



# **SULLIVAN COUNTY SCHOOLS FACILITY ASSESSMENTS REPORT**

**November 20, 2008**



## CONTRIBUTORS

### **PBA**

Dale Smith, Administrator / Chief Executive Officer  
Jeff Galyon, Director of Property Development and Information Technology  
Dan Martin, Project Manager  
Kristin Blanton, Contract / Cost Compliance Administrator

Andrew Johnson Building  
912 S. Gay Street, Suite 700  
Knoxville, TN 37902  
(865) 215-4600



### **MPC**

Mark Donaldson, Executive Director  
Terry Gilhula, Assistant Manager, Research  
Tim Kuhn, Assistant Manager, Geographic Information Systems

City/County Building  
400 Main Street, Suite 403  
Knoxville, TN 37902  
(865) 215-2500



**Studio Four Design, Inc.**  
Stacy Cox, Vice President

414 Clinch Avenue  
Knoxville, TN 37902  
(865) 523-5001



### **Consultants**

**West, Welch, Reed Engineers, Inc.**  
Ken Stuckwish, President, P.E.  
Ron Carter, Vice President, P.E.



The Partnership for Education Facilities Assessment (PEFA) is comprised of the Public Building Authority of the County of Knox and City of Knoxville, Tennessee (PBA) and the Knoxville/Knox County Metropolitan Planning Commission (MPC).

### **About PBA**

PBA develops, constructs, owns, and/or maintains facilities on behalf of the City Knoxville and Knox County pursuant to operating contracts with those entities.

### **Responsibilities of PBA:**

- Construction, management, operation, and lease of various public facilities owned by PBA.
- Construction, management, and operation of facilities owned by Knox County and the City of Knoxville.
- Specification, acquisition, maintenance, operation, and supervision of the telephone and telecommunication infrastructure owned by Knox County and/or the City of Knoxville.
- Provision of telecommunications consultation and advice for/to Knox County and/or the City of Knoxville.

### **PBA's involvement in a project can be structured in one of four ways:**

- PBA can own and construct the project.
- The municipality can own the project, and PBA can construct the project pursuant to an operating agreement. Construction and professional contracts are then in PBA's name.
- The municipality can own the project, and PBA can oversee construction as agent for the municipality. The construction and professional contracts are then in the municipality's name.
- PBA may act as a consultant, advisor, and/or subject matter expert in completing studies, project plans, and similar activities.

### **About MPC**

The Metropolitan Planning Commission was established in 1956 by Knoxville and Knox County as the agency responsible for comprehensive planning and administration of zoning and land subdivision regulations and remains so today.

### **Responsibilities of MPC:**

- Prepares and adopts a general plan.
- Reviews subdivision regulations and site plans.
- Prepares and recommends zoning ordinances and maps to the Knox County Commission and Knoxville City Council.
- Reviews proposed zoning amendments.
- Prepares a capital improvements plan for the City of Knoxville.

An appointed executive director and a staff of forty work in four divisions: Comprehensive Planning, Development Services, Information Services, and Transportation Planning. MPC performs special purpose studies and analyses of significant issues commissioned by city or county government, e.g. voting district boundary revisions, impact studies for major development proposals, and annexation studies. MPC has developed considerable expertise in the areas of enrollment forecasting, site selection, and school zone analysis in previous work completed for Knox County Schools, Loudon County Schools, and Lenoir City Schools.

## SULLIVAN COUNTY SCHOOL FACILITY ASSESSMENTS

### METHODOLOGY

#### **Purpose & Intent**

Studio Four Design and its consultants were retained by the Knoxville/ Knox County Public Building Authority to perform facility assessments of all Sullivan County High Schools, Middle Schools, and Elementary Schools. The schools were visited over a period ranging from May 19 to July 9, 2008. An average of 1 ½ hours was spent at each school observing the building site, and walking thru all of the main spaces within the building including a sampling of random observations in typical classrooms. Main electrical/ mechanical spaces were also observed. When possible, a principal or other administrator or custodial staff person was interviewed and the assessment team was accompanied at each school by Plant Manager and Operations Supervisor, Mr. Joe Mike Akard.

