

DATE: March 19, 2019

TO: Board of Trustees

FROM: Darrel Robertson, Superintendent of Schools

SUBJECT: Value Management Study

ORIGINATOR: Dr. Lorne Parker, Assistant Superintendent

RESOURCE

STAFF: Shauna Bland, Terri Gosine, Roland Labbe, Rory Mauricio, Ron McGowan, Jennifer Thompson, Christopher Wright

REFERENCE:

ISSUE

Similar to many school jurisdictions across Alberta, Edmonton Public Schools faces a mounting challenge in addressing building conditions of aging school building inventory. Identifying the condition and quantifying the value to address the conditions of our building inventory is an important component to developing strategies and action plans to address these challenges.

BACKGROUND

In the 2016-2017 school year, the District began the *Space for Students in Mature Communities* initiative to address aging buildings and low enrolment in three school clusters. A total of 15 schools were identified for community engagement to determine how to better serve these school communities. Modelled after the Lawton Cluster review, where three existing schools were identified for consolidation within a new Kindergarten to Grade 9 school (Ivor Dent School), Space for Students sought to find outcomes acceptable to the three community groups under a similar approach. In support of the process, independent condition assessments were commissioned for each school building to have up-to-date information related to the amount of deferred maintenance in these buildings. The 15 buildings were assessed to have a deferred maintenance deficit totaling \$106.5 million. The value of the information on the state of District school buildings led to the commissioning of an additional school building condition audit, conducted with the same format as provincial audits.

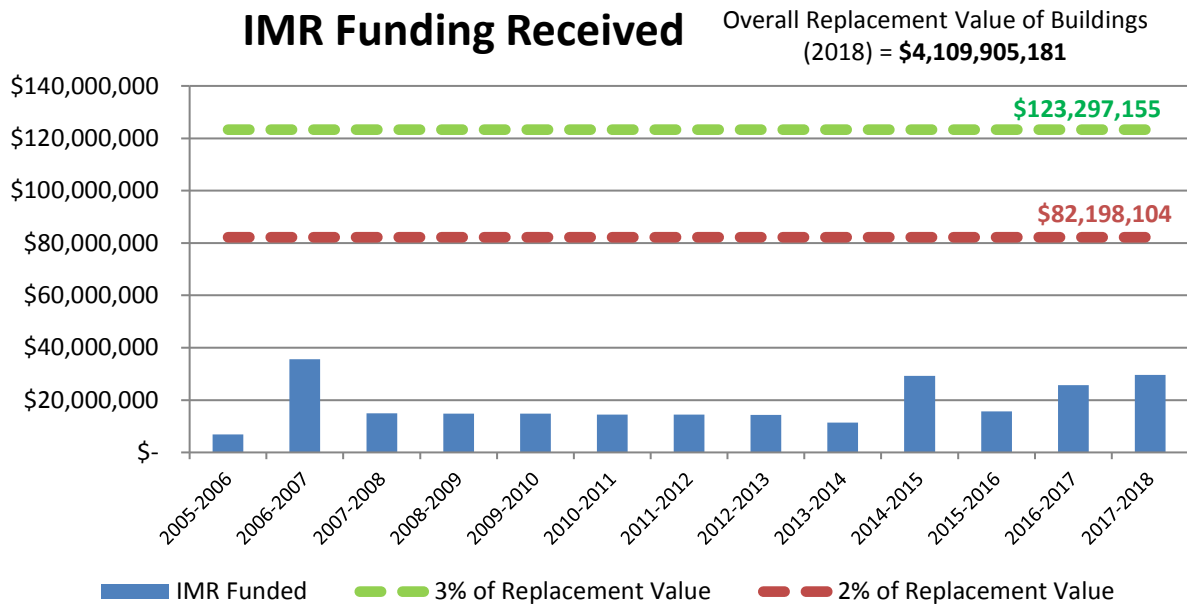
CURRENT SITUATION

The total deferred maintenance value of the 171 school buildings that had condition assessments completed is \$756,984,958 (Attachment I). The greatest value in terms of maintenance classification categories is the building envelope category at 26 per cent, followed by mechanical systems at 25 per cent, electrical systems at 18 per cent, interior-architectural at 17 per cent, with 14 per cent comprised of the three remaining categories. A description of the maintenance classification categories is provided in Attachment II.

