



AUGENBLICK,  
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ASSOCIATES



**EXHIBIT F**

## **School Size Best Practices**

Robert Schoch, Education Finance Decisions

Presentation to the Senate Committee on Education  
and the House Committee on Education

Little Rock, Arkansas

July 6, 2020

## **Research Questions and Methodology**

- **Research Questions**
  - What are best practices in other states regarding school and district size?
  - What criteria are used to identify and determine best practices?
- **Research Methodology**
  - Review policies and practices in other states regarding both district and school size
  - Review practices in other states regarding facility master planning and school construction planning and approval processes
    - Contact facility staff at state Departments of Education
    - Contact school architects in Arkansas
  - Compare policies and practices in Arkansas with other states

## Background

- States with specific laws or regulations on school size are rare. The study team has identified four states.
- Many states have adopted guidelines, programs, and processes affecting school size including:
  - Educational Facility Master Planning processes and requirements
  - Class size regulations
  - Classroom size standards
  - Square footage per student standards
  - Site size standards
  - Educational design standards/specifications
  - Prototype or model school designs
  - Approval processes for proposed school construction plans by school architectural experts employed by state government

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## States with Laws, Regulations, or Guidelines on School Size

| 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 | 800-1200 |
| Kentucky (minimum-maximum)                    | 300-600    | 400-900 | 500-1500 |

- Arizona – from School Facilities Board's 2007 21<sup>st</sup> Century Schools Report. Sizes not formally codified by state.
- Florida – adopted in 2000, recommends that schools create smaller learning environments within the larger structure.
- North Carolina – based on a study mandated by the legislature in 1999, recommendation only.
- Kentucky – Pre-school 100 minimum to 300 maximum, alternative schools-50 minimum, no maximum set.

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| <b>Class Size and Student/Teacher Ratio Policies in SREB States and Massachusetts</b> |                                                                                                                        |                                                                                                       |
|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
|                                                                                       | <b>Class Size<br/>(Maximum Unless Otherwise Noted)</b>                                                                 | <b>Student Teacher/Ratio</b>                                                                          |
| Alabama                                                                               | K-3: 18<br>4-6: 26<br>7-8: 28<br>9-12: 24                                                                              | Funded ratios:<br>K-3: 14.25:1<br>4-6: 21.03:1<br>7-8: 19.7:1<br>9-12: 17.95:1                        |
| Arkansas                                                                              | K: 20<br>1-3: avg of 22, max of 25<br>4-6: avg of 25, max of 28<br>7-12: max of 30                                     | Matrix funded ratios:<br>Kindergarten: 20:1<br>1-3: 23:1<br>4-12: 25:1<br>Electives: 20% of classroom |
| Delaware                                                                              |                                                                                                                        | K-3: 22:14 maximum ratio                                                                              |
| Florida                                                                               | K-3: 18<br>4-8: 22<br>9-12 (core courses): 25                                                                          |                                                                                                       |
| Georgia                                                                               | K: 18<br>1-3: 21<br>4-8 (core courses): 28<br>9-12 (core courses): 32<br>9-12 (other subjects): 35<br>6-8 Remedial: 18 |                                                                                                       |

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| <b>Class Size and Student/Teacher Ratio Policies in SREB States and Massachusetts, continued</b> |                                                                                                                |                                                            |
|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
|                                                                                                  | <b>Class Size (Maximum Unless Otherwise Noted)</b>                                                             | <b>Student Teacher/Ratio</b>                               |
| Kentucky                                                                                         | K-3: 24<br>4: 28<br>5-6: 29<br>7-12: 31                                                                        |                                                            |
| Louisiana                                                                                        | K-3: 20 (except PE)                                                                                            |                                                            |
| Maryland                                                                                         |                                                                                                                |                                                            |
| Massachusetts                                                                                    | K-3 Average 25:1                                                                                               |                                                            |
| Mississippi                                                                                      | K: 22<br>1-4: 27<br>5-8 Self-Contained: 30<br>5-12, Departmentalized: 33                                       |                                                            |
| North Carolina                                                                                   | K-3: 18                                                                                                        |                                                            |
| Oklahoma                                                                                         | K-7: 20                                                                                                        |                                                            |
| South Carolina                                                                                   | PreK: 20<br>K-3: 30<br>4-5 ELA/Math: 30; other: 35; PE: 40<br>6 ELA/MATH: 30; other: 35<br>7-8: 35<br>9-12: 35 | Maximum: 28:1 in a school<br>K-3 Maximum: 21:1 in district |