The purpose of the study was to develop a general overview and assessment of the physical condition of the buildings reviewed. The study is a subjective interpretation of items noted from casual observation and did not include detailed land utilization analyses, reviews of as-built documentation, detailed building code, life safety or ADA analyses, forensic structural, mechanical and electrical investigations, or any testing or analysis of environmental conditions or inspections or identification of hazardous materials.

The results of this study are not intended to comprehensively identify all of the issues that may be present in the schools, but to serve as a tool to measure and compare the general physical condition of each school and to identify where further studies, investigations or corrective measures might be required.

Each item on the facility conditions assessment was scored on a scale from 0-5 as follows:

- 5 new or pristine condition
- 4-3 good to fair condition with few or no items in need of correction
- 2 poor to significant condition with items requiring correction
- 1 represents a very poor or critical item requiring immediate correction

For the composite score, each facility is averaged with different weights applied to each category. The categories were assigned weights as follows in each category:

- 10% Architectural
- 20% Codes/ Accessibility
- 20% Electrical
- 10% Environmental
- 20% Mechanical

- 10% Roof
- 5% Site
- 5% Structural

The composite score for each facility, after applying the weights in each category, is described as follows:

- 90 - 100 A - new or pristine condition with no need for correction
- 80-89 B - good or fair condition with few items in need of correction
- 70-79 C - fair to below average –many in need of correction
- 60-69 D - below average to poor conditions with multiple items in need of correction
- 59 – Below F - extremely poor conditions with significant items in need of correction

## **EVALUATION AND CRITERIA**

### **Architectural, Structural and Site Review**

The following were key items that were inspected and evaluated as part of the review of the site, structural, and architectural systems at each school facility:

- General appearance and condition of site and paving. Emphasis on obvious signs of drainage problems and overall impression of traffic flow and expansion capabilities.
- Condition of key structural components for evidence of any critical deterioration or failure.
- Overall impression of facility condition and maintenance in relation to age of building.
- Assessment of condition of roofing and history of maintenance and repair.
- Observation of condition of existing doors and windows.
- Overall impression of quality and condition of interior finishes and furnishings in relation to age of building.
- General observation for obvious or apparent building code, life safety and accessibility violations.
- General observation for obvious or apparent presence of hazardous materials.

It is our general impression that overall the schools are in good condition and have been well maintained over the years. However, with a majority of the facilities at or beyond fifty years of age, it will continue to be important to update and maintain these buildings to adapt to changing building codes, infrastructure, and technology changes as both building systems and education continue to change.

It is clear that Sullivan County has made great efforts to address the basic needs of their facilities and they have made various additions and upgrades to facilities over time with necessary improvements. However, there are some common issues that were identified in the assessment that are recommended to be addressed.

- Many sites visited have original or aging paving and sidewalks that have significant wear and tear. A plan for replacement and repair is recommended. Sites that have drainage issues resulting in water infiltration into buildings should be given top priority for repair.
- Roofs on multiple facilities exhibit a wide range of repair conditions and all roofs that have exceeded their useful or warranted lifespan should be replaced as soon as possible. Roof leaks can cause major problems and roof maintenance should be a top priority. The school system completed a major project to replace windows in 2001 and this has helped tremendously in energy efficiency and keeping the buildings weathertight. The roof systems should be looked at in a similar manner.

- While most of the older facilities have had some upgrades for code compliance, it appears that there are some additional measures that may need to be addressed. Most of them only partially comply with current accessibility requirements. Additional codes assessments and analysis is recommended, particularly on older structures where sprinkler systems are not in place.
- On a lower level of priority, many facilities show significant wear and tear on interior finishes especially those with carpet. Also there are a number of different types of finishes present at the schools. The school system could save time and money on future improvements by establishing standards for interior finishes and utilizing those in developing a plan for updating and replacing interior finishes at each school.
- There are other items less critical that would benefit from a comprehensive plan such as site signage, building signage, and landscaping that would also keep costs down by developing standards for maintenance and future updating.

