Questions sent to the School Board by the BOS in advance of the March 28 Joint Work Session on the Aylor Middle School Request
Submitted to the School Board on March 14 and March 20, 2018

1. Can the School Board provide a cost estimate for replacement of the HVAC system in the current building that includes adding duct work to provide fresh air to each classroom?

   The school board's administrative staff have been provided a professional estimate of $4.5m (mechanical systems only). Due to the type of HVAC system that is currently in the building, (all electric heat and individual units), the building structural and electrical system will need to be modified and updated in order to update the HVAC system. This estimate came from Stottsberg Engineering prepared by John Berg, PE (3/20/2018). This estimate was based on a thorough review of the assessment previously prepared by J.D. Price, AIA (9/18/2017) and the Mid Atlantic Testing and Balancing report prepared by David Forlines, AABC, TBE (3/9/2018). This estimate is based only on the existing facility and does not take into account any additions or factors beyond the scope of previous studies.

2. Can the School Board provide a cost estimate for upgrading the existing electrical system to meet current standards and requirements?

   The two major components relative to electric in commercial/industrial facilities are lighting and power. Contractors treat them as separate items when preparing a bid. Current market labor and materials rates place lighting replacement in the range of $900,000 to $1.1m and power in the range of $1.4m to $1.6m.

3. Can the School Board provide a cost estimate for the renovation and upgrading of the existing plumbing system?

   A rough "estimate" of just plumbing replacement would be in the range of $1.5m to 2.0m. The scope of abatement and demolition could impact this "rough" estimate.

4. What is the School Board's and School Administration's professional (not personal) assessment of the health environment of Aylor Middle School? Please provide documentation to back up your assessment.

   The assumption here is that you are referring to indoor air quality in the question about "health environment". The common practice is first to identify the problem

and then plan to mitigate it by some process or product or both. The concern typically heard in Aylor Middle is mold and asbestos. First step, bring in a third party and conduct tests and have them read by a certified lab. This was done and mold and/or asbestos was not an issue. On February 8, 2018 the County Treasurer requested a copy of the Aylor assessment; it was emailed to the County Finance Director and distributed to the Finance Committee and Board of Supervisors. The testing report from Herman Garcia, Industrial Hygienist, Compliance Directive Solutions (CDS) is in that assessment packet. There was some limited mold under the sink in the teachers' lounge below a slow leaking sink p-trap. This was mitigated, along with some general housekeeping issues, and a clothes dryer vent.

An asbestos air sample test was also conducted by CDS and submitted on 8/21/2017, finding that asbestos levels were below the set limits EPA's 40 CFR 763 AHERA standards.

Indoor Air Quality Report on Aylor Middle School, CDS project number 2017-0071.01, was issued November 14, 2017. This report was done to consider all possible factors related to indoor air quality.

I am not sure what you are looking for as "back up" to the school board's assessment. These are the facts:

A. Complaints are taken seriously and every effort is made to identify what the facts are and validated with the appropriate test or inspection;
B. Common sense tells you that mechanical systems become worn and less efficient with time, particularly 49 years;
C. Common sense also tells you that placing a large number of students in a classroom that is too small by today's standards with a system designed over 50 years ago, outside of today's standards, will lead to higher CO2 levels;
D. Do all of these factors add up to Aylor being labeled a sick building? No.
E. Are there parents and school staff that feel it is a sick building? Yes.
F. Do the same factors exist in other school facilities in the five-year window of the Board of Supervisors' adopted CIP for renovation and additions? Yes.

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5. How many reported, medically documented cases of student illness are you aware of which are directly attributable to spending the school day in Aylor Middle School?

   There are no cases specifically identified by a physician attributing an illness to indoor air quality at Aylor Middle School. Any such conditions would be immediately reported to the Local Office of the Virginia Department of Health, the Frederick County Director of Emergency Services, and the Frederick County Building Official.

6. How many Aylor students are currently on a homebound teaching program for whom you have medically documented evidence that is directly attributable to poor health conditions at Aylor Middle School?

   Frederick County Public Schools does not have any student(s) either currently or previously on homebound that have medical documentation (Physician Authorized by Prescription) stating it was due to carbon dioxide levels or mold at Aylor Middle School or any other division school.

7. How many reported, medically documented cases of faculty or other school staff are you aware of which are directly attributable to spending the school day in Aylor Middle School?

