

Source EUI
90.4 kBtu/ft²

Annual Energy by Fuel	
Electric - Grid (kBtu)	81,725 (4%)
Natural Gas (kBtu)	1,920,273 (96%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	93.5
National Median Source EUI (kBtu/ft²)	104.8
% Diff from National Median Source EUI	-14%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	110

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

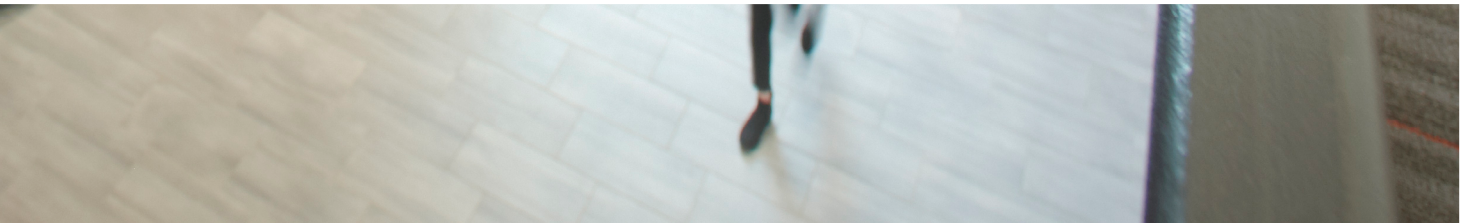
LP Signature: _____Date: _____

Licensed Professional

____ _____
,
(____)____-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

CONSTRUCTION OPTIONS



9 | Construction Options

Overview

Crabtree, Rohrbaugh & Associates has developed preliminary facility options for the Montgomery Area School District to assist the Board of School Directors and administration in the decision-making process regarding the future utilization of the educational buildings. Any recommendations that result in improvements to the present facilities should be structured to align with the School District's Mission, Educational Programs, and Guiding Principles.

The options are developed around the following needs:

- Address the functional and educational deficiencies identified.
- Identify and address existing facility condition needs to renovate and modernize the facility and to extend the useful life of the physical plant and operational systems a minimum of 20 years.

Summary

The information presented in this section details various options and alternatives to meet the needs stated above. The options developed can be broken down into three categories.

1. Renovations/Upgrades to current standards: Option 1. As a baseline, this option documents the cost to upgrade the existing facility conditions to current construction standards. This option does not address any of the educational or functional deficiencies. This is not a comprehensive option to meet the district needs and is only developed as a baseline for comparison purposes.

2. Renovations and Additions to meet all needs established in the study: Options 2a and 3a. These options are developed to meet all needs within the district. These options are not financially feasible due to borrowing constraints and were developed to establish the cost to meet all the needs. These options are used as a starting point to work back towards a financially feasible option by prioritizing needs.

3. Renovations and Additions to meet the highest priority needs within the financial constraints of the district: Options 2b and 3b. These options are reductions of options 2a and 3a to meet the financial constraints of the district. These options do not address every need; however, they have been developed to address the highest priority needs as established by the district.

Option Development

The facility options presented in this study are conceptual and do not represent a final solution. The options convey overall building layouts and address the key educational program requirements. Once an option is selected further development of the design and scope of work should be undertaken as part of a capital improvement project.

The probable construction costs identified are preliminary and serve to identify the approximate value of various construction options for comparison purposes. Costs are based on historical data and building construction cost information. Costs should be adjusted for inflation and market conditions from the date of this report and the costs shown do not account for unforseen changes in market conditions. Costs are shown as a range to represent these various factors that will influnce the final costs. Should there be a significant change in scope, market conditions, or other factors, these cost ranges may be exceeded.

The Potential Total Project Costs noted in the Options Analysis include the following:

- Construction Costs - based on required site development improvements and a dollar per SF estiamte for renovations, additions or new construction.
- Construction Soft Costs – include costs such as testing & inspections, permiting and review fees, project supervision and construction contingency (a predetermined amount or percentage of the contract held for unpredictable changes in the project).
- Project Soft Costs – indirect costs associated with a building construction project which include items such as design and engineering fees, financing costs, moveable furniture fixtures and equipment and reimbursable expenses.

Option 1 – Facility Upgrades to the existing Montgomery Area Elementary & Jr/Sr High School

Montgomery Area Elementary & Jr/Sr High School	Infrastructure Upgrades
Montgomery Area Athletics & Community Center	Maintain

Option 1 Summary

As a baseline, this option documents the cost to upgrade the existing facility conditions to current construction standards as identified in section 6, Existing Facility Condition Analysis. This option does not address any of the educational or functional deficiencies. This is not a comprehensive option to meet the district needs and is only developed as a baseline for comparison purposes.

Option 1 Costs

Montgomery Elementary & Jr/Sr HS			April 12, 2022
Comprehensive Renovations		COST RANGE	
Renovation Construction Costs	183,051 SF	$ 17,023,743	$ 18,726,117
Additions Construction Costs	SF	$ -	$ -
Site Construction Costs		$ 750,000	$ 825,000
Escalation & Contingency	10%	$ 1,821,809	$ 1,808,478
Subtotal Construction Costs		**$ 19,595,552**	**$ 21,359,596**
Construction Soft Costs	10.0%	$ 1,959,555	$ 2,135,960
Total Construction Costs		**$ 21,555,107**	**$ 23,495,555**
Project Soft Costs	16.0%	$ 3,448,817	$ 3,759,289
TOTAL PROJECT COSTS		**$ 25,003,924**	**$ 27,254,844**

Option 1 Analysis

Pros

- Addresses all existing facility conditions at the Elementary & Jr/Sr High School

Cons

- Does not address any of the educational & functional deficiencies at the Elementary School
- Does not address any of the educational & functional deficiencies at the Jr/Sr High School
- Does not address any of the educational & functional deficiencies of the existing site.

Option 2a – Comprehensive renovations and Additions to Montgomery Area Elementary & Jr/Sr High School

Montgomery Area Elementary & Jr/Sr High School	Additions & Comprehensive Renovations
Montgomery Area Athletics & Community Center	Maintain

Option 2a Summary

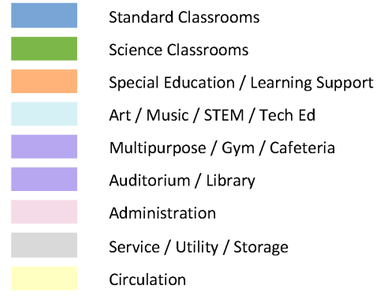
This option maintains the current grade/building configuration and constructs renovations and additions to meet all needs established in the study.

A new addition is constructed for the Elementary School to house all elementary programs within the same areas of the building. This addition includes classroom and support space, new gymnasium/cafeteria with satellite kitchen and a new administrative suite with the main entrance. The former multipurpose room of the Elementary School is converted to a library and collaboration spaces are created throughout the existing space. Art and Music are relocated to be within the elementary school area. Special education spaces are renovated and reconfigured to meet the needs.

The new spaces at the elementary free up space in the Jr/Sr High School to meet the space deficiencies. The library is expanded larger to meet the needs. Special education spaces are renovated and reconfigured to meet the needs. The locker rooms are fully renovated. The kitchen is expanded and fully upgraded. Art, drama/broadcast and the TV studio are renovated in new spaces. The tech ed department is fully renovated/reconfigured. Additions are also constructed for a fitness/weight room, wrestling room, expanded Tech Ed spaces, expanded cafeteria and collaboration space.

Site upgrades include construction of a new parent drop-off/pick-up, new bus loop, new elementary playground and hard surface play area and expanded parking. It should be noted that the existing softball field would need to be relocated in this option and at the time of the study there was no determination of where this could occur.

