Sudbury Schools

Facility Condition Assessment

Town of Sudbury

December 2nd, 2024

Alpha™ Facilities Solutions

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EXECUTIVE SUMMARY

Facility Condition Assessment Findings

At the time of the assessment there were five permanent buildings and zero relocatable structures located at Sudbury Schools. The team entered all accessible spaces in the permanent buildings to include classrooms**,** administrative, restrooms, mezzanines, and mechanical rooms. This data was input into your capital forecast solution. Additionally, please note the following:

- The team did not enter any "permit - required confined spaces" as defined by the Occupational Safety & Health Administration.
- Building systems are assessed based on the predominant material type and condition.
- There was no invasive testing performed on concealed systems to justify extending the useful life. These concealed systems were given an assessment considering current age and additional information from Client provided escorts.
- Life safety systems are assessed based on visual inspections, client provided information, and current inspection tags. ALPHA follows the Building Owners and Manager's Association's recommended life cycles for capital renewal forecasting purposes.

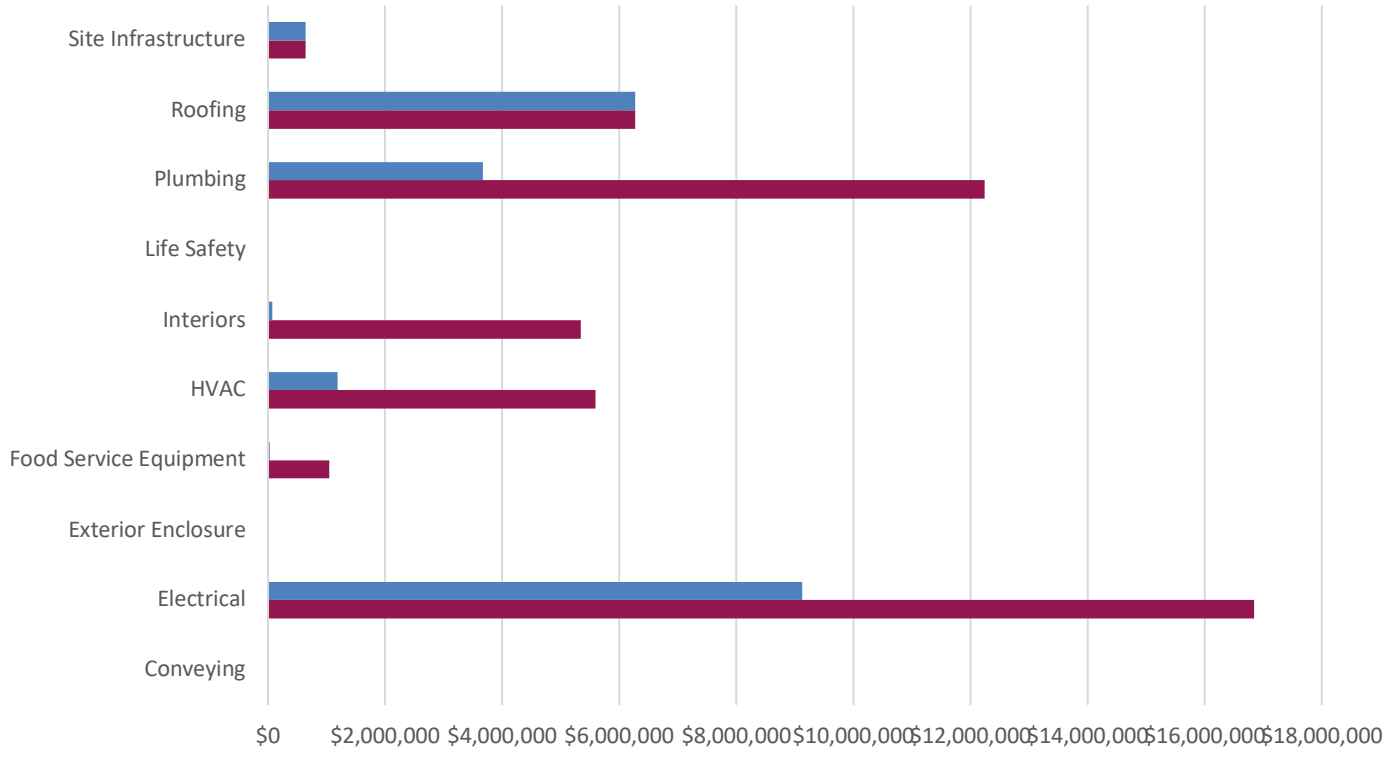
The table below contains building-specific information regarding current and forecast Facility Condition Indices. A comprehensive list of expired systems and those expected to expire between now and the Year 2044 is shown in the Current and Forecasted Needs Summarized by System table.

Table 1. Facility Description: Summary of Findings: Sudbury Schools

Name	Year Built	Area (SF)	Total Needs 2024	Current Replacement Value	2024 FCI %	Total Needs 2029	2029 FCI %
Curtis Middle School	2000	155,000	$5,225,703	$131,750,000	4	$6,680,598	5
Haynes Elementary School	1960	62,088	$3,070,722	$52,774,800	6	$10,262,976	19
Loring Elementary School	1998	77,151	$2,654,089	$65,578,350	4	$10,409,225	16
Nixon Elementary School	1959	56,000	$1,280,029	$47,600,000	3	$9,531,860	20
Peter Noyes Elementary School	1950	83,450	$8,116,954	$70,932,500	11	$10,450,054	15
SUBTOTAL	***-***	***433,689***	***$20,347,496***	***$368,635,650***	***6***	***$47,334,713***	***13***
Site and Infrastructure (excluded from FCI calculations)			$646,077			$646,077	
TOTALS		**433,689**	**$20,993,573**	**$368,635,650**		**$47,980,790**	

Note: The cumulative FCI for the Sudbury Schools facilities assessed is 6 while the cumulative FCI in 5 years is estimated to be 13 assuming current sustainment levels.

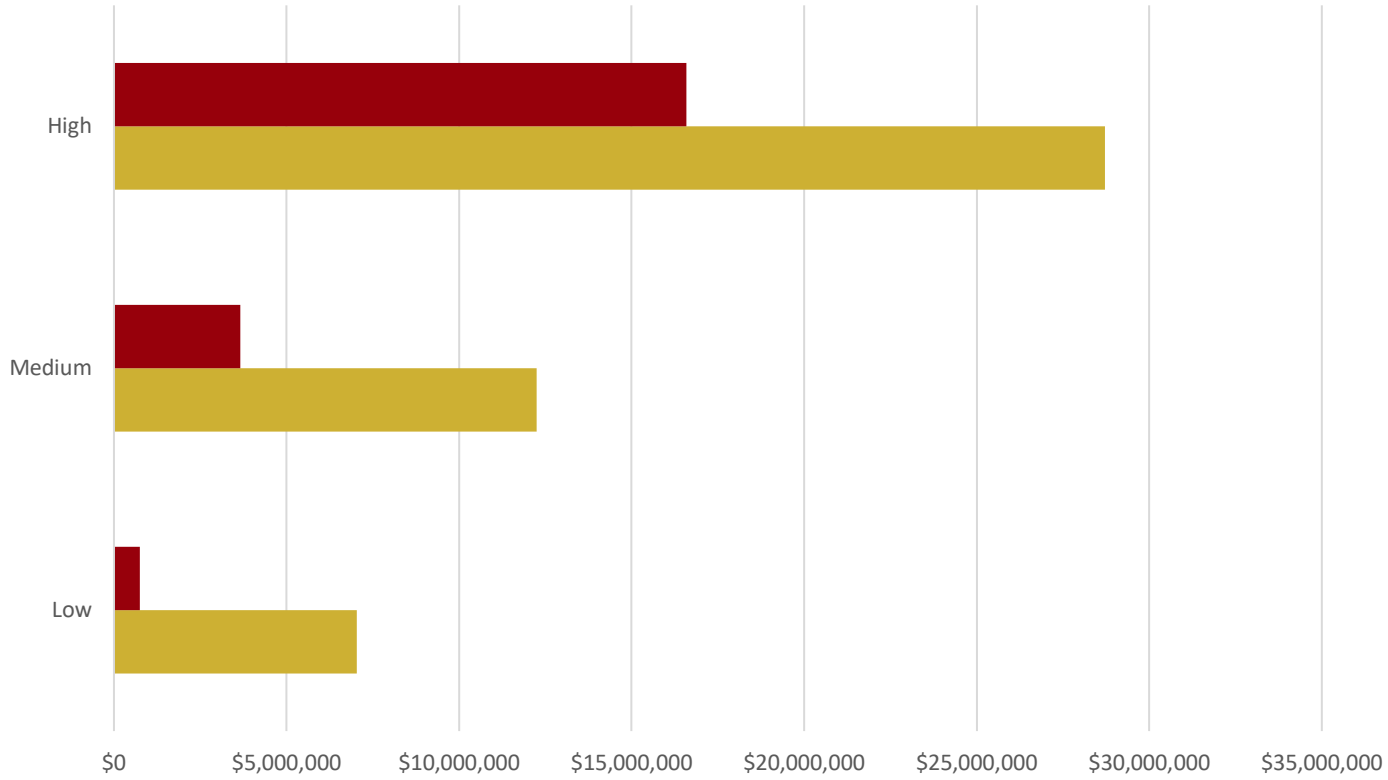
Figure 1. Comparison of 2024 Current Needs vs. 2029 Forecasted Needs by System Group: Sudbury Schools



	Conveying	Electrical	Exterior Enclosure	Food Service Equipment	HVAC	Interiors	Life Safety	Plumbing	Roofing	Site Infrastructure
2024	$0	$9,119,691	$0	$27,456	$1,184,140	$75,469	$0	$3,665,415	$6,275,325	$646,077
2029	$0	$16,844,147	$0	$1,042,265	$5,591,526	$5,340,457	$0	$12,240,994	$6,275,325	$646,077

Note: Forecasted Needs (2029) include Current Needs (2024)

Figure 2. Comparison of 2024 Current Needs vs. 2029 Forecasted Needs by Priority: Sudbury Schools



	Low	Medium	High
2024	$749,002	$3,665,415	$16,579,156
2029	$7,028,799	$12,240,994	$28,710,997

Renewal Forecast

The renewal forecast below shows the current maintenance and repair backlog and projected facility sustainment requirements over the next 20 years. Please note the renewal forecast does not include potential costs associated with seismic evaluation; seismic retrofitting; hazardous material inspection, evaluation, and mitigation, including asbestos abatement; and NFPA 101 and ADA upgrades. The renewal forecast is shown below:

Figure 3. Current and Forecasted Needs: Summarized by Reporting Period Current +10 Years: Sudbury Schools

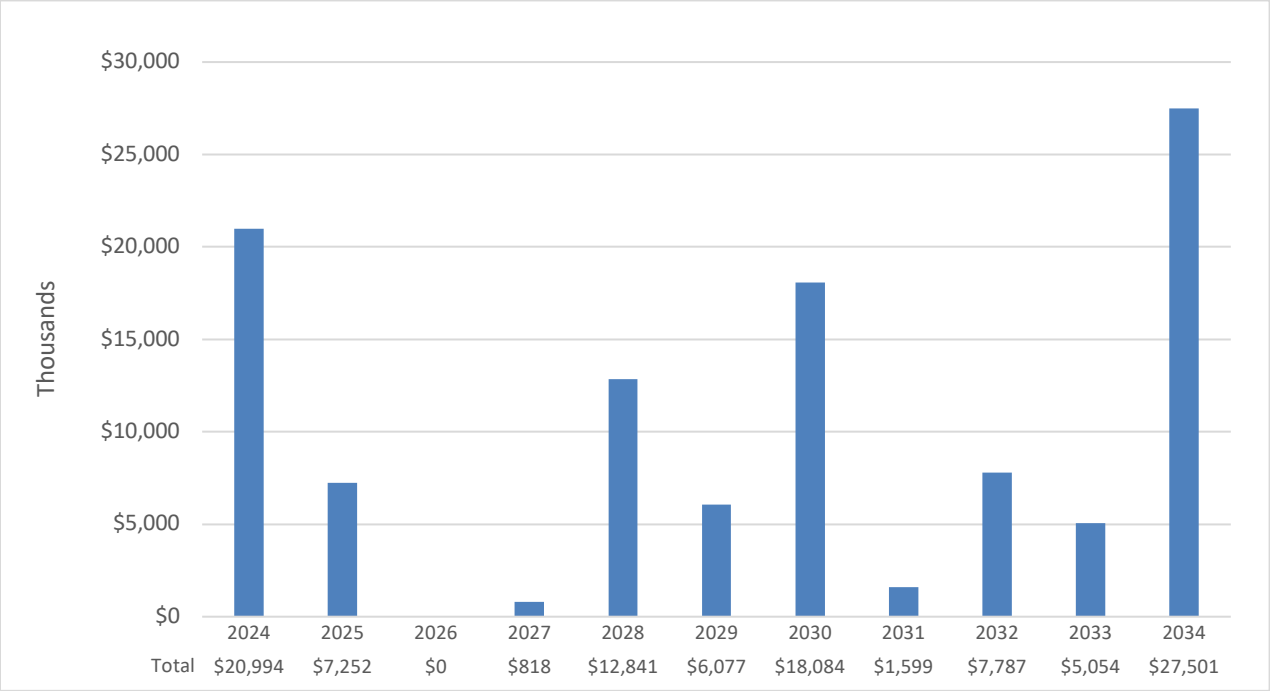


Figure 4. Current and Forecasted Needs: Summarized by Reporting Period Years 11-20: Sudbury Schools