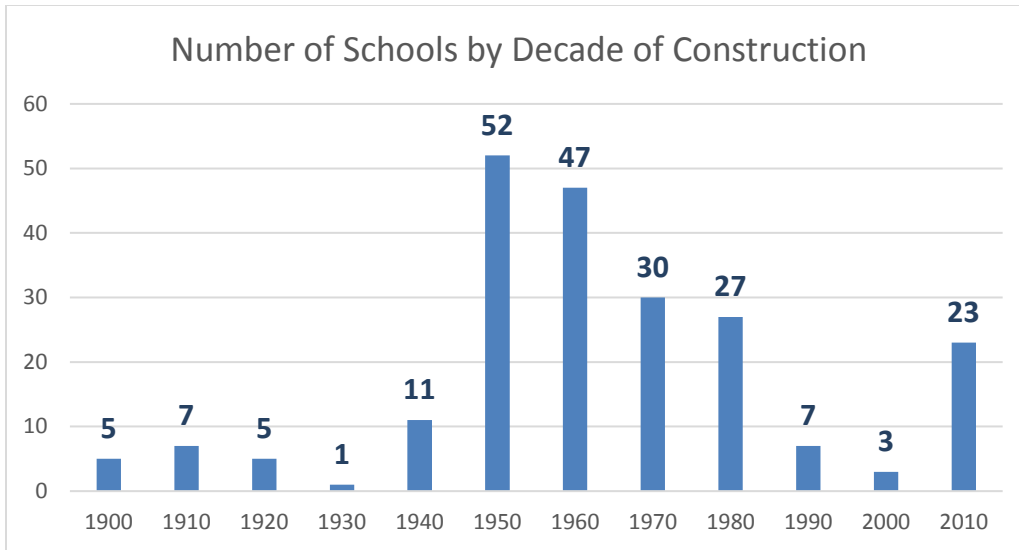
Many of the building envelope components of our schools are exposed to our harsh climatic conditions, including extreme cold and heat and associated freezing and thawing, which causes building materials and soils to expand and contract. Along with exposure to wind, rain and increasing solar ultraviolet light, building envelope components such as exterior walls, windows, doors, roofing, and roof openings are

vulnerable to the elements when not in like-new condition. Basement walls, floors and foundations, exterior ramps and stairs, and hard-surface areas like sidewalks, parking areas, asphalt play areas and pads are as vulnerable when subjected to freezing, thawing and ground heaving. Mechanical, electrical and interior walls, floors, plumbing and finishes, are subjected to daily wear and tear, not just by students and staff, but through partner and community use after school hours.

For many years, there has been insufficient funding to properly maintain our buildings. Industry standard for public infrastructure reinvestment suggests that between two and four per cent of replacement value should be invested annually to keep buildings in good order. The Government of Alberta’s 20-Year Strategic Capital Plan states: “Literature on maintenance costs suggests that annual costs to maintain a building are approximately 2 percent of its replacement cost.” The City of Edmonton and University of Alberta also confirm the two to four per cent rate. This assumes a beginning state that is new or like new. In terms of capital funds provided to our District, the provincial Infrastructure Maintenance Renewal (IMR) program represents the major funding source to address maintenance. The following graphic indicates the level of IMR the District has been receiving since 2005-2006, with a two to three per cent of replacement cost range indicating a minimum amount that should be reinvested annually.