Montgomery Area Elementary & Jr/Sr High School



FLOOR PLAN OMMITTED FOR SECURITY REASONS

Montgomery Area Elementary & Jr/Sr High School

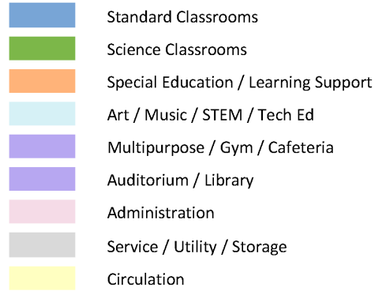
MAJOR RENOVATIONS

ADDITIONS

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

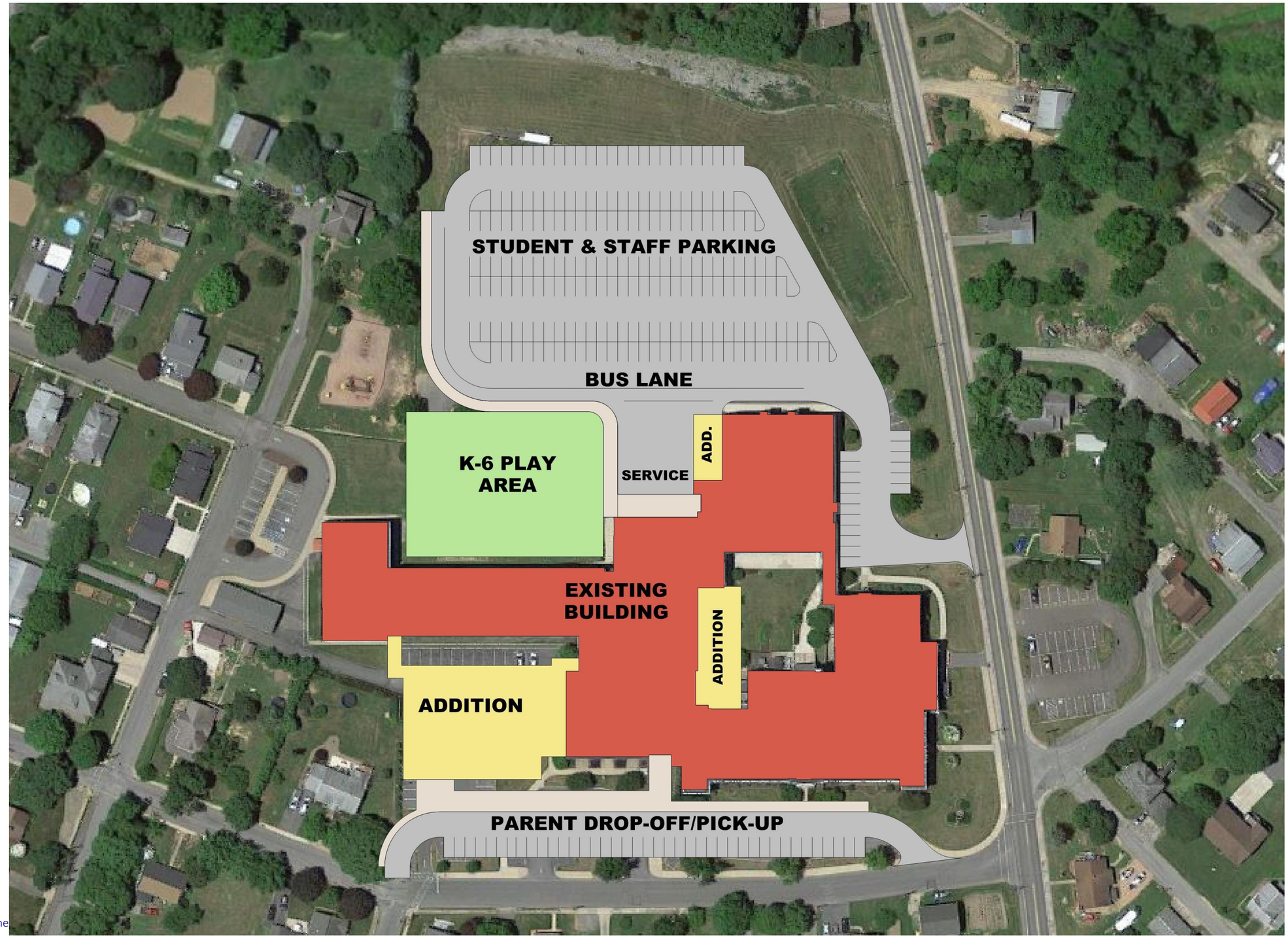
FLOOR PLAN OMMITTED FOR SECURITY REASONS

Montgomery Area Elementary & Jr/Sr High School



FLOOR PLAN OMMITTED FOR SECURITY REASONS

Montgomery Area Elementary & Jr/Sr High School



Option 2a Costs

Montgomery Elementary & Jr/Sr HS			April 12, 2022
Additions & Renovations		COST RANGE	
Renovation Construction Costs	183,051 SF	$ 20,703,743	$ 22,774,117
Additions Construction Costs	43,700 SF	$ 11,936,655	$ 13,130,321
Site Construction Costs		$ 2,000,000	$ 2,200,000
Escalation & Contingency	10%	$ 3,550,641	$ 3,524,660
Subtotal Construction Costs		**$ 38,191,039**	**$ 41,629,098**
Construction Soft Costs	10.0%	$ 3,819,104	$ 4,162,910
Total Construction Costs		**$ 42,010,143**	**$ 45,792,008**
Project Soft Costs	16.0%	$ 6,721,623	$ 7,326,721
TOTAL PROJECT COSTS		**$ 48,731,766**	**$ 53,118,729**

The cost of this option is not financially feasible due to borrowing constraints.

Option 2a Analysis

Pros

- Addresses all existing facility conditions at the Elementary & Jr/Sr High School
- Addresses all educational & functional deficiencies at the Elementary & Jr/Sr High School

Cons

- Not financially feasible
- Maximizes existing site usage and does not allow for any future expansion
- Athletic facilities remain separate from the Jr/Sr High School
- Renovations to an occupied School

Option 2b – Select renovations and Additions to Montgomery Area Elementary & Jr/Sr High School

Montgomery Area Elementary & Jr/Sr High School	Additions & Selective Renovations
Montgomery Area Athletics & Community Center	Maintain

Option 2 Summary

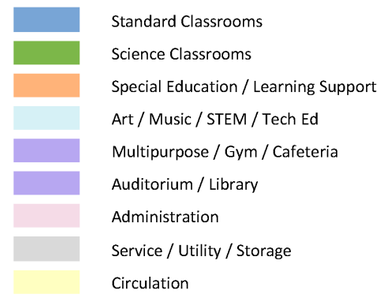
This option maintains the current grade/building configuration and constructs renovations and additions to meet most of the needs established in the study. This option is a modification of option 2a to develop an option that is financially feasible to the district. The reductions from option 2a to option 2b include the following:

- Reduce scope of existing facility infrastructure improvements (refer to cost to upgrade for construction options in section 7).
- Eliminate elementary gymnasium addition and replace with smaller cafeteria.
- Convert existing elementary multipurpose room to gymnasium.
- Eliminate the wrestling addition
- Eliminate the fitness/weight room addition
- Eliminate expansion of the HS Library
- Reduce the project soft costs (furniture, fixtures & equipment budget)

A new addition is constructed for the Elementary School to house all elementary programs within the same areas of the building. This addition includes classroom and support space, new cafeteria with satellite kitchen and a new administrative suite with the main entrance. The former multipurpose room of the Elementary School is converted to a gymnasium and collaboration spaces are created throughout the existing space. Art and Music are relocated to be within the elementary school area. Special education spaces are renovated and reconfigured to meet the needs.

The new spaces at the elementary free up space in the Jr/Sr High School to meet most of the space deficiencies. Special education spaces are renovated and reconfigured to meet the needs. The locker rooms are fully renovated. The kitchen is expanded and fully upgraded. Art, drama/broadcast and the TV studio are renovated in new spaces. The tech ed department is fully renovated/reconfigured. Additions are constructed for an expanded Tech Ed spaces and collaboration space.

Site upgrades include construction of a new parent drop-off/pick-up, new bus loop, new elementary playground and hard surface play are and expanded parking. It should be noted that the existing softball field would need to be relocated in this option and at the time of the study there was no determination of where this could occur.



FLOOR PLAN OMMITTED FOR SECURITY REASONS

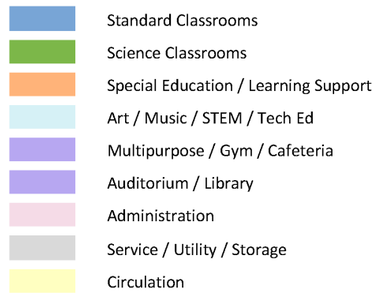
Montgomery Area Elementary & Jr/Sr High School

