

## Memorandum

To: Honorable Members of the South Kingstown Town Council

From: Robert Zarnetske, Town Manager

RE: Report & Recommendations Regarding a School Facilities Improvement Project Proposed to be Submitted to the Rhode Island School Building Authority

Date: January 25, 2019

---

### ***Introduction***

This memo provides a detailed analysis of a proposal to repair school buildings prepared by the South Kingstown School District's consultant, The Robinson Green Beretta Corporation (*RGB*). The data used in preparing this memo come from the Rhode Island Department of Education's 2016 "Jacobs Report," *RGB* and 2018 South Kingstown Legacy Education Planning documents.

The subject of this memo is complicated. It requires an evaluation of complex building systems, educational program objectives and policy tradeoffs. There are many ways the proposal presented by *RGB* could be examined. For the sake of simplicity and consistency with the Rhode Island School Building Authority's *Proposed Prioritization Methodology* (*SBA*, 2018), I have used the Facilities Condition Index (FCI) method throughout this memo. I believe that doing so allows meaningful comparisons between the work that the State and *Jacobs* said needs to be done and the work that *RGB* propose should be done. The approach is not perfect, but I am confident that it is honest, exhaustive and useful.

This memo does not offer an analysis of whether the community can afford to take on \$75M in bonded debt to pay for the project proposed by *RGB*. A separate analysis of the fiscal implications of the proposed project is being prepared by the Town's Director of Finance.

### ***Review of Relevant Reports and Literature***

#### **The Jacobs Report**

The report that has come to be known as the *Jacobs Report* was released by the Rhode Island School Building Authority in two parts in September 2017. The report was prepared by *Jacobs Engineering* in collaboration with *Cooperative Strategies*, an international education planning firm.

The first part of the report, entitled *The State of Rhode Island School Houses*, described the dual challenges of declining student enrollments and deteriorating school buildings throughout the state. The second part of the report, *Jacobs Recommendations for Consideration*, suggested strategies that state and municipal agencies could pursue to remedy the problems identified by *Jacobs* and *Cooperative Strategies* during their year-long study.

The *Jacobs Report* presented the results of a wide-ranging physical survey of school facilities, which identified more than \$2.2 billion in deficiencies in elementary, middle and high schools across Rhode Island (School Houses, iii). The study also determined that while generally Rhode Island municipalities need more school buildings, there are some communities where demographic trends suggest schools

should be closed. South Kingstown was identified as one of ten school districts where a reduction in the number of schools was warranted. (Jacobs Recommendations, 29)

The *Jacobs* facility assessment teams consisted of specialists including architects, mechanical systems experts and electrical engineers who conducted visual inspections. The teams visited each building in the study. Consistent with standard practice, the teams did not conduct tests on the systems or structures they observed. (School Houses, 2). The study included interviews with local facilities and maintenance staff on an as needed basis. The assessment teams also consulted with a structural engineer when they encountered conditions that suggested there might be a structural problem with a building or building component. In addition to the core team, the state-wide assessment involved a technologies specialist, traffic experts and acoustics professionals.

The assessment teams recorded existing conditions, identified problems and deficiencies, documented suggested corrective actions and assigned a “priority of the repair” value (1 through 5, 5 being lowest priority) based on parameters defined prior to their field investigation. The team collected data from every public school in the state, except for those that were recently constructed, significantly reconstructed or operated by a state agency — as opposed to a local agency.

The *Jacobs* teams analyzed their data through two primary lens: (1) the state construction regulations (SCRs) and (2) the industry-standard Facilities Condition Index (FCI). The report does not describe how the two analytical schema were weighted or reconciled. However, the report appears to emphasize the FCI over the regulations.

The *Jacobs* team assigned an FCI value to every public school building in the study. In South Kingstown, eleven buildings were assessed and received FCI values. One of the schools — the Kingston Hill Academy — is a public charter school located in SK. One of the schools in the report (South Road Elementary) was abandoned by the South Kingstown School District at the end of the 2017-2018 school year. As will be described in greater detail below, the FCI values for the remaining SK schools range from 29.2 (below average condition) to 56.1 (very poor condition). The average FCI value for SKSD schools was 37.8, which represents a “poor” overall condition.

One of the key questions about the assessment conducted by the *Jacobs* team is what do the FCI scores assigned to SK school buildings tell us about the condition of the buildings. As Teicholz and Edgar (2001) point out, the FCI was designed as a “benchmark” of “relative condition of a single building or portfolio of buildings taking into account either a specific priority or system or all systems.” (Teicholz and Edgar, 6). The index value is basically the cost of repair divided by the cost of replacement — either of a system or the whole building. The whole building FCI can be represented as a simple equation:

$$FCI = \frac{\text{Cost of Remedying All Deficiencies}}{\text{Cost of Replacing the Building}}$$

The facilities condition index can be thought of as a negative expression of the state of a building. It represents the percent of deterioration suffered by a building system or the entire building. What constitutes a “deficiency” varies from study to study and is highly dependent upon the purpose of the study and the objectives of the physical facility survey conducted. Because it’s merely a ratio between two costs, the FCI can be subtracted from 100 to express condition as a “percent still good” rather than

percent deteriorated. So, for example, based on the *Jacobs Report* SK High School is either 29.2% deteriorated or 70.8% still good.

Because the FCI is just a ratio of two costs, if either cost – the cost to repair or the cost to replace – is over- or understated, the value assigned to a building will be skewed. Ideally, when used as a facilities management tool for planning investments in a single building over time or to guide decisions about the relative benefit of potential investments in a portfolio of buildings, the FCI should be treated as a rolling assessment of condition based on specific price data for specific building components at specific points in time; the more specific the data, the better.

