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Maryland Public Schools: An Introduction to Fiscal Sustainability

Prepared by the IAC

Maryland Interagency Commission on School Construction

Educationally Sufficient Learning Environments

Teachers matter more to student achievement than any other aspect of schooling. Teachers are resourceful and creative and have demonstrated time and time again an ability to make the best of any situation. They succeed in educating children regardless of the facility they occupy; however, too often teachers must overcome poor learning environments, and students must endure conditions that are not conducive to learning.

School facilities attributes and their condition affect the ability of teachers to teach and students to learn. Facilities play a supporting role when they are safe, healthy, and educationally sufficient, and when the environment complements learning. It is the task, therefore, of the IAC and of each LEA's facilities divisions to provide a learning environment sufficient to support the critical work of educating Maryland's children. Facilities should seamlessly support their inhabitants, functioning well enough that facility concerns are left to facilities specialists while teachers focus on teaching and students focus on learning.

There is an abundance of evidence that poor conditions inhibit learning. Factors that directly impact student learning include temperature, lighting, acoustics, and age (Earthman, 2002, p. 1). This fact is easy to see in present day Maryland when some LEAs battle lack of adequate heating or cooling, the presence of mold, antiquated layouts, open space classrooms, and other challenges. Researchers have found that students in poor facilities perform 5 to 17 percentile points lower than students that are in buildings in good condition (Earthman, 2002, p. 1). Poor conditions are generally the result of insufficient funding to sustain good conditions; good conditions can become fiscally unsustainable as facilities age individually and as a portfolio. Fiscal sustainability requires a balance between supply (available funding) and demand (total need). The total size of a school facilities portfolio is the practical indicator of the total demand for facilities funding.

Like school conditions, there are many studies related to classroom enrollment size, student to teacher ratios, and total school enrollment size (design capacity), which indicate that each of these factors can impact learning. In a 2014 study commissioned by the Maryland State Department of Education, APA Consulting found evidence suggesting that school operating efficiency is 'U' shaped, and schools with very small enrollment can suffer operational inefficiencies. The study found that operating cost efficiencies increase with design capacity up to a point, then the efficiency advantage is erased by the increasing costs of administration and coordination (Augenblick, Palaich and Associates Consulting, 2014, p. 11). School districts struggle to find the right size of the enrollment, and the percentage of schools with small enrollment continues to decline. The cost to operate is likely a contributor to this decline.

> "… Students in poor facilities perform 5 to 17 percentile points lower than students in standard buildings." - Glen Earthman, School Facilities Conditions and Student Academic Achievement

While there is significant research on the appropriate class or school size (in terms of student enrollment), less attention is paid to the total space, or gross square-foot-per-student, despite the fact that total asset size is a significant factor of operational cost over time. There is a dearth of research on gross square-foot-per-student and educational performance despite the obvious: that school facilities are too often in need of repair, renewal, or replacement and these needs are outpacing funding, and school conditions are declining.

Jones, M.A., from the University of Georgia, hypothesized that space per student did not affect reading and math learning as measured by standardized testing (Jones, 2006). She found essentially little correlation of academic performance in math and reading associated to square-foot-per-student. Specifically, her research

revealed only statistically marginal correlation for reading (p-value α=.10) and none for math (p-value α= less than .05).

The amount of square footage per student has increased drastically since the early 1970s as schools have taken on additional responsibilities that were historically provided within the home or by the community, including multi-model-athletics, health, and additional services for special-needs students and younger (pre-kindergarten) students. In Maryland, the gross square feet per student has doubled in this time period.

In and of itself, this expansion of responsibility is not a problem (and many would argue these changes have been positive!); however, these expanded services have not necessarily been accompanied by additional capital or operational dollars. The available funding, therefore, has been diluted, contributing to a decline in the average school condition. Additional emphasis on the **Total Cost of Ownership (TCO)** of each school facility project will help to counter this trend. This means that during the planning phase of a project, we must analyze the cost to own the facility over time to ensure that we can not only build the facility, but also that we will be able to provide the maintenance necessary to sustain the school, and subsequently the entire school facilities portfolio. School related space must be carefully conceived, planned, designed, and built to be as flexible as possible and right-sized so that we can provide essential services cost effectively, and the anticipated costs to own must be planned for and well-understood before commencing a project. Minimizing gross square feet per student is essential, as is building quality easily maintained structures. Conservatively managing the size of space on a per-student basis is also the most cost effective path to *Net Zero Energy Schools*. Fiscal sustainability to ensure good quality learning environments over time requires strategies to control costs and this requires close attention to the TCO for each project and for entire facilities portfolios.