MAJOR RENOVATIONS

ADDITIONS

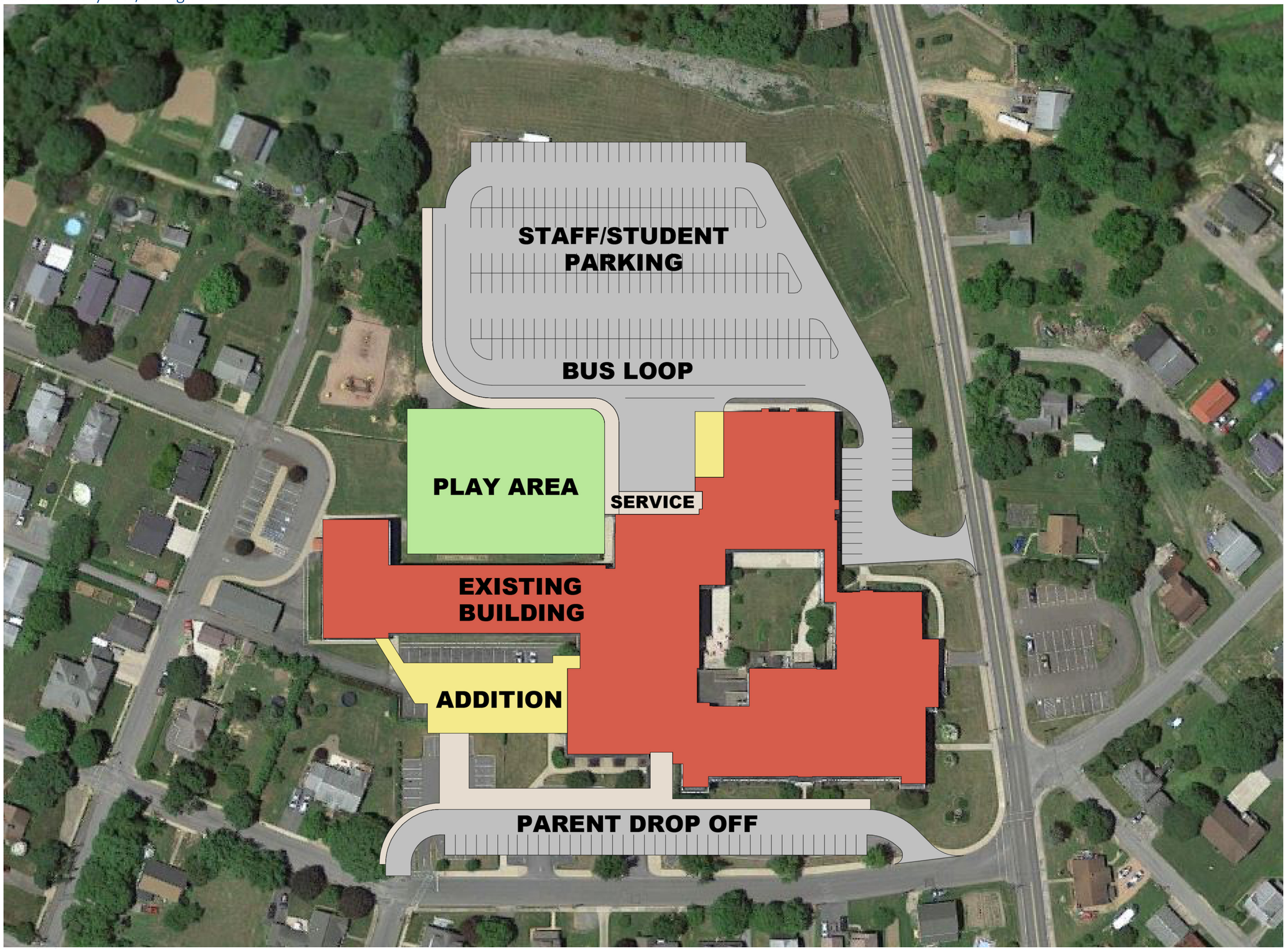
Standard Classrooms
Science Classrooms
Special Education / Learning Support
Art / Music / STEM / Tech Ed
Multipurpose / Gym / Cafeteria
Auditorium / Library
Administration
Service / Utility / Storage
Circulation

FLOOR PLAN OMMITTED FOR SECURITY REASONS



FLOOR PLAN OMMITTED FOR SECURITY REASONS

Montgomery Area Elementary & Jr/Sr High School



Option 2b Costs

Montgomery Elementary & Jr/Sr HS						
Additions & Renovations		COST RANGE				
Renovation Construction Costs	183,051 SF	$	13,040,866		$	14,344,953
Additions Construction Costs	27,466 SF	$	7,502,338		$	8,252,572
Site Construction Costs		$	2,300,000		$	2,530,000
New Softball Field		$	450,000		$	495,000
Escalation & Contingency	10%	$	2,387,553		$	2,370,083
Subtotal Construction Costs		**$**	**25,680,757**		**$**	**27,992,608**
Construction Soft Costs	10.0%	$	2,568,076		$	2,799,261
Total Construction Costs		**$**	**28,248,833**		**$**	**30,791,869**
Project Soft Costs	12.0%	$	3,389,860		$	3,695,024
TOTAL PROJECT COSTS		$	31,638,693		$	34,486,893

Option 2b Analysis

Pros

- Addresses most educational & functional deficiencies at the Elementary & Jr/Sr High School
- Financially feasible option

Cons

- Does not address all existing facility conditions at the Elementary & Jr/Sr High School
- Does not address all educational & functional deficiencies at the Elementary & Jr/Sr High School
- Maximizes existing site usage and does not allow for any future expansion
- Athletic facilities remain separate from the Jr/Sr High School
- Renovations to an occupied School

Option 3a – Move Jr/Sr High School to MAACC and construct additions. Convert the existing school to Elementary only with comprehensive renovaitons.

Montgomery Area Elementary & Jr/Sr High School Convert to Montgomery Area Elementary School	Additions, Comprehensive Renovations, & Demolition
Montgomery Area Athletics & Community Center Convert to Montgomery Area Jr/Sr High School	Additions

Option 3a Summary

This option moves the Jr/Sr High School to the MAACC with the construction of additions and converts the existing Montgomery Area Elementary & Jr/Sr High School to an Elementary School with comprehensive renovations and demolition of portions of the existing school. This option would be constructed in phases.

Phase I

A new addition is constructed at the MAACC to house grades 7-12. The addition includes expansion of the existing MAACC lobby/entrance flanked by a new cafeteria and auditorium. This common area would extend to a new entrance with the administrative suite to one side and the library to the other. A new side entrance would be created to allow the community to use the fitness areas and culinary program restaurant during the day. To the south a new two-story classroom wing would be constructed to house the general classrooms, science labs, special education classrooms and other educational support spaces. To the rear of the existing facility an addition would be created for the Tech Ed program. The existing MAAC portion of the building is in good condition and would remain as configured with limited to no renovations.

The site would be reconfigured for a new bus loop and separate parent drop-off/pick-up. Parking would be expanded to serve the staff and students and additional parking provided for events. All existing surrounding fields would remain as configured.

Phase II

The existing Montgomery Area Elementary & Jr/Sr High School would be converted to a Pre-K to 6 Elementary School and undergo comprehensive renovations. The existing building size is larger than the programmatic needs of the Elementary School, so the oldest portion of the existing building would be demolished. The DAO would be relocated to the former elementary multipurpose room. A new administrative suite and main entrance would be created within the existing building footprint.

Site upgrades would include construction of a new parent drop-off/pick-up, new bus loop, new elementary playground and hard surface play area. The existing softball field would remain and serve the Jr/Sr High School athletics program.