In the *Jacobs* study, the primary purpose for using the FCI values was to develop a single, one-time, state-wide standard against which all school buildings could be measured. The principal purpose was not to develop a definitive estimate of costs associated with repairs at any one school. The FCIs assigned in the *Jacobs Report* were, of necessity, based on general estimates of cost in the Providence construction market. Further, the assessments made were general in character; no attempt was made to find the most cost-effective solution to any given deficiency observed. If, for example, a mechanical system was making noise, no attempt was made to determine whether an inexpensive repair could be made to the system. Rather, the system was simply identified as deficient and a standard cost value was assigned.

So, while the *Jacobs Report* did provide building-specific cost estimates for repair of the deficiency identified, those estimates have to be validate by more detailed investigation. There are at least four potential difficulties with relying exclusively upon the *Jacobs* estimates:

- (1) Double Counting: because the *Jacobs* teams were dealing with a large number of facilities and were trying to standardize their data collection, some redundancies (double counts) occurred. So, for example, the Hazard School was identified as having site deficiencies, (associated with its lack of athletic fields) that would require more than \$1M to repair. Meanwhile, SK High School was also identified as having the same deficiencies and the same cost to repair — this despite the fact that the two schools are part of the same de facto campus.
- (2) Miscoding: in its assessment of the Hazard building site, *Jacobs* reports a need to "Add flashing beacons to school zone speed limit signs, 2 ea, \$4,533." The same repair and the same number of signs is called for at Broad Rock Middle School, but carries a price tag of \$75,544. The only difference between the two entries is the subject location and the data element ID assigned to the entries. It appears that the data element code makes a difference.
- (3) Inconsistency with conditions: upon further inspection or testing. Because the *Jacobs* teams were conducting a broad survey rather than a detailed evaluation, the costs associated with their study were "ball park" figures, which must be tested against the results of detailed inspections and tests.
- (4) Changes in market conditions: Price fluctuations impact all cost estimates.

#### Educational Legacy Planning Group (ELP) Reports

After reviewing the *Jacobs* findings, the South Kingstown School District hired Robinson Green Beretta Corporation (RGB) to confirm the findings of the *Jacobs Report* and determine what specific repairs

should be made to schools in South Kingstown. *RGB* in turn hired a subcontractor -- *Educational Legacy Planning Group (ELP)* to conduct a series of focus groups to identify deficiencies beyond those described in the *Jacobs Report*. The lead investigator on the project was Robert Hendricks. *ELP* produced a series of reports, including an "Options Presentation," and three "Conceptual Educational Specifications" – one for the high school, one for the middle school and one for the elementary schools.

Perhaps the best way to understand the contribution made by the *ELP* reports is to return to the basic FCI formula and describe where the *Jacobs Report* left the local analysis and where *RGB/ELP* picked up. As noted above, the *Jacobs* study assigned FCIs to every public school building in South Kingstown. We can use the data for South Kingstown High School to demonstrate how the FCIs were calculated.

*Jacobs* identified \$19,397,032 worth of immediate, existing, deficiencies at South Kingstown High School. *Jacobs* estimated an additional \$5,277,588 worth of repairs that would become necessary in the next five years, due to continuing wear and tear. Thus, the Cost of Remedying All Deficiencies at the high school was set at \$24,674,620. *Jacobs* then assumed a replacement value for the facility of \$84,564,000. So,

$$FCI = \frac{\text{Cost of Remedying All Deficiencies}}{\text{Cost of Replacing the Building}}$$

$$= 29.178 = \frac{\$24,674,620}{\$84,564,000}$$

The reports produced by *ELP* did not interrogate, validate or evaluate the cost estimates presented in the *Jacobs Report*. Instead, the data collected by *ELP* identified additional deficiencies in the form of unmet building-user expectations. Where the *Jacobs Report* had provided a general assessment of mechanical systems, roofs, life/safety equipment, room dimensions, plumbing and HVAC systems, et cetera, *ELP* endeavored to quantify the aesthetic and educational shortcomings of the building

There are at least two challenges that arise when trying to use the *ELP* data in conjunction with the *Jacobs* data or when trying to reconcile the *ELP* methodology with the *Jacobs* methodology. First, it's important to remember that the *Jacobs* study's evaluative criteria specifically included academic adequacy as a measure of building condition and performance; therefore, any new measure of "academic adequacy" must be distinguished from the "old" measure built into the *Jacobs* calculations and cost estimates; *ELP* made no attempt to do so. Second, adding new variables to the FCI formula without validating the new variables creates greater uncertainty for decision makers. Where *Jacobs* left us with a specific benchmark against which our progress could be measured, the *ELP* reports confounded that metric.

Again, using the high school as our example, *Jacobs* told us:

$$29.178 = \frac{\$24,674,620}{\$84,564,000}$$

In other words, the high school facility is nearly 30% deteriorated and it will cost about \$25M to make the repairs that would take it to full serviceability again.

The *ELP Conceptual Educational Specification* for the high school essentially changes the base of analysis and introduces an X factor. Under the implicit *ELP* formulation:

$$FCI = \frac{\$24,674,620 + (\text{The Cost of Improved Aesthetics})}{\$84,564,000}$$

Now we need to validate both the \$24,674,620 and any specific costs identified as necessary to improve the aesthetics. Further, we need to develop a consensus around what “improved aesthetics” means.