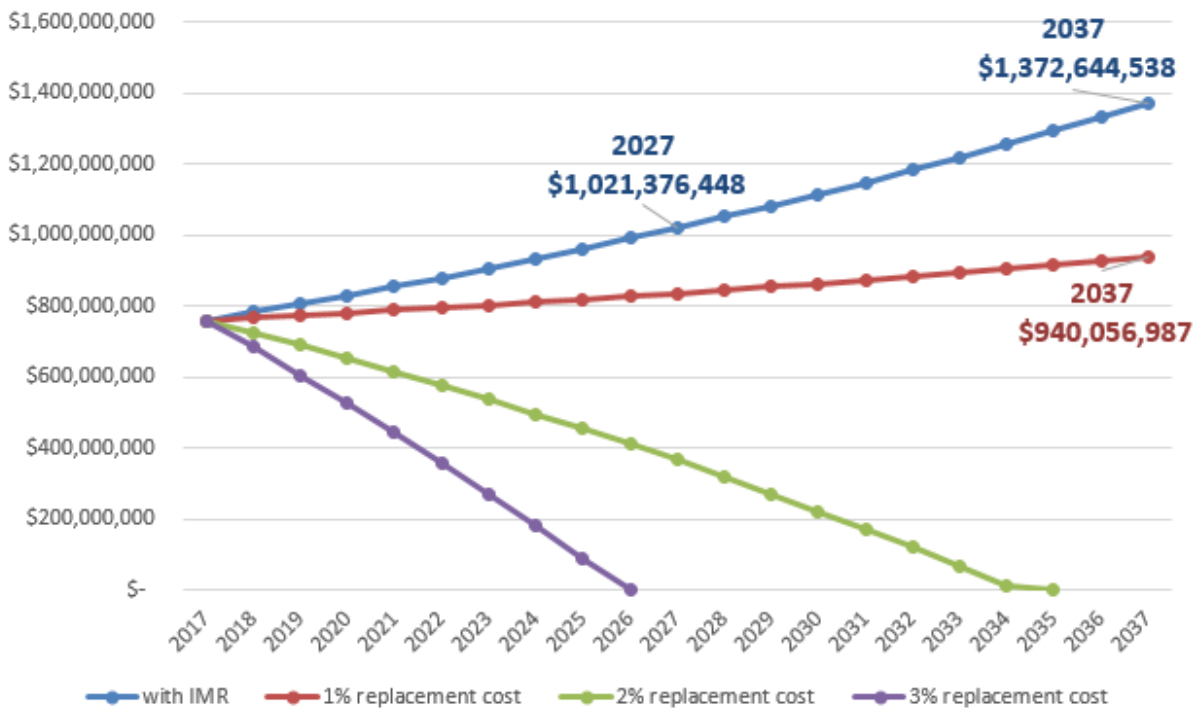


Funding is inadequate to meet a two to three per cent reinvestment benchmark level of funding. Reinvestment is not currently keeping pace with aging facilities and a growing deferred maintenance liability. As our buildings age, it is anticipated that replacement values will rise, with a corresponding two to three per cent increase in reinvestment funding needed. A reduction in capital funding and grants will contribute to a faster rise in the deferred maintenance total. Occasional funding for school modernizations or replacement schools can contribute to a more rapid reduction in deferred maintenance; however, funds for modernizations rarely cover all deferred maintenance areas. Overall funding for these types of projects is sporadic and unpredictable. While some construction has occurred with modernizations and replacement buildings, the overall age of the District’s schools will continue to increase.



This year, 127 of the District’s schools are 50 years old or older (opened in or prior to 1968). By 2028, 156 schools will be 50 years old or older. Approximately 39 per cent of the District’s deferred maintenance is categorized as “Emergent” or “Significant Deficiencies”, valued at approximately \$295 million, while annual IMR funding ranges anywhere from \$15 to \$30 million. In this context, the deferred maintenance deficit will continue to rise as buildings and components age without replacement. Under the current funding model, the magnitude of the increase will become unmanageable fiscally, and the ability to continue to operate some buildings could be at risk.

Projected Deferred Maintenance Value



The Projected Deferred Maintenance Value graph shows the various scenarios of how the District's total deferred maintenance is affected through different funding mechanisms. The scenario "with IMR" assumes that the maintenance will continue to climb at the average rate it has between 2017 and 2018 where the average IMR amount received was \$25 million. The replacement cost scenarios assume the same growth but with a percent of replacement cost for all district buildings (\$4.1 billion in 2018) in place of IMR funding and capital funding for modernizations.

The assumptions in the graph (page 3) include:

- The replacement cost of the buildings remains constant at \$4.1 billion over the 20 year period
- The growth in deferred maintenance remains at 3%, the average rate of growth between 2017 and 2018
- The amount of IMR received each year is approximately \$25 million
- No space is added or removed

Given the lack of adequate funding to plan and implement preventative maintenance, jurisdictions are placed in a position of focusing efforts on unplanned or reactive maintenance and repair, the least cost-effective approach. A planned, preventative maintenance program informed by accurate system and component data, funded to meet benchmarks for reinvestment or replacement of components, would be the most cost effective approach.

The District will continue to advocate for stable and predictable capital funding to help address the mounting deferred maintenance deficit. This would include capital funds for modernization and replacement projects, as well as advocating for maintaining or growing the amount of IMR to be made available. Annual funding equivalent to 3 per cent of total replacement value (\$123 million) will result in a deferred maintenance decrease and a sustainable capital schedule would be realized to replace some of the existing aged space utilized by students. With annual funding equivalent to 2 per cent (\$82 million), the same result would be achieved over a longer time period.

