NEW YORK STATE EDUCATION DEPARTMENT

RESEARCH MONOGRAPH

School District Responses to Building Aid Incentives

APRIL, 2002

The State Aid Work Group

876 EBA * 89 Washington Avenue * Albany, NY 12234

School District Responses to Building Aid Incentives

April, 2002

INTRODUCTION

New York State has demonstrated a strong commitment to support the State's educational infrastructure. Although the State provides less than half of all public school funding, it reimburses school districts, on average, for nearly 70 percent of the approved costs for school construction. In recent years, New York State has encouraged school districts to ensure that their facilities are adequate to educate students by offering financial incentives through Building Aid formulas. In 1997, legislation was enacted to increase State support for school capital projects by restructuring Building Aid. The Laws of 2000 and 2001 further modified these incentives. In this research monograph we address the following objectives:

- To explain the legal provisions that govern Building Aid (both before and after the incentives were in place), and in particular the leveraging effects created by the new legislation that enabled districts to receive increased State support for qualified building projects;
- To examine the behavioral response of districts to those incentives by comparing data on school capital construction activity before and after the incentives went into effect, and the types of districts in which increased spending was most prevalent following the introduction of the incentives;
- To offer hypotheses regarding the reasons for the relatively modest response of certain categories of districts to the incentives; and
- To discuss the policy implications of the findings and offer suggestions for further research.

BUILDING AID: WHAT, HOW, AND WHY

What Building Aid is

Building Aid is available for approved public school expenses incurred in the construction of new school buildings, additions, and alterations or modernization of district-owned buildings. It may also be used for the purchase of existing structures for school purposes and even in very rare cases for lease- and installment-purchase payments. Approved expenses are those for financed projects and those paid outright from budgetary appropriations or capital reserves.

How Building Aid works

Districts submit capital construction plans and specifications to the State Education Department, whose staff calculate a maximum pupil capacity for the spaces planned and a maximum construction cost allowance. State Building Aid currently ranges from ten to 95 percent of the approved cost allowance of a building project. In the case of projects financed with bonds, the interest costs related to the cost allowance are also aided. The State share (the Building Aid Ratio) of the allowable expense for any given district is wealth equalized. It is calculated on a sliding scale based on the district's property value per pupil in relation to the State average. A school district receives aid based on the lesser amount of either the maximum cost allowance or the actual construction cost. The wealth-equalizing features of the formula mean that the State's share of these expenses increases as a district's property wealth decreases. For a district of average property wealth per pupil, the State sharing ratio is 49 percent. School districts are given a choice of either their current-year Aid Ratio or the most favorable Aid Ratio calculated for the district between 1981-82 and the present.[1]

Legislative provisions have created added incentives since 1998

In 1997, the Legislature enacted two far-reaching changes to Building Aid. First, the formula began to compensate for the relatively high construction costs faced by certain districts because of conditions in their local labor market. Specifically, the legislation introduced a regional cost adjustment designed to recognize higher construction costs in different areas of the State. The adjustment is based upon the county-level wages of electricians, plumbers, and carpenters indexed to comparable statewide figures. The resulting regional cost factor is applied to the construction cost allowance. In addition, legislation in that year also provided a ten percentage point increase in the Building Aid Ratio (State share) for all school districts (capped at 95 percent). Both changes, which took effect in 1998, stimulated a surge of new construction activity.

An important—and continuing—factor about the Building Aid formula restructuring of 1997 was that it continued to offer districts a "choice" of two different Building Aid Ratios.[2] Instead of the current-year Aid Ratio districts used whichever Aid Ratio dating back to 1981-82 proved most advantageous to the district. As a result, the correspondence between a district's "selected" Building Aid Ratio and its true fiscal capacity remained weak. Indeed, for projects approved between July 1, 1998 and July 1, 2000 fewer than ten percent of school districts (57 districts) used their current-year Building Aid Ratio. Moreover, in several cases the difference between a district's current-year Building Aid Ratio and its "selected" Building Aid Ratio was more than 40 percentage points.

---

[1] While most projects qualify for the Selected Aid Ratio, those approved by voters on or after July 1, 2000 are limited to the more restrictive Aid Ratio described in the next section. A handful of districts with high property wealth per pupil and low income wealth per pupil use 1.263 times their Operating Aid Ratio as their Building Aid Ratio. These provisions appear in the Laws of 2000 as an amendment to section 3602 (subdivision 6: clause (b) of subparagraph (2) of paragraph (c)) of the Education Law.

[2] The word "choice" is in quotations because districts do not actually make this choice. The State Education Department automatically selects the most advantageous Building Aid Ratio for each district.

The Laws of 2000 enacted further changes regarding the choice of Building Aid Ratios for projects approved by voters on or after July 1, 2000. Two options were identified: 1) the current-year Aid Ratio, or 2) the selected year Aid Ratio (from 1981-82 to 1999-2000) minus ten percentage points. An additional ten percentage point incentive was then added to the selected option, effectively resulting in the assignment of either: 1) the current-year Aid Ratio plus a ten percentage point incentive, or 2) the selected Aid Ratio from the period 1981-82 to 1999-2000 (since in the latter case the subtraction of ten points offsets the ten-point incentive).

These changes led to an increase in the number of districts using their current-year Aid Ratio in calculating Building Aid. Indeed, 292 of 680 districts are using their current-year Aid Ratio for capital construction projects approved since July 1, 2000. This is roughly five times the number of districts that were using the current Aid Ratio for projects approved in earlier years.

How the formula changes create a leveraging effect

Figure 1 illustrates how the ten percentage point Building Aid incentive works in a hypothetical low wealth district—one with a current-year 85 percent Aid Ratio prior to the incentive. With the incentive, that district's Aid Ratio increases by ten percentage points—from an 85 percent to a 95 percent State share—and the resulting local share drops from 15 percent to five percent.

Figure 1: How the Building Aid Incentive Creates a Leveraging Effect
(Example using a hypothetical district with a 0.85 Building Aid Ratio)

A) Undertaking a project costing $1 million

	without incentive		with incentive
state's share (85%)	$850,000	state's share (95%)	$950,000
district pays	$150,000	district pays	$50,000
total cost of project	$1,000,000	total cost of project	$1,000,000

B) Leveraging effect as a change in price for a district with a Building Aid Ratio of 0.85

$$\frac{\text{(local share with incentive) -(local share without incentive)}}{\text{local share without incentive}} = \frac{(1 - (.85 + .10)) - (1 - .85)}{(1 - .85)} * 100 = -66.70\%$$

(With the incentive, an aidable project costs the district 66.7% less than it does without it.)

C) Leveraging effect as percent increase in construction possible with incentive

Example: Construction possible with $150,000 of local effort

without incentive	with incentive
$1,000,000	$3,000,000

$$\frac{\text{(with incentive) - (without incentive)}}{\text{(without incentive)}} = \frac{(\$3,000,000 - \$1,000,000)}{(\$1,000,000)} * 100 = 200\%$$

