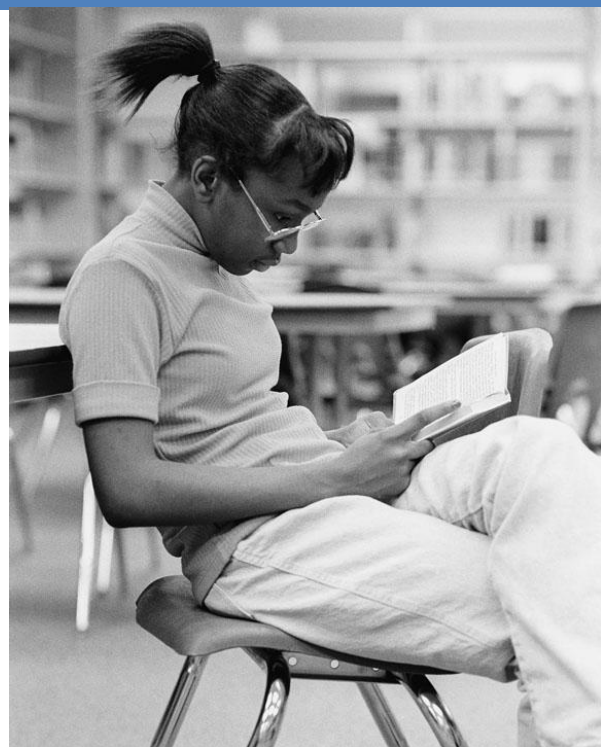


## BY DESIGN NOT DEFAULT: OPTIMIZING DISTRICT SPENDING ON SMALL HIGH SCHOOLS



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## Executive Summary

School districts across the country are redesigning their portfolios of high schools to include more small high schools. Over the past three years Education Resource Strategies (ERS), with the support of the Bill & Melinda Gates Foundation, partnered with both schools and districts to understand spending in small high schools and document how these schools leverage all of their resources—people, time, and dollars—to best support student learning.

ERS’s work demonstrated a clear and consistent pattern: districts spent 10 to 20 percent more per pupil on small high schools than they did on large high schools, for two primary reasons:

- Small high schools tended to be staffed and run like large high schools
- Districts deliberately awarded additional staff to small schools above required staffing levels (Frank & Feinberg, 2008)

This additional spending is not necessarily undesirable. Schools with lower per-pupil spending often suffer from insufficient resources and extra spending may be necessary to boost achievement. In addition, if, as some research suggests, more students stay in school and graduate from small high schools than from large high schools, higher spending on small schools may even result in a lower cost per graduate.

But not all of this higher spending is necessarily inevitable, and in these challenging fiscal times, spending more on small schools will not always be possible. ERS’s research with many districts indicates that how *much* money districts spend may not be as important as *how* they spend it. *What matters is that small schools are created by design and not by default.* High-performing small schools—at all levels, not just high schools—have clear and coherent designs guiding curriculum, instruction, and resource use. Districts that expect students to achieve at higher levels simply because they have fewer schoolmates will generally be disappointed. Rather, reducing school size must be accompanied by rethinking the rules and working “outside the box” to help schools focus on implementing effective, focused designs that help all students achieve.

As district leaders think about the optimal size and structure for new small schools aiming to create and achieve a powerful educational vision, this paper can help them understand and strategically manage several aspects of funding these schools. Although this paper looks solely at high schools, the overall lessons about funding levels and effectively allocating resources apply to all small schools. The paper looks at:

1. The total amount of extra spending per pupil they’re allocating to operate small high schools, given the district context;

2. Which elements of small school design typically drive increased spending;
3. How much extra investment is required during the start-up and ramp-up periods; and
4. What impact the creation of new small schools has on building usage and enrollment projections.

ERS has developed a tool to help decision makers better understand, quantify, and more strategically deploy the resources used to support small high schools in their own district contexts. This paper uses this tool, called the “Small School Spending” (SSS) tool, to model how resources would be allocated to small schools if districts, as they typically do, use large high school rules to govern allocation. The tool allows district and school leaders to plug in numbers representing current district practice (e.g., number of guidance counselors allocated to each school) and change the assumptions to model different scenarios in terms of school size, staffing ratios, etc. The model helps decision makers clearly understand the tradeoffs involved in allocating resources, and opens the door to more flexible and effective resource allocation strategies.

Typically, the additional spending in small schools is allocated to:

- Leadership and pupil support functions, because these “fixed” positions (e.g., a principal or a guidance counselor) are spread over fewer students,
- Special education and English Language Learner programs, because it is more difficult to create groupings of students with similar needs in classrooms, and
- General education teachers, because specialty or advanced subject courses may be more difficult to fill to target levels.

Per-pupil expense is even higher during the ramp-up period; however, research suggests that schools may need significant support and extra staff to ensure a strong start. In addition, creating small schools within buildings designed to hold larger schools may significantly reduce a district’s physical seat capacity.

*Unless strategically managed, this extra spending may actually divert resources from most students’ core instruction.* Much of the extra spending on small high schools comes from the practice of allocating staff positions instead of dollars to schools, combined with the difficulty of making full use of specialized staff positions with smaller numbers of students. A simple way to reduce extra spending on small schools, and ensure that resources are focused where they can most benefit students, might involve allocating equal dollars per student to schools regardless of

size. These dollars could be weighted to account for differing student needs. When providing this kind of flexibility, districts also need to provide support to schools in using their resources effectively to implement their strategic plan and instructional vision, and put in place appropriate accountability systems. Instead of mandating inputs and monitoring compliance, district leaders should focus on what schools need to do to meet their goals and support them in reallocating resources to use them more effectively.