### **Electrical Systems Review**

The following were key items that were inspected and evaluated as part of the review of the electrical systems at each school facility.

- Condition and age of existing service and distribution systems.
- Lighting and emergency egress lighting.
- Communications systems.
- Life safety systems in the facility.
- Security and access control systems.

Overall the schools were in good condition and have been well maintained over the years. It is apparent that the school system has made a valiant effort to take care of their facilities and make necessary improvements when the opportunity arises. However, there were several schools reviewed that need new power distribution system upgrades due to their age and to be able to accommodate new HVAC systems that presently do not exist. There were also several schools reviewed that were in need of fire alarm replacements or code updates. None of the schools that were assessed were equipped with an access control system (ACS). ACS systems would allow the faculty to control pedestrian traffic in and out of the building and better secure the school campus.

### **Mechanical Systems Review**

The following were key items that were inspected and evaluated as part of the review of the mechanical systems at each school facility.

- Condition and age of existing heating and air conditioning equipment.
- Condition and age of existing hydronic systems, including steam, hot water, and chilled water equipment and piping.
- Control and energy conservation systems.
- Fire protection systems in the facility.
- Code issues (plumbing accessibility and indoor air quality).

Overall the school buildings were in good condition and have been well maintained over the years. It is apparent that the school system has made an effort to take care of their facilities and make necessary improvements when the opportunity arises. However, most of the schools reviewed need their HVAC and hydronic systems replaced due to their age, inefficiencies, and lack of controls for energy conservation. All of the piping systems, hydronic and plumbing are the original systems and a few of them have deteriorated almost beyond the point of repair. The older HVAC systems are not capable of providing the required minimum outside air quantities and humidity control to maintain a healthy indoor air quality. The existing HVAC controls systems are very limited and do not have night setback capabilities. Most of the control systems are only capable of turning the HVAC units ON or OFF. Most of the plumbing fixtures are in good condition or have been updated but, there is a lack of handicapped accessible toilet facilities throughout the schools.



**SULLIVAN COUNTY SCHOOLS**  
**PHYSICAL ASSESSMENT**  
**OVERALL CONDITION RATINGS**

*By Rating*

<b>SCHOOL</b>	<b>WEIGHTED RATING</b>
Emmett Elementary	90
Sullivan Elementary	88
Miller Perry Elementary	82
Central Vocational Building	78
Bluff City Elementary	77
Rock Springs Elementary	77
South High	74
Central Heights Elementary	73
Holston Elementary/Middle	72
Colonial Heights Middle	72
Blountville Elementary	72
Central High	71
Brookside Elementary	71
Blountville Middle	70
East Vocational Building	70
Bluff City Middle	70
Akard Elementary	69
Ketron Intermediate	68
Indian Springs Elementary	68
East High	67
North High	64
Mary Hughes School	61
Cedar Grove Elementary	60
Sullivan Middle	60
Kingsley Elementary	59
Valley Pike Elementary	57
Holston Valley Middle	57
Weaver Elementary	56