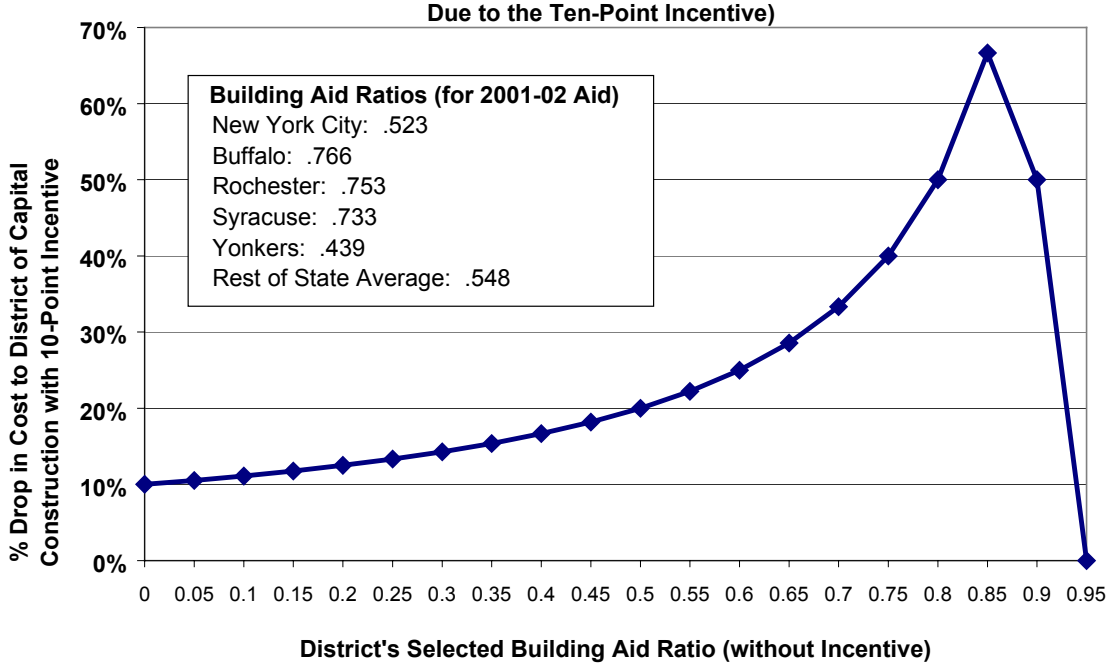
(With the incentive the district can undertake 200 percent more construction than without it.)

One way to measure the leveraging effect is in terms of the percentage change in the local cost to the district for a capital construction project with a specific cost. In this case the change in price to the district is the change in the district's share of costs due to the incentive divided by the district's share without the incentive. Thus if prior to the incentive our hypothetical district would have incurred a local cost of $150,000 to perform $1 million in capital construction, that cost would be reduced to $50,000 with the incentive—a $100,000 cost reduction. In percentage terms, then, the local cost burden has been effectively reduced by two-thirds, or 66.7 percent.

Another way of thinking about the leveraging effect is to consider how much additional capital construction actually could be carried out without reducing the dollar amount of local investment. Thus in a district like this, the State share is increased from 85 to 95 percent as a result of the incentive. In the pre-incentive situation, this million-dollar project would have required $150,000 in local effort, but with the incentive the required local contribution would be only $50,000. If this district chose to commit itself to the same $150,000 in local effort for other building projects, it could conceivably undertake $3 million of project activity for the same local cost. Thus $2 million of added capital construction could be completed for the same $150,000 of local effort, a 200 percent increase.

Since the maximum aid ratio is capped at 95 percent, however, a district with a 95 percent sharing ratio prior to the incentive receives no added increase in its State share of building costs, and thus enjoys no leveraging effect. Conversely, prior to the legislation, a number of high wealth school districts had a zero Aid Ratio and thus received no Building Aid. With the 1997 legislation, they received ten percent of

Chart 1: Effect of the Building Aid Incentive
(Percent Drop in Cost to District of Capital Construction Due to the Ten-Point Incentive)



approved costs. Under the legislation of 2000 they continue to receive this level of support.

In Chart 1 above, we graphically depict the percentage drop in price to the district due to this incentive feature. Thus, following our earlier example based upon a district with a current Aid Ratio of 85 percent, Chart 1 shows that for a district with a Building Aid Ratio of 0.85 without the incentive, the price of capital construction for the district drops by 66.7 percent as a result of the 10 percentage point incentive.

Districts with selected Building Aid Ratios between 0.70 and 0.93 are those who enjoy the biggest return on their investments in capital projects funded with Building Aid. As the inset box in Chart 1 also shows, the average Building Aid Ratio excluding the five largest school districts is 0.548. In short, with the added ten percentage point Building Aid incentive the cost to an average district of aidable capital construction falls by 22.1 percent.

ADDITIONAL CONSIDERATIONS

Building Aid does not pay for maintenance projects

While it clearly encourages districts to increase overall spending on capital projects, the restructured Building Aid formula also influences the types of projects that may be undertaken. For example, “maintenance projects” do not qualify for Building Aid, but are typically funded out of school districts' operating budgets. The Building Aid provisions, then, may inadvertently create incentives to neglect or defer maintenance projects until the facilities are so dilapidated that repair work qualifies as capital improvements. In this sense, the formula may promote inefficiencies (as districts choose projects that minimize their own budgetary costs rather than projects that maximize value to both State and local taxpayers).

Building Aid creates greater incentives for renovation than for new construction

It is also important to remember that the leveraging effect holds only as long as a given project falls within the maximum cost allowance. Any project costs that exceed the maximum cost allowance are not aidable and require the district to pay 100 percent of any costs in excess of that allowance. This means that districts with high Aid Ratios have a powerful incentive to stay within their maximum cost allowances. This incentive is due in part to the greater average construction cost per square foot of "new construction" in comparison to "reconstruction." Since the costs of new facilities often exceed a district's maximum cost allowance, this means that the Building Aid formula creates greater incentives for renovation (including expansions) than for new construction.

Planning and debt management pose challenges for some districts

Building Aid places an administrative burden on districts. As already noted, proposed projects must be approved by the State Education Department, which calculates the maximum cost allowance. Projects must also be approved by voters or by the city government in the case of the fiscally dependent districts. These planning

and approval processes can add considerably to both the time to completion and the cost of capital construction projects. This is especially true in the case of large districts, which typically have more construction options to consider as well as more complex decision-making processes than small districts. Larger districts also tend to have more stakeholders than small districts. Smaller districts, with their relatively simple planning and decision-making processes and smaller numbers of stakeholders to rally may thus be more "nimble" than larger districts in responding to price incentives offered through State funding formulas.

Finally, Building Aid is reimbursable, which means that districts must issue bonds or make other payment arrangements for their capital projects, even in cases where the State will ultimately pay the lion's share of the costs. Raising cash can pose significant difficulties for districts with high levels of indebtedness, debt ceilings, cash flow problems, or poor credit ratings. Working within these constraints forces districts to make up-front investments in planning and financing that are not reimbursable if the district does not actually build a project and that mitigates the price incentives offered by the Building Aid formula.[3] Since these up-front costs can be very substantial, some districts may be reluctant to undertake projects that require extensive planning time and costs—especially if they have limited capacity to carry out risk analyses. Good capital management practices enable districts to maximize their advantage from the Building Aid incentives. In some cases private companies help districts develop capital construction plans.

HOW MUCH BUILDING IS ENOUGH?

Building Aid has at least two goals. One is to encourage districts to provide adequate space for the number of students they serve; another is to help ensure that the spaces districts provide are safe, well maintained, and appropriate for students' educational needs.[4] Each goal can be assessed using several possible performance measures. The amount of square feet per student, for example, can indicate whether districts have enough space to serve their students' needs. In this note, however, we will focus on the second goal—namely, ensuring safe, well-maintained facilities.

To simplify the analysis and offer a general measure of the adequacy of capital construction we use a measure widely used in the private sector. Companies often gauge the adequacy of their capital investments in facilities by measuring those investments as an annual percentage of the building's estimated replacement value. Thus, if a district managed facilities with an estimated replacement value of $10 million and it spent an average of $200,000 per year on capital projects it would have a two percent annual replacement rate. This means that the district would effectively be replacing its facilities every 50 years (two percent per year for 50 years equals 100 percent replacement). A three percent annual replacement rate would indicate that a district is replacing its capital facilities every 33 years.

---

[3] Legislation enacted in 2001 enables districts to obtain help from the State in issuing bonds.

[4] In a political context, capital construction funded through Building Aid may also play a role in regional economic development strategies.