To create successful small schools, district decision makers must move beyond using their traditional resource allocation policies and practices towards strategies that ensure sufficient and equitable resources across schools and also promote the strategic organization of school-level resources to improve instruction and better support teachers and students. Doing so requires that district leaders:

- Create or adopt an overall school design or set of designs (governing size, structure, and instructional vision) for small schools that when fully implemented are viable within a specified expense level.
- Ensure that schools have flexibility to allocate resources in ways that make sense.
- Build the capacity of district-level school supervisors and their support staff to help school leaders determine how to most effectively allocate their resources, and change budget development and staffing processes to better support schools.
- Strategically manage the assignment and distribution of special needs students to ensure that schools can cost-effectively provide the expert support they need.
- Equitably allocate resources for ramp-up costs to small schools; all schools will not receive the same amount as each one faces different design challenges.
- Plan for potential impact on overall seat capacity.

Implementing these changes is not easy. In the end, district leaders may decide their extra investment in small high schools is justified, believing that student performance will improve and thereby the additional investment will be justified. This paper and ERS's SSS model aim to help leaders make sure that this extra spending is allocated in ways that are most likely to improve student performance—by design, not by default—and to identify policies and practices that will support small school leaders in creating truly new and effective designs for high schools.

## Introduction

School districts across the country are redesigning their portfolios of high schools to include more small high schools. Over the past three years Education Resource Strategies (ERS), with the support of the Bill & Melinda Gates Foundation, has partnered with both schools and districts to understand spending in small high schools and document how these schools leverage all of their resources—people, time, and dollars—to best support student learning.

ERS' district study involved a comprehensive examination of district resource use in Baltimore City, Boston, and Chicago to understand how much districts spent on their small schools and whether small high schools used their resources differently than large high schools (Frank & Feinberg, 2008). In the school study, ERS conducted case studies on nine urban “Leading Edge” small high schools (high-performing schools with innovative organization and resource use) from across the country to better understand school-level spending and take a detailed look at how these schools use their resources (Shields & Miles, 2008). Both studies explored the conditions in these districts and schools that support or constrain schools in organizing effectively.

These studies demonstrate a clear and consistent pattern across districts: districts spent more per pupil on small high schools than they did on large high schools, for two primary reasons:

- Small high schools tended to be staffed and run like large high schools.
- Districts deliberately awarded additional staff to small schools above required staffing levels (Frank & Feinberg, 2008)

This additional spending is not necessarily undesirable. Schools with lower per-pupil spending often suffer from insufficient resources and extra spending may be necessary to boost achievement. In addition, if, as some research suggests, more students stay in school and graduate from small high schools than from large high schools, higher spending on small schools may even result in a lower cost per graduate.

But this higher spending is not necessarily inevitable, and in these challenging fiscal times, spending more on small schools will not always be possible. ERS's research with many districts indicates that how *much* money districts spend may not be as important as *how* they spend it. *What matters is that small schools are created by design and not by default.* High-performing small schools—at all levels, not just high school—have clear and coherent designs guiding curriculum, instruction, and resource use. Districts that expect students to achieve at higher levels simply because they have fewer schoolmates will generally be disappointed. Rather, reducing school size must be accompanied by rethinking the rules and working “outside the box” to help schools focus on implementing effective, focused designs that help all students achieve.

As district leaders begin to think about the optimal size and structure for successful new small schools, they need to understand and strategically manage several aspects of funding these schools, including:

1. The total amount of extra spending per pupil they're allocating to operate small high schools, given the district context;
2. Which elements of small school design typically drive increased spending;
3. How much extra investment is required during the start-up and ramp-up periods; and
4. The impact of creating new small schools on building usage and enrollment projections.

Once district leaders clearly understand why they spend more on small schools, they can then reallocate resources or provide different kinds of support to schools to ensure that higher spending is not merely the by-product of less economy of scale, but instead strategically contributes to improved instruction. District leaders can also make thoughtful decisions about what is within budget limitations—how many small schools they can support, what school designs are affordable, etc. Although this paper focuses solely on small high schools, the overarching principles and lessons apply to all small schools.

## The “Small School Spending” Tool

ERS has developed a tool to help decision makers better understand, quantify, and more strategically deploy the resources used to support small high schools in their own district contexts. This paper uses this tool—called the “Small School Spending” (SSS) tool—to model how resources would be allocated to small schools if districts, as they typically do, use large high school rules to govern allocation. The tool allows district and school leaders to plug in numbers representing current district practice (e.g., number of guidance counselors allocated to each school) and change the assumptions to model different scenarios in terms of school size, staffing ratios, etc. The model helps decision makers clearly understand the tradeoffs involved in allocating resources.

It is important to note that the discussion in this policy brief, along with the tool itself, focuses only on annual operating expenditures<sup>1</sup> per student, which leaves out two important factors that should also be part of strategic spending decisions. First, we do not consider the cost of constructing and maintaining new facilities or reconditioning existing facilities, which can be significant depending on the district context. Second, we do not try to link spending with any measure of output, such as a “cost per graduate,” that would measure cumulative school spending for each graduate. Some research has demonstrated that small high schools have

higher graduation rates than large comprehensive high schools (Lawrence et al., 2002; Stiefel et al., 2000; Tung et al., 2004). If this held true, then with drop-out rates nearing 50 percent in some urban districts, schools might be able to spend significantly more per student and still reduce the “cost per graduate.” We focus here on per-student operating spending, not because the above issues aren’t important, but because we have found that many district leaders and policy makers are not aware of and not deliberately managing the extra spending on small high schools. This lack of attention means that district leaders are not taking steps to ensure that this spending contributes to effective school designs.