In place of the current funding approach, a model that provides funding in five-year envelopes would increase the District's flexibility, ability to be proactive and responsive in addressing deferred maintenance.

- Funding blocks would provide greater flexibility to procure and bundle projects to maximize value.
- The capacity of the construction industry under such a model could lead to completion of additional projects in a more timely fashion than would be realized in a conventional manner.
- Block funding could allow for some measured debt servicing to supplement Provincial resources.
- The District could engage in mature community conversations with greater certainty and transparency.
- Additional opportunities for partnerships with community partners would be feasible under a more consistent, block-funded system.

KEY POINTS

- The total deferred maintenance value of the 171 school buildings that had condition assessments completed is \$756,984,958.
- Building envelope components represent 26 per cent of the total, followed by mechanical systems at 25 per cent, electrical systems at 18 per cent, interior-architectural at 17 per cent, and 14 per cent comprised of the three remaining categories.
- Industry standard for public infrastructure reinvestment suggests that between two and four per cent of replacement value should be invested annually to keep buildings in good order.

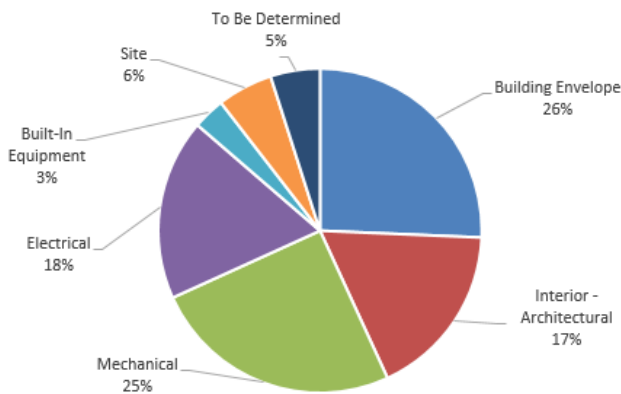
- Funding is inadequate to meet a two to three per cent reinvestment benchmark level of funding.
- Reinvestment is not currently keeping pace with aging facilities and a growing deferred maintenance liability.
- As our buildings age, it is anticipated that replacement values will rise, with a corresponding two to three per cent increase in reinvestment funding needed.
- A reduction in capital funding and grants will contribute to a faster rise in the deferred maintenance total.
- This year 127 schools are 50 years old or older (opened in or prior to 1968) and by 2028, 156 schools will be 50 years old or older.
- Approximately 39 per cent of the District’s deferred maintenance categorized as “emergent” or “significant deficiencies”, valued at approximately \$295 million.
- Annual IMR funding ranges anywhere from \$15 to \$30 million.
- Stable and predictable capital funding levels are required to address the mounting deferred maintenance deficit.
- Five-year funding blocks would help the District develop predictable maintenance renewal plans that could reduce the amount of deferred maintenance and enhance value through bulk purchasing.
- Debt financing matched to block funding would help to alleviate the emergent maintenance work, which is the most expensive and least cost effective approach.

ATTACHMENTS and APPENDICES

ATTACHMENT I	Overall Deferred Maintenance as of August 2017
ATTACHMENT II	Maintenance Classification Category Descriptions
ATTACHMENT III	Deferred Maintenance by Sector
ATTACHMENT V	Potential Dashboard Map
ATTACHMENT IV	Deferred Maintenance by School

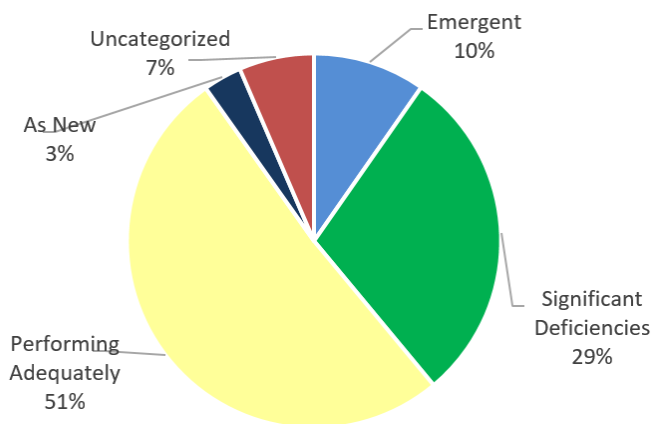
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Overall Deferred Maintenance as of August 2017