FLOOR PLAN OMMITTED FOR SECURITY REASONS

Montgomery Area Elementary School

Site Plan

Montgomery Area Elementary School

MAJOR RENOVATIONS

EXISITNG BUILDING DEMOLITION

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

FLOOR PLAN OMMITTED FOR SECURITY REASONS

Montgomery Area Elementary School

MAJOR RENOVATIONS

EXISITNG BUILDING DEMOLITION

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

FLOOR PLAN OMMITTED FOR SECURITY REASONS

Montgomery Area Elementary School

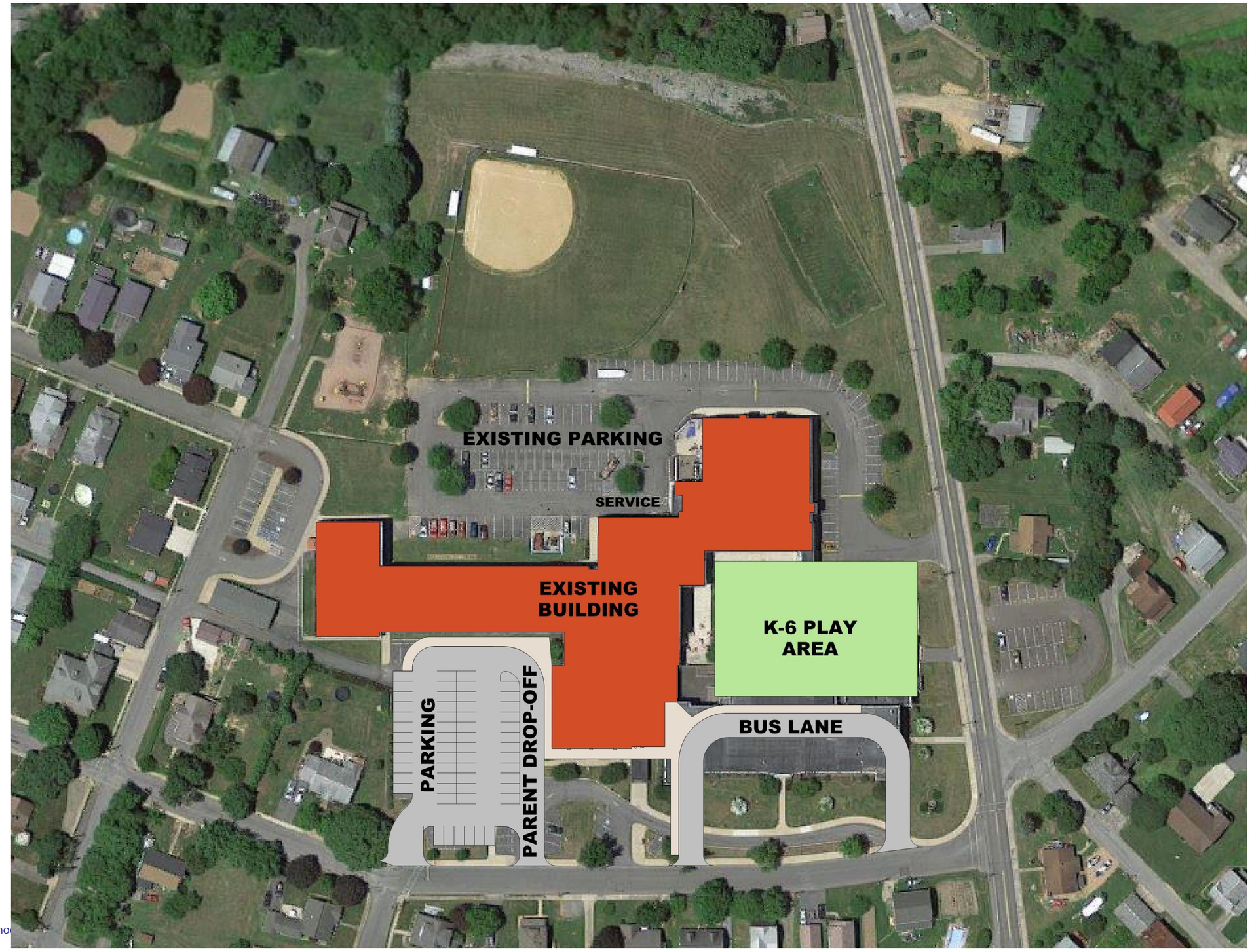
MAJOR RENOVATIONS

EXISITNG BUILDING DEMOLITION

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

FLOOR PLAN OMMITTED FOR SECURITY REASONS

Montgomery Area Elementary School



Option 3a Phase I Costs

New Jr/Sr HS @ MAACC				April 12, 2022
Additions		COST RANGE		
New Building Construction Costs	125,000 SF	$ 26,875,000		$ 29,562,500
Site Construction Costs		$ 1,500,000		$ 1,650,000
Escalation & Contingency	9%	$ 2,624,688		$ 2,887,156
Subtotal Construction Costs		**$ 30,999,688**		**$ 34,099,656**
Construction Soft Costs	10.0%	$ 3,099,969		$ 3,409,966
Total Construction Costs		**$ 34,099,656**		**$ 37,509,622**
Project Soft Costs	16.0%	$ 5,455,945		$ 6,001,540
TOTAL PROJECT COSTS		**$ 39,555,601**		**$ 43,511,161**

Option 3a Phase II Costs

Montgomery Elementary				April 12, 2022
Comprehensive Renovations		COST RANGE		
Renovation Construction Costs	124,147 SF	$ 11,545,671		$ 12,700,238
Additions Construction Costs	SF	$ -		$ -
Site Construction Costs		$ 867,808		$ 954,589
Escalation & Contingency	10%	$ 1,272,382		$ 1,263,071
Subtotal Construction Costs		**$ 13,685,861**		**$ 14,917,898**
Construction Soft Costs	10.0%	$ 1,368,586		$ 1,491,790
Total Construction Costs		**$ 15,054,447**		**$ 16,409,688**
Project Soft Costs	16.0%	$ 2,408,711		$ 2,625,550
TOTAL PROJECT COSTS		**$ 17,463,158**		**$ 19,035,238**

The cost of this option is not financially feasible due to borrowing constraints.

Option 3a Analysis

Pros

- Addresses all facility conditions and educational & functional deficiencies at the Elementary School
- Addresses all facility conditions and educational & functional deficiencies at the Jr/Sr High School
- Locates the Athletic Facilities with the Jr/Sr High School
- Allows for future expansion at the existing school site
- New 7-12 additions constructed not on school occupied site.

Cons

- Not financially feasible
- Would need to be construction in phases (existing building upgrades occur further in the future)
- Elementary renovations occur in occupied building

Option 3b – Move Jr/Sr High School to MAACC and construct additions. Convert the existing school to Elementary only with select renovaitons.

Montgomery Area Elementary & Jr/Sr High School Convert to Montgomery Area Elementary School	Additions, Comprehensive Renovations, & Demolition
Montgomery Area Athletics & Community Center Convert to Montgomery Area Jr/Sr High School	Additions

Option 3b Summary

Option 3b is similar to option 3a and moves the Jr/Sr High School to the MAACC with the construction of additions. The existing Montgomery Area Elementary & Jr/Sr High School is converted to an Elementary School with selective renovations. This option would be constructed in phases. The following reductions to Option 3a were made:

Phase I

The following reductions to Option 3a were made:

- Eliminated the auditorium, stage and associated support spaces
- Added black box theater
- Reduced size of various spaces
- Reduced soft costs (construction contingency and furniture fixture and equipment budgets)

A new addition is constructed at the MAACC to house grades 7-12. The addition includes expansion of the existing MAACC lobby/entrance flanked by a new cafeteria and black box theater. The performance auditorium remains at the existing school. This common area would extend to a new entrance with the administrative suite to one side and the library to the other. A new side entrance would be created to allow the community to use the fitness areas and culinary program restaurant during the day. To the south a new two-story classroom wing would be constructed to house the general classrooms, science labs, special education classrooms and other educational support spaces. To the rear of the existing facility an addition would be created for the Tech Ed program. The existing MAAC portion of the building is in good condition and would remain as configured with limited to no renovations.

The site would be reconfigured for a new bus loop and separate parent drop-off/pick-up. Parking would be expanded to serve the staff and students and additional parking provided for events. All existing surrounding fields would remain as configured.

Phase II

The existing Montgomery Area Elementary & Jr/Sr High School would be converted to a Pre-K to 6 Elementary School and undergo selective renovations including upgrades of existing conditions. The DAO will remain in its current location and the former Tech Ed area will be available for maintenance and general storage. A new administrative suite and main entrance would be created within the existing building footprint.

Site upgrades would include construction of a new parent drop-off/pick-up, new bus loop, new elementary playground and hard surface play area. The existing softball field would remain and serve the Jr/Sr High School athletics program.

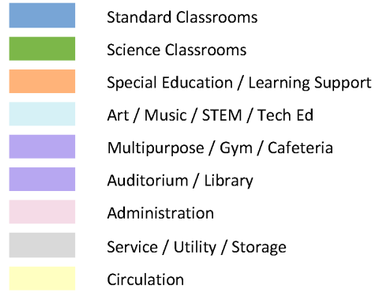
Montgomery Area Elementary School

EXISTING MAACC

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

FLOOR PLAN OMMITTED FOR SECURITY REASONS

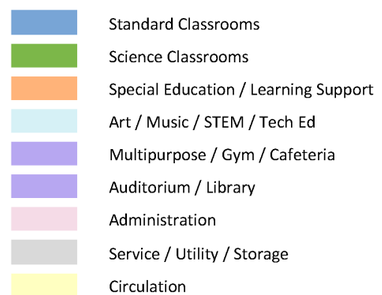
Montgomery Area Elementary School



FLOOR PLAN OMMITTED FOR SECURITY REASONS

Montgomery Area Elementary School

Montgomery Area Elementary School



FLOOR PLAN OMMITTED FOR SECURITY REASONS

Montgomery Area Elementary School

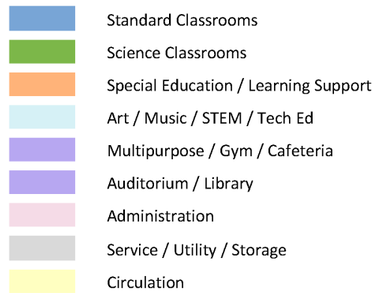
MAJOR RENOVATIONS

ADDITIONS

- Standard Classrooms
- Science Classrooms
- Special Education / Learning Support
- Art / Music / STEM / Tech Ed
- Multipurpose / Gym / Cafeteria
- Auditorium / Library
- Administration
- Service / Utility / Storage
- Circulation

