# Summary of School Size Report

Prepared for
Maryland State Department of Education

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Submitted by
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*The Maryland General Assembly enacted Chapter 288, Acts of 2002 – the Bridge to Excellence in Public Schools Act, which established new primary State education aid formulas based on adequacy cost studies using the professional judgment and successful schools method and other education finance analyses that were conducted in 2000 and 2001 under the purview of the Commission on Education Finance, Equity and Excellence. State funding to implement the Bridge to Excellence Act was phased-in over six years, reaching full implementation in fiscal 2008. Chapter 288 required a follow up study of the adequacy of education funding in the State to be undertaken approximately 10 years after its enactment. The study must include, at a minimum, adequacy cost studies that identify a base funding level for students without special needs and per pupil weights for students with special needs to be applied to the base funding level, and an analysis of the effects of concentrations of poverty on adequacy targets. The adequacy cost study will be based on the Maryland College and Career-Ready Standards (MCCRS) adopted by the State Board of Education and include two years of results from new State assessments aligned with the standards, which are scheduled to be administered beginning in the 2014-2015 school year.*

*There are several additional components mandated to be included in the study. These components include evaluations of: the impact of school size, the Supplemental Grants program, the use of Free and Reduced Price Meal eligibility as the proxy for identifying economic disadvantage, the federal Community Eligibility Program in Maryland, prekindergarten services and funding, the current wealth calculation, and the impact of increasing and decreasing enrollments on local school systems. The study must also include an update of the Maryland Geographic Cost of Education Index.*

*Augenblick, Palaich and Associates, in partnership with Picus Odden and Associates and the Maryland Equity Project at the University of Maryland, will submit a final report to the state no later than October 31, 2016.*

This report, required under Section 3.2.2 of the Request for Proposals (R00R4402342), is the first of three required school size reports. This *Summary of School Size Report* identifies:

1. Whether local Maryland school systems currently have policies regarding the size of schools including high schools, middle schools elementary schools and alternative schools, including the role of the pubic in determining the policy;
2. Other states' policies and best practices regarding school size; and
3. An initial summary of the research regarding school size and the educational issues affected by school size.

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# Contents

## Introduction

The challenge facing legislators, policy makers, budget analysts and school district officials is how best to ensure that all students receive the level of instruction necessary to meet educational standards while achieving operational efficiency. Many factors contribute to educational outcomes and system efficiency: school enrollment size, class size, grade configuration, consistent matriculation patterns, geographical constraints, and local governing requirements, to name just a few.

Maryland has a relatively small number of Local Education Authorities (LEA). There is, however, significant diversity in population size, growth, and density, as well as economic status that affects school system facility needs and operational costs. One can think of the structure of the state in bands:

- The first band features densely populated counties with relatively high levels of average income and high real estate values. LEAs in this band have a large number of students and school buildings (Montgomery, Prince George's County, and Baltimore City).
- The next band features suburban school systems. These school systems are still quite large in terms of number of students and number of buildings. Many of these systems have highly urbanized areas (Howard, Anne Arundel, and Baltimore County).
- The state features a number of exurban LEAs as well. These school systems have seen significant growth over the past decade (Harford, Frederick, Queen Anne's, Carroll, Washington, Calvert, St. Mary's, and Charles).
- The remaining LEAs are relatively rural with one or two high schools and middle schools (Allegany, Worcester, Wicomico, Caroline, Dorchester, Kent, Garrett, Talbot, Somerset, and Cecil).

The research on the effects of school size, as summarized later in this report, suggests that school size influences key educational climate factors such as student engagement, teacher and parent satisfaction, and social behavior. Recognizing this, Maryland's RFP for this study called for a comprehensive school size study consisting of the following study components:

- Whether local school systems currently have policies regarding the size of schools, including high schools, middle schools, elementary schools, and alternative schools
- Best practices and policies in other states regarding school size
- The educational and extracurricular impacts of school size, and the impact, if any, on the surrounding communities and neighborhoods
- Factors that contribute to large school sizes and recommendations for mitigating those factors
- Recommendations for the ideal size for high schools, middle schools, elementary schools, and alternative schools

