KENT COUNTY PUBLIC SCHOOLS
SIX-YEAR FACILITIES STRATEGIC PLAN

RECOMMENDATIONS OF THE STRATEGIC PLANNING COMMITTEE

Report to the Board of Education of Kent County

February 10, 2018

THE STRATEGIC PLANNING COMMITTEE

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KENT COUNTY PUBLIC SCHOOLS
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Strategic Planning Committee
Report to the Board of Education
February 12, 2018

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I. THE STRATEGIC PLAN: AN OVERVIEW

The Six-Year Facilities Strategic Plan initiates a process that will bring the public school facilities of Kent County into the educational and performance standards of the 21st century. Kent County Public Schools, a school system with 1,996 students housed in three elementary schools, one middle school, and one high school, is faced with challenges that are common to many small, rural school systems. The system faces a level or declining student enrollment, a demographic profile indicating current enrollment trends will likely continue, an underutilized school facility plant, and aging buildings with many educational and performance deficiencies. Severe fiscal constraints limit the funding available to support both the operations of the school system and facility improvements. The Board of Education took a significant step toward right-sizing the school system when it closed Millington Elementary School and Worton Elementary School beginning in the 2017-2018 school year. However, further action is needed to ensure resources are used as efficiently as possible to support the public school educational program.

In an effort to address these challenges and establish a stable capital plan, the Superintendent and Board of Education initiated a planning process grounded by three goals:

1. ***Improve the learning environment***
2. ***Align the size of the facility plant with student enrollments***
3. ***Provide a more financially sustainable support infrastructure.***

The Six-Year Facilities Strategic Plan is a first step toward envisioning the future of public education in Kent County. The Plan addresses urgent elementary school needs, and it proposes a long-term planning process that will define the secondary school program for the coming decades. Facility planning and educational planning are complementary activities, and the proposed process will support planning a vision for critical middle school years when children shape their attitude toward education, and high school years when they formulate college and career decisions that affect their adult lives.

Among the entire array of individuals who work for the education of young people, the teacher has the most direct relation with the student. For a teacher to be effective in the classroom, a wide range of supports must be in place: a visionary and ambitious school administration, teaching materials, information technologies, training, and equally as important, instructional spaces that facilitate and enhance every form of learning. The emphasis of contemporary learning spaces is important for the students in Kent County, spaces that include areas for project-based learning and individual instruction, early childhood education, and meeting the educational requirements of children with special needs. In addition, learning spaces that meet the demanding technical requirements of high school science, technology, engineering, arts and mathematics programs, including the presence of information technologies as a standard component of instruction, are very important. In conclusion, today's contemporary school facilities must include learning spaces that address a broader variety of instructional opportunities and requirements than the facilities built in the decades after World War II; therefore, the importance of the school building cannot be minimized.

THE STRATEGIC PLANNING PROCESS

A Strategic Planning Committee approved by the Board of Education met throughout the autumn, heard testimony from the community, and developed recommendations to guide the capital improvement program for the coming years. An important task for the Committee members was to clarify the mission of the committee and the purpose of the Strategic Plan. With membership including a parent, three retirees, an officer of the County Government, and three staff members of the school system, a range of viewpoints was presented on the most responsible way to plan for the future. All members agreed on the uncertainty of future enrollments and the deficiencies of the current facilities due to their age and a history of insufficient investment, and that fiscal constraints will likely remain severe for the foreseeable future. For some members, the purpose of the Plan was to develop a vision of the future of public

education in the county. For others, the Plan was to provide a reasonable program of capital improvements that would benefit the students of the county, leaving the decisions on funding to the Board of Education and the County Government. And for still others, the Plan was to be oriented by the current and projected fiscal limitations of the County Government, focusing on how to reduce the cost of public education.

There were, however, several points of agreement. First, it was understood that student enrollments are likely to remain stable or decline, but that population growth could also result from infrastructure improvements. Consequently, since the Board of Education must retain the flexibility to respond to either decline or growth, the Committee members agreed that the Worton campus should be kept intact and that the former Worton Elementary School (WES) building should be kept in service, rather than demolished or surplused to the County Government. The relocation of the Board of Education offices to the WES building has a number of operational advantages, and this adaptation can be accomplished at minimal cost. Retaining the WES building is key to future flexibility: it can be used for administrative functions in the present and in the future if enrollments decline; it can be adapted for elementary school use if enrollments increase at the three elementary schools, which show healthy utilization now but may become overcrowded; or it can be considered, with appropriate renovation and expansion, for a future middle school if needed.

The committee members also agreed on the urgency of replacing the roofs at Rock Hall Elementary School and Kent County High School, both the roof and the HVAC system at Galena Elementary School, and the need for security entrances at all of the schools. However, there was considerable disagreement about whether the scope of the Galena Elementary School project should extend beyond the urgent building system replacements to also include aspects of renovation that would improve the learning environment and enhance the safety of the occupants. To resolve this issue, critical safety items were included in the base scope, allowing the project budget that will be adopted by the Board to determine if additional renovation items will be included in the final scope.

It was also agreed that there is urgency to replacing the roof at Kent County Middle School, but this prompted the question whether such a large investment would be worthwhile if the future of the facility is uncertain. This facility is both underutilized and deficient in many respects as an educational environment, but it is uncertain at this point if the middle school enrollments will continue to decline. It was recognized that the future of the middle school is the single largest capital decision that the Board of Education and the County Government will face in the next decade, but because of the uncertainty about enrollments, the committee members decided to recommend deferring action pending development of an educational specification and a full assessment of the options regarding renovation or relocation. It was recognized that the future of Kent County Middle School and of H. H. Garnet Elementary School are tied together, and a future assessment of the enrollments of both schools will be needed to determine the best course forward for the middle school. Similar uncertainties about future enrollments at Kent County High School led the Committee members to recommend that action on programmatic improvements at this school should be deferred.

Finally, it was also agreed, after hearing from the community at listening sessions in late September, that two facilities should be surplused to the County Government: the former Millington Elementary School, which was closed for the 2017-2018 school year, and the former Rock Hall Elementary School, if the Board supports the recommendation to relocate the Board offices to the Worton campus. It was agreed that neither of these facilities will be needed for Board of Education purposes, and that the Board of Education operating budget would benefit from the reduction of square footage that would be achieved by surplusing the facilities.

GOALS AND RECOMMENDATIONS

Thus the outcome of the Strategic Planning process was a compromise between vision and realism: the Plan proposes to address a number of urgent and unavoidable facility needs, but to establish a process through which the Board can address the larger educational and facility needs of the jurisdiction, specifically the educational programs at the middle school and the high school.

The recommendations of the Committee address two tiers of capital projects:

1. ***Tier 1: Near-term capital projects*** take steps to stabilize three school facilities and improve the operational efficiency and security of the school system as a whole. Projects in this group include roof replacements at Rock Hall Elementary and Kent County High School, a roof and mechanical system replacement and targeted interior renovations at Galena Elementary School, minor renovations to allow the Board of Education offices to be relocated to the former Worton Elementary School, and security vestibules at all the schools. The Tier 1 recommendations total an estimated $14.2 million in State and local funds over four fiscal years. See pages 21 through 30 for detailed descriptions of the Tier 1 projects and page 38 for the estimated funding schedule.
2. ***Tier 2: Long-term planning process*** will determine the future of Kent County Middle School (KCMS) by initiating an educational specification and a feasibility study, will identify potential programmatic improvements to Kent County High School (KCHS), and will conduct an audit of all schools for compliance with the Americans with Disabilities Act (ADA). See pages 30 through 37 for detailed descriptions of the Tier 2 proposals. Pages 33 and 34 describe the contents of the KCMS educational specifications and the feasibility study.

The Committee also recommends that two school facilities should be surplused to the County Government as they will no longer be needed for instructional or other purposes by the school system. Surplusing these two facilities will result in utility savings of approximately $99,000 per year.

1. ***Former Millington Elementary School***: This facility was closed for educational purposes at the end of the 2016-2017 school year. It has been determined through community and district input that it will not be needed or utilized for school system purposes in the near future.
2. ***Former Rock Hall Elementary School***: This facility, which currently houses the offices and meeting rooms of the Board of Education and other central office functions, will no longer be needed should the Board approve relocation to the former Worton Elementary School facility.

In addition, three projects that were to be funded through the Qualified Zone Academy Bond (QZAB) program were proposed for the high school. The QZAB program provides funds from general obligation bonds sold by the State, supported by a federal tax credit for the bond holder. However, the recently enacted federal tax legislation eliminated new issuances of federal tax credit bonds, including the QZAB program. Consequently, the State indicated that the QZAB program has been suspended for FY 2019. Pending re-enactment of the federal tax credits, other sources of funds will be sought to carry out these projects. If the QZAB program is re-authorized or a similar program is established by the State of Maryland, the projects would be largely funded by the State at a total estimated cost of $2.2 million. The three projects are described in Appendix 5.

These actions will immediately support Goals 1 and 3, as they will improve the learning environment and will provide a more financially sustainable support infrastructure by reducing the overall size of the school facility plant. Depending upon the outcome of the recommended middle school feasibility study and planning efforts, the school system will satisfy the objectives for Goal 2, to align the size of the school system with the student population.

It is assumed throughout this report that State funding for capital projects will be allocated to well-conceived public school projects in Kent County. There are several reasons to be optimistic on this score:

- Kent County Public Schools has not sought funding for a major capital project since FY 2007, when it requested support for renovations at Kent County High School. The record for other small and rural counties shows that the State has supported their requests for major projects when they are justified by educational need, building condition, or student enrollment projections.
- The Maryland Public School Construction Program has a mission to ensure equity in the quality of school facilities across the state. Kent County Public Schools has the second oldest unrenovated square footage in the state, and its buildings show a wide range of educational and building performance deficiencies. In the interests of equity, the State is likely to be very supportive of an aggressive and thoughtful program of capital improvements, particularly as the

school system has been recognized for maintaining its buildings and completing small projects to keep the buildings operational.

The critical constraint to carrying out the recommendations presented in this document is local funding capacity. Recognizing there are severe restrictions on the availability of local funds, it must also be acknowledged that with any physical asset the costs of ownership are inescapable. The section titled “Costs of Ownership” beginning on page 7 details these costs. The recommendations in this report, while only addressing a small portion of the total capital needs of the jurisdiction, represent an important step in responsible management of the public schools of Kent County.

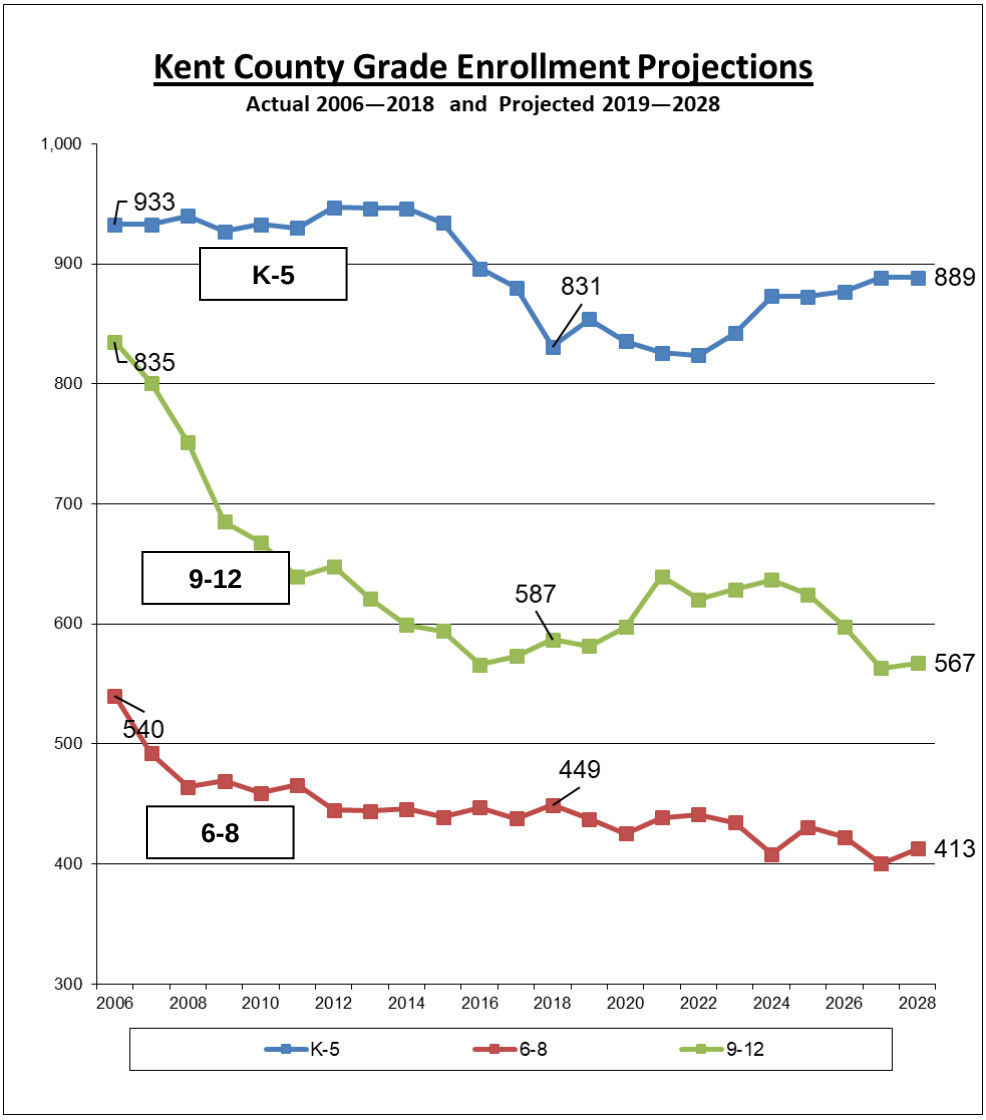
II. THE SIX-YEAR FACILITIES STRATEGIC PLAN

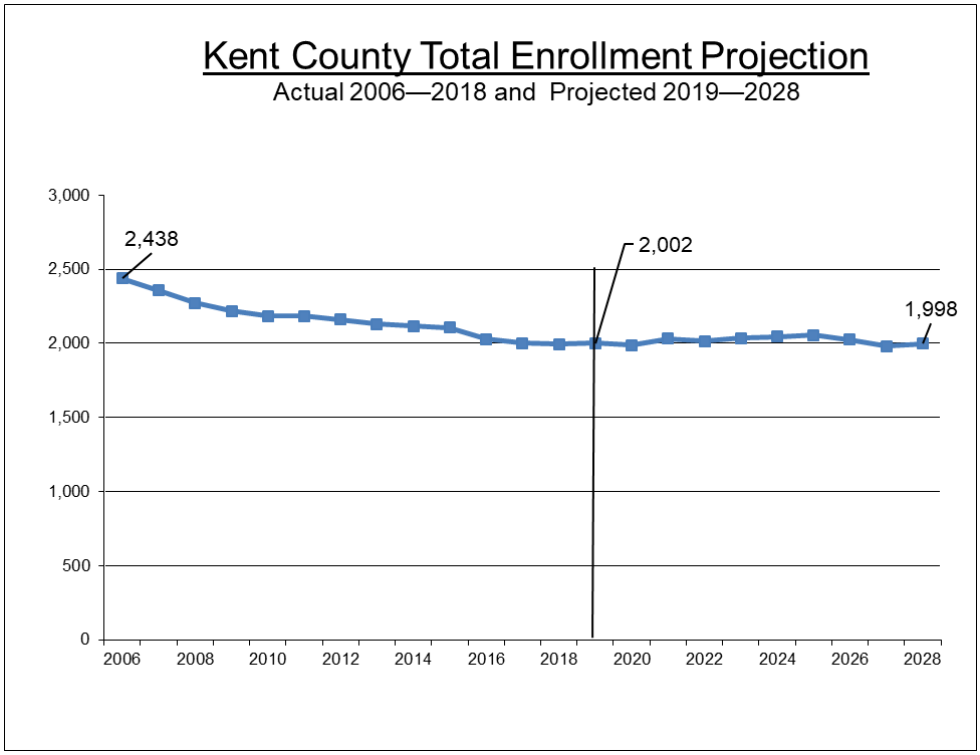
BACKGROUND FACTORS

Four major factors prompted the Superintendent of Schools and the Board of Education to undertake this Six-Year Facilities Strategic Plan for Kent County Public Schools:

Student Enrollments. At 1,996 prekindergarten to grade 12 students, Kent County Public Schools in the fall of 2017 had the smallest student enrollment in the state of Maryland. Between the 2017-2018 and the 2027-2028 school years, the PK through 12th grade enrollment is projected to remain stable as a whole. An anticipated increase of 58 students in the three elementary schools will be matched almost exactly by a decline of 56 students in the middle and high school populations. However, it is also possible that increases in enrollments will occur in specific areas of the county as a result of improvements in fiberoptic communications, in the 301 Corridor, and in other areas of economic development. See Appendix 2 for a discussion of the methodology used to project future enrollments and for tables showing the future enrollments for the five public schools in Kent County.

