

FUNDING APPROVAL SUMMARY

EDITH CAVELL ELEMENTARY SCHOOL-SD 39 (VANCOUVER)

SEISMIC UPGRADE – July 18, 2018

PROJECT SUMMARY

Funding Request: The Vancouver Board of Education (VBE) is requesting \$15.57M (includes a risk reserve of \$3.96M) in provincial capital funding to seismically upgrade Edith Cavell Elementary School, which is located in the South Cambie neighbourhood of Vancouver just west of Cambie Street between 20th Ave. and 21st Ave.

Executive Summary:

Seismic Project Identification Reports (SPIRs) completed in December 2013 and April 2016 indicated that Edith Cavell Elementary was classified as a “High Risk” school and would incur significant damage in the event of a seismic event. The heritage building (Block 1) and the frame building (Block 3) were constructed in 1920 and in 1956, an addition to the heritage portion was added consisting of the gymnasium and gym ancillary spaces (Block 2). Structural reports determined Block 1 is H1, Block 2 is H1 and Block 3 is H2. The mentioned buildings do not meet the stringent requirements of current seismic building codes. The modular building and a recent added classroom portable are not part of the scope in the SPIRs and the PDR. The 1920 building (Block 1) is classified as a Category B building in the City of Vancouver Heritage Registry.

A consultant team of Architects and Engineers were engaged to perform a feasibility study to review various options that would mitigate life-safety risk during a seismic event. Option 1 studied seismic upgrade of Block 1 (classrooms), Block 2 (gymnasium) and Block 3 (classroom frame bldg). Option 2: Partial Replacement studied the replacement of Block 2 (gymnasium) and Block 3 (classroom frame bldg.) with retention of the historical Block 1 (classroom- admin.). Option 3 Full Replacement studied building a new school on the existing footprint. For Option 1 the modular building and the recently added classroom portable will remain, these buildings will be relocated for Options 2 & 3. Option 1, 2 and 3 would require relocating the school population to a temporary swing site due to the extensive seismic work that is required to upgrade the buildings. Not included in the PDR scope is a pre-fabricated building at the north-west corner of the site which is used by the community organization Small Talk to provide childcare services for children aged 3 to 6 with challenges in language development.

The high level results of the Project Definition Reports (feasibility study) are as noted:

| Options | 1 | 2 | 3 |
|--|--------------------------------------|---|--------------------------------------|
| | Seismic Upgrade (Recommended) | Partial Replacement | Full Replacement |
| Scope | Upgrades to Blocks 1, 2 and 3 | Upgrades to Block 1 & replacement of Blocks 2 & 3 | New building – on same footprint. |
| Total Maximum Project Budget | \$15.57 million | \$20.85 million | \$21.25 million |
| Lifecycle Cost Analysis (NPV 40 years) | \$33.64 million | \$38.40 million | \$30.94 million |
| Deferred Maintenance | \$6.1 million | \$3.98 million | \$0 |
| Temporary Accommodation (Elementary) | Mac Corkindale and Champlain Heights | Mac Corkindale and Champlain Heights | Mac Corkindale and Champlain Heights |

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The lowest cost option required to make this school seismically safe is to seismically upgrade the school at a cost of \$15.57 M . Option 1 Seismic Upgrade is the recommended option for the following reasons:

- It is the lowest capital cost option by \$5.6 million compare to the Full Replacement
- Portables would not be required
- FCI rating improves from 0.60 to 0.36 once the seismic upgrade is complete
- Retains heritage school building with minor alterations to the exterior
- Retains larger floor plate compared to new replacement schemes



School Background:

Edith Cavell Elementary is located at 500 W. 20th Avenue in the Vancouver neighbourhood of South Cambie. The site is bounded by W. 20th Avenue to the North; W. 21st Avenue to the south; Ash Street to the west; and Tupper Street to the east. Located one block east of the site is Cambie street, a major arterial road that has recently been rezoned by the City of Vancouver for higher density housing. The site area is 11,864 m² (1.93 Acres) with approximate dimensions of 80 meters north-south, and 147 meters east-west. Block 1 and 2 are positioned at the east-west centre of the site, where Block 1 is centred north-south, and Block 2 is connected to the south end of Block 1, with entrances from W. 21st Avenue. Block 3 is located to the west of Block 1. The Modular Building is located to the west of the frame building and the recently added Classroom Portable is located on the grass field (south-west). To the east of the main school blocks is a gravel playfield. In addition, the site accommodates three playground structures; 18 parking stalls with access and loading from W. 20th Avenue; and two partially covered hard play areas. Included in the scope of this PDR are Block 1; Block 2; Block 3. The pre-fabricated Small Talk building at the north-west corner of the site is not included in the study.

