

Vermont School Facilities Inventory and Assessment

Act 72 of 2021, Section 3

REPORT

April 13, 2022

**Report to the House and Senate
Committees on Education**

Submitted by

Daniel M. French, Ed.D., Secretary of Education



Executive Summary

As required by the Vermont General Assembly in Act 72 of 2021, the Agency of Education engaged Bureau Veritas to conduct an inventory and conditions assessment of school facilities in Vermont. The contractor conducted this work between November 2021 and March of 2022. Vermont supervisory unions (SU/SDs) were asked to complete an online inventory entry for each school building in their SU/SDs, with assistance from the contractor as needed.

The inventory covered 305 schools and 384 school buildings. Categories covered by the inventory included safety, security and other risk factors; technology and system adequacy, and systems (roofing, HVAC, plumbing, fire suppression and prevention, and temporary buildings). The contractor paired industry standard cost and lifecycle information with data submitted by SU/SDs to create projections of system and building conditions, and costs for replacement. The contractor estimated a Facility Condition Index (FCI) for each system, group, building, and the portfolio of buildings in an SU/SD.

Overall, Vermont's education system as a whole has a high FCI of 71.4% (higher percentages mean a greater need for replacement or upgrades). Some systems were higher than others; windows, elevators, local heating, cooling and ventilation (HVAC), and temporary buildings had FCI higher than 75%. Mid- to low- FCI categories (below 74%) included solar power, electrical and technology systems, fire and safety systems, and central heating and cooling.

Most troublingly, 24 SU/SDs (44%) have overall FCIs over 75%, and 12 (22%) across eight counties have FCIs above 80%. The top five FCIs statewide were all over 85%: Orange Southwest SU (90.5%), Windsor Central SU (89.2%), Mt. Mansfield UUSD (87.8%), Essex North SU (87.3%), and Montpelier Roxbury SD (85.6%)

Legislation

This report is submitted pursuant to [Act 72 of 2021, Sec. 3\(f\)](#), which requires the Vermont Agency of Education (AOE) to report to the House and Senate Committees on Education the findings of the school facilities inventory required under subsection (a) of that section, as well as provide a status report on the assessment required under subsection (a).

Background

The Agency of Education engaged Bureau Veritas (BVTA) to conduct an inventory and conditions assessment of school facilities in Vermont. The contractor conducted this work between November 2021 and March of 2022. Vermont supervisory unions (SU/SDs) were asked to complete an online inventory entry for each school building in their SU/SDs, with assistance from the contractor as needed.

Working with AOE, BVTA developed a web-based data collection tool that was sent out to all SU/SDs in late 2021. Districts were asked to complete an inventory entry for each school building in their SU/SD. BVTA was available to assist knowledgeable staff within the districts to complete their forms. All districts completed this data collection by March 15, 2022.

Facilities Assessment Status Update

In order to align with other statutory requirements, including radon and PCB testing, and reflecting the later completion date of the facilities inventory, the Agency has recommended an extension to the deadline for completion of the facilities inventory from October 2022 to October 2023. The Agency will release an RFP for the Facilities Assessment in late spring 2022.

Vermont School Facilities Inventory

Prepared by Bureau Veritas, Thomas Bart, Program Manager

General Survey Information

Bureau Veritas was contracted by the state of Vermont Agency of Education to conduct a School Facilities Inventory on the K-12 school portfolio in Vermont, statewide. The exercise was conducted between November 2021 and March 2022 with the participation of knowledgeable school staff completing facilitated on-line questionnaires for each school, including multiple buildings at each site.

The on-line questionnaire enables the gathering of baseline information for each school, including addresses, gross areas, number of stories, dates of construction and renovation and GIS coordinates. Respondents enter their name, title and contact information as well.

In addition to baseline information, data was collected regarding hazardous materials, fire/life safety, indoor air quality (IAQ), accessibility, technology, energy and water infrastructure and various other risk factors.

Respondents entered data for major systems in the building including HVAC, electrical, plumbing, conveying, fire suppression and security. Data points include type of system, estimated date installed, age and size or capacity.

System data was enriched with industry standard cost and lifecycle data to allow projections of system and building deletion rates as well as budgetary costs and timing for system replacements. A depleted value-based Facility Condition Index (FCI) is estimated for each system, system group, building and the portfolio, as a whole.

In addition to this report, individual building reports are provided for each of 384 buildings at 305 school locations. A spreadsheet with all collected data is also included in the deliverable to the Agency of Education.