FLOOR PLAN OMMITTED FOR SECURITY REASONS

Montgomery Area Elementary School



FLOOR PLAN OMMITTED FOR SECURITY REASONS

Montgomery Area Elementary School

Option 3b Phase I Costs

New Jr/Sr HS @ MAACC				
Additions		COST RANGE		
New Building Construction Costs	94,092 SF	$ 20,229,780		$ 22,252,758
Site Construction Costs		$ 2,000,000		$ 2,200,000
Escalation & Contingency	9%	$ 2,056,255		$ 2,261,880
Subtotal Construction Costs		**$ 24,286,035**		**$ 26,714,638**
Construction Soft Costs	8.0%	$ 1,942,883		$ 2,137,171
Total Construction Costs		**$ 26,228,917**		**$ 28,851,809**
Project Soft Costs	12.0%	$ 3,147,470		$ 3,462,217
TOTAL PROJECT COSTS		$ 29,376,388		$ 32,314,026

Option 3b Phase II Costs

Montgomery Elementary				
Selective Renovations		COST RANGE		
Renovation Construction Costs	183,051 SF	$ 5,985,000		$ 6,650,000
Additions Construction Costs		$ -		$ -
Site Construction Costs		$ 1,000,000		$ 1,100,000
Escalation & Contingency	10%	$ 715,963		$ 716,875
Subtotal Construction Costs		**$ 7,700,963**		**$ 8,466,875**
Construction Soft Costs	10.0%	$ 770,096		$ 846,688
Total Construction Costs		**$ 8,471,059**		**$ 9,313,563**
Project Soft Costs	14.0%	$ 1,185,948		$ 1,303,899
TOTAL PROJECT COSTS		$ 9,657,007		$ 10,617,461

Option 3a Analysis

Pros

- Addresses all facility conditions and educational & functional deficiencies at the Elementary School
- Addresses all facility conditions and educational & functional deficiencies at the Jr/Sr High School
- Locates the Athletic Facilities with the Jr/Sr High School
- Allows for future expansion at the existing school site
- New 7-12 additions constructed on a non-occupied school occupied site.

Cons

- Would need to be construction in phases (existing building upgrades occur further in the future)
- Does not address all existing facility conditions at the Elementary School
- Elementary renovations occur in occupied building
- More costly option

Summary of Construction Options

The three viable options from a financial perspective: Option 1, 2b, and 3b. Option 1 is not recommended since it only improves existing facility conditions and does not address the remaining needs. Option 2b keep all the students in one facility and does not fully meet the educational and functional needs of the district. Option 3b located the Jr/Sr High School with the athletic facilities and meets all the educational and functional needs, but the Elementary must be renovated in a future phase once additional funding is available.

OPTION 1	Facility Upgrades to the existing Montgomery Area Elementary & Jr/Sr High School										
FACILITY	EXST. GRADE CONFIG.	EXISTING AREA	EXISTING CAPACITY	CURRENT ENROLL.	PROPOSED SCOPE	PROP. GRADE	SF OF NEW CONSTR.	TOTAL SF	PLANNED CAPACITY	TOTAL ESTIMATED COST RANGE	
Montgomery Area Elementary School	K-6	73,220	585	528	Existing Condition Upgrades	K-6	-	73,220	585	Included in # below	- Included in # below
Montgomery Area Jr/Sr High School	7-12	109,831	636	404	Existing Condition Upgrades	7-12	-	109,831	636	$ 25,003,924	- $ 27,254,844
Montgomery Area Athletic & Community Center	-	24,935	-	-	Maintain	-	-	24,935	-	-	- -
Total District		***207,986***	***1,221***	***932***			***-***	***207,986***	***1,221***	***$ 25,003,924***	***- $ 27,254,844***

OPTION 2a	Comprehensive Renovations and Additions to Montgomery Area Elementary & Jr/Sr High School										
FACILITY	EXST. GRADE CONFIG.	EXISTING AREA	EXISTING CAPACITY	CURRENT ENROLL.	PROPOSED SCOPE	PROP. GRADE	SF OF NEW CONSTR.	TOTAL SF	PLANNED CAPACITY	TOTAL ESTIMATED COST RANGE	
Montgomery Area Elementary School	K-6	73,220	585	528	Comprehensive Reno & Addition	K-6	26,220	99,440	585	Included in # below	- Included in # below
Montgomery Area Jr/Sr High School	7-12	109,831	636	404	Comprehensive Reno & Addition	7-12	17,480	127,311	676	$ 48,731,766	- $ 53,118,729
Montgomery Area Athletic & Community Center	-	24,935	-	-	Maintain	-	-	24,935	-	-	- -
Total District		***207,986***	***1,221***	***932***			***43,700***	***251,686***	***1,261***	***$ 48,731,766***	***- $ 53,118,729***

OPTION 2b	Select Renovations and Additions to Montgomery Area Elementary & Jr/Sr High School										
FACILITY	EXST. GRADE CONFIG.	EXISTING AREA	EXISTING CAPACITY	CURRENT ENROLL.	PROPOSED SCOPE	PROP. GRADE	SF OF NEW CONSTR.	TOTAL SF	PLANNED CAPACITY	TOTAL ESTIMATED COST RANGE	
Montgomery Area Elementary School	K-6	73,220	585	528	Comprehensive Reno & Addition	K-6	18,311	91,531	585	Included in # below	- Included in # below
Montgomery Area Jr/Sr High School	7-12	109,831	636	404	Comprehensive Reno & Addition	7-12	9,155	118,986	656	$ 31,638,693	- $ 34,486,893
Montgomery Area Athletic & Community Center	-	24,935	-	-	Maintain	-	-	24,935	-	-	- -
Total District		***207,986***	***1,221***	***932***			***27,466***	***235,452***	***1,241***	***$ 31,638,693***	***- $ 34,486,893***

OPTION 3a	Move Jr/Sr High School to MAACC and construct additions. Convert the existing school to Elementary only with comprehensive renovations.										
FACILITY	EXST. GRADE CONFIG.	EXISTING AREA	EXISTING CAPACITY	CURRENT ENROLL.	PROPOSED SCOPE	PROP. GRADE	SF OF NEW CONSTR.	TOTAL SF	PLANNED CAPACITY	TOTAL ESTIMATED COST RANGE	
Montgomery Area Elementary School	K-6	73,220	585	528	Comprehensive Renovations	K-6		124,147	585	$ 13,912,595	- $ 15,237,654
Montgomery Area Jr/Sr High School	7-12	109,831	636	404	Relocate to MAACC	-		-	-	-	- -
Montgomery Area Athletic & Community Center	-	24,935	-	-	Convert to 7-12 Jr/Sr High School	7-12	125,000	149,935	676	$ 39,555,601	- $ 43,511,161
Total District		***207,986***	***1,221***	***932***			***125,000***	***274,082***	***1,261***	***$ 53,468,196***	***- $ 58,748,815***

OPTION 3b	Move Jr/Sr High School to MAACC and construct additions. Convert the existing school to Elementary only with select renovations.										
FACILITY	EXST. GRADE CONFIG.	EXISTING AREA	EXISTING CAPACITY	CURRENT ENROLL.	PROPOSED SCOPE	PROP. GRADE	SF OF NEW CONSTR.	TOTAL SF	PLANNED CAPACITY	TOTAL ESTIMATED COST RANGE	
Montgomery Area Elementary School	K-6	73,220	585	528	Select Renovations	K-6		183,051	585	$ 9,657,007	- $ 10,617,461
Montgomery Area Jr/Sr High School	7-12	109,831	636	404	Relocate to MAACC	-		-	-	-	- -
Montgomery Area Athletic & Community Center	-	24,935	-	-	Convert to 7-12 Jr/Sr High School	7-12	94,092	119,027	656	$ 29,376,388	- $ 32,314,026
Total District		***207,986***	***1,221***	***932***			***94,092***	***302,078***	***1,241***	***$ 39,033,394***	***- $ 42,931,488***

PROPOSED ENERGY PORTFOLIO

10 | Proposed Facility Energy Portfolio

Overview

ENERGY STAR is a U.S. Environmental Protection Agency voluntary program that helps businesses and individuals save money and protect our climate through superior energy efficiency.

ENERGY STAR'S Portfolio Manager is a free, online tool to help building owners and operators benchmark and trend their building's energy consumption against similar buildings. From the energy usage reported on utility bills and from the gross floor area of the building, an energy use intensity (EUI) can be developed that highly influences the resulting Energy Star score. For a K-12 school, the data input into the program such as the number of students and faculty, and the months or operation also effects the score. The resulting score (range of 1-100) is an indication of how the building compares to other similar buildings. A score of 50 is the median and is representative of a building that performs better than 50% of less efficient similar buildings, as well as worse than 50% of more efficient similar buildings.

