FIVE YEAR CAPITAL PLAN
2019 – 2024

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Prepared for: SFU Board of Governors – Approved
The Ministry of Advanced Education, Skills & Training

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1. INTRODUCTION

This document presents Simon Fraser University’s Five-Year Capital Plan for the construction of new facilities and the renewal of existing facilities and aging infrastructure.

The Ministry of Advanced Education, Skills and Training (AEST/the Ministry) requests annual capital plan submissions from all public post-secondary institutions to provide a high-level understanding of public post-secondary institutional capital requirements and to develop priorities for future consideration. This Five-Year Capital Plan therefore outlines SFU’s capital requirements for new priority expansion projects, replacement/renewal projects and capital innovation projects.

The plan includes projects totalling $978,524,000 aimed mainly at expanding the SFU Surrey Campus and enhancing accessibility to Indigenous communities. It also details investments in a portfolio of renewal projects that will significantly address SFU’s deferred maintenance liability as well as improve the functionality, reliability, efficiency and environmental performance of institutional facilities and infrastructure.

The selection of capital projects reflects the Province’s goals around expanding access to high quality post-secondary education, responding and adapting to the changing needs of today’s learners and aligning education and training with the demands of the BC labour market.

The investment in a new Aboriginal Peoples’ Gathering House aligns with commitments made by both the Province and SFU to respond to the Truth and Reconciliation Commission’s Calls to Action by collaborating with Indigenous partners to foster access, inclusion and success in post-secondary education and training. These investments are also in support of SFU’s vision as a leading engaged university and targeted to achieve institutional goals as they relate to improving learning conditions for students, improving research delivery areas, enhancing community social spaces and ensuring that SFU facilities are fiscally and environmentally sustainable.

The format for this Capital Plan is based on the Ministry’s standardized template. As requested, SFU’s capital projects have been categorized and grouped into two lists. The first list is the prioritized list of projects that AEST is expected to contribute funds to.
Provincially funded projects listed fall into one of the following three categories:

1) New Priority Projects;
2) Whole Asset Replacement and Renewal Projects; or
3) Student Housing Projects.

The list of new and replacement/renewal projects is the same as that outlined in the 2018-2023 Capital Plan, with the exception of the Convocation Mall Project (removed from this year’s update). Reflective of the demand for student housing at SFU, this year’s plan also includes Phase 2 of a Student Housing and Amenities Project that will see the construction of new residences and dining facilities.

A second list outlines Major On-going and Planned Self-Funded Projects.

Overviews of the new, replacement/renewal capital projects -- as well as the Student Housing Project -- are listed in order of their priority. Additional financial and cash flow information on these projects are provided in Attachment 3 (new, replacement/renewal projects). Similar project cost details pertaining to the list of ongoing/self-funded projects are provided in Attachment 4. Attachment 5 contains an inventory of existing student housing.

SFU looks forward to working with the Ministry to achieve our shared mandate of providing the highest quality teaching, research and community service to the citizens and communities of British Columbia.
2 SFU’S PLANNING FRAMEWORK

SFU has a vision to be the leading engaged university, as defined by its dynamic integration of innovative education, cutting-edge research, and far-reaching community engagement.

This vision has three components:

- **Engaging Students** - To equip SFU students with the knowledge, skills, and experiences that prepares them for life in an ever-changing and challenging world.

- **Engaging Research** - To be a world leader in knowledge mobilization building on a strong foundation of fundamental research.

- **Engaging Communities** - To be Canada’s most community-engaged research university.

As part of this vision, SFU has committed to the following set of principles. These guide the work and planning of the institution and have therefore guided the selection of projects for the Capital Plan.

- **Academic and Intellectual Freedom**: SFU will be an open and inclusive university whose foundation is intellectual and academic freedom.

- **Diversity**: SFU will foster a culture of inclusion and mutual respect, celebrating the diversity and multi-ethnic character reflected amongst its students, staff, faculty, and our society.

- **Internationalization**: SFU will value international knowledge, understanding and engagement, and will seek to engender an active global citizenship among its students, faculty and staff, and to ensure that SFU is an engaged partner and contributor on the international stage.

- **Respect for Aboriginal Peoples and Cultures**: SFU will honour the history, culture and presence of Aboriginal peoples. The university will welcome and nurture Aboriginal students and seek opportunities for greater representation of Aboriginal peoples amongst its faculty and staff.
- **Supportive and Healthy Work Environment**: SFU will recognize, respect and value the essential contribution made by staff and faculty, and will seek to build and sustain a work environment that is equitable, supportive, rewarding and enjoyable.

- **Sustainability**: SFU will pursue ecological, social and economic sustainability through its programs and operations. Through teaching and learning, research and community engagement, SFU will seek and share solutions. In its own operations, it will develop and model best practices, from minimizing its ecological footprint, to maximizing its social health and economic strength.