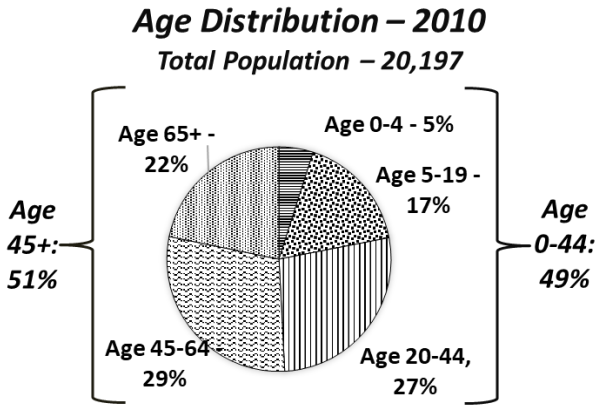
The charts below show the historic decline in the K-12 public school enrollment since 2006 and the projected pattern of enrollment to the 2027-2028 school year.

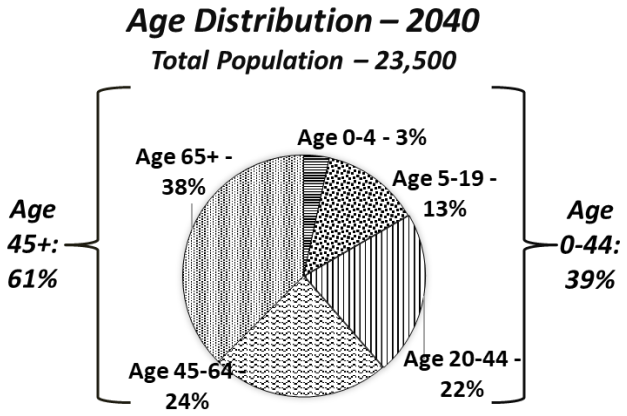




Demographic Projections. Between 2010 and 2040, the Maryland Department of Planning projects that the total population of Kent County will increase from 20,197 to approximately 23,500. However, the increase of 3,300 will be among persons 45 years and older, while the age groups that contribute to the school population – children 4 and under, young people between the ages of 5 and 19, and people in the child-raising ages between 20 and 44 – are projected to decline by a total of 8.7%. These demographic projections support the view that the public school enrollment will remain level or will decline over the 22 year period.

Age Cohort	*2010*			*2015*	*2020*	*2025*	*2030*	*2035*	*2040*			*% Change, 2010 - 2040*		
0-4	995	4.9%		870	860	810	800	810	810	3.4%		-19%		
5-19	3,436	17.0%	49%	3,380	3,400	3,320	3,140	3,110	3,100	13.2%	39%	-10%	**-864**	**-8.7%**
20-44	5,503	27.2%		5,300	5,300	5,360	5,400	5,190	5,160	22.0%		-6%		
45-64	5,866	29.0%		5,970	5,950	5,630	5,220	5,330	5,610	23.9%		-4%		
65+	4,397	21.8%	51%	5,080	5,880	6,980	8,040	8,610	8,820	37.5%	61%	101%	**4,167**	**40.6%**
Total	**20,197**								**23,500**					





Facility Utilization. Utilization is a statewide measure that compares current and projected student enrollment to the State Rated Capacity (a measure of the student capacity of the facility, also based on a statewide methodology; see pages 15 to 18 for a more detailed discussion of how utilization is calculated). Even with the recent closure of Millington Elementary and Worton Elementary Schools as educational facilities, the utilization of the schools in Kent County remains low as a whole. The utilization of the three remaining elementary schools will improve modestly in the coming decade. However, with the projected decline of secondary school enrollment, utilization is projected to decline in the middle and high school.

It Is also important to emphasize that low utilization does not necessarily mean there are unused spaces in a school facility, nor that operational issues such as assigning appropriate instructional space are absent.

School	Current SRC	Enrollment 2017 (FTE)	Percent Utilization 2017	Projected Enrollment 2022 (FTE)	Percent Utilization 2022	Projected Enrollment 2027 (FTE)	Percent Utilization 2027
Galena Elementary	432	351	81.3%	354	81.9%	364	84.4%
Garnett Elementary	498	351	70.5%	364	73.0%	392	78.7%
Rock Hall Elementary	294	258	87.8%	254	86.4%	261	88.9%
Kent County Middle	678	449	66.2%	435	64.1%	413	60.9%
Kent County High	1,161	587	50.6%	629	54.2%	567	48.9%
Totals	**3,675**	**1,996**	**65.2%**	**2,035**	**66.4%**	**1,998**	**65.2%**

Facility Age and Condition. Kent County Public Schools has the second oldest average square footage among school systems in the state of Maryland.[1] The most recently built school was Kent County High School (1971), and the most recent complete renovation was of Kent County Middle School (1976). The high school received partial renovations and system upgrades in 2005.

Recent investments in building systems have kept the facilities in working order but have not addressed the learning environment. Consequently, all of the schools present challenges to the instructional program or to school operations, particularly with the increase of student enrollment at the three elementary schools. Examples include the difficulty the principals have reported in finding spaces for small group instruction, lack of handicap accessibility to the second floors of H. H. Garnet Elementary School and Kent County Middle School, and separation of instructional programs at the high school that should be co-located.

The age and condition of the facilities also presents a considerable maintenance burden, reducing available funds to support the instructional program. Kent County Middle School in particular will require a roof replacement in the near future, with possible corrections to underlying structural defects. Since this facility also does not meet the spatial guidelines that support a contemporary middle school educational program, the need to weigh a substantial capital investment offers an opportunity to re-envision the middle school educational program to meet 21st century standards of building performance and educational suitability.

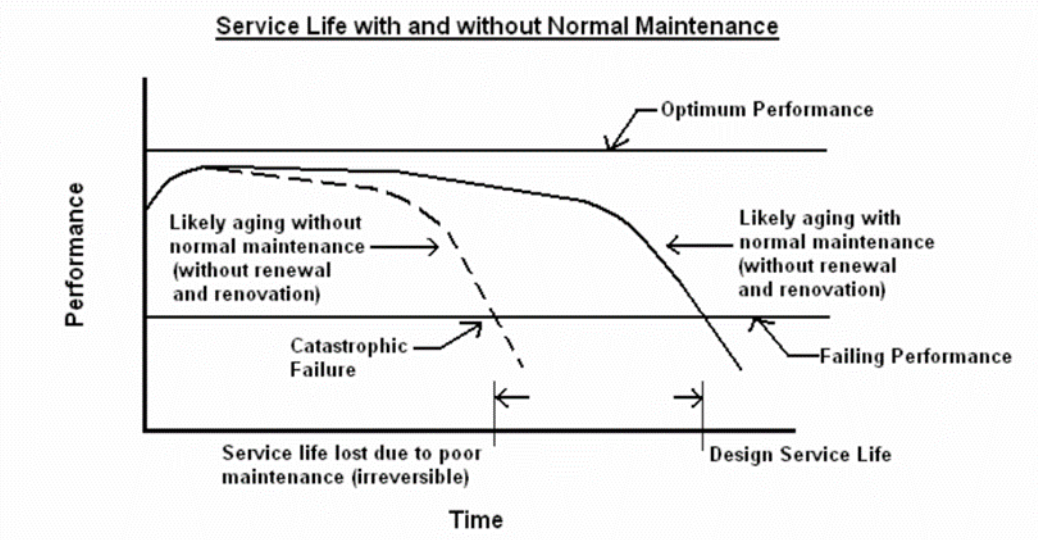
THE COSTS OF OWNERSHIP FOR PUBLIC SCHOOL FACILITIES

Like all physical assets, public school facilities require periodic investments to maintain their value. With appropriate investment, school facilities will continue to support the educational mission, will be reliably safe and comfortable, and will not present undue maintenance costs or effort. While a school building that has received this type of investment over its lifespan will not be in a like-new condition from an educational or a building performance perspective, it will still serve its purpose until it is either fully renovated or replaced.

[1] Per an analysis by the Maryland Public School Construction Program, September 2017.

Failure to make periodic investments is likely to lead to occasional system breakdowns that may interrupt school operations, to poor interior environmental conditions such as deficient lighting and uncomfortable temperatures, and to increased efforts and expenditures in maintenance and operations. In the worst instance, critical systems may fail, requiring expensive emergency repairs or closure of the facility while repairs are performed. Evidence indicates that periodic investment in building renewal and repair more than pays for itself by avoiding the far greater costs of conducting emergency repairs or providing temporary housing and transportation for students.

The following graph captures the relationship between maintenance and the service life of a building:



> *"All building systems age through normal wear and tear, but good maintenance delays this process. The dashed line indicates an accelerated deterioration that will result from insufficient maintenance, substantially shortening the service life of the building. The slope of the "Likely aging" line depends on many factors, including among others facility age and the history of facility planning and maintenance. Not least among these factors is the original quality of construction: if this quality is reduced, the facility will age faster unless it receives additional maintenance attention. The steeper the negative slope of the "Likely aging" line, the more rapidly will the effect of insufficient maintenance be shown."* [2]

The facility management industry identifies four categories of expenditure:

1. *Capital Expenditure* (Capex): Scheduled replacement of building systems and components to ensure building performance.
2. *Deferred Maintenance*: Correction of deferred deficiencies to restore building performance.
3. *Program Expenditure*: Facility improvements for educational program changes, changing student demographics, capacity increases, new technology, etc.
4. *Maintenance and Operations* (M&O): Custodial, preventive maintenance, minor repairs, utilities, grounds.

For each category, industry has developed recommendations for the level of annual expenditure needed to maintain functionality:

[2] From Interagency Committee on School Construction, "Facility Maintenance and School Construction in Maryland, A Report to the General Assembly", January 20, 2016, pages 5 and 6. See also Bello, Mustapha A. and Vivian Loftness, "Addressing Inadequate Investment in School Facility Maintenance" (Carnegie Mellon University School of Architecture, May 2010), p. 12.

1. *Capital Expenditure* (Capex): 2% of Current Replacement Value (CRV), based on 50-year life of buildings.[3]
2. *Deferred Maintenance*: Per owner's tolerance for risk and poor building performance. Some industry sources indicate expenditures should be 1% of CRV.[4] The total depends on the level of deferred maintenance; if there has been little Capex, then the level of deferred maintenance is likely to be high.
3. *Program Expenditure*: 1% of CRV [4]
4. *M&O*: 3% of CRV [4]

Categories 1, 2 and 3 are discussed below with reference to Kent County Public Schools, and the annual recommended expenditure is indicated. Since Maintenance and Operations (M&O) falls under the operating budget, it is not discussed in this report; however, the Board of Education may want to consider whether the current expenditure on M&O meets the industry guideline.

Current Replacement Value, Kent County Public Schools

Current Replacement Value (CRV) represents the total cost in current dollars to replace a single facility or all the facilities in an owner's inventory. It is widely used in facility management, for example in determining the facility condition index (FCI) of specific facilities or of an inventory as a whole.[5]

Kent County Public Schools: 440,226 square feet in five school buildings

Current Replacement Value (CRV): $162,164,000 [6]

Explaining the Industry Guidelines for Average Annual Facility Expenditure

Capital Expenditure (Capex)

School buildings are typically constructed for a 50-year life. A 50-year building will decline in value by an average of 2% each year, so that without renewal, at year 50 its value will be zero. Zero value signifies that the building will be inoperable and uninhabitable, and should either be abandoned or demolished. This broad statement does not account for the disturbance and expense in the interim that will be caused by increasingly mal-functioning building systems, the obsolescence of critical systems like information technologies and communications, the misalignment of instructional spaces with current program requirements, or the educational and behavioral impacts of housing students in a deteriorated, uncomfortable, and aesthetically dilapidated older structure. An older facility that receives little or no capital renewal also may not meet life safety, electrical, or plumbing codes, presenting a potentially unsafe condition.

Capital renewal involves the regular, scheduled replacement or upgrade of building systems to extend the useful life of the building. Capex does not include minor repairs or the routine maintenance activities that are needed to keep equipment operating, e.g. changes of filters, repair or replacement of minor components like switches, or repair of minor damages caused by wind or vandalism. Typical examples of capital renewal include:

- Replacement of a roof at or near the usual 20-year milestone for expiration of the warranty.

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[3] Various sources, e.g. Council of the Great City Schools, "Reversing the Cycle of Deterioration in the Nation's Public School Buildings," October 2014

[4] 21st Century School Fund *etal*, "State of our Schools 2016," p. 22, available at http://www.21csf.org/csf-home/.

[5] Facility condition index (FCI) is the ratio between the cost to correct all deficiencies in a facility, including educational adequacy and site-related repairs, and the cost to replace the facility (CRV). See Jacobs Project Management, in IAC, "Baltimore City: Public School Construction Program Block Grant Funding: A Report to the Legislative Committees," January 8, 2013, page I-4, available at www.pscp.state.md.us. FCI is widely used for a first assessment to determine the level of effort that a facility requires, for example refurbishment, renovation, or demolition with replacement. An assessment based on FCI is typically refined through a facility-specific assessment of all building systems and programmatic suitability.

[6] Based on the following calculation: 440,226 sf X $302.00/sf X 119% sitework X 102.5% contingency. $302.00/sf is the cost used by the Maryland Public School Construction Program for new buildings that are bid in the summer of 2018. Sitework is calculated at 19% of building cost. Contingency is calculated at 2.5% of the combined building and sitework cost.

- Replacement of HVAC equipment and components on a cycle corresponding with industry standards, e.g. 10 to 20 years for a cooling tower and 20 to 30 years for a radiant heating unit.[7]
- Update of control system software on a regular basis, typically around seven years.

To retain the value of a 50-year facility, it is recommended that the public owner invest 2% of CRV annually in capital maintenance and capital renewals. This does not mean that 2% of a roof will be replaced every year, but it does mean that funds are budgeted as needed to replace the roof in its entirety when its age and condition warrant the replacement.

KCPS Recommended Capex annual expenditure @ 2% of CRV: $3,243,000 / year average

Deferred Maintenance Expenditure:

In 2012, Kent County Public Schools engaged ARAMARK, Inc. to undertake an assessment of its facilities. While this assessment was later determined to be incomplete, it did identify $9,447,000 in deferred maintenance at the five school facilities. Examples of high-priority deferred items included:

Galena Elementary School	Fire alarm system, stained ceiling grid, deteriorated downspouts
H. H. Garnet Elementary School	2nd floor elevator lacking, roof replacement, pull stations at exit doors, ADA compliant fire alarm
Rock Hall Elementary School	Roof replacement
Kent County Middle School	2nd floor classroom doors, 2nd floor elevator lacking, fire alarm system, stained ceiling grid
Kent County High School	Roof replacement, exterior brick pointing

Since the ARAMARK study was completed, the roof and the HVAC system at the H. H. Garnet Elementary School have been completed. Concurrently, construction costs have increased on average 4% per year. When these two factors are applied to the original ARAMARK number, there remain a minimum of $9,587,000 in deferred maintenance tasks to carry out in the system.[8] This figure is based on the 2012 study; to account for the lapse of time since the ARAMARK study and omissions in the original study, this figure should be updated by a complete facility assessment in the next five to ten years.

Eliminating the deferred maintenance backlog in ten years would be a reasonable goal for the Board of Education. To meet this goal, it would be necessary to expend approximately 10% annually of the total deferred maintenance figure, or $959,000/year. If this figure is combined with a 2%/year expenditure for Capex, within 10 years all deficiencies would be eliminated and no new deficiencies would have emerged prematurely during this period.

KCPS Recommended deferred maintenance annual expenditure @ 10% of deferred maintenance total: $959,000/ year average

Programmatic Expenditure:

Programmatic expenditure allows a school system to provide facility support for current educational requirements without wholesale replacement or renovation of the facility. In recent years, State and local educational initiatives have included full day kindergarten, Universal full day prekindergarten, one-to-one computer device access for students, and STEM and STEAM in high schools.[9] Each of these

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7 Interagency Committee on School Construction, "Guidelines for Maintenance of Public School Facilities in Maryland", Section IV, May 30, 2008. Available at www.pscp.state.md.us.

8 ARAMARK valued the roof and HVAC at Garnet Elementary at $1,568,000. When this is subtracted from $9,447,000 and 4% construction escalation is applied to the balance for a five year period (2012 to 2017), the result is $9,587,000. This is a minimum figure, because the ARAMARK report evidently did not identify all the deficiencies in the school buildings.

9 Science, Technology, Engineering and Mathematics; Science, Technology, Engineering, Arts and Mathematics.

initiatives has facility implications. To meet these and other educational program obligations, it is recommended that a school system budget 1% of CRV annually.