In its reports, *ELP* does provide an answer to the question “what do we mean by improved aesthetics?” However, in doing so, it shifts the analytical focus away from the quantitative needs assessment presented in the *Jacobs Report* toward a different set of qualitative “needs,” “wants” and “dreams” identified by focus group members. (*ELP*, Elementary Schools Ed Spec, 29). For *ELP* the purpose of making building improvements is to help produce schools that will deliver an “education experience that engages a joyful community of diverse learners in a challenging highly personalized, supported program that empowers both students and educators to connect, collaborate, create, communicate and explore in safe, respectful, relevant and equitable places of learning, where inter-disciplinary pathways inspire all to discover their passions, purpose, and sense of belonging.” (*HS Conceptual Educational Specifications*, 5).

There are a number of challenges in trying to use the *ELP* reports as objective measures of building condition and performance. First, it’s difficult – if not impossible – to establish a reliable measure of the relationship between any particular building component and the aspirational metrics used within the *ELP* reports. Buildings may in fact contribute to respect, relevance, equity and joyfulness, but it’s hard to know how they do so, let alone how to maximize the elements that do so. Second, to the extent the *ELP* reports provide specific data, the data collection practices used by *ELP* makes it hard to evaluate how useful those data are. The team’s data collection method emphasized consensus-finding and selected focus groups rather than straight observation and reporting.

While, the *ELP* research process was not intended to be pure research, it was designed to be used as an input into policy deliberations. So, while it may not be fair to critique the *ELP* process for its methodology deficiencies, it is fair to recognize that the process certainly impacted *ELP*’s finding and the usefulness of its findings as the basis for the policy decisions. Without engaging in a detailed review, the *ELP* reports should be evaluated as policymaking tools to determine whether they provide useful and objective evidence of material facts. If they do present relevant facts, then those facts should be weighed and considered in terms of relative significance. In other words:

1. What did *ELP* find?
2. Does what *ELP* found matter?
3. And if what *ELP* found matters, how much does it matter compared to other things?

What *ELP* found was the stated preferences of the parents, teachers, administrators and students who participated in the *ELP* focus groups and an online survey. The participants expressed a wide range of opinions and values, but consensus views did emerge. *ELP* grouped the stated preferences and structured them around building design principles. The design elements that identified by group members suggested strong preferences for natural light, large open spaces, flexible seating, high ceilings, the integration of technology, specialized space appropriate for science, art and music. The group participants also expressed a desire to accommodate both collaborative areas and personal space in areas such as reading nooks. Security was also a high priority.

What *ELP* discovered through its focus groups isn't particularly surprising. The query posed to the groups was highly abstract – what's the ideal school look like? Because group members were not asked to select between specific images or designs and no cost or other constraints were put before them, the participants were free to, and did, express broad, even nearly-universal, preferences – good lighting, and large spaces appropriate to their intended use. It is worth noting that the Rhode Island School Building Authority's construction regulations address each of the factors identified by the groups and are consistent with the stated preferences – requiring for example, high ceilings, specialty space for science, art and music. (RIDE School Construction Regulations, Section 1.06, et seq.). So, even minimal compliance with RIDE regulations would address – at least to some extent – the design features that focus group members discussed.

An important question to ask about the preferences data captured by *ELP* is what it tells us about how South Kingstown should go about the business of refurbishing its schools. To the extent that local preferences exceed the design standards established in the state's school construction regulations, they are not eligible for state housing aide; extravagant design elements must be funded entirely by local taxpayers. And to the extent that local preferences are consistent with the state regulations, all that ultimately matters is whether people like the final design.

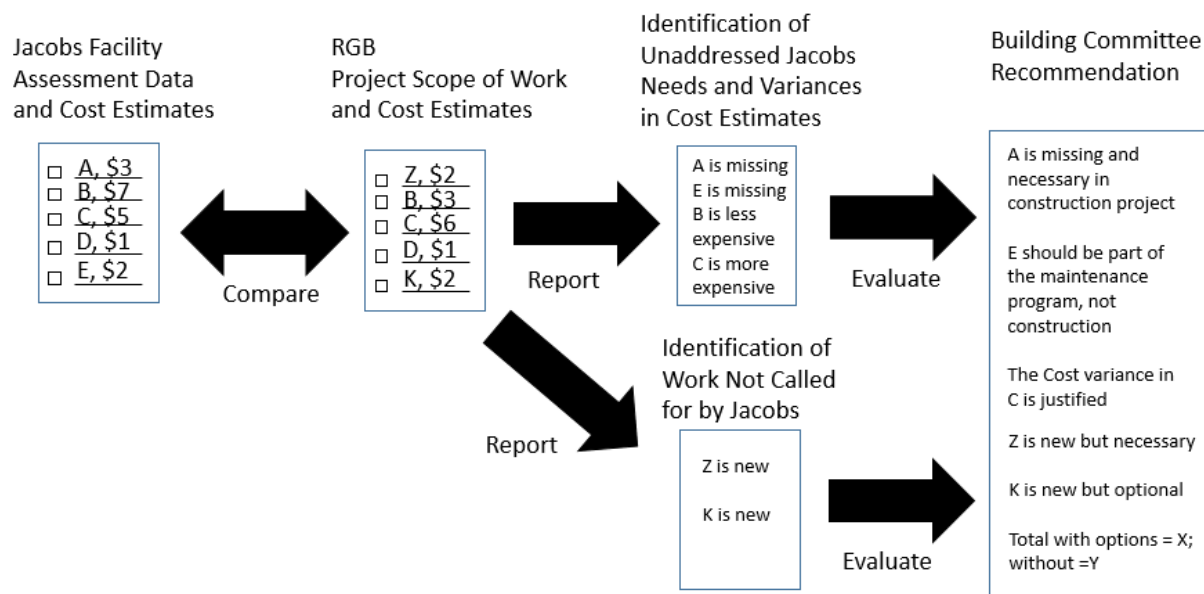
The state's design restrictions and minimum design standards are supported by research that suggests declining academic returns on building improvements. A 2000 study by Stricherz, found "[r]esearch does show that student achievement lags in shabby school buildings — those with no science labs, in adequate ventilation, and faulty heating systems . . . [b]ut it does not show that student performance rises when facilities go from the equivalent of a Ford to a Ferrari – from decent buildings to those equipped with fancy classrooms, swimming pools, television production studios, and the like." According to Schneider "existing studies on school building quality basically point to improved student behavior and better teaching in higher quality facilities but what is needed is more firm policy advice about the types of capital improvements that would be the most conducive to learning and good teaching." (Schneider, 9)