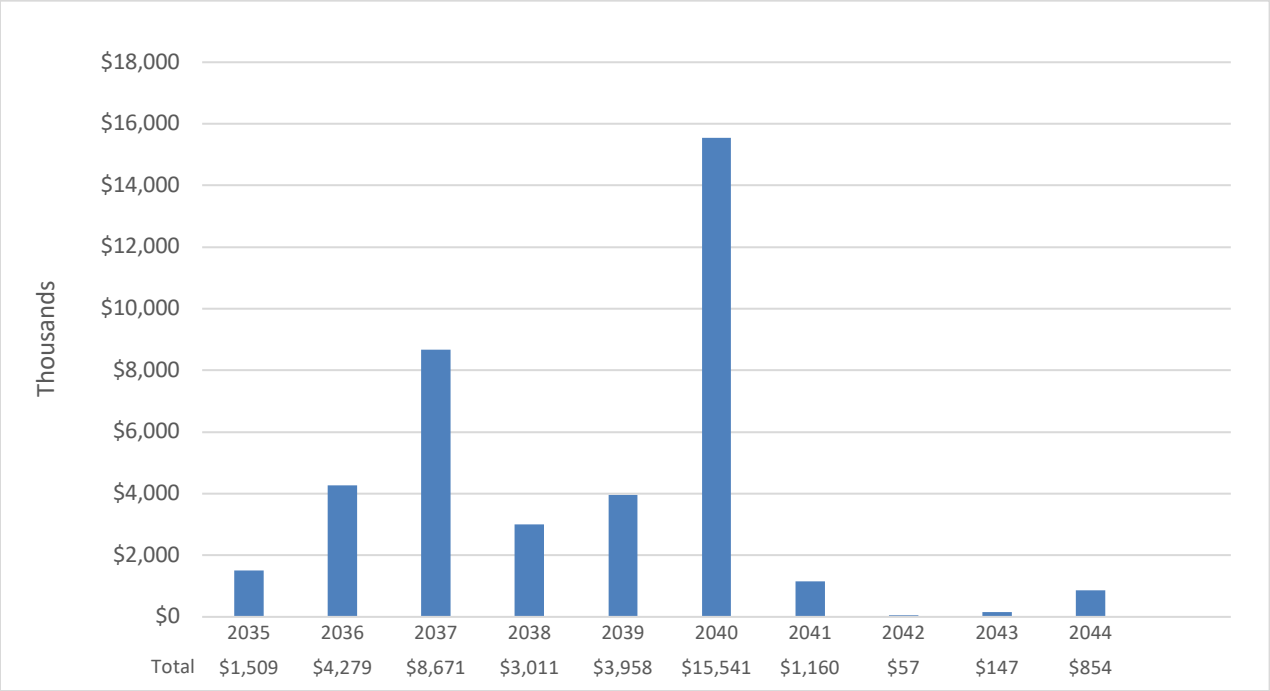


Table 2. Current and Forecasted Needs Summarized by System (Current + 5 years): Sudbury Schools

System	2024	2025	2026	2027	2028	2029
Cumulative Needs by Year	***$20,993,573***	***$28,245,451***	***$28,245,451***	***$29,063,203***	***$41,904,172***	***$47,980,790***
Needs by Year	***$20,993,573***	***$7,251,878***	***$0***	***$817,752***	***$12,840,969***	***$6,076,618***
Exterior Enclosure	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0	$0
Exterior Windows	$0	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0	$0
Roofing	**$6,275,325**	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$6,275,325	$0	$0	$0	$0	$0
Interior Construction	**$75,469**	**$0**	**$0**	**$0**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0	$0
Specialties	$75,469	$0	$0	$0	$0	$0
Interiors	**$0**	**$0**	**$0**	**$795,140**	**$0**	**$4,469,847**
Ceiling Finishes	$0	$0	$0	$0	$0	$267,646
Floor Finishes	$0	$0	$0	$0	$0	$3,815,938
Wall Finishes	$0	$0	$0	$795,140	$0	$386,263
Conveying	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Conveying Systems	$0	$0	$0	$0	$0	$0
Plumbing	**$3,665,415**	**$2,459,717**	**$0**	**$0**	**$6,115,862**	**$0**
Domestic Water Distribution	$483,691	$324,587	$0	$0	$807,054	$0
Plumbing Fixtures	$0	$0	$0	$0	$0	$0
Sanitary Waste	$3,181,724	$2,135,130	$0	$0	$5,308,808	$0
HVAC	**$1,184,140**	**$1,996,533**	**$0**	**$17,443**	**$1,776,896**	**$616,513**
Controls and Instrumentation	$0	$0	$0	$0	$0	$0
Cooling Generation	$0	$179,167	$0	$0	$5,384	$387,178
Distribution System	$1,184,140	$1,063,049	$0	$0	$1,771,512	$0
Heat Generation	$0	$669,257	$0	$17,443	$0	$0
Terminal & Package Units	$0	$85,060	$0	$0	$0	$229,335
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0	$0
Electrical	**$9,119,691**	**$2,776,245**	**$0**	**$0**	**$4,948,211**	**$0**
Branch Wiring	$2,965,607	$1,990,102	$0	$0	$4,948,211	$0
Lighting	$0	$0	$0	$0	$0	$0
Service Distribution	$0	$0	$0	$0	$0	$0
Communications and Security	$4,415,891	$786,143	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$1,738,192	$0	$0	$0	$0	$0
Site Infrastructure	**$646,077**	**$0**	**$0**	**$0**	**$0**	**$0**
Pedestrian Pavements	$112,939	$0	$0	$0	$0	$0
Vehicular Pavements	$533,138	$0	$0	$0	$0	$0
Food Service Equipment	**$27,456**	**$19,382**	**$0**	**$5,169**	**$0**	**$990,258**
Food Service Equipment	$27,456	$19,382	$0	$5,169	$0	$990,258

Table 3. Current and Forecasted Needs Summarized by System (Years 6 - 10): Sudbury Schools

System	2030	2031	2032	2033	2034
Cumulative Needs by Year	***$66,065,185***	***$67,664,408***	***$75,451,326***	***$80,504,999***	***$108,006,217***
Needs by Year	***$18,084,395***	***$1,599,223***	***$7,786,918***	***$5,053,673***	***$27,501,218***
Exterior Enclosure	**$0**	**$0**	**$0**	**$0**	**$476,520**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0
Exterior Windows	$0	$0	$0	$0	$476,520
Exterior Doors	$0	$0	$0	$0	$0
Roofing	**$0**	**$1,558,308**	**$0**	**$1,191,578**	**$0**
Roof Coverings	$0	$1,558,308	$0	$1,191,578	$0
Interior Construction	**$0**	**$0**	**$579,255**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0
Specialties	$0	$0	$579,255	$0	$0
Interiors	**$2,980,784**	**$0**	**$6,188,940**	**$0**	**$2,294,800**
Ceiling Finishes	$2,980,784	$0	$0	$0	$2,294,800
Floor Finishes	$0	$0	$6,188,940	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Conveying	**$0**	**$0**	**$574,467**	**$0**	**$0**
Conveying Systems	$0	$0	$574,467	$0	$0
Plumbing	**$4,303,481**	**$0**	**$0**	**$3,180,010**	**$0**
Domestic Water Distribution	$1,281,702	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$3,180,010	$0
Sanitary Waste	$3,021,779	$0	$0	$0	$0
HVAC	**$5,291,542**	**$40,915**	**$167,861**	**$609,298**	**$6,850,357**
Controls and Instrumentation	$0	$0	$0	$0	$6,243,652
Cooling Generation	$0	$0	$119,946	$5,384	$17,012
Distribution System	$5,282,390	$40,915	$44,469	$189,928	$30,905
Heat Generation	$0	$0	$0	$400,958	$500,000
Terminal & Package Units	$9,152	$0	$3,446	$13,028	$58,788
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0
Electrical	**$5,077,908**	**$0**	**$0**	**$0**	**$17,831,627**
Branch Wiring	$5,047,976	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$17,831,627
Service Distribution	$0	$0	$0	$0	$0
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$29,932	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Pedestrian Pavements	$0	$0	$0	$0	$0
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$430,680**	**$0**	**$276,395**	**$72,787**	**$47,914**
Food Service Equipment	$430,680	$0	$276,395	$72,787	$47,914

Table 4. Current and Forecasted Needs Summarized by System (Years 11 - 15): Sudbury Schools

System	2035	2036	2037	2038	2039
Cumulative Needs by Year	***$109,514,847***	***$113,793,945***	***$122,465,253***	***$125,475,789***	***$129,433,528***
Needs by Year	***$1,508,630***	***$4,279,098***	***$8,671,308***	***$3,010,536***	***$3,957,739***
Exterior Enclosure	**$0**	**$1,375,872**	**$2,722,888**	**$0**	**$1,586,047**
Exterior Walls (Finishes)	$0	$1,042,296	$2,294,710	$0	$465,304
Exterior Windows	$0	$0	$0	$0	$1,120,743
Exterior Doors	$0	$333,576	$428,178	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$1,159,366**	**$4,399,800**	**$0**	**$0**
Interior Doors	$0	$1,159,366	$2,354,499	$0	$0
Specialties	$0	$0	$2,045,301	$0	$0
Interiors	**$0**	**$456,944**	**$1,534,945**	**$0**	**$136,395**
Ceiling Finishes	$0	$0	$0	$0	$136,395
Floor Finishes	$0	$456,944	$1,534,945	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Conveying	**$0**	**$0**	**$0**	**$0**	**$0**
Conveying Systems	$0	$0	$0	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$2,133,979**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$2,133,979
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$231,604**	**$40,056**	**$13,675**	**$22,720**	**$25,950**
Controls and Instrumentation	$0	$0	$0	$0	$0
Cooling Generation	$0	$21,536	$0	$10,768	$0
Distribution System	$213,300	$18,520	$13,675	$11,952	$16,798
Heat Generation	$0	$0	$0	$0	$0
Terminal & Package Units	$18,304	$0	$0	$0	$9,152
Fire Protection	**$1,201,658**	**$0**	**$0**	**$2,987,816**	**$0**
Sprinklers & Standpipe	$1,201,658	$0	$0	$2,987,816	$0
Electrical	**$0**	**$1,171,493**	**$0**	**$0**	**$0**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0
Service Distribution	$0	$0	$0	$0	$0
Communications and Security	$0	$1,171,493	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Pedestrian Pavements	$0	$0	$0	$0	$0
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$75,368**	**$75,368**	**$0**	**$0**	**$75,368**
Food Service Equipment	$75,368	$75,368	$0	$0	$75,368

Table 5. Current and Forecasted Needs Summarized by System (Years 16-20): Sudbury Schools

System	2040	2041	2042	2043	2044
Cumulative Needs by Year	***$144,974,944***	***$146,135,324***	***$146,192,389***	***$146,339,368***	***$147,193,841***
Needs by Year	***$15,541,415***	***$1,160,380***	***$57,065***	***$146,979***	***$854,473***
Exterior Enclosure	**$3,692,620**	**$881,621**	**$0**	**$126,195**	**$0**
Exterior Walls (Finishes)	$850,197	$0	$0	$126,195	$0
Exterior Windows	$2,842,424	$881,621	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$0**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0
Specialties	$0	$0	$0	$0	$0
Interiors	**$0**	**$0**	**$0**	**$0**	**$0**
Ceiling Finishes	$0	$0	$0	$0	$0
Floor Finishes	$0	$0	$0	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Conveying	**$0**	**$0**	**$0**	**$0**	**$0**
Conveying Systems	$0	$0	$0	$0	$0
Plumbing	**$8,327,725**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$8,327,725	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$293,944**	**$278,759**	**$57,065**	**$20,784**	**$43,176**
Controls and Instrumentation	$0	$0	$0	$0	$0
Cooling Generation	$0	$0	$0	$0	$0
Distribution System	$52,332	$51,900	$57,065	$20,784	$34,024
Heat Generation	$0	$217,707	$0	$0	$0
Terminal & Package Units	$241,612	$9,152	$0	$0	$9,152
Fire Protection	**$3,227,126**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$3,227,126	$0	$0	$0	$0
Electrical	**$0**	**$0**	**$0**	**$0**	**$811,297**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0
Service Distribution	$0	$0	$0	$0	$811,297
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Pedestrian Pavements	$0	$0	$0	$0	$0
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$0**	**$0**	**$0**	**$0**
Food Service Equipment	$0	$0	$0	$0	$0

CURTIS MIDDLE SCHOOL

Table 6: Facility Description: Sudbury Schools - Curtis Middle School

Summary of Findings		
Construction Type	Three-Story Structure	
Roof Type	Single-ply Membrane	
Ceiling Type	Suspended Acoustical Tile	
Lighting	LED	
HVAC	Split-DX	
Elevator	Yes	
Fire Sprinkler	Yes	
Fire Alarm	Yes	

Name	Year Built	Area (SF)	Total Needs 2024	Current Replacement Value	2024 FCI %	Total Needs 2029	2029 FCI %
Curtis Middle School	2000	155,000	$5,225,703	$131,750,000	4	$6,680,598	5
Site Information			$83,917			$83,917	
TOTAL			$5,309,620			$6,764,516	

General Observations:

- The fire alarm and detection system is beyond its recommended useful life.
- The casework was in fair condition due to observed damage.
- Some HVAC systems were noted to utilize R-22 refrigerant. R-22 refrigerant is no longer in production and is being phased out due to environmental concerns.

Electrical

The LED lighting was in good condition. The electrical branch wiring is within its recommended useful life. The service and distribution system was in good condition. The emergency and exit lighting is beyond its recommended useful life.

Exterior Enclosure

The glazed and metal doors were in good condition. The double-pane windows were in good condition. The brick veneer and metal paneling walls were in good condition. The single-ply membrane roof covering was beyond its recommended useful life.

Interiors

The hardwood, vinyl tile, porcelain tile, carpet and ceramic tile floor finishes were in good condition. The polished block and painted wall finishes were in good condition. The suspended acoustical tile ceiling finishes were in good condition.

Plumbing

The manual porcelain and stainless-steel plumbing fixtures were in good condition. The domestic water distribution system is within its recommended useful life. The sanitary waste system is within its recommended useful life.