Maintenance Category	Amount	%
Building Envelope	\$ 194,277,166.87	26%
Interior-Architectural	\$ 132,358,585.64	17%
Mechanical	\$ 189,845,366.00	25%
Electrical	\$ 136,842,144.63	18%
Built-In Equipment	\$ 24,177,473.89	3%
Site	\$ 42,065,430.04	6%
To Be Determined	\$ 37,418,791.00	5%
Total	\$ 756,984,958.07	100%

Maintenance Category	Emergent	Significant Deficiencies	Performing Adequately	As New	Uncategorized	Total
Building Envelope	\$36,445,320	\$59,725,014	\$89,219,029	\$7,846,804	\$1,041,000	\$194,277,167
Interior-Architectural	\$20,691,633	\$28,252,345	\$75,200,163	\$744,745	\$7,469,700	\$132,358,586
Mechanical	\$11,597,870	\$84,705,424	\$79,743,339	\$10,601,733	\$3,197,000	\$189,845,366
Electrical	\$1,721,285	\$17,605,756	\$111,678,325	\$5,806,020	\$30,758	\$136,842,144
Built-In Equipment	\$400,280	\$6,518,826	\$17,109,998	\$148,370	\$0	\$24,177,474
Site	\$2,672,278	\$24,542,055	\$14,759,547	\$91,550	\$0	\$42,065,430
To Be Determined	\$0	\$0	\$0	\$0	\$37,418,791	\$37,418,791
Total	\$ 73,528,666	\$221,349,420	\$387,710,401	\$25,239,222	\$49,157,249	\$756,984,958



Condition Category	Amount	%
Emergent	\$ 73,528,666.52	10%
Significant Deficiencies	\$ 221,349,420.10	29%
Performing Adequately	\$ 387,710,400.73	51%
As New	\$ 25,239,221.72	3%
Uncategorized	\$ 49,157,249.00	7%
Total	\$ 756,984,958.07	100%

Maintenance Classification Category Descriptions

BUILDING ENVELOPE

Includes: foundations, basement walls and crawl spaces, building structural components and framing, exterior ramps and stairs, load bearing interior walls, exterior wall construction and finishes, exterior windows and doors roof coverings, and roof openings (i.e., skylights) etc.

INTERIOR-ARCHITECTURAL

Includes: interior wall construction and finishes, interior windows and doors, interior fittings (e.g., lockers, handrails), storage shelving, interior stair-ramp construction and finishes, floor and ceiling finishes, elevators and lifts, barrier free access, safety and fire codes, hazardous components etc.

MECHANICAL

Includes: plumbing, heating, ventilating and air-conditioning (HVAC), fire protection (i.e., sprinklers) etc.

ELECTRICAL

Includes: transformers, panel boards, switchboards and circuit boards, lighting, communication and security systems, data, emergency light and power etc.

BUILT-IN EQUIPMENT

Includes: commercial, office and CTS equipment, institutional equipment (e.g., theatre and stage, laboratory equipment), maintenance equipment, fixed furnishings (casework), fixed artwork (e.g., murals), window treatment, moveable built furnishings and accessories, special construction (e.g., greenhouse), etc.

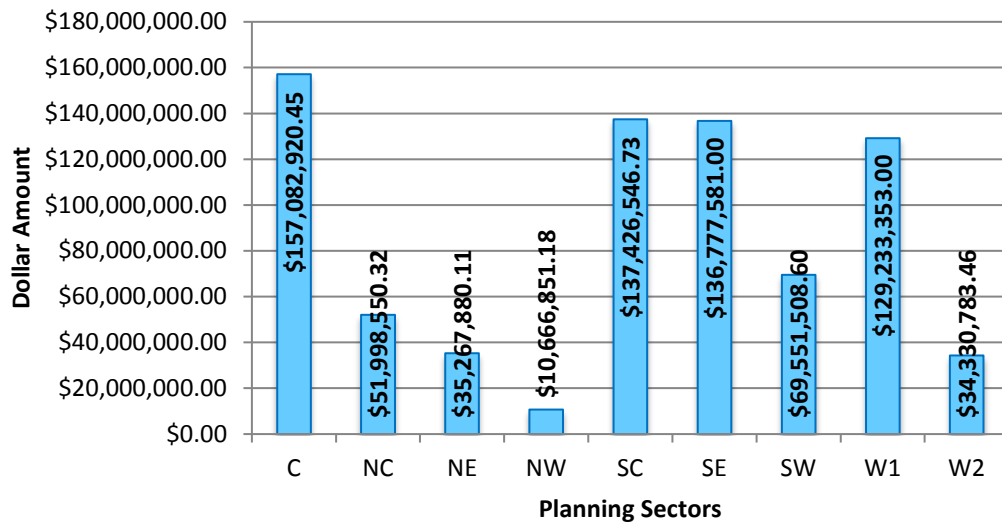
SITE

Includes: site grading, drive lanes within school property parking lot and pedestrian paving and surfacing, signage and markings, fences and gates, sports surfaces (e.g., tarmacs), landscaping, site electrical (e.g., car plugs), mechanical and utilities (e.g., storm sewer), etc.

