
MITCHELL ELEMENTARY SCHOOL SEISMIC UPGRADE & PARTIAL REPLACEMENT

TARGET CONSTRUCTION START:	November 2019
TARGET COMPLETION:	September 2021
PROJECT BUDGET:	\$11.16 Million
FUNDING SOURCES:	Ministry of Education Capital Plan: \$11.41 Million (SMP maximum) + \$180,000 (BEP) + Annual Facility Grant: \$130,000
CONSULTANT:	Craven Huston Powers Architects
CONSTRUCTION MANAGER:	Unitech Construction Management Ltd.
PROJECT MANAGER:	Richmond Project Team Enquiries: Sam Yoo, 604-295-7000 ext. 4100

BACKGROUND

Mitchell Elementary School is a single storey wood frame building constructed in 1960 with additions in 1964, 1975, 1992 and 2001 to serve Kindergarten to Grade 7. School District No. 38 (Richmond) has confirmed that Mitchell Elementary is needed for the long term as part of the overall long-range strategic planning.

Mitchell Elementary, which consists of four distinct blocks (Block 1 was the original school building located to the west of the main facility and was demolished in 2008), was seismically assessed using Version 3 of APEGBC's Seismic Retrofit Guidelines. The pre-2001 blocks of the school have a high risk of liquefaction potential requiring substructure upgrades, with Block 2 (1960 and 1964 Classrooms/Administration) and Block 3 (1975 Gymnasium) having Seismic Risk Categories H1 and H2, respectively, and requiring superstructure seismic resistance upgrades.