Table 7. Current and Forecasted Needs Summarized by System (Current + 5 years): Curtis Middle School

System	2024	2025	2026	2027	2028	2029
Cumulative Needs by Year	***$5,309,620***	***$5,512,153***	***$5,512,153***	***$5,529,596***	***$5,529,596***	***$6,764,516***
Needs by Year	***$5,309,620***	***$202,533***	***$0***	***$17,443***	***$0***	***$1,234,919***
Exterior Enclosure	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0	$0
Exterior Windows	$0	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0	$0
Roofing	**$2,142,116**	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$2,142,116	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0	$0
Specialties	$0	$0	$0	$0	$0	$0
Interiors	**$0**	**$0**	**$0**	**$0**	**$0**	**$386,263**
Ceiling Finishes	$0	$0	$0	$0	$0	$0
Floor Finishes	$0	$0	$0	$0	$0	$0
Wall Finishes	$0	$0	$0	$0	$0	$386,263
Conveying	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Conveying Systems	$0	$0	$0	$0	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0	$0
HVAC	**$35,531**	**$183,151**	**$0**	**$17,443**	**$0**	**$540,068**
Controls and Instrumentation	$0	$0	$0	$0	$0	$0
Cooling Generation	$0	$164,739	$0	$0	$0	$387,178
Distribution System	$35,531	$0	$0	$0	$0	$0
Heat Generation	$0	$0	$0	$17,443	$0	$0
Terminal & Package Units	$0	$18,412	$0	$0	$0	$152,890
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0	$0
Electrical	**$3,048,056**	**$0**	**$0**	**$0**	**$0**	**$0**
Branch Wiring	$0	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0	$0
Communications and Security	$2,461,217	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$586,839	$0	$0	$0	$0	$0
Site Infrastructure	**$83,917**	**$0**	**$0**	**$0**	**$0**	**$0**
Vehicular Pavements	$83,917	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$19,382**	**$0**	**$0**	**$0**	**$308,588**
Food Service Equipment	$0	$19,382	$0	$0	$0	$308,588

Table 8. Current and Forecasted Needs Summarized by System (Years 6 - 10): Curtis Middle School

System	2030	2031	2032	2033	2034
Cumulative Needs by Year	***$19,497,223***	***$19,497,223***	***$23,512,188***	***$24,103,074***	***$34,552,186***
Needs by Year	***$12,732,707***	***$0***	***$4,014,966***	***$590,886***	***$10,449,112***
Exterior Enclosure	**$0**	**$0**	**$0**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0
Exterior Windows	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$232,693**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0
Specialties	$0	$0	$232,693	$0	$0
Interiors	**$0**	**$0**	**$3,546,316**	**$0**	**$2,294,800**
Ceiling Finishes	$0	$0	$0	$0	$2,294,800
Floor Finishes	$0	$0	$3,546,316	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Conveying	**$0**	**$0**	**$191,489**	**$0**	**$0**
Conveying Systems	$0	$0	$191,489	$0	$0
Plumbing	**$4,303,481**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$1,281,702	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$0
Sanitary Waste	$3,021,779	$0	$0	$0	$0
HVAC	**$3,252,046**	**$0**	**$3,446**	**$590,886**	**$2,134,111**
Controls and Instrumentation	$0	$0	$0	$0	$2,107,947
Cooling Generation	$0	$0	$0	$0	$17,012
Distribution System	$3,242,894	$0	$0	$189,928	$0
Heat Generation	$0	$0	$0	$400,958	$0
Terminal & Package Units	$9,152	$0	$3,446	$0	$9,152
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0
Electrical	**$5,047,976**	**$0**	**$0**	**$0**	**$6,020,200**
Branch Wiring	$5,047,976	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$6,020,200
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$129,204**	**$0**	**$41,022**	**$0**	**$0**
Food Service Equipment	$129,204	$0	$41,022	$0	$0

Table 9. Current and Forecasted Needs Summarized by System (Years 11 - 15): Curtis Middle School

System	2035	2036	2037	2038	2039
Cumulative Needs by Year	***$34,582,442***	***$34,587,826***	***$39,550,703***	***$39,568,039***	***$39,643,407***
Needs by Year	***$30,256***	***$5,384***	***$4,962,877***	***$17,336***	***$75,368***
Exterior Enclosure	**$0**	**$0**	**$1,269,634**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$1,149,462	$0	$0
Exterior Windows	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$120,171	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$3,061,488**	**$0**	**$0**
Interior Doors	$0	$0	$1,263,018	$0	$0
Specialties	$0	$0	$1,798,470	$0	$0
Interiors	**$0**	**$0**	**$622,926**	**$0**	**$0**
Ceiling Finishes	$0	$0	$0	$0	$0
Floor Finishes	$0	$0	$622,926	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Conveying	**$0**	**$0**	**$0**	**$0**	**$0**
Conveying Systems	$0	$0	$0	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$30,256**	**$5,384**	**$8,829**	**$17,336**	**$0**
Controls and Instrumentation	$0	$0	$0	$0	$0
Cooling Generation	$0	$5,384	$0	$5,384	$0
Distribution System	$11,952	$0	$8,829	$11,952	$0
Heat Generation	$0	$0	$0	$0	$0
Terminal & Package Units	$18,304	$0	$0	$0	$0
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0
Electrical	**$0**	**$0**	**$0**	**$0**	**$0**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$0**	**$0**	**$0**	**$75,368**
Food Service Equipment	$0	$0	$0	$0	$75,368

Table 10. Current and Forecasted Needs Summarized by System (Years 16-20): Curtis Middle School

System	2040	2041	2042	2043	2044
Cumulative Needs by Year	***$46,603,552***	***$46,621,642***	***$46,621,642***	***$46,732,478***	***$46,732,478***
Needs by Year	***$6,960,145***	***$18,090***	***$0***	***$110,836***	***$0***
Exterior Enclosure	**$826,245**	**$0**	**$0**	**$110,836**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$110,836	$0
Exterior Windows	$826,245	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$0**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0
Specialties	$0	$0	$0	$0	$0
Interiors	**$0**	**$0**	**$0**	**$0**	**$0**
Ceiling Finishes	$0	$0	$0	$0	$0
Floor Finishes	$0	$0	$0	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Conveying	**$0**	**$0**	**$0**	**$0**	**$0**
Conveying Systems	$0	$0	$0	$0	$0
Plumbing	**$3,021,779**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$3,021,779	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$64,065**	**$18,090**	**$0**	**$0**	**$0**
Controls and Instrumentation	$0	$0	$0	$0	$0
Cooling Generation	$0	$0	$0	$0	$0
Distribution System	$18,305	$18,090	$0	$0	$0
Heat Generation	$0	$0	$0	$0	$0
Terminal & Package Units	$45,760	$0	$0	$0	$0
Fire Protection	**$3,048,056**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$3,048,056	$0	$0	$0	$0
Electrical	**$0**	**$0**	**$0**	**$0**	**$0**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$0**	**$0**	**$0**	**$0**
Food Service Equipment	$0	$0	$0	$0	$0

Table 11. Expired Systems 2024: Sudbury Schools – Curtis Middle School

Building	System Category	System	Priority	2024 Needs
Curtis Middle School	Electrical	Communications and Security	High	$2,461,217
Curtis Middle School	Electrical	Exit Signs and Emergency Lighting	High	$586,839
Curtis Middle School	HVAC	Distribution System	High	$35,531
Curtis Middle School	Roofing	Roof Coverings	High	$2,142,116

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Site and Infrastructure Assessment Findings

Site General Condition

The following site conditions and/or deficiencies were observed during the assessment:

• A portion of the asphalt pavements were in poor condition and in need of resealing as longitudinal and transverse cracking were observed throughout the pavement.

Site Improvements

A site infrastructure condition assessment was included in the scope of work for this project. The site infrastructure assessment is a visual evaluation of the site systems. The teams walked each site to determine the general condition of the systems and categorized them as follows:

• Good condition

• Poor condition and in need of repair

• Poor condition and in need of replacement

Estimated quantities were calculated by digitizing marked-up Google Earth aerial photographs. Google Earth aerial photographs were used in lieu of site plans. The site assessment was performed, and the subsequent results grouped by location. Findings for each location were divided as follows:

• Pedestrian Pavements

• Vehicular Pavements

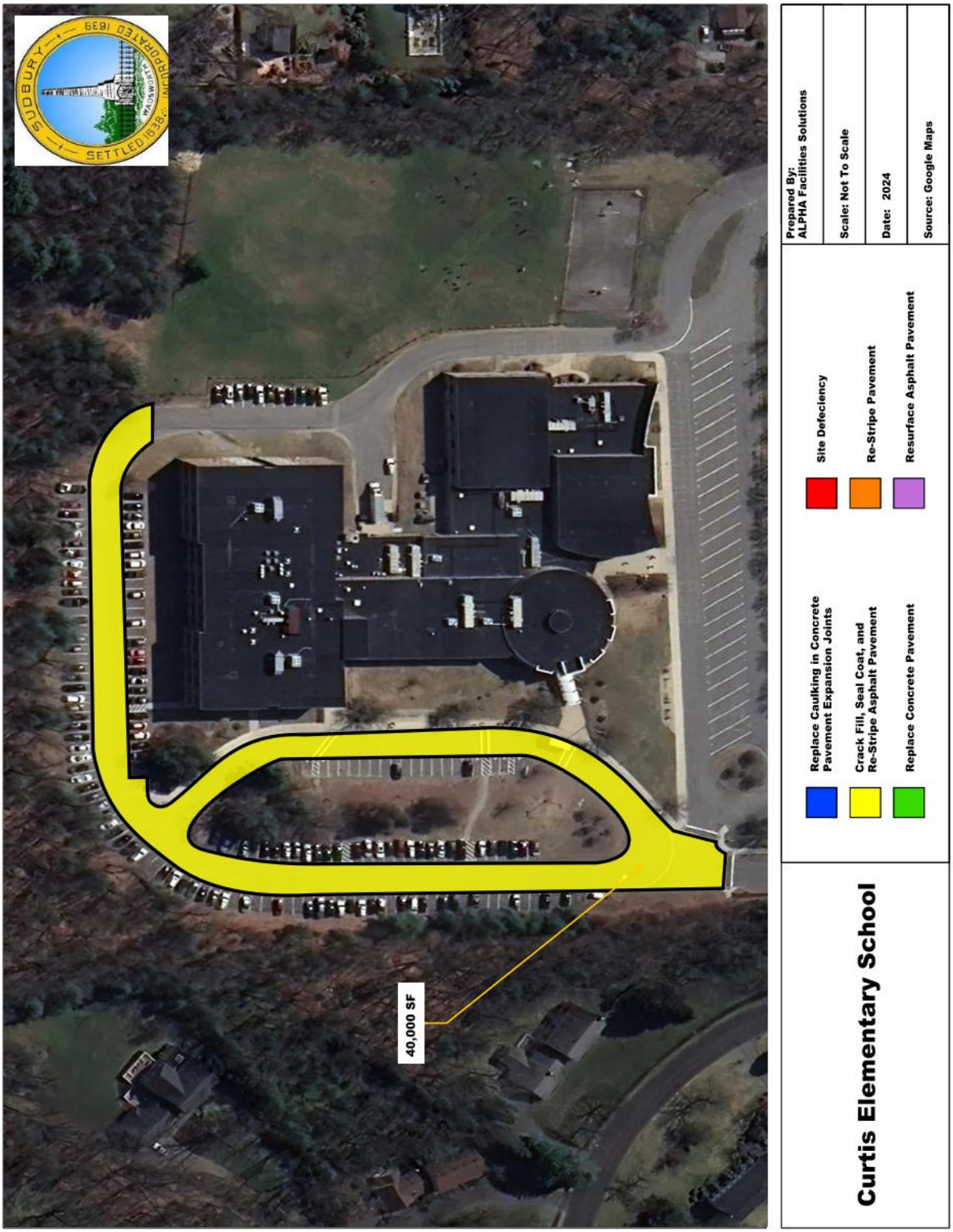
• Site Development

Please note that not all locations have all of the various infrastructure systems present. We determined unit pricing for the various deficiency requirements by referencing 2024 RS Means Building Construction Cost Data and Assembly Cost Data when available. Industry sources were used as a supplemental source for unit pricing when needed.

Table 12. Summary of 2024 Site and Infrastructure Deficiencies: Curtis Middle School

Asset Description	Corrective Action	Notes	Priority	Current Needs	Year
Vehicular Pavements	Crack Fill, Seal Coat, and Restripe Asphalt Pavements	40000 SF	Low	$83,917	2024
			Total 2024 Needs	**$83,917**	

Figure 5. Site and Infrastructure Deficiencies Markup: Curtis Middle School



Site Infrastructure

A portion of the asphalt pavements were in poor condition and in need of resealing as longitudinal and transverse cracking were observed throughout the pavement.

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HAYNES ELEMENTARY SCHOOL

Table 13: Facility Description: Sudbury Schools - Haynes Elementary School

Summary of Findings	
Construction Type	One-Story Structure
Roof Type	Single-ply Membrane
Ceiling Type	Suspended Acoustical Tile and Painted
Lighting	LED and Metal Halide
HVAC	Packaged Units and Split-DX
Elevator	No
Fire Sprinkler	Yes
Fire Alarm	Yes

Name	Year Built	Area (SF)	Total Needs 2024	Current Replacement Value	2024 FCI %	Total Needs 2029	2029 FCI %
Haynes Elementary School	1960	62,088	$3,070,722	$52,774,800	6	$10,262,976	19
Site Information			$136,104			$136,104	
TOTAL			$3,206,826			$10,399,080	

General Observations:

- It was reported that a major renovation of all systems and addition of gymnasium wing was completed in 1998.
- The casework was in fair condition due to observed damage.
- The fire alarm and detection system is beyond its recommended useful life.
- Some HVAC systems were noted to utilize R-22 refrigerant. R-22 refrigerant is no longer in production and is being phased out due to environmental concerns.

Electrical

The LED and metal halide lighting was in good condition. The electrical branch wiring is within its recommended useful life. The service and distribution system was in good condition. The emergency and exit lighting is beyond its recommended useful life.

Exterior Enclosure

The metal and glazed doors were in good condition. The double-pane windows were in good condition. The metal paneling, brick veneer and kalwall walls were in good condition. The single-ply membrane roof covering was beyond its recommended useful life.

Interiors

The hardwood, vinyl tile and ceramic tile floor finishes were in good condition; however, the carpet floors were in fair condition due to observed stains. The tile wall finishes were in good condition; however, the painted walls were in fair condition due to observed stains. The painted ceiling finishes were in good condition; however, the suspended acoustical tile ceilings were in fair condition due to observed stains.

Plumbing

The manual porcelain and stainless-steel plumbing fixtures were in good condition. The domestic water distribution system is within its recommended useful life. The sanitary waste system is within its recommended useful life.