- Processes that can assist in ensuring public input into the establishment of any school size standards or guidelines
- Models for the creation of smaller schools, including the subdivision of existing schools into multiple administrative units within the same campus, which share common areas such as cafeterias and sports fields
- The potential impacts on the Maryland Public School Construction Program of establishing stricter policies regarding smaller schools, such as higher costs
- The costs and impacts of zoning laws that require adequate facilities including new schools to be built to accommodate new development and how those costs can be reduced
- How school boundaries and attendance areas affect school size
- Whether opportunities are available for alternative methods to create space for smaller schools, including the purchase and renovation of existing buildings where available and including suburban and urban school design.

The research team carefully designed an approach to answering these questions that contains the following four main components:

1. Data collected from the LEAs using online document reviews, local district phone interviews, and case studies.
2. Data collected from recognized facility planner professionals, using phone interviews.
3. A thorough review of the literature and state reports on school size, using online databases and other online resources.
4. An analysis of the collected data by the study team.

These four steps will allow the study team to determine optimal school size models and to provide overarching recommendations on school size. Table 1 below denotes how each of the four study components contributes to the completion of each of the study elements.

***Table 1: School Size Study Components and Study Elements***

| Study Element | Data Collection - LEA and Local Municipalities | Data Collection - Facility Planner Professionals | Literature Review | Analysis of Data & Recommendations |
|---|---|---|---|---|
| Local policies regarding size of schools | X | | | |
| Best and/or common practices in other states regarding school size | X | X | | |
| Educational and extracurricular impacts of school size, and the impact, if any, on the surrounding neighborhoods | X | X | | |

| Study Element | Data Collection - LEA and Local Municipalities | Data Collection - Facility Planner Professionals | Literature Review | Analysis of Data & Recommendations |
|---|---|---|---|---|
| Factors that contribute to large school size and recommendations for mitigating those factors | X | X | | X |
| Recommendations for the ideal school size | | X | X | X |
| Processes that can assist in ensuring public input into school size standards or guidelines | | X | X | X |
| Models for the creation of smaller schools, including the subdivision of existing schools into multiple administrative units within the same campus, which share common areas such as cafeterias and sports fields | | X | X | X |
| The costs and impacts of zoning laws that require new schools to be built to accommodate new development and how those costs can be reduced | X | X | | X |
| The potential impacts on the Maryland Public School Construction program of establishing stricter policies regarding smaller schools, such as higher costs | X | | | X |
| How school boundaries and attendance areas affect school size | X | | X | X |
| Whether opportunities are available for alternative methods to create space for smaller schools, including the purchase and renovation of existing buildings where available and including suburban and rural school design | X | X | | X |

The results of the analysis, case studies, the cost modeling, and recommendations will be included in the preliminary School Size Study Report that will be completed in November 2014 and the final School Size Study Report that will be completed in June 2015. The information and data collected to date from the Summary School Size study will be used in the immediate future to contribute to the adequacy study's district and school selection processes, and to the increasing and declining enrollment study.

### *Data Collected from the Local Education Authorities*

The study team will initially review documents and data available on the Maryland State Department of Education website and LEA websites, and will briefly confer with facility directors regarding local policies on school size. These initial discussions will contribute to the development of a comprehensive survey and request for information from the LEAs. For information that is not readily available from existing electronic sources, a survey will be implemented in electronic format, i.e. Survey Monkey, to minimize the impact to the school administrative staff. The study team will follow-up with each LEA facilities planning director to review the data request and clarify any questions. In addition to school size policies or guidelines, the survey request will include information related to capital construction funding, class size guidelines, current school capacity, enrollment forecasting, district boundary and matriculation patterns, student mobility rates, policies of use of portable classrooms, and transportation policies.

The study team will also contact the following national and Maryland organizations and agencies for information related to school size:

- County and local planning departments – demographic data, zoning and development requirements, planning requirements for growth, and impact of extracurricular activities on communities
- Maryland Public Secondary Schools Athletics Association (MPSSAA) – awareness and understanding of classification alignment based on enrollment 4A to 1A
- The Maryland Association of Student Councils – impacts of extracurricular activities on school size
- The Maryland State Education Association – impacts of school size on education
- The Baltimore Teachers Union – impacts of school size on education
- National Center for Education Statistics – base demographic data.