Total Cost of Ownership

The "Total Cost of Ownership" includes both the **initial costs** to plan, design, and construct a facility and all the operational and maintenance (O&M) **costs to own** the facility over time. After a facility is built, it must be properly operated and maintained to preserve the intended educational environment over the expected life of the investment. Unfortunately, unlike many modern commodities, school facilities are not set-and-forget assets. Over the expected life of a school facility, major building systems (components) such as roofs, HVAC, and electrical systems must be replaced, with some systems needing to be replaced several times.

The expected life of a school facility is 30 years before needing significant investment such as major renovation, renewal or replacement (this is standard benchmark for comparable measures). Building systems replacement(s), **known as capital maintenance** (aka systemics) are required maintenance costs along with all the maintenance types: preventive, reactive, and planned. Operational costs include utilities, custodial, and building services, which is often not accounted for. After the initial capital investment to build the facility, the 30-year O&M costs can make up more than half of the total cost of ownership (Figure 1).

Figure 1: Total Cost of a Facility

In an era where needs seem to exceed available resources, it is more important than ever that the total cost of owning a facility is considered early and often throughout a school construction project. Total cost of ownership can be controlled through smart selection of building materials and systems, and of course, through smart use of space. Innovative design and furniture selection are essential. Perhaps more than any other choice, using space wisely and reducing space to the amount necessary to fully support the occupants but without excess, can ensure that the total cost of ownership is affordable.

Building systems that exceed their expected useful life often cannot be properly maintained and a facility's conditions and educational environment will decline. Conversely, quality initial investment and sufficient O&M budgets can result in facilities that function well over their full expected life and sometimes beyond. In other words, additional up-front expense often pays for itself over time, and both up front and long-term costs should be considered when making project decisions. *Educational Week* cites a 2014 Pew Research center poll showing 92 percent of Americans think schools should be upgraded, yet more than half the nation's taxpayers today think their taxes are too high (Burnette II, 2017).

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As school facilities owners and managers of our nation's portfolio of schools see conditions worsening, we face a dilemma: **either we must convince the public to raise their taxes or we must reduce the cost of ownership.** Generations of administrators, teachers, and most importantly, students, will have to live with the financial implications of choices made today, and unlike capital expenses (typically), O&M expenses directly compete with funding that would otherwise be available for teachers and textbooks.

IAC's Educational Facility Sufficiency Standards

The Maryland Public School Facilities Educational Sufficiency Standards establish acceptable *minimum* levels for the physical attributes, capacity, and educational suitability of existing public K-12 school facilities. These minimums are used to assess learning spaces of existing facilities. **They are <u>not</u> the basis of IAC funding** for school construction projects. Instead, funding is defined by the IAC's Gross Area Baselines (see page 4).

The Sufficiency Standards are based upon proven conditions that affect a student's ability to learn, like adequate temperature, lighting, acoustics, and so on, and prescribe attributes both for the facility itself and also for the educational suitability of spaces within the facility. For example: the standards prescribe that the heating, ventilation, and air conditioning (HVAC) system must be capable of maintaining a temperature between 68 and 75 degrees Fahrenheit. This would be a facility requirement. But the standards also require that at the middle and high school levels, at least 4 net square feet of space per student be provided for science programming and the space must be outfitted with appropriate science fixtures and equipment. This is an example of an educational sufficiency requirement. Facilities must have good physical conditions and also appropriate layouts and amounts of space.

The sufficiency standards are **used only as a measure of relative need** and this metric can be used to compare school facilities against one another. Scores are derived from the measurement of school facilities conditions and educational sufficiency and are used:

- To assess overall condition of the statewide school facilities portfolio
- To project school facilities needs to improve or maintain conditions at a certain level
- In the future, as a consideration for certain IAC funding programs.

IAC Gross Area Baselines

IAC Capital Improvement Program (CIP) funding for each new, renewal, or replacement school project is primarily based upon the project's gross square footage. To determine the funding for any project, the IAC multiplies the eligible square footage per student by the eligible projected enrollment at the facility. Then, the resulting number of square feet is multiplied by the current year cost per square foot. Finally, the result is multiplied by the State cost share for the LEA (Figure 2).