Table 14. Current and Forecasted Needs Summarized by System (Current + 5 years): Haynes Elementary School

System	2024	2025	2026	2027	2028	2029
Cumulative Needs by Year	***$3,206,826***	***$3,769,598***	***$3,769,598***	***$3,915,463***	***$9,638,973***	***$10,399,080***
Needs by Year	***$3,206,826***	***$562,772***	***$0***	***$145,865***	***$5,723,510***	***$760,107***
Exterior Enclosure	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0	$0
Exterior Windows	$0	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0	$0
Roofing	**$1,933,456**	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$1,933,456	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0	$0
Specialties	$0	$0	$0	$0	$0	$0
Interiors	**$0**	**$0**	**$0**	**$140,696**	**$0**	**$583,418**
Ceiling Finishes	$0	$0	$0	$0	$0	$46,899
Floor Finishes	$0	$0	$0	$0	$0	$536,519
Wall Finishes	$0	$0	$0	$140,696	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$2,727,121**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$359,873	$0
Plumbing Fixtures	$0	$0	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$2,367,248	$0
HVAC	**$0**	**$562,772**	**$0**	**$0**	**$789,934**	**$0**
Controls and Instrumentation	$0	$0	$0	$0	$0	$0
Cooling Generation	$0	$14,428	$0	$0	$0	$0
Distribution System	$0	$0	$0	$0	$789,934	$0
Heat Generation	$0	$500,000	$0	$0	$0	$0
Terminal & Package Units	$0	$48,344	$0	$0	$0	$0
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0	$0
Electrical	**$1,128,114**	**$0**	**$0**	**$0**	**$2,206,455**	**$0**
Branch Wiring	$0	$0	$0	$0	$2,206,455	$0
Lighting	$0	$0	$0	$0	$0	$0
Communications and Security	$871,608	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$256,506	$0	$0	$0	$0	$0
Site Infrastructure	**$136,104**	**$0**	**$0**	**$0**	**$0**	**$0**
Pedestrian Pavements	$16,783	$0	$0	$0	$0	$0
Vehicular Pavements	$119,320	$0	$0	$0	$0	$0
Food Service Equipment	**$9,152**	**$0**	**$0**	**$5,169**	**$0**	**$176,689**
Food Service Equipment	$9,152	$0	$0	$5,169	$0	$176,689

Table 15. Current and Forecasted Needs Summarized by System (Years 6 - 10): Haynes Elementary School

System	2030	2031	2032	2033	2034
Cumulative Needs by Year	***$11,900,222***	***$11,941,137***	***$12,948,635***	***$12,954,019***	***$16,540,444***
Needs by Year	***$1,501,142***	***$40,915***	***$1,007,498***	***$5,384***	***$3,586,425***
Exterior Enclosure	**$0**	**$0**	**$0**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0
Exterior Windows	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$101,696**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0
Specialties	$0	$0	$101,696	$0	$0
Interiors	**$752,288**	**$0**	**$755,170**	**$0**	**$0**
Ceiling Finishes	$752,288	$0	$0	$0	$0
Floor Finishes	$0	$0	$755,170	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$748,854**	**$40,915**	**$44,469**	**$5,384**	**$937,743**
Controls and Instrumentation	$0	$0	$0	$0	$921,376
Cooling Generation	$0	$0	$0	$5,384	$0
Distribution System	$748,854	$40,915	$44,469	$0	$16,367
Heat Generation	$0	$0	$0	$0	$0
Terminal & Package Units	$0	$0	$0	$0	$0
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0
Electrical	**$0**	**$0**	**$0**	**$0**	**$2,631,454**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$2,631,454
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Pedestrian Pavements	$0	$0	$0	$0	$0
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$0**	**$106,163**	**$0**	**$17,227**
Food Service Equipment	$0	$0	$106,163	$0	$17,227

Table 16. Current and Forecasted Needs Summarized by System (Years 11 - 15): Haynes Elementary School

System	2035	2036	2037	2038	2039
Cumulative Needs by Year	***$16,540,444***	***$16,545,828***	***$18,235,650***	***$19,567,946***	***$19,577,098***
Needs by Year	***$0***	***$5,384***	***$1,689,823***	***$1,332,296***	***$9,152***
Exterior Enclosure	**$0**	**$0**	**$656,038**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$487,582	$0	$0
Exterior Windows	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$168,456	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$622,274**	**$0**	**$0**
Interior Doors	$0	$0	$591,646	$0	$0
Specialties	$0	$0	$30,628	$0	$0
Interiors	**$0**	**$0**	**$406,665**	**$0**	**$0**
Ceiling Finishes	$0	$0	$0	$0	$0
Floor Finishes	$0	$0	$406,665	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$0**	**$5,384**	**$4,846**	**$0**	**$9,152**
Controls and Instrumentation	$0	$0	$0	$0	$0
Cooling Generation	$0	$5,384	$0	$0	$0
Distribution System	$0	$0	$4,846	$0	$0
Heat Generation	$0	$0	$0	$0	$0
Terminal & Package Units	$0	$0	$0	$0	$9,152
Fire Protection	**$0**	**$0**	**$0**	**$1,332,296**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$1,332,296	$0
Electrical	**$0**	**$0**	**$0**	**$0**	**$0**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Pedestrian Pavements	$0	$0	$0	$0	$0
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$0**	**$0**	**$0**	**$0**
Food Service Equipment	$0	$0	$0	$0	$0

Table 17. Current and Forecasted Needs Summarized by System (Years 16-20): Haynes Elementary School

System	2040	2041	2042	2043	2044
Cumulative Needs by Year	***$23,643,626***	***$23,643,626***	***$23,643,626***	***$23,658,985***	***$23,658,985***
Needs by Year	***$4,066,528***	***$0***	***$0***	***$15,359***	***$0***
Exterior Enclosure	**$1,664,378**	**$0**	**$0**	**$15,359**	**$0**
Exterior Walls (Finishes)	$850,197	$0	$0	$15,359	$0
Exterior Windows	$814,182	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$0**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0
Specialties	$0	$0	$0	$0	$0
Interiors	**$0**	**$0**	**$0**	**$0**	**$0**
Ceiling Finishes	$0	$0	$0	$0	$0
Floor Finishes	$0	$0	$0	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Plumbing	**$2,365,972**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$2,365,972	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$36,178**	**$0**	**$0**	**$0**	**$0**
Controls and Instrumentation	$0	$0	$0	$0	$0
Cooling Generation	$0	$0	$0	$0	$0
Distribution System	$4,846	$0	$0	$0	$0
Heat Generation	$0	$0	$0	$0	$0
Terminal & Package Units	$31,332	$0	$0	$0	$0
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0
Electrical	**$0**	**$0**	**$0**	**$0**	**$0**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Pedestrian Pavements	$0	$0	$0	$0	$0
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$0**	**$0**	**$0**	**$0**
Food Service Equipment	$0	$0	$0	$0	$0

Table 18. Expired Systems 2024: Sudbury Schools – Haynes Elementary School

Building	System Category	System	Priority	2024 Needs
Haynes Elementary School	Electrical	Communications and Security	High	$871,608
Haynes Elementary School	Electrical	Exit Signs and Emergency Lighting	High	$256,506
Haynes Elementary School	Food Service Equipment	Food Service Equipment	Low	$9,152
Haynes Elementary School	Roofing	Roof Coverings	High	$1,933,456
			TOTAL	**$3,070,722**

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Site and Infrastructure Assessment Findings

Site General Condition

The following site conditions and/or deficiencies were observed during the assessment.

• A portion of the asphalt pavements were in poor condition and in need of resealing as longitudinal and transverse cracking were observed throughout the pavement.

• A portion of the asphalt pavements were in poor condition and in need of resurfacing as longitudinal cracking, transverse cracking, and degradation were observed throughout the pavement.

Site Improvements

A site infrastructure condition assessment was included in the scope of work for this project. The site infrastructure assessment is a visual evaluation of the site systems. The teams walked each site to determine the general condition of the systems and categorized them as follows:

• Good condition

• Poor condition and in need of repair

• Poor condition and in need of replacement

Estimated quantities were calculated by digitizing marked-up Google Earth aerial photographs. Google Earth aerial photographs were used in lieu of site plans. The site assessment was performed, and the subsequent results grouped by location. Findings for each location were divided as follows:

• Pedestrian Pavements

• Vehicular Pavements

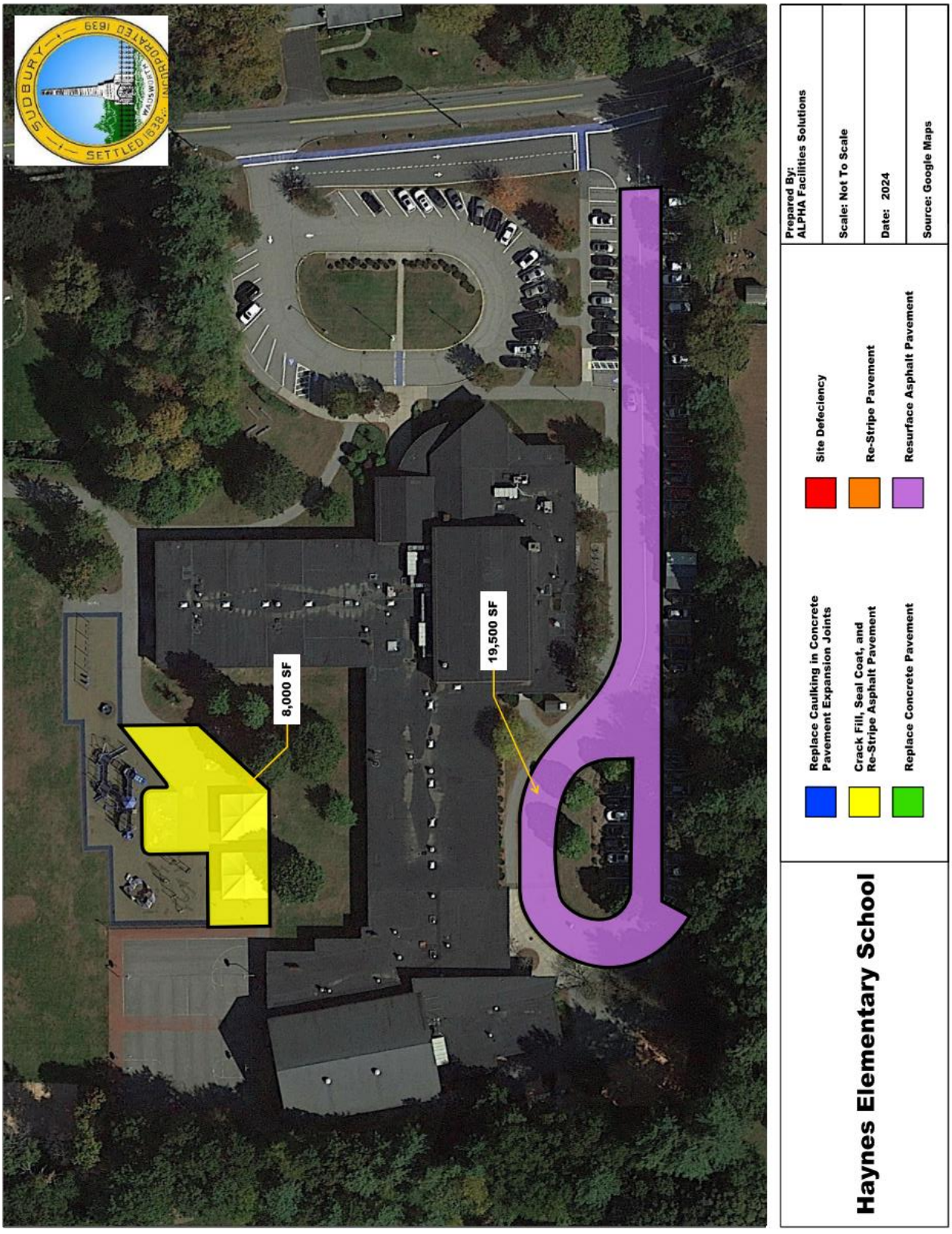
• Site Development

Please note that not all locations have all of the various infrastructure systems present. We determined unit pricing for the various deficiency requirements by referencing 2024 RS Means Building Construction Cost Data and Assembly Cost Data when available. Industry sources were used as a supplemental source for unit pricing when needed.

Table 19. Summary of 2024 Site and Infrastructure Deficiencies: Haynes Elementary School

Asset Description	Corrective Action	Notes	Priority	Current Needs	Year
Pedestrian Pavements	Crack Fill, Seal Coat, and Restripe Asphalt Pavements	8000 SF	Low	$16,783	2024
Vehicular Pavements	Resurface Asphalt Pavements	19500 SF	Low	$119,320	2024
			Total 2024 Needs	**$136,104**	

Figure 6. Site and Infrastructure Deficiencies Markup: Haynes Elementary School



Site Infrastructure

A portion of the asphalt pavements were in poor condition and in need of resurfacing as longitudinal cracking, transverse cracking, and degradation were observed throughout the pavement.

Site Infrastructure

A portion of the asphalt walkways were in poor condition and in need of resealing as longitudinal and transverse cracking were observed throughout the pavement.

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LORING ELEMENTARY SCHOOL

Table 20: Facility Description: Sudbury Schools - Loring Elementary School

Summary of Findings	
Construction Type	Two-Story Structure
Roof Type	Single-ply Membrane and Standing Seam Metal
Ceiling Type	Suspended Acoustical Tile and Painted
Lighting	LED
HVAC	Split-DX
Elevator	Yes
Fire Sprinkler	Yes
Fire Alarm	Yes

Name	Year Built	Area (SF)	Total Needs 2024	Current Replacement Value	2024 FCI %	Total Needs 2029	2029 FCI %
Loring Elementary School	1998	77,151	$2,654,089	$65,578,350	4	$10,409,225	16
Site Information			$275,354			$275,354	
TOTAL			$2,929,443			$10,684,579	

General Observations:

- The fire alarm and detection system is beyond its recommended useful life.

Electrical

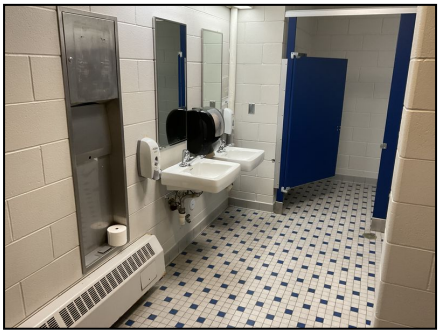
The LED lighting was in good condition. The electrical branch wiring is within its recommended useful life. The service and distribution system was in good condition. The emergency and exit lighting is beyond its recommended useful life.

Exterior Enclosure

The glazed and metal doors were in good condition. The double-pane windows were in good condition. The brick veneer and CMU walls were in good condition. The standing seam metal roof covering was within its recommended useful life; however, the single-ply membrane roof was beyond its recommended useful life.

Interiors

The hardwood, vinyl tile, carpet and ceramic tile floor finishes were in good condition. The painted wall finishes were in fair condition due to observed stains. The painted ceiling finishes were in good condition; however, the suspended acoustical tile ceilings were in fair condition due to observed stains.



Plumbing

The manual porcelain and stainless-steel plumbing fixtures were in good condition. The domestic water distribution system is within its recommended useful life. The sanitary waste system is within its recommended useful life.