KCPS Recommended educational program expenditure @ 1% of CRV: $1,622,000 / year average

Summary: Recommended Average Annual Facility Expenditures

KCPS Current Replacement Value (CRV):	$162,164,000
KCPS Capex @ 2% of CRV:	$3,243,000 / year
KCPS Deferred Maintenance @ 10% of total:	$959,000 / year
KCPS Programmatic @ 2% of CRV:	$1,622,000 / year
Total Recommended:	**$5,824,000 / year average**

The recommendations in this report total $14.3 million (page 38), plus $2.2 million in small projects (QZAB, Appendix 5). These expenditures are recommended to be funded over five fiscal years (with a small initial expenditure in FY 2018), or an average of $3.3 million per year. This figure is less than the total that is recommended for Capex and deferred maintenance, but will address some of the most critical needs in the school system. The analysis suggests that additional expenditure will be needed in the future in order for the Board of Education to meet the costs of ownership for its school system.

***GOALS OF THE STRATEGIC PLANNING PROCESS*.** The Strategic Planning effort is grounded by three goals:

1. ***Improve the learning environment*.** The strategic plan must support the education of students, the primary mission of the school system. There is clear evidence that the quality of school facilities has an influence on student achievement and behavior, as well as on teacher retention and hiring.[10] The roofing projects in the Tier 1 recommendations will address basic concerns of health, safety and welfare, will protect the interior of three schools, and will improve energy performance. The HVAC replacement and targeted renovations at Galena Elementary School and the security entrances at all schools will improve the general safety and welfare of the building occupants. See pages 21 through 30 for detailed descriptions of the project scopes.

   The longer-term planning initiatives in the Tier 2 recommendations have the potential to substantially improve the learning environment at the two secondary schools in the county. The ADA audit will support equity in the delivery of the educational programs. Should the QZAB program be re-enacted, the three projects described in Appendix 5 will leverage State funding to support the academic and physical education programs at the high school.

2. ***Align the size of the facility plant with student enrollments*.** Although the Maryland Department of Planning (MDP) projects a decline in the population age groups that affect the public school enrollment, the County's recent investment in broadband information technology, the improvements to the Route 301 corridor, as well as other infrastructure and economic developments, may encourage population growth in selective areas of the jurisdiction. The strategic plan must therefore provide the school system with the flexibility to adjust to potentially changing enrollments that may result from these population increases.

   The planning process proposed for Kent County Middle School – an educational specification followed by a feasibility study – will ultimately determine how much square footage is necessary to support a middle school educational program and whether the school facility plant can be reduced. The deferral of the feasibility study until 2019 or later provides a window of time for demographic and enrollment trends to become clearer. Deferral will also allow time to determine the funding capacity of the County Government, which will influence the scope and timing of improvements at both the Middle School and at Kent County High School.

[10] See, for example, 21st Century School Fund *etal*, *State of our Schools* 2016, page 6 and reference literature (http://www.21csf.org/csf-home/).

Finally, retaining ownership of Worton Elementary will preserve options and provide flexibility for the school system to address the challenges associated with either declining or increasing student enrollments. For instance, if the enrollments increase, the site could be used for an expansion of capacity.

3. ***Provide a more financially sustainable support infrastructure*.** Due to the current economic conditions of the county, fiscal resources to support the operating budget of the school system are highly constrained. Concurrently, State operational funding has been reduced (as in a number of other school systems in the state) as a result of the decline of student enrollment. Meanwhile, the heating, cooling, operations, and maintenance of facilities represent a large fixed cost. Improvements in the operational efficiency of the facilities and/or a reduction of the overall square footage may contribute to budgetary savings.[11]

   The projects proposed in the Six-Year Facilities Strategic Plan will assist the school budget by:

   - Preventing costly damage to school interiors and improving the energy performance of three school facilities; and
   - Initiating a process, through the middle school educational specification and feasibility study, to consider how the total size of the facility plant might be further reduced while concurrently improving the learning environment for students.

   In addition, the recommendation to surplus the former Millington Elementary School building and the current offices of the Board of Education in Rock Hall will reduce the total inventory of the school system by 67,704 square feet, or 12.6% of the total of 534,908 square feet. This could translate into operational savings of more than $99,000 per year for heat, electricity, water, and sewer services alone.[12]

THE PLANNING PROCESS

In August 2017 Dr. Karen Couch, Superintendent of Schools, established a Strategic Planning Committee with the following membership:

Dr. Karen Couch, Superintendent, Kent County Public Schools

Dr. Jeffery Grotsky, retired superintendent, former Director of Long Range Planning/Facilities and executive director of state school board organization (Pennsylvania)

Joseph Harding, retired; former owner representative for library facilities construction projects and a former school board member (New Jersey)

Shelley Heller, County Administrator

Richard Kalter, retired attorney (Philadelphia)

Francoise Sullivan, member of the community and parent

Joseph Wheeler, Operations Supervisor, Kent County Public Schools

Tracey Williams, Student Services and Secondary Education Supervisor, Kent County Public Schools

The Committee membership was approved by the Board of Education on August 14, 2017. The Committee met on August 17 and September 14, 2017 to discuss general components that should be included in facilities strategic planning, confirm the workplan, and prepare for the community engagement process. During the fall, the Committee met a total of six times and toured all five educational facilities and the former Worton Elementary School. The community engagement listening sessions took place during the last week of September 2017. In order to expand outreach for community engagement, the Committee developed a process to solicit written comments and

[11] Other factors will also determine whether savings can be achieved: the cost of fuel, the design requirements, special education needs, maintenance and operational practices, the operating hours of the school buildings, etc.

[12] Average of three fiscal year reports (FY 2015 – FY 2017).

suggestions from the community. The complete schedule of Committee meetings and community engagement sessions is shown in Appendix 1.

The Community Input Process

To ensure that the community had an opportunity to voice its concerns in the planning process, three community meetings were held in the last week of September 2017. The meetings were held at Kent County High School, Galena Elementary School, and Rock Hall Elementary School. Notification was sent out in advance through emails, handouts, newspaper notices, and an announcement on the Board of Education webpage. A total of 38 members of the public attended these three meetings. Public comment outreach also included a process to allow community members to submit online comments that are available on the Board of Education website at http://www.kent.k12.md.us/StrategicPlanning.aspx.

While many valid comments and suggestions were made at the community engagement meetings, four consistent topics emerged:

- The existing configuration of three elementary schools should be retained.
- The Board of Education should surplus excess square footage as quickly as possible.
- The Board of Education should retain ownership and use of the entire Worton educational campus.
- The Board of Education should be located in a more centralized location if possible to promote greater community engagement.

In addition to the three community engagement meetings, the meetings of the Strategic Planning Committee were advertised and were fully open to the public. Public participation was welcomed and members of the public engaged in full discussion with the Committee members over a number of issues.

A final community engagement meeting was held on January 10, 2018, to present the Committee recommendations and gather community feedback. On January 17, 2018, the Committee met to finalize the recommendations outlined in this report.

Implementation of the Strategic Plan Recommendations

Once approved, the capital recommendations of the Six-Year Facilities Strategic Plan will be reflected in:

- The 2018 Educational Facilities Master Plan (EFMP). The IAC requires this document, which outlines the facility needs of each school system for the following six to ten years, to be submitted annually by July 1. The components of the EFMP include information on the following topics:
    - Goals, Standards, Policies and Guidelines
    - Community Analysis: Demographic data and development plans
    - Inventory and Evaluation of Building and Facilities
    - School Enrollment Data: Current, historical and future enrollments for each school in the system
    - Facility Needs Analysis: Narrative description of needs and a list of the planned and likely capital improvements for the following six to ten years.
- The FY 2020 and subsequent Capital Improvement Programs (CIP). The CIP translates the general intentions of the EFMP into a list of prioritized projects for the budget year submission, as well as likely projects that will be submitted in the following five fiscal years. Projects submitted in the annual CIP must be in substantial agreement with the facility needs described in the EFMP. Approval of the CIP requests by the State makes projects eligible for State funding participation.

STRATEGIC PLAN ASSUMPTIONS

Based on comments received at three community engagement meetings, discussion with the Facilities Strategic Planning Committee, and analysis of information provided by the Superintendent and school system staff, the following assumptions guided the Committee in developing the recommendations presented in this report:

1. ***Operating Budget***. There is an overarching need to use maintenance and operational resources as efficiently as possible and reduce fixed costs of the school system. Last year, in an effort to reduce the operating budget, the Board of Education took a bold step to close two elementary schools. The Committee reviewed current and future needs of the school system based both on possible increased and declining enrollments in order to present recommendations on the final disposition of those schools.

2. ***The Worton Campus***. The school system should retain ownership of all educational facilities on the Worton campus. Retaining ownership of all the educational facilities on this campus will provide the school system with physical resources to adjust to either a declining or increased student population. In addition, due to its central geographic location in the county, the campus includes the Kent County Community Center and Worton Park. Both of these County facilities will offer recreational, physical education, and after-school opportunities for public school students.

   For these reasons, the Committee recommends re-purposing the former Worton Elementary School as the site for Board of Education functions rather than surplusing it to the County Government. A central location for the Board of Education will enhance operational efficiency, particularly for transportation functions, as well as improve engagement between the Board and the community. The closure of the current Board offices in Rock Hall will result in an operational savings of at least $45,000 / year in utility costs alone.

   Retention of this property and minimizing structural renovations to the former Worton Elementary facility will assist the Board in meeting future enrollment increases, should they occur. Should enrollments continue to decline, the educational facilities on this campus will allow the school system to consider multiple grade level configurations, including consolidation of additional grade levels, relocation of the middle school, or a single-campus arrangement with all elementary, middle, and high school students co-located on one campus. Facility options and future grade configurations to adjust to student enrollment changes are possible only if the school system retains ownership of the former Worton Elementary.

3. ***Number and Configuration of Schools***. The Committee considered the configuration of schools, including suggestions from the public to convert the elementary schools to K-8 schools and to consolidate all of the elementary schools into a single facility. The Committee recommends that the current configuration of three elementary schools, one middle school, and one high school should be retained.

   Should the middle school be relocated as a result of the planning process outlined below, the Committee recommends that the middle and high schools should remain separate rather than be consolidated into a single 6-to-12 grade school. The 6-to-12 grade configuration would not meet community expectations that middle school students will be kept separate from high school students. Moreover, it would require very costly capital renovations and additions to the Kent County High School facility to accommodate the changes.

   a. If enrollment increases, the middle school configuration might include 5th grade to allow more capacity in the elementary schools.

   b. Although there are some reported educational advantages to the K-8 configuration, this grade configuration would not be prudent in Kent County for a number of reasons:

      i. In order to provide equity, each K-8 school must provide a full middle school curriculum. There has been considerable difficulty finding qualified staff for the single middle school in the county, and this problem will be magnified if the Board were required to recruit teachers for two or three middle school programs.

ii. The programmatic spaces of the K-8 school facilities must be comparable in order to equitably support educational programs that are specific to the middle school curriculum, including technology education and physical education. This would require a substantial capital investment with considerable risk that further consolidation and reduction of the physical plant may become necessary due to declining student enrollments.

iii. Given the scarcity of local capital funding and the likelihood State and local funding will only be allocated for one school project at a time, the timeline required to complete the building program to create K-8 schools would be very lengthy. Pending completion of the projects, students at the lower-priority K-8 schools would be housed in facilities that will not meet the programmatic requirements, preventing students from having access to the full educational program

For all of these reasons, the wisdom in investing heavily into K-8 facilities would be questioned.

c. A single elementary school in a central location would represent an enormous capital expenditure and would impose longer travel times on the youngest students.

d. The eventual disposition of the middle school will affect all aspects of the educational system:

i. Within a three to five-year timeframe, the existing KCMS facility will be in need of a new roof, possibly with correction of underlying structural problems. Before making a substantial investment, the Board of Education must determine if it intends to retain the facility as a middle school; relocate the middle school educational program but retain the facility for other Board of Education functions; or surplus the facility to the County Government.

ii. Each of these options has significant educational, capital, and operational implications. Consequently, the decision should be deferred until further information is available through development of the educational specifications and the feasibility study. Deferral will also allow for a more accurate assessment of the student enrollment projections and changes to the local revenue capacity resulting from recent infrastructure investments.

ENROLLMENTS AND FACILITY UTILIZATION

The uncertainty about future enrollments is a major factor in the development of this Strategic Plan. Under countywide enrollment projections developed by the Maryland Department of Planning, Kent County Public Schools would experience modest decline in the coming decade. However, analysis of the September 29, 2017 actual enrollments combined with an assumption of modest housing development indicates that the student enrollment will essentially be stable over the next decade. The following chart shows the school enrollments as of September 30, 2017, the projected five- and ten-year enrollments, and the current and projected utilization of each of the schools.

School	Current SRC	Enrollment 2017 (FTE)	Percent Utilization 2017	Projected Enrollment 2022 (FTE)	Percent Utilization 2022	Projected Enrollment 2027 (FTE)	Percent Utilization 2027
Galena Elementary	432	351	81.3%	354	81.9%	364	84.4%
Garnett Elementary	498	351	70.5%	364	73.0%	392	78.7%
Rock Hall Elementary	294	258	87.8%	254	86.4%	261	88.9%
Kent County Middle	678	449	66.2%	435	64.1%	413	60.9%
Kent County High	1,161	587	50.6%	629	54.2%	567	48.9%
Totals	**3,063**	**1,996**	**65.2%**	**2,035**	**66.4%**	**1,998**	**65.2%**

Enrollment Projections

Enrollment projections for each school are based on the September 29, 2017 enrollments, projected into future years using the live birth/cohort-survival methodology. This methodology, which is explained in Appendix 2, aligns with that used by the Maryland Department of Planning to develop countywide enrollment projections. The goal is for the local school-by-school enrollments to be within 5% of the countywide MDP figures.

The detailed projection methodology used conservative assumptions on the historical birth data, student grade changes, and housing. The historical student grade succession ratios (GSR) account for modest and gradual immigration and emigration of population. Absent reasons to expect the sudden influxes of population that are occasionally experienced by more urbanized school districts, these grade succession ratios should be applicable to the future. The model projects a modest increase of 50 new housing units on average per year. A quarter of this average is multi-family housing, which tends to produce very few new students. The balance of the projected housing is an average of 38 single family detached units per year. This average represents a conservative increase over the recent and historically low trend of 32 new housing units per year.

Using these assumptions, the PreK to 12 enrollment is projected to increase modestly to a high of 2,057 in the 2024-2025 school year and will then decline to 1,998 in the 2027-2028 school year. While the elementary school PreK-5 enrollment will increase steadily during this period, from the current 960 to 1,018 in 2027-2028, the combined middle school and high school enrollments will decline from the current 1,036 to a total of 980 in the same period. If a more cautious housing assumption is used, the school system will experience a total decline of about 124 students in the decade.

Under either scenario, there will be adequate capacity in the five schools to house all the students, as measured by the State Rated Capacity (SRC). This is not the same thing, however, as saying that the school facilities will be educationally suitable to support either the educational program of the school or the needs of the students they house.

Facility Utilization

Facility utilization is a technical calculation of the ratio between the full-time equivalent (FTE) enrollment of a school and its State Rated Capacity.

- Utilization: The actual or projected enrollment divided by the State Rated Capacity (SRC).
- State Rated Capacity (SRC): A statewide measure based on the number and capacities of individual instructional spaces. SRC is calculated at the following classroom capacities:
    - Prekindergarten: 20 per classroom
    - Kindergarten: 22 per classroom
    - Grades 1 to 5: 23 per classroom
    - Grades 6 to 12: 25 per classroom
    - Special education: 10 per classroom

  Unique capacities are established for Career and Technology Education (CTE) and alternative education programs. See *Public School Construction Program Administrative Procedures Guide* (APG), Appendix 102 A – State Rated Capacity, for more information on how SRCs are calculated. The *Guide* is available at www.pscp.state.md.us.

  While these classroom capacities are deemed generally appropriate for specific grade levels and educational programs, nothing prevents a jurisdiction from establishing lower or higher classroom occupancies tailored to its unique educational objectives, the characteristics of its student population, or its financial capabilities.[13]

[13] Among the Maryland school systems with Board-defined local rated capacities (LRC) at variance with the SRC are:
- Montgomery County Public Schools: Establishes lower class size in 67 high-need elementary schools.
- Worcester County Public Schools: Establishes a class size of 16 in kindergarten through grade 5 (Policy II-B-7).

Utilization is used by the State of Maryland and certain jurisdictions for a number of planning purposes. The State uses it as a guideline (not a standard) for determining the eligibility of certain classes of funding requests: generally, if the projected utilization for a school proposed for a systemic renovation project or for a new or replacement school falls below the guideline utilization limits, additional justification will be needed for State approval of planning or funding. About half of the local governments in Maryland use public school utilization based on SRC as a component of their Adequate Public Facility Ordinance (APFO) calculations in order to determine the eligibility of housing starts.

The closure of Millington Elementary and Worton Elementary has resulted in improved utilization of the three elementary schools, but they are still projected to remain modestly under-enrolled through the 2027-2028 school year. The middle school and high school, however, are projected to be significantly underutilized based on their State Rated Capacity.