The following list the ENERGY STAR rating of the proposed buildings included in each option. This only applies to building options for comprehensive renovations, renovations and additions, or new buildings. Buildings options for minor renovations or deferred maintenance which do not affect the overall energy consumption of a building are not included.

Option 1 – Facility Upgrades to the existing Montgomery Area Elementary & Jr/Sr High School

Montgomery Area Elementary & Jr/Sr High School

Energy Star Design Score – 55

Montgomery Area Athletic & Community Center

Existing Energy Star Design Score - 64

Option 2a – Comprehensive renovations and Additions to Montgomery Area Elementary & Jr/Sr High School

Montgomery Area Elementary & Jr/Sr High School

Energy Star Design Score – 55

Montgomery Area Athletic & Community Center

Existing Energy Star Design Score - 64

Option 2b – Select renovations and Additions to Montgomery Area Elementary & Jr/Sr High School

Montgomery Area Elementary & Jr/Sr High School

Energy Star Design Score – 50

Montgomery Area Athletic & Community Center

Existing Energy Star Design Score – 64

Option 3a – Move Jr/Sr High School to MAACC and construct additions. Convert the existing school to Elementary only with comprehensive renovaitons.

Montgomery Area Elementary School

Energy Star Design Score – 55

Montgomery Area Jr/Sr High School

Existing Energy Star Design Score – 72

Option 3b – Move Jr/Sr High School to MAACC and construct additions. Convert the existing school to Elementary only with select renovaitons.

Montgomery Area Elementary School

Energy Star Design Score – 50

Montgomery Area Jr/Sr High School

Existing Energy Star Design Score – 72

ENERGY STAR® Statement of Energy Performance

55

ENERGY STAR® Score[1]

Montgomery Elementary & Jr/Sr High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 183,051
Built: 1930

For Year Ending: July 31, 2022
Date Generated: August 15, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Montgomery Elementary & Jr/Sr High School 120 Penn St. Montgomery, Pennsylvania 17752	Barry Isett & Associates 2 Market Plaza Way Mechanicsburg, PA 17055 (____)____-_____	John Lewis 2 Market Plaza Way Mechanicsburg, PA 17055 7177958575 jlewis@barryisett.com

Property ID: 22124919

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
107.6 kBtu/ft²

Source EUI
113.8 kBtu/ft²

Annual Energy by Fuel

Electric - Grid (kBtu)	81,725 (0%)
Natural Gas (kBtu)	19,618,773 (100%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	113.7
National Median Source EUI (kBtu/ft²)	120.2
% Diff from National Median Source EUI	-5%

Annual Emissions

Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,050

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____Date: _____

Licensed Professional

____ _____
,
(____)____-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

55

ENERGY STAR® Score[1]

Montgomery Elementary & Jr/Sr High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 183,051
Built: 1930

For Year Ending: July 31, 2022
Date Generated: August 15, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

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Property ID: 22124919

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
107.6 kBtu/ft²

Source EUI
113.8 kBtu/ft²

Annual Energy by Fuel	
Natural Gas (kBtu)	19,618,773 (100%)
Electric - Grid (kBtu)	81,725 (0%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	113.7
National Median Source EUI (kBtu/ft²)	120.2
% Diff from National Median Source EUI	-5%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,050

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____Date: _____

Licensed Professional

____ _____
,
(____)____-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

50

ENERGY STAR® Score[1]

Montgomery Elementary & Jr/Sr High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 183,051
Built: 1930

For Year Ending: July 31, 2022
Date Generated: August 15, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
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Property ID: 22124919

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
113.2 kBtu/ft²

Source EUI
119.7 kBtu/ft²

Annual Energy by Fuel	
Electric - Grid (kBtu)	81,725 (0%)
Natural Gas (kBtu)	20,644,772 (100%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	113.7
National Median Source EUI (kBtu/ft²)	120.2
% Diff from National Median Source EUI	-0%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,104

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____Date: _____

Licensed Professional

____ _____
,
(____)____-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

72

ENERGY STAR® Score[1]

Montgomery Area Jr/Sr High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 24,835
Built: 1990

For Year Ending: July 31, 2022
Date Generated: August 15, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Montgomery Area Athletic Community Center 506 Old Road Montgomery, Pennsylvania 17752	Barry Isett & Associates 2 Market Plaza Way Mechanicsburg, PA 17055 (____)____-_____	John Lewis 2 Market Plaza Way Mechanicsburg, PA 17055 7177958575 jlewis@barryisett.com

Property ID: 22124919

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
72.3 kBtu/ft²

Source EUI
81.7 kBtu/ft²

Annual Energy by Fuel	
Natural Gas (kBtu)	1,715,073 (96%)
Electric - Grid (kBtu)	81,725 (4%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	92.8
National Median Source EUI (kBtu/ft²)	104.8
% Diff from National Median Source EUI	-22%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	99

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____Date: _____

Licensed Professional

____ _____
,
(____)____-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

55

ENERGY STAR® Score[1]

Montgomery Elementary & Jr/Sr High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 183,051
Built: 1930

For Year Ending: July 31, 2022
Date Generated: August 15, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
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Property ID: 22124919

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
107.6 kBtu/ft²

Source EUI
113.8 kBtu/ft²

Annual Energy by Fuel

Electric - Grid (kBtu)	81,725 (0%)
Natural Gas (kBtu)	19,618,773 (100%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	113.7
National Median Source EUI (kBtu/ft²)	120.2
% Diff from National Median Source EUI	-5%

Annual Emissions

Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,050

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____Date: _____

Licensed Professional

____ _____
,
(____)____-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

72

ENERGY STAR® Score[1]

Montgomery Area Jr/Sr High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 24,835
Built: 1990

For Year Ending: July 31, 2022
Date Generated: August 15, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Montgomery Area Athletic Community Center 506 Old Road Montgomery, Pennsylvania 17752	Barry Isett & Associates 2 Market Plaza Way Mechanicsburg, PA 17055 (____)____-_____	John Lewis 2 Market Plaza Way Mechanicsburg, PA 17055 7177958575 jlewis@barryisett.com

Property ID: 22124919

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
72.3 kBtu/ft²

Source EUI
81.7 kBtu/ft²

Annual Energy by Fuel	
Natural Gas (kBtu)	1,715,073 (96%)
Electric - Grid (kBtu)	81,725 (4%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	92.8
National Median Source EUI (kBtu/ft²)	104.8
% Diff from National Median Source EUI	-22%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	99

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____Date: _____

Licensed Professional

____ _____
,
(____)____-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

50

ENERGY STAR® Score[1]

Montgomery Elementary

Primary Property Type: K-12 School
Gross Floor Area (ft²): 183,051
Built: 1930

For Year Ending: July 31, 2022
Date Generated: August 15, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

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Property ID: 22124919

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
113.2 kBtu/ft²

Source EUI
119.7 kBtu/ft²

Annual Energy by Fuel	
Electric - Grid (kBtu)	81,725 (0%)
Natural Gas (kBtu)	20,644,772 (100%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	113.7
National Median Source EUI (kBtu/ft²)	120.2
% Diff from National Median Source EUI	-0%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,104

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

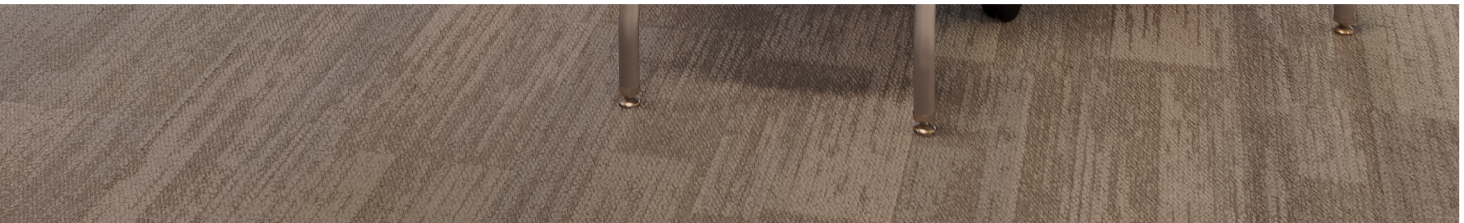
LP Signature: _____Date: _____

Licensed Professional

____ _____
,
(____)____-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

APPENDIX



A | Appendix

Pennsylvania Department of Education Requirements

The following elements are included in this study to meet PlanCon district-wide facility study guidelines. The study must have been completed within the preceding two years of the Department's receipt of the Part A submittal for this project building if the district is pursuing reimbursement.

