Comprehensive Infrastructure Assessment

Presented by
Michael Raisor, Ph.D., MBOE
Chief Operations Officer

First and Foremost…

- ✓ Our buildings are safe.
- ✓ Our buildings are secure.
- ✓ Critical issues are given first priority and addressed immediately.

Methodology

Studied Peer District Infrastructure Programs/Parsons Assessment

- **Austin Independent School District**
- **Baltimore County Public Schools**

Both recently did extensive infrastructure assessments.

Used their lessons learned and best practices

- ✓ **Collect massive amounts of data–stats, trends, patterns, maps, "boots on the ground" accounts.**
- ✓ **Make it simple to understand.**
- ✓ **Don't try to "boil the ocean".**
- ✓ **Third-party evaluation gives credibility but is costly, slow, and your experts already know.**
- ✓ **So don't reinvent the wheel. Innovation through imitation.**

SWOT Analysis

Analyzed every building with the staff that services them

- Property Management and Maintenance
- Capital Improvement and Planning
- Safety and Environmental
- Housekeeping
- Transportation
- Security and Investigations

Solicited input and feedback from other district divisions

- Data Management, Planning, and Program Evaluation Services
- Business Services
- Academic Services
- Diversity, Equity, and Poverty Programs
- Communications and Community Relations

Quartile Rankings

All buildings were ranked by quartile.

Age/efficiency of systems and overall condition of the structure were the major factors in rankings.

Quartile 4 denotes the most need. Quartile 4 is made up of buildings with end-of-life HVAC systems warranting replacement.

Quartile 1 is made up of buildings recently constructed or receiving recent capital improvements.

Facility Condition Index (FCI)

The FCI is a percentage formula used to determine the efficacy of renovating v. replacing a structure.

The cost of renovating a structure is divided by the cost of replacement.

The Industry standard indicates that with an FCI of 65% or higher, it is more cost-effective to replace than renovate.

Facility Condition Index (FCI)

0%-15% - Good

- Good conditions, only regular maintenance needed

15.1%-30% - Moderate

- Needs moderate repairs

30.1%-50% - Fair

- Systems approaching or exceeding life expectancy

50% or greater - Poor

- End-of-life systems that require frequent critical repairs

Facility Condition Index (FCI)

Quartile 3 & Quartile 4 received FCI percentages.

Quartile 1 is deemed to be in the good to moderate range.

Quartile 2 is deemed to be in the moderate to fair range.

Optimal Capacity

The **IDEAL** exact number of students in a school

Optimal Capacity Formula

Elementary

1. Count the total number of permanent classrooms.
2. Subtract the number of classrooms used for special areas.
3. Multiply that number by 25 students (Breakout Early Childhood classrooms use 20).
4. Multiply that number by the efficiency factor* of 95% (85% for Title I schools).
5. Optimal Capacity Number

*Efficiency Factor

Space utilization concept used to determine the ideal number of occupants. Also used in industry regarding usable square footage of a structure.

Optimal Capacity Formula

Secondary

1. Count the total number of permanent classrooms.
2. Multiply by 29 students.
3. Multiply that number by the efficiency factor of 75% (70% for Title I schools.)
4. Optimal Capacity Number

Optimal Capacity

Optimal Capacity Range – A percentage of enrollment divided by optimal capacity

- Should be **75% to 115%**

Under-enrolled

Under 75% optimal capacity

An inefficient use of human and financial resources (Fixed Costs)

Over-enrolled

Over 115% optimal capacity

Over-burdened physical structure and core spaces*

***Core spaces** – Restrooms, hallways, lockers, cafeterias, media centers, etc.

Optimal Capacity Range Hypothetical Example

Elementary, non-Title I – No Early Childhood

1. 25 Classrooms
2. Minus 3 Special Areas = 22
3. Multiply that number by 25 students = 550
4. 550 X .95

Optimal Capacity - 523 Students
Optimal Range 392 (75%) - 601 (115%)

So …

How were facilities assessed?

Basic Factors

Building Facts

Year Constructed, Gross Square Footage, Total Acreage

Basic Factors

Capital Improvement History

Past major improvements & expenses
(Since 1989 – Start of KERA)

Key Areas of Focus

More Than 50 Years Old
Buildings more than 50 years old are more likely to require more costly maintenance and have end-of-life systems.

Less Than 25 Years Old
Buildings less than 25 years old are outfitted with newer components that require less costly maintenance.

Five-Year Capital Plan
The structure has systems scheduled to be replaced within the next five years.

Energy Star Rated
The building is designated in the top 25 percent of energy-efficient schools nationwide.

Single Story
Single-story buildings could be repurposed into Early Childhood centers.

Shared Site
Multiple JCPS programs are housed on one campus.

Room to Build On-Site
The campus has ample room for construction.

Small/Shared Gymnasium
The building does not have a full-size/independent gymnasium.

Undersized Media Center
The media center is smaller than the current standard.

HVAC Issues
The HVAC system is end-of-life or requires frequent maintenance.