### *Data Collected from Educational Facility Planners*

To collect current research and best practices related to school size requirements and community engagement, the study team will:

- Review other U.S. state education agencies that have adopted school size guidelines or commissioned similar studies
- Contact and interview representatives from the Council of Educational Facility Planners International (CEFPI)
- Contact and interview representatives from the Council of Great City Schools (CGCS)
- Complete an extensive literature review, including online academic journal databases and a scan of the National Clearinghouse for Educational Facilities for posted research articles.

The study team will also conduct a work session with Mr. Sam Wilson and Mr. Tracy Richter, two nationally recognized K-12 facilities planners.

### *Data Analysis and Recommendations*

After the Summary of School Size Findings Report has been completed the study team will begin their analytical review of the data. The analysis will include the development of sample cost models that include programmatic costs and operational support costs for different school sizes at each educational level: elementary, middle, high, and alternative.

There exists a body of knowledge (typically generated by case studies) related to the impact of school size on educational achievement and the options for creating smaller learning environments at each educational level, such as:

- Schools within schools, houses or academies within high schools
- Pods or clusters within middle schools
- Families or neighborhoods within elementary schools.

The Summary of School Size report that follows provides preliminary results to the following three questions:

1. Do Maryland LEAs currently have policies regarding the size of schools, including high schools, middle schools, elementary schools, and alternative schools, and do those policies include a required role for the public in determining the policy?
2. What "best" or common practices are used in other states regarding school size?
3. What does the research say about school size and its relation to educational issues?

## Maryland Local Education Agency School Size Policy Findings

In this section we provide our preliminary findings of a scan of Maryland Local Education Agency (LEA) policies relating to school size. This initial analysis involved reviewing the websites of each of Maryland's 24 LEAs, and when possible, interviewing an LEA's facilities manager or other facilities administrator. At the time this report was written, we had an opportunity to interview facilities staff from the following six LEAs: Anne Arundel, Calvert, Carroll, Cecil, Charles, and Dorchester. Staff from six additional LEAs have since been contacted but interviews with them have not yet been scheduled, and attempts will be made to connect with all remaining LEAs. The findings from these interviews will be reported in the Preliminary Report on the Impact of Smaller Schools.

Below we provide a brief overview of our methodology and summarize our findings to date.

### *Data Collection*

The study team's initial examination of the Maryland LEAs school size policies focused primarily on document reviews and interviews with LEA facilities staff. We reviewed a number of websites for school size policy information including each Maryland LEA website, and Board of Education (BOE) policy pages. We used the search terms "school size" and "educational facilities master plan" on these websites, reviewed any facilities pages, reviewed any policies related to facilities, and reviewed any Educational Facilities Master Plans (EFMP) that were posted.

The study team also sought to interview a facilities contact in each of the 24 districts. At the time of this writing we have spoken directly with facilities planners from six districts. We used a semi-structured questionnaire to guide the interview, asking questions regarding an LEA's school size policies, the impact of school size on educational outcomes, facilities costs, the involvement of the public in school size policy decisions, and other factors potentially influencing the size of schools in the LEA. As the school size research progresses, further written requests will be made to collect school size policy information and the LEA school size findings will be updated in the forthcoming Preliminary Report. Information is included for LEAs where we were able to speak to facilities contacts.

## *Findings*

Based on our partial findings we have so far identified nine districts that have adopted a Board of Education policy or have published a guideline addressing maximum school size. Of these nine districts, five document their school size policies within their posted board policies. The remaining four LEAs we identified that have school size policies documented them in their Educational Facilities Master Plans (EFMP).