In practice, this three percent annual replacement rate is used by the New York State Education Department as a standard that allows for timely updating and/or replacement of aging facilities.[5] We should note, however, that the annual percent replacement rate is only a guide and may not actually represent an appropriate funding level in all instances. Some districts may need higher annual replacement rates than others depending on the age of their building stock, enrollment trends, and the level of overcrowding. Districts with many very old and poorly maintained buildings may need a higher annual replacement rate. Similarly, districts with expanding enrollments and/or chronic overcrowding may need to undertake extensive new construction, which would also tend to drive up their annual replacement rate. Conversely, districts with relatively new facilities and/or decreasing enrollments may be able to keep their facilities in good repair with a lower annual replacement rate.

A NOTE ON THE METHOD

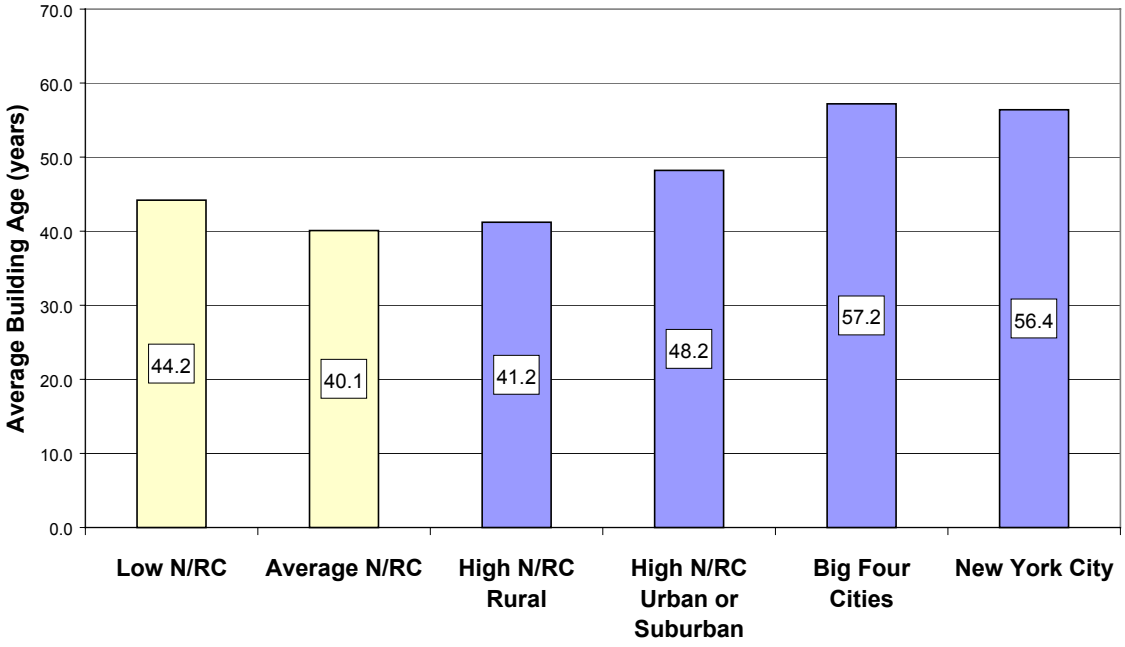
In an effort to begin to make judgements about the adequacy of replacement rates for school building stock statewide, we highlight selected findings for school districts grouped by need/resource category. The need/resource classification is based upon a combined measure of district pupil need and the district's fiscal ability to provide the required resources. The three basic categories are low, average, and high need. The high need districts are further divided into four categories: high need rural districts, high need urban/suburban districts, large city districts (also known as "the Big Four City School Districts"), and the New York City School District—which by itself accounts for more than one third of New York State's K-12 public school enrollment. Together the "Big Four" and New York City are known as the "Big Five." (See Appendix A for more detailed definitions of the need/resource categories.)

Chart 2 displays the average age of buildings among districts by need/resource category. Building age is based on the original construction date, weighted by area in the case of buildings with large sections that were constructed at different times. The average in each need/resource category was calculated by taking the simple average of the building age of all of the buildings in all of the districts in each need/resource category. This measure, then, is weighted by building rather than by square feet (area) or by district.

While the chart does not permit us to draw conclusions about the actual condition of the building stock in each group, it does show that the Big Five City School Districts have the oldest building stock in the State. Since older buildings are more expensive to maintain, the Big Five districts would need to have a higher replacement rate than other districts to maintain their buildings in good repair. In the case of New York City, the

[5] Staff in the New York State Education Department's Facilities Planning Unit, who have brought their experience and professional judgement to bear on this question, believe that a three percent annual replacement rate is generally a good benchmark for public school facilities. Of course, a three percent annual replacement rate does not imply that districts are actually replacing all of their aging facilities on a rotating basis, just that, on average, each year they are spending three percent of the replacement value on school construction.

Chart 2: Age of School Buildings
Average Building Age by Need/Resource Category (1999 data)



replacement rate should also be higher because new construction is needed to alleviate chronic overcrowding.

COMPARISON: CAPITAL CONSTRUCTION BEFORE AND AFTER

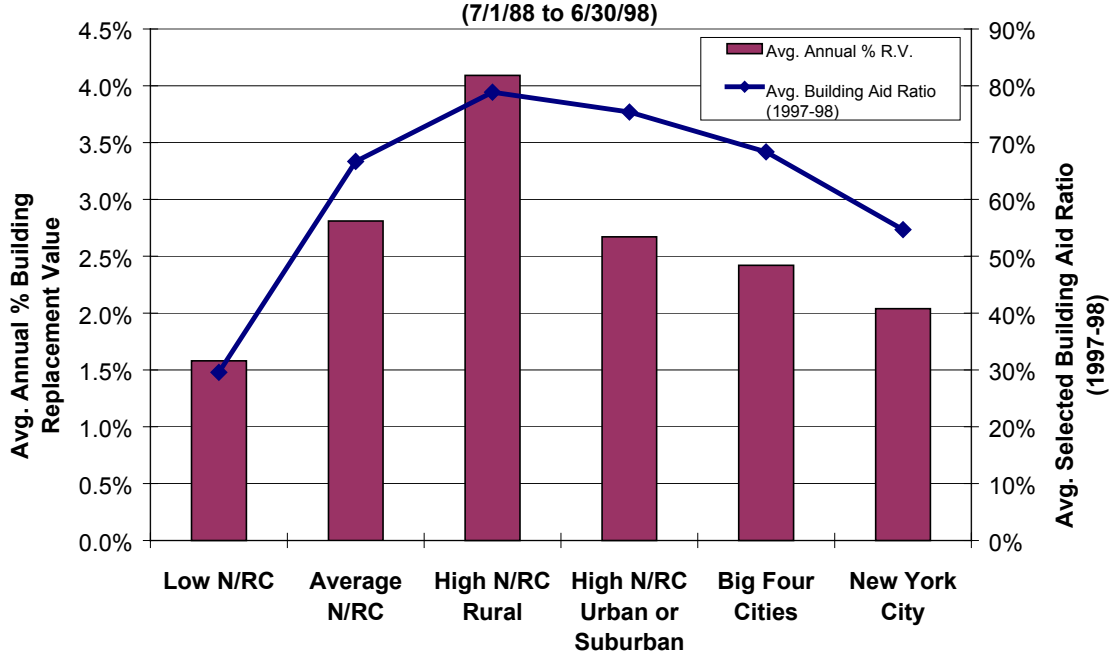
The charts that follow provide greater detail about the pre- and post-incentive building replacement rates by need/resource category. The building replacement cost is calculated by taking the total square footage for each building and multiplying it by a standard replacement cost factor (in dollars per square foot). The result is then multiplied by a county-level regional cost index based on construction labor costs. To obtain the average annual replacement value for a given period, the approved capital construction expenditures for all projects in each need/resource category for the period are summed. That total is divided by the total replacement cost of the buildings in each need/resource category, including buildings that undergo no building activity whatsoever during the time period. The result is multiplied by 100 in order to obtain a percentage value. This is then divided by the time period to obtain an average annual replacement value. The figures do not take inflation into account.