Facility Utilization vs. Facility Usage

It is important to note, however, that low utilization does not mean there are a great number of unused spaces in these facilities. Utilization provides a general numeric measure of how efficiently a facility is used, but the actual usage is based on the educational program and the educational needs of the students. The instructional and support spaces in similarly sized facilities with similar student enrollments may be used very differently: a school in an affluent area may use support spaces such as resource rooms for project-based learning, while a school in an area with a large FARMS population may use those same spaces for small-group or individual instruction. A school may have a low utilization and yet all the instructional spaces may be fully utilized, as well as additional spaces not originally intended for instruction, such as storage closets. There are multiple reasons why this can occur:

- Program requirements. Science classrooms will still be used by each grade level even if the classroom occupancy is low.
- Grade configuration. If low enrollment is spread across all grade levels~~,~~ this does not necessarily mean classrooms have been vacated. It is more likely, particularly at the secondary level, that each content grade level classroom has less than the optimal number of students as specified in the Administrative Procedure Guide. Separate grade level content classrooms generally cannot be combined to improve classroom utilization because of the differences in the educational curriculum, e.g. 7th grade math cannot be combined with 8th grade math. In these circumstances, every classroom is still needed in spite of the low overall utilization. Therefore, although Kent County High School and Kent County Middle School will remain underutilized, most of the classrooms are currently utilized by teachers who teach specific content and required courses.
- Special needs students. While the State uses a figure of ten students per designated special education space, in reality the classroom population of these spaces is generally less than ten. These lower occupancy levels result from the additional instructional and support staff these students require, the equipment that may be needed for training in occupational skills or for medically fragile children, or the isolation needed to provide programming for emotionally fragile special education students.
- Specialized instructional programs for high school students. A high school may find that it has only a small number of students interested in a particular instructional or CTE program. If this program is deemed valuable and resources exist to support a teacher, then the occupancy of the instructional space may well be less than enrollments specified in the APG. Therefore, these instructional spaces are in use and still needed to deliver programming for students.

A low utilization number might also imply a school does not have operational challenges such as circulation congestion, overcrowding, or instructional space shortages. The design of the school plays a large role in its operation and can present many difficulties in housing the student population. Specific examples in Kent County include:

- Baltimore City Public Schools: Establishes a higher class size due to fiscal constraints.

- Galena Elementary School: The cafeteria location and exit to the playfields create serious congestion problems during lunch periods, and there is substantial difficulty in identifying instructional space for small group and individual instruction.
- H. H. Garnet Elementary School: The main circulation path crosses the cafeteria, creating difficulties in managing student traffic and the lunchtime sessions.
- Rock Hall Elementary: Over the years, the original high school building additions altered the circulation path and obstructed clear lines of sight for monitoring of student movements during class changes.

PROJECT COSTS

The construction and project costs provided in this report are approximate order-of-magnitude figures for general planning purposes. A number of factors described below will influence actual project costs and may cause costs at the future bid date to differ markedly from the estimates provided in this report. For each Tier 1 project, the method for developing the costs is shown in Appendix 3, including the factors used in developing these costs and possible causes for cost variances. These methods coincide with those used by the Public School Construction Program to develop estimates for State funding participation in CIP projects.

Project Estimates:

General:

- State funding is estimated based on the anticipated date of funding approval. The State construction cost figure ($/sf) is adjusted annually to correspond to market conditions; with few exceptions it has tracked the 4% annual escalation used by the Maryland Department of Budget and Management and supported by industry sources.[14]
- State funding can only be used for improvements to educational buildings. Consequently, no State funds are shown for the renovations to the former Worton Elementary School as Board of Education offices.
- No costs are presented for the future Middle School or High School projects, as the scopes will need to be determined through the educational specification and feasibility study process.

Construction cost estimates:

- Costs are projected to the estimated mid-point of construction. Escalation at 4% per year is applied to the total cost of construction and to the State annual cost factor ($/s.f.) used to calculate State funding participation. Schedule changes will affect these estimates.
- For roofing projects, standard unit costs were used, with an added construction contingency.
- For Galena Elementary School, the costs were developed through an architectural/engineering feasibility study, with added design and construction contingencies.[15] The costs for items beyond the Base Scope and the add alternates are presented as ranges because the systems interact, and the final cost of each will depend on the other systems that may be included in the scope (see page 28).
- For the former Worton Elementary School, a not-to-exceed budget figure was established and the scope of work will be the minimum needed to accommodate the Board of Education functions.

[14] The 4% figure tends to be on the low end of the range predicted by the Gilbane Building Company annual construction economics report, *Building for the Future: Market Conditions in Construction*. Recent results from the Washington-Baltimore area indicate that construction cost escalation may be increasing in the 7% to 10% range.

[15] Noelker and Hull Associates, Inc., *Galena Elementary School Feasibility Study*, October 2017; Gipe Associates, Inc., *Galena Elementary School Heating, Ventilating, & Air Conditioning System Feasibility Study*, December 8, 2017.

Sitework: An allocation for sitework is carried for interior renovations and for mechanical system work to account for miscellaneous charges, such as relocation of utilities, construction of equipment pads and enclosures, etc. No sitework cost is calculated for roofing projects.

Project development costs:

- Project development costs ("soft costs") include A/E fees, surveys if needed, permits, furniture furnishings and equipment (FF&E), and miscellaneous other non-construction expenditures that may be required.
- Project development costs are based on a standard industry figure of 15% of the total project cost.[16]

Contingencies:

- Design contingencies account for changes that may occur during the design process. They are applied only to projects that involve programmatic or spatial renovation, not to projects that are purely systemic in nature. A standard design contingency of 10% has been used.
- Construction contingencies vary widely by project type and existing building conditions. For budgeting purposes, a standard construction contingency of 5% of total building and site cost is used.

Cost Variances: A number of factors will influence the actual costs and the level of State funding participation in each project:

a. Final Project Scope. The scope of the projects is approximate, and will increase or decrease through detailed assessment of the conditions at each school, the design process, the timing of State and County Government funding, and community inputs.

b. Unit Cost Variance. Unit costs ($/s.f.) of work on existing buildings may vary significantly for specific projects, based on the size and scope of the project, the age and location of the building, and latent conditions that cannot be known until a more detailed survey is performed or actual construction begins.

c. Contingencies. Design and construction contingencies must be adequate to address latent conditions that cannot be known in advance of construction. The amount of contingency used will vary according to the type and number of the latent conditions, new code requirements, or owner-initiated changes.

d. Timing. The timing of the project, based on available funding and other factors, will influence the impact of construction cost escalation. The escalation figure may vary significantly based on future market conditions, many of which are unpredictable (e.g. overseas demand for specific materials or products). Costs for future projects should be re-calculated at least annually to account for changes in construction cost escalation.

e. Market Response. The location of the school project as well as the condition of the market at the time of bid will influence competition, which has a large impact on construction costs.

f. Project Costs. In practice, the proportion of the total budget that must be allocated to project development costs may vary widely from the 15% figure used for these estimates, and will be determined by the specific scope of the project.

g. State Funding. The total amount of State funding participation in a specific project is based on the anticipated first year of approved funding, and under current policy, is not adjusted for multi-year projects or if the start of construction is delayed. See Appendix 3 for a description of the method used to calculate State funding participation. This report has assumed that funding will be calculated using the same factors as have applied in past years. The Interagency Committee on School Construction (IAC) or the Board of Public Works (BPW) may change

[16] The State of Rhode Island now reports that the non-construction costs for school projects are 20% of the total project costs. Mr. Joseph da Silva, AIA, School Construction Coordinator, December 6, 2017.

these funding methods in the future. It is also assumed that the State construction cost factor will increase at the same annual rate as construction cost escalation.

III. RECOMMENDATIONS

SUMMARY OF RECOMMENDATIONS

Based on the assumptions outlined above, the Committee has developed two tiers of capital project and planning recommendations as well as recommendations to surplus school facilities:

1. ***Tier 1: Near-term capital projects*** ensure school facilities are stabilized and improve the operational efficiency and security of the school system. The Tier 1 recommendations are estimated at a total cost of $14.2 million (see page 38 for the estimated funding schedule and Appendix for 3 for detailed project cost estimates). This group of projects affect the following facilities:

    a. Former Worton Elementary School: Minimal renovations to relocate the Board of Education functions from Rock Hall. In addition, portions of this facility may be leased, and/or can be used to store equipment and instructional materials currently at the elementary schools, freeing space for elementary programming. The budget figure is a not-to-exceed amount; only the minimum amount of work will be performed that will allow Board functions to operate in the space.

    b. Rock Hall Elementary School: Roof replacement and targeted renovations.

    c. Galena Elementary School: Roof and mechanical system replacement, including targeted renovations as allowed by the budget.

    d. Kent County High School: Roof replacement.

    e. Security Vestibules at Rock Hall Elementary School, H. H. Garnet Elementary School, Kent County Middle School, and Kent County High School (a security vestibule is part of the Base Scope for Galena Elementary School, see below).

2. ***Tier 2: Long-term planning efforts*** will determine the disposition of Kent County Middle School (KCMS), improve Kent County High School (KCHS), and enhance accessibility in all of the schools. Decisions on the KCMS facility have broad implications not only for the middle school educational program, but could potentially impact H. H. Garnet Elementary School, Kent County High School, and the Worton campus. The recommendations are:

    a. Kent County Middle School: Develop a middle school educational specification appropriate for Kent County and undertake a feasibility study to determine the best options for a middle school facility.

    b. Kent County High School: Undertake a study to identify targeted renovations that will improve the educational program.

    c. ADA Audit of All Schools: Undertake an accessibility audit to determine the scope of work needed to bring all schools into compliance with the Americans with Disabilities Act (ADA) of 1990.

3. ***Surplus of Facilities*****.** In addition to the capital projects listed above, the Committee recommends that two former educational facilities should be surplused to the County Government. The combined reduction of school board facilities through these two actions will be 67,704 square feet, or 12.6% of the total of 534,908 square feet, representing an annual utilities savings in excess of $99,000.

    a. **Former Millington Elementary School** (35,794 sf)

    Millington Elementary School was closed for educational purposes in the 2017-2018 school year and is no longer needed for Board of Education purposes. During the community engagement meetings, a number of suggestions were offered for possible re-purposing of the facility. Since none of them involve Board of Education

administrative or instructional functions, the decision on future use should be deferred to the County Government. The closure will save the Board of Education in excess of $54,000 per year in utilities.

b. **Board of Education Offices in Rock Hall, Maryland** (31,910 sf)

The former Rock Hall Elementary School has been used for the offices of the Board of Education since 2010. At that time, Rock Hall Middle School was closed and the elementary school was moved to the former middle school facility. If the Board of Education approves the recommendation of the Committee to relocate the Board of Education offices from Rock Hall to the former Worton Elementary School, then the Rock Hall administrative building should be surplused to the County Government. Decisions as to the future disposition of the facility will be made by the County. The closure will save the Board of Education in excess of $45,000 per year in utilities.

DETAILED STRATEGIC PLANNING RECOMMENDATIONS

TIER 1 RECOMMENDATIONS: NEAR-TERM CAPITAL PROJECTS to stabilize three school facilities and improve the operational efficiency of the school system. The projects are listed in the order of construction sequence. Detailed cost analyses are provided in Appendix 3.

A. *Former Worton Elementary School: Minor renovations for Board of Education offices, the Bus Depot, and other possible uses*

The former Worton Elementary School (WES) can be readily adapted to serve Board of Education and transportation functions. The project will include the minimal amount of modification so that existing spaces can serve as offices and meeting rooms and so that buses can be relocated to the site from their current location at the County Department of Public Works. As the Board offices and meetings rooms will not occupy the entire building, some areas could be considered for lease to other entities, or could be used for other central office functions. This project will allow the Board of Education to surplus the current Board office building (the former Rock Hall Elementary School, 31,910 square feet), with an annual cost savings of approximately $45,000 in utilities.

The co-location of the Board of Education offices at the Worton campus will result in a number of operational efficiencies. Transportation services will be located near the bus depot, reducing travel time for drivers. Professional development activities for teachers and administrators can take place near the high school, improving time efficiencies and reducing travel. The central location of the Board offices and meeting rooms will also make the Board meetings more accessible to a larger share of the county population, hopefully leading to improved attendance at Board meetings and enhancing communication between the Board and the community. Finally, the school system will have room to store instructional materials and equipment, allowing better utilization of space at the elementary schools.

The building can be occupied at this time with minor refurbishment; the budget figure of $300,000 is a not-to-exceed amount, and every effort will be made to carry out only the minimal work needed to support Board functions within the space. Although the roof is beyond its 20 year life cycle, at present it has the lowest priority for replacement when compared to the four remaining buildings (the H. H. Garnet Elementary roof was replaced in 2015). The roof will need to be re-evaluated within the next decade for possible replacement; however, the life of the existing roof can be extended by professional patching in the areas of greatest need. The boiler was replaced in 2016; therefore, the mechanical system is deemed to be in generally good condition.

Size:	28,178 gsf
Start Construction:	August 2018
Occupy:	Fall / Winter 2018
Not-to-Exceed Cost:	$300,000 (project: construction plus soft costs)

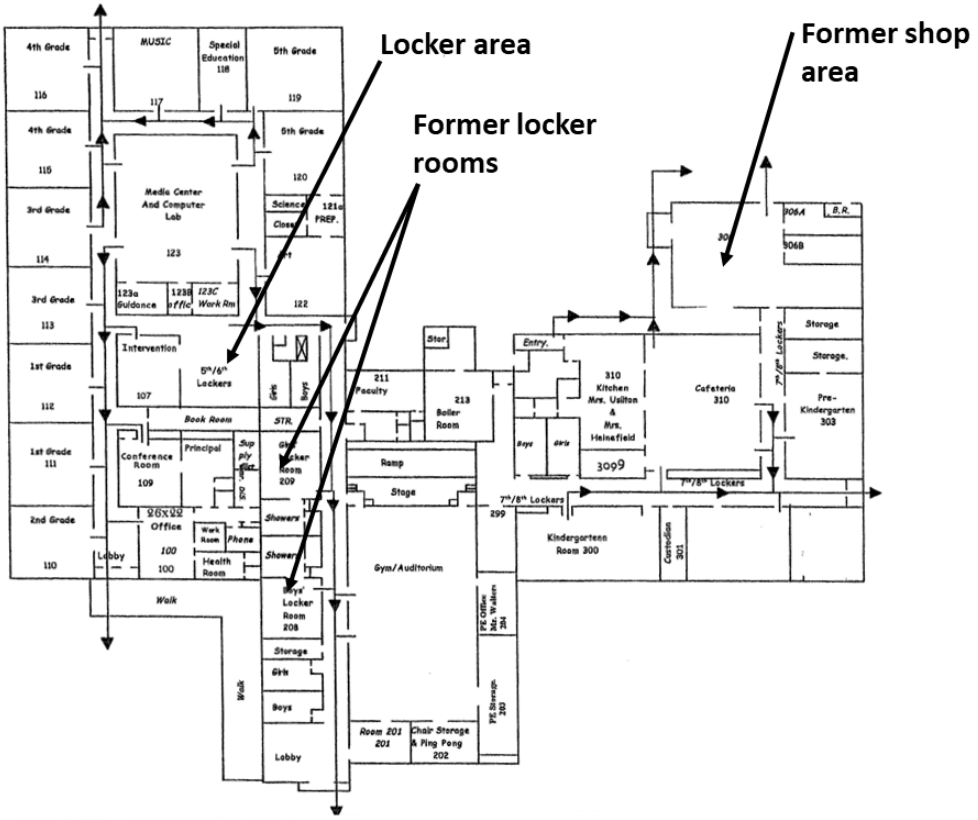
	$255,000 (construction alone)
Net impact on size of KCPS building plant:	4,732 sf decrease (through surplus of current Board Office facility at former Rock Hall Elementary School)
Net impact on school system utilization:	No change

B. ***Rock Hall Elementary School*: *Replace the existing roof and rooftop accessories (ladders, hatches, etc.), and targeted renovations***

Roof Replacement: The existing roof is deteriorated and requires continuous maintenance. Replacement of the roof will protect the interior, prevent any possibility of the development of mold in the future, and substantially reduce the maintenance burden on KCPS staff allowing more attention to other building systems.

Size:	54,521 sf approx. (roof area)
Start Construction:	Summer 2019
Completion:	October 2019
Estimated Cost:	$1.33 million (project: construction plus soft costs)
	$1.13 million (construction alone)
Net impact on size of KCPS building plant:	No change
Net impact on school system utilization:	No change

Targeted Renovations: Rock Hall Elementary School has several spaces that could be converted into classrooms or other uses. These include former high school locker rooms that are currently used for storage, locker alcoves, and the former high school shop area. These underutilized spaces could be renovated at relatively low cost for programmatic or capacity purposes.