Edith Cavell Elementary was constructed in 1920. In 1956, a gymnasium was added to the south of the main building, in 2012, a modular structure was installed to serve Kindergarten classes, and in 2017, the site received a Classroom Portable.

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Today the school consists of three blocks, a modular building and a Classroom Portable. The SPIRs identified Block 1 & 2 as having a high seismic risk (H1) and Block 3 has a high seismic risk (H2). The Modular Building and the Classroom Portable are not part of the seismic scope.

Utilization Capacity:

The operating capacity of the school is 271 students (38K+233 Gr 1-7). The current enrollment is 321 students, making the current utilization rate 118%. The school currently does not have any international students. The 10-year enrolment projection for Edith Cavell shows it increasing to 2027 utilization rate of 128%.

Long-Range Facility Plan (LRFP):

The VBE adopted a Long Range Facilities Plan in May 2016. As per Section 5.0 LRFP – Implementation Plan for 2016/21, Edith Cavell Elementary has been identified as an immediate priority in the Seismic Mitigation Program (SMP)

Facility Condition Index (FCI):

The 2018 Facility Condition Index (FCI) for Edith Cavell Elementary is 0.60; the seismically upgraded school would have an improved FCI of 0.36.

Life Cycle Costs:

The 40 year Life Cycle Cost (LCC) NPV for the Seismic Upgrade Option is \$33,644,700 vs \$30,941,400 for Full Replacement Option.

Temporary Accommodation Requirements:

Option 1 Seismic Upgrade (Recommended Option) requires temporary accommodation.

The school will be relocated to two swing sites due to the extensive amount of demolition required for seismic remediation work. The school will be relocated to Mac Corkindale Elementary and Champlain Heights Elementary.

RECOMMENDATION:

Edith Cavell Elementary presents a strong case to be addressed as part of the Seismic Mitigation Program due to its high seismic risk, high FCI, and projected high enrollment utilization. The recommendation is to proceed with the lowest cost option which is the Seismic Upgrade Option for Edith Cavell Elementary School.

Scope of Work:

1. Seismic Upgrade Scope of Work Details.
 - Seismically upgrade blocks 1, 2 and 3 of Edith Cavell Elementary school, operating capacity of 271 (38 Kindergarten and 233 Elementary Grades 1-7) will remain.

Proposed Schedule:

Anticipated construction start date: Spring 2020

Estimated construction completion date: Fall 2021

Procurement: The CM (Construction Management) procurement method has been recommended by the QS.

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| Project Budget | | | |
|--|-----------------|--|---|
| Component | Cost | Details | |
| Design | | <ul style="list-style-type: none"> • Consultants and Sub-consultant (i.e. Architect, Engineers, Specialists) | |
| Construction | | <ul style="list-style-type: none"> • Seismic Upgrade, Life Safety, Accessibility | |
| Other | | <ul style="list-style-type: none"> • Site Development • VSB Project management • Municipal Permits and Fees • Non structural seismic • Construction Contingency | <ul style="list-style-type: none"> • Supplementary Site and Building • Offsite Costs • Transportation • Taxes |
| Total Project Cost w/out Reserves | | | |
| Project Risk Reserves | | <ul style="list-style-type: none"> • Unforeseen soil conditions • Unforeseen Hazmat Abatement • Unforeseen site demolition • Vpo Project Management | <ul style="list-style-type: none"> • Offsite & City Requirements • Unforeseen existing conditions • Allowance for Project Delays • Life Safety and Accesibility Items |
| Administrative Reserves | | <ul style="list-style-type: none"> • Seismic Equipment • Seismic Audit | |
| Escalation Reserves | | <ul style="list-style-type: none"> • Escalation to Tender Award | |
| Total Reserves | | | |
| Total Project Cost with Reserves | \$15.57M | | |

Project Costs Cash-Flow Projection

| 18/19 | 19/20 | 20/21 | 21/22 | Total |
|---------|--------|--------|---------|----------|
| \$0.25M | \$0.6M | \$5.6M | \$5.16M | \$11.61M |

Project Costs Cash flow EXCLUDES Escalation Contingency and Reserves

Project Schedule (end of process)

| Milestone | 18/19 | 19/20 | 20/21 | 21/22 |
|-----------------------------|-----------|------------|-------|-----------|
| VPO SC Approval | June 2018 | | | |
| Project Agreement | Sept 2018 | | | |
| Schematic Design | Dec 2018 | | | |
| Design Development | | April 2019 | | |
| Construction Doc. / Permits | | Dec 2019 | | |
| Pre-Tender VA | | Dec 2019 | | |
| Tender Award | | March 2020 | | |
| Construction | | | | Aug 2021 |
| Occupancy | | | | Sept 2021 |