Table 21. Current and Forecasted Needs Summarized by System (Current + 5 years): Loring Elementary School

System	2024	2025	2026	2027	2028	2029
Cumulative Needs by Year	***$2,929,443***	***$2,953,131***	***$2,953,131***	***$3,186,237***	***$10,303,695***	***$10,684,579***
Needs by Year	***$2,929,443***	***$23,688***	***$0***	***$233,106***	***$7,117,458***	***$380,884***
Exterior Enclosure	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0	$0
Exterior Windows	$0	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0	$0
Roofing	**$1,226,446**	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$1,226,446	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0	$0
Specialties	$0	$0	$0	$0	$0	$0
Interiors	**$0**	**$0**	**$0**	**$233,106**	**$0**	**$76,926**
Ceiling Finishes	$0	$0	$0	$0	$0	$76,926
Floor Finishes	$0	$0	$0	$0	$0	$0
Wall Finishes	$0	$0	$0	$233,106	$0	$0
Conveying	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Conveying Systems	$0	$0	$0	$0	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$3,388,741**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$447,181	$0
Plumbing Fixtures	$0	$0	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$2,941,560	$0
HVAC	**$7,538**	**$23,688**	**$0**	**$0**	**$986,962**	**$76,445**
Controls and Instrumentation	$0	$0	$0	$0	$0	$0
Cooling Generation	$0	$0	$0	$0	$5,384	$0
Distribution System	$7,538	$23,688	$0	$0	$981,578	$0
Heat Generation	$0	$0	$0	$0	$0	$0
Terminal & Package Units	$0	$0	$0	$0	$0	$76,445
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0	$0
Electrical	**$1,401,801**	**$0**	**$0**	**$0**	**$2,741,756**	**$0**
Branch Wiring	$0	$0	$0	$0	$2,741,756	$0
Lighting	$0	$0	$0	$0	$0	$0
Communications and Security	$1,083,066	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$318,735	$0	$0	$0	$0	$0
Site Infrastructure	**$275,354**	**$0**	**$0**	**$0**	**$0**	**$0**
Vehicular Pavements	$275,354	$0	$0	$0	$0	$0
Food Service Equipment	**$18,304**	**$0**	**$0**	**$0**	**$0**	**$227,513**
Food Service Equipment	$18,304	$0	$0	$0	$0	$227,513

Table 22. Current and Forecasted Needs Summarized by System (Years 6 - 10): Loring Elementary School

System	2030	2031	2032	2033	2034
Cumulative Needs by Year	***$12,670,988***	***$12,670,988***	***$14,510,172***	***$14,792,737***	***$19,707,457***
Needs by Year	***$1,986,409***	***$0***	***$1,839,184***	***$282,565***	***$4,914,720***
Exterior Enclosure	**$0**	**$0**	**$0**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0
Exterior Windows	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0
Roofing	**$0**	**$0**	**$0**	**$282,565**	**$0**
Roof Coverings	$0	$0	$0	$282,565	$0
Interior Construction	**$0**	**$0**	**$0**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0
Specialties	$0	$0	$0	$0	$0
Interiors	**$835,100**	**$0**	**$1,615,017**	**$0**	**$0**
Ceiling Finishes	$835,100	$0	$0	$0	$0
Floor Finishes	$0	$0	$1,615,017	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Conveying	**$0**	**$0**	**$176,577**	**$0**	**$0**
Conveying Systems	$0	$0	$176,577	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$1,022,105**	**$0**	**$47,590**	**$0**	**$1,644,910**
Controls and Instrumentation	$0	$0	$0	$0	$1,144,910
Cooling Generation	$0	$0	$47,590	$0	$0
Distribution System	$1,022,105	$0	$0	$0	$0
Heat Generation	$0	$0	$0	$0	$500,000
Terminal & Package Units	$0	$0	$0	$0	$0
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0
Electrical	**$0**	**$0**	**$0**	**$0**	**$3,269,810**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$3,269,810
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$129,204**	**$0**	**$0**	**$0**	**$0**
Food Service Equipment	$129,204	$0	$0	$0	$0

Table 23. Current and Forecasted Needs Summarized by System (Years 11 - 15): Loring Elementary School

System	2035	2036	2037	2038	2039
Cumulative Needs by Year	***$19,707,457***	***$19,788,209***	***$21,806,818***	***$23,462,338***	***$23,462,338***
Needs by Year	***$0***	***$80,752***	***$2,018,609***	***$1,655,520***	***$0***
Exterior Enclosure	**$0**	**$0**	**$797,216**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$657,666	$0	$0
Exterior Windows	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$139,550	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$716,038**	**$0**	**$0**
Interior Doors	$0	$0	$499,836	$0	$0
Specialties	$0	$0	$216,203	$0	$0
Interiors	**$0**	**$0**	**$505,355**	**$0**	**$0**
Ceiling Finishes	$0	$0	$0	$0	$0
Floor Finishes	$0	$0	$505,355	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Conveying	**$0**	**$0**	**$0**	**$0**	**$0**
Conveying Systems	$0	$0	$0	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$0**	**$5,384**	**$0**	**$0**	**$0**
Controls and Instrumentation	$0	$0	$0	$0	$0
Cooling Generation	$0	$5,384	$0	$0	$0
Distribution System	$0	$0	$0	$0	$0
Heat Generation	$0	$0	$0	$0	$0
Terminal & Package Units	$0	$0	$0	$0	$0
Fire Protection	**$0**	**$0**	**$0**	**$1,655,520**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$1,655,520	$0
Electrical	**$0**	**$0**	**$0**	**$0**	**$0**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$75,368**	**$0**	**$0**	**$0**
Food Service Equipment	$0	$75,368	$0	$0	$0

Table 24. Current and Forecasted Needs Summarized by System (Years 16-20): Loring Elementary School

System	2040	2041	2042	2043	2044
Cumulative Needs by Year	***$27,683,556***	***$27,683,556***	***$27,740,621***	***$27,740,621***	***$27,749,773***
Needs by Year	***$4,221,218***	***$0***	***$57,065***	***$0***	***$9,152***
Exterior Enclosure	**$1,201,997**	**$0**	**$0**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0
Exterior Windows	$1,201,997	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$0**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0
Specialties	$0	$0	$0	$0	$0
Interiors	**$0**	**$0**	**$0**	**$0**	**$0**
Ceiling Finishes	$0	$0	$0	$0	$0
Floor Finishes	$0	$0	$0	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Conveying	**$0**	**$0**	**$0**	**$0**	**$0**
Conveying Systems	$0	$0	$0	$0	$0
Plumbing	**$2,939,974**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$2,939,974	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$79,247**	**$0**	**$57,065**	**$0**	**$9,152**
Controls and Instrumentation	$0	$0	$0	$0	$0
Cooling Generation	$0	$0	$0	$0	$0
Distribution System	$24,335	$0	$57,065	$0	$0
Heat Generation	$0	$0	$0	$0	$0
Terminal & Package Units	$54,912	$0	$0	$0	$9,152
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0
Electrical	**$0**	**$0**	**$0**	**$0**	**$0**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$0**	**$0**	**$0**	**$0**
Food Service Equipment	$0	$0	$0	$0	$0

Table 25. Expired Systems 2024: Sudbury Schools – Loring Elementary School

Building	System Category	System	Priority	2024 Needs
Loring Elementary School	Electrical	Communications and Security	High	$1,083,066
Loring Elementary School	Electrical	Exit Signs and Emergency Lighting	High	$318,735
Loring Elementary School	Food Service Equipment	Food Service Equipment	Low	$9,152
Loring Elementary School	Food Service Equipment	Food Service Equipment	Low	$9,152
Loring Elementary School	HVAC	Distribution System	High	$3,554
Loring Elementary School	HVAC	Distribution System	High	$3,984
Loring Elementary School	Roofing	Roof Coverings	High	$1,226,446
			TOTAL	**$2,654,089**

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Site and Infrastructure Assessment Findings

Site General Condition

The following site conditions and/or deficiencies were observed during the assessment.

• The asphalt pavements were in poor condition and in need of resurfacing as longitudinal cracking, transverse cracking, and degradation were observed throughout the pavement.

Site Improvements

A site infrastructure condition assessment was included in the scope of work for this project. The site infrastructure assessment is a visual evaluation of the site systems. The teams walked each site to determine the general condition of the systems and categorized them as follows:

• Good condition

• Poor condition and in need of repair

• Poor condition and in need of replacement

Estimated quantities were calculated by digitizing marked-up Google Earth aerial photographs. Google Earth aerial photographs were used in lieu of site plans. The site assessment was performed, and the subsequent results grouped by location. Findings for each location were divided as follows:

• Pedestrian Pavements

• Vehicular Pavements

• Site Development

Please note that not all locations have all of the various infrastructure systems present. We determined unit pricing for the various deficiency requirements by referencing 2024 RS Means Building Construction Cost Data and Assembly Cost Data when available. Industry sources were used as a supplemental source for unit pricing when needed.

Table 26. Summary of 2024 Site and Infrastructure Deficiencies: Loring Elementary School

Asset Description	Corrective Action	Notes	Priority	Current Needs	Year
Vehicular Pavements	Resurface Asphalt Pavements	45000 SF	Low	$275,354	2024
			Total 2024 Needs	**$275,354**	

Figure 7. Site and Infrastructure Deficiencies Markup: Loring Elementary School

Site Infrastructure

The asphalt pavements were in poor condition and in need of resurfacing as longitudinal cracking, transverse cracking, and degradation were observed throughout the pavement.

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NIXON ELEMENTARY SCHOOL

Table 27: Facility Description: Sudbury Schools - Nixon Elementary School

Summary of Findings	
Construction Type	One-Story Structure
Roof Type	Asphalt Shingle and Single-ply Membrane
Ceiling Type	Suspended Acoustical Tile, Wood, and Painted
Lighting	LED
HVAC	Split-DX
Elevator	No
Fire Sprinkler	Yes
Fire Alarm	Yes

Name	Year Built	Area (SF)	Total Needs 2024	Current Replacement Value	2024 FCI %	Total Needs 2029	2029 FCI %
Nixon Elementary School	1959	56,000	$1,280,029	$47,600,000	3	$9,531,860	20
Site Information			$54,546			$54,546	
TOTAL			$1,334,575			$9,586,406	

General Observations:

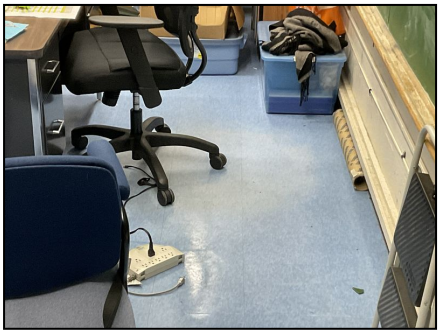
- It was reported that a major renovation of all systems was completed in 1995.
- It was reported that a portion of the single-ply membrane roof covering was replaced in 2013.
- The fire alarm and detection system was replaced in 2010.
- Some HVAC systems were noted to utilize R-22 refrigerant. R-22 refrigerant is no longer in production and is being phased out due to environmental concerns.

Electrical

The LED lighting was in good condition. The electrical branch wiring is within its recommended useful life. The service and distribution system was in good condition. The emergency and exit lighting is beyond its recommended useful life.

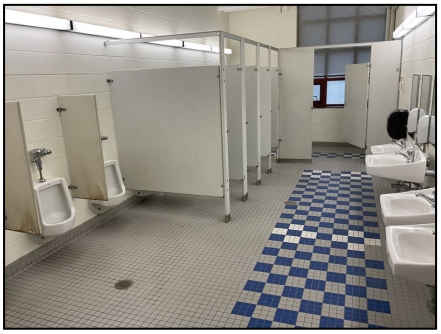
Exterior Enclosure

The metal and glazed doors were in good condition. The double-pane windows were in good condition; however, the single-pane windows were in fair condition due to observed rusted frames. The brick veneer and kalwall walls were in good condition. The asphalt shingle and a portion of the single-ply membrane roof covering was beyond its recommended useful life; however, a portion of single-ply membrane roof covering was within its recommended useful life.



Interiors

The carpet tile and ceramic tile floor finishes were in good condition; however, the vinyl tile floors were in fair condition due to observed deterioration. The painted wall finishes were in fair condition due to observed stains. The wood and painted ceiling finishes were in good condition; however, the suspended acoustical tile ceilings were in fair condition due to observed stains.



Plumbing

The manual porcelain and stainless-steel plumbing fixtures were in good condition. The domestic water distribution system is within its recommended useful life. The sanitary waste system is within its recommended useful life.

Table 28. Current and Forecasted Needs Summarized by System (Current + 5 years): Nixon Elementary School

System	2024	2025	2026	2027	2028	2029
Cumulative Needs by Year	***$1,334,575***	***$7,797,460***	***$7,797,460***	***$7,966,660***	***$7,966,660***	***$9,586,406***
Needs by Year	***$1,334,575***	***$6,462,885***	***$0***	***$169,200***	***$0***	***$1,619,746***
Exterior Enclosure	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0	$0
Exterior Windows	$0	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0	$0
Roofing	**$973,307**	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$973,307	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0	$0
Specialties	$0	$0	$0	$0	$0	$0
Interiors	**$0**	**$0**	**$0**	**$169,200**	**$0**	**$1,506,044**
Ceiling Finishes	$0	$0	$0	$0	$0	$143,821
Floor Finishes	$0	$0	$0	$0	$0	$1,362,224
Wall Finishes	$0	$0	$0	$169,200	$0	$0
Plumbing	**$0**	**$2,459,717**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$324,587	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$0	$0
Sanitary Waste	$0	$2,135,130	$0	$0	$0	$0
HVAC	**$75,368**	**$1,226,922**	**$0**	**$0**	**$0**	**$0**
Controls and Instrumentation	$0	$0	$0	$0	$0	$0
Cooling Generation	$0	$0	$0	$0	$0	$0
Distribution System	$75,368	$1,039,361	$0	$0	$0	$0
Heat Generation	$0	$169,257	$0	$0	$0	$0
Terminal & Package Units	$0	$18,304	$0	$0	$0	$0
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0	$0
Electrical	**$231,354**	**$2,776,245**	**$0**	**$0**	**$0**	**$0**
Branch Wiring	$0	$1,990,102	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0	$0
Communications and Security	$0	$786,143	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$231,354	$0	$0	$0	$0	$0
Site Infrastructure	**$54,546**	**$0**	**$0**	**$0**	**$0**	**$0**
Vehicular Pavements	$54,546	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$0**	**$0**	**$0**	**$0**	**$113,702**
Food Service Equipment	$0	$0	$0	$0	$0	$113,702

Table 29. Current and Forecasted Needs Summarized by System (Years 6 - 10): Nixon Elementary School

System	2030	2031	2032	2033	2034
Cumulative Needs by Year	***$9,761,065***	***$9,761,065***	***$10,005,226***	***$10,938,574***	***$14,699,840***
Needs by Year	***$174,659***	***$0***	***$244,161***	***$933,348***	***$3,761,266***
Exterior Enclosure	**$0**	**$0**	**$0**	**$0**	**$476,520**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0
Exterior Windows	$0	$0	$0	$0	$476,520
Exterior Doors	$0	$0	$0	$0	$0
Roofing	**$0**	**$0**	**$0**	**$909,014**	**$0**
Roof Coverings	$0	$0	$0	$909,014	$0
Interior Construction	**$0**	**$0**	**$108,162**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0
Specialties	$0	$0	$108,162	$0	$0
Interiors	**$45,236**	**$0**	**$68,164**	**$0**	**$0**
Ceiling Finishes	$45,236	$0	$0	$0	$0
Floor Finishes	$0	$0	$68,164	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$43,287**	**$0**	**$14,428**	**$0**	**$890,360**
Controls and Instrumentation	$0	$0	$0	$0	$831,032
Cooling Generation	$0	$0	$14,428	$0	$0
Distribution System	$43,287	$0	$0	$0	$9,692
Heat Generation	$0	$0	$0	$0	$0
Terminal & Package Units	$0	$0	$0	$0	$49,636
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0
Electrical	**$0**	**$0**	**$0**	**$0**	**$2,373,389**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$2,373,389
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$86,136**	**$0**	**$53,407**	**$24,334**	**$20,996**
Food Service Equipment	$86,136	$0	$53,407	$24,334	$20,996