Size:	5,020 sf approx.[17] (renovation areas)
Start Construction:	June 2019
Completion:	October 2019
Estimated Cost:	$2.03 million (project: construction plus soft costs)
	$1.73 million (construction alone)
Net impact on size of KCPS building plant:	No change
Net impact on school system utilization:	No change

Future Considerations:, a thorough review of the building systems is warranted, similar to the feasibility study recently completed for Galena Elementary School.

C. *Galena Elementary School: Replace existing roof and rooftop mechanical system, with targeted interior renovations as budget permits.*

Galena Elementary School, originally constructed in 1949 with additions in 1951, 1957, 1962, and 1974, has a number of significant deficiencies:

- Circulation: The interior circulation system does not provide full ADA accessibility to all parts of the building, and there is severe congestion near the cafeteria. This situation was compounded by increased student enrollment due to school closures in fall 2017. Moreover, the entrances to the classrooms and other support spaces are not ADA compliant.
- Security: The building lacks a security vestibule and the access control system has limited capacity (Gipe report, p 25).
- Cafeteria Space: The near-doubling of student enrollment due to closure of Millington Elementary and Worton Elementary resulted in short lunch period intervals, creating significant congestion at the cafeteria entrance.
- Restrooms: The restrooms are not ADA compliant and the fixtures are generally old and do not meet contemporary standards for water efficiency, representing an operational inefficiency for the system.
- Under-utilized spaces: Increased enrollment has reduced the flexibility of scheduling within the school. Additional spaces are needed; however, the former high school locker rooms and shop area cannot be used for instruction without renovation.
- Daylighting: Past additions have resulted in the media center and six classrooms being deprived of natural lighting. There is growing evidence that natural daylight has a positive impact on student achievement and behavior, particularly for students from economically deprived backgrounds.
- Building systems: The building systems are generally old and with the exception of the roof and the mechanical system, they are functional but do not meet current performance standards. (Page numbers below refer to the Gipe Associates report of December 8, 2017):
    - *Roof*: Installed in 1994 and (by report and visual observation) leaks frequently and is in need of continuous repairs.
    - *Mechanical system* (Gipe p. 1): Installed in 1998, with the exception of ductwork installed in 1974. In general, the system is not energy efficient. The rooftop units (RTUs) have exceeded their service life and lack many elements that are considered standard in contemporary equipment for safety and energy efficiency. Some of the hot water piping is 43 years old and should be replaced. The gymnasium is heated but is

[17] Includes 10% allowance beyond measured size of affected spaces for work on adjacent areas, e.g. repairs after mechanical or electrical work.

not air conditioned. The rooftop exhaust fans are approximately 20 years old and should be replaced.

- *Kitchen ventilation system* (Gipe p. 11): Installed in 1974, the system does not meet contemporary code requirements for exhaust and lacks cooling and dehumidification.
- *Automatic temperature controls* (Gipe p. 12): Consists of a mixture of electronic controls.
- *Plumbing*, including domestic hot water and fixtures (p. 12): The potable piping exhibits extensive corrosion, the sanitary piping is at least 43 years old, and the roof drainage is equally aged and should be replaced with the roof.
- *Fire protection system* (Gipe p. 14): The wet pipe system was installed in 1974 and lacks a backflow preventer, potentially allowing fire protection water to contaminate the school or the town water supplies. The single-riser system does not meet the requirements of the Fire Protection Code.
- *Electrical distribution system* (Gipe pp. 15, 17): The main switchgear is inoperable, so the main service to the building cannot be shut down, an issue of high safety concern. The majority of the distribution equipment in the building ranges in condition from poor to fair, and the branch panelboards lack space for expansion. The receptacles are original to the 1974 renovation and it is not certain that receptacles near water supply have code-required ground fault circuit interrupter (GFCI) protection.
- *Emergency generator* (Gipe p. 19): There is no emergency generator. This may not be needed unless the school is designated as an emergency shelter.
- *Lighting*:
    - Interior lighting (Gipe p. 19): The lighting was recently replaced, but there are significantly more fixtures and lamps than would be needed with contemporary equipment, resulting in a lighting power density (LPD, or watts per square foot) that is approximately 38% higher than allowed under current ASHRAE standards.
    - Lighting Controls (Gipe p. 21): The controls are not in compliance with current ASHRAE standards, and spaces lack occupancy sensors, resulting in excessive energy consumption.
    - Emergency/Exit Lighting (Gipe p. 22): The emergency lighting does not meet code in several respects. The exit lights are in poor to fair condition.
    - Exterior lighting upgrade (Gipe p. 23): The fixtures are energy inefficient and lack full light cutoff.
- *Fire alarm* (Gipe p. 24): The obsolete non-addressable system lacks many of the functionalities that would be standard in a contemporary system. There are several instances where the fire alarm system does not meet contemporary code requirements.

A feasibility study was initiated in August 2017 to explore a range of options to improve the facility. The full engineering report dated December 8, 2017, provided detailed descriptions and lifecycle cost information for four alternative mechanical systems (Gipe page 30):

System #1: Fan coils using air cooled chillers for cooling and boilers for heating

System #2: Ground source heat pump system with variable refrigerant flow (VRF) terminal equipment.

System #3: Air side heat pump variable refrigerant flow (VRF) system.

System #4: Conventional water source heat pump system with variable refrigerant flow (VRF) terminal equipment.

The study also contained information on two mechanical systems labelled "Limited Renovation Options" (Gipe pages 39 – 40). Both options include the correction of the currently inoperable main switch gear in the electrical room.

1. Rooftop Unit Replacement. The work includes replacement of six rooftop air handling units. This option includes all the electrical work needed to operate the new equipment.
2. Rooftop Unit Replacement with Enhancements. The scope includes all the items in Option 1 plus:
   a. Replace gymnasium HVAC system and provide cooling;
   b. Replace all VAV boxes and associated controls;
   c. Provide other energy-conserving features, including new pumps, drives, and controls

For comparison purposes, the following table shows the construction costs, the estimated annual operating cost, and the 30-year life cycle costs for each of the six options studied.[18] The construction costs do not include the project development costs and contingency costs that are included in a full project estimate.

Mechanical System	Construction Cost	Cost/Sq. Ft.	Total Annual Operating Costs	30 Year Life Cycle Costs
Sys. #1: Fan coils using air cooled chillers for cooling and boilers for heating	$4,355,000	$76.00	$151,000	$9,631,000
Sys. #2: Ground source heat pump system w/ VRF terminal equipment	$4,189,000	$73.50	$106,000	$7,893,000
Sys. #3: Air side heat pump VRF system	$3,975,000	$70.00	$141,000	$8,913,000
Sys. #4: Conventional water source heat pump system w/ VRF terminal equipment	$4,204,000	$73.75	$133,000	$8,859,000
SRU Replacement Option #1	$1,172,000	$20.56	$218,000	$8,795,000
SRU Replacement w/ enhancements Option #2	$2,135,000	$37.46	$225,000	$9,987,000

Notes:

VRF: Variable Refrigerant Flow
Annual Operating Costs: Annual energy costs + service costs + maintenance costs.[19]
Costs are not adjusted for construction cost escalation
Costs are for construction of the HVAC and supporting electrical system only, and do not include contingencies or project development costs.
SRU Replacement Option #1 does not include air conditioning for the gymnasium; Option #2 does include gymnasium air conditioning.

Recommendation

The Committee recommends that Option #2, RTU replacement with enhancements, be adopted with a targeted set of critical building renovations. While the Option #2 mechanical system will not provide the overall performance and energy savings of the other four systems, particularly the geothermal system, it will still replace the deteriorated rooftop equipment and will substantially improve the heating, cooling, and ventilation characteristics of the school facility.

It is important for the Board of Education to understand that selection of this option does not provide the best life-cycle return on investment:

[18] Gipe report, pages 42 to 43, with supplemental analysis dated January 12, 2018. Cost figures for Systems #1 through #4 have been adjusted to reflect the same square footage as for the two SRU Replacement Options.

[19] Gipe Report. p. 38

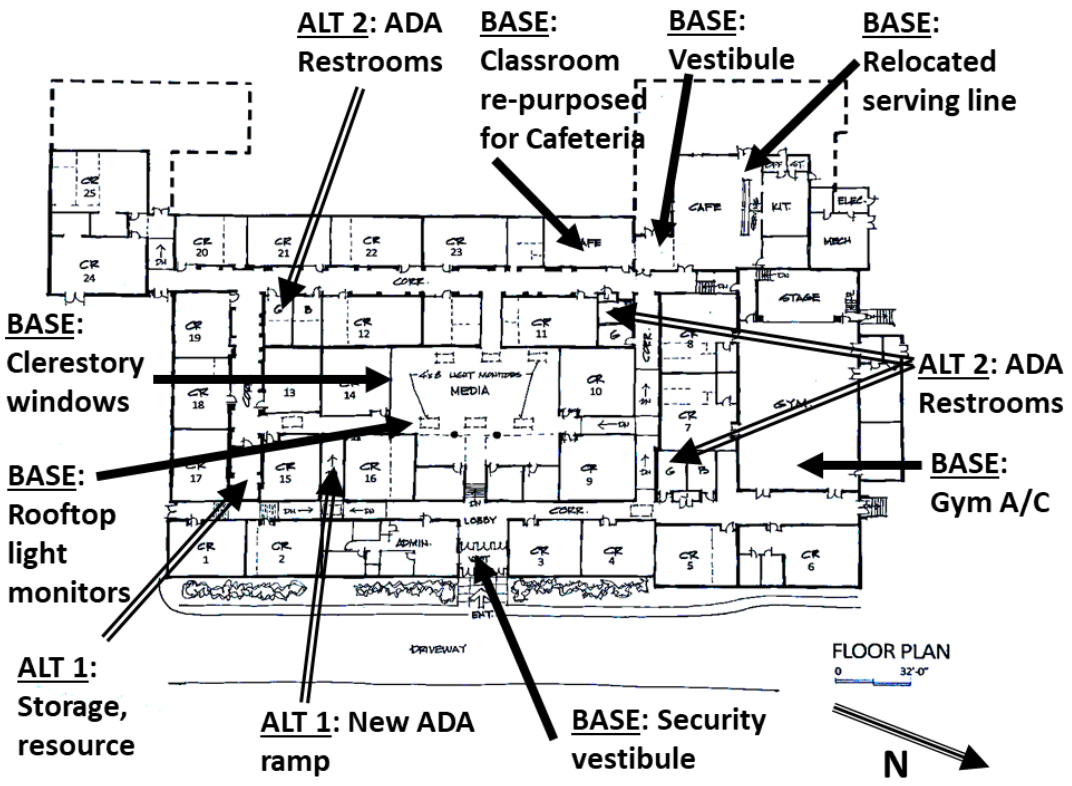
- This option carries the largest 30 year life-cycle costs of all of the options.
- The rooftop equipment is expected to have a 15 to 20-year life cycle. Even with regular maintenance, at the end of this period, performance will deteriorate and the school system will need to invest in replacement of the equipment. Roofs also have an anticipated 20 to 25-year life cycle, depending on the level of maintenance. Consequently, the Board of Education should expect to replace both the roof and the rooftop equipment in approximately fiscal year 2040 or 2041.
- Although the energy performance of this system will be improved over the existing system, with the additional cooling load on the gymnasium it should be expected that the annual cost of utilities at the school will likely increase; however, the comfort for the students and the school community will be improved.

The proposed project scope will include the following (items are outlined on the floor plan).

- Base Scope:
    - Replace the roof, and install light monitors or skylights and classroom clerestory windows to bring daylight to the media center and to six interior classrooms.
    - Replace the rooftop mechanical units (RTUs) and make additional improvements to the mechanical system to improve performance and energy conservation, per the Gipe Associates, Inc. “Limited Renovation Option #2, Replace Rooftop Units and Other Enhancements” (report of December 8, 2017; see Appendix 4 for a detailed description). The mechanical and other systems can be designed to accommodate future interior renovations and additions at little additional cost; this will substantially reduce the cost of the future work, if and when it is needed.
    - Install air conditioning in the gymnasium.
    - Install a security vestibule in the school entrance area.
    - Install a vestibule at the juncture of the cafeteria and the exit on the northwestern side of the building, relocate the food serving line, and convert one classroom to function as auxiliary cafeteria space. These changes will reduce traffic congestion, particularly during the lunch periods, and will improve the kitchen.
- Targeted renovations, as permitted by the budget. These targeted renovations will have an immediate effect on the safety and well-being of the building occupants. These items will be included as add alternates in the solicitation package so that the final scope can be adjusted to the approved project budget. As many of the items will be incorporated into the work as the budget allows.

  The targeted renovations items include the following items. Priorities will be established through a committee to be formed by the Superintendent and Board of Education.

    1. Alternate 1: Ramp and other circulation pattern corrections in the southeast corner of the building to ensure ADA accessibility to all spaces in the building;
    2. Alternate 2: Restroom renovations to meet ADA compliance requirements and water efficiency standards.



Noelker and Hull Associates, Inc., *Galena Elementary School Feasibility Study*, October 2017

Base Scope:
- Replace roof
- Replace HVAC system
- Install rooftop light monitors and classroom clerestory windows
- Air condition Gym
- Security vestibule
- Cafeteria/kitchen improvements

Add Alternates:
Targeted Renovations (ALT):
1. New ADA compliant ramp, storage space
2. Renovated ADA accessible gang toilets (boys & girls); storage, resource room

Future Options:
- ADA compliance throughout
- Building systems: plumbing, lighting, security, communication, fire suppression
- Renovation of locker rooms
- Renovation of former shop areas
- Reconfiguration of Media Center
- Additions for cafeteria and/or capacity (dashed outlines)

Size:	58,285 gsf
Start Construction:	June 2020
Complete:	January 2021
Cost:	
Base Cost:	$5.48 million (project: construction plus soft costs)
	$4.68 million (construction alone)
With Add Alternates (if all are accepted)	$5.85 million (project)
	$4.98 million (construction)
Net impact on size of KCPS building plant:	No change
Net impact on school system utilization:	Minor (will depend on final count of classrooms)

Future Options

In addition to the Base Scope and the targeted renovations, a number of other projects can be considered at this school in the future. These include correcting several instructional or space deficiencies as well as the building system deficiencies identified in the Gipe Associates report to ensure that the building remains operational and meets contemporary standards for school design and performance. The majority of the building systems are aged and include obsolete features that do not meet modern performance standards or code requirements. It should be noted that there are no hazards in the building, but that the age of these building systems indicates that they could fail in the future. Correction or replacement at that time will be more expensive than if the corrections are undertaken with the Base Scope and alternates outlined above.

Future Architectural Options:

Note: The estimates include project development costs

- Corridor lighting improvements $272,000
- ADA upgrades to classroom entrances $135,000
- Renovation of former locker rooms or former shop areas (each) $860,000
- Relocation of partitions to improve classroom usage $128,000

Future Building System Options (page numbers refer to Gipe report, December 8, 2017):

Because building systems interact with one another, the specific choices will affect the final costs. Ranges of costs are presented to reflect this uncertainty, and the costs are rounded. The approximate order-of-magnitude costs are provided to give a conceptual indication of future obligations; these are project costs which include both construction costs and project development costs. Design and construction contingencies are included, as well as an allocation for sitework. Costs are projected to a spring 2020 bid date to coincide with the Base Scope described above; if the work is done separately at a later time, the estimated costs must be adjusted to reflect the construction costs at that time.

The items are presented in approximate priority order based on their impact on the health and safety of building occupants and on the educational program.

Special note should be taken of the lighting upgrades, which include occupancy sensors: in combination, these will result in both improved interior lighting conditions and a reduction in the annual utility costs for lighting.

- Kitchen ventilation system (Gipe p. 11) $75,000 to $130,000
- Plumbing, including domestic hot water and fixtures (upgrades of the restrooms are included in the initial recommendations for targeted renovation) $460,000 to $700,000
- Fire protection system (Gipe p. 14) $350,000 to $390,000
- Electrical:
    - Electrical distribution system (upgrades beyond the inoperable switchgear: includes panelboards, receptacles, etc.) $610,000 to $830,000
    - Emergency generator (Gipe p. 19) $110,000 to $190,000
    - Interior lighting upgrade (Gipe p. 19) (includes controls, occupancy sensors, and emergency/exit lighting) $1,360,000 to $1,810,000
    - Exterior lighting upgrade (Gipe p. 23) $110,000 to $230,000

- Fire alarm (Gipe p. 24) $380,000 to $440,000
- Access Control, Video Surveillance, and Communications (Gipe p. 25) $440,000 to $1,760,000

Long-term architectural options that might be considered in the future include:

- Reconfiguration of Media Center: Additional classroom space can be found within the Media Center, which is large for an elementary school.
- Additions for cafeteria and/or classroom capacity: A cafeteria addition will help to reduce congestion at lunchtime, and will allow one classroom to be returned to instructional use. A classroom addition will provide instructional space if the enrollment increases. Both of these are shown as dashed lines in the plan on page 27.