### ***Analytical Framework for Evaluating the RGB Project Proposal***

#### **The Basic Approach to Comparing the *Jacobs* needs to the *RGB* proposal**

This analysis is designed to determine whether the needs identified in the *Jacobs Report* are being addressed either by the construction project (the Bond Project) proposed by *RGB* or by the program of maintenance (the long-term program) being proposed by the School District. The analysis is a simple crosscheck model. Figure 1 on the next page summarizes the process.

**FIGURE 1: PROCESS FOR COMPARING RGB PROPOSAL TO THE PROBLEMS IDENTIFIED BY JACOBS**



### Baseline data

While we don't have perfect cost and condition data, we do have several good sources of information about the problems with our school buildings and how much it might cost to fix them. Each of the data sources available has limits, but together they provide a fairly satisfactory description of the challenges we face as we plan for the improvement of our schools.

### *Jacobs*

The broadest dataset we have comes from the *Jacobs Report*. The *Jacobs* data provides item-by-item estimates of how much it would cost to replace specific building systems and components in each of the school buildings in town.

The *Jacobs* team collected their data by visiting each school and conducting a field survey of each building. The *Jacobs* data are consistent with a recent prior SK School Facilities assessment conducted by CA Pretzer Associates Inc. in 2013. Like *Jacobs*, Pretzer (a structural engineering firm) found that there were wide-ranging deficiencies throughout the school building inventory, but the buildings remain safe and serviceable. As noted above, there are some reasons to believe that *Jacobs* may have systematically overstated the costs of repair.

*Jacobs* calculated an *FCI* for every school in South Kingstown. The *Jacobs* values were based on (1) list of failed building components, (2) an estimate of what it would cost to remove and replace each failed building component and (3) an estimate of the replacement cost for the entire building based on the cost of construction for a facility of the same size at each school site.

Details of the items listed as deficiencies will be discussed later when evaluating the *RGB* cost estimates. In this section, a summary of the *Jacobs* data will suffice to demonstrate that at the district-wide

aggregate level, the assumptions made about the data can radically change the conclusions that can be drawn from the data.

The 5-yr *FCI* (existing deficiencies plus those anticipated to develop in the next five years) for the entire inventory was 37.8%, which means on average, within the next five years, the school buildings in SK will have reached a state of about 40% deterioration. *Jacobs* estimated that to eliminate all existing and all anticipated deficiencies approximately \$89,974,323 worth of repairs would have to be made. Table 1 below summarizes costs estimated for each school that would remain open under the RGB proposal.

<b>TABLE 1: Jacobs 5-year Anticipated Cost to Remedy All Deficiencies</b>		
<b>School (in rank order from worst to best)</b>	<b>Jacobs 5yr-FCI Score</b>	<b>Estimated Cost to Remedy All Current and 5-yr Anticipated Deficiencies</b>
Wakefield Elementary School	56.12%	\$6,680,887
Matunuck Elementary School	47.42%	\$7,358,769
West Kingston Elementary School	46.67%	\$7,114,760
Hazard School	38.35%	\$3,678,702
Broad Rock Middle School	32.18	\$8,264,829
Peace Dale Elementary	32.09%	\$9,604,036
South Kingstown High School	29.18%	\$24,701,149
<b>Total (Not Including Curtis Corner or South Road)</b>		<b>\$67,403,132</b>

#### *RGB's Cost Estimates*

On January 10, 2019, *RGB* provided cost estimates associated with a comprehensive, district-wide, proposed program of repairs and construction. The *RGB* estimates fall into four categories:

1. Jacobs carryover estimates,
2. Jacobs adjusted estimates,
3. New repair or replacement items to address current structure deficiencies, and
4. New construction additions to existing buildings.

Approximately 2/3 of all of the items included in the *RGB* proposal consist of deficiencies identified in the *Jacobs Report*; most of these carryover estimates are straight out of the *Jacobs Report* and have not been adjusted for inflation or any other reason. Even though these items make up a 2/3 of the number of line items in the *RGB* project budget, they nonetheless represent less than half of the total cost of the *RGB* proposed project.



About 10% of the estimates contained in the *RGB* proposal are items identified in the *Jacobs Report*, which *RGB* investigated more closely. The items carry costs that are different than those in the *Jacobs Report*. Some of the adjusted estimates are based on a physical inspection of the building component in question. Some the adjusted estimates appear to be simply adjustments to the *Jacobs* estimates based on *RGB*'s general knowledge of the buildings or industry standards. Some of the adjusted estimates reflect *RGB*'s recommendation to reduce the scope of the project or to change materials. So, for example, *Jacobs* had estimated that replacing the slate roof at Peace Dale Elementary would cost \$926,930.00; *RGB* has recommended replacing the slate with a "rubber slate" instead of real slate and has estimated that doing so would reduce the cost of repair to \$500,000.