Table 30. Current and Forecasted Needs Summarized by System (Years 11 - 15): Nixon Elementary School

System	2035	2036	2037	2038	2039
Cumulative Needs by Year	***$15,929,711***	***$17,191,521***	***$17,191,521***	***$17,196,905***	***$20,753,645***
Needs by Year	***$1,229,871***	***$1,261,811***	***$0***	***$5,384***	***$3,556,740***
Exterior Enclosure	**$0**	**$609,467**	**$0**	**$0**	**$1,286,366**
Exterior Walls (Finishes)	$0	$462,850	$0	$0	$165,623
Exterior Windows	$0	$0	$0	$0	$1,120,743
Exterior Doors	$0	$146,617	$0	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$541,888**	**$0**	**$0**	**$0**
Interior Doors	$0	$541,888	$0	$0	$0
Specialties	$0	$0	$0	$0	$0
Interiors	**$0**	**$102,488**	**$0**	**$0**	**$136,395**
Ceiling Finishes	$0	$0	$0	$0	$136,395
Floor Finishes	$0	$102,488	$0	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$2,133,979**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$2,133,979
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$28,213**	**$7,968**	**$0**	**$5,384**	**$0**
Controls and Instrumentation	$0	$0	$0	$0	$0
Cooling Generation	$0	$0	$0	$5,384	$0
Distribution System	$28,213	$7,968	$0	$0	$0
Heat Generation	$0	$0	$0	$0	$0
Terminal & Package Units	$0	$0	$0	$0	$0
Fire Protection	**$1,201,658**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$1,201,658	$0	$0	$0	$0
Electrical	**$0**	**$0**	**$0**	**$0**	**$0**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$0**	**$0**	**$0**	**$0**
Food Service Equipment	$0	$0	$0	$0	$0

Table 31. Current and Forecasted Needs Summarized by System (Years 16-20): Nixon Elementary School

System	2040	2041	2042	2043	2044
Cumulative Needs by Year	***$20,758,491***	***$20,758,491***	***$20,758,491***	***$20,767,321***	***$20,767,321***
Needs by Year	***$4,846***	***$0***	***$0***	***$8,830***	***$0***
Exterior Enclosure	**$0**	**$0**	**$0**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0
Exterior Windows	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$0**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0
Specialties	$0	$0	$0	$0	$0
Interiors	**$0**	**$0**	**$0**	**$0**	**$0**
Ceiling Finishes	$0	$0	$0	$0	$0
Floor Finishes	$0	$0	$0	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$4,846**	**$0**	**$0**	**$8,830**	**$0**
Controls and Instrumentation	$0	$0	$0	$0	$0
Cooling Generation	$0	$0	$0	$0	$0
Distribution System	$4,846	$0	$0	$8,830	$0
Heat Generation	$0	$0	$0	$0	$0
Terminal & Package Units	$0	$0	$0	$0	$0
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0
Electrical	**$0**	**$0**	**$0**	**$0**	**$0**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Vehicular Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$0**	**$0**	**$0**	**$0**
Food Service Equipment	$0	$0	$0	$0	$0

Table 32. Expired Systems 2024: Sudbury Schools – Nixon Elementary School

Building	System Category	System	Priority	2024 Needs
Nixon Elementary School	Electrical	Exit Signs and Emergency Lighting	High	$231,354
Nixon Elementary School	HVAC	Distribution System	High	$75,368
Nixon Elementary School	Roofing	Roof Coverings	High	$64,293
Nixon Elementary School	Roofing	Roof Coverings	High	$909,014
			TOTAL	**$1,280,029**

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Site and Infrastructure Assessment Findings

Site General Condition

The following site conditions and/or deficiencies were observed during the assessment.

• A portion of the asphalt pavements were in poor condition and in need of resealing as longitudinal and transverse cracking were observed throughout the pavement.

Site Improvements

A site infrastructure condition assessment was included in the scope of work for this project. The site infrastructure assessment is a visual evaluation of the site systems. The teams walked each site to determine the general condition of the systems and categorized them as follows:

• Good condition

• Poor condition and in need of repair

• Poor condition and in need of replacement

Estimated quantities were calculated by digitizing marked-up Google Earth aerial photographs. Google Earth aerial photographs were used in lieu of site plans. The site assessment was performed, and the subsequent results grouped by location. Findings for each location were divided as follows:

• Pedestrian Pavements

• Vehicular Pavements

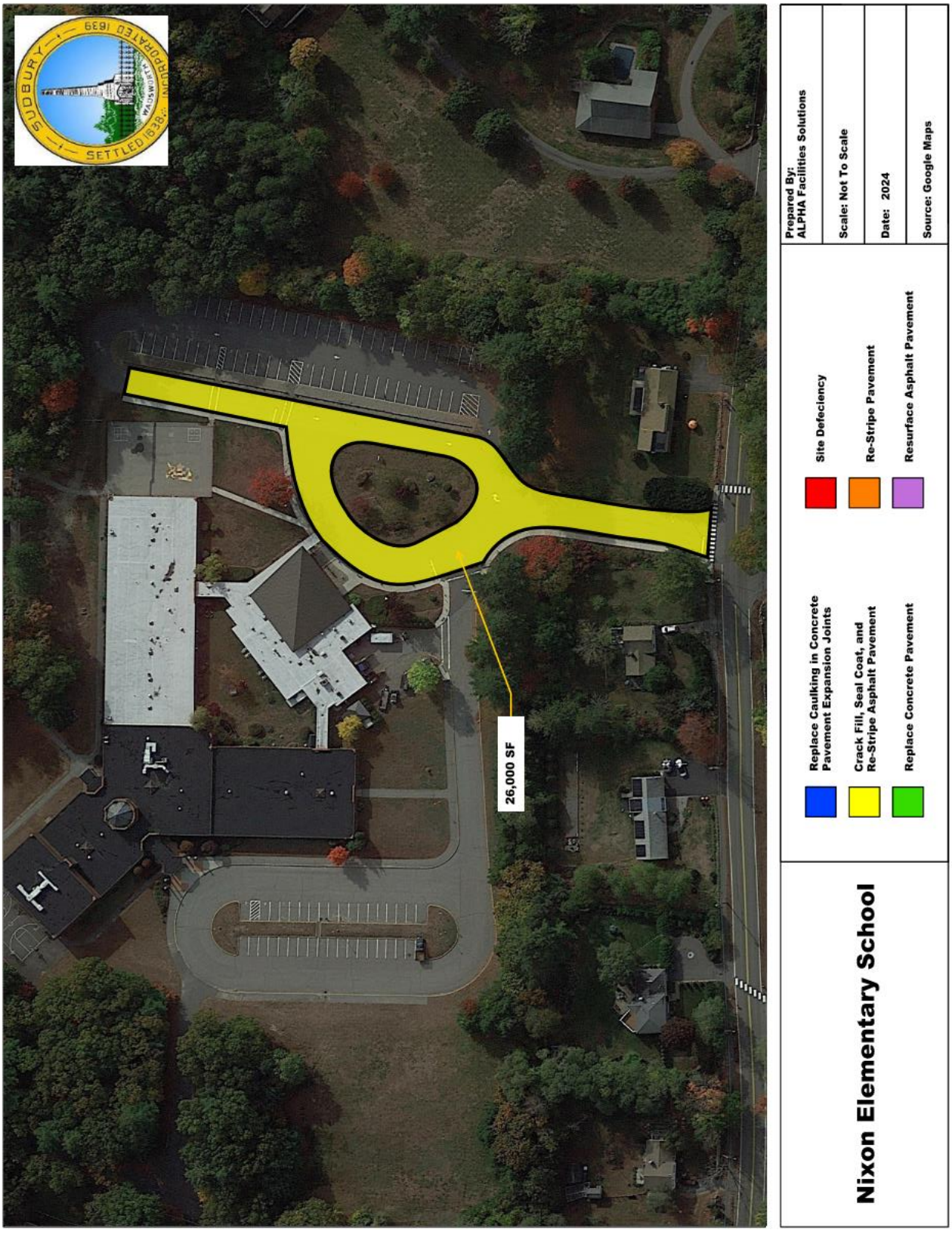
• Site Development

Please note that not all locations have all of the various infrastructure systems present. We determined unit pricing for the various deficiency requirements by referencing 2024 RS Means Building Construction Cost Data and Assembly Cost Data when available. Industry sources were used as a supplemental source for unit pricing when needed.

Table 33. Summary of 2024 Site and Infrastructure Deficiencies: Nixon Elementary School

Asset Description	Corrective Action	Notes	Priority	Current Needs	Year
Vehicular Pavements	Crack Fill, Seal Coat, and Restripe Asphalt Pavements	26000 SF	Low	$54,546	2024
			Total 2024 Needs	**$54,546**	

Figure 8. Site and Infrastructure Deficiencies Markup: Nixon Elementary School



Site Infrastructure

A portion of the asphalt pavements were in poor condition and in need of resealing as longitudinal and transverse cracking were observed throughout the pavement.

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PETER NOYES ELEMENTARY SCHOOL

Table 34: Facility Description: Sudbury Schools - Peter Noyes Elementary School

Summary of Findings	
Construction Type	Two-Story Structure with Basement
Roof Type	Single-ply Membrane
Ceiling Type	Suspended Acoustical Tile
Lighting	LED
HVAC	Packaged Units and Split-Dx
Elevator	Yes
Fire Sprinkler	Yes
Fire Alarm	Yes

Name	Year Built	Area (SF)	Total Needs 2024	Current Replacement Value	2024 FCI %	Total Needs 2029	2029 FCI %
Peter Noyes Elementary School	1950	83,450	$8,116,954	$70,932,500	11	$10,450,054	15
Site Information			$96,155			$96,155	
TOTAL			$8,213,109			$10,546,209	

General Observations:

- It was reported that the single-ply membrane roof covering was replaced in 2011.
- It was reported that all exterior doors and windows were replaced in 2011.
- It was reported that the sprinkler and standpipe system was installed in 1998 only servicing the admin wing to art room and kindergarten classrooms.
- It was reported that the fire alarm and detection system was replaced in 2021.
- The HVAC piping and ductwork system is beyond its recommended useful life.
- The casework was in fair condition due to observed damage.

Electrical

The LED lighting was in good condition. The electrical branch wiring is beyond its recommended useful life. The service and distribution system was in good condition. The emergency and exit lighting is beyond its recommended useful life.

Exterior Enclosure

The metal doors were in good condition. The double-pane windows were in good condition. The stone face veneer, brick veneer and kalwall walls were in good condition. The single-ply membrane roof covering was within its recommended useful life.

Interiors

The carpet and hardwood floor finishes were in good condition; however, the vinyl tile and ceramic tile floors were in fair condition due to observed deterioration. The painted wall finishes were in fair condition due to observed stains. The suspended acoustical tile ceiling finishes were in fair condition due to observed stains.

Plumbing

The manual porcelain and stainless-steel plumbing fixtures were in fair condition due to observed mineral build-up. The domestic water distribution system is beyond its recommended useful life. The sanitary waste system is beyond its recommended useful life.

Table 35. Current and Forecasted Needs Summarized by System (Current + 5 years): Peter Noyes Elementary School

System	2024	2025	2026	2027	2028	2029
Cumulative Needs by Year	***$8,213,109***	***$8,213,109***	***$8,213,109***	***$8,465,247***	***$8,465,247***	***$10,546,209***
Needs by Year	***$8,213,109***	***$0***	***$0***	***$252,138***	***$0***	***$2,080,962***
Exterior Enclosure	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0	$0
Exterior Windows	$0	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0	$0
Interior Construction	**$75,469**	**$0**	**$0**	**$0**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0	$0
Specialties	$75,469	$0	$0	$0	$0	$0
Interiors	**$0**	**$0**	**$0**	**$252,138**	**$0**	**$1,917,196**
Ceiling Finishes	$0	$0	$0	$0	$0	$0
Floor Finishes	$0	$0	$0	$0	$0	$1,917,196
Wall Finishes	$0	$0	$0	$252,138	$0	$0
Conveying	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Conveying Systems	$0	$0	$0	$0	$0	$0
Plumbing	**$3,665,415**	**$0**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$483,691	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$0	$0
Sanitary Waste	$3,181,724	$0	$0	$0	$0	$0
HVAC	**$1,065,703**	**$0**	**$0**	**$0**	**$0**	**$0**
Controls and Instrumentation	$0	$0	$0	$0	$0	$0
Cooling Generation	$0	$0	$0	$0	$0	$0
Distribution System	$1,065,703	$0	$0	$0	$0	$0
Heat Generation	$0	$0	$0	$0	$0	$0
Terminal & Package Units	$0	$0	$0	$0	$0	$0
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0	$0
Electrical	**$3,310,366**	**$0**	**$0**	**$0**	**$0**	**$0**
Branch Wiring	$2,965,607	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0	$0
Service Distribution	$0	$0	$0	$0	$0	$0
Communications and Security	$0	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$344,759	$0	$0	$0	$0	$0
Site Infrastructure	**$96,155**	**$0**	**$0**	**$0**	**$0**	**$0**
Pedestrian Pavements	$96,155	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$0**	**$0**	**$0**	**$0**	**$163,766**
Food Service Equipment	$0	$0	$0	$0	$0	$163,766

Table 36. Current and Forecasted Needs Summarized by System (Years 6 - 10): Peter Noyes Elementary School