SFU has developed an Integrated Planning Framework to help ensure that planning and resource utilization for the institution, including capital projects, remain focused and aligned with SFU’s vision, priorities and the strategic direction for the university as provided by the Academic Plan and Strategic Research Plan.
SFU has experienced exceptional growth over the past decade in support of the accessibility agenda of the Province of British Columbia. Student enrollments (undergraduate and graduate) have grown by 22.5% over the past decade. Enrollments at SFU’s Surrey Campus alone have increased by 69.0%. In 2017, SFU exceeded the Ministry funded target by 7.6% for undergraduate students and by 36.7% for graduate students. The university’s inventory of spaces and facilities has meanwhile not kept pace. Original buildings have aged significantly and many are in need of replacement or renewal.

SFU’s Five Year Capital Plan has been developed to address the current capacity pressures, respond to the growing demand and achieve SFU’s vision as the leading engaged university. The Plan is structured around four strategic initiatives:

1) Surrey Campus Expansion
2) Burnaby Campus Renewal
3) Community Engagement
4) Sustainability and Climate Action

Each of these initiatives, and the capital projects being pursued in relation to the initiatives, are described below.

1) Surrey Campus Expansion

Surrey is B.C.’s fastest growing city with one of the highest youth populations in Canada. It also has the fewest post-secondary seats per capita of any jurisdiction in Metro Vancouver. Due to increased competition for the limited number of funded student spaces at SFU’s Surrey Campus, average entrance grade point averages have risen from 81% to 87% over the past six years and in some high-demand programs, entrance GPAs are up by over 10%. While employers cite a shortage of university graduates, qualified candidates are being turned away every year because programs are oversubscribed.

SFU is working to close this gap by expanding its Surrey Campus, focusing on course offerings in clean tech and sustainable energy, interactive arts and
mechatronic systems engineering which have proven to be very attractive at this location.

The goal for the Surrey location is to carry out the mandate to become a fully comprehensive campus, with capacity for an additional 2,500 FTEs. Expansion projects for this campus also align with BC’s labour market priorities, as identified in the 2017 Labour Market Outlook, with a focus on clean energy engineering, health and creative technologies.

The Surrey Campus Expansion consists of four main capital projects. Work on the first project, the Sustainable Energy and Environmental Engineering (SE³P) Building is already underway. Featured as a priority initiative in the previous Five-Year Capital Plan, this state-of-the-art new building has been designed an integrated academic precinct within the Surrey City Centre. Upon completion in 2020, the SE³P Building will provide space for 320 undergraduate and 195 new graduate students in a living showcase of sustainable building standards.

The next three projects in the Surrey Campus enhancement are proposed to be carried out over the next ten years. All three projects are prioritized within this Capital Plan. They are:

- **Health Systems Innovation and Sustainability Building** - a new 13,600 m² building will become home to five different programs associated with the Faculty of Health Science and the Faculty of Applied Science, providing opportunities for up to 660 undergraduate and 185 graduate students in programs including Health Systems Innovation, Population Health Promotion, Indigenous Health Development, eHealth Innovation and Informatics, Health Technology Development and Assessment.

- **Creative Technologies and Business Building** - a new 13,000 m² facility will provide space and specialized facilities to support the needs of up to 420 undergraduate FTEs and 202 graduate FTEs in business innovation, entrepreneurship and creative technologies.

- **Innovative Teaching and Other Facilities** - a new 5,500 m² building will provide space and facilities for students in the faculties of environment, education and science. The programs will be intertwined and SFU will seek to develop community partnerships and integrated educational pathways that improve employment prospect for graduates.
2) Burnaby Campus Renewal

The SFU Burnaby campus suffers from an on-going and increasingly serious deferred maintenance problem. The average Facilities Condition Index (FCI)\(^1\) of academic buildings on the Burnaby campus is 0.55, and is a measure of their overall poor condition. Eighteen core academic buildings have an FCI of 0.50 or greater.

The rehabilitation and renewal of compromised and aging facilities and infrastructure at the Burnaby campus is required to extend the useful life as well as improve the functionality, safety and sustainability of these facilities.

Addressing these critical deferred maintenance and capital renewal requirements is key to supporting students to achieve their education, employment and training goals. Campus renewal also directly supports SFU’s vision, mission and values related to improving learning conditions for students, improving research delivery areas, improving community social spaces, mitigating the cost of deferred maintenance and ensuring that SFU facilities are fiscally and environmentally sustainable.

In line with this strategic priority, SFU is planning a sequence of strategic building development, renewal and reuse projects, which, once completed, will address the most critical academic building renewal needs on the Burnaby campus.