In terms of the total cost of the project, about half (51%) of the cost of the *RGB* bond-funded project proposal is attributable to constructing additions at two schools -- the High School and Broad Rock Middle School. Thirty percent (30%) of the proposed project (\$22,180,917) is dedicated to HVAC improvements in the existing parts of the district's seven remaining school buildings. Approximately 5% of the bond project will be committed to making fire safety improvements. *RGB* is carrying \$3M in undefined "Educational Enhancements" for the elementary schools, which amount to about 4% of the bond. About 3% supports security improvements. Approximately 2% supports parking lot and traffic improvements. Another 2% is dedicated to roof repairs. The balance of the bond would fund miscellaneous items such as installation of new electrical outlets, repairs to exterior lighting and non-major site improvements.

#### Comparing the *RGB* Proposal to the Needs Identified in the *Jacobs Report*

As noted above the project proposed by *RGB* is a mix of new construction additions to the High School and Broad Rock Middle School and repairs/renovations to older buildings. Only part of the deficiencies in the *Jacobs Report* are expressly addressed in the *RGB* proposal. In this section, I calculate what the FCI would be for each building if only the work proposed by *RGB* was completed. Table 2 summarizes the state of the buildings only – site improvements are addressed elsewhere. In order to compare "apples to apples" the analysis presented here only looks at the deficiencies in the old buildings – not the new additions. In other words, what will the old elementary schools look like? And what will the old portions of the High School and the Middle School look like after the proposed work is done?

As Table 2 describes, for most of the existing school buildings the *RGB* proposal would make improvements but would not result in like-new condition for any building. In fact, depending on how the undefined "Educational Enhancements" allowances are spent, the project would result in a district-wide average FCI of 19.4%, which is far from "Good" (6-10%). After the proposed work, only one school (the High School) would be in "Good" condition under the original *Jacobs* criteria. Four of the old buildings (BRMS, PDES, WKES, and WES) would be of "Average" condition. Matunuck Elementary would still be "Below Average" and the Hazard School building would remain in "Poor" condition.

The FCIs presented on the table were calculated using the *Jacobs* deficiency data and an *RGB* updated proposal dated January 14, 2019. The specific line items in the *RGB* proposal were compared to the list of deficiencies identified by *Jacobs* and the total cost of all deficiencies not addressed in the proposal were used as the new numerator in the FCI ratio. The *Jacobs* Report costs of repair and cost of building replacement were assumed. No cost escalation was considered.

To provide a before and after comparison, Table 2 also presents the FCI and building condition reported by *Jacobs* three different ways: (1) the 2016 current condition, including site deficiencies, (2) the 2016 current condition, building only, and (3) the 5-Year Anticipated Condition, building only. The “Educational Enhancements” in the last two columns refer an undefined, unallocated “allowance” *RGB* has included in the bond project; the enhancements are currently shown in the proposal as four line items of \$750,000 associated with each of the four elementary schools for construction within the existing footprints of those schools. The last column assumes that all \$750,000 associated with each school is used to address building deficiencies identified by *Jacobs*. The second to last column assumes that the \$750,000 would be put uses other non-deficiency uses.

**TABLE 2: Condition of South Kingstown School Buildings Before and After Proposed Work**

School	Jacobs Current Condition	Jacobs Current Condition (Building Only)	Jacobs 5yr Condition (Building Only)	Post RGB Condition w/o “Educational Enhancements”	Post RGB Condition with “Educational Enhancements”
WKES	35.9% Poor	32.6% Poor	56.1% Very Poor	26.7% Below Average	20.4% Average
MES	40.2% Poor	33.6% Poor	47.4% Poor	30.9% Poor	26.1% Below Average
WES	37.9% Poor	30.7% Below Average	46.6% Poor	20.1% Average	15.2% Average
Hazard	26.4% Below Average	13.0% Average	38.3% Poor.	38.3% Poor	38.3% Poor
BRMS	13.2% Average	06.9% Good	32.1% Poor	13.7% Average	13.7% Average
PDES	17.1% Average	13.7% Average	32.0% Poor	19.9% Average	17.40% Average
SKHS	22.9% Below Average	20.1 Average	29.1% Below- Average	5.1% Good (note: <5% = best)	5.1% Good (note: <5% = best)
District Average	27.6% Below Average	21.5% Below Average	40.2% Poor	22.1% Below Average	19.4% Average

#### Deficiencies That Would Remain After the Proposed Work

The *RGB* proposal was specifically designed to address the highest priority items identified in the *Jacobs Report*. The proposal would make all Priority 1 and Priority 2 repairs, but only a limited number of Priority 3, 4, and 5 repairs. As a result, the *RGB* proposal leaves approximately \$28,582,755 worth of *Jacobs* building deficiencies unaddressed. That’s nearly half (43%) of all of the cost of repairs identified by *Jacobs*.

The lower priority items not addressed by *RGB* are largely aesthetic items – bathroom fixtures, paint and flooring replacement. There are some items like electrical and plumbing repairs that should be made to address functional problems.

