


Brevard's Facilities

- 83 schools, 3 special centers
- 4175 classrooms
- Over 100 facilities
- 12.8 million square feet
 - Equivalent to over 5000 homes – 2500 square feet each
- Almost \$2 billion value
- Average age over 45 years
- All or parts of 56 schools exceed 50 years



How Big are We?

- 48th largest school district in country
- 11th largest in Florida
- About 66,000 students in our facilities
- About 2,300 students in special schools and centers
- About 6,600 students in charter schools



We serve more students than the population of every Brevard municipality except Melbourne and Palm Bay

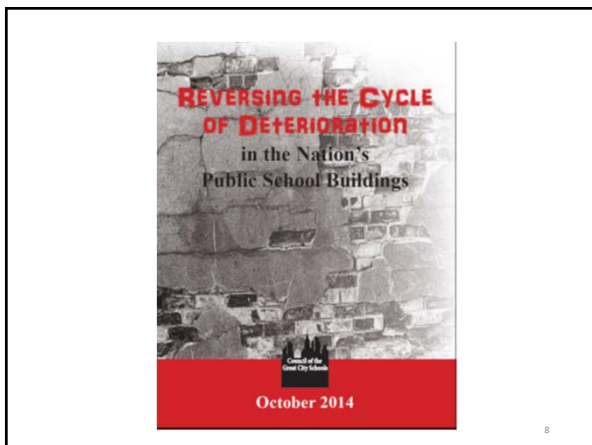
History

- Beginning in 2009 – capital revenue declined
- 2011 – 2013 almost all capital revenue used for debt service
- Also reduced maintenance staff during that time
- Perfect storm:
 - Aging facilities
 - Equipment reaching the end of its useful life
 - Maintenance investment declined









Numerous studies have concluded that students in substandard school buildings perform at lower levels than students in newer, functional buildings.

Researchers have found that students in deteriorating school buildings score between 5 to 11 percentile points lower on standardized achievement tests than students in modern buildings, after controlling for income level.

In addition, some experts believe that the negative impact of substandard school buildings may be cumulative and continue to increase the longer the student attends an older, deteriorating school

(Filardo et al., 2011; Hatfield, 2011; Cash & Twiford, 2010; Wilson, 2008; Earthman, 2004; U.S. Department of Education, 2000).

Studies have found that teacher satisfaction (and by implication, performance) is influenced by the condition of the school building

(Cash & Twiford, 2010; Filardo, 2008; Rudd et al., 2008).

Researchers have concluded that the physical condition of the school facility is an important predictor of teachers' decisions to leave their current position. Studies have consistently found that quality teachers are attracted to and remain longer at higher quality school buildings

(Yeoman, 2012; Filardo et al., 2011; Buckley et al., 2004).

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Deferred maintenance results in

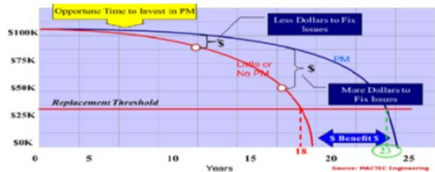
- a) increased overall costs of managing and operating facilities;
- b) increased incidence of unplanned and more costly urgent and emergency repairs;
- c) increased incidence of disruptions to delivering instructional programs;
- d) increased risk of defaults on warranties of equipment and building components; and
- e) premature failure of buildings and equipment, requiring significant and often unbudgeted capital expenditures and their accompanying debt-service costs.

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The cost to taxpayers of allowing schools to deteriorate increases greatly when communities continue to defer maintenance of building systems. Studies indicate that every \$1 of preventive maintenance that is deferred will result in \$4 of expenditures to ultimately repair or replace those building systems.

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When facility systems (roof, HVAC, life safety, security, etc.) are not maintained, such systems follow an accelerated deterioration curve and fail prematurely, sometimes years before their designed life expectancy. Deferring maintenance magnifies many times over the costs of maintaining a school facility.