The strategic multi-year integrated development plan will involve three steps and three large-scale projects specifically for the sciences precinct and the library on the Burnaby campus. The projects will be carried out sequentially, creating on-campus swing space for those buildings undergoing major overhauls - thus avoiding the closure of programs and functions and maintaining a positive student experience. The projects and main steps in the strategy are all contained in this Capital Plan. Brief summaries of these projects are as follows:

- **Life Sciences Building** - the first project in the development plan will involve the creation of a new, state-of-the-art Life Sciences Building on a greenfield site connected to the Technology and Applied Sciences (TASC) building on the south side of campus. This 9,300 m\(^2\) facility will be a centre for discovery and innovation in life sciences research. The new building will facilitate increasing research needs. It will also create space to allow the Shrum Biology Building to be renewed for use as swing space for subsequent major building renewal projects.

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\(^1\) FCI is an industry-standard index that measures the relative condition of a facility by considering the costs of deferred maintenance and repairs as well as the value of the facility. Each building’s FCI score reflects the condition of the building as of April 2018. As per the AEST’s Capital Investment Guide (2014), replacement/renewal projects with an FCI >0.5 or greater fall under the category of “Priority Investments”.

• **Library and Student Learning Commons Renewal** - the second step in the development plan is a project which will see the renewal of the entire W.A.C. Bennett Library Building, a key community hub on campus and a centrepiece of scholarly activity which is now 50 years old. The current 23,000 m² library building has an FCI rating of 0.89, which is among the highest of all SFU facilities. The project is therefore key to reducing the institution’s deferred maintenance liability. Renovations as planned will also reflect changes and growth in demand including an expanded student learning centre and improved study spaces with power and wireless Internet services.

The W.A.C. Bennett Library Building will need to be vacated completely to allow for the extensive upgrades required. Therefore, for the course of the project, all library programs and functions will move temporarily into the vacated Shrum building.

• **Shrum Sciences Renewal** - the third and final step in the plan will involve the redesign and renewal of the Shrum Science Complex (both the Biology wing and adjacent Physics building). Originally constructed in 1965 with additions in the 1970’s and 1980’s, the 10,305 m² Biology wing is in very poor condition with a current FCI of 0.84 and a VFA estimate of $54.5M in deferred maintenance and capital renewal needs. Constructed in 1970, the adjacent 10,305 m² Physics building is in a similar state with an FCI of 0.92 and a VFA estimate of $47.8M in deferred maintenance and capital renewal needs.

The Shrum Science Project will see a complete renewal of the systems and infrastructure elements in both buildings, including a redesign of laboratory areas to support contemporary academic research, graduate students and faculty offices.

The Burnaby Campus Renewal Initiative entails the renewal of two other central public space precincts of campus: Robert C. Brown Hall and the Academic Quadrangle. Each of these projects is outlined below:

• **Multi-Purpose Complex Renewal Project (RC Brown)** - a project to upgrade the R. C. Brown Building’s architectural, mechanical and electrical infrastructure and bring the facility up to current University standards for life safety, accessibility and to improve wayfinding. The 13,000 m² building, which was built in 1970, is in poor condition with a current FCI rating of 0.83 and a VFA estimate of $40.9M in deferred maintenance and capital renewal needs. It is comprised primarily of classrooms, computer laboratories, a lecture theatre and offices. The renewal will focus on the main public spaces, circulation, code compliance, public amenities and the interface with the adjacent Academic Quadrangle.
3) Community Engagement

The strategic initiative of community engagement is a key element of SFU’s vision as a leading engaged university. Being an engaged university means having facilities that attract students, enhance the student experience as well as support, contribute to and enhance the local community. In line with this initiative, work is underway on several self-funded projects including a new art gallery and improvements to the student residences, campus recreation and athletics facilities. In addition, this Capital Plan includes a new Aboriginal Peoples’ Gathering Space on the SFU Burnaby Campus.

- **Aboriginal Peoples’ Gathering House** - This unique project will see the development of a new facility dedicated to providing a space to host cultural events, celebrations, and workshops for the Aboriginal and campus-wide community.
4) **Sustainability and Climate Action**

Sustainability and Climate Action is a crosscutting strategic initiative that influences the planning and implementation of all of the projects in the Capital Plan, both new and renewal and replacement projects.

This initiative aligns with Provincial government mandates and objectives for building a low carbon economy: maintaining a carbon neutral public sector, reducing greenhouse gas (GHG) emissions and building climate resilience in infrastructure renewal. It also supports the University’s 20-year sustainability strategic plan goals and policies, including the targets set in the new Provincial Climate Change Accountability Act as follows:

- 33% by 2020 (using a 2007 baseline); and
- 80% by 2050 (using a 2007 baseline, with interim targets of 40% by 2030 and 60% reduction by 2040).