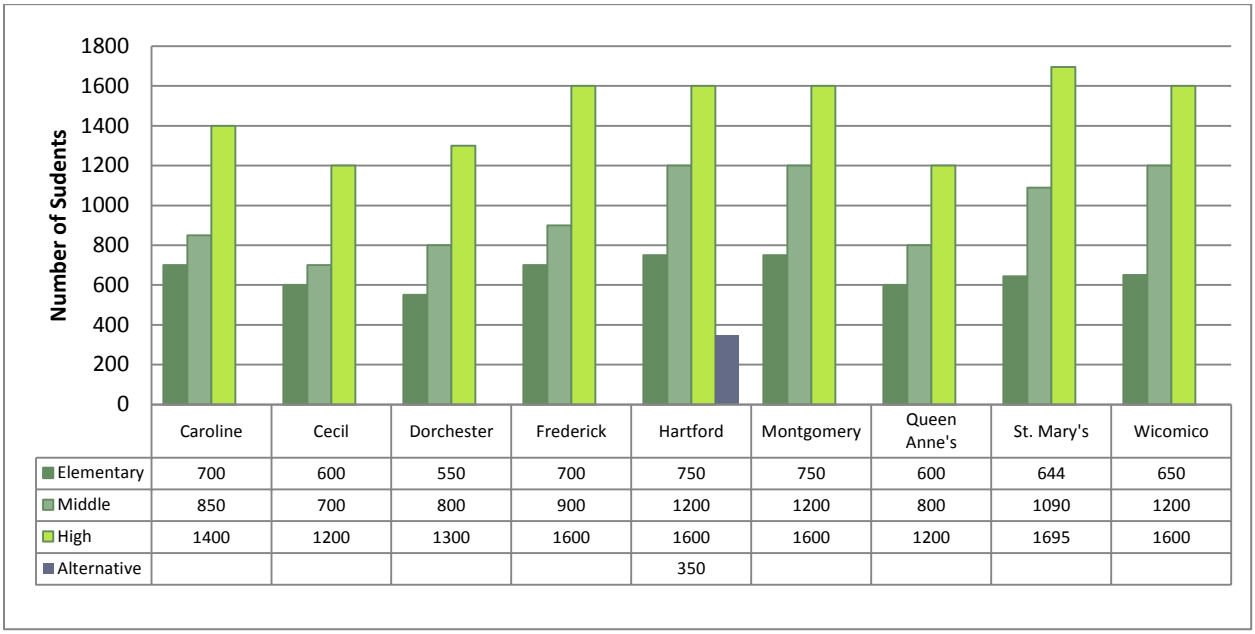
None of the LEAs contacted have adopted a policy requiring public or community input into developing the school size policy. Instead, our initial scan suggests that school size policies are typically driven by district administrators, often those working in the area of curriculum and instruction. Many of the LEAs do have a policy requiring the involvement of the community in the development of a school specific educational specification, such as related to the construction of a new school. The LEA survey will include a request for details of any policies that address public input into specific LEA policymaking respective to school size, and the results will be included in the Preliminary Report on the Impact of Smaller Schools. Table 2 below provides the range of maximum sizes and the median for each of the school types for the nine responding districts.

***Table 2: Maryland LEA School Size Policies***

| School Type | Range of Maximum Sizes | Median |
|---|---|---|
| **Elementary School** | 550-750 | 650 |
| **Middle School** | 700-1,200 | 900 |
| **High School** | 1,200-1,695 | 1,600 |

Chart 1 below presents the data for each of those LEAs that have a published school size policy, either in a BOE policy or in their EFMP. The bars represent the school size specified in each district's policy for elementary, middle, and high schools (and alternative schools in Hartford County Public Schools). The data presented in this chart show that districts with school size policies may target smaller school sizes, relative to other districts, at specific grade levels. For example, St. Mary's County Public Schools has the largest high school size among the nine districts, but its elementary school size is smaller than four of the districts. Alternatively, Caroline County Public Schools has one of the largest elementary school size guidelines, but its high school size is smaller than that of five of the comparison districts.