System	2030	2031	2032	2033	2034
Cumulative Needs by Year	***$12,235,687***	***$13,793,994***	***$14,475,104***	***$17,716,594***	***$22,506,290***
Needs by Year	***$1,689,478***	***$1,558,308***	***$681,109***	***$3,241,491***	***$4,789,696***
Exterior Enclosure	**$0**	**$0**	**$0**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0
Exterior Windows	$0	$0	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0
Roofing	**$0**	**$1,558,308**	**$0**	**$0**	**$0**
Roof Coverings	$0	$1,558,308	$0	$0	$0
Interior Construction	**$0**	**$0**	**$136,704**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0
Specialties	$0	$0	$136,704	$0	$0
Interiors	**$1,348,160**	**$0**	**$204,273**	**$0**	**$0**
Ceiling Finishes	$1,348,160	$0	$0	$0	$0
Floor Finishes	$0	$0	$204,273	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Conveying	**$0**	**$0**	**$206,401**	**$0**	**$0**
Conveying Systems	$0	$0	$206,401	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$3,180,010**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$3,180,010	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$225,250**	**$0**	**$57,928**	**$13,028**	**$1,243,232**
Controls and Instrumentation	$0	$0	$0	$0	$1,238,386
Cooling Generation	$0	$0	$57,928	$0	$0
Distribution System	$225,250	$0	$0	$0	$4,846
Heat Generation	$0	$0	$0	$0	$0
Terminal & Package Units	$0	$0	$0	$13,028	$0
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0
Electrical	**$29,932**	**$0**	**$0**	**$0**	**$3,536,773**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$3,536,773
Service Distribution	$0	$0	$0	$0	$0
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$29,932	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Pedestrian Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$86,136**	**$0**	**$75,803**	**$48,453**	**$9,691**
Food Service Equipment	$86,136	$0	$75,803	$48,453	$9,691

Table 37. Current and Forecasted Needs Summarized by System (Years 11 - 15): Peter Noyes Elementary School

System	2035	2036	2037	2038	2039
Cumulative Needs by Year	***$22,754,793***	***$25,680,561***	***$25,680,561***	***$25,680,561***	***$25,997,040***
Needs by Year	***$248,503***	***$2,925,768***	***$0***	***$0***	***$316,479***
Exterior Enclosure	**$0**	**$766,405**	**$0**	**$0**	**$299,681**
Exterior Walls (Finishes)	$0	$579,446	$0	$0	$299,681
Exterior Windows	$0	$0	$0	$0	$0
Exterior Doors	$0	$186,959	$0	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$617,477**	**$0**	**$0**	**$0**
Interior Doors	$0	$617,477	$0	$0	$0
Specialties	$0	$0	$0	$0	$0
Interiors	**$0**	**$354,456**	**$0**	**$0**	**$0**
Ceiling Finishes	$0	$0	$0	$0	$0
Floor Finishes	$0	$354,456	$0	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Conveying	**$0**	**$0**	**$0**	**$0**	**$0**
Conveying Systems	$0	$0	$0	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$173,135**	**$15,936**	**$0**	**$0**	**$16,798**
Controls and Instrumentation	$0	$0	$0	$0	$0
Cooling Generation	$0	$5,384	$0	$0	$0
Distribution System	$173,135	$10,552	$0	$0	$16,798
Heat Generation	$0	$0	$0	$0	$0
Terminal & Package Units	$0	$0	$0	$0	$0
Fire Protection	**$0**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$0	$0	$0	$0	$0
Electrical	**$0**	**$1,171,493**	**$0**	**$0**	**$0**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0
Service Distribution	$0	$0	$0	$0	$0
Communications and Security	$0	$1,171,493	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Pedestrian Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$75,368**	**$0**	**$0**	**$0**	**$0**
Food Service Equipment	$75,368	$0	$0	$0	$0

Table 38. Current and Forecasted Needs Summarized by System (Years 16-20): Peter Noyes Elementary School

System	2040	2041	2042	2043	2044
Cumulative Needs by Year	***$26,285,718***	***$27,428,008***	***$27,428,008***	***$27,439,962***	***$28,285,283***
Needs by Year	***$288,678***	***$1,142,290***	***$0***	***$11,954***	***$845,321***
Exterior Enclosure	**$0**	**$881,621**	**$0**	**$0**	**$0**
Exterior Walls (Finishes)	$0	$0	$0	$0	$0
Exterior Windows	$0	$881,621	$0	$0	$0
Exterior Doors	$0	$0	$0	$0	$0
Roofing	**$0**	**$0**	**$0**	**$0**	**$0**
Roof Coverings	$0	$0	$0	$0	$0
Interior Construction	**$0**	**$0**	**$0**	**$0**	**$0**
Interior Doors	$0	$0	$0	$0	$0
Specialties	$0	$0	$0	$0	$0
Interiors	**$0**	**$0**	**$0**	**$0**	**$0**
Ceiling Finishes	$0	$0	$0	$0	$0
Floor Finishes	$0	$0	$0	$0	$0
Wall Finishes	$0	$0	$0	$0	$0
Conveying	**$0**	**$0**	**$0**	**$0**	**$0**
Conveying Systems	$0	$0	$0	$0	$0
Plumbing	**$0**	**$0**	**$0**	**$0**	**$0**
Domestic Water Distribution	$0	$0	$0	$0	$0
Plumbing Fixtures	$0	$0	$0	$0	$0
Sanitary Waste	$0	$0	$0	$0	$0
HVAC	**$109,608**	**$260,669**	**$0**	**$11,954**	**$34,024**
Controls and Instrumentation	$0	$0	$0	$0	$0
Cooling Generation	$0	$0	$0	$0	$0
Distribution System	$0	$33,810	$0	$11,954	$34,024
Heat Generation	$0	$217,707	$0	$0	$0
Terminal & Package Units	$109,608	$9,152	$0	$0	$0
Fire Protection	**$179,070**	**$0**	**$0**	**$0**	**$0**
Sprinklers & Standpipe	$179,070	$0	$0	$0	$0
Electrical	**$0**	**$0**	**$0**	**$0**	**$811,297**
Branch Wiring	$0	$0	$0	$0	$0
Lighting	$0	$0	$0	$0	$0
Service Distribution	$0	$0	$0	$0	$811,297
Communications and Security	$0	$0	$0	$0	$0
Exit Signs and Emergency Lighting	$0	$0	$0	$0	$0
Site Infrastructure	**$0**	**$0**	**$0**	**$0**	**$0**
Pedestrian Pavements	$0	$0	$0	$0	$0
Food Service Equipment	**$0**	**$0**	**$0**	**$0**	**$0**
Food Service Equipment	$0	$0	$0	$0	$0

Table 39. Expired Systems 2024: Sudbury Schools – Peter Noyes Elementary School

Building	System Category	System	Priority	2024 Needs
Peter Noyes Elementary School	Electrical	Branch Wiring	High	$2,965,607
Peter Noyes Elementary School	Electrical	Exit Signs and Emergency Lighting	High	$344,759
Peter Noyes Elementary School	HVAC	Distribution System	High	$3,984
Peter Noyes Elementary School	HVAC	Distribution System	High	$1,061,719
Peter Noyes Elementary School	Interior Construction	Specialties	Low	$75,469
Peter Noyes Elementary School	Plumbing	Domestic Water Distribution	Medium	$483,691
Peter Noyes Elementary School	Plumbing	Sanitary Waste	Medium	$3,181,724
			TOTAL	**$8,116,954**

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Site and Infrastructure Assessment Findings

Site General Condition

The following site conditions and/or deficiencies were observed during the assessment.

• A portion of the concrete sidewalks were in poor condition and in need of replacement as multiple areas of broken, damaged, and/or heaving pavement were observed.

Site Improvements

A site infrastructure condition assessment was included in the scope of work for this project. The site infrastructure assessment is a visual evaluation of the site systems. The teams walked each site to determine the general condition of the systems and categorized them as follows:

• Good condition

• Poor condition and in need of repair

• Poor condition and in need of replacement

Estimated quantities were calculated by digitizing marked-up Google Earth aerial photographs. Google Earth aerial photographs were used in lieu of site plans. The site assessment was performed, and the subsequent results grouped by location. Findings for each location were divided as follows:

• Pedestrian Pavements

• Vehicular Pavements

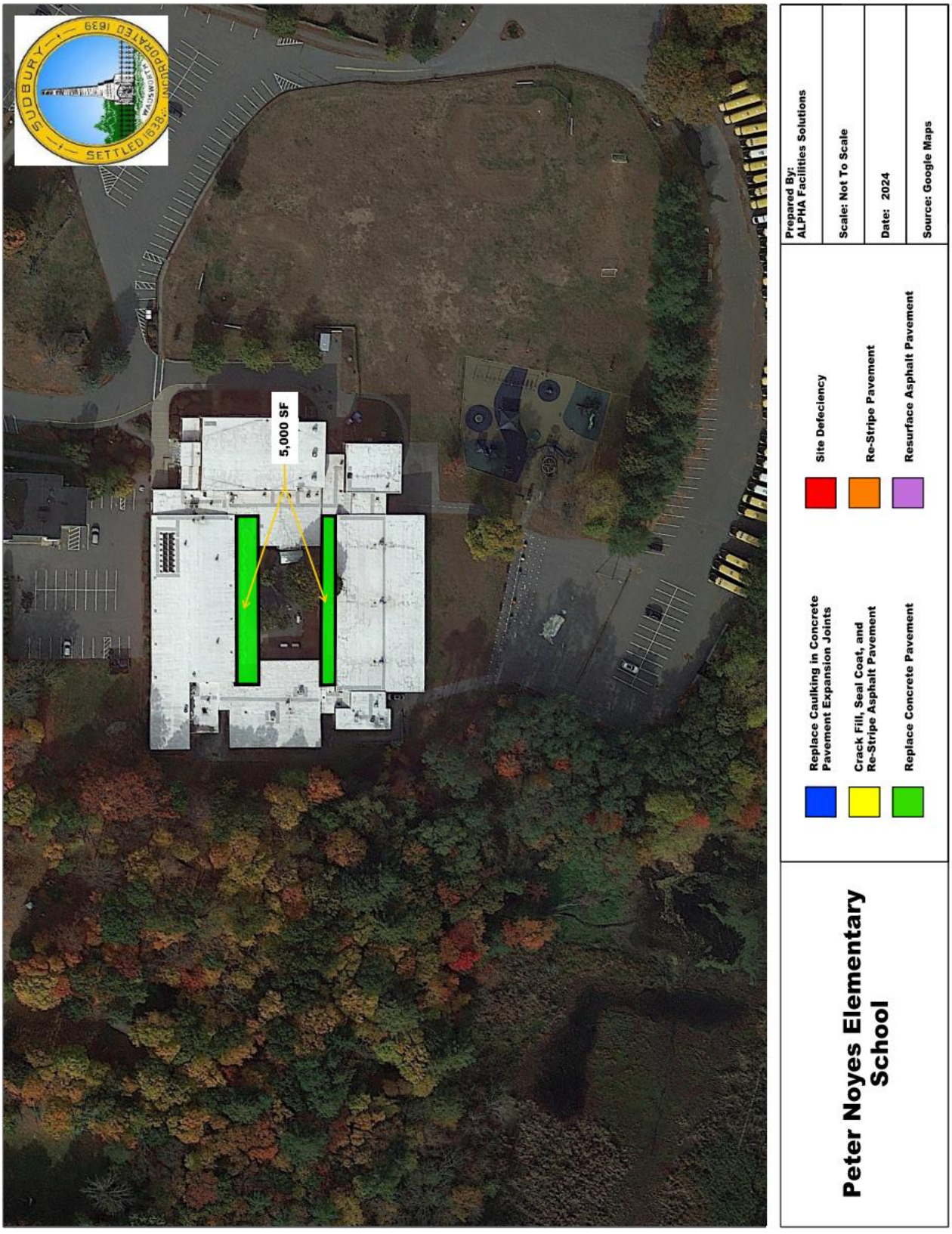
• Site Development

Please note that not all locations have all of the various infrastructure systems present. We determined unit pricing for the various deficiency requirements by referencing 2024 RS Means Building Construction Cost Data and Assembly Cost Data when available. Industry sources were used as a supplemental source for unit pricing when needed.

Table 40. Summary of 2024 Site and Infrastructure Deficiencies: Peter Noyes Elementary School

Asset Description	Corrective Action	Notes	Priority	Current Needs	Year
Pedestrian Pavements	Replace Concrete Pavements; 4” Thick	5000 SF	Low	$96,155	2024
			Total 2024 Needs	**$96,155**	

Figure 9. Site and Infrastructure Deficiencies Markup: Peter Noyes Elementary School



Site Infrastructure

A portion of the concrete sidewalks were in poor condition and in need of replacement as multiple areas of broken, damaged, and/or heaving pavement were observed.

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APPENDICES

APPENDICES

Appendix A -Typical System Lifecycles

System and component life cycles used in the cost models for this project were based on average service life as shown in the *Preventive Maintenance Guidebook: Best Practices to Maintain Efficient and Sustainable Buildings* published by Building Owners and Managers Association (BOMA) International. When life cycle information is not provided by BOMA, life cycles have been assigned using ALPHA's professional judgment.

Table 41. Typical Life Cycles

System	Lifecycle (Years)
Roofing	
Built-up	25
Composition Shingle	20
Metal Panels	25
Modified Bitumen	20
Standing Seam Metal	35
Building Exterior	
Exterior Doors	25
Exterior Walls (Finishes)	10-30
Exterior Windows	30
Interior Finishes	
Interior Doors	25
Ceiling (Acoustical Tile and Grids)	20
Ceiling (Painted)	10
Walls	10
Floors	15
Built-in Equip/Specialties	
Built-in Equip/Specialties	20
Conveying Systems	
Elevators	35
Chair Lifts	15
Plumbing	

System	Lifecycle (Years)
Plumbing Fixtures	30
Domestic Water Distribution	30
Sanitary Waste	30
Fire Protection	
Fire Sprinklers and Standpipe (Piping and Risers)	40
Fire Detection (Activation Devices)	10
Fire Detection (Notification Devices and	15
Fire Detection (Wiring)	30
HVAC	
Cooling Generating	25
Controls	20
Distribution	30
Heat Generating	30
Terminal and Package Units	15
Electrical	
Branch Wiring	30
Lighting	20
Service and Distribution	40
Generators	20
Equipment	
Institutional Equipment	25
Other Equipment	15-25

Capital Planning v. Budgeting

While traditional budgets may be perceived as reacting to short-term needs based on the historical performance of facilities and systems, a capital plan anticipates both short- and long-term degradation by employing a facility condition assessment and predictive cost modeling.

- **Budgeting:** Traditional, cost-based, budgeting practices describe a system by which a prior period's budget is adjusted to provide for the fluctuating cost of maintaining facilities. Traditional budgeting issues may include: 1) anticipated needs; 2) organizational growth; 3) the acquisition of new assets; 4) operations and maintenance; 5) deferred maintenance; and, 6) insurance.
- **Capital Planning:** Capital planning differs from budgeting in that it considers a broader range of financial considerations over an extended timeline so as to more effectively predict and manage the fiscal needs of a real estate portfolio. Financial considerations may include the cost of capital, depreciation, organizational risk and return on investment (ROI). Similar in concept to the accounting principle of anticipating the capital depreciation of plant value, a capital renewal plan anticipates and attempts to counteract the ongoing deterioration of facility systems and components in order to extend a facility's life and value.