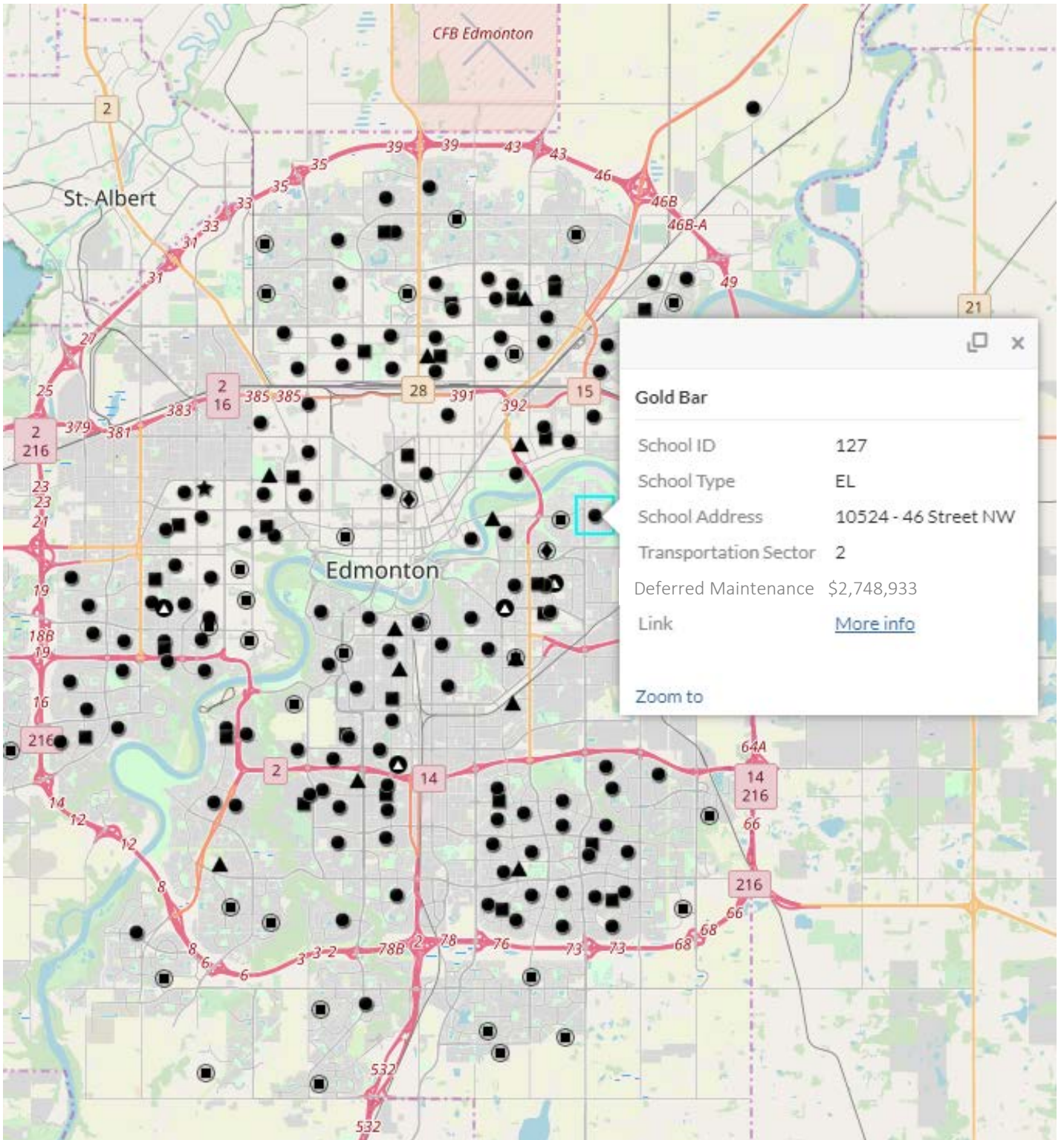
TO BE DETERMINED

Includes: mixed category items identified under a single cost (example: foundation, sidewalk, and gymnasium wall captured as one cost).