By grouping the results by need/resource category we limit our ability to understand the adequacy of capital construction rates in any given district (except for the New York City School District, which by itself forms a category). On the other hand, using the categories is a way to gauge in a general way the extent to which the price incentives in the Building Aid formula influence behavior according to district need.

Capital construction spending before the Building Aid incentives

Chart 3 shows average capital construction by need/resource category during the ten-year period before the extra ten-point Building Aid incentive went into effect. Two major findings are noteworthy. First, in the low need, average need, and high need rural districts the average annual building replacement rate was roughly proportional to the Building Aid Ratio. In other words, for these particular need/resource categories, the higher the Building Aid Ratios, (and therefore the greater the level of State subsidy for construction) the greater the capital construction activity undertaken—calculated as a percentage of replacement value. Conversely, of course, the lower the Building Aid Ratio, the lower the rate of capital construction undertaken—hardly surprising.

Chart 3: Capital Construction by Need/Resource Category Before Incentives Took Effect (7/1/88 to 6/30/98)



However, in the high need urban and suburban districts and the Big Four the relationship is less apparent. These districts were engaging in relatively low levels of construction, given their high Building Aid Ratios. New York City had both a modest Building Aid Ratio and a relatively low level of average annual percent building replacement value. Only the high need rural districts were replacing their facilities at a rate above the three percent annual rate that State Education Department facilities planners believe allows for adequate replacement and maintenance of public school facilities.

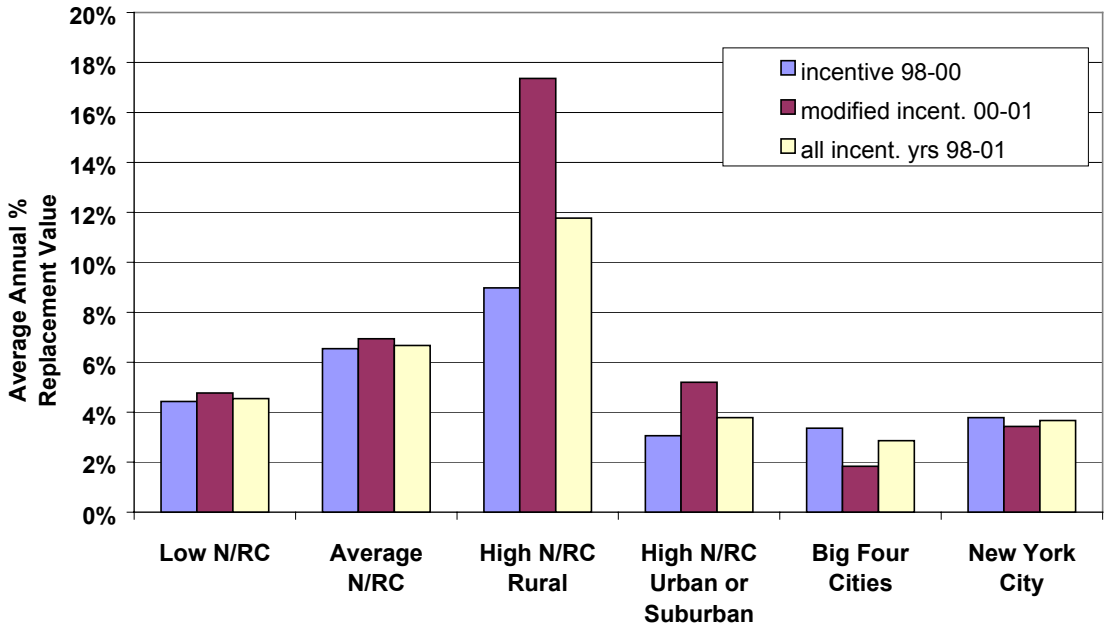
Capital construction while the Building Aid incentive was in place

Chart 4 below shows construction as the average annual percent replacement value by need/resource category during the first three years after the ten-point Building

Aid incentive came into effect. The set of bars on the left shows capital construction when the ten-point incentive was in full force (the 1998-99 and 1999-2000 years). The central set of bars shows approved construction during the 2000-01 year, when the incentive was modified to force more districts to use their current-year Building Aid Ratio rather than their best Ratio since 1981-82. The bars on the right show the average rate of capital construction for all three years combined.

Low need districts, which had lower Building Aid Ratios and thus lower price incentives, experienced modest increases in construction. Average need districts, with higher Building Aid Ratios and thus greater price incentives, increased their capital construction rate from an average of 2.81 percent annual replacement value (Chart 3) to over six percent during the incentive years (Chart 4). The high need rural districts experienced what appears to be a construction boom. Their average annual percent replacement rate was over 17 percent in the third year of the modified incentive, and averaged nearly 12 percent over the first three years the Building Aid incentive was in effect.

Chart 4:
Capital Construction With the Ten-Point Building Aid Incentive



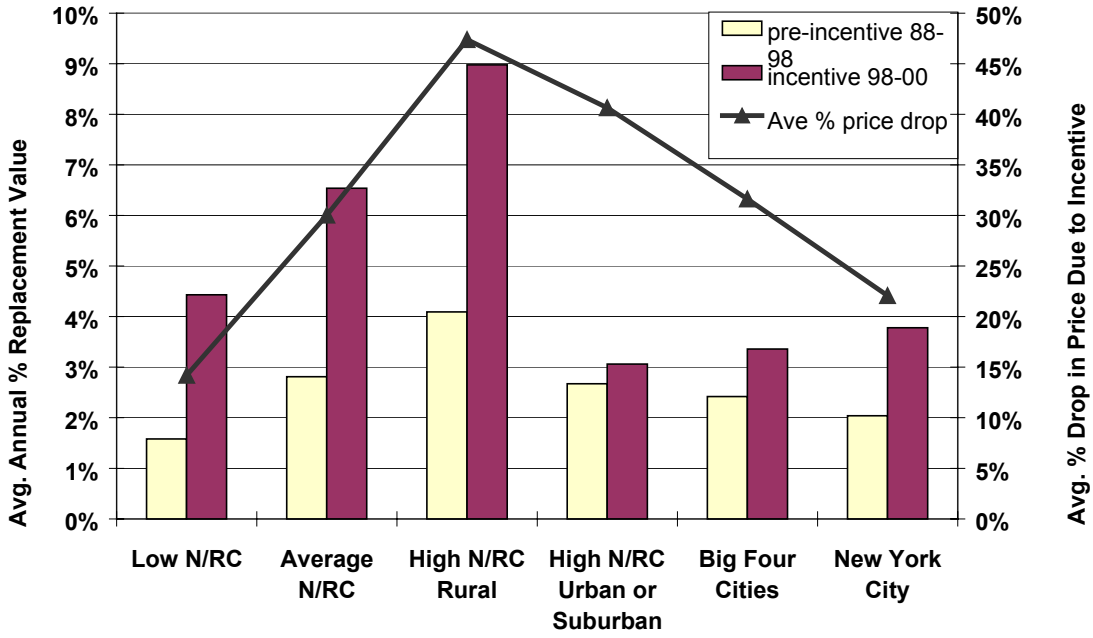
Effect of the ten percentage point Building Aid incentive

Chart 5 below shows the change in capital construction once the ten percentage point Building Aid incentive took effect. The lightly shaded columns depict the average annual replacement value (an average for each need/resource category) for the ten-year period prior to the implementation of the Building Aid incentive. The dark columns show the replacement trend experience during the first two years after the incentive took effect (and before the incentive was modified in ways that altered the price incentive for many districts). The line represents the average percentage drop in cost to

the districts of aidable capital construction based upon the group's average 1997-98 selected Building Aid Ratio.

The average rate of construction in all need/resource categories increased. In the low need, average need and high need rural districts the rate of capital construction more than doubled. The most dramatic increase occurred in the high need rural district category. The average replacement rate in these districts amounted to nearly nine percent, almost triple the benchmark rate of three percent.