Facility Condition Index

A Facility Condition Index is considered to be a key building performance metric. As part of the FCA process, a facility condition index (FCI) is calculated for each facility. The FCI is used to quantify a facility's physical condition at a specific point in time and is calculated using the expired system replacement costs (costs associated with systems that are beyond average service life) and the current replacement value (CRV) of the building. Expired system replacement costs consist of work that is necessary to restore the facility to a condition equivalent to its original (like new) state.

Example: Total expired system replacement costs (Requirements) = $3,000,000

Current Replacement Value (CRV) = $10,000,000

$$FCI = \frac{\$3{,}000{,}000}{\$10{,}000{,}000} = .30$$

Present Value and Nominal Value

In the calculation of FCI sums, monetary values can be discounted to incorporate the time value of money, or be expressed in constant terms, ignoring the effects of inflation and interest. Because the cost of capital can vary significantly according to time, portfolio types, and project programs, all monetary terms in this report are expressed as nominal values.

- **Nominal Value:** Expresses monetary values, without adjusting for inflation or interest (also known as face value or par value).
- **Present Value:** The current worth of a future sum of money or stream of cash flows given a specified rate of return. Future cash flows can be discounted at a client specified discount rate to reflect the owner's internal cost of capital.

Hard and Soft Costs

Unless otherwise stated, the costs indicated in this report represent hard costs only. Because soft costs vary regionally and periodically, provisions for soft cost expenses should be considered in addition to the hard costs indicated. For the purpose of this report, Hard and Soft costs are defined as follows:

- **Hard costs:** Direct costs incurred in relation to a specific construction project. Hard cost may include labor, materials, equipment, etc.
- **Soft cost:** Indirect costs incurred in addition to the direct construction cost. Soft costs may include professional services, financing, taxes, etc.

Building Systems

A building system describes a mechanism, or group of mechanisms that perform a given role to maintain the functionality of a facility. Examples of building systems may include roofing, plumbing or heating, ventilation and air conditioning (HVAC) systems.

Per the Uniformat classification standard, building systems have been grouped as follows:

- Foundations
- Superstructure
- Exterior Enclosure
- Roofing
- Interior Construction
- Interior Finishes
- Conveying Systems
- Plumbing
- HVAC
- Fire Protection
- Electrical

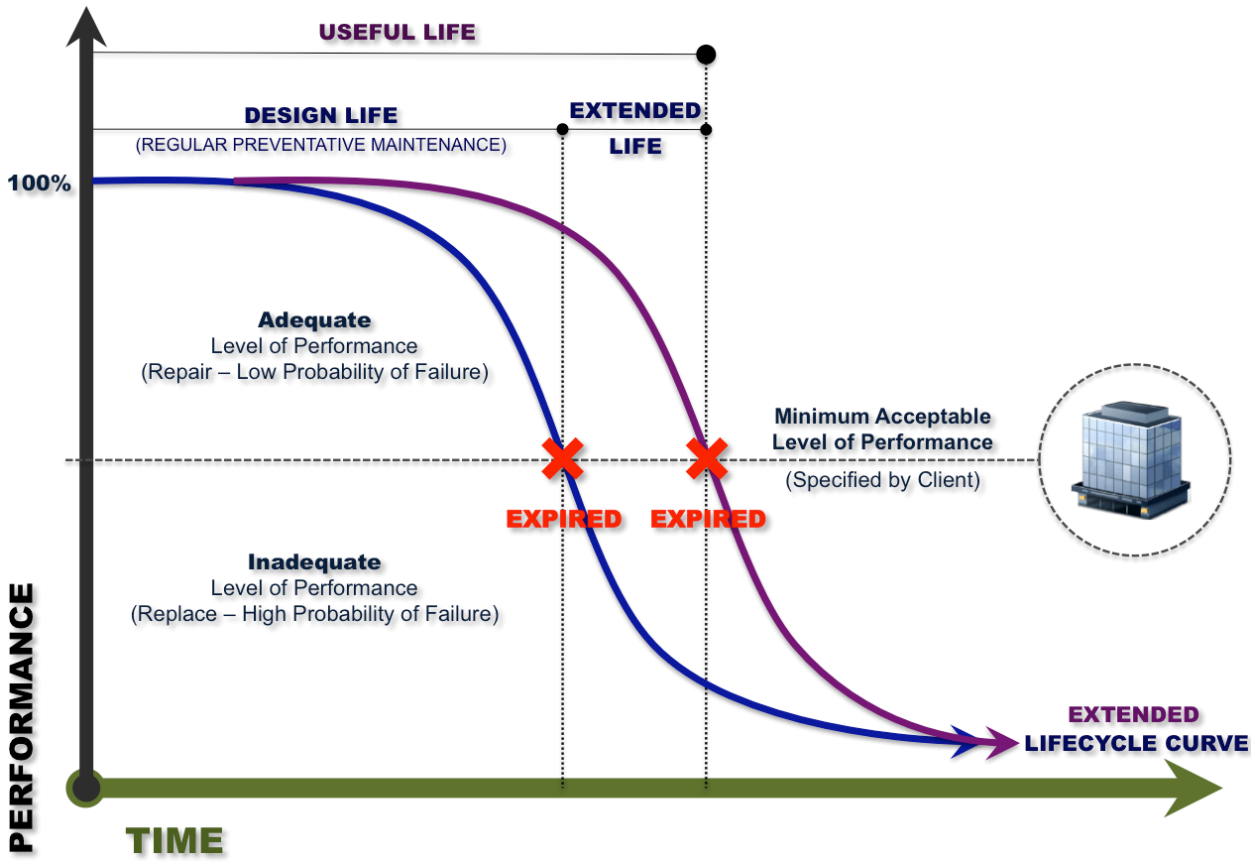
System States

The design life of a building system or component describes the duration for which a system is expected to perform within normal operational parameters. The design life may be shortened for a variety of reasons including, neglect or inadequate maintenance or extended as a result of robust preventative / predictive maintenance. This extended or shortened design life is defined as a system's useful life, and quantifies the duration for which a system, or component, operates within a minimally accepted level of performance.

As illustrated in the figure below, a facility condition analysis will make an appraisal of systems and components and recommend one of a series of actions necessary to ensure the continued functionality of a facility:

- **Missing:** A system or component may be deemed missing if the element absent, but is required for the operation of a facility (Example: ADA requirements for accessible ramps).
- **Extended:** The life cycle of a system or component may be extended beyond its anticipated design life, if the element is deemed to be performing adequately.
- **Expired:** A system or component may be recommended for replacement (at any time) if the element is deemed to be performing inadequately.

Figure 10. System or Component Life Cycle Curve



System Actions

A deficiency describes a condition in which there exists the need to repair an item that is damaged, missing, inadequate or insufficient for an intended purpose. Deficiencies are typically associated with underperforming systems or components, and describe activities that are required to extend their useful life.

- **Repair:** Describes a condition in which it is recommended that the building system or component be serviced to provide additional useful life. Repairs are curative in nature, while maintenance by contrast is preventative.
- **Replace:** Describes a condition in which it is recommended that the building system or component be removed and replaced with a new system or component. Replacement needs may vary according to building type, region, use, and maintenance management.

Multiple building systems are considered “non-renewable” because the replacement of those systems would typically be so costly as to require the replacement of the entire facility (Example: Foundations). Accordingly, there are no deficiencies or costs associated to non-renewable system.

Additionally, per client preferences, many aspects of the built environment may not be part of the scope of a facility condition analysis.

Cost Models

Cost estimation models are parametric equations used to predict the costs or the life cycle of a building system or component. The projections of the cost models are factored into capital plans, budgeting tools and other financial planning mechanisms. The rough order of magnitude cost estimates contained in this report are based on the cost models available within the client's database platform.

It is important to note that there are a variety of cost model equations employed in the building industry and it is not uncommon for prices derived from the client's database platform to vary from external references. If required, adjustments can typically be made to the facility condition data in order to facilitate comparison with external cost models, better reflect local conditions or perform sensitivity analyses.

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Appendix C - Glossary

ACBM: Asbestos-containing Building Material

ADA: Americans with Disabilities Act

AHERA: Asbestos Hazard Emergency Response Act

ALPHA: ALPHA Facilities Solutions, LLC

Alterations: Work performed to change the interior arrangements or other physical characteristics of an existing facility or fixed equipment so that it can be used more effectively for its current designated purpose or adapted to a new use.

ASHRAE: American Society of Heating, Refrigerating and Air Conditioning Engineers

ASTM: American Society for Testing and Materials

BOMA: Building Owners and Managers Association

Budgeting: A system by which a prior period's estimate of income and expenditure is adjusted to account for operational realities in order to provide for the cost of maintaining facilities. Traditional budgeting issues may include anticipated needs, organizational growth, the acquisition of new assets, operations and maintenance, deferred maintenance and insurance.

Building: An enclosed and roofed structure that can be traversed without exiting to the exterior.

Building Addition: An area, space or component of a building added to the existing structure, after the original building's year built date.

Capital Renewal: The planned replacement of building subsystems such as roofs, electrical systems, HVAC systems, and plumbing systems that have reached the end of their useful lives. Without significant reinvestment in building subsystems, older facilities will fall into a state of deteriorating condition and functionality, and the repair and maintenance costs will increase (International Facilities Management Association).

Calculated Next Renewal: The year a system or element would be expected to expire, based solely on the date it was installed and the expected service life of the system.

Condition: Condition refers to the state of physical fitness or readiness of a facility, system or systemic element for its intended use.

Cost Model: Parametric equations used to quantify the condition of building systems and estimate the cost necessary to sustain a facility over a given set of reporting periods. These estimated costs can be presented over a timeline to represent a capital renewal schedule.

Current Replacement Value (CRV): CRV is a standard industry cost estimate of materials, supplies and labor required to replace facility at existing size and functional capability. Please note that the terms Plant Replacement Value and Current Replacement Value have the same meaning in the context of determining Facility Condition Index.

Deficiency: A deficiency describes a condition in which there exists the need to repair a building system or component that is damaged, missing, inadequate or insufficient for an intended purpose.

Element: Elements are the major components that comprise building systems.

Facility: A facility refers to site(s), building(s), or building addition(s) or combinations thereof that provide a particular service or support of an educational purpose.

Facility Condition Assessment (FCA): The process of performing a physical evaluation of the condition of a facility and its systems. The findings of this analysis may be used in conjunction with cost models to estimate the current and future funding streams necessary to maintain a real estate portfolio.

Facility Condition Index (FCI): FCI is an industry-standard measurement of a facility's condition that is the ratio of the cost to correct a facility's deficiencies to the Current Replacement Value of the facilities – the higher the FCI, the poorer the condition of the facility. After an FCI is established for all buildings within a portfolio, a building's condition can be ranked relative to other buildings. The FCI may also represent the condition of a portfolio based on the cumulative FCIs of the portfolio's facilities.

Gross Square Feet (GSF): The size of the enclosed floor space of a building in square feet, measured to the outside face of the enclosing walls.

Hard Costs: Direct costs incurred in relation to a specific construction project. Hard costs may include labor, materials, equipment, etc.

Heating, Ventilation and Air Conditioning (HVAC): A term used to describe building systems responsible for maintaining the temperature, humidity and air quality control.

IFMA: International Facilities Management Association.

Indoor Air Quality (IAQ): A metric used to quantify the air quality within and around buildings and structures, especially as it relates to the health and comfort of building occupants.

Install Year: The year a building or system was built or the most recent major renovation date (where a minimum of 70% of the system's Current Replacement Value (CRV) was replaced).

Inflation: The trend of increasing prices from one year to the next, representing the rate at which the real value of an investment is eroded and the loss in spending power over time.

Interest: The charge for the privilege of borrowing money, typically expressed as an annual percentage rate and commonly calculated using simple or compound interest calculation.

Life Cycle: The period of time that a building, system or element can be expected to adequately serve its intended function.

Maintenance: Work necessary to realize the originally anticipated life of a fixed asset, including buildings, fixed equipment and infrastructure. Maintenance is preventative, whereas repairs are curative.

Mechanical, Electrical and Plumbing (MEP): A term used to describe building systems related to the provision of HVAC, electric and plumbing services to a facility.

Needs: In the context of this report, needs are the backlog of capital renewal requirements.

Next Renewal: The assessor adjusted expected useful life of a system or element as a result of on-site inspection.

Nominal Value: A value expressed in monetary terms for a specific year or years, without adjusting for inflation – also known as face value or par value.

Operations: Activities related to normal performance of the functions for which a building is used (e.g., utilities, janitorial services, waste treatment).

O&M: Operations and Maintenance

Parametric Cost Modeling: Parametric statistics is a branch of statistics that assumes that the data has come from a type of probability distribution and makes inferences about the parameters of the distribution.

Plant Replacement Value (PRV): PRV represents the cost to design and construct a notional facility to current standards to replace an existing facility at the same location. Please note that the terms Plant Replacement Value (PRV) and Current Replacement Value (CRV) have the same meaning in the context of determining Facility Condition Index (FCI).

Present Value (PV): The current worth of a future sum of money or stream of cash flows given a specified rate of return. Future cash flows are discounted at a client specified discount rate.

Real Interest Rate: A net interest rate adjusted to remove the effects of inflation. It is the amount by which the nominal interest rate is higher than the inflation rate.

Repairs: Work to restore damaged or worn-out facilities to normal operating condition. Repairs are curative, whereas maintenance is preventative.

Replacements: An exchange of one fixed asset for another that has the same capacity to perform the same function. In contrast to repair, replacement generally involves a complete identifiable item of reinvestment (e.g., a major building component or subsystem).

Return on Investment (ROI): ROI is a financial indicator used to evaluate the performance of an investment and as a means to compare benefit.

Rough Order of Magnitude (ROM): ROM cost estimates are the most basic of cost estimate classifications.

RSMeans: An independent third-party provider of building industry construction cost data.

Site: A facility's grounds and its utilities, roadways, landscaping, fencing and other typical land improvements needed to support the facility.

Soft Costs: Indirect costs incurred in addition to the direct construction cost. Soft costs may include professional services, financing, taxes, etc.

System: System refers to building and related site work elements as described by ASTM Uniformat II, Classification for Building Elements (E1557-97), a format for classifying major facility elements common to most buildings. Elements usually perform a given function, regardless of the design specification, construction method or materials used. See also, "Uniformat II".

Uniformat II: Uniformat II (commonly referred to simply as Uniformat), is ASTM Uniformat II, Classification for Building Elements (E1557-97) – A methodology for classifying major facility components common to most buildings.

Year Built: The year that a building or addition was originally built, based on substantial completion or occupancy.

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