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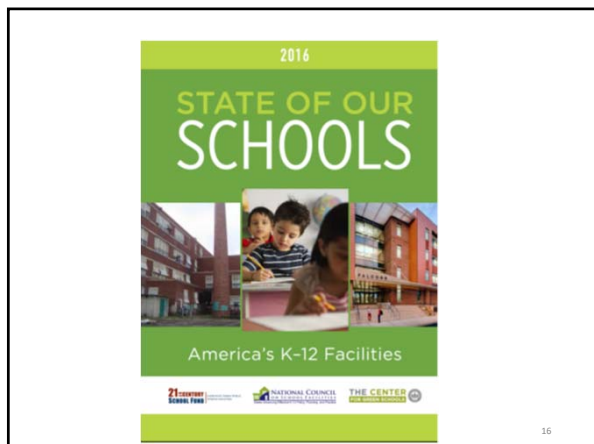
In its study, *Committing to the Cost of Ownership: Maintenance and Repair of Public Buildings*, the National Research Council recommends that owners spend between 2 percent and 4 percent of the current replacement value of a building every year on maintenance, with maintenance including routine and preventive maintenance and repairs, as well as capital replacements and renewals of major systems as they reach their expected life. A 2 percent spend rate assumes the facility has a 50-year life expectancy, and a 4 percent spend rate assumes the facility has a 25-year life expectancy.

These rates are for "maintenance". They should not be confused with a similar rate of 2 percent - 4 percent (again, depending on whether building life expectancy is estimated to be 50 or 25 years, respectively) that should be set aside for building replacement at the end of the expected life cycle.

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Metric	National	Count of Local City Schools	Full Range (25% - 75%)
2016 Budget Page 1027	4,800,000,000	20,146,000	13,950,000
Number of Students	50,000,000	4,900,000	36,000,000
Number of Schools	100,000	13,000	174
Number of Districts	13,000	67	7
Estimated Construction Cost per Square Foot	\$104	\$104	\$104
Current Replacement Value	\$1,946,800,000,000	\$217,153,376,000	\$1,947,900,000,000
Current Estimated Deferred Maintenance Building	\$142,200,000,000	\$16,227,280,000	\$146,183,200,000
Ratio Condition Index	40.3%	40.3%	40.3%
	25%	50%	75%
Maintenance Revenue Budget Target	1.0%	1.0%	1.0%
Maintenance Revenue Budget Target	\$24,268,000,000	\$24,268,000,000	\$24,268,000,000
Per Student	\$485	\$485	\$485
Per District	\$485	\$485	\$485
Per School	\$1,485,000	\$1,485,000	\$1,485,000
Per District	\$1,485,000	\$1,485,000	\$1,485,000
Per School	\$1,485,000	\$1,485,000	\$1,485,000

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At least six major studies have concluded that students' ability to hear their teacher clearly has a substantial impact on their short term memory and academic performance.

Berg, F., Blair, J., and Benson, P. (1996). Classroom acoustics: the problem, impact and solution. *Language, Speech, and Hearing Services in Schools*, 27, 16-20; Crandell, C., and Smaldino, J. (2000). Classroom acoustics for children with normal hearing and with hearing impairment. *Language, Speech, and Hearing Services in Schools*, 31(4), 362-370; Knecht, H. A., et al. (2002). Background noise levels and reverberation times in unoccupied classrooms: predictions and measurements. *American Journal of Audiology*, 11, 65-71; Feth, L., and Whitlaw, G. (1999). Many classrooms have bad acoustics that inhibit learning. Columbus, Ohio: Ohio State; Sato, H., and Bradley, J. S. (2008). Evaluation of acoustical conditions for speech communication in working elementary school classrooms. *The Journal of the Acoustical Society of America*, 123(4), 2064; and Klatte, M., et al. (2010). Effects of classroom acoustics on performance and well-being in elementary school children: a field study. *Environment and Behavior*, 42(5), 659-692.

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It is not just students who are affected by the quality of the school facilities. Studies also have shown that investing in public school infrastructure increases the value of property beyond the amounts borrowed, boosts enrollments, and helps rebuild confidence in a formerly struggling district or school.


See Nelson, C., and Zimmerman, S., "The Effect of School Construction on Test Scores, School Enrollment, and Home Prices," Institute for the Study of Labor (November 2011) <http://ftp.iza.org/dp6106.pdf> (accessed Jan. 13, 2016).

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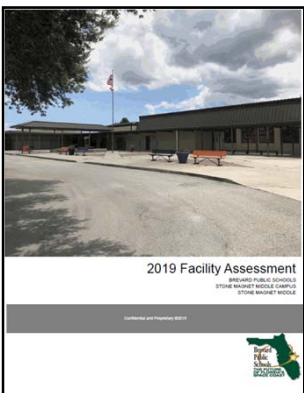
Modern Standards for Maintaining and Upgrading Current K–12 Public School Facilities

The following proposed national standards for school facilities are based on building industry best practice. The percentages refer to the percentage of facilities' current replacement value that should be invested annually to maintain school buildings in good condition. Local conditions will vary. For example, school facilities in very poor condition will need more than 1 percent a year toward their deferred maintenance. But in general, if communities have stable funding at these levels, they should be able to deliver healthy, safe, educationally appropriate, and environmentally sustainable school facilities.