**SULLIVAN COUNTY SCHOOLS**  
**PHYSICAL ASSESSMENT**  
**CONDITION RATINGS BY CATEGORY**

*By Total Weighted Condition Rating*

School	Arch.	Codes	Elec.	Envir.	Mech.	Roof	Site	Struc.	Total Std. Rating	Total Weighted Rating
Emmett Elementary	100.0	95.0	87.7	80.0	91.4	80.0	89.1	98.0	<b>721.2</b>	<b>90</b>
Sullivan Elementary	98.2	92.5	95.4	80.0	91.4	60.0	80.0	96.0	<b>693.5</b>	<b>88</b>
Miller Perry Elementary	85.5	95.0	83.1	80.0	68.6	80.0	74.5	92.0	<b>658.6</b>	<b>82</b>
Central Vocational Building	76.4	70.0	80.0	80.0	80.0	80.0	67.3	96.0	<b>629.6</b>	<b>78</b>
Bluff City Elementary	90.9	85.0	84.6	80.0	74.3	40.0	56.4	92.0	<b>603.2</b>	<b>77</b>
Rock Springs Elementary	83.6	90.0	70.8	80.0	77.1	40.0	92.7	94.0	<b>628.3</b>	<b>77</b>
South High	74.5	90.0	70.8	80.0	68.6	40.0	80.0	92.0	<b>595.9</b>	<b>74</b>
Central Heights Elementary	78.2	87.5	72.3	80.0	74.3	20.0	72.7	86.0	<b>571.0</b>	<b>73</b>
Holston Elementary/Middle	76.4	85.0	72.3	80.0	71.4	20.0	80.0	94.0	<b>579.1</b>	<b>72</b>
Colonial Heights Middle	80.0	75.0	72.3	80.0	74.3	40.0	69.1	82.0	<b>572.7</b>	<b>72</b>
Blountville Elementary	76.4	62.5	81.5	60.0	85.7	40.0	80.0	84.0	<b>570.1</b>	<b>72</b>
Central High	74.5	85.0	72.3	80.0	62.9	40.0	67.3	86.0	<b>568.0</b>	<b>71</b>
Brookside Elementary	85.5	62.5	67.7	60.0	68.6	80.0	70.9	96.0	<b>591.1</b>	<b>71</b>
Blountville Middle	76.4	57.5	87.7	40.0	88.6	40.0	78.2	82.0	<b>550.3</b>	<b>70</b>
East Vocational Building	69.1	67.5	81.5	80.0	77.1	20.0	61.8	94.0	<b>551.1</b>	<b>70</b>
Bluff City Middle	63.6	57.5	75.4	60.0	85.7	80.0	43.6	72.0	<b>537.9</b>	<b>70</b>
Akard Elementary	83.6	72.5	67.7	60.0	68.6	40.0	85.5	90.0	<b>567.9</b>	<b>69</b>
Ketron Intermediate	83.6	75.0	69.2	60.0	62.9	40.0	74.5	86.0	<b>551.3</b>	<b>68</b>
Indian Springs Elementary	70.9	65.0	70.8	60.0	71.4	60.0	58.2	86.0	<b>542.3</b>	<b>68</b>
East High	63.6	70.0	69.2	80.0	65.7	40.0	61.8	82.0	<b>532.4</b>	<b>67</b>
North High	67.3	60.0	61.5	80.0	65.7	40.0	72.7	88.0	<b>535.3</b>	<b>64</b>
Mary Hughes School	70.9	55.0	76.9	40.0	60.0	40.0	67.3	80.0	<b>490.1</b>	<b>61</b>
Cedar Grove Elementary	65.5	50.0	72.3	80.0	62.9	20.0	54.5	82.0	<b>487.2</b>	<b>60</b>
Sullivan Middle	72.7	62.5	73.8	60.0	45.7	40.0	56.4	78.0	<b>489.2</b>	<b>60</b>
Kingsley Elementary	72.7	52.5	66.2	60.0	60.0	40.0	45.5	78.0	<b>474.8</b>	<b>59</b>
Valley Pike Elementary	72.7	52.5	67.7	40.0	54.3	40.0	56.4	78.0	<b>461.6</b>	<b>57</b>
Holston Valley Middle	72.7	45.0	66.2	40.0	60.0	40.0	69.1	74.0	<b>467.0</b>	<b>57</b>
Weaver Elementary	61.8	50.0	72.3	20.0	65.7	40.0	50.9	76.0	<b>436.7</b>	<b>56</b>

