Workgroup on the Assessment and Funding of School Facilities

Delegate Maggie McIntosh, Chair

Wednesday, July 28, 2021
3:00 p.m.
Virtual Meeting

Agenda

I. Call to Order and Chairs’ Opening Remarks

II. Facility Condition Index (FCI) Presentation

III. Total Cost of Ownership Presentation

IV. Closing Remarks and Adjournment
Presentation to the Workgroup on the Assessment and Funding of School Facilities

July 28, 2021
IAC Staff and Bureau Veritas (SFA Vendor)
Timeline Update

- 1,404 active & holding school facilities assessed by June 2021
- 15 more buildings to be assessed this month (Maryland School for the Deaf)

- Data-quality-control process to conclude by July 30, 2021
  - Received comments on data from all LEAs
  - To date, addressed 90% of LEA comments

- LEAs to receive school-level FCI data in early August for review prior to August 25 Workgroup meeting
Purposes of the Statewide Assessment

- Uniformly measure statewide the current physical condition and educational sufficiency
- Differentiate the facilities with the highest needs from lower ones
- Observe and record the remaining useful lifespan of every major building system
- Generate a Facility Condition Index (FCI) score for each system and each facility overall
- Record if a building system has exceeded its typical expected lifespan or not
- Measure facilities against the IAC’s Educational Facilities Sufficiency Standards
- Generate baseline data that are accurate, comparable, and updatable
Maryland’s statewide assessment differs from typical facility-condition assessments, which

- Add up the estimated cost of projects in the immediate term that would be needed to bring selected components up to new/good condition
- Generate data that rapidly becomes stale
- Ignore educational sufficiency
An Evolved Assessment Process

● Maryland’s SFA
  ○ Uses the depleted percentage of expected lifespan to measure the condition of each major component
  ○ Measures educational sufficiency against standards
  ○ Allows for valid comparison of systems and facilities across the state
  ○ Clearly differentiates between the greater and lesser needs
  ○ Is more scientific and transparent
  ○ Generates a baseline set of data that is perpetually updatable and allows for scenario development
Process

- Data collected from LEAs
- On-site assessments by BV’s trained experts
- Quality-control process with LEA feedback and input
Deriving an Educational Facility Score

Physical Condition
Facility Condition Index (FCI)

Educational Sufficiency
The usability of the space for supporting delivery of education

Combined Facility Score
Complete score
Calculating a Facility Condition Index

**Building-System Level**

\[ FCI \ 75\% \]

Amount Depleted
Lower is Better

\[ FCI \% = \frac{\text{amount depleted}}{\text{replacement value}} \]

**Facility Level**

\[ \text{Depleted Value} = \text{HVAC (FCI %) + Roof (FCI %) + Foundation (FCI %) + etc.} \]

\[ FCI \% = \frac{\text{HVAC + Roof + Foundation + etc.}}{\text{replacement value}} \]
HIGHER FCI

- means less remaining useful lifespan (RUL)

LOWER FCI

- means more remaining useful lifespan (RUL)

LOWER FCI = BETTER RELATIVE CONDITION
Major Building Systems

1. Ceilings
2. Conveyances
3. Electrical Distribution
4. Flooring
5. HVAC
6. Interior Construction
7. Interior Doors & Hardware
8. Life Safety
9. Plumbing Fixtures
10. Program Infrastructure
11. Relocatables
12. Roofs
13. Site
14. Skin
15. Structural
16. Wall Finishes
<table>
<thead>
<tr>
<th>Systems</th>
<th>Estimated Useful Life (EUL)</th>
<th>Remaining Useful Life (RUL)</th>
<th>System FCI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ceilings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiberglass Ceiling Panel</td>
<td>25</td>
<td>17</td>
<td>32%</td>
</tr>
<tr>
<td>Gypsum Board/Plaster Ceiling</td>
<td>40</td>
<td>20</td>
<td>50%</td>
</tr>
<tr>
<td>Suspended Acoustical Tile (ACT)</td>
<td>20</td>
<td>18</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Electrical Distribution</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior Lighting System</td>
<td>20</td>
<td>15</td>
<td>25%</td>
</tr>
<tr>
<td>Main Distribution Panel w/Sub Panels</td>
<td>40</td>
<td>20</td>
<td>50%</td>
</tr>
<tr>
<td>Security &amp; Low Voltage Systems</td>
<td>15</td>
<td>10</td>
<td>33%</td>
</tr>
<tr>
<td>Switchgear/board w/Sub Panels</td>
<td>40</td>
<td>15</td>
<td>63%</td>
</tr>
<tr>
<td><strong>Flooring</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carpet</td>
<td>10</td>
<td>2</td>
<td>80%</td>
</tr>
<tr>
<td>Ceramic Tile</td>
<td>40</td>
<td>14</td>
<td>65%</td>
</tr>
<tr>
<td>Terrazzo</td>
<td>45</td>
<td>30</td>
<td>33%</td>
</tr>
<tr>
<td>Vinyl Composition Tile (VCT)</td>
<td>15</td>
<td>11</td>
<td>27%</td>
</tr>
<tr>
<td>Wood Sports Floor</td>
<td>30</td>
<td>15</td>
<td>50%</td>
</tr>
<tr>
<td><strong>HVAC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boiler(s)</td>
<td>30</td>
<td>7</td>
<td>77%</td>
</tr>
<tr>
<td>Chiller(s) / Cooling Tower(s)</td>
<td>25</td>
<td>18</td>
<td>28%</td>
</tr>
<tr>
<td>Package Units (RTUs)</td>
<td>20</td>
<td>12</td>
<td>40%</td>
</tr>
<tr>
<td>Split Systems</td>
<td>15</td>
<td>6</td>
<td>60%</td>
</tr>
<tr>
<td><strong>Roofs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asphalt Shingle</td>
<td>20</td>
<td>4</td>
<td>80%</td>
</tr>
<tr>
<td>Built-Up</td>
<td>25</td>
<td>13</td>
<td>48%</td>
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<tr>
<td>Modified Bitumen</td>
<td>20</td>
<td>5</td>
<td>75%</td>
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<tr>
<td>Single-Ply EPDM Membrane</td>
<td>20</td>
<td>3</td>
<td>85%</td>
</tr>
<tr>
<td>Single-Ply TPO/PVC Membrane</td>
<td>20</td>
<td>15</td>
<td>25%</td>
</tr>
<tr>
<td>Slate</td>
<td>70</td>
<td>45</td>
<td>36%</td>
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</table>
Statewide Depletion Level by System