Chart 5: Effect of the Building Aid Incentive
Capital Construction Before and During the Incentive



The effect, while still present, was much less pronounced in the other high need districts, namely the high need urban or suburban districts, the Big Four, and New York City. Construction rates in these groups averaged between three and four percent during the first two years of the incentive. None of these districts doubled their construction rates. The relatively weak response to the incentives in these three high need categories is of concern for a number of reasons. Collectively, these districts serve well over half (57 percent) of the public school students in New York State. Secondly, as we saw earlier, these districts on average have the oldest building stock of any need/resource group. Finally, average class size in the New York City case in particular, is substantially larger than comparable grade-level class sizes in the rest of the State. For all these reasons, then, the districts' modest response to the Building Aid incentive is troubling, although perhaps not terribly surprising. After all, New York City's relatively modest Building Aid Ratio means that it does not receive as powerful a price incentive as many other high need districts. New York City's debt ceiling limit—discussed in the section on New York City below—would also dampen its response to Building Aid incentives.

EFFECT OF THE BUILDING AID INCENTIVE IN THE BIG FIVE DISTRICTS

To better understand the response of the Big Five City School Districts, this section looks at their individual responses to the Building Aid incentive. Chart 6 displays their construction rates during the ten years prior to the incentive as well as their selected Building Aid Ratios from 1997-98.

Rochester was the only Big Five district that had an average annual replacement rate above three percent in the ten years prior to the extra ten-point Building Aid incentive. Buffalo had the lowest average annual replacement rate (1.60 percent). Syracuse also had a low rate of capital construction, given its high Building Aid Ratio. As previously noted, New York City had both a low rate of construction and a modest Building Aid Ratio.

Chart 6: Capital Construction in the Big Five Districts Before Incentives Took Effect (7/1/88 - 6/30/98)

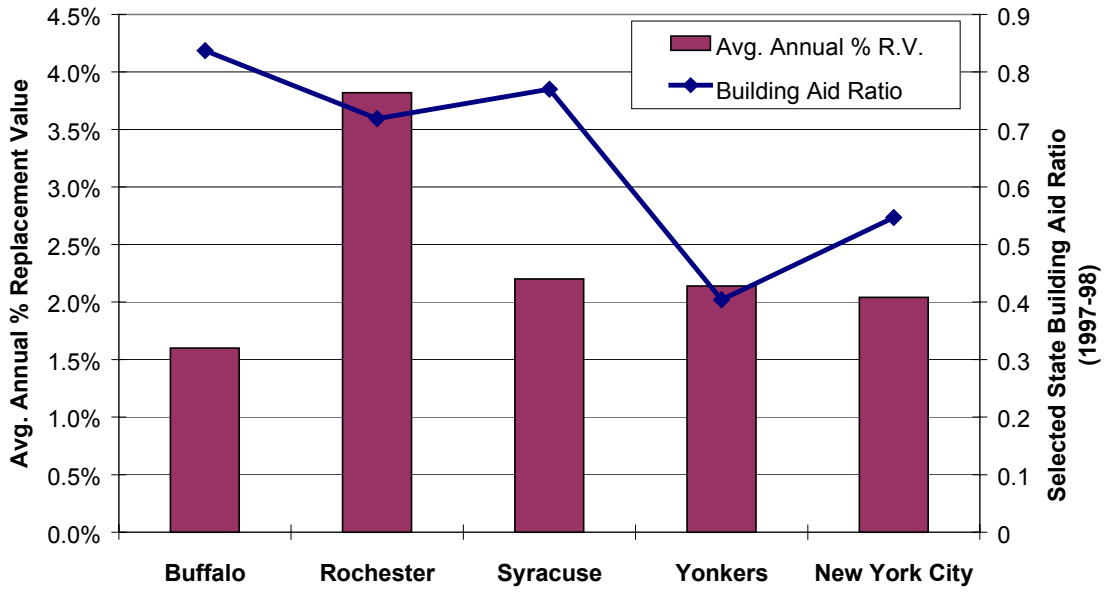


Chart 7 displays the same capital construction rate data during the first three years of the Building Aid incentive. The line displays the percentage drop in cost to the district due to the incentive for the first two years of the incentive. You will note that, individually, the Big Five districts had very different price incentives and different responses to the incentives. Buffalo and Syracuse had sharp price drops but undertook very little capital construction. Yonkers, on the other hand, had a modest price incentive, yet undertook capital construction projects amounting to over six percent average annual replacement value between July 1998 and June 2001. New York City, Syracuse, and Buffalo are among the districts that stopped using their highest Aid Ratio since 1981-82 when the modified incentive went into effect. New York City's Aid Ratio dropped by 2.4 percentage points, Syracuse's Aid Ratio dropped by 4.3 percentage

points, and Buffalo's dropped by 7.1 percentage points. In Buffalo's case, then, the modifications in the Laws of 2000 significantly reduced the price incentive for projects approved after July 2000.

Chart 7: Capital Construction in the Big Five Districts
Building Aid Incentives in Effect
(7/1/98 - 6/30/01)