1. An overview of the school district that considers such factors as geography, population, wealth. The overview must include:
    a. Population and wealth statistics
    b. A map showing the general location of the school district in the state or geographic region
    c. A map of the school district showing the general location of all existing buildings and owned sites in the school district
    d. Information on any distinguishing characteristics, such as geographically separate population centers, that will have an impact on facilities
2. An overview of the school district's educational program. The overview must address for all grades (K-12):
    a. Instructional practices for planned curriculums by grade structure (elementary, middle, secondary, etc.)
    b. Special facility needs, if applicable, needed to support planned curriculums.
3. An analysis of projected enrollment. The analysis must include:
    a. The likely enrollment for each grade structure ten years into the future
    b. A discussion of the reliability of the enrollment projections
4. An analysis of each building's capacity as it relates to the educational program. The analysis must address:
    a. How many students a building can house
    b. The types of educational spaces required by the educational program described above
    c. Grade alignments
    d. Length of the school day and number of classes per day, if applicable
    e. Size of particular rooms and adequacy of those rooms, if applicable
5. An analysis of each building's condition. The analysis must address:
    a. The building's physical condition
    b. The projected useful life of each building's major components (electrical, HVAC, plumbing, etc.)
    c. Code violations
    d. Universal accessibility
    e. Energy Portfolio surveys
    f. The cost to upgrade each building to current standards
6. An analysis of construction options. The analysis must address:
    a. The alternatives available to the school district based on the above analysis
    b. Cost estimates for each alternative
    c. The pros and cons for each alternative
    d. A summary page depicting options and costs
    e. Energy Portfolio surveys
7. Documentation regarding the authors' credentials. This section must include the education, registration or licensure and experience for each author. To be completed at the finalization of this report once options are developed.

B | Appendix

Understanding Capacity in Educational Feasibility Studies

Physical Capacity

Physical Capacity is the maximum number of people an educational space can safely hold. The calculation for physical capacity is primarily driven by building and fire codes. It is dependent on a variety of factors including, but not limited to, square footage, the number and location of exits, whether the building has a sprinkler system, fixed furniture and equipment, and if any hazardous materials are present.

All educational and support spaces including general classrooms, science labs, small group rooms, vocational/technical spaces, maker spaces, libraries, auditoriums, gymnasiums, and cafeterias have physical capacities which are unique to their size, layout, location within a building, and the governmental boundaries in which they reside. When determining physical capacity your architect or facilities manager in consultation with the local fire marshal and codes officer can provide that calculation. In general, physical capacities are far greater than what would be appropriate educationally. For example, a kindergarten room may be physically rated for 45 people, but a kindergarten class of 45 students is not educationally appropriate.

Physical capacities are established beyond the control of the Board of School Directors or administration and under no circumstances should be exceeded. It is important that all involved with facility design, scheduling, administration, and management know the physical capacities. However, it is not as critical to feasibility studies as educational capacity.

Educational Capacity

Educational capacity is the number of students and staff deemed appropriate for instruction in an educational space or to receive service in a support area. Educational capacity is a function of academic programming, educational goals, and operations of the school district. It is driven by the curriculum, needs of the students, instructional strategies, equipment and technology utilized, services provided, number of adults required to provide instruction and manage instructional space, and budgetary considerations. The capacity of support spaces is determined by factors such as the type of services provided, number of lunches served, fixed seating, age appropriate groupings, or schedule. All educational and support spaces including general classrooms, science labs, small group rooms, vocational/technical spaces, maker spaces, libraries, auditoriums, gymnasiums, and cafeterias have different educational capacities.

Most educational capacities are established by the Board of School Directors and/or administration through best practice, past practice, by school district policy, or through contractual obligations. Typically, they are established based on the age and needs of the students, academic offering, supervision and safety, and technology and instructional strategies utilized. In some cases, educational capacity may be state or federally mandated as in special education. The only caveat being is that educational capacity may never exceed physical capacity.

Utilization Rate

Utilization rate is the average number of students and staff typically scheduled to occupy a school. It is expressed as a percent of the educational capacity.

In a perfect scenario the utilization of support spaces would allow every instructional space to be scheduled to its educational capacity every instructional period of the day all school year long. That perfect scenario would reflect a 100% utilization rate. However, that is never the case as the number and suitability of instructional and support spaces, the size, distribution, and rate of growth/decline of the student body, the availability of professional and support staff, the instructional strategies and technology utilized, academic programs being offered, grade advancement/retention and graduation requirements, transportation schedules, and even the unique needs of a single student or small group of students are all part of a complex set variables that impact the likelihood of ever reaching a utilization rate of 100%.

In practice, schools represent a collection of instructional spaces, some scheduled above their educational capacity and some below and that varies over time. Schools that function well have the instructional and operational flexibility to allow management of that variation over time. In more challenging situations the educational capacity of all instructional spaces in a school are consistently exceeded or greatly underutilized.

Best practices for educational facility planning establish utilization rates in elementary schools at 90% of their educational capacity and 85% at the secondary level. Those rates are often adjusted based on the programs and experiences of each school district. Typically, they are adjusted down closer to 85% at the elementary level and 80% at the secondary level. When planning capacity, the utilization rate is often expressed in terms of the additional educational capacity required to efficiently schedule the anticipated enrollment. For example, as a basis for planning an elementary school with an anticipated enrollment of 500 students and a utilization rate of 90% plans for an educational capacity of 550 students. A middle school with an anticipated enrollment of 500 students and a utilization rate of 85% plans for an educational capacity of 575 students. Again, a district may choose to adjust that rate. If a district determines based on the way it groups its middle school teams, it may choose to plan a capacity for 590 using a utilization rate of 82%.

It is critical in planning and design that a school district establishes both an educational capacity for instructional spaces and for their schools as a whole given the academic and co-curricular programs that it offers and apply a utilization rate that it reasonably anticipates experiencing.

For reimbursement purposes, the Pennsylvania Department of Education establishes utilization rates for schools below 1500 students at 90% and 85% for schools above 1500 students regardless of grade alignment.

Planned Capacity

Planned Capacity is the educational capacity of a school given changes in way it is being academically programmed and operated adjusted by anticipated enrollments and multiplied by its desired utilization rate. It is calculated as the sum of the anticipated educational capacity of each instructional space in a school (increased or decreased from current capacity based on anticipated enrollment) multiplied by the targeted utilization rate. As a matter of best practice, planned capacities should not exceed educational capacities established by the district and planned for based on enrollment projections the district has accepted.

Renovations, additions, or new construction of educational space typically take 36 to 60 months to move through planning, approvals, financing, permitting, construction, and opening. Given the lead time of 36-60 months to plan, design, obtain Pennsylvania Department of Education and community approval, finance, permit, construct, and open new elementary instructional space, school districts with elementary enrollments trending upward should begin to plan when a student body surpasses 90% of a school's utilization capacity.

- Enrollment projections have the highest degree of validity within 60 months of being calculated; beyond 60 months their margin of error increases greatly.
- As a baseline the capacity of an educational facility should be planned for 100% of the projected enrollment five years from point when planning begins plus an additional 10% at the elementary level and 15% at the secondary level to allow for:
    1. scheduling inefficiencies,
    2. future growth, and
    3. PDE will not reimburse a district for work on that school for 20 years.
- The baseline for capacity is often adjusted by clients based on how aggressively enrollment is trending, historical experiences of a school district, and how a district believes their schools are best programmed and scheduled for the students they serve. Typically, they are adjusted by 5% to 15% beyond projected at the elementary level and up to 20% at the secondary level.

PDE Reimbursement Factor

The Pennsylvania Department of Education (PDE) utilizes a weighted number of students to calculate reimbursement. PDE, at times, refers to the weighted number of students as "capacity." However, it is important to note that the weighting of students is for reimbursement purposes and does NOT reflect the way elementary and secondary school buildings are programmed or scheduled.

Prior to Act 77 of 2019 PDE's calculations for capacity and reimbursement was based on a reasonable application of how elementary, middle, and high schools operated in the Commonwealth and how mandated programs like special education and non-instructional spaces impact those operations. However, it did not provide adequate reimbursement for educational spaces that were more costly than general classrooms to construct.

As in the past, non-instructional spaces such as hallways, cafeterias, offices, and mechanical areas are not reimbursable. Additionally, maintenance buildings, bus garages, athletic stadiums, and district offices are considered operational and co-curricular spaces that do not qualify for school construction reimbursement. It should also be noted that when a school district receives reimbursement for a school project, that school is not eligible for additional state subsidies for additions, renovations, or alterations for twenty-years.