General Survey Information

Total Questionnaire Responses	390
Number of Responders	105
Total Number of Schools in Survey	305
Total Number of Buildings in Survey	384
Elementary School Buildings	52
Middle School Buildings	28
High School Buildings	44
Combination School Buildings	242
Other Buildings	18
Total Estimated Gross Square Footage	18.5 million square feet
Average Building Gross Square Footage	44,700 square feet
Average Age of Buildings	61 Years
Average Years Since Last Major Renovation	22 Years
Number of Additional Relocatable Buildings	110
Estimated Amount of Relocatable Gross Square Feet	112,700 gross square feet

Safety, Security and Other Risk Factors

Respondents were asked about risk factors known or suspected to be present in the buildings.

Issue Inquired	Confirmed	Suspected	Total
Hazardous Materials Present	196	52	248
Indoor Air Quality Issues	81	37	118
Fire / Life Safety Issues	52	22	74
Other Risk Factors	73	7	80
ADA Accessibility	98	21	119

Technology and System Adequacy

Respondents were asked about the general adequacy of various technology and other systems supporting the school buildings.

Adequacy Topic	Adequate	Marginal	Inadequate
Internet Service	347	35	1
Building WiFi	323	57	1
Cellular Coverage	182	112	88
Water Pressure	375	7	1
Gas / Propane Pressure	285	1	0
Electrical Capacity	340	32	11

Facility Condition Index (FCI) – Depleted Percentage and Value

One of the goals of the inventory survey is to calculate an estimated FCI based on depleted value for each building in the portfolio. The version of the FCI used in this survey provides a theoretical objective indication of a building's overall amount of consumed system life. To calculate the depleted value for each system, the age for each system is divided by the expected useful life. Aggregation is done on a cost weighted basis; the depleted percentage for each system is multiplied by its whole system cost resulting in a depleted value. The sum of the depleted values divided by the sum of the system whole values is the aggregated depleted percentage FCI. Systems can be aggregated by system group, for an entire building, for a school district, for all of a type of school, the portfolio as a whole or virtually any other desired aggregation.

FCI by System Group

System Group	Depleted Percentage FCI
Roofing	70.1%
Windows	79.2%
Elevators	80.7%
Plumbing	82.5%
Central Cooling	62.3%
Central Heating	66.9%
HVAC Distribution	75.8%
Local HVAC Systems	82.3%
Fire Suppression	64.8%
Main Electrical System	60.6%
Fire Alarm Life Safety	67.1%
Security and Notification	63.9%
Solar Power	25.8%
Temporary Buildings	76.6%
Total All Systems	71.4%

The depleted percentages in the table indicate an aging portfolio of key systems across the state of Vermont. It should be noted that these values were reported by local building representatives and not trained engineers. Thus, these data likely incorporate some margin of error, but assuming the error rate to be minor, the data should be valued as a rational indicator of portfolio system aging with some inherent degradation and disrepair.

Also note that on an established portfolio, the law of averages would set an expectation of an average 50% depleted value FCI. One other factor for consideration is that age can generally be expected to correlate with condition, but this correlation is not absolute. It is routine to see well-

maintained systems performing longer than their expected useful lives; as well sometimes systems can be in worse condition than age would indicate.

FCI by Supervisory Union – Sorted Alphabetically

Supervisory Union (SU/SD)	Depleted Percentage FCI
ADDISON CENTRAL SD	73.6%
ADDISON NORTHWEST SD	66.0%
BARRE UNIFIED UNION SD	85.2%
BATTENKILL VALLEY SU	69.4%
BENNINGTON RUTLAND SU	77.0%
BURLINGTON SD	73.5%
CALEDONIA CENTRAL SU	79.9%
CENTRAL VERMONT SU	59.9%
CHAMPLAIN VALLEY SD	48.5%
COLCHESTER SD	77.0%
ESSEX NORTH SU	87.3%
ESSEX WESTFORD SD	75.4%
FRANKLIN NORTHEAST SU	65.9%
FRANKLIN WEST SU	72.4%
GRAND ISLE SU	83.3%
GREATER RUTLAND COUNTY SU	80.6%
GREEN MOUNTAIN SD	84.2%
HARTFORD SD	84.5%
HARWOOD UNIFIED UNION SUPERVISORY DISTRICT	71.9%
KINGDOM EAST SD	77.0%
LAMOILLE NORTH SU	54.0%
LAMOILLE SOUTH UNIFIED UNION SD	72.0%
MAPLE RUN UNIFIED SD	74.7%
MILL RIVER UNIFIED UNION SD	51.3%
MILTON TOWN SD	77.1%
MISSISQUOI VALLEY SCHOOL DISTRICT	76.1%
MONTPELIER ROXBURY SD	85.6%
MT ABRAHAM UNIFIED SCHOOL DISTRICT	81.3%
MT MANSFIELD UNIFIED UNION SCHOOL DISTRICT	87.8%
NORTH COUNTRY SU	76.5%
ORANGE EAST SU	67.9%
ORANGE SOUTHWEST UNIFIED UNION SD	90.5%