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SD CAPITAL PROJECT EXPERIENCE AND UPCOMING PROJECTS

Completed Projects

The following is a list of previously completed projects.

| SD39 (Vancouver) Capital Projects* | Date | Approved Project Budget | Final Project Cost | Variance | Procurement Method |
|------------------------------------|------|-------------------------|----------------------|--------------------|-------------------------|
| Sir James Douglas Elementary | 2013 | \$23,308,438 | \$17,604,947 | \$5,703,491 | Design-Bid-Build |
| JW Sexsmith Elementary | 2013 | \$16,327,959 | \$15,785,379 | \$542,580 | Design-Bid-Build |
| Norma Rose Point School (K-8) | 2014 | \$30,365,853 | \$30,218,104 | \$147,749 | Design-Bid-Build |
| General Gordon Elementary | 2016 | \$16,767,940 | \$16,949,440 | (\$181,500) | Construction Management |
| Lord Strathcona Elementary | 2017 | \$29,971,625 | \$27,839,540 | \$2,132,085 | Construction Management |
| Total | | \$135,024,691 | \$126,600,934 | \$8,423,757 | |

*Information taken from School District Profile and Project Agreements

Unit-Rate Comparison

To ensure SFE's budget is accurate, the ministry updated the location factor for Vancouver in October 2017.

| School Name (Elementary) | Project Type | Unit Rates \$/m ² |
|---------------------------------|---------------------|------------------------------|
| David Lloyd George | Seismic/Replacement | \$2,459 |
| Begbie | Seismic/Replacement | \$2,326 |
| Bayview | Seismic/Replacement | \$2,469 |
| Maple Grove | Seismic/Replacement | \$2,300 |
| Lord Tennyson | Seismic/Replacement | \$2,254 |
| Sir Sandford Fleming Elementary | Seismic/Replacement | \$2,180 |
| General Gordon | Seismic/Replacement | \$2,029 |
| Kingsford Smith | Seismic Upgrade | \$1,468 |
| Jamieson | Seismic Upgrade | \$1,691 |
| Strathcona | Seismic Upgrade | \$2,830 |

Upcoming Projects in the 10-Year Capital Plan

The Ministry and Vancouver School District are currently working collaboratively to move the projects listed in the table below forward this fiscal year.

| School Name | Project Type | Estimated Cost |
|-----------------------------|---------------------|----------------|
| Weir Elementary | Partial Replacement | \$17 M |
| Wolfe Elementary | Seismic Upgrade | \$20.5 M |
| David Thompson Secondary | Seismic Replacement | TBD |
| Lord Byng Secondary | Seismic Upgrade | TBD |
| Lord Selkirk Elementary | Seismic Upgrade | TBD |
| Chief Maquinna | Seismic Upgrade | TBD |
| Sir Guy Carleton Elementary | TBD | TBD |
| Henry Hudson Elementary | TBD | TBD |

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Table 1: SMP with Existing Capacity Only