*Chart 1: Maryland LEAs with School Size Policies*




| | Caroline | Cecil | Dorchester | Frederick | Hartford | Montgomery | Queen Anne's | St. Mary's | Wicomico |
|---|---|---|---|---|---|---|---|---|---|
| Elementary | 700 | 600 | 550 | 700 | 750 | 750 | 600 | 644 | 650 |
| Middle | 850 | 700 | 800 | 900 | 1200 | 1200 | 800 | 1090 | 1200 |
| High | 1400 | 1200 | 1300 | 1600 | 1600 | 1600 | 1200 | 1695 | 1600 |
| Alternative | | | | | 350 | | | | |

Table 3 provides information for each of the 24 LEAs in Maryland. It indicates if they have a BOE school size policy or an EFMP school size policy. The "BOE School Size" column represents those districts that have adopted a school board policy regarding school size. The EFMP column signifies whether the school size policy is provided in the EFMP. Additional detail is provided in the comments column of the table.

*Table 3: Maryland LEA Board of Education School Size Policy Summary*

| LEA | BOE School Size | EFMP School Size | BOE Policy and/or Comments |
|---|---|---|---|
| Allegany | No | No | |
| Anne Arundel | No | No | BOE is updating all policies. |
| Baltimore City | No | No | Have prototype educational specifications for three sizes for each school type. |
| Baltimore County | No | No | |
| Calvert | No | No | |
| Caroline | Yes | Yes | Preferred school enrollment:<br>450 to 700 students in elementary schools<br>500 to 850 students in middle schools<br>700 to 1,400 students in high schools<br>Also have acreage for school sites policy |
| Carroll | No | No | Have a utilization policy |
| Cecil | Yes | No | 300-600 students in elementary school<br>450-700 students in middle school<br>800-1,200 students in high school |
| Charles | No | No | |

| LEA | BOE School Size | EFMP School Size | BOE Policy and/or Comments |
|---|---|---|---|
| Dorchester | No | Yes | 200-550 students in elementary school<br>400-800 students in middle school<br>500-1,300 students in high school |
| Frederick | Yes | Yes | For new construction:<br>700 students in elementary schools<br>900 students in middle schools<br>1,600 students in high schools |
| Garrett | No | No | |
| Harford | Yes | Yes | 500 to 750 students in elementary schools<br>900 to 1,200 students in middle schools<br>1,000 to 1,600 students in high schools<br>200 to 350 special schools<br>Also have class size policy |
| Howard | No | No | Have educational specifications for each school type, including site size[1] requirement, and have utilization criteria. |
| Kent | No | No | |
| Montgomery | Yes | Yes | 300 to 750 students in elementary schools<br>600 to 1,200 students in middle schools<br>1,000 to 2,000 students in high schools<br>Special and alternative program centers will differ from the above ranges and generally be lower in enrollment. |
| Prince George's | No | No | |
| Queen Anne's | No | Yes | 600 students in elementary schools (PK-5)<br>800 students in middle schools (6-8)<br>1,200 students in high schools (9-12) |
| Somerset | No | No | |
| St. Mary's | No | Yes | 400 to 644 students in elementary schools<br>790 to 1,090 students in middle schools<br>1,575 to 1,695 students in high schools |
| Talbot | No | No | |
| Washington | No | No | |
| Wicomico | No | Yes | Referenced in facility task force document<br>650 students in elementary schools (PK-5)<br>1,200 students in middle schools (6-8)<br>1,600 students in high schools (9-12) |
| Worcester | No | No | |

[1] Site size refers to the number of acres required for each school site.

## Other States' Policies and Best Practices Regarding School Size and Facility Planning

The study team also researched school size policies from other states to provide a point of comparison for Maryland's policies and to gather any lessons to be learned for Maryland policy makers. The following summarizes our data collection process and the results of our analysis.

### *Data Collection*

We examined information from all 50 states, relying primarily on state education agency and legislative websites, and publications of national organizations that may compile relevant state policy and practice information (such as the Education Commission of the States and the Building Education Success Together group). From these sources we gathered various information about other states' school size and facility planning policies, including:

- School size requirements, as well as the related components of classroom size guidelines
- Square footage per student guidelines
- Minimum site size
- Requirements for completing an Educational Facilities Master Plan (EFMP).

The preliminary school size report will provide additional information on school size policies gathered from the Council of Great City Schools' member districts, which will include data from Washington, D.C. Public Schools (DCPS), whose district policy regarding the student assignment has been in flux over the past several years due to a number of school closures. Additionally, DCPS policy is unique in that nearly 50% of the total student body attends charter schools and the respective policy states that DCPS is an open enrollment system, and facility capacity must be flexible enough to accommodate students transferring between the two systems through the school year.