D. ***Kent County High School Roof Replacement: Replace the existing roof and rooftop accessories (ladders, hatches, etc.)***

The existing roof was not replaced in 2005 due to its age at the time of the limited renovations. Portions of the roof are currently 25 years old with the remainder at 18 years, and the entire roof will be in need of replacement within two to four years. Replacement of the roof before it deteriorates is a prudent investment to protect the interior environment, and can be done at less cost than if deferred.

Size:	173,500 sf approx. (roof area)
Start Construction:	June 2021
Completion:	December 2021
Estimated Cost:	$4.58 million (project: construction plus soft costs)
	$3.89 million (construction alone)
Net impact on size of KCPS building plant:	No change
Net impact on school system utilization:	No change

E. Security Entrances at Four Schools

Since the school shooting in Newtown, Connecticut, in December 2012, security vestibules have become standard features at schools across the country. These vestibules control the movement of visitors by requiring them to pass through the administration area once the morning student arrival period is over. The visitor is required to present identification and can only leave the administration area through a controlled access. In combination with line-of-sight view of the entry area, security cameras, and electronic buzzer control of the entrance, the security vestibule allows the school administration to know who is in the school at every moment and to prevent the entry of questionable individuals.

The Committee recommends that security entrances be installed at Rock Hall Elementary School, Garnet Elementary School, Kent County Middle School, and Kent County High School. The security vestibule at Galena Elementary School is included in the Base Scope of the project, see Item C above. In some cases, additional improvements will be needed, for example installation of a window to allow for direct line-of-sight view of the approaches and the entry areas. Security assessments will be conducted at each of the schools to determine the appropriate scope of work.

Size:	TBD, based on each school's needs.
Start Construction:	June 2019
Completion:	October 2019

Estimated Cost:	$148,000 (project: construction plus soft costs) $126,000 (construction alone)
Net impact on size of KCPS building plant:	No change
Net impact on school system utilization:	No change

***TIER 2 RECOMMENDATIONS: LONG-TERM PLANNING PROJECTS*:** Recommendations to improve the educational environment of the secondary schools

A. *Kent County Middle School: Educational Specifications and Feasibility Study*

The Strategic Planning Committee recognized that the Kent County Middle School facility must be addressed within a few years because of the condition of the roof. The task, however, is larger than replacement of a single building system: depending on whether the middle school enrollments increase or decrease, decisions will need to be made about renovating the existing facility to some extent, or relocating it to another site. These decisions will be affected by the enrollments at the nearby H. H. Garnet Elementary School, which may require additional capacity in the future and lacks a site that can accommodate an expansion. The Committee proposes that these questions will be addressed through development of an educational specification and a feasibility study to examine the implications of every option.

Current Conditions. Kent County Middle School presents a number of building and educational deficiencies. Compared to middle schools in school systems across Maryland, there are a number of quantitative and qualitative deficiencies. For instance, the facility is approximately 13,800 square feet undersized to support the educational program and lacks specific instructional and support spaces typical of middle schools in the state of Maryland.

Building deficiencies: Cursory observation indicates the following items should be corrected:

- Most immediately, the roof is badly deteriorated and results in consistent interior leaks and ceiling tile stains. There may be underlying structural problems that cause these persistent leaks.
- The Media Center and eight classrooms lack natural daylight.
- The second floor lacks an elevator for ADA compliance.
- The restrooms are not ADA compliant.

A thorough building assessment to determine the scope of the deficiencies will be part of the feasibility study recommended by the Committee.

Educational deficiencies: The space requirements for the middle school program should be determined by an educational specification committee to be appointed by the Superintendent and approved by the Board of Education. The educational specifications describe the general educational philosophy and goals for middle school education, the number, type and location of the instructional spaces, and the performance characteristics of the building systems, finishes and equipment.

In order to assess the Kent County Middle School facility, an educational specification for a new middle school now under development for Baltimore County Public Schools was adjusted for the size of Kent County Public Schools. This provisional educational specification includes spaces to support programs that are typical of middle schools throughout the state. Assumptions were made regarding the educational requirements of middle school students in Kent County (for example, that each grade level will require a science classroom);

- Overall Space Deficiency
    - Program parameters:

- Projected 2027-2028 school year KCMS enrollment: 413 students.
- Target Utilization: 90% of State Rated Capacity. Optimal school utilization lies in the 85% to 100% range, with 90% providing flexibility to adjust space usage to the actual needs of the students. The 90% target is particularly important for schools that serve students with special needs (FARMS, English Language Learner, and Special Education populations) because it provides space for small group and individual instruction.
- Required number of seats at 90% target utilization (rounded): 460
- Program space required (based on the adjusted educational specification): 64,800 approximate net square feet. This allocation does not include community use space (program areas dedicated to joint use by the school and the community).

▪ Building size:

- Efficiency target: 70%.
  - Efficiency is the ratio of net to gross square footage:

    Net square feet (nsf) is the usable program space in a building.

    Gross square feet (gsf) includes the net square footage plus the walls, structural elements, chases, mechanical rooms, custodial closets, etc.
  - 70% is an ambitious but attainable efficiency for a renovation project.
- Target building size at 70% efficiency: 92,600 approximate gross square feet

▪ Existing Kent County Middle School: 78,785 gross square feet

▪ Space Deficiency: 13,800 approx. gross square feet

- Adequacy of program space: Comparing the existing spaces at KCMS to the minimum spaces required in a contemporary middle school indicates that some are adequate and others are not. The information below demonstrates the number of spaces and total net square footage for each program category. See plan, page 33.

  It should be emphasized that even if the number and size of an instructional space is adequate, the design may still not be acceptable. An example is a classroom without natural light, which may be of adequate size but would be considered unacceptable by today's standards of education. Location of the space, adjacencies to other spaces, configuration, environmental factors like daylight and acoustics, and equipment all must be considered in determining whether an instructional space is adequate.

  ▪ *Adequate Programmatic Spaces*: Ten instructional programs and support areas are of adequate number and size:

Instructional Space	**Adjusted Educational Specification** (no. of spaces / total nsf)	**KCMS** [20]
Classrooms	20 / 16,000	20 / 16,780
Art	Suite / 1,650	Suite / 1,520
Physical Education:		
Gym	1 / 6,460	1 / 7,800
Activity Room (Aux. Gym)	1 / 1,500	1 / 1,920 [21]
Showers/Toilets	2 / 1,800	2 / 2,560

[20] Measured from plan

[21] Drama Room

Music:		
Instrumental Classroom	1 / 1,500	1/ 1,330
Vocal/General Classroom	1 / 1,500	1 / 1,330
Administration	Suite / 1,700	Suite / 1,580
Health	Suite / 580	Suite / 670
Guidance	Suite / 820	Suite / 670
Social Workers	4 / 490	1 / 770
Instructional Support	Suite / 2,080	4 / 2,310
Library/Media Center	Suite / 3,690	2 / 5,040

- *Inadequate Programmatic Spaces*: Five program areas are inadequate: there are too few spaces to support the program, the space is too small, or both. Two of these – science and technology education – are specific to the middle school program in the state of Maryland. Collaborative learning reflects the contemporary emphasis on the value of project-based, student-led learning.

Instructional Space	**Adjusted Educational Specification** (no. of spaces / total nsf)	**KCMS**
Special Education & Resource	8 / 3,500	3 / 2,420 [22]
Science:		
General Science	3 / 4,200	2 / 1,880
Storage/Prep	2 / 500	0 / 0
Chemical Storage	1 / 100	0 / 0
Music:		
Instrumental Storage/Library	1 / 700	0 / 0
General Storage/Library	1 / 400	0 / 0
Practice Rooms	2 / 300	0 / 0
Technology Education	Suite / 2,000	0 / 0 [23]
Collaborative Learning	Suite / 1,660	0 / 0

- *Qualitative deficiencies*:
  - Instructional Spaces:
    - General Classrooms:

      Seven have no natural light

      Three are only accessible through the Media Center, another classroom, or the outdoors

      No possibility for team groupings

      Absence of project and collaborative spaces
    - Special Education Spaces:

      None have natural light

      No special education spaces on 2nd floor (6th grade suite)
    - Science: One classroom has no natural light
    - Library/Media Center:

[22] Includes in-school suspension (ISS)

[23] A space labelled “Technology Office” in plan is for technology support, not technology instruction

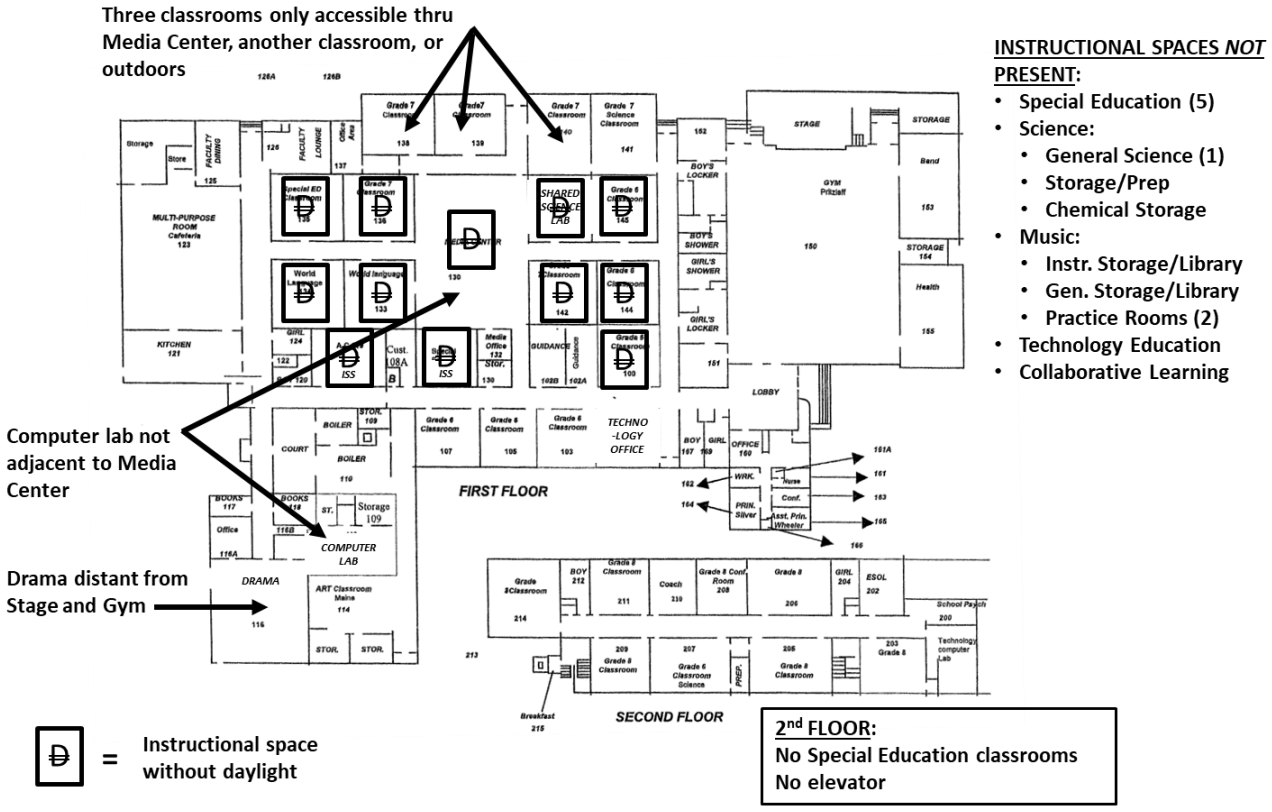
No natural light

Computer lab is not adjacent to main work area

- Resource Rooms: Not distributed throughout school
- Drama: Not located near stage or physical education facilities

– Building Support Spaces: Inadequate number and distribution

– Server Rooms: Inadequate number and distribution



Kent County Middle School: Programmatic Inadequacies

Note: Information on the current use of spaces was provided by the school administration, autumn 2017

Recommended Middle School Planning Process

The Committee recommends development of a middle school educational specification by a qualified committee appointed by the Superintendent and approved by the Board of Education. The educational specification process should be followed by a feasibility study to determine the best options to implement the educational program. As there is a moderate level of urgency to replace the roof and correct any underlying structural problems that cause persistent roof leaks, the middle school planning process should begin soon with establishment of the Educational Specification committee.

The Educational Specification

The educational specifications will identify the educational programming Kent County Public Schools should offer to its middle school students to prepare them for entry into high school. While the middle school program will be tailored to the unique requirements of Kent County, a student

graduating from the middle school program should have an educational competency equivalent to that of students from other systems in Maryland.

The educational specification will:

- Describe the general philosophy for middle school education adopted by the Board of Education to meet the expectations of the community, and define how this educational philosophy relates to the elementary and the high school programs;
- Outline the goals for the instructional program as a whole, and the goals for individual components of the instructional program;
- Describe the number and type of instructional spaces needed for the middle school, including the furniture, furnishings and equipment needed in each space;
- Describe the adjacencies of spaces within the building and in relation to outdoor facilities;
- Describe the performance characteristics of the buildings systems, equipment and finishes that will be used.

The Feasibility Study

Once the educational specification is approved, a feasibility study should be budgeted and initiated to explore a range of options for capital and programmatic changes to put the educational program into effect. The feasibility study will allow the Board of Education to determine the best facility option to support the approved educational program. The feasibility study is best carried out by a third-party team consisting of architects, engineers, cost estimators, and other professionals, working closely with a committee of educators, administrators, and community members.

The feasibility study will:

- Describe the general condition of the building and site, noting deviations from the educational specification, from building, fire, energy, and other codes, and from good educational planning practice;
- Present a range of options in graphic and written form, outlining the advantages and disadvantages of each option, including how they align with or deviate from the educational specification;
- Provide the first-cost and life-cycle costs of each option, and a recommendation as to the optimal choices.

The feasibility study is estimated to cost in the range of $75,000 to $125,000, depending on the scope.

Renovation vs. Relocation

The major decision will likely be whether to retain and renovate the existing facility, or to relocate the middle school to another site.

Broad options that may be considered through the feasibility study include:

- Improve the existing Kent County Middle School:

  Option 1: Minor upgrades to replace or upgrade the building systems and correct the most salient educational deficiencies. This approach will not bring the school to the space requirements of the educational specification.

  Option 2A: Limited renovation project (LRP), without addition, to bring the school up to contemporary standards of building performance and educational suitability without meeting the full requirements of the educational specification. A limited renovation is a State-defined project category that involves the replacement or upgrade of a minimum of five major building systems and

widespread educational and architectural enhancements. Under the LRP, not all spaces in the existing building will be renovated.

Option 2B: Limited renovation, with addition. The addition will allow the school to meet all the program requirements of the educational specification. Under the LRP, not all spaces in the existing building will be renovated.

Option 3A: Full renovation, without addition. The existing building will be in like-new condition, but not all of the requirements of the educational specification will be met.

Option 3B: Full renovation, with addition. The existing building will be in like-new condition and all of requirements of the educational specification will be met.

- Relocate the Kent County Middle School program to a new facility or location. The most likely location for a new middle school would be the Worton campus as it offers a number of transportation and operational efficiencies. If student enrollments increase in Chestertown, an expanded or new elementary school may be necessary and may include the middle school campus. The co-location may also allow synergies to be developed among the educational programs of the secondary schools, for example:

  - Enhancement of the music program by allowing middle school students to participate in the school band or other fine arts programming;
  - 9th grade exposure to the Career and Technology Education (CTE) programs at the high school, allowing younger students to understand the options available in their high school careers;
  - Early placement of advanced middle school students into appropriate high school courses.

  Option 4: Co-locate the middle school within the Kent County High School. Separation between the educational programs and school administration of the middle and the high school programs would be maintained; however, reductions in capital costs could be achieved through joint use of major programmatic elements. High-bay/long-span spaces are the most expensive to build, and the greatest economies will be achieved if the existing spaces at the high school facility can be used jointly by the high school and the middle school students (with appropriate scheduling and other arrangements to ensure the safety of students).

  Two options for co-location studied to date are:

  - Allow joint use of the main gymnasium, auditorium, music rooms, and planetarium.
  - Allow joint use of the main gymnasium and the cafeteria.

  Under either of these options, the middle school would have its own auxiliary gymnasium, physical education classrooms, and locker rooms, and all other programmatic elements would be separate.

  Option 5: Construct a new middle school. This approach would allow the full requirements of the educational specification to be met. It could also enhance synergies with the community center, for example through after-school programs for the middle school students.

  If the middle school is relocated to the Worton campus, a decision about the final disposition of the former middle school facility in Chestertown will be required. Options that may be considered include:

  - Retain the facility for Board of Education non-instructional purposes, if there is a need.

- Retain and renovate the facility to become the new H. H. Garnet Elementary School, if enrollment and programmatic conditions are warranted and the relocation is supported by the community. Under this scenario, a decision with respect to the current H. H. Garnet Elementary School facility, including the possibility of developing it as a revenue source through a public-private partnership arrangement, will need to be considered by the Board of Education.
- Surplus the facility to the County Government.