Deferred Maintenance by Sector



Potential Dashboard Map



Deferred Maintenance by School

School	Sector	Total	School	Sector	Total
Abbott	NE	\$ 4,622,871	Ellerslie Primary (South)	SE	\$ 3,572,008
Academy at King Edward	SC	\$ 4,917,484	Elmwood	W1	\$ 5,676,383
Afton	SC	\$ 5,938,134	Evansdale	NC	\$ 4,632,109
Aldergrove	W2	\$ 1,732,540	Fraser	NE	\$ 2,352,883
Allendale	SC	\$ 5,516,346	Garneau	SC	\$ 4,567,187
Athlone	C	\$ 5,942,969	George H Luck	SW	\$ 1,447,516
Avalon	SC	\$ 3,720,131	George P Nicholson	SW	\$ 1,894,606
Avonmore	SC	\$ 5,657,270	Glendale	W1	\$ 3,350,553
Bannerman	NE	\$ 1,970,583	Glengarry	C	\$ 5,674,307
Baturyn	NW	\$ 3,067,509	Glenora	W1	\$ 2,711,167
Beacon Heights	NE	\$ 2,500,040	Gold Bar	SC	\$ 2,748,933
Belmead	W2	\$ 2,507,690	Grace Martin	SE	\$ 4,533,861
Belmont	NE	\$ 2,385,363	Grandview Heights	SC	\$ 1,482,509
Belvedere	C	\$ 3,007,728	Greenfield	SW	\$ 4,041,886
Bisset	SE	\$ 3,706,119	Greenview	SE	\$ 4,275,891
Braemar	SC	\$ 5,341,349	Grovenor	W1	\$ 2,877,113
Brander Gardens	SW	\$ 2,565,759	Hardisty	SC	\$ 8,762,564
Brightview	W1	\$ 8,919,918	Harry Ainlay	SW	\$ 19,996,764
Britannia	W1	\$ 14,515,308	Hazeldean	SC	\$ 3,853,045
Brookside	SW	\$ 2,382,518	Hillcrest	W1	\$ 6,118,587
Calder	C	\$ 8,682,958	Hillview	SE	\$ 1,972,235
Callingwood	W2	\$ 3,050,325	Holyrood	SC	\$ 2,106,653
Centennial	W2	\$ 2,994,897	Homesteader	NE	\$ 3,362,893
Clara Tyner	SC	\$ 2,425,116	Horse Hill	NE	\$ 5,382,798
Coronation	W1	\$ 2,370,460	Idylwylde	SC	\$ 2,532,930
Crawford Plains	SE	\$ 4,630,670	Inglewood	C	\$ 3,517,970
Crestwood	W1	\$ 3,294,783	J. Percy Page	SE	\$ 9,136,111
D.S. MacKenzie	SW	\$ 4,458,196	J.A. Fife	NC	\$ 3,695,385
Daly Grove	SE	\$ 3,814,170	Jackson Heights	SE	\$ 2,717,786
Dan Knott	SE	\$ 6,477,148	James Gibbons	W1	\$ 608,801
Delton	C	\$ 8,967,268	Jasper Place	W1	\$ 15,178,104
Delwood	C	\$ 5,034,038	John A. McDougall	C	\$ 1,415,203
Dickinsfield	NC	\$ 4,584,822	John Barnett	NC	\$ 3,060,695
Donnan	SC	\$ 4,647,453	John D. Bracco	NE	\$ 1,558,327
Dovercourt	W1	\$ 2,052,242	Julia Kiniski	SE	\$ 4,507,125
Duggan	SW	\$ 3,718,617	Kameyosek	SE	\$ 3,323,375
Dunluce	NW	\$ 3,379,336	Kate Chegwin	SE	\$ 4,905,692
Earl Buxton	SW	\$ 2,711,430	Keheewin	SW	\$ 2,347,817
Edith Rogers	SE	\$ 5,328,876	Kenilworth	SC	\$ 5,183,504
Ekota	SE	\$ 3,020,794	Kensington	C	\$ 7,424,870
Ellerslie Campus (North)	SE	\$ 5,608,343	Kildare	NC	\$ 4,011,785