The largest class of items excluded by *RGB* is technology enhancements, including classroom AV and multimedia systems, telecommunications and computer network improvements, and teaching tools such as interactive white boards. *RGB*'s decision to exclude educational technology improvements from the project is based, in part, on the presumption that computer equipment and the like are either ineligible for RIDE reimbursement or are inappropriate to purchase with bonds because they will do not have a sufficiently useful life.

The SBA interprets its regulation as allowing some educational technology/equipment as an allowable project expense during substantial renovations and construction of new additions, but the technology component must be approved as part of the initial project plan. (SBA, 2019). While it is common practice to bond educational technology, the decision not to do so is fiscally prudent. In theory, the technological deficiencies identified in the *Jacobs Report* can be remedies through the School District's operating budget and or Capital Improvement Plan.

**TABLE 3: Summary of Deficiencies Remaining After Proposed Work**

School	Values of Unaddressed Deficiencies	Primary Deficiency Types*	Post Project FCI for the Buildings	Condition After All Work Completed
BRMS	\$3,528,474	Technology, general repairs	13.7%,	Average
MES	\$4,055,624	Technology, Interior Updates, Lighting/Electrical,	26.1%	Below Average
PDES	\$5,212,675	Technology, Interior Updates, Low-slope roof, Plumbing, Electrical	17.4%	Average
WKES	\$2,437,162	Technology, Interior Updates, Gym, Plumbing, Electrical	20.4%	Average
WES	\$2,320,881	Technology, Interior Updates	15.2%	Average
SKHS	\$4,368,896	Technology	5.1%	Good
Hazard	\$3,659,043	Technology, Interior Updates, Electrical	38.3%	Poor

\* Site improvements not included. Site improvements have been excluded from this analysis because (1) most of the remediable site issues identified in the *Jacobs Report* have been addressed by *RGB*'s proposal and (2) those conditions identified by *Jacobs* that would not be addressed by the *RGB* proposal are difficult or impossible to remedy given site constraints. A further discussion of site improvements is provided below.

### Site Improvements

*Jacobs* identified site improvements to be made at each of South Kingstown's school facilities. Most of the site work identified by *Jacobs* is related to parking lot and traffic management problems. However,

there were also recommendations to improve playing fields, repair fencing and provide better outdoor lighting.

*RGB's* proposal addressed most of the parking lot and traffic deficiencies. However, in some cases, the proposal relies on cost estimates that are significantly lower than those presented by *Jacobs* in 2017. It's not clear whether the cost differences reflect a proposed reduction in the scope of work or not.

#### Work *RGB* Proposes to Do Above What *Jacobs* Recommended

##### *Security Improvements*

The *RGB* proposal is to address two different types of security improvements at two different times. The first set of improvements consists of constructing secure visitor vestibules at each of the elementary schools and the high school (Broad Rock already has a secure vestibule). This work is slated to begin in the summer of 2019. The second set of security upgrades would provide surveillance technology around the perimeter of each of the schools. The cost estimates associated with this second set of improvements are not well developed. *RGB* is assuming \$295,000 worth of improvements at each of the four elementary schools, the middle school and the high school to install video cameras and electronic visitor background check systems

##### *Building Additions*

*Jacobs* did not recommend any extensive additions be built to expand any of South Kingstown's schools. In fact, the space utilization formulas contained in the state regulations and used in the *Jacobs Report* suggests the High School is oversized for the current and projected student population. The *Jacobs Report* specifically found that Facility New Construction was unnecessary at all South Kingstown Schools, except Broad Rock Middle and Peace Dale Elementary. *Jacobs* recommended \$807,959 in new construction to bring the BRMS cafeteria and/or library up to the square footage required under RIDE regulations. *Jacobs* also recommended \$352,296 in new construction required to bring the PDES cafeteria and or library up to the state mandated square footage. The Peace Dale recommendation is not specifically addressed in the *RGB* proposal, but could be covered under the \$750,000 "Educational Enhancements" line item. In total, *Jacobs* recommended \$1,160,255 in new facilities construction at the schools that are slated to remain open. (*Jacobs* had also recommended \$635,461 in construction at Curtis Corner to address library and/or cafeteria issues).

The *RGB* proposal would commit \$38.5M to new construction at the High School and Broad Rock Middle School. The proposal also contains \$3M for significant "Educational Enhancement" renovations at each of the four elementary schools. These renovations are intended to create new "21<sup>st</sup>-Century" spaces within each of the elementary schools. Because the additions and "Educational Enhancements" are not specifically tied to deficiencies identified in the *Jacobs Report*, it's difficult to quantify how they will improve the schools.

In the case of the elementary school enhancements, the new oasis in each building will likely improve the general impression of the buildings held by teachers, students and parents. If the space can be used by all the students, it seems logical to assume that it will add value to each student's daily experience. However, at this point, without a design or utilization plan, it's not possible to conduct any meaningful evaluation of the cost effectiveness of this component of the proposal.

With regard to the addition at Broad Rock Middle School, there is conflicting information about the need for the additional space. On the one hand, proponents of the proposed additions maintain that the new space needs to be created for two reasons: (1) it facilitates the consolidation of the two middle schools, and (2) without the new additions, there would be no modern/contemporary learning spaces in the building.

Technically, it appears that there is enough room within the current BMESS structure to accommodate the entire 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> grade student population under the *SBA* space utilization regulations. However, staying within the current building footprint would limit opportunities for creating large open learning spaces. The absence of such spaces is both an aesthetic and an educational value question.