### *Findings*

The data search found only three states with a statute or guideline regarding school size. These states are Arizona, Florida, and North Carolina. Table 4 presents the specific school size requirements for each of the three states.

***Table 4: School Size Recommendations and Statutes***

| State | Elementary | Middle | High |
|---|---|---|---|
| Arizona | 500 | 500 | 1000 |
| Florida – new schools | 500 | 700 | 900 |
| Florida – existing schools | 820 | 1139 | 2180 |
| North Carolina – based on school climate | 300-400 | 300-600 | 400-800 |
| North Carolina – based on economic efficiency | 450-700 | 600-800 | 800-1,200 |

Arizona's recommended school sizes are outlined in its School Facilities Board's 2007 *21st Century Schools Report.* However these sizes have not been formally codified by the state. Adopted in 2000, the Florida school size statues differentiate between existing schools and building new schools. The Florida

policy for existing schools also includes language to require schools to create smaller learning environments for students within the existing larger structure. North Carolina's school sizes are a result of a study mandated by the legislature in 1999 and are considered a recommendation only. Recognizing that a school size maximizing economic efficiency may not be what is best for school climate, North Carolina published two ranges – one based on each of the two criteria, school climate and economic efficiency. While the North Carolina reports acknowledge the importance of both beneficial school climates and economies of scale, they have not studied the economic impact of formally adopting either of the size ranges as a statue or formal requirement (North Carolina Department of Public Instruction, 1998).

Regarding other size related requirements; over half of the states have some sort of guidelines or recommendations regarding classroom size, square footage per student, or site size requirements. Eight states, including Maryland, have a requirement related to completing a district-level EFMP. We include the requirement for EFMPs as a policy of interest because they are becoming recognized by many organizations and associations, including the Government Finance Officers Association, as a best practice for entities that have owned facilities. This is especially true for public entities that have a fiduciary responsibility to taxpayers to protect and manage capital assets. In the context of K-12 organizations, EFMPs are the mechanism to correlate the physical capital needs with educational goals and directs governments, both local and state, to make capital investments that are aligned with the long-term needs.

The number of states with a policy or guideline for each of the facility planning components discussed above is presented in Table 5. Appendix A provides state-by-state details of whether a policy takes the form of a statute, recommendation, or guideline.

***Table 5: Number of States Having Requirements for each Facility Planning Component***

| Facility Planning Component | Number of states that have statute, published guideline or recommendation |
|---|---|
| Classroom Size | 29 |
| Site Size | 28 |
| Square Foot/Student | 22 |
| Educational Facilities Master Plan | 8 |
| School Size | 3 |

## Introduction to the Research on the Effects of School Size

This section provides an overview of the fairly extensive body of research on the effects of school size. The topics introduced here will be explored in greater depth and breadth in the Preliminary Report – Impact of Smaller Schools, due in November 2014. The research on the impacts of smaller schools generally focuses on the following issues:

- Operating efficiencies
- Academic achievement

- School climate
- Teacher and student satisfaction
- Student discipline.

A brief summary of the research findings for each of these key issues follows.

### *Operating Efficiency*

Conventional wisdom assumes that larger schools must be more economically efficient to operate due to greater economies of scale. However, while the research on the effects of school size on efficiency is not entirely conclusive, the evidence suggests that school operating efficiency is "U" shaped, that is, very small schools do experience greater inefficiencies, but as schools grow larger their efficiency advantage is erased by the increasing costs of administration and coordination of the larger, more complex school organization (Stiefel, Berne, Iatarola, & Fruchter, 2000; Walberg & Walberg, 1994).