In support of SFU’s Sustainability and Climate Action initiative, a key strategic capital project is the new biomass heating plant listed in this Capital Plan among the self-funded projects. The new plant will use biomass as the primary fuel source, displacing natural gas and the related GHG emissions from fossil fuels. The plant will service SFU’s Burnaby Campus and the UniverCity community on Burnaby Mountain. At build-out, it is expected to reduce campus GHG emissions from all sources by approximately 70%.

Both new and renewal projects in this Capital Plan have adopted a holistic view which considers the University’s environmental footprint. Wherever possible, repurposing and reusing existing structures is the path of choice. Where new buildings are required, they are being designed to meet high performance energy standards and achieve LEED Gold. Renewal projects seek to increase operational efficiency of existing buildings, reduce waste and GHG emissions, while protecting and enhancing environmental sustainability in site, ecology, water conservation, material selection and indoor air quality.

In addition to physical upgrades, changes such as behavioral change programs and improved communications are being implemented to engage the community in support of energy conservation and sustainability programming.
PLANNING ASSUMPTIONS

It is assumed that the facilities and infrastructure necessary to accommodate normal and/or targeted enrolment growth will be funded by AEST in accordance with the BC Space Standards - and using an appropriate Unit Rate Budgeting methodology that recognizes elemental unit costs and reasonable projections of cost escalation.

Construction cost estimates in the plan have been produced with the most current information available (as of May 2018). They include an escalation module calculation and have been produced with the assistance and validation of credible and qualified quantity surveyors. However, depending on the time of project approval, appropriate adjustments to account for changes in scope and escalation may be required.

The projects described in this plan use reasonable parametric assumptions. The plan attempts to address those areas that are currently in a deficit position or where the condition of a building or infrastructure asset is compromised to the point of requiring renewal, rehabilitation or replacement.

All future projects will be executed in accordance with campus planning principles, design standards and functional requirements, and the government mandate to achieve LEED Gold, or equivalent, for new construction and LEED Silver for major renovation and renewal projects. As well, the University will honour the Wood First Initiative and will comply with The Capital Asset Management Framework, the Greenhouse Gas Reductions Target Act, and the Capital Asset Reference Guide.
NEW PRIORITY PROJECTS & WHOLE ASSET AND RENEWAL PROJECTS (CATEGORIES 1, 2 & 3)
1.0 Current Situation

- The existing Shrum Biology Building does not adequately provide for today’s biology teaching and research programs.
- The Life Sciences Building is the first step of a multiyear, integrated development plan that will create new space to replace the derelict Shrum Biology building as well as establish a swing space for the university Library and Student Commons to allow for a full renewal of the W.A.C. Bennett Library Building.

2.0 Project Description

- The Life Sciences Building will be a centre for discovery and innovation.
- Interdisciplinary teams of scientists will solve problems ranging from agricultural challenges to human disease to species preservation.
- Housing 1000 faculty, staff and students, the 9,300 m² replacement facility will strengthen partnerships between researchers and organizations to support resource and industry sectors as well as BC and SFU’s goals for sustainability.

3.0 Project Objectives

- The new building will facilitate a diversity of expanding research activities and accommodate life sciences teaching needs in space designed for traditional and new project-based teaching models.
- The project has been conceived in response to changing needs in life sciences teaching and research.
- The new building will provide a combination of state-of-the-art research facilities and collaborative spaces to foster the communication and interdisciplinarity necessary to inspire innovation.
4.0 Options Considered

- After reviewing multiple options, the Life Sciences Building has been conceived as the most efficient approach: providing a necessary swing space during the renewal of the Shrum Biology Wing in the short term; and extra space for the rapidly expanding life sciences research and innovative faculties in the longer term.

5.0 Project Outcomes

- Infrastructure Improvements:
  - This project will improve space efficiency through the use of larger, open research labs that allow for greater sharing of centralized supports spaces and flexibility to accommodate the expansion and contraction of research projects.

- Cost Effectiveness:
  - A new energy efficient design will reduce current energy use resulting in cost savings.
  - Efficient design will provide higher space utilization, hence more value for money spent.
  - Flexible “plug and play” infrastructure will reduce the cost of changes and time for implementation of future programs.

- Innovation:
  - The Life Sciences Building will be an integrative research centre enabling research team members with diverse experience to work together on cross-disciplinary problems ranging from climate change to disease proliferation.
  - Such interdisciplinary collaborations are critical to innovation and have resulted in knowledge transfer with significant industrial, commercial and social impacts.
  - While the building will house 1,000 faculty, staff and students, many more will utilize and benefit from the building’s innovation space.
  - The new laboratories will improve recruitment and retention of top faculty and students. They will also help to improve translational research and commercialization success.
A large number of small, undersized, inefficient lab rooms will be opened up and replaced with larger, flexible labs to make better use of space.