- 3% of CRV Annual M&O**
Such as cleaning, grounds keeping, routine and preventive maintenance, minor repairs, utilities and security.
- 2% of CRV Periodic Renewals**
Such as replacing key components that wear out, roofs, windows, doors, boilers, etc.
- 1% of CRV As-Needed Alterations**
Such as adding space for smaller classes, expanding early childhood, addressing environmental concerns, integrating technology, and improving safety and security.



1% of CRV Systematic reduction of deferred maintenance
Making up for delayed M&O, renewals, and alterations



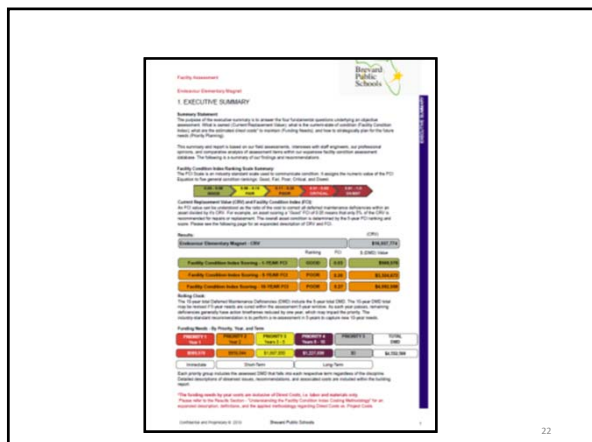
2019 Facility Assessment
STONE MOUNTAIN MIDDLE CAMPUS
STONE MOUNTAIN MIDDLE SCHOOL
STONE MOUNTAIN DISTRICT

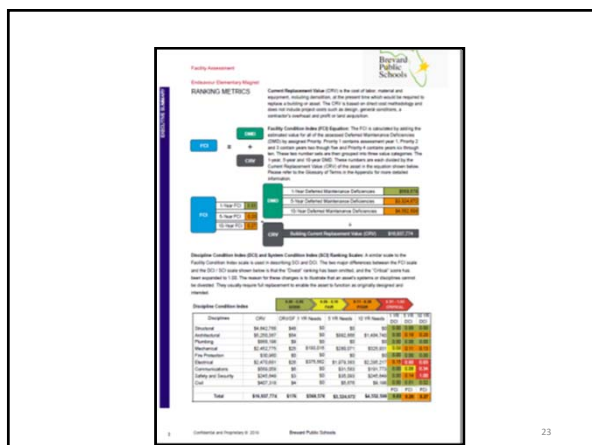
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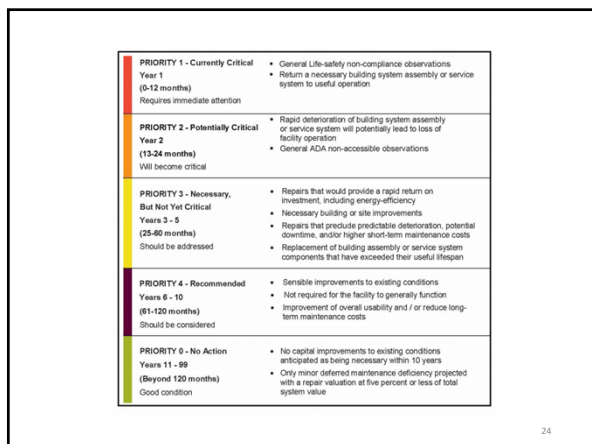
Facility Assessment Project

- Identifies 1, 2, 3-5 and 6-10 year needs
- About 1/3 complete
 - Field work
 - Report generation
 - Quality control
- Completion +/- summer
- Data by school, building system, priority
- Can aggregate data for capital planning
- Software is live – adjusts as improvements are made
- Cultural evolution