   FCPS does not have access to specific employee medical information from our health carrier that would identify by employee their diagnoses or causes of conditions. There are HIPAA privacy and Title VII/Genetic Information issues that would present concerns with any attempts to seek out details of employee health conditions. At this point in time, there are no work-related accidents or injuries reported for Aylor. This does not mean that there are no health conditions relative to the school's environment; it simply means that employees may be accessing care through their medical coverage rather than through a worker's compensation claim.

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8. Does the professional air quality testing that has been done show evidence that Aylor Middle School is unhealthy and those therein are at a health risk?

   "*Please understand that carbon dioxide is not a pollutant and a health threat at levels found indoors. However, CO2 concentration provide information about room volume, maximum capacity, outside fresh air ventilation, equipment, and occupant acceptance of other indoor contaminants, such as volatile organic compounds off-gassing from furnishings and building materials. Understand that CDS tested for Total VOC and found that readings were within acceptable industry standard levels.*

   Overall, in comparison with other similar situations in schools and office buildings, FREDERICK COUNTY PUBLIC SCHOOLS has been the most aggressive in correcting the issues of CO2 levels." (Herman Garcia, Industrial Hygienist, Compliance Directive Solutions, Inc. 12/30/2017)

9. If a new school or renovation of the existing building is funded it will take several years to complete. What is the plan of the School Board and the School administration to deal with the issues of physical plant, health and safety until the new school or renovations are completed?

   Operation, maintenance, and, life safety at Robert E. Aylor Middle School will be managed in the same professional manner as all other school facilities are. Needed repairs and scheduled maintenance are appropriately budgeted in the division's FY19 operations budget, capital items of $100,000 or more are listed in the FY19 capital budget, and overall major renovation or replacement are planned in the 2018 - 2023 CIP. Immediate measures have been taken as recommended by licensed or certified specialists and engineers in particular disciplines such as IAQ testing, testing and balancing verification of existing HVAC system, mechanical assessment of T&B report and preliminary HVAC systems replacement project scope. Anticipating a three year at best and five year or more possible having to remain in the current facility, the school board has engaged a firm to install a single eight pack classroom unit to be placed in the rear of Aylor to assist in reducing class sizes and relocating classes that are in areas undersized or not originally designed as a classroom.

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10. I have been told that the School Board has spent approximately $1.5 million dollars on Aylor Middle School since 2010. What have been the 5 major expenditures and their approximate cost?

Top 5 Aylor contracted services projects FY2009 - Present		
Fiscal Year Completed	**Description**	**Cost**
FY17	**Replace Chiller**	**$242,185.00**
FY13	**Retrofit Lighting**	**$163,926.00**
FY18	**Upgrade Intercom**	**$60,000.00**
FY17	**Transition between floor and walls. (classrooms)**	**$24,739.23**
FY17	**Repair and protect tile in hallways**	**$21,353.93**
FY17, 18 Additional Contracted Services		
FY17	Bus Canopy repair, soffit installation	$13,945.00
FY17	Asphalt playground crack repair	$14,000.00
FY17	Replace carpet in library	$19,347.29
FY18	Repair quarry tile in girls' locker room	$1,850.00
FY18	Science lab vinyl base	$3,163.81
FY18	TAB testing	$13,707.50
FY18	TAB test engineering	$10,500.00
FY18	Ventilation Electrical Panel Heat Installation	$8,670.00
	Total	$85,183.60
Current Aylor Projects in Progress		
FY18	Install 8 modular units	$300,000.00
Aylor Capital Projects Requested and Awaiting Funding		
	Description	Cost

	Restore Track	$277,449.25
	Ventilate the dishwasher room	$137,500.00
	Renovate restrooms per ADA standards (per pair)	$400,000.00

11. What do you anticipate the cost to be over the next three years to keep Aylor Middle School a safe and healthy school environment?

	Operations	Capital	Supplemental
FY19	$95,000	$300,000	$4.7m
FY20	$105.000	$150,000	
FY21	$115,000	$150,000	

12. What are the reasons for the additional detached modular unit classrooms that are being purchased and located on the existing black top at the rear of the school?

The eight pack of modular classrooms are being leased to be able to relocate classes during the abatement, demolition, installation of a replacement HVAC system, reduce class sizes or relocate classes that are in spaces too small for the curriculum or membership.

13. What are the cost of these modular unit classrooms? Actual per unit, delivery and installation.

$300,000 - permits, delivery and installation.
$137,000 - annual lease

14. How many of these modular unit classrooms are being purchased?

No modular units are being purchased, one eight-pack unit is being leased.

15. Do you feel the School Board and the School Administration has done their due diligences as to renovation vs. new building? Please elaborate on what has been done, such as studies, costing, etc.