- Life-Based FCIs
- Higher FCI, like higher age = lower functional reliability and higher maintenance costs (routine, reactive, and capital)
- The condition of the Relocatable is measured here like any other Building Systems, lifespan depleted
Depleted Value and Remaining Value

- Cost-weighted, Statewide – Represents the cost magnitude of the depleted values for all systems
Facility Condition Distribution by Band

- Facility Population of 1,404
- Arithmetic Mean of 47.0%
- Std Deviation of 14.5%

<table>
<thead>
<tr>
<th>FCI</th>
<th># Buildings</th>
<th>Percentage of Buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Band 1 (0.70-0.79)</td>
<td>8</td>
<td>1%</td>
</tr>
<tr>
<td>Band 2 (0.60-0.69)</td>
<td>167</td>
<td>12%</td>
</tr>
<tr>
<td>Band 3 (0.50-0.59)</td>
<td>561</td>
<td>40%</td>
</tr>
<tr>
<td>Band 4 (0.40-0.49)</td>
<td>373</td>
<td>27%</td>
</tr>
<tr>
<td>Band 5 (0.30-0.39)</td>
<td>123</td>
<td>9%</td>
</tr>
<tr>
<td>Band 6 (0.20-0.29)</td>
<td>66</td>
<td>5%</td>
</tr>
<tr>
<td>Band 7 (0.10-0.19)</td>
<td>49</td>
<td>3%</td>
</tr>
<tr>
<td>Band 8 (0.00-0.09)</td>
<td>57</td>
<td>4%</td>
</tr>
<tr>
<td>Total</td>
<td>1404</td>
<td>100%</td>
</tr>
</tbody>
</table>
Deriving an Educational Facility Score

Physical Condition
Facility Condition Index (FCI)

Educational Sufficiency
The usability of the space for supporting delivery of education

Combined Facility Score
Complete score
Facility Life Cycle
“The work required to keep a facility (plant, building, structure, ground facility, utility system, or other real property) in such condition that it may be fully functional and continuously utilized for its expected lifespan, for its intended purpose, and at its maximum energy efficiency. Includes both routine and capital maintenance.”

—National Council on School Facilities
1) Routine Maintenance

Routine, preventive, predictive, and emergent unscheduled tasks and repairs required to ensure that a facility functions according to its design and for its expected lifespan.

Industry Standard for Spending: 2% of Current Replacement Value per year

2) Capital Maintenance

Major repair, alteration, and replacement of building systems, equipment, finishes and components, including their removal and disposal.

Industry Standard for Spending: 2% of Current Replacement Value per year
Total Cost of Facility

Average Percentage Over 30 Years

Planning 0.5%
Design 3.0%

Operations and Maintenance 51.0%
Construction 45.5%
Total Cost of Ownership Within a Portfolio
TCO in the IAC Process

• IAC Receives a TCO Estimator with submission of Educational Specifications
• The estimator is submitted during early planning, before many decisions impacting TCO are made
• Broad stroke, using industry standards, to promote awareness and understanding of TCO
Opportunities for TCO Incentives

- Achieve fiscal benefit for State and greater benefit for local governments
- Allow LEAs to drive innovation
- Use estimates to reward decisions that reduce TCO
- Bonus incentive for LEAs with good maintenance that exceed expected building system lifespans
We’d love
to hear your questions