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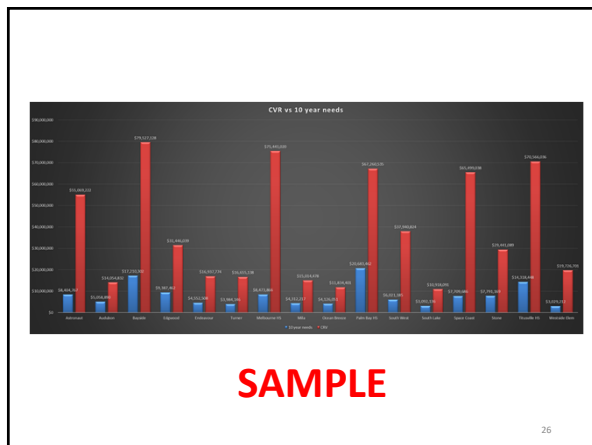




Discipline	Priority 1	Priority 2	Priority 3	Priority 4	Total
	Critical Years	Potentially Critical Year 2	Necessary Years 3-5	Recommended Years 6-10	
Architectural	\$3,166,008	\$14,273,296	\$72,662,500	\$29,504,890	\$69,606,694
Civil	\$25,800	\$79,520	\$849,199	\$1,631,202	\$2,585,722
Communications		\$329,422	\$39,906	\$212,993	\$582,322
Electrical	\$1,514,335	\$2,446,729	\$15,070,981	\$5,777,165	\$24,729,211
Fire Protection	\$234,248	\$150,713		\$24,082	\$399,043
Mechanical	\$1,408,177	\$165,491	\$3,876,797	\$14,652,377	\$20,102,843
Plumbing	\$494,334	\$1,005,674	\$1,636,744	\$861,827	\$3,998,579
Structural		\$429,043	\$466,880		\$895,924
Other Items		\$8,600			\$8,600
ADA Assessments		\$118,459	\$108,814	\$12,470	\$239,743
Safety and Security		\$1,424,603	\$460,155	\$5,896,891	\$7,781,650
Total	\$6,852,893	\$20,331,621	\$45,171,938	\$56,074,498	\$128,430,950
Cumulative	\$6,852,893	\$27,184,518	\$72,356,456	\$128,430,954	

SAMPLE


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SAMPLE

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Using the Work



- Facilities "Tiger Team"
 - Completed assessments reviewed
 - All priority 1 and 2 issues are "owned"
 - Maintenance
 - EHS
 - Short term projects
 - Long term projects
- Sharing with principals
- Tagging (and finding!) assets
- Experimenting with analytics
- Briefing ICOC

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Preventive Maintenance



- Pilot preventive maintenance plan
 - Endeavor and Ocean Breeze
- Based on manufacturers' recommendations
- Eventually tie to QR code on equipment
- Reallocating staff resources
- Evaluating level of effort
- Evaluating resources needed

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Other Capital Needs

- Athletics
- Playgrounds
- Portables (replacement and new capacity)
- Security
- Educational Technology
- Transportation
 - Buses
 - Heavy equipment
 - Vehicles
 - Distribution vehicles
- Capacity

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Playground Assessments

- Condition assessment
- Shade structure
- Fall protection
- Years in service
- User group
- 40% complete
- Completion +/- February



Condition Rating Code

- 1 = Poor
 - Unsafe
 - Urgent to repair or close
- 2 = Moderately Poor
 - Functional but needs repair
 - Replace within 2-4 years
- 3 = Average
 - Functional with signs of wear
 - Needs some maintenance to extend service life
- 4 = Good
 - Fully functional
 - Beyond service life
- 5 = Excellent
 - Fully functional
 - Within service life

Coquina 5-12



- Condition Code: 2
- No shade structure
- Major wear and tear
- Excessive rust present throughout
- Mulch fall protection surface
- Structure 14+ years old

Pinewood 5-12



- Condition Code: 3
- No shade structure
- Minor wear and tear
- Sun exposure wearing plastic components
- Mulch fall protection surface
- Structure 10+ years old

Sample Findings

- Based on completed to date
- 63% do not have shade structures
 - Required on 2-5 playgrounds
- Does not capture equity

Condition Code	Percentage
1	0
2	16
3	42
4	23
5	19

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Athletics

- In-house assessment done 2018
- Updating in process (in-house)
- Tracks are most significant current need
 - +/- \$1.5 million
- NO budget for maintenance
 - Deferred with only minor investments
- Equity requests
- Community partnership requests
- Enhancement requests

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Summary



- Significant improvement in data
- Improving analytics and capital planning
- Improving targeted investments and resource allocation
- Surtax has reduced deferred maintenance backlog



- Deferred maintenance backlog remains and will grow
- Preventive maintenance
- New/deferred capital needs
- Capital plan to support educational programs