With regard to the four additions proposed to be built at the High School, the current building is large enough to house the current and forecasted student populations. The justification for building new space rests entirely on aesthetic and educational expectations. Additions to the High School are meant to remedy functional obsolescence. While the building is structurally sound – and in fact is in the best condition of any school in the South Kingstown inventory – it is old and shows wear in many places. The additions would allow for new modern spaces to be created while at the same time freeing up space in the building core that could then be opened and modernized. Even when measured strictly against the *Jacobs* deficiency criteria, the *RBG* proposal comes close to creating a like-new building in the old parts of the structure (an FCI of 5.1%). With the additions, the *RGB* proposal comes about as close to building a new High School as is possible at the existing site.

As a final note on the additions and enhancements work, the aesthetic qualities of a classroom or school building cannot be completely separated from, but should not be conflated with, the characteristics of a space that make it conducive to teaching and/or learning. However, like the aesthetics question the “conducive-to” question must generally be answered with opinions, professional judgments and preference statements.

The education research suggests that there is a correlation between building quality and educational outcomes. However, there also appears to be a point of diminishing returns after which expenditures on school building aesthetics cease to be wise investments because they do not significantly improve educational outcomes. (see Schneider, 2002; Stricherz, 2000; Pricewaterhouse-Coopers, 2001). The research is clear that clean, well-ventilated and well-lit spaces are important to student success. (Schneider, 2002). However, I have not found, and neither *Jacobs* nor *RGB* (or its subcontract *ELP*) cites any evidence-based research in support of the contention that large open spaces such as atria measurably improve the educational experience of individual students or the outcomes for schools or school districts.

There are two core premises behind the new construction work contemplated in the *RGB* proposal:

First, big modern-looking spaces feel good and feeling good will translate into student pride and confidence, which in turn will improve outcomes – perhaps easily measured outcomes like test scores; perhaps hard to measure outcomes like interpersonal relationship.

Second, larger spaces allow students to move around more freely and to interact with each other in dynamic ways such as being able to break into small working groups and reassemble

into large groups within one shared space. The proposal supposes this kind of flexibility in instructional space will facilitate more engaging and effective teaching.

The shortage of empirical research conclusively testing these hypotheses means that the best evidence available to the Town Council at this point is the professional judgments of educators and architects. In this case, those judgments are augmented by a consensus opinion among teachers, parents and students who participated in the educational visioning exercises conducted by *ELP*. The consensus was that bigger, more open, modern-feeling spaces would make South Kingstown schools better and would improve the learning experience.

### ***Recommendations and Conclusion***

#### **Cost to Repair**

The State of Rhode Island, through the *Jacobs Report*, has documented the need for at least \$60 to 65M in capital improvements in South Kingstown schools – excluding Curtis Corner and South Road Elementary. I have reviewed every line item in the report and believe it to be a generally reliable depiction of the condition of the school buildings in South Kingstown. I have compared the report to a 2013 assessment conducted by C.A. Pretzer Associate, Inc., and find that the two assessments identified many of the same problems and are generally consistent in their conclusions. I believe the state’s estimate of the cost of repairs was generally correct when calculated in 2016. If we assume 6% cost escalation, the cost to make all necessary repairs today would be approximately \$63.6 to \$69M.

***I recommend the Town Council assume a total cost of repair of \$65M.*** This amount does not include any additions or educational enhancements.

#### **Additions/Cost of Proposed Additions**

How the student population is distributed among the district’s school buildings determines whether the existing buildings are large enough to accommodate the students within the space utilization standards established by the Rhode Island Department of Education. South Kingstown currently has enough space – even with Curtis Corner coming offline – to house all of its students within the existing footprint of its remaining schools. Strictly as a matter of minimal regulatory compliance, there is no need for any additions to any of the district’s schools. However, teachers, parents and students who participated in a series of focus groups and workshops coordinated by *RGB* and *ELP* indicated a strong preference for new additions to create “21<sup>st</sup>-Century Learning Spaces.” *RGB*’s proposal would create substantial modern spaces at the middle school and high school; it would also create some larger contemporary spaces at each of the four elementary schools.

While the desirability of building new additions is a policy question, the cost of building the additions is just math. The *RGB* proposal provides average costs of construction estimates for two additions to be built at the Broad Rock Middle School and four additions to be built at the South Kingstown High School. The total cost of the middle school and high school additions is \$38.5M.

***I am confident that RGB’s new construction estimates are reasonable and can be relied upon for planning purposes.***

### Renovations/Cost of Proposed Renovations

RGB's renovation cost estimates are, in my view, not as reliable as their new construction estimates. In many cases the estimates are just "placeholder" numbers. Each elementary school, for example, is slated to receive \$750,000 in conceptual "Educational Enhancements" (\$3m in total). As another example, \$450,000 is associated with a line item listed simply as "site improvements" at Wakefield Elementary School.

Some of the cost estimates offered by RGB are substantially different than the estimates made by Jacobs Engineering. For example, the proposal carries \$15,594,250.00 in HVAC replacement costs (in addition to HVAC covered under the new construction to be done at the High School). Jacobs had estimated that replacement of the existing HVAC systems would cost \$6,632,374.

***I recommend that during the work session with RGB, the Council ask for clarification on these items.***

### Building Deficiencies Not Addressed by the Proposal

The RGB proposal was purposefully designed to address only the highest priority deficiencies identified by the SBA. About 43% of the deficiencies (by cost) identified in the Jacobs Report will not be specifically addressed by the project proposed by RGB. After the work proposed by RGB is completed approximately \$28M in known building deficiency will persist.