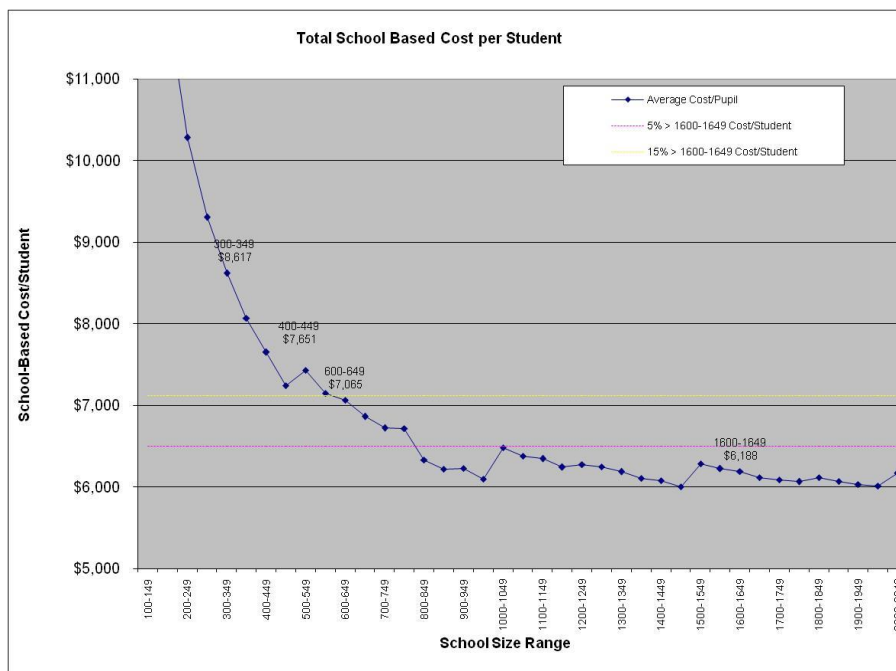
## Understanding and Managing Spending in Small Schools

### 1. How much more do most districts spend on small high schools than large ones?

In our study of resource use in three urban districts, we found that the districts spent more per student in small high schools than in large high schools. In 2005-06, Chicago Public Schools spent an average of 10 percent per student more on high school students in schools smaller than 499 than on students in high schools of 1000 or more. Similarly, Boston Public Schools spent 19 percent more per student in its small high schools than in high schools of 1000 or more (Frank & Feinberg, 2008). Both of these districts allocate staff positions instead of dollars to schools, meaning schools have limited flexibility in how to use those resources to support their designs. These districts make few adjustments to large high school rules to reflect the impact of size and/or design on how a school should use resources.

Using the SSS tool indicates that if they use typical staffing and budgeting policies and serve similar student populations, districts can expect to see this level of spending differential between small and large schools, if not more (Figure 1). Using the model to predict spending patterns, a school of 499 students would spend about 20 percent more per pupil than a school of 1600 or more. Once school size drops below 450, spending is even higher and increases dramatically; a school with 300-349 students would spend 30 to 40 percent more per pupil than a school of 1600.

**FIGURE 1: Per-Student Spending in High Schools** (generated using the SSS tool)



## Implications

District decision makers intending to create schools with less than 499 students must either be prepared to invest significantly more per student than in traditional schools, operate schools at staffing levels less than what the standard policies provide, change resource allocation policies, or adjust or abandon existing staffing policies for small schools altogether. As the next section demonstrates, much of the extra spending on small high schools comes from the practice of allocating staff positions instead of dollars to schools, combined with the difficulty of making full use of specialized staff positions with smaller numbers of students.

### **2. What drives increased spending in small schools?**

School and district leaders need to understand the sources of extra spending in small schools. The SSS tool highlights the typical reasons for higher spending on small high schools and can help district leaders explore when and how the extra investment might not only be unavoidable, but in fact contribute to higher student performance.

Districts spend more on small schools in three main areas, which are described in greater detail below:

- a) Leadership and pupil support**
- b) Special education and English Language Learner (ELL) programs**
- c) General education teachers**

*a) Small schools typically spend more per student on leadership and pupil support because these “fixed” positions are spread over fewer students.*

Typical district staffing policies provide minimum full-time equivalents (FTEs) for several position types in leadership and pupil support. All schools, regardless of size, typically have fixed leadership positions including a principal, school secretary, and office clerk, and fixed pupil services positions such as guidance counselor, clerk, and school nurse. If the cost of a principal is, for example, \$125,000, the SSS tool illustrates (Figure 2) that in a small school, the cost per student for the principal is \$278, while at a larger school, that same principal position costs only \$78 per student. This holds true across many leadership and pupil services positions (Figures 2 and 3).<sup>2</sup>

**FIGURE 2: Spending on Leadership Positions**

Position Type	DESIRED SMALL SCHOOL			REGULAR SCHOOL			Diff in Cost/Student
	Total FTEs	Total Expense	Total Expense/Student	Total FTEs	Total Expense	Total Expense/Student	
Principal	1.00	\$ 125,000	\$ 278	1.00	\$ 125,000	\$ 78	\$ 200
Assistant Principal	0.00	\$ -	\$ -	3.00	\$ 300,000	\$ 188	\$ (188)
School Secretary	1.00	\$ 45,000	\$ 100	2.00	\$ 90,000	\$ 56	\$ 44
Other Clerical Support	1.00	\$ 45,000	\$ 100	3.00	\$ 135,000	\$ 84	\$ 16
Non-Personnel		\$ 16,250	\$ 36		\$ 45,000	\$ 28	\$ 8
<b>Total, Leadership</b>	<b>3.00</b>	<b>\$ 231,250</b>	<b>\$ 514</b>	<b>9.00</b>	<b>\$ 695,000</b>	<b>\$ 434</b>	<b>\$ 80</b>