- **Strategic Alignment:**
  - The Life Sciences Building is directly aligned with the Ministry Service Plan objective of building on current strengths to enhance the quality of our post-secondary education.
  - The project aligns with the institutional priorities of providing a dynamic integration of innovative education and cutting-edge research while also equipping SFU students with the knowledge, skills, and interprofessional learning experiences necessary to succeed in an ever-changing and challenging world.

- **Quality Education:**
  - A new leading-edge research facility will provide opportunities for all students to engage in research programs that will provide project-based hands-on learning opportunities.
  - The new building will allow for larger labs (improving course capacity and student access) and incorporate flexible space that is designed for innovative experiential learning and is brighter, better organized, and more desirable for students to use.
  - The consolidation of faculty programming will free up space in other buildings and facilitate collaborative learning.
  - In incorporating more ancillary equipment space, the new design will also expand the scope of course activities that can be pursued.

- **Energy and Emission Reduction:**
  - The new building will be designed to LEED Gold standards. Through high efficiency energy performance and space design, the net improvement in energy performance is estimated to be a minimum of 15% in comparison to the 1965/70 building.
  - The vacated building will also be repurposed in the future to support other university functions.
6.0 Project Cost/Funding

- Total project costs of the Life Sciences Building have been estimated at $95,540,000, including construction costs of $84,640,000.

7.0 Key Risks

- Risks of cost escalation will be mitigated by confirming budget estimates and ensuring appropriate contingencies. Major equipment will also be pre-ordered in the event of market-driven escalations.

- Schedule overruns will be mitigated through the use of rigorous review and approval processes for timely approvals. Users groups will be engaged early in the design process. Equipment lists will also be established early in the process.

- Unforeseen infrastructure connection issues will be mitigated by a detailed analysis of existing infrastructure during design.

- Delays and issues associated with required Municipal approvals will be mitigated by liaising with the City early on in the design phase of the project and adjusting the project schedule as necessary.

8.0 Project Schedule

- The Life Sciences Project is currently in the planning phase with construction scheduled to commence in Q1 2020/21. Construction completion and occupancy are expected in Q1 2022/23.

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*Quarters relate to a fiscal year end of March 31st*
1.0 Current Situation

- SFU’s Burnaby campus currently has six student residences and nine townhomes of varying building age/lifecycle and capacity but limited program variation. The portfolio of student housing is dated aesthetically, functionally and operationally. There is also significant unmet demand for student housing.

- The new student housing tower will replace Madge Hogarth House, which is at the end of its useful life. With a FCI of 0.93, multiple building code compliance issues, seismic issues and rampant hazardous building material concerns, only a small portion is even occupiable.

- In addition, the existing Dining Hall is currently over capacity. With 369 beds coming online in Phase 2 (plus 482 beds in Phase 1), the current Dining Hall will in no way be able to support the additional 833 first year students on mandatory meal plans.

2.0 Project Description

- The project includes the construction of a new 11-storey, 180,700 sq. ft., LEED Gold, 369-bed Residence Tower complete with 30 beds for short-term accommodation and space for Student Housing Services.

- The tower will establish a new “front door” for the student housing precinct on Burnaby Mountain, increasing the visibility and accessibility of student housing.

- The Dining Commons component of the project will involve the renovation of the existing Dining Hall and construction of new dining space to create a new 30,580 sq. ft. Dining Commons with 800-seat capacity.

- The program for the new Dining Commons is based on distributed food serveries, multiple food offerings, including student self-cooking locations that will be accessible 24 hours/day, 7 days a week.

3.0 Project Objectives

- The new Residence Tower will provide additional capacity to address the acute housing shortage for students in the Lower Mainland. Phase 2 will add 369
urgently needed first year beds and free up space to add an additional 14 beds.

- Student housing contributes to student success, as students interact with a greater diversity of faculty and staff, resulting in greater opportunity for mentoring relationships, academic discussion and exploration of ideas.
- Phase 2 will also realize new and expanded dining and amenity space to accommodate food service delivery for existing and planned student housing projects. The expanded Dining Commons is necessary to support additional meal plan enrolment from students in the Phase 2 student housing, as students in first year housing are required to purchase a mandatory meal plan and the current facility is at capacity.

4.0 Options considered

- Multiple locations, unit typologies and phasing options were considered as part of the extensive consultation process in developing SFU’s Residence & Housing Master Plan.
- The site of the Residence Tower is ideally situated to provide a new “front door” to the student housing precinct and centralize Housing Services to deliver enhanced services to students.
- The site of the Dining Commons is located at the terminus of the campus spine, serving as the gateway to the student housing precinct.