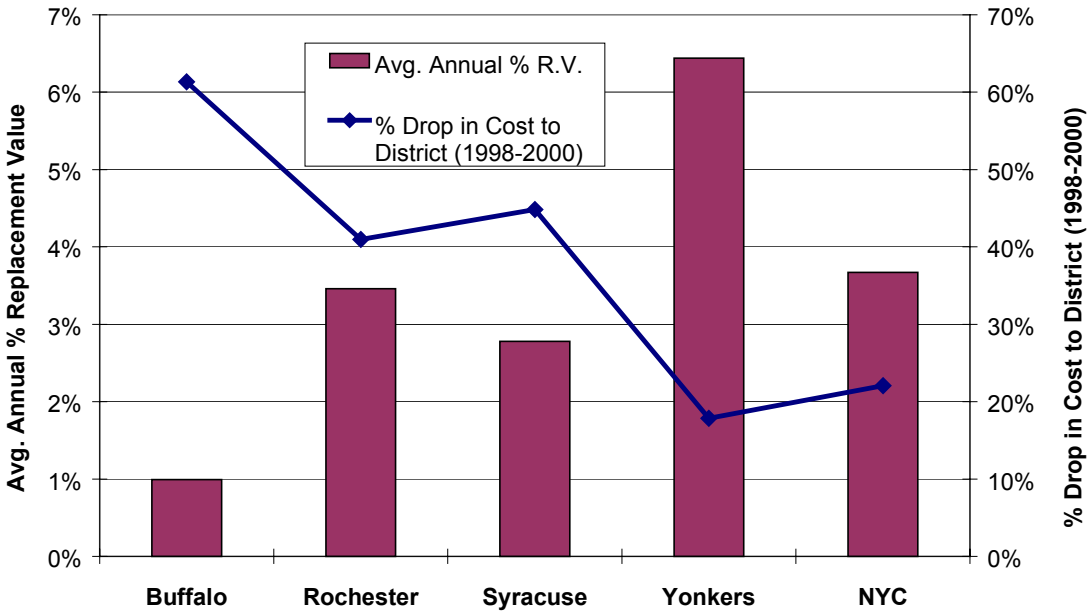


Chart 8:
Effect of the Building Aid Incentive on the Big Five Districts

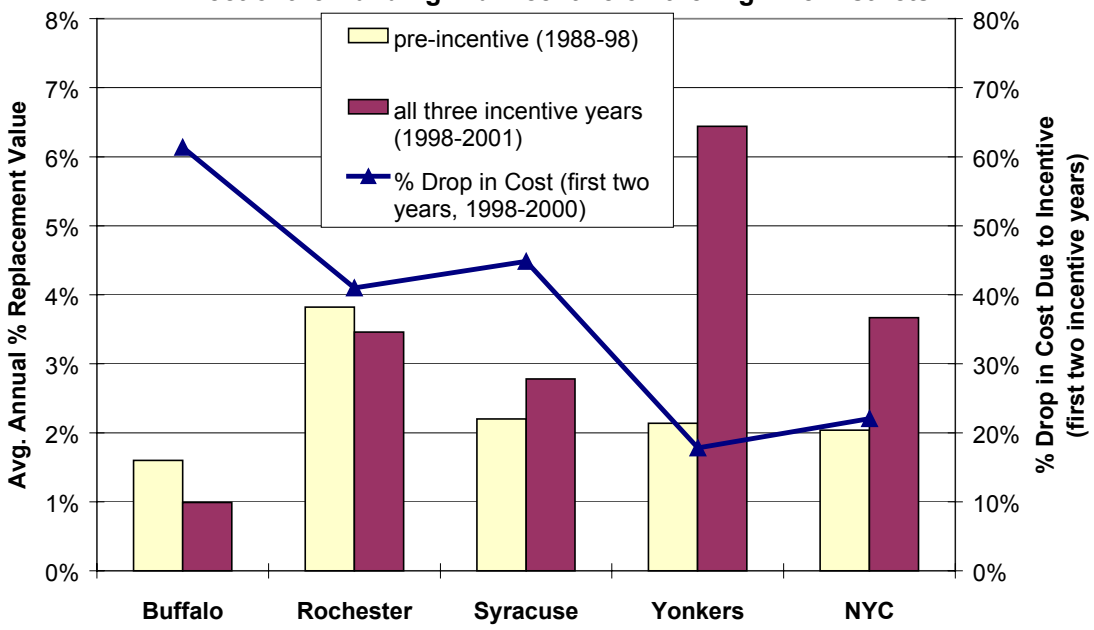


Chart 8 combines the pre-and post-incentive experience of the Big Five districts in a single chart. Thus, the average annual capital construction rate in the ten years prior to the Building Aid incentive is contrasted with the three-year experience once the incentives went into effect. This period from 1998-99 to 2000-01 includes both versions of the incentives: the initial version with a ten percentage point increase in the Building Aid Ratio and the modified version, which includes a regional cost adjustment to the cost allowance and a change in the criteria for selection of the Building Aid Ratio, which caused more districts to use their current year Aid Ratio rather than their most favorable Aid Ratio since 1981-82. Looking at each district individually will allow us to better understand why some Big Five districts responded more strongly than others to the Building Aid incentives.

It is important to note that the three-year experience discussed in this analysis does not capture all of the school capital construction that the Big Five districts will undertake using the Building Aid incentives that were in effect from 1998-2000. Some districts—among them Buffalo—have submitted five-year plans approved by SED. By doing so, these districts "lock in" a Building Aid ratio for that entire five-year project. The "effect" charts in this report include only construction approved from 1998 to 2000 for which local funding had been secured; they do not include planned (and approved) construction for which local funding had yet to be arranged.

Buffalo

Buffalo appears to illustrate best the fact that price incentives in the form of open-ended matching grants do not necessarily result in increased investments by local governments. Indeed, between 1998 and 2000 when the incentive was in effect and Buffalo had a selected Building Aid Ratio of .837 (and thus a very powerful price incentive) Buffalo actually decreased its rate of capital construction. For projects approved during this period, with the incentive, Buffalo paid only 6.3 percent of the cost of approved capital construction projects within the maximum cost allowance. The percentage drop in price compared to the district's price without the extra incentive was over 61 percent. Clearly Buffalo was poised to be one of the biggest beneficiaries of the Building Aid incentive. And yet, during the first three years of the incentives it benefited little.

Buffalo, like the other Big Five districts, is fiscally dependent. That means that capital construction projects are not presented to voters for approval. Instead, the mayor and the city council make decisions regarding the financing of school facilities construction. In this climate spending on schools must compete directly against other city budget priorities. The appeal of price incentives may thus pale in the face of severe citywide budget constraints or other spending needs.

In Buffalo's case, city leaders favored concentrating spending on one new construction project that they could point to as a key accomplishment. As already noted, however, new construction is more likely to exceed the maximum cost allowance than are renovations to existing structures. An ambitious new project could easily result in a loss of leveraging power, as the district would have to bear any costs in excess of

the maximum cost allowance. In the end, despite extensive efforts by district officials and city leaders, Buffalo failed to increase—or even maintain—its rate of capital construction.

We should note, too, that Buffalo was one of the districts whose price incentive decreased in the third year of the Building Aid incentive. During the first two years of the incentive Buffalo experienced a 61.3 percent drop in the cost to the district of capital construction because of the incentive. During the third year (2000-01), though, Buffalo's selected Aid Ratio dropped from 0.837 to 0.766. This means that Buffalo went from a 61.3 percent drop in cost to only a 42.7 percent drop in cost compared to a situation without any incentive at all. Put another way, Buffalo's marginal cost for capital construction actually increased by 113 percent in the third year of the Building Aid incentive compared to its cost during the first two years of the incentive. But since Buffalo's five-year plan was approved before July 1, 2000, it was able to lock in the higher reimbursement rate and so the state will pay 93.7 percent (83.7 percent plus the ten percent incentive) of the approved costs of those projects.

Rochester

Rochester appears to have changed its behavior little as a result of the Building Aid incentive. It had a capital construction rate that averaged 3.82 percent of annual replacement value during the ten years prior to the incentive; during the first three years of the Building Aid incentives that rate fell to 3.46 percent. In this instance the lack of response to these powerful incentives may be of lesser concern than the responses of other districts. Rochester's consistently healthy investment in its building stock prior to the introduction of incentives may have eliminated the need to embark on a building spree during the years the Building Aid incentive was in full force.

Syracuse

Syracuse experienced a very modest increase in its rate of capital construction during the first three years of the Building Aid incentive, moving from a 2.20 average annual percent replacement rate 1988 through 1998 to a rate of 2.78 percent during the first three years of the incentives. In this instance, city leaders made few investments in capital construction even though they had a very attractive Building Aid Ratio of 0.777 during the first two years of the incentive. This Ratio results in a percentage drop in price of 44.8 percent with the ten-point Building Aid incentive.

In the third year of the incentive, Syracuse, like Buffalo, lost some of the leveraging effect of the incentive as it moved to a current-year Aid Ratio. Its selected Aid Ratio went from 0.777 to 0.734. As a result, its percentage drop in local cost went from 44.8 percent to 37.6 percent compared to a situation with no incentive at all. Simply comparing years two and three of the incentive, however, reveals that the marginal cost of capital construction to the Syracuse school district increased by 35.0 percent in the 2000-01 year. In short, year three of the incentive was not as attractive to Syracuse as the first two years.

Yonkers

In sharp contrast to the other Big Five districts, Yonkers had a powerful response to the Building Aid incentive. Over the ten years prior to the incentive, the annual percent replacement value of the district's capital construction efforts averaged only 2.14 percent. During the first three years of the incentive, however, the average jumped to 6.44 percent. Yonkers had the most dramatic increase among the Big Five Districts despite having the smallest price incentive. This suggests that fiscal dependence is not an insurmountable barrier to responding to price incentives. However, some of Yonkers' increase may have occurred as part of an $81.8 million educational improvement program intended for desegregation purposes.

New York City

As previously noted, New York City had a relatively modest price incentive and a moderate response to the Building Aid incentive. In fact, New York City's capital construction rate passed from an average annual rate of 2.04 percent during the ten years prior to the incentive to 3.67 percent during the first three years of the incentive. However, chronic overcrowding, expanding enrollments, and old building stock mean that this construction rate is unlikely to suffice to meet the needs of all the districts' students.