PDE capacities are established by the Pennsylvania Department of Education and are beyond the control of the Board of School Directors or administration. However, school districts may establish Educational Capacities at, below, or above PDE capacities if they do not exceed Physical Capacity.

C | Appendix

Limitations of Enrollment Modeling used in the Study

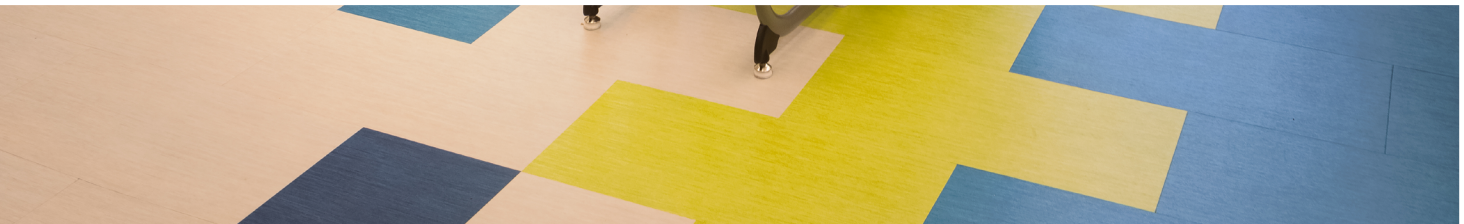
Basic Limitations of the Pennsylvania Department of Education (PDE) Model

1. Internal policy changes that can affect the accuracy of projections
    a. policy on how old a child must be before being admitted into kindergarten and first grade
    b. policy on when and how a student is evaluated for special education services
    c. policy on how many students the area vocational-technical school is to receive
    d. policy on who provides full-time special education programs e. policy on scholastic retention and acceleration
2. External factors that can affect the accuracy of projections
    a. the opening or closing of a nonpublic school
    b. a significant increase or decrease in new home building
    c. a shift in migration patterns
3. Other considerations
    a. Enrollment projections for school districts with less than 1,000 students tend to be less reliable.
    b. Actual live birth data for the most recent year are added annually. However, enrollment projections beyond five years are subject to errors in the lower grades resulting from inconsistencies between actual and projected live births and should be reviewed closely.

Basic Limitations of Crabtree, Rohrbaugh & Associates

1. The model is sensitive to changes of internal and external factors which may only have a short-term impact, be an anomaly, a function of data reporting, or so recent they do not reflect in the model. Such factors may include:
    a. changes in policy such as a reduction in credits required for graduation, on-line programs that allow students to accelerate through the curriculum, increasing numbers of students enrolled but spending less than a full day/year in the district's programs.
    b. a "bubble class" entering the system.
    c. an unexpected return of students from other educational institutions.
    d. a change in attendance boundaries
    e. a significant increase in home building with a lag in occupancy permits.
    f. enrollment projections beyond five years are subject to errors as a result of sudden changes in the economy, housing market, migration, educational programming, and state and federal legislation.

AUTHOR'S CREDENTIALS



SCOTT COUSIN, AIA, LEED AP

Principal | Senior Project Manager

REGISTERED ARCHITECT

Pennsylvania: #RA407102

EDUCATION

Bachelor of Architecture, The Pennsylvania State University, 1999

AFFILIATIONS

The American Institute of Architects

ASHE (American Society of Healthcare Engineers)

USGBC Member

U.S. Green Building Council

Green Building Council of Central PA

DISTRICT WIDE FACILITY STUDIES

Williamsport Area School District
Montoursville Area School District
Northern Lebanon School District
Dover Area School District
Eastern York School District
Middletown Area School District

ROLE

Scott Cousin has more than 20 years experience and has worked with the firm since 2004. He is responsible for coordinating all aspects of the design phase. He will meet with our client to discuss and gain an understanding of the overall function and aesthetic design goals. Scott coordinates the design concepts and detail with consultants and maintains the project schedule and budget.

EXPERIENCE

Montoursville Area High School, Montoursville Area School District
Addition & Renovation / 210,000 SF / $29.6M / LEED Gold Certified

Dover Area High School, Dover Area School District
New Construction / 200,000 SF / $63M

Chambersburg Area Senior High School, Chambersburg Area School District
New Construction / 530,000 SF / $61.8M

Middletown Area High School, Middletown Area School District
New Construction / 202,700 SF / $33.7M

Spring Grove Area High School, Spring Grove Area School District
New Construction / 333,810 SF / $44M

Donegal High School, Donegal School District
New Construction / 246,000 SF / $32.3M

Northern Lebanon Elementary School, Northern Lebanon School District
New Construction / 188,000 SF / $44.9M

Mardela Middle & High School, Wicomico County Public Schools
Additions & Renovations / 133,335 SF / $71M

Upper Adams Intermediate School, Upper Adams School District
Additions & Renovations / 68,200 SF / $9.3M

RICHARD LEBLANC, AIA, LEED AP

Principal | Director of Design

REGISTERED ARCHITECT

Pennsylvania: RA009351X
Also: Maryland, Virginia, Ohio, Louisiana & New Jersey

EDUCATION

Bachelor of Science in Architecture, Ohio State University, 1976

Membership in Alpha Rho Chi Professional Architecture Fraternity

AFFILIATIONS

The American Institute of Architects

The National Trust for Historic Preservation

Pennsylvania Society of Architects

Council of Educational Facility Planners

ROLE

Mr. LeBlanc has over 44 years of experience and joined the firm in 1985. He will have the responsibility of directing and coordinating all professional architectural/engineering activities to ensure the design is in-line with AIA standards as well as project goals, budget and schedule. He also oversees internal design review meetings with project teams.

EXPERIENCE

Spring Creek Elementary School, State College Area School District
New Construction / 72,072 SF / $15.6M / LEED Platinum Certified

Winding Creek Elementary School, Cumberland Valley School District
New Construction / 140,000 SF / $24M

Solomon-Solis Cohen Elementary School, School District of Philadelphia
New Construction / 130,000 SF / $50M / LEED Gold Registered

Manheim Township Middle School, Manheim Township School District
New Construction / 235,000 SF / $68M

Mountain View Middle School, Cumberland Valley School District
New Construction / 240,000 SF / $36M

Bermudian Springs Middle School, Bermudian Springs School District
New Construction / 143,000 SF / $32.2M

State College Area High School, State College Area School District
Addition & Renovation / 683,000 SF / $120.3M / LEED Gold Certified

Penn Manor High School, Penn Manor School District
Addition & Renovation / 370,000 SF / $87M

Dover Area High School, Dover Area School District
New Construction / 200,000 SF / $64M

FREDERICK WITHUM, III, Ed.D.

Director of Educational Planning

EDUCATION

Duquesne University - 2006
Interdisciplinary Doctoral Program in Educational Leadership

Shippensburg University - 1995
Superintendent's Letter of Eligibility
Secondary Principal Certificate (1990)
Master of Education---Educational Administration (1988)

Bloomsburg University -1983
Bachelor of Science - Education (Earth and Space Science)

HONORS & APPOINTMENTS

Board of Directors Whitaker Center for the Arts and Sciences – 2018-Present

Eagle Foundation Board Member – 2013-Present

Governor Appointed Trustee of Thaddeus Stevens College of Technology – 2014 - 2017

South Middleton School District Strategic and Comprehensive Planning Chair – (2012)

Pennsylvania Department of Education Program Manual Review for Teacher Evaluation (2013)

ROLE

Dr. Withum has more than 36 years of experience and joined the firm in 2019. As Director of Educational Planning, Fred works with our clients to plan and design environments that support the educational program and assist in the design of 21st Century Learning environments.

EXPERIENCE

Mechanicsburg Area High School, Mechanicsburg Area School District
Educational Planning, Enrollment Analysis & Projections / 291,155 SF / $17.5M

Central Bucks School District
Enrollment Analysis and Projections

Wilson High School, Wilson School District
Educational Planning, Enrollment Analysis & Projections / 222,100 SF / $34M

Tulpehocken Middle/High School, Tulpehocken Area School District
Educational Planning, Enrollment Analysis & Projections / 261,000 SF / $60.5M

Pequea Valley Middle/High School, Pequea Valley School District
Educational Planning, Enrollment Analysis & Projections / 252,782 SF / $54.4M

ADDITIONAL EXPERIENCE

Superintendent---Cumberland Valley School District, Mechanicsburg, PA- 2013-2019

Adjunct Professor---Shippensburg University, Shippensburg, PA- 9/08-Present
Temple University, Harrisburg, PA- 1/03-8/08
Duquesne University, Pittsburgh, PA – Spring 2007
Wilkes University, Wilkes-Barre, PA – Summers 2006-2008

Assistant Superintendent---South Middleton School District, Boiling Springs, PA- 2012 to 2013