Site Drainage Issues
The site has a high water table, poor stormwater runoff, and/or water retention.

Regulated Materials
Sites with regulated materials make for more costly and time-consuming maintenance and renovations.

Daylighting Issues
The building has few interior windows/ limited natural light.

Crime/Vandalism
The building is historically susceptible to vandalism, graffiti, or theft.

Masonry/Structural
The building requires or has required masonry and structural repair due to settling and/or water intrusion.

Poor Design
The building has less-than-optimal layout and egress.

Roof Issues
The building has an end-of-life roof or high-frequency leaking.

Traffic/Parking Issues
The site has heavy traffic and/or space limitations.

ADA Issues
The site is not entirely accessible.

Window Issues
The site has end-of-life windows/ high-frequency window repairs.

Key Areas of Focus

Over 50 Years Old

Buildings over 50 years old are more likely to require more costly maintenance and have end-of-life systems.

Key Areas of Focus

Under 25 Years Old

Buildings under 25 years old are outfitted with newer components that require less costly maintenance.

Key Areas of Focus

Five-Year Capital Plan

Structure has systems scheduled to be replaced within the next five years.

Key Areas of Focus

Energy Star Rated

Structure has been designated in the top 25% of energy-efficient buildings nationwide.

Key Areas of Focus

Single Story

Single-story buildings could be repurposed into Early Childhood Centers.

Key Areas of Focus

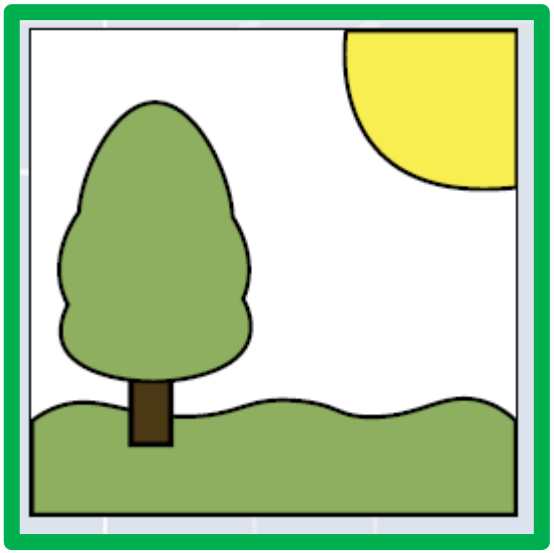
Shared Site

Multiple programs housed on one campus

Key Areas of Focus

Room to Build On-Site

Campus has ample room for construction.



Key Areas of Focus

Small/Shared Gym

Building does not have a full-size gym or an independent gym.

Key Areas of Focus

Undersized Media Center

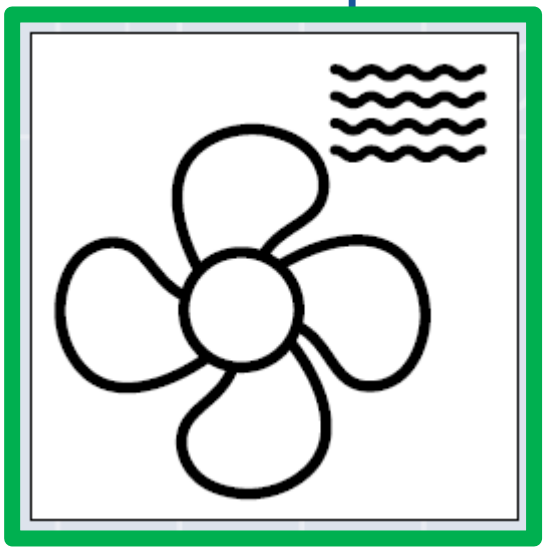
Media center is smaller than current standard.

Key Areas of Focus

HVAC Issues

HVAC is at end-of-life or requires frequent maintenance.

Single boilers are especially at risk.



Key Areas of Focus

Site Drainage Issues

Site has high water table, poor storm water runoff and/or water retention.

Key Areas of Focus

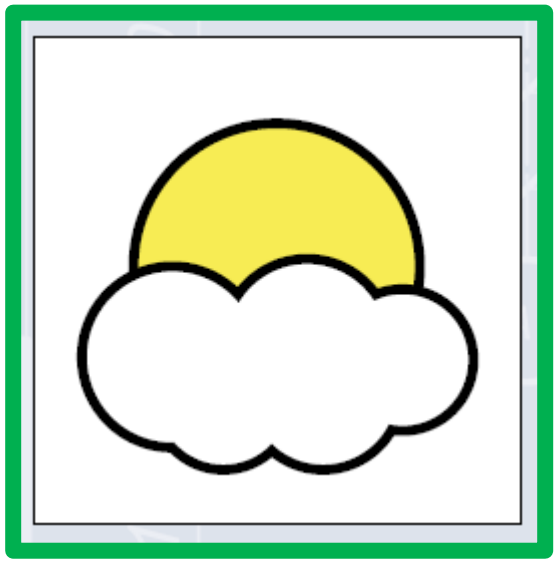
Regulated Materials

Sites with regulated materials make for more costly and time-consuming maintenance and renovation.