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**Class Size and Student/Teacher Ratio Policies in SREB States and Massachusetts, continued**

|               | Class Size (Maximum Unless Otherwise Noted)              | Student Teacher/Ratio     |
|---------------|----------------------------------------------------------|---------------------------|
| Tennessee     | K-3: 20<br>4-6: 25<br>7-12: 35                           |                           |
| Texas         | K-4: 22                                                  | Maximum: 20:1 in District |
| Virginia      | Average/Maximum:<br>K: 24/29<br>1-3: 24/30<br>4-6: 25/35 |                           |
| West Virginia | K: 20<br>1-6: 25                                         |                           |

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## Class Size Requirements Impact School Size

- The relationship between class size and size of school enrollment
- Master planning requirements and guidelines set space requirements, for example:

$$\frac{\text{Number of spaces of each type} \times \text{Student capacity of each type of space}}{\text{School capacity for enrollment}}$$

- The physical size of a school can be set by state or local site size requirements
- State, county, and municipal wastewater requirements and capacities may limit the student capacity allowed

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## Educational Facility Master Planning in Arkansas

- An Educational Facility Master Plan (EFMP) is a six-year plan, required to be updated every two years in accordance with the Arkansas Public School Academic Facility Manual
- Components
  - Annual updates of district enrollment projections, linked to county level birth rates
  - Construction can be approved to the maximum capacity needed for the 10-year enrollment projections (exceptions can be granted if school board believes that projections are too high)
  - State shares in cost, subject to calculations and restrictions, for approved projects
  - State share is subject to facilities cost index

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## Contents of the Arkansas Public Schools Facility Manual

- **Purpose** - Clear guidance to school districts and design professionals, provide uniform parameters for school construction balancing quality, cost, and time (construction schedule)
- **Chapter 1: How to Use**
- **Chapter 2: Educational Facility Planning Concepts**
  - School facilities must be responsive to a school district's educational program, meeting current and future needs
- **Chapter 3: Education Framework**
  - Broad principles associated with organizational, facility, program, and service issues, including grade configuration, school size, and class size
  - Design principles for high performance learning environments, special education, career education
- **Chapter 4: Site Selection and Design**
  - Site access and traffic flow, drainage, play fields, playgrounds, fencing, lighting, exterior security
- **Chapter 5: Program of Requirements**
  - Assists districts in establishing the size and quantity of instructional and support spaces for new facilities and additions
  - Identifies an overall size in square feet for a facility and spaces that must be included
- **Chapter 6: Program Space Guidelines**
  - Contains space plates for each type of space-graphic representation of information related to features, furnishings, finishes
- **Chapter 7: Building Systems**
  - Design and performance standards for systems including HVAC, electrical, computer networking, plumbing, security
- **Chapter 8: Safety and Security**
  - Provides safety and security standards and guidelines

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## Researching Practices in Other States

- Searched state Department of Education websites regarding school construction for publications on school planning processes
- Confirmed information with state Department of Education officials
- Interviewed school architects active in Arkansas school construction
  - How do they understand the planning process, its intent, size approval authority
  - Do Educational Facility Master Planning and Program Requirements
    - Result in better facilities?
    - Provide cost effective designs?
    - Meet needs of the educational program defined by district educators?
    - Provide opportunities for public input?
  - Understand their opinions on school size decision making
- Compiled key components from various states for factors affecting school size