**FIGURE 3: Spending on Pupil Services Positions**

Position Type	DESIRED SMALL SCHOOL			REGULAR SCHOOL			Diff in Cost/Student
	Total FTEs	Total Expense	Total Expense/Student	Total FTEs	Total Expense	Total Expense/Student	
Guidance Counselor	1.00	\$ 70,000	\$ 156	3.00	\$ 210,000	\$ 131	\$ 24
Guidance Clerk	1.00	\$ 35,000	\$ 78	1.00	\$ 35,000	\$ 22	\$ 56
Nurse	1.00	\$ 50,000	\$ 111	1.00	\$ 50,000	\$ 31	\$ 80
Social Worker/Attendance Counselor	0.50	\$ 35,000	\$ 78	2.00	\$ 140,000	\$ 88	\$ (10)
Security Guard	1.00	\$ 35,000	\$ 78	5.00	\$ 175,000	\$ 109	\$ (32)
SWD Related Service Provider	1.25	\$ 87,500	\$ 194	4.00	\$ 280,000	\$ 175	\$ 19
Non-Personnel		\$ 2,250	\$ 5		\$ 8,000	\$ 5	\$ -
<b>Total, Pupil Services</b>	<b>5.75</b>	<b>\$ 314,750</b>	<b>\$ 699</b>	<b>16.00</b>	<b>\$ 898,000</b>	<b>\$ 561</b>	<b>\$ 138</b>

In some districts, additional FTEs are triggered above various enrollment thresholds (i.e., a second guidance counselor is added at 1000 students, a third at 1500, etc.); however, the per-student cost of one position spread across the student body of a small school is generally greater than when multiple FTEs are spread across a significantly larger population.

Appendix I describes common district staffing practices in more detail and goes into greater depth on how fixed and ratio-based positions impact cost structure.

Together, per-student spending differences in leadership and pupil services between small and large schools in a district using traditional staffing policies comprise roughly 17 percent of the total difference in funding levels in this sample district (see Figure 4). Districts that have more fixed positions, or that have larger jumps between trigger points for additional staffing (e.g., additional assistant principals added every 750 students instead of every 250 students) will have greater spending differences between small and large schools. Districts that peg more of these positions to smaller increments of students or that allocate positions in .5 FTE increments (for example, a half-time guidance counselor added every 250 students versus a full-time position added every 500) will typically have smaller differences.

**FIGURE 4: Per-Pupil Spending Differences in Small and Large High Schools**

Function	Small School	Large School	\$ Difference	% Difference	% of Total \$ Difference
Instruction – general ed only	\$3,686	\$3,138	\$549	17%	44%
Instruction – special ed and EL only	\$2,133	\$1,797	\$336	19%	27%
Pupil services	\$699	\$561	\$138	25%	11%
Leadership	\$514	\$434	\$80	18%	6%
Instructional support and PD	\$154	\$101	\$54	53%	4%
Operations and maintenance	\$236	\$153	\$82	54%	7%
Business services	\$10	\$10	—	0%	0%
Total	\$7,433	\$6,194	\$1,239	20%	100%

## Implications

*Investing more in leadership and pupil support shouldn't be perceived as an inherently bad strategy or "waste" of resources.* On the contrary, principals who have fewer teachers to supervise and guidance counselors with lower student case loads can contribute greatly to improved instruction and support of students. In our case studies of high-performing small schools, we expected to find that schools with flexibility might shift leadership and pupil support resources toward instruction. Instead, we found that except for schools with extremely low overall spending levels, case study schools kept the higher level of per-student spending on these functions and *in some cases added to it* (Shields & Miles, 2008).

Effective and strategic leadership can be a critical element of a successful school—if school and district leaders deliberately and thoughtfully rethink their investment in leadership and support positions. Decisions about how many of these positions a school needs—and who fills them—should be driven by a coherent instructional vision, a clear understanding of the school's needs, and the skills and capacities of current and new staff members.

District decision makers may view the creation of small schools as an opportunity to strategically redefine the role of a school principal. In large schools, effective principals are often viewed as those who run a tight ship – creating an orderly school environment and complying with the various district/programmatic requirements. Just by nature of its size, these traditional management challenges may be less burdensome in a small school, which may provide decision makers with an opportunity to define the principal position as a true instructional leader and then recruit into the role someone with significant capacity in this area.

Schools need enough flexibility in using staff resources to allow them to organize staff in ways that best support their designs and instructional goals. Districts must ensure that small schools have the flexibility to define positions in ways that don't narrowly constrain the expected responsibilities and allow staff members to contribute in various ways to the school's program. A school with 450 students may not need a full-time guidance counselor even if it is entitled to one. Instead, one (qualified) person could serve as a part-time guidance counselor and also fulfill other roles within the school that support its overall design (e.g., attendance registrar). The same can apply to clerical support staff, who may be able to play additional roles in the school since fewer students will often mean less time needed for traditional clerical tasks. It is important to keep union rules in mind, as districts may need to negotiate for such flexibility.

*b) Small schools typically spend more on special education and ELL students because it is more difficult to create groupings of students with similar needs in classrooms.*

The primary driver of school-based special education spending is student-teacher ratio: the fewer students assigned to a self-contained class or the lower a resource teacher's caseload, the greater the school's per-student expense. These ratios are typically bound by state- or district-mandated maximums, usually varying by disability and environment type, and they severely constrain schools' flexibility to manage costs. In addition, because the numbers and mix of special needs students often cannot be controlled across schools, schools may have some classes that are well below the target/maximum size for the students it serves.

Unless districts manage assignment very closely, are able to combine students across many categories of disability, and happen to enroll children whose needs coincide with available spaces, the average class sizes for self-contained special education classes are usually significantly lower than legal maximums. In our work with districts, we have found self-contained special education class size averages ranging from 40 percent to 80 percent of these maximums. The smaller the school, the harder it is to manage the exact number of students and the more often these class sizes dip well below target. Therefore, unless there are specific restrictions on which students may enroll, small schools that serve a true cross-section of students typically spend significantly more per pupil on special education.