Deferred Maintenance by School

School	Sector	Total	School	Sector	Total
Killarney	C	\$ 6,421,121	Patricia Heights	W1	\$ 3,096,785
King Edward	SC	\$ 4,618,424	Pollard Meadows	SE	\$ 3,597,592
Kirkness	NE	\$ 3,112,434	Princeton	C	\$ 3,989,155
L.Y. Cairns	SC	\$ 5,179,301	Queen Alexandra	SC	\$ 5,003,666
Lago Lindo	NC	\$ 2,198,400	Queen Elizabeth	C	\$ 12,102,426
Lansdowne	SC	\$ 2,177,080	Richard Secord	SW	\$ 2,075,769
La Perle	W2	\$ 2,342,863	Rideau Park	SW	\$ 1,956,621
Lauderdale	C	\$ 4,374,382	Rio Terrace	W1	\$ 4,529,537
Laurier Heights	W1	\$ 5,601,601	Riverbend	SW	\$ 4,760,678
Lee Ridge	SE	\$ 3,112,231	Riverdale	C	\$ 1,392,367
Lendrum	SC	\$ 3,497,787	Rosslyn	C	\$ 11,899,375
Londonderry	NC	\$ 6,871,383	Rutherford	SC	\$ 3,223,959
Lorelei	NW	\$ 2,038,158	S. Bruce Smith	W2	\$ 4,126,288
Lymburn	W2	\$ 2,248,230	Sakaw	SE	\$ 3,596,026
Lynnwood	W1	\$ 2,952,781	Satoo	SE	\$ 3,067,679
M.E. Lazerte	NC	\$ 9,819,057	Scott Robertson	C	\$ 4,771,425
Malcom Tweddle	SE	\$ 2,349,834	Sherwood	W1	\$ 4,579,686
Malmo	SC	\$ 2,078,143	Sifton	NE	\$ 1,846,583
Mary Butterworth	NW	\$ 2,181,848	Spruce Avenue	C	\$ 6,450,470
Mayfield	W1	\$ 4,681,456	Steele Heights	NC	\$ 4,408,095
McArthur	C	\$ 5,535,684	Steinhauer	SW	\$ 2,355,309
McKee	SC	\$ 6,990,605	Stratford	W1	\$ 5,263,509
McKernan	SC	\$ 5,180,925	Sweet Grass	SW	\$ 3,946,571
McLeod	NC	\$ 2,496,365	T.D. Baker	SE	\$ 4,914,971
McNally	SC	\$ 9,684,967	Thornccliffe	W2	\$ 4,633,032
Meadowlark	W1	\$ 3,438,587	Tipaskan	SE	\$ 3,161,370
Mee-Yah-Noh	C	\$ 4,461,420	Velma E. Baker	SE	\$ 3,123,067
Menisa	SE	\$ 3,281,921	Vernon Barford	SW	\$ 5,265,308
Meyokumin	SE	\$ 3,407,548	Virginia Park	NE	\$ 1,784,492
Meyonohk	SE	\$ 3,957,473	W.P. Wagner	SE	\$ 19,075,436
Michael A. Kostek	W2	\$ 2,246,881	Waverley	SC	\$ 5,205,433
Minchau	SE	\$ 3,526,182	Weinlos	SE	\$ 5,076,047
Mount Pleasant	SC	\$ 2,734,997	Westbrook	SW	\$ 3,626,145
Northmount	NC	\$ 4,035,928	Westglen	C	\$ 5,446,183
Norwood	C	\$ 2,492,652	Westlawn	W1	\$ 9,452,734
Oliver	C	\$ 5,771,216	Westminster	W1	\$ 3,282,693
Ormsby	W2	\$ 4,565,453	Westmount	C	\$ 6,638,657
Ottewell	SC	\$ 5,353,446	Windsor Park	SC	\$ 2,224,338

Deferred Maintenance by School

School	Sector	Total	School	Sector	Total
Overlander	NE	\$ 3,495,504	Winterburn	W2	\$ 3,882,584
Parkallen	SC	\$ 4,096,031	York	NC	\$ 2,184,526
Parkview	W1	\$ 8,293,751	Youngstown	W1	\$ 6,386,814

Closed School	Sector	Total
Alex Taylor	C	\$ 3,990,300
Bennett Centre	SC	\$ 776,839
Eastwood	C	\$ 4,027,200
Lawton	NE	\$ 5,515,982
McCauley	C	\$ 2,367,290
McKay Avenue	C	\$ 2,495,500
Queen Mary Park	C	\$ 2,814,900