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Status Update

- Revenue continues to exceed program budget
 - Under-funded projects
 - Scope of work updated
- All planned school projects will be finished this summer
 - Kudos to team
 - Cash flow has allowed accelerated work
 - Considering some additional projects
- Ancillary facilities and close out projects
 - Ongoing through next summer
- ICOC working very well
- 8 Perfect Audits

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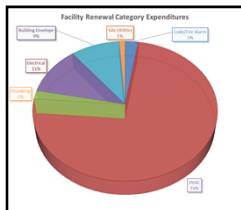
History

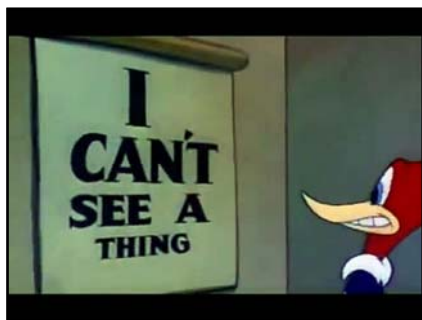
- Original facility assessments done in spring/summer 2014
 - Basis of the sales surtax referendum
- Systems rated 1 (failing) – 5 (almost new)
- Estimates based on generalized costs
- From this data base, developed "Attachment F" – funded project – for each school

Group	Needs	Funding	Percent Funded
Facility Renewal	\$721,750,379	\$156,969,950	22%
Educational Technology	\$27,193,246	\$25,364,827	93%
School Security	\$8,505,377	\$5,746,542	68%
Contingency		\$9,918,681	
Total	\$757,449,002	\$198,000,000	26%

What Categories Were Funded?

- Safety, ADA and Building Code Deficiency Corrections
- Fire Alarm System Renewal
- HVAC Renewal
- Roofing System Renewal
- Building System Renewal
- Electrical System Renewal
- Plumbing System Renewal
- Site Utility System Renewal
- Technology
- Fencing and Access Control





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What was Not Funded?



- Parking and Walkway Renewal
- Pavilions, Athletic/Playfields, Concessions Renewal
- Restroom and Plumbing Fixtures Renewal
- Theater Equipment, Auditorium Seating Renewal
- Lockers, Bleachers Renewal
- Pool Renewal
- Interior Paint
- Flooring Renewal
- Cameras
- New Capital Facilities – Athletics, Classrooms, Portables

Learning from Experience

- Surtax initial framework
 - Like for like
 - Assessment became outdated
 - Scope managed to meet budget
 - Components not system approach
- Incomplete projects
 - Performance suffered
- More resources improved approach
- Functional and safe – only basic needs

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Thinking Differently About Facilities



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Connection to Learning

- Facilities link to Strategic Plan
 - Student achievement
 - Teacher recruitment and retention
 - Equity
- Improve reliability of all systems
 - Redundancy vs. minimalist approach
- Technology building solutions
 - Integrated systems
 - Better lighting
 - Better acoustics

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Fiscal Responsibility

- Preventive maintenance as an investment choice
- Technology solutions can save money
 - LED lighting
 - Multi-functional systems
- Investment decisions that reduce maintenance and operational costs
- Replacement of aging facilities



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The Future of Facilities

- Needs clearly documented
- Assessments
 - Evaluates only what we have
 - Does not capture what we need or want
- Basic services or big ideas?
- Sales Surtax renewal decision



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Upcoming Sales Surtax Decisions

- Renewal
- Duration
- Use of funds
 - Renewal
 - Replacement
 - New capacity
 - New capital assets
- Bondable revenue source

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Fixed Capital Outlay

- Land
- Buildings
- Appurtenances
- Fixtures and Fixed Equipment
- Structures
- Additions
- Replacements
- Major Repairs
- Renovations
- Materially extend useful life
- Materially improve or change its functional use
- Typically life of 5 years or more

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Sales Surtax Renewal Process

- Board adopts Authorizing Resolution
 - Duration and rate
 - Other terms
 - Resolution 2014-01 – July 2014
- Changes require state audit and earlier notice
 - Resolution no later than April 2020 – preferably sooner
- General election – 2020
- Can spend on fixed capital outlay

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Facilities Report Card

A – Exceptional support of the learning environment

B – Good – The learning environment is supported

C – Fair – Doing well with the resources we have

D – Poor – Marginally serving the educational needs of the District

F – Failing to serve the educational needs of the District

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I DIDN'T COME THIS FAR,
TO ONLY COME THIS FAR.

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