5.0 Project Outcomes

- Infrastructure Improvements:
  - The project applies best practice building design and programming, providing a unique, functional and technologically advanced living experience to attract and retain students.
  - The Dining Commons will be a combination of a new two-storey building linked and integrated into the existing dining hall facility via an atrium. The atrium will be a double-height space that functions as an animated and enclosed portion of the campus spine, providing informal seating areas for gathering and studying.

- Cost Effectiveness:
  - Built to minimum LEED Gold standards, the buildings will be designed to reduce emissions and energy consumption.
  - The traditional unit type with clustered washrooms is a very efficient design and delivers greater value for money.
Leveraging the existing Dining Hall reduces the capital cost of the new dining facility.

**Innovation:**

- To continue to attract and retain students, the Residence Tower programming and design responds to emergent housing preferences including the mix of unit types and the demand for state of the art technology, flexibility, sustainability and innovation.

- SFU’s “all you care to eat” 24/7 food service delivery model is a pioneer program in Canada. Students are provided with different food stations (deli, salad, soup, grill, etc.), a special diet station (gluten-free, vegan) as well as a “pantry” section, where students can cook their own food with assistance of kitchen staff. Seating style and arrangements are more conducive to studying, whether solo or in groups, and encourage student interactions.

**Strategic Alignment:**

- The Phase 2 Student Housing and Student Amenities Project directly aligns with and supports several goals of the AEST as well as the Federal and local governments, and student population - Indigenous, domestic and international.

- Incrementally adding new, quality student housing and amenities will enable SFU to fulfill its academic mission and deliver on its commitment to provide a highly supportive learning environment, supporting student academic success while addressing its current infrastructure gap/deficit.

**Quality Education:**

- The Residence Tower includes space for a Faculty-in-Residence to develop and deliver living/learning programs for students in residence.

- The built environment supports university policies on Indigenous students, gender equity and disadvantaged students (those students whose family, social, or economic circumstances or physical abilities could potentially hinder their post-secondary learning opportunities).

- The tower also includes dedicated amenity space for Indigenous cultural practices.

- SFU will ensure that all student housing aligns with the principles of universal design and has accessible options for students with disabilities.

**Energy and Emission Reduction:**

- Built to minimum LEED Gold standards, the building will be designed to reduce emissions and energy consumption.

- SFU will ensure the design team evaluate the viability of Passive House design and other established sustainability rating systems, such as International WELL
Building Standard, for which SFU has already incorporated many principles into its current design standards and operating procedures.

6.0 Project Cost/Funding

- Total project costs of the Student Housing Project have been estimated at $98,735,000, including construction costs of $74,842,000. SFU is expecting to fund $24,684,000 through an internal loan and direct funding. The funding request to AEST for this project is therefore $74,051,162.

7.0 Key Risks

- Changes to approved Functional Program will be mitigated through due diligence and appropriate stakeholder engagement to validate demand, confirm ideal housing principles, and ensure strategic alignment.
- The risk that tender packages exceed estimated budget will be mitigated through early involvement of an independent Quantity Surveyor (QS) and leveraging the pre-construction expertise of the Construction Manager for input on constructability, phasing, and trade pricing.
- The unavailability of construction materials and trades will be mitigated through early procurement of materials and/or long lead items, and ongoing value engineering during design to ensure design materials and specifications, means and methods of construction are optimized.

8.0 Project Schedule

- Planning for the Student Housing Phase 2 has begun. The project is scheduled for completion and occupancy in Q3 2022/23. Planning of the SFU funded dining hall is at the schematic design stage. Construction is anticipated to start in Q1 of 2019/20. Occupancy is expected for Q3 2020/21 to coincide with the opening of the Phase 1.
1.0 Current Situation

- SFU's three campuses (Vancouver, Burnaby and Surrey) are all located on unceded, traditional and ancestral xʷməθkʷəy̓əm (Musqueam), Skwxwú7mesh Úxwumixw (Squamish), and səl̓ilwətaʔɬ (Tsleil-Waututh) territories. Burnaby is the only SFU campus without a gathering space for Aboriginal peoples.
- As of 2015/16, there were 671 Aboriginal students attending SFU, including 487 undergraduate students and 184 graduate students.
- Programs and services to support Aboriginal students are presently diffused throughout various locations around the Burnaby campus and there is no gathering space to accommodate a large gathering.

2.0 Project Description

- This project will result in the development of a dedicated facility for an Aboriginal Gathering Space for Indigenous students and activities on campus.
- The new building will include a large ceremonial hall, prep kitchen and support space.
- The size of the building program is 1,200 m².