Tentative Schedule:

Start Educational Specification process:	Autumn 2018
Start Feasibility Study process:	2019
Start Construction:	TBD, depending on the options selected
Completion:	TBD, depending on the options selected

B. ***Kent County High School: Programmatic Renovations.*** The recommendation is to undertake a programmatic assessment to examine renovations of specific spaces that will enhance the educational programs. The scope of renovations, their timing, their costs and the funding sources for the renovations will be determined through the study.

Based on a preliminary assessment, the following possible changes have been identified. Other options will likely emerge through the feasibility study process.

- Relocation of the weight room from the Career and Technology Education (CTE) wing to an auxiliary gym or another space near the main gymnasium. With this relocation, all physical education functions will be in a specific and common portion of the building.
- Relocation of the maintenance offices from the CTE wing to another facility (e.g. the renovated former Worton Elementary building, see above). The enclosed exterior vehicular area would also be relocated.
- Relocation of the Culinary Arts suite to the former weight room, and relocation of the Health Occupations suite to the former maintenance office space. With these changes, all CTE functions will be co-located, improving coordination among the CTE programs.
- Install a security vestibule at the main entrance to the school.

Tentative Schedule:

Start internal discussion on options by Superintendent and staff:	First half 2020
Start program assessment process:	Summer 2020
Start Construction:	TBD
Completion:	TBD

C. ***ADA Audit of All Schools.*** The recommendation is to undertake an accessibility audit of all five schools to determine the scope of work, the cost, and the priority of projects needed to ensure that the schools comply with the Americans with Disabilities Act (ADA) of 1990.

It should be noted that most of the public school facilities in Maryland predate the passage of ADA in 1990 and therefore have multiple accessibility deficiencies. With facilities that have not been built new or substantially renovated since 1976, the cost to correct all deficiencies in Kent County is likely to be very large, and therefore the audit will provide the information needed to define scopes of work and prioritize projects to address the most pressing conditions.

Tentative Schedule:

Define scope of the study:	First half 2021

Start accessibility audit:	Summer 2021
Define prioritized capital projects:	Autumn 2021
Start Construction	TBD
Completion:	TBD

IMPACT OF THE STRATEGIC PLANNING RECOMMENDATIONS

With completion of the recommendations in this report:

- ***All Schools***: Will have secure entrances and will have a plan to improve ADA accessibility.
- ***Elementary Schools***:
    - All of the elementary schools will have secure roofs to protect their interiors from water damage (the roof at H. H. Garnet Elementary School was replaced in 2015).
    - Galena Elementary School will have a new mechanical system as well as selective upgrades that will enhance the operation of the school and improve the learning environment.
- ***Kent County Middle School***: A process will be underway to determine the optimal approach to improving the middle school educational environment.
- ***Kent County High School***: A process will be defined to determine programmatic renovations that will improve the educational environment. If alternative funds can be found for the QZAB program, selective improvements will have been carried out.
- ***Board of Education Offices***. Centralization of Board of Education functions in a re-purposed Worton Elementary School building will result in operational efficiencies and improved coordination among functions. Leasing of some areas of the facility for other purposes will be considered, among other potential uses.
- ***Operational Efficiency***. The total square footage of the building inventory will have been reduced by 67,704 sf, resulting in potential annual operating savings in excess of $99,000.

***FUTURE CONSIDERATIONS*:** Below is a summary of the possible future projects that are mentioned in the list of projects outlined above. These projects will further improve the school system, if and when they are justified by enrollment demands, educational programs, or community preferences:

- ***Rock Hall Elementary***: Completion of a building assessment to determine the condition of building systems and the optimal scope of upgrades or replacements that are needed.
- ***Galena Elementary***:
    - Renovation of former high school locker rooms and shop area to provide instructional or other spaces.
    - Replacement or upgrade of additional building systems, as current systems age and conditions warrant.
    - Addition to cafeteria to support additional student enrollment and return one former classroom to instructional use.
    - Addition for two additional classrooms, if warranted by school enrollments.
- ***H. H. Garnet Elementary***: Feasibility study to determine the best option for the school if the current Kent County Middle School remains at its current location. At a minimum, there are deficiencies that will need to be corrected, for example the absence of an elevator to the second floor. A range of renovation or renovation with addition options should be considered.

FUNDING SCHEDULE

The anticipated funding obligations of the State and County Government for the recommended projects are shown in the following chart. These projects will be funded through the State Capital Improvement Program (CIP). The small amount of State Aging School Program funds allocated to Kent County Public Schools should be reserved for specific building system upgrades at other schools. The anticipated funding levels may vary greatly depending on the final approved scopes of the projects and their schedules.

STRATEGIC PLAN RECOMMENDATIONS: FUNDING SCHEDULE							
	Total	**FY18**	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**
TOTAL	**$14,250,000**	**$25,000**	**$385,000**	**$3,702,000**	**$5,508,000**	**$4,630,000**	**TBD**
State	**$5,930,000**	-	-	$1,493,000	$2,490,000	$1,947,000	TBD
Local	**$8,320,000**	$25,000	$385,000	$2,209,000	$3,018,000	$2,683,000	TBD

IV. CONCLUSION

The Strategic Planning Committee understands that carrying out this program of capital improvements will depend on the availability of both State and County funding. Funding constraints could affect the scope of projects, the timing of their execution, or even their inclusion in the list.

With that caution well in mind, the Committee believes that the proposed list of improvements will help to stabilize the existing school buildings and improve their security, while allowing time to determine the best option for the middle school and the high school based on the projected enrollments and the educational programs that are required. The long-term planning process outlined in this report is more than a facility plan alone: it is also a recommended strategy for the Kent County Public Schools community to consider the purpose and future of public education in Kent County.

APPENDICES

1. ***STRATEGIC PLANNING PROCESS: SCHEDULE OF EVENTS***
2. ***STUDENT ENROLLMENT PROJECTIONS***
3. ***ESTIMATED PROJECT COSTS***
4. ***GALENA ELEMENTARY SCHOOL MECHANICAL SYSTEM***
5. ***SMALL KENT COUNTY HIGH SCHOOL PROJECTS (QUALIFIED ZONE ACADEMY BOND - QZAB)***

1. STRATEGIC PLANNING PROCESS: SCHEDULE OF EVENTS

August 14, 2017	Board of Education approves Strategic Planning Committee membership
August 17, 2017	Strategic Planning Committee Introductory Meeting (Meeting No. 1)
September 14, 2017	Strategic Planning Committee Planning Meeting (Meeting No. 2)
September 25, 2017	Central County Community Engagement Meeting: Kent County High School
September 27, 2017	Northern County Community Engagement Meeting: Galena Elementary School
September 28, 2017	Southern County Community Engagement Meeting: Rock Hall Elementary School
September 29, 2017	Strategic Planning Committee Meeting: Recap of community engagement meetings (Meeting No. 3)
October 26, 2017	Strategic Planning Committee Meeting: Discussion of preliminary options (Meeting No. 4)
November 9, 2017	Strategic Planning Committee Meeting: Discussion of options and process (Meeting No. 5)
November 13, 2017	Board of Education Working Session
November 27, 2017	Strategic Planning Committee Meeting: Review of options and process (Meeting No. 6)
January 10, 2018	Countywide Community Engagement Meeting: Presentation and discussion of options
January 17, 2018	Strategic Planning Committee Meeting: Final Recommendations (Meeting No. 7)
February 12, 2018	Board of Education Meeting: Presentation of recommendations

2. STUDENT ENROLLMENT PROJECTIONS

Maryland Department of Planning Enrollment Projection Methodology

The Maryland Department of Planning (MDP) projection methodology uses historical data to relate the number of births in a given year to subsequent kindergarten enrollment five years later. These ratios reflect both the number of births and the net in-migration and emigration of children of pre-school age.

A variety of historical grade succession ratios (GSR; also called cohort survival ratios, CSR) are developed to show the relationship between one year's enrollment in a particular grade and the previous year's enrollment in the preceding grade. These grade succession ratios cover different periods of time and methods, such as the most recent year ratio and the average of the last 3, 5 or 10-year ratios.

The MDP grade succession ratios reflect the effects of five factors that determine the number of students in the subsequent grades: mortality, net in-migration and emigration of school age children, transfer of children between public and private schools, non-promotion of children to the next grade level, and dropouts in the later years of secondary school. Barring unusual circumstances that may cause rapid increase or decrease in enrollments, the GSRs reflect the cumulative effect of these factors. If any of the factors have changed in recent years, this will affect the historic grade succession ratio. Therefore the selection of which average grade succession ratio to use has a significant effect on the projection of future enrollment. MDP makes its selection of the appropriate GSRs based on past history and on anticipated trends in school age population, live birth projections, and both public and non-public school enrollment.

In recent years MDP has included within its projections a factor to account for legislation passed by the Maryland General Assembly, which was signed into law as Chapter 494 of the Act of 2012. This law increases the age for compulsory school attendance to 17 in school year 2015-2016 and then to 18 in school year 2017-2018. By affecting the number of students who are anticipated to remain in high school, these changes increased MDP's projected ten year enrollments for grades 9-12.

The enrollment projections for school years 2017 through 2026 developed by MDP are for the entire County School system on a grade-by-grade basis, rather than an individual school basis. MDP's projections for Kent County are shown in Table IV-7. The MDP projections do not include pre-kindergarten students.

Local Enrollment Projection Methodology

Using the MDP countywide projections for the coming year, the total projected elementary population is distributed among all the elementary schools based on historical percentages. Historical grade succession ratios are then used to project the enrollment of each grade level in each school. Three cautions are warranted in the assessment of future enrollments:

1. It is useful to compare the total enrollments for each grade level to the total for that grade level projected by MDP. Consistent discrepancies of more than 5 percent suggest either that adjustments should be made in the succession ratio, or that the variance must be explained by external factors that are unique to the enrollment trend of a specific school or school system. Examples would include a rapid increase in subdivision construction after a long pause, or implementation of a change in grade structure such as full day prekindergarten. However, in a small school system such as Kent County Public Schools, variances in a single year that may be larger than 5% will in reality reflect only a few students. For example, in 2019 the KCPS projection indicates there will be 151 students in 2nd grade, while the MDP projection calls for 140. This is a difference of 7.8 percent, but it reflects a difference of only ten (10) students across the entire school system.
2. Beyond the current year, the MDP projections are rounded to the nearest ten. This reflects a realistic uncertainty about the future; in effect, the numbers represent trends rather than precise predictions as to the number of students in each grade level. Rounding also helps to explain disparities at the individual grade level between the KCPS and the MDP figures.

Grades	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Kindergarten	138	140	150	140	130	130	130	140	150	160	170
Elementary Special	0	0	0	0	0	0	0	0	0	0	0
Other Ungraded	0	0	0	0	0	0	0	0	0	0	0
1	160	140	140	150	140	130	130	130	140	150	160
2	141	160	150	140	150	140	130	140	140	140	150
3	152	140	160	140	140	150	130	130	130	130	140
4	126	140	140	150	140	140	150	130	130	130	130
5	163	120	140	130	150	140	130	140	130	130	130
6	137	160	120	140	130	150	140	130	140	130	130
7	151	140	160	120	140	130	150	140	130	140	130
8	150	160	140	160	120	140	140	150	140	130	150
9	139	150	170	150	170	130	150	140	160	150	140
10	154	140	140	150	140	160	120	140	130	150	140
11	147	150	140	150	160	150	170	130	150	140	160
12	133	140	140	130	130	140	130	150	110	130	130
Secondary Special	0	0	0	0	0	0	0	0	0	0	0
Other Secondary Ungraded	0	0	0	0	0	0	0	0	0	0	0
Elementary Ungraded + (K-5)	880	840	880	850	850	830	800	810	820	840	880
(6-8)	438	460	420	420	390	420	430	420	410	400	410
(9-12)	573	580	590	580	600	580	570	560	550	570	570
(6-12) + Secondary Ungraded	1,011	1,040	1,010	1,000	990	1,000	1,000	980	960	970	980
Total School Enrollment	**1,891**	**1,880**	**1,890**	**1,850**	**1,840**	**1,830**	**1,800**	**1,790**	**1,780**	**1,810**	**1,860**

3. Inherently, enrollment projections become progressively less reliable for every future year out. This happens not only because there is uncertainty about the future events that may affect the enrollments (such as the initiation of a long-delayed housing project), but also because of the cumulative effect of the method: even a small difference in the calculated GSR can progressively lead to substantial differences in the out-year enrollment numbers.

Other Considerations:

- *Out-of-Zone Students:* Transfer requests that are approved each year also impact the projected enrollments at individual schools. These are described in Part I - Goals, Standards, Policies and Guidelines of the 2017 EFMP. The enrollment projections prepared and presented by MDP are based upon the actual number of students in the school system, which includes the approved transfers. The trends associated with the transfer students cannot be isolated in preparing the enrollment projections. The methodology for calculating the enrollment in each grade assumes that the number of transfer students at each school will remain reasonably constant from year to year.
- *Alternative education* students who attend the KAP for a portion of the school year are counted in the enrollment of their home school.

Enrollment Projections for the Strategic Plan: Methodology and Conclusions

- Information sources:
  - Enrollment history was collected from official reports by KCPS to the State of Maryland.
  - Birth data was collected from the Maryland Vital Statistics Administration.
  - Housing data was collected from all jurisdictions with land use authority served by KCPS and the Maryland Department of Planning.
- Forecast Model
  - Enrollment was projected by observing grade change trends for the same annual birth group or cohort of students as they progressed from birth to kindergarten to the next grade.
  - Selected trends were applied for future years.
    - *2018-2019 Enrollments*: Projections for 2018-2019 are based on the September 29, 2017 actual enrollments.
    - *Pre-kindergarten:* PK enrollments for 2018 through 2022 and 2027 are based on the 2017 enrollments for each school.
    - *Kindergarten*: The total kindergarten enrollment for 2018 to 2022 and 2027 is based on the March 2017 birth-to-K (BTK) ratios calculated by MDP. The total is distributed among the schools based on each school's 2016 share of the K population.
    - *1st Grade*: Grade succession ratios between kindergarten and 1st grade are not used because of the uncertainties involved in knowing whether children will continue at the same school, attend private school, be home-schooled, or follow other parental options.
  - Census records indicate a low migration change for Kent County, MD. Any slight migration is captured in the grade change trends.
- Residential development was accounted for in the projection.
  - Existing housing is assumed to produce the above referenced forecast model.

- The likelihood of new housing reversing population and enrollment trends is very low. Future development was forecast from historical housing production using linear regression. Development beyond 2025 is simply an average.
- Local and comparable pupil generation rates (the housing "yield" factors) were observed, and rates were chosen for future development.
- The Dixon Square development was added to the forecast. Since multi-family housing is uncommon in the region, single family pupil generation rates were applied to this development.
- Development was added to the projection of each appropriate school by grade and by year.