A thorough comprehensive study was done and revised as needed over a period of five years from 2013 through today's date. This comprehensive study included a team of architects and engineers who conducted onsite evaluations using professional standards. It also included specialties and supplemental assessments through revisions of the comprehensive study such as: an industrial hygienist and indoor air quality studies, civil engineers and soils scientist who conducted multiple subsurface investigations. Additionally, preliminary schematics have been used to include professional cost estimating from one of the country's premier firms for commercial construction estimating and construction management. This provided the superintendent's administrative staff credible cost estimates, without political bias, to form a recommendation based on information from multiple professional sources. The firms involved included OWPR Architects & Engineers, Inc., Compliance Directives Solutions, Inc., Stottsberg Engineering, Inc., Downey and Scott, LLC., Mid-Atlantic Testing and Balancing, Inc., and ECS Mid-Atlantic, LLC.

16. It has been brought to my attention that the School Board and the School Administration feel that if a new school is funded it must be built on a new piece of property. Please elaborate on the need for a new location and explain why we cannot build on the land we already own?

The question should be is it practical or prudent to build on the same site. There are multiple factors to consider. Let's start with site location and the proximity to Interstate 81, the planned Aylor Road, Stickley Drive and Interstate 81 Exit 307 improvements. The fact that an outdoor air reading has been recorded over 600 ppm of CO2 with a certified instrument at Aylor Middle School should be a factor noted. The site contains 23 acres which is less than the preferred 30 acres. The site is located in the Martinsburg Formation, described as black shale and limestone; sandstone and shale; and sandstone. A perched water table exists and is typically observed by the water pumping through asphalt at various locations on the site. This is compounded by a building pad on grade with watershed toward the building on three sides compounded by 1967-69 building code and construction methods. Putting these factors aside, consider the simple math. The current building has been appraised at a market value of $6.5m and the demolition and abatement of the existing building would exceed $2.0m. The value of the building is at least three times the cost of raw land, and it does not make sense to spend another 2.0m plus to demolish it and stay on a site that is not a premium land. Let alone the significant additional cost of stringing out the

construction of a building on a site that is already too small and stringing out the construction another two years. Not to mention the additional operational costs.

Here are a few facts from a person who has worked as a project manager on major construction projects:

Phasing of construction- On these types of projects, typically results in over stressed workforce and severe drop off in productivity and quality of construction, team leaders leave for other job opportunities, subs change personnel resulting in lost continuity from one phase to the next, materials and suppliers change over a 4-year period, generally, this would not be a recommended course of construction.

Staging- Considerably more land is needed for material lay down, construction trailers, and for workforce parking while the school stays in session and maintains some type of security.

17. If a new school is funded do you anticipate it being a one-story or two-story building?

Two and possibly partial three story depending on the site features and constructability review.

18. What is the School Board and Administration's plans to increase security at Aylor Middle School so as to better protect the faculty, students and staff under the current physical conditions of the building? Please elaborate on the actual physical changes, equipment changes and the additional cost associated therewith.

As a part of the Governor's Security Grant Program, secure buzz-in systems are being installed in all middle schools, including Aylor Middle School. The system is to be installed and operational by the first day of school 2018. The system will have an intercom and camera, and secure electronic access installed at the outside front door and office entrance. The cost is $37,374.66.

19. What is your response to the criticism that the school board and the school administration have not been good caretakers of the Aylor Middle School physical building and have willingly let to fall into disrepair?

Our initial response to any criticism is to listen and process it from a fundamental scientific model. First identify the actual facts, validate accuracy, consider the credibility of the messenger and their motive. Let the validated facts speak for themselves relative to the overall context of the criticism.

The maintenance of Aylor was specifically mentioned in the Condition Assessment Report of Aylor that was completed by OWPR Architects and Engineers. The report was reviewed during the Buildings and Grounds Committee's growth summit in September. The section of that report that discussed the condition of the school's HVAC system stated, "Maintenance has done an excellent job maintaining the systems. Thus, the existing systems have lasted long beyond their expected life". That same statement was included in the section of the report discussing the school's plumbing.

20. If Aylor Middle School could undergo a Class 3 (highest level) renovation with new additions to expand space, meet all new educational requirements of the state and federal guidelines at a cost substantially lower than building a completely new school, would the school board and the school administration jointly put their support behind such a proposal?

The action of the School Board as of February 6, 2018 requested $52 million for a replacement Aylor Middle School. If this funding request is denied by the BOS, the School Board would then evaluate/consider any options that may remain for substantially addressing the facility improvement needs of Robert E. Aylor Middle School.