I am concerned that the RGB proposal does not do enough to remedy the deficiencies identified by Jacobs Engineering. There are three possible strategies the Town and the District could pursue to address this problem with the RGB proposal

- (1) Increase the bond-funded project amount to cover all repairs,
- (2) Shift funds from aesthetic and "educational enhancement" components of the project to more mundane building system upgrades, or
- (3) Treat unaddressed deficiencies as items to be scheduled as part of a long-term capital improvement program.

***I do not recommend increasing the scope of the bond-funded project*** because as it would create an undue burden on taxpayers. ***I am also concerned that the total cost of the items is too great to be carried as part of a long-term capital improvement program.*** In Fiscal Year 2019, the district will perform about \$914,356.00 in capital improvements. To address the outstanding items from the Jacobs list under a program funded at that level would take more than 30 years. And while the State now requires school districts to fund maintenance and improvements at a higher annual rate, the unaddressed Jacobs items will have to compete for attention over other crisis repairs as they crop up.

***I recommend that the Town Council request from RGB a detailed explanation and justification for each of the additions proposed to be built. The answer to this question is required by the SBA as part of the Stage II Submission.***

***I further recommend that the Town Council ask RGB to describe in detail what alternatives to the construction of the additions were considered and why those alternatives were rejected. The answer to this question is required by the SBA as part of the Stage II Submission.***

## General Conclusion

The school buildings in South Kingstown are currently in *Below Average* condition and are in need of repair. The state is currently offering 50% to 52.5% reimbursement on the costs associated with making repairs to school buildings. The Town typically has received only 35% reimbursement on such repairs.

Because we know with a high degree of certainty that repairs are needed and because the State is offering additional assistance, we should take advantage of the State's offer and submit an application for State assistance to support a school construction project. The scale of the project proposed by RGB is probably about right; whether the proposed allocation of limited construction dollars is the best way to expend limited resources is a policy choice.

It appears that we do not need to build extensive additions to Broad Rock Middle School or South Kingstown High School to comply with State space requirements. However, we can do so and the additions will likely be eligible for the addition State Housing Aid being offered. Whether the community wants to build additions, while leaving deficiencies in other parts of our building inventory is strictly a policy choice that has both education and fiscal dimensions. The School Committee has expressed their preference to do so and asserted that they believe doing so will improve the educational experience for South Kingstown students.

If we pursue the plan for construction outlined in RGB's proposal, we will have a large number of unaddressed building deficiencies and there is currently no cogent plan for addressing those deficiencies over time. The bond-funded project should be closely aligned with a meaningful long-term capital improvement program; currently it is not. The School Building Committee should be specifically charged to work with the School Department to (1) prevent project creep, (2) seek opportunities to reduce the overall cost of the bond-funded project, and (3) develop a long-term plan for managing the improvements that cannot be made as part of the bond-funded project.

Finally, the relationship between the School Department's physical plant and its operational budget cannot be ignored. Having more, rather than fewer, schools means more people to staff those schools. Large spaces require more maintenance and cleaning than small spaces. Modern, high-tech, environmental controls, like those contemplated under the SBA regulations, can reduce energy costs but they also require specialized care and maintenance. South Kingstown has struggled with the costs of associated with its existing education program even without the new burdens that will come with the proposed expanded facilities.



### **Sources cited**

Rhode Island School Building Authority and Jacobs and Cooperative Strategies, State of Rhode Island Schoolhouses, (September 2017). Accessed online:

[http://www.ride.ri.gov/Portals/0/Uploads/Documents/Funding-and-Finance-Wise-Investments/SchoolBuildingAuthority/RIDE-Facility-Condition-Report2017\\_FINAL.PDF](http://www.ride.ri.gov/Portals/0/Uploads/Documents/Funding-and-Finance-Wise-Investments/SchoolBuildingAuthority/RIDE-Facility-Condition-Report2017_FINAL.PDF)

School Building Authority (SBA), *Improving Rhode Island's Public Schoolhouses, NECESSITY OF SCHOOL CONSTRUCTION INFORMATION AND INSTRUCTIONS*. (2018).

School Building Authority (SBA), 2019. Telephone conversation between Robert Zarnetske and Christine Lopes Metcalfe, (January 24, 2019).

Teicholz, E., Alan, E., Facility Condition Assessment Practices, Graphic Systems Inc.,(2001). Accessed online: [http://www.graphicsysms.biz/gis/articles/FacCondAssessPrac\\_IFMA\\_01Sept.pdf](http://www.graphicsysms.biz/gis/articles/FacCondAssessPrac_IFMA_01Sept.pdf)

Hendricks, R. and Educational Legacy Planning, South Kingstown High School Conceptual Educational Specifications, (2018). Accessed online: <http://southkingstownlegacyplan.com/hs-ed-spec.html>

Hendricks, R. and Educational Legacy Planning, Broad Rock Middle School Conceptual Educational Specifications, (2018). Accessed online: <http://southkingstownlegacyplan.com/ms-ed-spec.html>

Hendricks, R. and Educational Legacy Planning, South Kingstown Elementary Schools Conceptual Educational Specifications, (2018). Accessed online: <http://southkingstownlegacyplan.com/es-ed-spec.html>

McKibben, J., South Kingstown School District, RI Demographic Study, (July 2017).

PricewaterhouseCoopers, *Building Performance: An empirical assessment of the relationship between schools capital investment and pupil performance*, (2001). Accessed online: <https://dera.ioe.ac.uk/4671/1/RR242.pdf>

Schneider, M., Do School Facilities Affect Academic Outcomes?, National Clearinghouse for Educational Facilities,(2002). Accessed on line: <http://www.ncef.org/pubs/outcomes.pdf>