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AB39

## Components of School Size Decision Making

AB40

| State          | School Size                         | Number and Size of Spaces                         |                            |                                                 |                             |                      |                                                               |                          |
|----------------|-------------------------------------|---------------------------------------------------|----------------------------|-------------------------------------------------|-----------------------------|----------------------|---------------------------------------------------------------|--------------------------|
|                | School Size Guidelines (enrollment) | Class Size Regulations- maximum, minimum, average | Classroom Space Guidelines | Space Size Guidelines (square feet per student) | Student Capacity Guidelines | Site Size Guidelines | Required Spaces- classrooms, special education, common spaces | Ratio of Required Spaces |
| Arkansas       | no                                  | yes                                               | yes                        | yes                                             | yes                         | no                   | yes                                                           | yes                      |
| Alabama        | no                                  |                                                   | no                         | no                                              |                             | yes                  |                                                               |                          |
| Delaware       | no                                  |                                                   | yes                        | no                                              | yes                         | yes                  |                                                               |                          |
| Florida        | yes                                 | yes                                               | yes                        | yes                                             | yes                         | yes                  | yes                                                           |                          |
| Georgia        | no                                  | yes                                               | yes                        | no                                              |                             | yes                  |                                                               |                          |
| Kentucky       | no                                  | yes                                               | yes                        | yes                                             | yes                         | yes                  | yes                                                           |                          |
| Louisiana      | no                                  |                                                   | no                         | no                                              |                             | no                   |                                                               |                          |
| Maryland       | no                                  |                                                   | no                         | no                                              |                             | no                   |                                                               |                          |
| Massachusetts  | no                                  |                                                   | yes                        | yes                                             |                             | no                   |                                                               |                          |
| Mississippi    | no                                  | yes                                               | yes                        | yes                                             | no?                         | yes                  |                                                               |                          |
| North Carolina | yes                                 | no                                                | yes                        | yes                                             | yes                         | yes                  | yes                                                           | yes                      |
| Oklahoma       | no                                  |                                                   | yes                        | yes                                             |                             | yes                  |                                                               |                          |
| South Carolina | no                                  | no                                                | yes                        | yes                                             | no                          | yes                  | no                                                            | no?                      |
| Tennessee      | no                                  |                                                   | no                         | no                                              |                             | no                   |                                                               |                          |
| Texas          | no                                  | Yes                                               | no                         | no                                              | no                          | no                   | yes                                                           | yes                      |
| Virginia       | no                                  | yes                                               | yes                        | no                                              | no                          | yes                  | yes?                                                          | no?                      |

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## Slide 12

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**AB39** Correct Arkansas class size regulations to a "yes" also bold  
Arkansas info

Amanda Brown, 6/30/2020

**AB40** When we say school size in the first column does that mean  
enrollment size?

Amanda Brown, 6/30/2020

## Components of School Size Decision making

| State          | Enrollment Projections |                                           |                                 | Planning                                                | Approval Authority          |                                                 |                                              |
|----------------|------------------------|-------------------------------------------|---------------------------------|---------------------------------------------------------|-----------------------------|-------------------------------------------------|----------------------------------------------|
|                | Frequency              | Birth Rate Level-<br>municipal,<br>county | Future Year for<br>Construction | Educational Facility Master Planning (EFMP) requirement | Approval Authority by state | Financial Share-state and local school district | Penalties for non-compliance with guidelines |
| Arkansas       | annual                 | county                                    | 10 year                         | yes                                                     | yes                         | yes                                             |                                              |
| Alabama        |                        |                                           | 5 year                          | yes                                                     | yes                         |                                                 |                                              |
| Delaware       |                        |                                           |                                 | no                                                      |                             |                                                 |                                              |
| Florida        |                        |                                           |                                 | yes                                                     | yes                         | yes                                             |                                              |
| Georgia        |                        |                                           | 5 year                          | yes                                                     | yes                         |                                                 |                                              |
| Kentucky       |                        |                                           | 4 year                          | yes                                                     | yes                         | yes                                             | yes                                          |
| Louisiana      |                        |                                           |                                 |                                                         |                             |                                                 |                                              |
| Maryland       |                        | state                                     |                                 | yes                                                     |                             | yes                                             |                                              |
| Massachusetts  |                        |                                           |                                 |                                                         |                             |                                                 |                                              |
| Mississippi    |                        |                                           |                                 |                                                         |                             |                                                 |                                              |
| North Carolina |                        |                                           | 5 year                          | yes                                                     | yes                         | yes                                             |                                              |
| Oklahoma       |                        |                                           |                                 |                                                         |                             |                                                 |                                              |
| South Carolina |                        |                                           | 5 year                          | no                                                      | yes                         |                                                 |                                              |
| Tennessee      |                        |                                           |                                 |                                                         |                             |                                                 |                                              |
| Texas          |                        |                                           |                                 | yes                                                     |                             |                                                 | no                                           |
| Virginia       |                        |                                           |                                 | no                                                      |                             |                                                 | no                                           |