The SSS tool illustrates the magnitude of the differences. A self-contained class of five students served by a teacher and an aide with a total cost of \$105,000 generates a per-student cost of \$21,000, in contrast to a class of seven students, for which the teacher and aide costs \$15,000 per student. Depending on the share of the school's total student population that is served in self-contained placements, these differences can have a significant impact on the school's overall cost per student.

Another factor influencing the extra costs for small schools associated with special needs learners is district policy governing the assignment of special education students. Some districts require every neighborhood school to serve students regardless of their needs and it may not be possible to reassign particular students to other schools. Others are more aggressive in assigning

students to schools where they can concentrate expert resources to serve them. In these districts, we would expect the group sizes to be larger and therefore cost per student to be smaller.

Districts that have lower maximum class sizes and caseloads, less flexibility in how students are grouped (i.e., constraints on multiple disability types in the same self-contained classroom), and policies that limit how schools can allocate resources will typically have larger differences between small and large schools.

The principles driving higher spending on special education students also apply to English Language Learners (and any other special population that receives specialized services), though to a lesser degree. In addition, because the restrictions on the type and nature of specialized services for ELLs are generally less stringent than those for special education students, districts may provide different services to ELLs in small and large schools. For example, a large school with a critical mass of ELLs may be able to offer sheltered instruction in all core subjects (which requires one or more dedicated classes in each subject with a teacher capable of providing sheltered instruction). In contrast, a small school may provide sheltered instruction only in English classes.

One important caveat is that space considerations may significantly impact the number of self-contained classes that can be operated at small schools. With much smaller group sizes than large schools, small schools may find that physical space is a key driver of the type and number of special education or other special needs students who can be placed in small schools.

## Implications

The primary leverage point district decision makers have in managing these costs is to control the number and type of students with special needs who are served in small schools. By choosing, for example, not to offer placements to self-contained students in small schools, the district can avoid the problem of having to provide a self-contained teacher and aide to very small numbers of students and can capture staffing efficiencies by clustering them in larger schools.

However, as discussed above, laws and regulations governing assignment and placement of special needs students may make this impossible. And, clustering students with specific special needs in any school, large or small, may measurably change its composition and school culture. It can also make it more difficult to serve students in inclusion settings if a large share of the enrollment is in special education.

Alternatively, districts may elect to place specific programs to serve students with special needs at small schools. Some schools may find that such programs strengthen their instructional designs and enrich the culture of the school. A small school must ensure that a special needs program, like any program, is strategically aligned with its design and contributes to its overall program. In addition, the district should make a long-term commitment to house this kind of

special needs program in that school to avoid disruption to both the school and the students in the program.

*c) Small schools often spend more on general education teachers, because specialty or advanced subject courses may be more difficult to fill to target levels.*

Small schools may require more teacher positions than the district's staffing ratio<sup>3</sup> provides, driven by three often overlapping conditions.

The first is course diversity. If the vision for a small school includes offering a diverse set of courses, then the school may have difficulty efficiently matching staff capacity to specific course offerings and student schedules. For example, if a small school wants to offer multiple foreign languages (and multiple levels for each language), it may need more foreign language teachers than the student enrollment numbers would suggest. A school of 300 students with a target class size of 25 that wants to offer a choice between Spanish I and French I to all of its 75 ninth graders will likely need to offer four sections (with an average class size of 18 or 19) to ensure that no one class is significantly larger than 25 students (unless the school caps enrollment in one of the languages at 25). This phenomenon continues and grows across levels: if the school is committed to offering Spanish 4 and French 4, it must allocate teachers to those sections, even if only a handful of students choose to enroll (and if those students don't have compatible schedules, it may take multiple sections to serve them).<sup>4</sup> As a result, the school may need an extra full-time foreign language position beyond what the class size assumptions and staffing ratios would dictate.

Second, a district's graduation requirements may require teacher staffing beyond what the ratios provide. If a district requires all students to take a computer literacy class and that class is typically taught by a computer teacher (who may or may not teach other courses), then small schools will have more difficulty staffing these course requirements efficiently. A school of 300 students with 70 to 80 students per grade would need to offer three sections of this course (as all students must take the course once before graduating), leaving two periods of this teacher's time unused. If those periods can be used to cover courses in a different subject (or if the teacher can be staffed part-time at a different school), then there is no loss in teacher assignment efficiency. If not, then the school needs to have additional teacher time allocated to it beyond what the ratio provides, or compensate for the inefficiency by scaling back teacher time devoted to other subjects.

Finally, teacher certification restrictions may generate challenges for teacher staffing in small schools that can limit flexibility. In a school that assigns five periods to each teacher, it may be easier to create portfolios of exactly five periods per teacher if a few teachers can teach multiple subjects. Using the above example, if the teacher assigned to the three computer literacy sections can also teach two sections of math, then the graduation requirement can be met without any loss of teacher assignment efficiency. However, if the state or district certification rules state that math teachers must have math certification and computer teachers must have a



technology certification, then such a combination of courses would not be permitted unless the teacher held both certifications; if not, the school would have to handle the efficiency loss and the associated extra cost.

These teacher staffing issues play a significant role in the overall expense difference between small and large schools. A school of 300 students that needed to add three teachers due to the conditions described above would spend an extra \$600 per student—20 percent more than a large school’s general education teacher cost, roughly 10 percent more than the large school’s total cost, and up to a third of the total spending difference between small and large schools.

## Implications

First, district decision makers can control instructional costs in small schools by focusing course offerings around the school’s theme or signature program and district graduation requirements. A school of 300 students with a focus on technology, for example, may not detract from its academic vision by only offering a single foreign language. In fact, our analysis of leading edge schools showed that they generally provided a very narrow course of study—all students took all or almost all of the same courses (Shields & Miles, 2008).