# Operating Cost Comparison Sheet

Schools	Staffing Cost	Operating Cost	Total Cost	Number of Students	Facility Square Footage	Cost per Student		Cost per Square Foot		
						Staffing	Operating	Staffing	Operating	Total
<b>Elementary</b>										
Akard Elementary	1,074,989	114,426	1,189,395	148	38,165	7,263	773	28.17	3.00	
Blountville Elementary	2,052,774	312,340	2,365,114	325	50,978	6,316	961	40.27	6.13	
Bluff City Elementary	2,313,353	300,516	2,613,869	517	51,561	4,475	581	44.87	5.83	
Brookside Elementary	1,049,211	115,427	1,164,638	196	25,144	5,353	589	41.73	4.59	
Cedar Grove Elementary	1,378,721	152,260	1,530,981	245	46,672	5,627	621	29.54	3.26	
Central Heights Elementary	1,102,261	123,093	1,225,354	250	33,850	4,409	492	32.56	3.64	
Emmett Elementary	1,461,824	221,640	1,683,464	221	34,680	6,615	1,003	42.15	6.39	
Holston Elementary	2,062,216	319,124	2,381,340	312	64,800	6,610	1,023	31.82	4.92	
Indian Springs Elementary	1,981,835	189,734	2,171,569	481	47,948	4,120	394	41.33	3.96	
Kingsley Elementary	1,593,840	157,555	1,751,395	235	39,338	6,782	670	40.52	4.01	
Mary Hughes Elementary and Middle	2,336,420	282,844	2,619,264	525	64,614	4,450	539	36.16	3.10	
Miller Perry Elementary	2,481,023	257,341	2,738,365	552	83,080	4,495	466	29.86	3.10	
Rock Springs Elementary	2,346,919	239,021	2,585,940	473	67,530	4,962	505	34.75	3.54	
Sullivan Elementary	1,859,308	225,628	2,084,936	352	62,107	5,282	641	29.94	3.63	
Valley Pike Elementary	1,061,812	147,209	1,209,021	165	28,970	6,435	892	36.65	5.08	
Weaver Elementary	1,706,282	209,874	1,916,156	306	45,911	5,576	686	37.16	4.57	
<b>Middle</b>										
Blountville Middle	2,007,498	329,773	2,337,271	467	68,421	4,299	706	29.34	4.82	
Bluff City Middle	2,059,065	252,203	2,311,268	410	60,687	5,022	615	33.93	4.16	
Colonial Heights Middle	2,249,422	279,375	2,528,797	574	54,142	3,919	487	41.55	5.16	
Holston Middle	1,906,919	190,439	2,097,358	432	97,200	4,414	441	19.62	1.96	
Holston Valley Middle	1,299,862	195,006	1,494,868	197	63,714	6,598	990	20.40	3.06	
Ketron Middle	1,822,440	249,630	2,072,070	421	87,581	4,329	593	20.81	2.85	
Sullivan Middle	1,269,692	106,041	1,375,733	186	67,690	6,826	570	18.76	1.57	
<b>High</b>										
Sullivan Central High	4,684,100	584,116	5,268,217	1,058	203,381	4,427	533	23.03	2.77	
Sullivan East High	4,799,242	686,413	5,485,655	1,004	195,631	4,780	684	24.53	3.51	
Sullivan North High	4,714,873	617,258	5,332,131	866	258,507	5,444	713	18.24	2.39	
Sullivan South High	4,846,656	654,054	5,500,710	1,105	297,188	4,386	592	18.84	2.54	
<b>Totals</b>	<b>59,522,537</b>	<b>7,492,340</b>	<b>67,014,878</b>	<b>12,023.00</b>	<b>2,199,490</b>	<b>4,950.72</b>	<b>623.17</b>	<b>27.06</b>	<b>3.41</b>	<b>30.47</b>

**Notes**

Costs stated above were provided by Sullivan County Department of Education  
 Costs above represent the cost for the direct school staff and facility only.  
 Indirect cost total \$20,475,304.64 equally an additional \$1,706.13 per student.