Key Areas of Focus

Daylighting Issues

Buildings that have few interior windows or limited natural light



Key Areas of Focus

Crime/Vandalism

Buildings or area historically susceptible to vandalism, graffiti, or theft

Key Areas of Focus

Masonry/Structural

Require or have required masonry and/or structural repair due to settling and/or water intrusion

Key Areas of Focus

Poor Design

Buildings with less-than-optimal layouts or egress

Key Areas of Focus

Roof Issues

Buildings with end-of-life roofs or high-frequency leaking

Key Areas of Focus

Traffic/Parking Issues

Site has heavy traffic and/or space limitations.

Key Areas of Focus

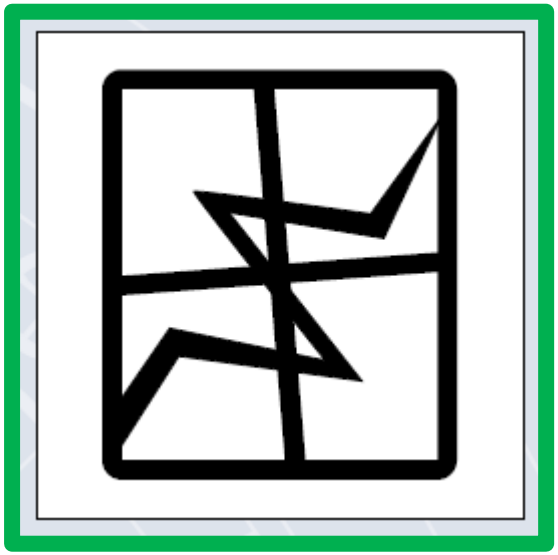
Americans with Disabilities Act (ADA) Issues

Site is not entirely accessible.

Key Areas of Focus

Window Issues

End-of-life windows/High-frequency repairs



So …

What's a high level overview of the assessment?

Assessment Overview

High percentage of aging buildings with out-of-date components

Volume of critical repairs has led to triage maintenance which is not a sustainable model

Overall excess seats across the district

Multiple end-of-life district offices

Inequality of infrastructure

Assessment Overview

This is not a situation isolated to JCPS

Aging facilities are a challenge for all large urban school districts.

We all have “Baby Boom” and pre-WWII buildings both ending their useful lifespan at the same time.

So …

What are our next steps?

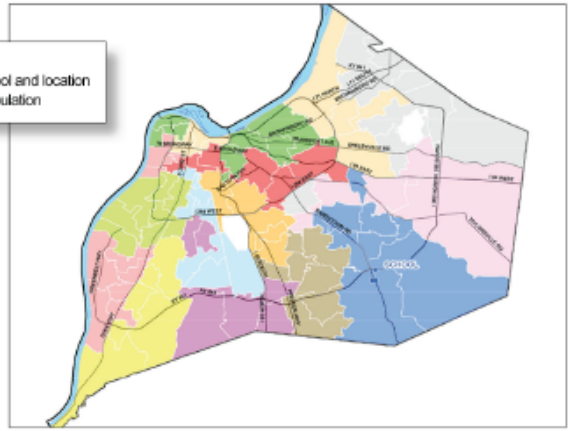
Next Steps

- ✓ Study the Assessment
- ✓Schedule an individual meeting
- ✓Schedule a building tour
- ✓Determine how to move forward as a district
- ✓May 2017 Projects Identified
- ✓June 5 Year Strategic Plan to JCBE

Components Used to Evaluate JCPS Facilities

ELEMENTARY SCHOOLS

School Name



Map
Identifies school and location of student population

BUILDING FACTS

- Number of Stories: 1
- Year Originally Constructed: 1955
- Gross Square Footage: 48,508
- Total Acreage: 15.00

CAPITAL IMPROVEMENT HISTORY

2004 Media Center/Classrooms $1,699,740

Capital Improvement History
Recent history of capital construction projects and cost as defined by the Kentucky Department of Education

QUARTILE RANKING
4

FACILITY CONDITION INDEX ON QUARTILE 3/4
75%

OPTIMAL CAPACITY
546

PROJECTED ENROLLMENT FY 2016-17
551

PERCENT CAPACITY
101%

Quartile Ranking:
Scale 1–4
All buildings were ranked against each other and then classified by quartile. Generally, buildings ranked Tier 1 and 2 have been recently constructed or renovated. Those ranked Tier 3 have aging HVAC systems. Those ranked Tier 4 have end-of-life HVAC systems.

Facility Condition Index
A percentage calculated by dividing the cost of renovation by the cost of constructing a new facility

Optimal Capacity
The ideal number of students based on the design of the building

Percent Capacity
The percentage that the facility is full based on projected enrollment for the 2016-17 school year

Key Areas of Focus
Selected from 20 key indices that are used to evaluate and compare the condition of district facilities

Operations

We make learning possible!