### *Academic Achievement*

Overall, the research on the impact of school size on student performance is inconsistent. Much of the research found little difference in the academic performance of students attending smaller or larger schools, especially at the elementary and middle school levels (Cotton, 1996; Hager, 2006; Ramirez, 1992). Meanwhile, some of the research also suggests that smaller schools may be more efficient at producing higher levels of student performance. Stiefel, Berne, Iatarola, and Fruchter (2000) found that larger schools are less efficient at producing higher student outcomes, resulting in a return on the resources invested that is lower than smaller schools. Other studies have found higher achievement, particularly for low income students, in smaller schools (Friedkin & Necochea, 1988; Greenwald, Hedges & Laine, 1996). Still other research has found a performance advantage for larger schools (Steiner, 2011; Tanner & West, 2011). These contradictory findings suggest that there may be other mediating circumstances that drive performance within smaller schools, such as teachers' ability to take advantage of smaller enrollments to develop a positive connection with their students. Also, the implementation of smaller schools or learning environments is typically not the only reform being implemented in a school. As a result, its impact may become confounded with those of other ongoing reforms, leading to the inconsistent research findings related to school size and academic achievement.

In the case of high schools, proponents of larger schools have argued that larger enrollments are needed to support greater diversity of course offerings (Conant, 1959; Hoagland, 1995). However, Unks (1989) found that smaller schools provide a broader array of learning experiences than the published course offerings may suggest, while Monk (1987) found that the relationship between school size and curricular diversity begins to decrease with school enrollments above about 400 students, suggesting that relatively small high schools may provide as diverse a curriculum as much larger schools.

### *School Climate*

Researchers have identified several characteristics of smaller schools that may explain the perceived positive effects on student performance. Key among these is the presence of a positive school climate. Smaller schools have been found to be more successful at developing the more personal and informal relationships between school staff, students, and parents which lead to better student engagement and

social behavior, teacher satisfaction and collaboration, and parent involvement (Lee & Loeb, 2000). This effect of smaller schools is again more pronounced for low income and minority students who experience higher attendance rates and lower dropout rates in smaller schools (Carruthers, 1993). The research in North Carolina specifically identified the positive impact of smaller schools on school climate, leading to their recommendations for much smaller school sizes when prioritizing school climate, and larger schools when prioritizing operating efficiency (North Carolina Department of Public Instruction, 1998).

### *Teacher and Student Satisfaction*

Surveys of school staff show that smaller schools tend to cultivate better attitudes on the part of school administrators and teachers toward their work, leading to greater staff collaboration and more success in school improvement efforts (Cotton, 1996; Klonsky, 2006). The likely causes of this effect include the more favorable school climate and personal relationships found in smaller schools (Cotton, 1996).

### *Student Discipline*

Smaller schools tend to have lower incidences of negative social behavior than do large schools, resulting in greater student engagement and satisfaction, higher attendance rates, and lower dropout rates. Again, the research suggests that ethnic minority and low income students in particular benefit from this characteristic of smaller schools (Cotton, 1996).

## Conclusion

Our initial research of Maryland LEA policies and state best practices related to school size has identified that nine of Maryland's 24 LEAs have a policy or guideline, and only three of the 50 U.S. states have a statute or guideline related to school size. Not including Florida's recommendation for existing schools, which has requirements for operationally dividing the student population into smaller groups at all three school levels, the state policies tend to have lower maximum school size numbers than the Maryland LEAs. For elementary schools, the three states have a range of 400 to 700 as a maximum student enrollment compared to Maryland's range of 550 to 750. For middle schools the states' range of maximum student enrollment is 500 to 800 compared to Maryland's range of 800 to 1,200. At the high school level, the states' range of maximum student enrollment is 900 to 1,200 compared to Maryland's range of 1,200 to 1,695.

This analysis also found that about half of the states have policies on facility planning components related to school size such as classroom size, square footage per student requirements, and school site acreage requirements. However, only eight states have policies requiring comprehensive Educational Facilities Master Plans.

Finally, although mixed, research on the impacts of school size suggests that economic efficiency is maximized within a fairly narrow band of school sizes, with schools approaching 1,000 students becoming less efficient than smaller schools. Generally, the research suggests that the academic achievement of students in smaller schools is no worse, and in some cases may be better than that of students in larger schools, with low income and ethnic minority students reaping greater benefits from

attending smaller schools. Research also suggests that smaller schools result in a more favorable school climate; greater teacher, student, and parent satisfaction; and improved student discipline.