21. At the joint board meeting, the School Board said that the maintenance costs for Aylor since 2011 were $1.2 million. What were the maintenance costs for Admiral Byrd and James Wood Middle schools for the same time period?

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Location	Labor Hours	Labor Costs	Material Costs	Sales Tax	Contracted Services FY16,17,18 Only	Total Costs	FY 19 Enrollment Projection	Cost Per Student	Sq. Footage	Cost Per Sq. Foot
JAMES WOOD MIDDLE	5296.95	$284,285.50	$303,285.20	$23.64	$4,900.00	$592,494.34	958	$618.47	140,263.00	$4.22
RICHARD E BYRD MIDDLE	6578.13	$354,970.81	$188,081.10	$0.00	$0.00	$543,051.91	988	$549.65	158,702.00	$3.42
ROBERT E AYLOR MIDDLE	7042.41	$377,104.80	$354,553.19	$0.00	$700,623.86	$1,432,281.86	667	$2,147.35	115,005.00	$12.45

And Aylor Middle School is the least energy efficient:

Location	Utility Cost FY11-17	FY 19 Enrollment Projection	Cost Per Student	Sq. Footage	Cost Per Sq. Foot
JAMES WOOD MIDDLE	$1,019,543.34	958	$1,064.24	140,263.00	$7.27
RICHARD E BYRD MIDDLE	$1,141,399.01	988	$1,155.26	158,702.00	$7.19
ROBERT E AYLOR MIDDLE	$922,951.62	667	$1,383.74	115,005.00	$8.03

22. When were each of the three middle schools constructed?

This information can be found in the annual approved School Board Budget found on the division's web page www.frederick.k12.va.us.

- Richard E. Byrd Middle School opened in 2005
- Robert E. Aylor Junior High School opened in 1969 and converted to a Middle School without renovation in 1983
- Frederick County Middle School opened in 2016
- James Wood High School opened in 1950 and converted to a Middle School in 1983. It was given a comprehensive renovation in 2004. James Wood Middle benefited from already existing large windows for daylighting, high ceilings, and a generous crawl space.

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23. In 2007, the School Board included recommendations for a new high school and middle school. Is the current design for a new middle school the same as the design in 2007? If not, what are the specific changes in design?

- 2007-2012 CIP (adopted Oct. 2006): Replacement FCMS, 5th MS, 4th HS
- 2008-2013 CIP (adopted 2007): same projects
- The FCMS design is different from the ABMS design as a result of a community visioning process, applied educational research, in-depth stakeholder meetings, and the advice of numerous educational and architectural experts: designed from the perspective of the student (student centered), supports teaching/learning the 5 Cs, collaborative education spaces, daylighting, warm & welcoming facility, flexible/adaptable facility (at two levels: future reconfiguration of classrooms, every-day reconfiguration of furniture to fit the need in the moment), comfortable furniture that allows movement, media center at the heart of the school
- Results of design changes: reduction in behavior issues

24. What is the cost and time frame at Aylor to replace and bring to current standards the:
    - HVAC system – cost and time frame
      The school board's administrative staff have been provided a professional estimate of $4.5m (mechanical systems only). Due to the type of HVAC system that is currently in the building (all electric heat and individual units) the building's structural and electrical system will need to be modified and updated in order to update the HVAC system. This would have to be fully engineered with contract documents and put out to bid, bid and awarded and scheduled to be done while operating a middle school with a student population of 600 plus student and growing. At best, it would take a year.

    - Plumbing – cost and time frame
      A rough "estimate" of just plumbing replacement would be in the range of $1.5m to 2.0m. The scope of abatement and demolition could impact this "rough" estimate. Doing this as a stand alone project, not part of a comprehensive renovation, would lengthen the time needed and drive the cost up by at least 20% due to constructability limitations. ADA reconfigurations in bathrooms will most likely add $400,000 per pair.

- Electrical – cost and time frame

  The two major components relative to electric in commercial/industrial facilities are lighting and power. Contractors treat them as separate items when preparing a bid. Current market labor and materials rates place lighting replacement in the range of $900,000 to $1.1m and power in the range of $1.4m to $1.6m. Doing this as a stand alone project, not part of a comprehensive renovation, would lengthen the time needed and drive the cost up by at least 20% due to constructability limitations. Add another $150,000 for ventilation of the dishwasher.