Second, small schools may benefit from “creative” staffing arrangements such as hiring part-time staff or sharing staff across schools. In the computer literacy course requirement example above, sharing a single teacher across two small schools could allow both to offer two to three sections of the class without any loss in teacher assignment efficiency. Similarly, finding a teacher who is willing to work part time to teach two to three sections of a foreign language could enable a small school to offer multiple languages without compromising efficiency. Or the school could outsource one of the foreign languages entirely. These “creative” solutions may be quite difficult to do—there may be a very small pool of people who are properly qualified to teach a foreign language and who would want to work part time, for example. From the district’s perspective, its smallest schools will likely have a greater need for such alternatives than its larger ones—and will suffer more in terms of added cost if they are unavailable.

Similarly, districts governed by restrictive state certification requirements may find greater utility in placing teachers with multiple certifications in small schools to take advantage of their ability to teach different subjects. Again, these solutions must all be considered in the context of maximizing instructional quality and contributing to the overall instructional vision and design.

Finally, *the challenge for small schools is how to staff course offerings in a way that maximizes the overall quality of instruction.* Having a computer teacher “pick up” two sections of math may be a cost-effective solution, but it is not strategic if that teacher isn’t capable of teaching those math classes well.



### 3. How much extra investment do small schools require during the initial ramp-up?

New schools of any size require an upfront initial investment to be successful. The size and nature of these implementation costs are driven by:

- a) **Speed of implementation:** Does the school open one grade level per year (incremental approach) or all grade levels at once (conversion approach)?
- b) **Degree of adherence to district staffing policies:** For schools using the incremental approach, how do the staffing policies play out at smaller enrollment levels? What flexibility do school/district managers have to deviate from the staffing levels the policies prescribe?
- c) **Level of additional support:** What investments will new schools likely require in their first years of implementation in excess of what is provided through staffing policies and normal allocation streams?

#### a) *Speed of implementation*

Schools that start with one grade level and add a grade level each year until they reach full implementation will experience all of the cost drivers discussed above, but to a greater extent in early years because of even smaller total enrollments. For example (Figure 5), a school with a target size of 450 that opens with just a ninth grade in place will have 110 to 120 students in its first year. The application of the district’s standard staffing policies will generate much higher per-student costs, as the school’s fixed costs such as the school principal or guidance counselor are shared across fewer students. Similarly, students with special needs may be particularly expensive to serve during this ramp-up period; a school may need to operate a self-contained special education class with far fewer students than staffing ratios dictate, for example. Over the three-year implementation period, a fairly typical set of allocation policies generates a total of over \$1.9 million in ramp-up costs for a 450-student school, or \$4.3K per steady-state student.

**FIGURE 5: Typical Ramp-up Cost per Student**

	Year 1	Year 2	Year 3	Year 4
Number of grade levels served	1	2	3	4
School enrollment	113	225	338	450
Cost per student of district allocator	\$15,664	\$10,444	\$8,446	\$7,433
Steady-state cost per student	\$7,433	\$7,433	\$7,433	\$7,433
Additional “ramp up” cost per student	\$8,231	\$3,011	\$1,014	—
Total additional “ramp up” cost	\$930,111	\$677,500	\$342,611	—

In addition, if the opening of small schools is done in tandem with the closure of a large school, the ramp-up expense could be greater, as the large school will experience similar cost increases as it stops taking in incoming ninth graders and serves fewer students each year.

A school using a conversion approach that opens at its full enrollment starts out at its steady-state state cost per student (assuming the regular application of district allocations) and would have fewer of these “built-in” ramp-up costs, but would likely still require the following kinds of investments beyond the standard allocations.

*b) Degree of adherence to district staffing policies*

Schools in their first year of operation may require teachers beyond what is provided by the ratio in order to offer an adequate complement of coursework, even if they may be able to return to policy-driven levels after a year or two. The cost of this extra support is fully discretionary and can exceed \$1K per steady-state student.

*c) Level of additional support*

Districts may opt to provide additional support to a new school above and beyond what existing schools receive. For example, a district that already provides two pupil-free days at the beginning of school may elect to provide additional pupil-free days for teachers and staff to receive training on the school design, build school culture, take care of logistics, etc.

## Implications

First, district leaders should consider whether the district’s staffing policies allocate resources to small schools in the implementation phase as effectively as possible, and if not, how they can support schools in reallocating resources to have a greater impact. For example, while the district may determine, as discussed in the previous section, that the school needs additional teachers to be able to offer a full complement of courses, district leaders may also decide that for the first year, a school of 115 ninth graders doesn’t require the services of a full-time guidance counselor, even though the staffing policy provides it.

*During the ramp-up period, it’s important that districts allocate resources to the school based on its needs at that point in the implementation.* While the district’s overall staffing policies may be critically helpful to define the extra investment during the ramp-up period, they’re unlikely to produce the most effective allocation of resources by themselves.

Second, districts should manage implementation costs cognizant of a full-implementation cost-per-student target. In districts that build budgets and staffing allocations based on prior years’ spending, additional supports (i.e., extra staff or extra professional development time) may become permanently built into the budget structure if not explicitly identified as a temporary ramp-up item and actively managed out as part of the implementation. These costs may then inflate the actual resource needs of small schools once they are fully implemented.

#### **4. What impact does the creation of small schools have on building usage and enrollment projections?**

First, on a per-student basis, small schools use more space than larger schools. Similar to fixed costs, spaces devoted to administrative functions are shared between fewer students in small schools, resulting in a higher total square footage per student. Small schools may also use more space per student on common spaces such as the cafeteria, auditorium, etc. As such, a district that is reconfiguring its existing facilities to create small schools may reduce secondary seat capacity—the total number of students its secondary facilities can house. Creating new small schools in districts that are already at maximum capacity may be substantially more expensive than in districts with sufficient excess capacity.

Second, if successfully implemented, new small secondary schools can increase a district's total enrollment by successfully serving students who would have otherwise dropped out before graduation.