3.0 Project Objectives

- This project is needed to support the participation of Indigenous peoples in post-secondary education on the SFU campus.
- The project will create a place for Aboriginal students, staff, and faculty who come from across British Columbia, Canada, and the world, to feel at home and make friends. It will be a place where their cultures and backgrounds are respected and supported. Such a place of pride and culture becomes a tangible recruitment tool and a place to enhance the retention of Aboriginal students, staff, and faculty.
- The Aboriginal Peoples' Gathering House will be a place where cultural events, celebrations, and workshops can be held for the Aboriginal and
campus-wide community. It will be a place to share Aboriginal culture as members of the University and off-campus community would come to the Aboriginal Peoples’ Gathering House to inquire and learn. It will also be an honoured place from which to make connections to local Aboriginal communities and a recognized symbol of the SFU commitment to these communities.

- A centerpiece of the Aboriginal Peoples’ Gathering House will be a traditional-style Ceremonial Hall. This hall will be a place to hold conferences, social and cultural events, and celebrations — for example, the special Honoring Feast for SFU Aboriginal graduates. It will be a place to welcome special dignitaries to the Burnaby campus. Such a Ceremonial Hall in a beautiful Aboriginal Peoples’ Gathering House will be a signature room and building on the campus, recognized across the University, city, province, and country.

4.0 Options Considered

- All three of SFU’s campuses are on unceded First Nations territory. In 2015, a First Peoples’ Gathering Space was opened at the Vancouver campus and a space has been dedicated for this purpose at the Surrey campus. It is now necessary to provide a facility to engage the larger Aboriginal students and community in Burnaby.
- In order to fulfil its intent as a space appropriate and desirable for cultural gatherings and celebrations, the new space needs to be designed to reflect Aboriginal culture.
- Renovation of existing facilities on campus was considered, but rejected, as there was no suitable location with enough vacant space.

5.0 Project Outcomes

- The project will help to improve the engagement of Aboriginal students and the Aboriginal community, as well as enhance participation and outcomes in post-secondary education for First Nations peoples.
- **Infrastructure Improvements:**
  - The Aboriginal Peoples’ Gathering House will provide a unique space for the engagement of Aboriginal students and the Aboriginal community.
  - The new building will also contribute to the cultural diversity on campus and provide an added space for gatherings and celebrations.
- **Strategic Alignment:**
  - The project aligns with commitments made by both the Province and SFU to the Truth and Reconciliation Commission’s Calls to Action by collaborating with Indigenous partners to foster access, inclusion and success in post-secondary education and training.
  - It also aligns with SFU’s commitment to becoming the leading “engaged” university in Canada, defined by its dynamic integration of innovative education, cutting edge research, and far reaching community engagement. This project will assist the University in realizing this vision with respect to the underlying principle of “respect for Aboriginal peoples and culture” by:
    - Engaging Aboriginal students and equipping them with the knowledge, research skills, and experiences to prepare them for life in an ever-changing and challenging world;
    - Stimulating research in the service of Aboriginal peoples; and
    - Engaging Aboriginal communities in every way possible to contribute to their social, economic, environmental, and cultural well-being.
    - Honouring the history, culture, and presence of Aboriginal peoples. The University will welcome and nurture Aboriginal students.

6.0 **Project Cost/Funding**

- The estimated total project cost of the Aboriginal Peoples’ Gathering House is $15,000,000 including construction costs.
- This project is expected to be funded partially from AEST and donations.

7.0 **Key Risks**

- Risks of cost escalation will be mitigated by confirming budget estimates and ensuring appropriate contingencies. Major equipment will also be pre-ordered in the event of market-driven escalations.
- Schedule overruns will be mitigated using rigorous review and approval processes for timely approvals. User groups will be engaged early in the design process. Equipment lists will also be established early in the process.
8.0 Project Schedule

- Planning of the Aboriginal Peoples’ Gathering House Project is scheduled to begin in April 2019. The project is slotted for completion and occupancy in Q1 2022/23.

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*Quarters relate to a fiscal year end of March 31st.*
1.0 Current Situation

- Since opening its doors in 2002, SFU’s Surrey Campus has grown to more than the 2,500 FTE in 32,257 m² (347,211 sf) with no room for expansion.
- Surrey Campus was planned on 135 sf per FTE, which is significantly lower than the Ministry Space Standard that yields approximately 175 sf per FTE.
- SFU is seeing increasing enrollment demand from the growing university student-aged population in the south Fraser Valley.
- The next phases of development at Surrey Campus are being planned to accommodate the next forecasted enrollment growth of 2,500 FTEs and allow SFU Surrey to keep pace with growing demand. The Health Systems Innovation and Sustainability Project is a key component of that expansion.