KENT COUNTY PUBLIC SCHOOLS
ENROLLMENT PROJECTIONS, 2017-2018 TO 2027-2028 SCHOOL YEAR

GALENA ELEMENTARY SCHOOL									
SCHOOL YEAR ENDING	GRADE PreK	GRADE K	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	TOTAL W/PreK	TOTAL K-5
2018	54	43	54	49	55	47	49	351	297
2019	54	56	44	49	55	52	54	365	311
2020	54	48	56	44	49	54	51	357	303
2021	54	48	48	56	44	48	54	352	298
2022	54	52	49	48	56	43	47	350	296
2023	54	52	54	49	48	55	42	354	300
2024	54	52	54	53	48	47	54	362	308
2025	54	52	54	53	53	47	46	360	306
2026	54	52	53	52	52	51	45	360	306
2027	54	52	53	52	52	51	50	364	310
2028	54	52	53	52	52	51	50	364	310

H. H. GARNET ELEMENTARY SCHOOL									
SCHOOL YEAR ENDING	GRADE PreK	GRADE K	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	TOTAL W/PreK	TOTAL K-5
2018	44	45	50	53	55	68	36	351	307
2019	44	57	45	50	56	53	54	358	314
2020	44	48	57	45	50	55	52	353	309
2021	44	49	50	58	46	50	55	351	307
2022	44	53	51	50	58	46	50	353	309
2023	44	53	57	52	52	59	46	364	320
2024	44	53	59	58	54	52	59	379	335
2025	44	53	60	60	59	54	53	383	339
2026	44	53	60	60	59	58	53	388	344
2027	44	53	60	60	59	58	57	392	348
2028	44	53	60	60	59	58	57	392	348

ROCK HALL ELEMENTARY SCHOOL									
SCHOOL YEAR ENDING	GRADE PreK	GRADE K	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	TOTAL W/PreK	TOTAL K-5
2018	31	33	31	49	35	34	45	258	227
2019	31	41	33	36	41	38	40	260	229
2020	31	35	42	33	36	40	38	255	224
2021	31	35	36	42	33	36	40	252	221
2022	31	39	36	36	42	32	35	250	219
2023	31	39	40	36	36	41	32	254	223
2024	31	39	40	40	36	35	40	261	230
2025	31	39	40	40	40	35	34	259	228
2026	31	39	39	39	39	38	34	258	227
2027	31	39	39	39	39	38	37	261	230
2028	31	39	39	39	39	38	37	261	230

TOTAL, ELEMENTARY SCHOOL ENROLLMENTS									
SCHOOL YEAR ENDING	GRADE PreK	GRADE K	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	TOTAL W/PreK	TOTAL K-5
2018	129	121	135	151	145	149	130	960	831
2019	129	154	122	135	151	143	148	983	854
2020	129	131	155	122	135	149	142	964	835
2021	129	132	134	155	123	133	148	955	826
2022	129	144	137	134	156	121	132	953	824
2023	129	144	151	137	135	155	120	971	842
2024	129	144	153	151	138	134	154	1002	873
2025	129	144	155	153	152	136	133	1002	873
2026	129	144	153	151	150	146	132	1006	877
2027	129	144	153	151	150	146	144	1018	889
2028	129	144	153	151	150	146	144	1018	889

KENT COUNTY MIDDLE SCHOOL				
SCHOOL YEAR ENDING	GRADE 6	GRADE 7	GRADE 8	TOTAL
2018	162	140	147	449
2019	131	166	141	437
2020	148	135	142	425
2021	142	153	144	439
2022	149	147	145	441
2023	133	154	148	435
2024	121	138	149	408
2025	154	125	151	431
2026	126	151	146	423
2027	126	128	146	400
2028	138	129	146	413

KENT COUNTY HIGH SCHOOL					
SCHOOL YEAR ENDING	GRADE 9	GRADE 10	GRADE 11	GRADE 12	TOTAL
2018	164	135	134	154	587
2019	156	165	135	126	582
2020	149	157	165	127	597
2021	176	150	157	157	639
2022	144	177	150	149	620
2023	163	146	177	143	629
2024	157	164	146	169	637
2025	164	158	164	138	624
2026	141	158	151	149	598
2027	126	140	156	141	563
2028	158	125	138	146	567

TOTAL, ALL SCHOOLS		
SCHOOL YEAR ENDING	TOTAL W/PreK	TOTAL K-12
2018	1,996	1,867
2019	2,002	1,873
2020	1,987	1,858
2021	2,033	1,904
2022	2,014	1,885
2023	2,035	1,906
2024	2,047	1,918
2025	2,057	1,928
2026	2,026	1,897
2027	1,981	1,852
2028	1,998	1,869

3. ESTIMATED PROJECT COSTS

The sections below provide data on the project estimates that were developed for this report.

State Funding Participation

For eligible projects, State funding is applied only to construction costs, not to project development costs ("soft costs") or to ineligible items. Ineligible items are generally those that are not permanently attached to the school building and might be used at another facility, e.g. furniture, computers, movable shelving, etc.

In the annual Capital Improvement Program (CIP), major projects include new schools, replacement schools, full renovations, and large additions. For major projects, State funding participation is based on the projected seven-year enrollment, a per-student square footage allocation according to school type (elementary, middle, high, special, etc.), the annually adjusted IAC construction cost ($/s.f.), and the State-local cost share percentage. The cost includes an allocation for sitework (19% of construction for new construction, 5% for renovation) and a construction contingency (2.5% of the combined cost of construction and sitework). For renovations, the State share of work funded within the previous 15 years is generally deducted from the total allocation.

Small projects consist of systemic renovations of individual building systems, partial renovations, and small additions. For small projects, State funding participation is based on the estimated cost of the project (sometimes with a not-to-exceed square footage or cost limitation) and the State-local cost share percentage. This same method is also used to calculate the State funding participation for limited renovations, which can be major in scope and cost. All of the Tier 1 projects fall into this category of cost estimates.

See the Public School Construction Program Administrative Procedures Guide, Section 102.6 "State Maximum Construction Allocation" for detailed information on the calculation of State funding participation.

County Funding Participation

For projects in the CIP, the local funding match is based on a percentage of eligible costs calculated from a number of factors (see COMAR 23.03.02.05). For Kent County Public Schools, the local match is 50% of the eligible project costs. In addition, the locality is responsible for all project development costs as well as the cost of items that are ineligible.

A. *Former Worton Elementary School Minor Renovations*

Note: The budget figure below is a not-to-exceed value. The minimum scope of work will be carried out that is needed to make the former elementary school functional for Board of Education purposes.

Schedule:

Anticipated bid date:	June 2018
Mid-point of construction:	July 2018
Completion / Occupancy Date:	Early Autumn 2018

Cost Estimate:

Basis of cost estimate:	Not-to-exceed budgeted amount
Size:	28,178 sf
Unit cost:	N/A
Estimated construction cost:	$243,000
Construction contingency:	5%
Estimated total with contingency:	$255,000
Escalation from July 2018 @ 4%/yr:	N/A
Estimated total construction cost w/ escalation:	$255,000
Project development costs @ 15% of project total:	$45,000

Total not-to-exceed budgeted project cost:	**$300,000**
Estimated State funding participation:	$0
Estimated not-to-exceed local funding participation:	$300,000

Variable elements that may affect the estimate:

Construction contingency: Since work will be largely cosmetic and minor, contingency may not be needed.

Project development costs: May be kept to a minimum if design is carried out in-house.

B. ***Rock Hall Elementary School Roof Replacement and Targeted Renovations***

Schedule:

Anticipated bid date:	April 2019
Mid-point of construction:	August 2019
Completion / Occupancy Date:	Autumn 2019

Cost Estimate, Roof:

Basis of cost estimate:	Unit cost
Size of roof:	54,521 sf
Unit cost:	$19.00/sf
Estimated construction cost:	$1,036,000
Construction contingency:	5%
Estimated total with contingency:	$1,088,000
Escalation from July 2018 @ 4%/yr:	1 year: 4%
Estimated total construction cost w/ escalation:	$1,132,000
Project development costs @ 15% of project total:	$200,000
Estimated total project cost:	**$1,332,000**
Estimated State funding participation (FY 2020):	$566,000
Estimated local funding participation:	$766,000

Cost Estimate, Targeted Renovations:

Basis of cost estimate:	Unit cost
Size of renovation area (approximate; includes 10% for work outside program areas)	5,020 sf
Unit cost:	$300/sf
Estimated construction cost:	$1,506,000
Sitework:	5%
Construction contingency:	5%
Estimated total with contingency:	$1,661,000
Escalation from July 2018 @ 4%/yr:	1 year: 4%
Estimated total construction cost w/ escalation:	$1,727,000
Project development costs @ 15% of project total:	$305,000
Estimated total project cost:	**$2,032,000**
Estimated State funding participation (FY 2020):	$864,000
Estimated local funding participation:	$1,168,000

Variable elements that may affect the estimate:

Unit cost: Roofing costs vary significantly by region, by jurisdiction, and by time of bid.

Construction contingency: Latent conditions, particularly the condition of the roofing deck, cannot be known in advance without expensive exploratory investigation.

Project development costs: Will vary based on local A/E capacity and project type.

State funding: Assumes continuation of current practices

C. *Galena Elementary School Roof Replacement with Light Monitors/Skylights, HVAC Replacement (Enhanced Option), with Targeted Renovations*

Schedule:

Anticipated bid date:	Spring 2020
Mid-point of construction:	Autumn 2020
Completion / Occupancy Date:	Late Winter/Early Spring 2021

Cost Estimate:

Basis of cost estimate:	A/E Estimate from Feasibility Study
Size:	58,285 sf
Unit cost:	N/A

Base Scope

Roof Replacement with Monitors/Skylights:		$1,200,000	
Informational cost on skylights and clerestory windows included in above:	$71,000		
HVAC Replacement (Enhanced RTU Replacement Option):		$2,135,000	
Security Vestibule:		$19,000	
Cafeteria Vestibule and Associated Work:		$195,000	
Estimated construction cost:			$3,549,000
Design Contingency:			10%
Sitework:			5%
Construction contingency:			5%
Estimated total with sitework and contingencies:			$4,304,000
Escalation from July 2018 @ 4%/yr:		2 year:	8.2%
Estimated total construction cost w/ escalation:			$4,657,000
Project development costs @ 15% of project total:			$822,000
Estimated total project cost:			**$5,479,000**
Estimated State funding participation (FY 2021):			$2,329,000
Estimated local funding participation:			$3,150,000

Targeted Renovations (Alternates)

1. ADA Ramp, Enclose Staircases	$95,000		
2. Restroom Renovations:	$150,000		
Estimated construction cost (Base + Alternates):			$245,000
Design Contingency:			10%
Sitework:			5%
Construction contingency:			5%
Estimated total with sitework and contingencies:			$297,000
Escalation from July 2018 @ 4%/yr:		2 year:	8.2%
Estimated total construction cost w/ escalation:			$322,000
Project development costs @ 15% of project total:			$57,000
Estimated total project cost:			**$379,000**
Estimated State funding participation (FY 2021):			$161,000
Estimated local funding participation:			$218,000

Variable elements that may affect the estimate:

A/E estimate: Based on experience with similar work in Maryland schools; specifics of work at Galena Elementary School will be discovered during design phase.

Design Contingency: May vary considerably with discovery of latent conditions, user and community inputs, local code requirements, etc.

Sitework: May vary considerably based on location of utilities, other site factors.

Construction contingency: Latent conditions, particularly the condition of the roofing deck and behind-the-wall structural conditions, cannot be known in advance without expensive exploratory investigation.

Project development costs: Will vary based on final scope of work.

State funding: Assumes continuation of current practices

D. ***Kent County High School Roof Replacement***

Schedule:

Anticipated bid date:	April 2021
Mid-point of construction:	September 2021
Completion / Occupancy Date:	December 2021

Cost Estimate:

Basis of cost estimate:	Unit cost
Size of roof (approximate, based on floor plan):	173,500 sf
Unit cost:	$19.00/sf
Estimated construction cost:	$3,296,000
Construction contingency:	5%
Estimated total with contingency:	$3,461,000
Escalation from July 2018 @ 4%/yr:	3 year: 13.6%
Estimated total construction cost w/ escalation:	$3,893,000
Project development costs @ 15% of project total:	$687,000
Estimated total project cost:	**$4,580,000**
Estimated State funding participation (FY 2022):	$1,947,000
Estimated local funding participation:	$2,633,000

Variable elements that may affect the estimate:

Unit cost: Roofing costs vary significantly by region, by jurisdiction, and by time of bid.

Construction contingency: Latent conditions, particularly the condition of the roofing deck, cannot be known in advance without expensive exploratory investigation.

Project development costs: Will vary based on local A/E capacity and project type.

State funding: Assumes continuation of current practices

E. Security Vestibules, Four Schools

Schedule:

Anticipated bid date:	April 2019
Mid-point of construction:	August 2019
Completion / Occupancy Date:	October 2019

Cost Estimate, Targeted Renovations:

Basis of cost estimate:	$25,000 budget / installation
Number of installations:	4
Size of renovation area:	TBD, based on specific school conditions
Unit cost:	N/A
Estimated construction cost:	$100,000
Design contingency:	10%
Construction contingency:	10%
Estimated total with contingency:	$121,000

Escalation from July 2018 @ 4%/yr:	1 year:	4%
Estimated total construction cost w/ escalation:		$126,000
Project development costs @ 15% of project total:		$22,000
Estimated total project cost:		**$148,000**
Estimated State funding participation (FY 2020):		$63,000
Estimated local funding participation:		$85,000

Variable elements that may affect the estimate:

Unit cost: The costs may vary by school based on latent conditions and additional required items, for example installation of view windows.

Project development costs: Will vary based on school-specific conditions.

State funding: Assumes continuation of current practices. The per-school amount is very small, and may be better suited for State Aging Schools Program (ASP) funds; however, since the annual ASP allocation for Kent County Public Schools is only around $38,000, this approach could delay the installation of the vestibules.

4. GALENA ELEMENTARY SCHOOL MECHANICAL SYSTEM

Enhanced Mechanical System: General Description of System

The enhanced mechanical system will replace the rooftop units (RTUs) with units similar to those already in place. All electrical work that is needed to support the new HVAC equipment will be installed. Electrical work will also include rebuilding of the inoperable main switch gear, which represents a significant code violation and presents a safety concern of high priority, as electrical power to the school cannot be shut down in the event of an emergency.

In addition, this option will:

- Add cooling to the gymnasium, requiring the installation of a single zone VAV unit with energy recovery wheel, direct expansion cooling, variable speed supply and exhaust fans, hot water coil, freeze protection pumps, and controls.
- Replace all of the 19-year old VAV (variable air volume) boxes with new VAV boxes, new hot water coils, and new controls.
- Incorporate variable speed pumping into the secondary pumps at the boilers. This would require installing inverter duty motors, variable speed drives, and a differential pressure sensor to control the drive. This feature would sense the rise in pressure in the heating water mains and slow down the secondary pump to reduce operating costs, prolong the life of the pump motor, and improve overall temperature control.
- Incorporate “pressure independent control valves” on all equipment that utilizes hot water. Since the majority of the hot water equipment is associated with the rooftop units and VAV boxes, the control valves will allow proper modulation, even at part load. The current technology for “pressure independent” control valves maintain water flow to each hot water coil regardless of fluctuations in the differential pressure in the hot water mains.

5. SMALL KENT COUNTY HIGH SCHOOL PROJECTS (QUALIFIED ZONE ACADEMY BOND - QZAB)

Three small projects will be undertaken at Kent County High School, pending identification of a funding source. These projects were originally proposed to be funded under the State Qualified Zone Academy Bond (QZAB) program. QZAB projects are largely funded by the State of Maryland. The program has been supported by federal legislation that allows the bond holder to claim an income tax credit. In Maryland, the State has issued the bonds based on an appropriation authority granted by the legislature. The annual funding, generally in the approximate amount of $4.5 million, was split into an allocation to school systems that qualify for MSDE Breakthrough Center projects, and an allocation distributed on a competitive basis. Projects were only eligible in schools that had a minimum 35% Free and Reduced Price Meal (FARMS) student population, and the federal legislation required a private entity contribution in the amount of 10% of the construction value of the project; this contribution could be in the form of an enhancement to the project, a cash or material benefit to the school, or an in-kind contribution of community time over a period of not more than 14 years.

As of this writing, the State of Maryland will not support a QZAB program in FY 2019, because the federal tax credit has been terminated under the tax legislation recently enacted by Congress and the President. Pending a decision by the General Assembly and the Governor to fund the program through alternative means, the projects described in this Appendix have been suspended. If the federal QZAB or an alternative State program is reinstated, work on the projects will be renewed. While the information provided below on project scopes will remain valid, the cost estimates will need to be re-examined to account for the impact of any delay that is incurred.

For the small high school projects, costs are based on square foot and component estimates, and on the experience of other school systems that have carried out similar small projects. State funding in this program is provided through reimbursement on completion of the project; therefore, local funds will be needed to meet construction obligations. Depending on the statewide QZAB authorization in any fiscal year, it may be necessary to spread the State allocations across two fiscal years; again, local funds will be needed to carry the projects to completion, with the expectation of reimbursement by the State when funding becomes available. However, this may also affect the schedules for projects B. and C. in the list below.

As with the estimates for the projects recommended by the Strategic Planning Committee, project development costs for the QZAB projects are calculated at 15% of the total project cost.

A. ***Concession Stand/Stadium Restrooms/Ticket Booth Facility.*** Construct a new facility near the entrance to the stadium, with correction of ADA deficiencies in the stadium access route. This is not intended to be a team room facility.

Size:	1,500 gsf approx.
Start Construction:	TBD
Occupy:	TBD
Estimated Cost:	$680,000 (project)
	$578,000 (construction)
Estimated State funding participation (FY 2019):	$578,000
Estimated local funding participation:	$102,000
Additional 10% private entity contribution:	$58,000

B. ***Planetarium Renovation.*** Replace the projection equipment with state-of-the-art new equipment, and upgrade or replace building systems, furniture, and finishes.

Size:	980 gsf approx..
Start Construction:	TBD
Occupy:	TBD
Estimated Cost:	$979,000 (project)
	$832,000 (construction)

Estimated State funding participation (FY 2020):	$832,000
Estimated local funding participation:	$147,000
Additional 10% private entity contribution:	$83,000

C. ***Running Track and Tennis Court Re-surfacing.*** Replace the deteriorated surface of the stadium running track and the tennis courts, which present safety concerns in their current condition.

Size:	N/A.
Start Construction:	TBD
Occupy:	TBD
Estimated Cost:	$381,000 (project) $324,000 (construction)
Estimated State funding participation (FY 2021):	$324,000
Estimated local funding participation:	$57,000
Additional 10% private entity contribution:	$32,000