For districts that are close to full capacity, the combination of these two issues is significant. Districts may have adequate space to reconfigure existing locations to house the new small schools, but may not be able to handle the increase in total enrollment that results. While the tool does not model the potential costs associated with being over-capacity, it does provide the user with the ability to project changes in capacity and enrollment projections to assess their impact on utilization.

## Recommendations

As the SSS tool illustrates, districts allocating resources to small schools using staffing practices and allocation policies designed for larger schools experience 10 to 20 percent higher per-pupil spending than large high schools; spending increases sharply when school size drops below 400. The bulk of the increased spending can be attributed to: (a) leadership and pupil support positions spread over fewer students, (b) the use of traditional staffing models for special education and English Language Learner programs, and (c) increased spending on general education teachers, because specialty or advanced subject courses may be more difficult to fill to target levels. Resources spent in these ways—as a function of large school rules and allocation policies—may not make sense for improving instruction. The per-pupil expense is even higher during the ramp-up period, yet may not provide adequate support for small schools to get off to a strong start. And increasing the number of small schools in a district may significantly impact seat capacity.

In light of these issues, district decision makers should:

- 1. Create or adopt an overall school design or set of designs (governing size, structure, and instructional vision) for small schools that when fully implemented are viable within a specified expense level (i.e., per-pupil spending is equal to large high schools, is 10 percent higher, is 25 percent higher, etc.).** While it is important that each school have a design that enables it to achieve its vision of improved teaching, learning, culture, etc., it is also critical to ground the vision in the district's financial realities. Establishing a per-student expense target based on the district average (on a percent or dollar amount basis) is one effective way to do so. A small school design that exceeds the target may not be the best choice and may not be sustainable.
- 2. Ensure that schools have flexibility to allocate resources in ways that make sense.** Small schools that have to work within the staffing and budget policies used for large schools will not inherently have resources allocated cost-effectively or in ways that most effectively improve instruction and student achievement. While the application of staffing ratios may be helpful to compare small schools to their larger counterparts, the best staffing configuration will be driven by the school's overall vision and unique conditions.
- 3. District decision makers must ensure that school resources are allocated and configured in ways that make sense, particularly in the areas of leadership and pupil support, and given sufficient principal capacity, should move as many decisions governing resource allocation to the school level as possible.** One option that has worked well in some districts is to switch to Weighted Student Funding<sup>5</sup> to do so. Districts also need to provide support to schools in using their resources effectively to implement their strategic plan and instructional vision, and put in place appropriate accountability systems. Instead

of mandating inputs and monitoring compliance, district leaders should focus on what schools need to do to meet their goals and support them in reallocating resources to use them more effectively.

- 4. Strategically manage the assignment and distribution of special needs students to ensure that schools can cost-effectively provide the expert support they need.** If district policies allow, special needs students can be grouped in small schools in ways that avoid unnecessary expense. However, it is critical that the placement of these students and programs to support them align with the school's overall academic vision.
- 5. Equitably allocate resources for ramp-up costs to small schools; all schools will not receive the same amount as each one faces different design challenges.** Understanding and isolating start-up costs is critical to creating and managing a supportable steady-state cost structure. Spreading the start-ups of multiple small schools across multiple years can smooth out the impact of startup costs on the operating budget and may help make significant conversion to small schools more affordable in the short term.
- 6. Plan for potential impact on overall seat capacity.** Depending on whether the district is creating new schools in new spaces or converting existing spaces, and on the expected impact on graduation rates, small school implementation can have significant impact on the district's physical seat capacity. Planning in advance can help districts anticipate and address these issues before they arise.
- 7. Build the capacity of district-level school supervisors and their support staff to help school leaders determine how to most effectively allocate their resources, and change budget development and staffing processes to better support schools.** As discussed above, districts can shift to a Weighted Student Funding system that allocates dollars instead of positions to schools, and better allows for school-specific, equitable staffing configurations. However, this shift does not automatically guarantee that schools actually have the freedom to *use* resources differently. Teacher contracts, court rulings, and district and state staffing policies may define particular ratios and positions independent of funding levels. District leaders need to carefully attend to these to ensure that schools can meet these requirements.

The results of using the SSS tool in this analysis are consistent with the findings in the companion paper, *District Spending in Small and Large High Schools*, which studied how much three urban districts actually spent on their small high schools. The spending patterns modeled by the SSS tool match what in fact what occurred in these districts. In the Leading Edge small schools we studied, spending was still higher than in traditional large schools—but these schools used the resources differently and more effectively, and were able to make a significant

difference in student achievement, school culture, and instruction. These studies of district and school spending suggest that to use resources effectively to create new small high schools, district leaders must avoid relying exclusively on the staffing and budget allocation policies used for large high schools to allocate resources to their new small schools. Specifically, because urban districts typically allocate resources to schools in staff positions rather than unrestricted dollars, schools have little flexibility to use resources in a way that supports their particular instructional visions or designs. As discussed above, using Weighted Student Funding to allocate a specified dollar amount per student, along with extensive support for school leaders in allocating these resources, can better enable more effective resource use.

The SSS tool can help districts model the increased expenditures they might incur, and rethink the allocation of resources to their new small schools in order to maximize impact on student achievement. District leaders working to develop a strategy to do this can refer to the ERS website at [educationresourcestrategies.org](http://educationresourcestrategies.org).

Implementing these changes is not easy. In the end, district leaders may decide to invest more on small high schools, believing that student performance will improve and thereby the additional investment will be justified. This paper and ERS's SSS tool aim to help leaders make sure that this extra spending is allocated in ways that are most likely to improve student performance, and to identify policies and practices that will support small school leaders in creating truly new and effective designs for high schools.