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## Components of School Size Decision Making

| State          | Design Assistance                           |                                     |                                                              |                                    |
|----------------|---------------------------------------------|-------------------------------------|--------------------------------------------------------------|------------------------------------|
|                | By Educational Architects employed by state | Educational Specifications Required | Design Guidelines by Type of Space-layout, size, furnishings | Prototype Designs of Model Schools |
| Arkansas       | yes                                         | yes                                 | yes                                                          | no                                 |
| Alabama        | yes                                         | yes                                 |                                                              |                                    |
| Delaware       |                                             |                                     |                                                              |                                    |
| Florida        | yes                                         | yes                                 | yes                                                          |                                    |
| Georgia        | yes                                         |                                     |                                                              |                                    |
| Kentucky       | yes                                         | yes                                 | yes                                                          |                                    |
| Louisiana      |                                             |                                     |                                                              |                                    |
| Maryland       |                                             |                                     |                                                              |                                    |
| Massachusetts  |                                             |                                     |                                                              |                                    |
| Mississippi    | no                                          |                                     |                                                              |                                    |
| North Carolina | yes                                         | yes                                 | yes                                                          |                                    |
| Oklahoma       |                                             |                                     |                                                              |                                    |
| South Carolina | yes                                         | no                                  | no                                                           | no                                 |
| Tennessee      |                                             |                                     |                                                              |                                    |
| Texas          | no                                          |                                     | yes                                                          | no                                 |
| Virginia       | no                                          |                                     | yes                                                          | no                                 |

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## North Carolina Example

- Finance Act of 1987 established NC Public School Facilities Standards; in 1996 the NC General Assembly directed that facility *standards* become facility *guidelines*.
- Public School Facilities Task Force appointed in 1996 to recommend revisions to the guidelines, which define and describe minimum facilities to ensure educational program appropriateness and long-term cost efficiency. Guidelines are recommended *minimums* and should not be construed as *averages* or as *standards*, except where noted for science rooms (due to science lab safety regulations).
- “Guidelines are meant to provide strong direction for school design, while maintaining local control of that process.”
- “..flexibility is essential to good design, but cannot be allowed to become a means of lowering guidelines.”
- “The facility guidelines do not replace the need for educational specifications...that should be developed to describe the educational program to be implemented.”

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## North Carolina Example (continued)

- School Facilities Finance Act of 1987 required local boards of education to develop long-range organizational and facility plans
  - Long-range plans required in 1998 and every five years thereafter
- Funding – state share
  - Bond issues: 1949, 1953, 1963, 1973, 1996
  - Public School Building Capital Fund-1987, funded by portion of Corporate Income Tax; 2005, NC Education Lottery
- State guidelines encourage boards of education to study the issue of optimal school size, recognizing that “local conditions may require differences in school size, which are smaller or larger in membership than the optimum”

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## North Carolina Example (continued)

- North Carolina Department of Public Instruction and State Board of Education believe school buildings of the following size ranges can “offer excellent educational programs that include a comprehensive curriculum...”
  - Elementary schools ranging from 450 to 700 students
  - Middle schools ranging from 600 to 800 students
  - High schools ranging from 800 to 1,200 students
- Research on school climate and safety suggest, however, that smaller sizes may have certain advantages...for improved safety and violence reduction:
  - Elementary schools ranging from 300 to 400 students
  - Middle schools ranging from 300 to 600 students
  - High schools ranging from 400 to 800 students

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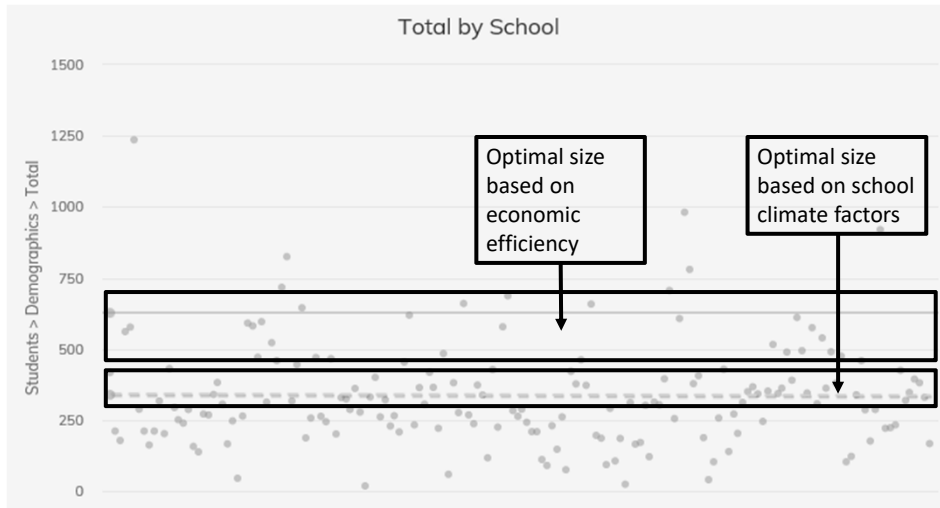
## Comparison of Space Sizes and Student Occupancy: Arkansas and North Carolina

Arkansas developed the Program Requirements approach which sets maximum numbers of students in various types of spaces. The enrollment capacity of a school is set by the quantity of spaces required of each type and the student capacity of each type of space.