25. What are "finishes"? What is the cost to update, repair, or replace all finishes? (This refers to 52% of all finishes regarding justification for replacement).

We are assuming your reference to 52% of the building finishes have exceeded their useful life expectancy. Typically finishes start with wall partitions with sheetrock, acoustical ceilings and sheetrock ceilings, all types of flooring, then painting. These are all that are under a division type cost summary; on our latest cost estimate, these represent about 14.5% of the total construction cost. Additionally, there are more construction divisions such as doors, hardware, equipment etc.; once those are counted, roughly 30% of construction cost.

26. What are "site elements"? What is the cost to update, repair, or replace all site elements? (This refers to 50% of all site elements regarding justification for replacement).

Elements would be all items required on a new site plan approved by Frederick County Public Works that would include the new addition location, VDOT concerns and upgrades, E&S, stormwater management, earthwork, curb and gutter, paving, removal and replacement of all perimeter concrete to allow for new water drainage system away from building if possible, new concrete replacement, landscaping, striping, signage, etc. Site elements is everything related to earthwork, and features outside of the building envelope.

As the current site now exists, it would prove more than difficult to remediate the site; it is approximately 5' to 6.5' below Aylor road, with no way to raise the existing building, to properly install positive drainage with new storm sewer and stormwater BMP; not sure this question can be answered totally.

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27. If all of the above (questions 24-26) are done, does that constitute the total renovation cost of Aylor?

No. It would not fully constitute a level 3 renovation.

28. If Question 27 does not constitute total renovation cost, please provide a cost estimate to only totally renovate Aylor without an addition. (In the spring 2017, I think the figure was between $24-26 million).

Robert E. Aylor Middle School Renovation Project

Land	$0
A & E Fees	$ 2,000,000.00
Legal (Bond Counsel, etc.)	$ 3,000.00
Construction	$ 19,269,160.00
Construction-Related Costs	
Site Testing	$ 45,000.00
Review Fees and Costs	$ 15,000.00
VSMP Permit	$ 1,769.00
Surveying, Plats, and related document	$ 40,000.00
Water & Sewer Availabilities/Connection Fees	$ 50,000
Natural Gas Connection Fees/Charges	$ 100,000.00
Construction Management	$ 450,000.00
Third Party Testing	$ 52,000.00
Contractor Contingency	$ 700,000.00
Owner Contingency	$ 1,800,000.00
Commissioning	$ 65,000.00
Moving/Move-in	$ 50,000.00
Furniture, Fixtures, & Equipment	$ 900,000.00
Technology	$ 900,000.00
Three phase project over 36 months (15%)	$ 2,900,000.00
	$28,640,929.00

29. What is the expected time frame to totally renovate Aylor?

8-12 months to prepare construction documents for bid
36 months from award of bid

30. What is the cost to renovate Aylor and build an addition to Aylor?

Robert E. Aylor Middle School Renovation Project
Land
A & E Fees $ 3,000,000.00
Legal (Bond Counsel, etc.) $ 3,000.00
Construction $ 36,069,160.00
Construction-Related Costs
Site Testing $ 45,000.00
Review Fees and Costs $ 15,000.00
VSMP Permit $ 1,769.00
Surveying and Plats $ 40,000.00
Water & Sewer Availabilities/Connection Fees $ 100,000.00
Natural Gas Connection Fees/Charges $ 100,000.00
Construction Management $ 550,000.00
Third Party Testing $ 52,000.00
Contractor Contingency $ 700,000.00
Owner Contingency $ 1,800,000.00
Commissioning $ 65,000.00
Moving/Move-in $ 50,000.00
Furniture, Fixtures, & Equipment $ 900,000.00
Technology $ 900,000.00
Three phase project over 48 months (15%) $ 5,440,374.00
$ 49,831,303.00

31. What is the purpose for the addition i.e. additional classrooms, science classrooms with labs, math classes, etc.?

Yes, that is part of it along with mitigating instructional deficiencies within the existing facility even after renovation.

32. What is the current student capacity at Aylor?

720 Utilization & Program Capacity

33. If Aylor had a renovation and an addition, what would be the new student capacity?

Our intention is to match capacity at the high school and middle school levels as closely as possible, and to pair up one MS with one HS. Aylor would be the feeder school for Sherando. Sherando's capacity is 1,285; the ideal capacity at Aylor would be 964. Therefore it would be at least 900 depending on the market escalation at the time of the bid; of course the actual amount appropriated would dictate the utilization & program capacity.

34. What is the expected student capacity of the new 12th elementary school?

508 Utilization & Program Capacity