The future school size reports will provide additional information related to school size from a more extensive literature review and interviews with professional associations and organizations. Based on the finding of this research, we will attempt to identify the factors that contribute to large school sizes, identify the impacts of school size on educational and extracurricular outcomes, and provide recommendations for ideal school sizes in Maryland, and the associated impact on the Maryland Public Schools Construction Program.

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## Appendix A: State Policies/Best Practices for School Facility Planning

| State | School Size | Classroom Space Guidelines | SF/Student Guidelines | Site Size Guidelines[2] | EFMP Requirement | Miscellaneous Notes |
|---|---|---|---|---|---|---|
| Alabama | No | No | No | Yes | No | Have minimum school sizes requirement |
| Alaska | No | Yes | Yes | Yes | No | |
| Arizona | Yes | Yes | Yes | Yes | Yes | Recommendation<br>Elementary School: 500<br>Middle School: 500<br>High School: 500-1,000 |
| Arkansas | No | Yes | Yes | No | Yes | |
| California | No | Yes | Yes | Yes | No | |
| Colorado | No | No | No | No | Yes | |
| Connecticut | No | No | No | Yes | No | |
| Delaware | No | Yes | No | Yes | No | Discussed maximum school size in 2001 |
| Florida | Yes | Yes | Yes | Yes | Yes | <u>New Schools</u><br>Elementary school: 500 students<br>Middle school: 700 students<br>High school: 900 students<br><u>Existing Schools</u><br>Elementary school: 820 students<br>Middle school: 1,139 students<br>High school: 2,180 students |
| Georgia | No | Yes | No | Yes | No | |
| Hawaii | No | Yes | No | Yes | No | |
| Idaho | No | Yes | No | Yes | No | |
| Illinois | No | Yes | No | Yes | No | |
| Indiana | No | Yes | No | Yes | No | |
| Iowa | No | No | No | No | No | |
| Kansas | No | No | No | No | No | |
| Kentucky | No | Yes | Yes | Yes | No | |
| Louisiana | No | No | No | No | No | |

[2] Site size guidelines are taken from Weihs, 2003.

| State | School Size | Classroom Space Guidelines | SF/Student Guidelines | Site Size Guidelines[2] | EFMP Requirement | Miscellaneous Notes |
|---|---|---|---|---|---|---|
| Maine | No | No | No | Yes | No | |
| Maryland | No | No | No | No | Yes | |
| Massachusetts | No | Yes | Yes | No | No | |
| Michigan | No | No | No | No | No | |
| Minnesota | No | Yes | Yes | Yes | No | |
| Mississippi | No | Yes | Yes | Ye | No | |
| Missouri | No | Yes | Yes | Yes | No | |
| Montana | No | No | No | No | No | |
| Nebraska | No | No | No | No | No | |
| Nevada | No | No | No | No | No | |
| New Hampshire | No | Yes | Yes | Yes | No | |
| New Jersey | No | Yes | Yes | No | Yes | |
| New Mexico | No | Yes | Yes | No | No | |
| New York | No | Yes | Yes | Yes | No | |
| North Carolina | Yes | Yes | Yes | Yes | Yes | Elementary School: 300-400<br>Middle School: 300-600<br>High School: 400-800 |
| North Dakota | No | Yes | Yes | No | No | |
| Ohio | No | Yes | Yes | Yes | Yes | |
| Oklahoma | No | Yes | Yes | Yes | No | |
| Oregon | No | No | No | No | No | |
| Pennsylvania | No | Yes | Yes | Yes | No | |
| Rhode Island | No | Yes | Yes | Yes | No | |
| South Carolina | No | Yes | Yes | No | No | |
| South Dakota | No | No | No | No | No | |
| Tennessee | No | No | No | No | No | |
| Texas | No | No | No | No | No | |
| Utah | No | No | No | Yes | No | |
| Vermont | No | No | No | No | No | |
| Virginia | No | Yes | No | Yes | No | |
| Washington | No | No | No | Yes | No | |
| West Virginia | No | Yes | Yes | Yes | No | |
| Wisconsin | No | No | No | No | No | |
| Wyoming | No | No | No | Yes | No | |