New York City's ability to take advantage of the price incentives offered by the changes to the Building Aid formula has been reduced by constitutionally mandated debt limits. Article 8 of the New York State Constitution sets debt limits for city governments. The Big Five districts are fiscally dependent, and so fall under these limits. In the case of New York City, the city cannot carry debt in excess of ten percent of the city's full value (calculated as an average using the last five years' tax rolls). State Building Aid may not be deducted in calculating the debt limit for the Big Five cities. This means that the cities must count the portion of their capital construction that the State will pay as part of the city's debt in calculating the debt limit.

REASONS WHY THE BIG FIVE CITIES AND THE HIGH NEED URBAN AND SUBURBAN DISTRICTS HAVE UNDERUSED THE BUILDING AID INCENTIVE

New York City's and Yonkers' responses to the incentives suggest that fiscally dependent districts can respond to price incentives. The question, then, is why do some districts have a sluggish response despite evidence (in terms of building age and prior construction rates) that their facilities may be inadequate for their students' needs? Although we lack empirical evidence, many plausible causes exist. The experiences of SED officials who work with individual districts suggest that a number of factors influence districts' decisions regarding capital construction projects:

- **Debt limit restrictions.** As noted in the discussion of New York City's response to the Building Aid incentives, some districts are unable to increase capital construction because of legal restrictions on the amount of financial obligations they assume. There are three separate debt limit restrictions, depending on the type of district:

- **Small City School Districts**—defined as those whose territory lies partially or wholly within the limits of a city having a population of less than 125,000—have a debt limit of five percent of the average full value of the last five years' tax rolls. Building Aid on bonded projects may not be deducted in computing the limit. These provisions are contained in Article 8 of the New York State Constitution. The limit may be exceeded if authorized by 60 percent of the voters and approved by the Board of Regents and the State Comptroller.

- **The Central, Union Free, and Common Districts** have debt limits defined in Section 104.00 of New York's Local Finance Law. These districts' debt limit is ten percent of the full value on the most recent tax roll. State Building Aid may be deducted in computing the limit.

- **The Big Five City School Districts** have debt limits described in Article 8 of the New York State Constitution. These districts are considered to be part of their city governments for purposes of computing the debt limit, since only the legislative body of the city has the power to issue obligations. New York City is limited to ten percent of full value. The Big Four cities are limited to nine percent of full value. In all cases the full value is calculated as a five-year average. State Building Aid may not be deducted in calculating the debt limit even though the obligation to provide the Aid is the State's and not the district's or the city's.

- **Fiscally dependent districts face other special challenges.** Most districts can raise taxes directly. Pressure from voters makes them responsive to education funding needs, while voter approval of bond measures constitutes a mandate that unifies and guides local school facilities planning. Fiscally dependent districts, on the other hand, lack direct mandates—and thence motivation—from voters to pursue specific capital construction initiatives. Instead, they have to rely on city governments to provide local funding for education. Thus, while most districts are able to go to the voters and win approval for particular capital construction projects by explaining how the State is going to pick up most of the tab, the fiscally dependent Big Five districts must go to municipal governments to request approval. In this arena students' needs have to compete directly with other spending priorities.

- **Districts have difficulties in predicting State Building Aid.** The cost allowance formula is difficult to calculate in advance. Many Five-Year Capital Plans are developed without an accurate estimate of State Building Aid. Lacking accurate cost allowance and Building Aid estimates, districts with ambitious construction plans risk exceeding their maximum cost allowance and possibly facing a dramatic increase in the cost to them for capital construction projects. Voters and city leaders are understandably reluctant to approve projects unless they know what the final cost will be and how much of it the local government will bear.

- **Large city governments are skeptical of claims by the State Education Department and district officials regarding Building Aid initiatives.** Fiscally dependent districts have had a poor record of predicting State Building Aid. Since guessing wrong can be very costly, they are reticent in undertaking projects that may result in cost overruns that cause them to exceed their maximum cost allowance.

- **Lump-sum capital budgets can complicate planning and lead to reductions in capital construction.** Many districts present capital budgets as lump sums. This makes them targets for across-the-board reductions by local leaders looking for budget cuts. Since percentage cuts to a particular capital construction project are often not feasible, across-the-board cuts force districts to eliminate some projects completely in order to save others. Across-the-board cuts also force districts to invest more in re-planning.

- **Building Aid is structured to favor remodeling and renovation projects over new construction.** Without a plan that improves all schools, it is difficult to engender broad public support. Nevertheless, city districts sometimes concentrate on the construction of one new facility rather than several remodeling and renovation projects that simply update existing facilities. Since new projects are much less likely to fall within the cost allowance than remodeling and renovation projects, the district is likely to foot a greater proportion of the cost of such projects. This reduces the amount of capital construction possible per dollar of local effort, thus undermining the leveraging effect of the Building Aid incentive.

- **Diseconomies of scale in the planning and decision-making processes may reduce the ability of larger districts to benefit from the Building Aid incentives.** Because of their large number of facilities and the large number of interested parties wishing to advance particular priorities, large districts have more complex and time-consuming planning and decision-making processes than small districts. These factors would tend to lengthen the time necessary for large districts to "gear up" to take advantage of the incentives. Complexity also increases the likelihood of errors, which sometimes result in delays and may undermine stakeholders' confidence in the process.

SUMMARY OF FINDINGS

- The Building Aid incentives appear to have stimulated spending on capital projects among districts in every need/resource category. Before the incentives, only high need rural districts were replacing their facilities at more than a three percent annual average replacement rate. Over the first three years after the incentives went into effect, however, the average replacement rate for all need/resource categories except the Big Four reached this level (and during the first two years of the incentive, even the Big Four reached this level).

- The amount of the increase (measured as average annual replacement value) appears to be related to the leveraging effect of the Aid Ratio used in the Building Aid formula. This suggests that both the Aid Ratios and the across-the-board ten-point incentive influenced district behavior.

- The high need rural districts experienced the most dramatic increase in their rate of capital construction (from an annual average of just over four percent of the replacement value prior to the incentive to nearly 12 percent with the incentive).

- During the incentives, rates of capital construction in the high need urban or suburban districts, the Big Four, and New York City lagged behind those of other need/resource categories. On the whole, districts in these categories did increase the rate of capital construction while the incentives were in effect, but not by as much as other districts.

- A closer look at the Big Five City School Districts shows that, individually, they responded very differently to the Building Aid incentive. Buffalo and Rochester actually reduced their rates of capital construction during the first three years after the Building Aid incentive went into effect. Syracuse's rate inched up a half a percentage point, while Yonkers' average rate tripled despite its rather modest price incentive. New York City increased its average capital construction rate from just over two percent of its average annual replacement value during the ten years prior to the incentive to 3.67 percent over the first three years of the incentive. We should keep in mind, however, that the Big Five districts may submit five-year capital plans enabling them to "lock in" Building Aid for planned construction over a five-year period. This means that the three-year period analyzed here does not capture all of the capital construction that will eventually be funded by the Building Aid incentives.

POLICY IMPLICATIONS

Target incentives appropriately

This analysis suggests that the State can use Building Aid formulas to influence school districts' rates of capital construction. The degree to which the State can stimulate construction rates in particular categories of districts, however, seems to vary considerably. The Building Aid incentives appear to have stimulated extensive capital construction in high need rural districts. More research should be undertaken to determine whether the Building Aid formula should be modified to increase incentives for other high need districts.

Understand and overcome obstacles that dampen response in some types of districts

The finding that school district responses to the Building Aid formula in general and the ten percentage point incentive in particular were dampened in the high need urban or suburban districts and the Big Five districts merits particular attention. These

districts serve over half of the State's public school students, and so their generally low construction rates could result in a significant portion of the State's public school students using school facilities that may fail in one or more respects to provide an environment conducive to meeting higher learning standards.

It may be helpful to delay or "lag" price incentives for large districts so they have more time to complete their planning and decision-making processes. Such a lag may also allow large districts to learn from smaller ones that are able to "gear up" more quickly to take advantage of price incentives.