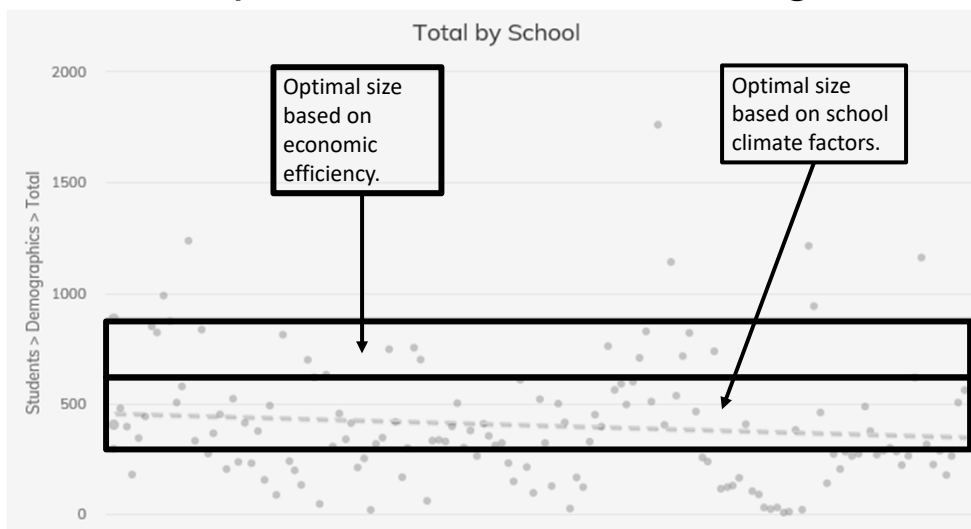
| Type of Space                     | Students/ Regular Classroom or Teaching Station |                   | Size of Spaces (square feet) |          |
|-----------------------------------|-------------------------------------------------|-------------------|------------------------------|----------|
|                                   | North Carolina                                  | Arkansas, maximum | North Carolina               | Arkansas |
| Regular Classrooms                |                                                 |                   |                              |          |
| Pre-Kindergarten                  | 18                                              | 20                | 1200                         | 1000     |
| Kindergarten                      | 18                                              | 25                | 1200                         | 850      |
| Grade 1                           | 17                                              | 25                | 1000                         | 850      |
| Grade 2-3                         | 17                                              | 25                | 1000                         | 850      |
| Grades 4-5                        | 26                                              | 28                | 850                          | 850      |
| Grade 6                           |                                                 | 28                |                              | 850      |
| Grades 6-8                        | 26                                              | 30                | 950                          | 850      |
| Grades 9-12                       | 18 to 21                                        | 30                | 850                          | 850      |
| Other Teaching Stations           | 3                                               |                   |                              |          |
| Art, Elementary                   |                                                 |                   | 1200                         | 1200     |
| Art, Middle School                |                                                 |                   | 1400                         | 1200     |
| Computer Classroom, Elementary    |                                                 |                   | 850                          | 900      |
| Computer Classroom, Middle School |                                                 |                   | 1000                         | 900      |
| Computer Classroom, High School   |                                                 |                   | 850                          | 900      |
| Music                             |                                                 |                   | 1000                         | 1200     |
| Science, Elementary               |                                                 |                   | 1100                         | 850      |
| Science, Middle School            |                                                 |                   | 1100                         | 850      |
| Science, High School              |                                                 |                   | 1200                         | 850      |
| Science, Labs                     |                                                 |                   |                              | 1440     |
| Science, High School Chemistry    |                                                 |                   | 1500                         | 1440     |
| Special Education, Resource Rooms |                                                 |                   | 450                          | 450      |
| Special Education, Classrooms     |                                                 |                   | 1200                         | 850      |
| Workforce Development Labs        |                                                 |                   |                              |          |
| Agriculture, Trade, and Industry  |                                                 |                   | 3000                         | 3000     |
| Trade and Industry                |                                                 |                   | 2500                         | 3000     |
| Technology                        |                                                 |                   | 2000                         | 1500     |
| Communications/Miscellaneous      |                                                 |                   | 1500                         | 1500     |
| Vocational Classrooms             |                                                 |                   | 750                          | 850      |