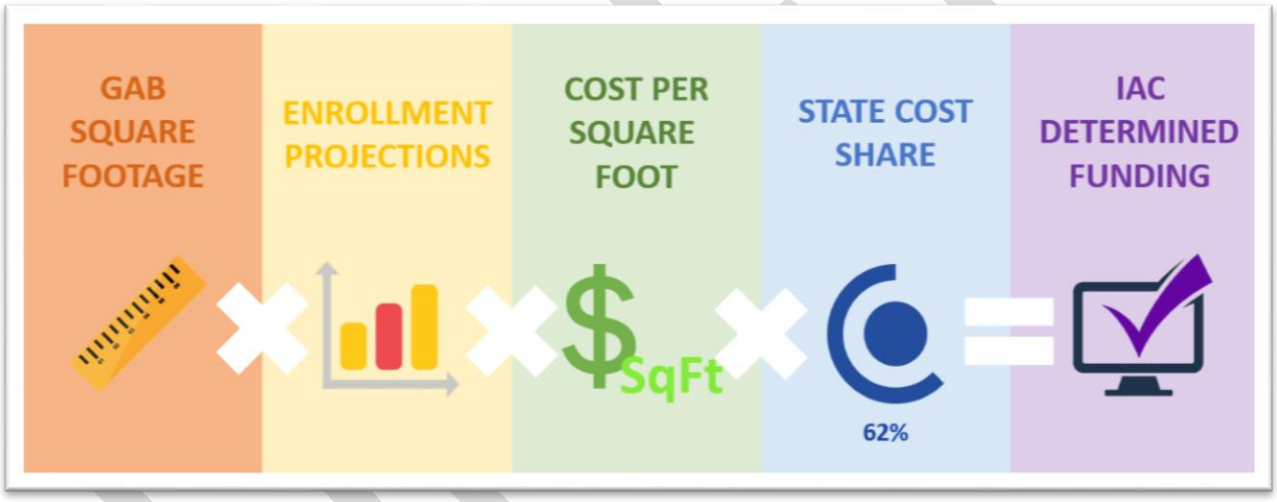

Figure 2: Determining IAC Funding

In May of 2019, the IAC adopted new Gross Area Baselines (GABs) to replace the Maximum Gross Area Allowances used per COMAR 14.39.02.06 in calculating state construction allocations. To develop the GABs, IAC staff launched a side-by-side review of the Area Allowances and MSDE's facilities guidelines. IAC staff created detailed tallies at the elementary, middle, and high school levels of all needed spaces and their sizes as recommended in MSDE's existing facilities guidelines. IAC staff also worked with stakeholders in the Local Education Agencies for feedback before recommending that the IAC approve the GABs.

The IAC Gross Area Baseline Calculator can be found on the IAC's website. These square footages are intended to include the space necessary to provide traditional education, but in a reasonable way so that the total cost of ownership is as low as possible while still meeting the educational needs of a school's student population. The GABs do not represent the minimum possible sizes of schools and in fact are representative of recently built size-efficient status quo schools that are supporting the delivery of traditional educational programs.

What Can We Do?

1. The State as a whole and each LEA can take a portfolio perspective in understanding school facility needs. Each new, replacement, or renewed school project can improve the affordability of the portfolio **one project at a time**.
2. Consider the Total Cost of Ownership (TCO) from the earliest point of project planning. Fiscal sustainability requires exemplary planning and accountability.
3. Create Educational Specifications that make known the estimated TCO and make this information fully transparent to the public so that they understand the annual per student cost-to-own over 30-years **before** beginning a feasibility study or start of design.
4. Select architects, builders, or developers based upon TCO budgets and hold them accountable. The initial building or renovation of a facility only represents about half the cost to own. Remember that right-sized facilities incorporating innovative and effective design and appropriate flexible, movable furniture are essential to achieving an affordable portfolio that can be maintained in good condition over time.

The 2020 COVID-19 pandemic has amplified the need for deliberate, well-thought-out planning that will support shared and flexible specialty spaces, not only to accommodate the natural evolution of educational delivery, but for the reconfiguration of spaces for other reasons. The changing face of educational programs pressured our school facilities footprints to grow. Greater flexibility in how educational spaces can be utilized over time is necessary. Today we are looking at how we can transform gyms and cafeterias into classrooms, and there may be need for additional flexibility in the future. By wisely planning and using movable furniture, we can configure and reconfigure school spaces as needed for any future event or need. By enhancing flexibility and reducing total space, the corresponding lower TCO can free funding for other educational needs. It is becoming increasingly clear that simply building and maintaining more space is not fiscally sustainable. We will continue to work with communities on making wise decisions to minimize space, and to maximize the effectiveness of spaces, so that the facilities we fund serve our students, and those who teach them, well.

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Jones, M. (2006). *Teaching Self-Determination.*

Additional Information

Please see the IAC's website homepage and look for School Facilities Webinar Series for additional information regarding school facilities total cost of ownership. Questions can be directed to our office at (410) 767-0617 or iac.pscp@maryland.gov.