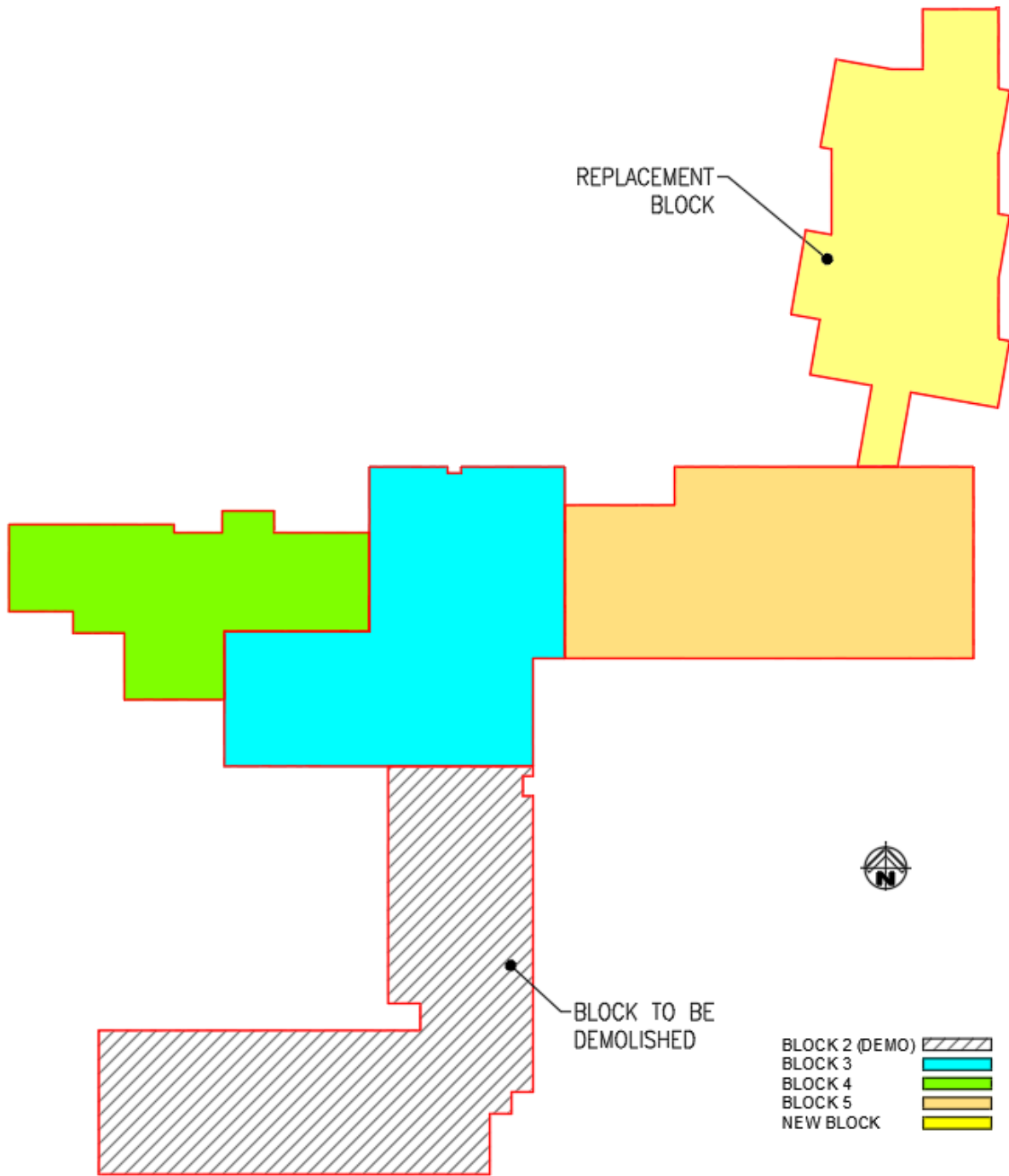
PROJECT SCOPE

- Block 2 (1960 and 1964 Classrooms/Administration) - Demolition of this portion of the school with the replacement of classrooms in a new wing constructed at the east end of Block 5 (2001 Addition). The remaining existing building will be reconfigured to accommodate the Administration, Media/Tech and other support spaces being demolished.
- Block 3 (1975 Gymnasium) - Structural upgrades consisting of: additional shear capacity through new plywood sheathing, blocking and hold-down anchors added in selected locations to existing wood stud walls; vertical reinforcement, grouting and upgraded connections to the roof diaphragm added to concrete block walls in the mechanical room; and plywood sheathing added to the existing timber roof complete with diaphragm chords as required. Seismic retrofit of foundations to achieve a life-safety level for liquefaction mitigation by adding reinforced concrete grade and tie beams.
- Block 4 (1991 Addition) - Seismic retrofit of foundations to achieve a life-safety level for liquefaction mitigation by adding reinforced concrete grade and tie beams.

- Non-structural seismic resistance upgrade to the entire school (added restraint of lighting, HVAC, plumbing and cabinets).
- Restoration of wall/floor/ceiling/exterior finishes and hard/soft landscaping affected by the structural work, addition and demolition.
- Minor removal and replacement of mechanical and electrical equipment to accommodate structural work.

PROJECT STATUS

- The Ministry of Education approved the project 06 March 2019 and the Capital Project Funding Agreement, funded from the Seismic Mitigation Program (SMP), was completed 23 April 2019. An additional \$180,000 was approved out of the Building Envelope Program (BEP) in October 2019 to address building envelope deficiencies in Block 4.
- Consultants retained in April 2019. 30% design completed May. 75% completed November and 95% expected to be completed by January 2020.
- The floor elevation of the addition was determined by consultants to be raised by 0.65 m from the existing school floor elevation to comply with City of Richmond Flood Plain Designation & Protection Bylaw. Consultants explored different options of structural systems for the building to best deal with elevation difference and post-construction settlement.
- Site determined to be preloaded to deal with poor soils. Completed in October 2019.
- One playground was in the area where addition is proposed; hence, it was disassembled in summer and put back together at another location on site in November 2019.
- Rate of settlement has slowed down towards the end of November – preload expected to be ready for removal as early as late January 2020.
- Building permit application made in November; however, City advised to expect longer review time (minimum 3 months excluding Christmas/New Year holidays). A separate permit for foundation will be pulled that enables the construction manager to break ground for the addition early April 2020.
- Geotechnical Engineer issued a memo on January 24, 2020 confirming negligible settlement in the preload. Surcharge fill removed from the preloaded areas in Feb. Post construction settlement expected to be less than 25 mm.
- Construction documents completed at the end of January 2020.
- Project posted on BC Bid early February 2020.



Seismic Block Map – Mitchell Elementary School