Changing the New York State Constitution to allow the Big Five cities to deduct from their debt limits the portion of school capital construction funded by the State is logical (since the obligation is the State's). This would allow the city governments to borrow more (although not necessarily to fund school capital construction projects). On the other hand, allowing cities with heavy debt loads to take on additional obligations is likely to aggravate their long-term fiscal problems.

Build trust by providing accurate and timely information

Public education in New York State is funded through a State and local partnership. All of the partners must work together to meet the needs of the State's schoolchildren. State officials, including SED staff, should work to build trust and reduce skepticism among school district officials and local government leaders. They can accomplish this by helping local officials understand Building Aid formulas and regulations.

State officials should also work to provide school building cost allowances more quickly and help districts produce more accurate Building Aid estimates. This will reduce both delays and the chance of incurring excess costs. Armed with more timely and accurate estimates, districts will have increased confidence in the "aidability" of capital construction projects. This in turn will help them optimize their use of Building Aid.

Putting more data in public space through the Internet is another way to improve communication. For example, building-level data on the age and condition of school facilities will help parents, district officials, and local government leaders assess their capital construction needs and develop plans to address those needs.

Improve communication among stakeholders

Traditionally staff from the State Education Department's Facilities Planning Unit have worked primarily with school district officials and only rarely with local government officials or school boards. As it changes this practice to reach out more often to a broader range of stakeholders, SED staff will increase knowledge of Building Aid among more of the parties involved in capital planning decision-making.

SED staff is also shifting its emphasis from simply ensuring compliance with policies, procedures, and regulations to identifying and disseminating good capital management practices. Through outreach activities to provide information to district officials and local government representatives about changes in Building Aid formulas,

needs assessments, financing mechanisms, and arrangements with contractors SED can help districts use Building Aid to meet their capital construction needs.

For certain districts, particularly large districts with many school facilities, SED staff could help district officials and local government leaders develop spreadsheet models to evaluate the cost, aid implications, and possible benefits of multiple capital construction options. Such models could help decision-makers choose projects or sets of projects that provide the greatest return on their investment of local dollars.

Promote training in public finance and capital management for school district officials

The successful implementation of major capital construction initiatives in large districts with many facilities requires great skill and tenacity on the part of school district officials. They need to understand the complexities of the Building Aid formula, know how to complete the paperwork to qualify for it, and possess the fiscal, technical, and political competence to develop projects that allow them to take full advantage of Building Aid without exceeding their cost allowances. On top of that, they must work with SED staff, local government officials, and many other stakeholders to forge a compelling vision for schools that will command broad-based support. In an often fractious policy environment they must exhibit the leadership skills necessary to mobilize support among parents, teachers, and other interested parties. Finally, they need to persuade the holders of the local purse strings—voters or city leaders—of the merits of the projects. This is a very tall order. District officials could undoubtedly use a variety of consulting services to help them use Building Aid more effectively. The State Education Department is considering ways of helping districts obtain such services as well as ways to promote the use of good capital management practices.

School district officials also need better training in public finance and capital management. Options include:

- Requiring finance coursework in college preparation programs for school administrators
- Providing internships or learning academies that offer specialized study of public finance and capital management
- Instituting a continuing education requirement for certified school business officials and school superintendents, and offering public finance and capital management as a course of study for meeting such a requirement

SUGGESTIONS FOR FURTHER ANALYSIS

The weak response of several of the Big Five districts to the Building Aid incentives raises doubts about the effectiveness of "spend-to-get" formulas in certain situations. Is some combination of municipal overburden, political conditions, budget constraints, and debt limits in the Big Five (or at least in Buffalo, Syracuse, Rochester, and New York City) sufficient to reduce their response to any school aid formula

containing a price incentive predicated on local effort? Further research on the characteristics of districts that failed to respond to the Building Aid incentives may help the State design incentives that could elicit a greater response from them.

We should keep in mind that, except for the discussion of the Big Five districts, this analysis aggregated the data and grouped the districts according to their need/resource categories. Reanalyzing the data using different units of analysis may yield additional insights. It would be helpful to see how district size (measured by enrollment, number of facilities, or the number of square feet of building space) is associated with the districts' responses to Building Aid formulas, including the extra ten percentage point Building Aid incentive.

Time series analysis may also prove useful. This would allow us to examine year-by-year variations in construction rates and thus would help us determine how construction varies according to general economic conditions.

Multivariate analysis would offer additional insights. This would allow us to study associations among many variables that may influence districts' responses to price incentives. One possible plan—and one feasible with existing State Education Department data—would attempt to identify factors that predict elasticity of price demand for public school capital construction. In such a study researchers could estimate the elasticity of price demand for Building Aid for each district. This would then become the dependent variable in a multivariate regression analysis involving variables that capture district size, enrollment trends, age of building stock, facilities space per student, district wealth, local revenue trends, debt limits, capital management practices, and the complexity of districts' decision-making processes. Such a study would help us move from plausible hypotheses to empirical evidence regarding the factors that contribute to districts' responses to price incentives.

APPENDIX A

The need/resource capacity category definitions

The Need/Resource Capacity Index, a measure of a district's ability to meet the needs of its students with local resources, is the ratio of the estimated poverty percentage (expressed in standard score form) to the Combined Wealth Ratio (expressed in standard score form). The estimated poverty percentage is a weighted average of the 1998-99 and 1999-2000 kindergarten through grade 6 percentage of students eligible for free or reduced-price lunch. The result is a measure that approximates the percentage of children eligible for free- or reduced-price lunches. The Combined Wealth Ratio is the ratio of district wealth per pupil to State the average wealth per pupil used to distribute 1998-99 aid. The measure of district wealth is an equally weighted combination of district property wealth (100 percent of full valuation per pupil) and income per weighted pupil. (Pupils are weighted by need.)

A district with both an estimated poverty level and a Combined Wealth Ratio equal to the State average would have a need/resource capacity index of 1.0. Need/Resource Capacity (N/RC) categories are created from this index using the definitions in Table 1 below.

Table 1: Need/Resource Categories

Need/Resource Capacity Category	Number of Districts	Definition
High N/RC Districts		
New York City	1	New York City
Large City Districts	4	Buffalo, Rochester, Syracuse, Yonkers
Urban-Suburban	38	All districts at or above the 70th percentile (1.1855) which meet one of the following conditions: 1) more than 100 students per square mile; or 2) have an enrollment greater than 2,500 and more than 50 students per square mile.
Rural	163	All districts at or above the 70th percentile (1.181) which meet one of two conditions: 1) fewer than 50 students per square mile, or 2) fewer than 100 students per square mile and an enrollment of less than 2500.
Average N/RC Districts	340	All districts between the 20th (0.7693) and 70th (1.1855) percentiles on the index.
Low N/RC Districts	134	All districts below the 20th percentile (0.7693) on the index.

This SED research monograph was produced by the State Aid Work Group.

The State Aid Work Group
New York State Education Department
EBA, Room 874
89 Washington Avenue
Albany, New York 12234

Primary authors:

Charles Szuberla (Facilities, Management and Information Services), Susan VanDeventer (Fiscal Analysis and Research Unit), Deborah Cunningham (State Aid Work Group), Carl Thurnau (Facilities, Management and Information Services).

Others who contributed this monograph:

Andrew Gayle (Fiscal Analysis and Research Unit), Richard Glasheen (Fiscal Analysis and Research Unit), Michael Plotzker (Vocational and Educational Services to Individuals with Disabilities), Charles Shippee (Fiscal Analysis and Research Unit), Darlene Tegza (Fiscal Analysis and Research Unit), and Willard Van Horne (Fiscal Analysis and Research Unit).

OBTAINING COPIES OF SED RESEARCH MONOGRAPHS

This monograph may be accessed on the Internet at: http://www.oms.nysed.gov/faru/. Hard copies may be obtained by writing to:

The Fiscal Analysis and Research Unit
New York State Education Department
EB, Room 301
89 Washington Avenue
Albany, New York 12234