Supervisory Union (SU/SD)	Depleted Percentage FCI
ORLEANS CENTRAL SU	76.9%
ORLEANS SOUTHWEST SU	76.7%
PATRICIA HANNAFORD CAREER CTR SD	70.7%
RIVENDELL INTERSTATE SD	74.3%
RIVER VALLEY TECHNICAL CENTER SD	61.9%
RUTLAND CITY SD	71.9%
RUTLAND NORTHEAST SU	68.8%
SLATE VALLEY UNIFIED UNION SD	69.7%
SOUTH BURLINGTON SD	81.3%
SOUTHWEST VERMONT SU	66.8%
SPRINGFIELD SD	77.5%
ST JOHNSBURY SD	67.9%
TWO RIVERS SU	73.0%
WASHINGTON CENTRAL UNIFIED UNION SD	59.0%
WHITE RIVER VALLEY SU	82.1%
WINDHAM CENTRAL SU	75.8%
WINDHAM NORTHEAST SU	72.5%
WINDHAM SOUTHEAST SU	63.9%
WINDHAM SOUTHWEST SU	54.0%
WINDSOR CENTRAL SU	89.2%
WINDSOR SOUTHEAST SU	71.4%
WINOOSKI SD	5.0%

FCI by Supervisory Union – Sorted by Condition

Supervisory Union (SU/SD)	Depleted Percentage FCI
ORANGE SOUTHWEST UNIFIED UNION SD	90.5%
WINDSOR CENTRAL SU	89.2%
MT MANSFIELD UNIFIED UNION SCHOOL DISTRICT	87.8%
ESSEX NORTH SU	87.3%
MONTPELIER ROXBURY SD	85.6%
BARRE UNIFIED UNION SD	85.2%
HARTFORD SD	84.5%
GREEN MOUNTAIN SD	84.2%
GRAND ISLE SU	83.3%
WHITE RIVER VALLEY SU	82.1%
SOUTH BURLINGTON SD	81.3%
MT ABRAHAM UNIFIED SCHOOL DISTRICT	81.3%
GREATER RUTLAND COUNTY SU	80.6%
CALEDONIA CENTRAL SU	79.9%
SPRINGFIELD SD	77.5%
MILTON TOWN SD	77.1%
BENNINGTON RUTLAND SU	77.0%
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MAPLE RUN UNIFIED SD	74.7%
RIVENDELL INTERSTATE SD	74.3%
ADDISON CENTRAL SD	73.6%
BURLINGTON SD	73.5%
TWO RIVERS SU	73.0%
WINDHAM NORTHEAST SU	72.5%
FRANKLIN WEST SU	72.4%
LAMOILLE SOUTH UNIFIED UNION SD	72.0%
HARWOOD UNIFIED UNION SUPERVISORY DISTRICT	71.9%

Supervisory Union (SU/SD)	Depleted Percentage FCI
RUTLAND CITY SD	71.9%
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PATRICIA HANNAFORD CAREER CTR SD	70.7%
SLATE VALLEY UNIFIED UNION SD	69.7%
BATTENKILL VALLEY SU	69.4%
RUTLAND NORTHEAST SU	68.8%
ST JOHNSBURY SD	67.9%
ORANGE EAST SU	67.9%
SOUTHWEST VERMONT SU	66.8%
ADDISON NORTHWEST SD	66.0%
FRANKLIN NORTHEAST SU	65.9%
WINDHAM SOUTHEAST SU	63.9%
RIVER VALLEY TECHNICAL CENTER SD	61.9%
CENTRAL VERMONT SU	59.9%
WASHINGTON CENTRAL UNIFIED UNION SD	59.0%
LAMOILLE NORTH SU	54.0%
WINDHAM SOUTHWEST SU	54.0%
MILL RIVER UNIFIED UNION SD	51.3%
CHAMPLAIN VALLEY SD	48.5%
WINOOSKI SD	5.0%

Methodology

Bureau Veritas met with members of the Vermont Agency of Education to clarify program goals, schedule, and deliverables. A key focus of the preparations involved communications with representatives from the SU/SDs to inform them of the effort and requirements, explain the process and offer them assistance in completion of the on-line form. Two dedicated meetings were held to showcase the process and the data collection forms. One meeting was recorded and posted in the form instructions for users to re-watch or in case they had missed the meetings. A staff of five from BVTA were available during the completion of the forms to assist responders in completing the forms. Follow up communications were made by both BVTA and the state to get as much participation as possible. All the responses were aggregated into a single data set which is used for reporting analytics and a succinct version will be provided to the state for its use.