| | Operating Capacity | Actual Enrolment | | Projected Enrolment | | | | | | | | | |
|--|--------------------|------------------|------|---------------------|------|------|------|------|------|------|------|------|------|
| | | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
| Wolfe: Seismic Upgrade | 410 | | | | | | | | | | | | |
| Total Enrolment | | 391 | 385 | 410 | 410 | 410 | 410 | | | | | | |
| Domestic Enrolment | | 390 | 384 | 409 | 409 | 410 | 410 | | | | | | |
| % Utilization Domestic Students Only | | 95% | 94% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| International Students | | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Utilization Including International Students | | 95% | 94% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Cavell: Seismic Upgrade | 271 | | | | | | | | | | | | |
| Total Enrolment | | 322 | 321 | 317 | 317 | 338 | 328 | | | | | | |
| Domestic Enrolment | | 322 | 321 | 317 | 317 | 338 | 328 | | | | | | |
| % Utilization Domestic Students Only | | 119% | 118% | 117% | 117% | 125% | 121% | 120% | 120% | 121% | 123% | 126% | 128% |
| International Students | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Utilization Including International Students | | 119% | 118% | 117% | 117% | 125% | 121% | 120% | 120% | 121% | 123% | 126% | 128% |
| Van Horne | 453 | | | | | | | | | | | | |
| Total Enrolment | | 396 | 391 | 405 | 420 | 433 | 448 | 472 | 493 | 510 | 528 | 545 | 557 |
| Domestic Enrolment | | 395 | 390 | 404 | 420 | 433 | 448 | 472 | 493 | 510 | 528 | 545 | 557 |
| % Utilization Domestic Students Only | | 87% | 86% | 89% | 93% | 96% | 99% | 104% | 109% | 113% | 117% | 120% | 123% |
| International Students | | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Utilization Including International Students | | 87% | 86% | 89% | 93% | 96% | 99% | 104% | 109% | 113% | 117% | 120% | 123% |
| Brock | 364 | | | | | | | | | | | | |
| Total Enrolment | | 228 | 208 | 220 | 226 | 256 | 281 | 310 | 334 | 343 | 330 | 335 | 348 |
| Domestic Enrolment | | 228 | 208 | 220 | 226 | 256 | 281 | 310 | 334 | 343 | 330 | 335 | 348 |
| % Utilization Domestic Students Only | | 63% | 57% | 60% | 62% | 70% | 77% | 85% | 92% | 94% | 91% | 92% | 96% |
| International Students | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Utilization Including International Students | | 63% | 57% | 60% | 62% | 70% | 77% | 85% | 92% | 94% | 91% | 92% | 96% |
| Livingstone: TBD | 341 | | | | | | | | | | | | |
| Total Enrolment | | 330 | 344 | 342 | 340 | 335 | 329 | 326 | 318 | 301 | 296 | 298 | 297 |
| Domestic Enrolment | | 330 | 344 | 342 | 340 | 335 | 329 | 326 | 318 | 301 | 296 | 298 | 297 |
| % Utilization Domestic Students Only | | 97% | 101% | 100% | 100% | 98% | 96% | 96% | 93% | 88% | 87% | 87% | 87% |
| International Students | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Utilization Including International Students | | 97% | 101% | 100% | 100% | 98% | 96% | 96% | 93% | 88% | 87% | 87% | 87% |
| Jamieson: Under Construction | 481 | | | | | | | | | | | | |
| Total Enrolment | | 483 | 483 | 483 | 483 | 483 | 483 | 483 | 483 | 483 | 483 | 483 | 483 |
| Domestic Enrolment | | 475 | 475 | 476 | 475 | 475 | 475 | 476 | 476 | 476 | 476 | 476 | 476 |
| % Utilization Domestic Students Only | | 99% | 99% | 99% | 99% | 99% | 99% | 99% | 99% | 99% | 99% | 99% | 99% |
| International Students | | 8 | 8 | 7 | 8 | 8 | 8 | 7 | 7 | 7 | 7 | 7 | 7 |
| % Utilization Including International Students | | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Family of Schools | | | | | | | | | | | | | |
| Total Operating Capacity | | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 | 2320 |
| Total Enrolment | | 2150 | 2132 | 2177 | 2196 | 2255 | 2279 | 2325 | 2363 | 2375 | 2381 | 2413 | 2442 |
| Domestic Enrolment | | 2140 | 2122 | 2168 | 2187 | 2247 | 2271 | 2318 | 2356 | 2368 | 2374 | 2406 | 2435 |
| % Utilization Domestic Students Only | | 92% | 91% | 93% | 94% | 97% | 98% | 100% | 102% | 102% | 102% | 104% | 105% |
| International Students | | 10 | 10 | 9 | 9 | 8 | 8 | 7 | 7 | 7 | 7 | 7 | 7 |
| % Utilization Including International Students | | 93% | 92% | 94% | 95% | 97% | 98% | 100% | 102% | 102% | 103% | 104% | 105% |

March 22 2018. Baragar with local knowledge projections (2017-18 version)

Fraser Elementary not included in family of schools analysis as there is a current boundary review process underway in this area.

Students assumed to move from Wolfe to Brock as overflow from 2018 onwards as need to limit utilization at Wolfe to 100% (410 students).

Carr Elementary not included in this family of schools

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I have reviewed the project scope, costs, and schedule and assessed the risks and determined that this project should be advanced for funding approval.

Janson Ho



Director – VPO

Signature

Date

I have reviewed the project scope, costs, and schedule and assessed the risks and determined that this project should be advanced for funding approval.

Jim Meschino



Director - Facilities, VSB

Signature

Date

I have reviewed the project scope, costs, and schedule and assessed the risks and determined that this project should be advanced for funding approval.

Joel Palmer

Executive Director

Capital Management Branch

Signature

Date

Attachments: Project Definition Report