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## Appendix 1: Background on How Staffing Ratios Work and Drive Spending Differentials in Small and Large Schools

While school staffing policies vary across districts, they generally have two main components. First, schools automatically receive staff to cover certain positions—such as principal—regardless of size. We call these positions “minimum full time equivalents (FTE)” because all schools have at least these positions. Second, districts allocate other staff positions using a “staffing ratio” that defines a certain number of students required to justify more staff, for example one teacher for every 20 students. Allocation policies for some positions combine these two components—a staffing policy that provides a minimum of one guidance counselor and adds .5 FTEs every 400 students means that a school with less than 400 students will still receive a counselor—but a school with 600 students would get 1.5 FTEs. While districts may employ more complex variations of these components, applying them to the design of small schools will produce many of the types of issues identified in this analysis.<sup>6</sup>

Figure 6 shows the typical set of urban high school positions and the allocation policies used to distribute them to schools. We use these assumptions as the basis for illustrative examples in this report, but the SSS tool allows the user to modify them to fit their own context.

**FIGURE 6: Typical Urban High School Positions and How They are Funded**

Staffing Policies	Typical District Policy:		
Position Type	Minimum Positions (no matter how many students)	Staffing Ratio (ie if 500, with no minimum then 1st position increment comes at 500, 2nd at 1000, etc.)	Position Increment from Ratio (will mostly be 1.0 – if .5, then .5 is added every ratio trigger point)
Principal	1.00	0	1.00
Assistant Principal	0.00	500	1.00
School Secretary	1.00	750	1.00
Other Clerical Support	1.00	500	1.00
General Ed Teacher	0.00	20	1.00
Librarian	1.00	0	1.00
Library Aide	0.00	900	1.00
Instructional Specialist/Academic Coaches	0.50	500	0.50
Guidance Counselor	1.00	500	1.00
Guidance Clerk	1.00	0	1.00
Nurse	1.00	0	1.00
Social Worker/Attendance Counselor	0.50	600	1.00
Security Guard	1.00	300	1.00

In this sample district, all schools have a principal; schools with at least 500 students receive an assistant principal (AP), with additional APs coming every additional 500 students. Schools of all sizes get a school secretary, with a second FTE added at 1500 students and a third at 2250. Similarly, all schools receive an “Other Clerical Support” (i.e., office clerk) FTE, with additional clerks added for every 500 additional students.



Figure 7 shows the allocations these policies generate for a school of 450 and a school of 1600 students:

**FIGURE 7: Allocations for Small School vs. Large School**

Position Type	DESIRED SMALL SCHOOL		LARGE SCHOOL	
	Average Cost (salary + benefits)	Total FTEs	Total Expense/Student	Total Expense/Student
Principal	\$ 125,000	1.00	\$ 278	1.00
Assistant Principal	\$ 100,000	0.00	\$ -	3.00
School Secretary	\$ 45,000	1.00	\$ 100	2.00
Other Clerical Support	\$ 45,000	1.00	\$ 100	3.00
General Ed Teacher	\$ 60,000	24.00	\$ 3,200	80.00
Librarian	\$ 60,000	1.00	\$ 133	1.00
Library Aide	\$ 35,000	0.00	\$ -	1.00
Instructional Specialist/Academic Coaches	\$ 80,000	0.50	\$ 89	1.50
Guidance Counselor	\$ 70,000	1.00	\$ 156	3.00
Guidance Clerk	\$ 35,000	1.00	\$ 78	1.00
Nurse	\$ 50,000	1.00	\$ 111	1.00
Social Worker/Attendance Counselor	\$ 70,000	0.50	\$ 78	2.00
Security Guard	\$ 35,000	1.00	\$ 78	5.00

In small schools, the cost of the FTEs that all schools get, such as the principal, are shared by a smaller number of students, resulting in a higher overall cost per student. For example, assuming the cost of a principal is 125K including salaries and benefits, the cost per student in a school of 450 students is \$278. In a school of 1,600 students, the principal’s cost per student is only \$78. As such, the larger the school the lower the cost per student of these fixed FTEs. It follows that the more of these fixed positions that district allocates, the higher the spending differences between large and much smaller schools.

## Endnotes

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<sup>1</sup> For the purposes of this policy brief and the Small School Spending model, operating expenditures are defined as those that are typically *incurred and managed at the school-level*. These costs are generally driven by school staffing. Costs that are excluded from this analysis include substitutes, utilities, transportation, and other materials and services, as well as all district-level oversight and support functions. In some districts, smaller schools do tend to receive more central support on a per-student basis than larger schools. As such, the differences in total cost between small and large schools may be slightly larger than just the differences in school-based costs described in this analysis.

<sup>2</sup> Note that we categorize librarians as “instructional” positions, not pupil support; this is also a fixed position and can contribute to the extra cost of small schools.

<sup>3</sup> A district’s staffing ratio for its secondary teacher positions typically reflects class size policies. Most simply, if a teacher’s typical responsibility is to teach 5 out of a total of 6 periods per day, then the staffing ratio will need to be 5/6 or 83 percent of the class size policy. For example, a class size assumption of 24 generates a staffing ratio of 20:1. However, smaller schools may find it more difficult than larger schools to organize the staff generated by the ratio to create appropriately-sized classrooms.

<sup>4</sup> This is independent of whether the school could find one person who was capable of teaching both languages – if not, then the cost differential of the small school could be even greater.

<sup>5</sup> Using Weighted Student Formula (WSF), dollars are weighted to account for differing student needs. Schools then receive dollars based on the number of students (rather than in the form of staff positions) and can allocate those dollars as needed to support their instructional designs. Though using Weighted Student Funding can help minimize spending differences, district and school leaders need to first understand the staffing levels that are required by contract, funding stipulations, each school’s instructional design, and current district practice in order to determine which positions schools are required to fund, at least until flexibility can be increased.

<sup>6</sup> For example, the trigger for additional FTEs may change as enrollment grows (assistant principal FTEs are triggered at enrollments of 500, then 800, then 1100, then 1600, etc.).