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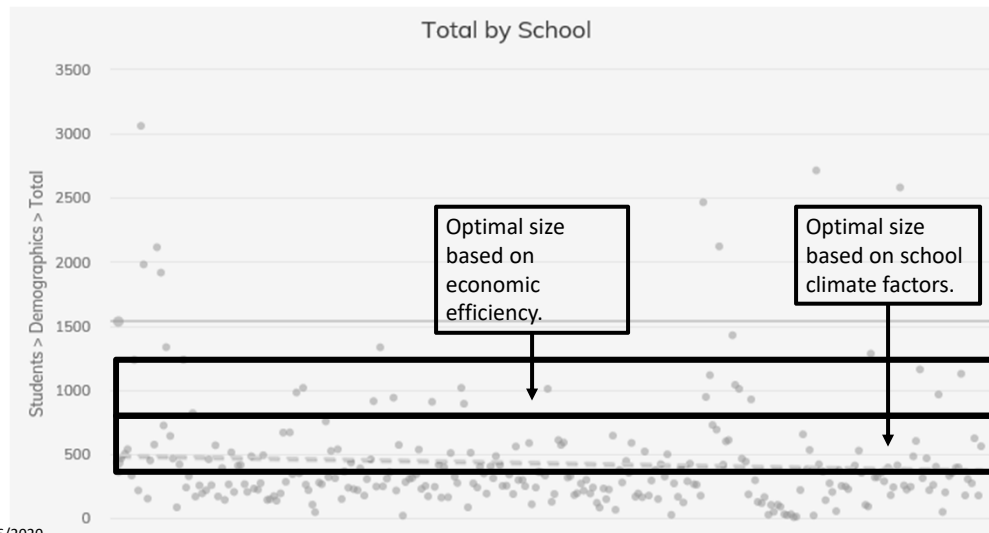
## Arkansas Elementary Schools Within North Carolina Optimal School Size Ranges



## Arkansas Middle Schools Within North Carolina Optimal School Size Ranges



## Arkansas High Schools Within North Carolina Optimal School Size Ranges



### Best Practices from Other States *Public Input*

- Appointment of Local Planning Committee: wide representation, develops District Facility Plan, for review and approval by state school architects, then school board approval, meetings open to the public
- Required public hearing with required topics (design efficiency ratios, cost factors compared to limits), hearing officer prepares report
- Must justify if design efficiency measures are beyond limits, financial penalties if not
- Public comments reviewed by state school construction approval authority
- authority

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## Best Practices from Other States

### *Enrollment Projections*

- Based on municipal level birth rates
  - As proven by the Great Recession, birth rates can decline as much as 30% due to economic uncertainty and birth rate changes vary by areas within a district
  - These variations mean that some attendance areas within a district can be growing while others are declining
  - Variations between years can also result in different sizes of age cohorts (students in a grade level) between years
    - Enrollments may be growing at some grade levels and declining in other grade levels
- authority

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## Best Practices from Other States

### *Model of Program Spaces*

- Sets quantity of various spaces at different enrollment ranges
- Facility planning calculator, like Program of Requirements in Arkansas, results in establishing a school capacity for each school and by grade level configuration for all schools in a district. The capacity figure is used to:
  - Compare projected enrollment to capacity
  - Consider of sharing agreements between bordering districts when one district has excess capacity and the other district needs capacity

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## Best Practices from Other States

### *Design Efficiency Ratios*

- Total space limited by ratio to classroom space, e.g. total space cannot exceed 1.58 times classroom space, financial penalties if design efficiency factors exceed limits
- Renovation costs cannot exceed an established percentage (80%) of new construction costs

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## Best Practices from Other States

### *Other Approvals and Review*

- Other approvals required
  - Compliance with municipal zoning and municipal, county, and state planning approvals that may establish site size, school size, community use spaces, and other factors. Site and building requirements and limits may preclude renovation and additions to older schools.
- Review of school design plans and specifications
  - By specialists in school/education architecture in detail at various stages of the design process
- **authority**

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## Best Practices from Other States

### *Funding*

- State share adequate to enforce design standards and guidelines
  - Incentives for consolidating very small schools
  - Sparsity funding, travel time limits set to justify small schools in sparsely populated areas
  - Transition facilities being phased out – funding limits to minimize wasting of renovation costs
- 
- **authority**

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## Questions?

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