2.0 Project Description

- This project will provide space for science, health and technology programs and will be comprised of classrooms, research and teaching laboratories, academic and support spaces, and a data centre to serve the SFU Surrey campus.
- The collection of five programs associated with the Faculty of Health Science and the Faculty of Applied Science will provide opportunities for up to 660 undergraduate FTEs and 185 graduates FTEs in programs including Mechatronics (which will share part of Phase 1 lab space), Health Systems Innovation, Population Health Promotion, Indigenous Health Development, eHealth Innovation and Informatics, Health Technology Development and Assessment. Students in all concentrations will be offered the opportunity to complete a Minor in “Innovation and Entrepreneurship” from the Beedie School of Business.
- The estimated size of this project is 13,600 m².
3.0 Project Objectives

- The project will add programs to train students for careers in health, mechatronics and applied sciences which, according to the 2017 BC Labour Market Outlook, aligns with the two industry groups (health care and social assistance and professional, scientific and technical services) expected to see the greatest number of job openings in BC between 2017-2027.

- Science, Health and Technology programs will be offered to support other academic initiatives to provide disciplinary breadth and academic choice for students completing programs and degrees in Surrey.

- The purpose of this program is to train the leaders of the future who will develop and translate innovative ideas into evidence-informed practices that improve the planning, delivery, and outcomes of health care. The programs will prepare students to be problem-solvers, innovators, advocates, administrators, and leaders to meet health system-related needs in Surrey, British Columbia, and beyond.

- The program will generate evidence and translate evidence-informed ideas into improved systems of health promotion, disease prevention, and health care delivery. No other university or college in BC has developed a multi-disciplinary program focused on innovation for the future of this breadth or depth.

4.0 Options Considered

- The nature of science teaching and research requires hands-on experience in a laboratory setting. Alternative means of teaching and research without lab experience is not practical. Specialized lab facilities are not generally available in the marketplace and those that might be typically are not designed to meet the building code requirements for assembly use as required for university teaching functions. Locations distant from the Burnaby campus are also not practical.

- Extensive investigation of partnerships with private developers and the Surrey Development Corporation have not resulted in any viable facilities alternative.

- The project supports the development a university campus as part of the new Surrey downtown civic centre precinct.
5.0 Project Outcomes

- **Infrastructure Improvements:**
  - The project will allow for expansion of new graduate and undergraduate programs in science, health and technology at the Surrey campus, and provide support space for existing programs.

- **Strategic Alignment:**
  - This project will accommodate growth and labour market demand driven capacity. The project provides the opportunity for industry-based collaborations for which SFU Surrey has a strong reputation. The programs offered in this building will provide the training and education required to meet BC’s labour market needs and maintain a competitive economy. SFU is the only BC research university with plans to significantly grow its undergraduate student population.
  - The expansion of Surrey’s campus buildings and academic programs will support the institution’s vision for the integration of innovative education, cutting edge research and far-reaching community engagements. SFU Surrey has been a living example of what it means to be an “engaged university”.
  - This project is needed to meet the increasing enrollment demand from the growing university student aged population in the south Fraser Valley.

- **Energy and Emission Reduction:**
  - The project will be designed to LEED Gold Standard. The building will also be connected to the City of Surrey district energy system, which will utilize various low GHG emission sources.

6.0 Project Cost/Funding

- The estimated total project costs for the Health Systems and Innovation Building are $163,195,000, including construction costs of $109,753,000.

- There are on-going discussions with other institutional and municipal bodies regarding the possibility of making this part of a larger development on the site.

- It is assumed that operating funding would be provided by AEST based on standard funding per FTE formula.
7.0 Key Risks

- Risks of cost escalation will be mitigated by confirming budget estimates and ensuring appropriate contingencies. Major equipment will also be pre-ordered in the event of market-driven escalations.

- Schedule overruns will be mitigated using rigorous review and approval processes for timely approvals. Users groups will be engaged early in the design process. Equipment lists will also be established early in the process.

8.0 Project Schedule

- The Planning Phase of the Health Systems Innovation and Sustainability Project is scheduled to commence in April 2020. The project will be completed by December, 2023.

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*Quarters relate to a fiscal year end of March 31st.*
1.0 Current Situation

- The W.A.C. Bennett Library facility is a key public building on the Burnaby campus that is now over 50 years old. The building is 23,000 m² and is comprised primarily of study areas, book storage and some administrative offices on the top floor.

- This building is in poor condition with a current FCI assessment of 0.89 and requires a major infrastructure upgrade to extend the life of the building and to address life safety, seismic, and accessibility issues.

- The building’s HVAC system is in need of renewal and both its electrical distribution equipment and fire protection systems require updating. The exterior building enclosure such as windows and roofing, as well as interior construction systems are beyond useful life. Despite recent washroom interior upgrades, the overall plumbing system also still requires renewal.

- To carry out this major renewal work, building seismic upgrades will be required. Extensive consultant investigation of seismic upgrades has recommended that new shear walls and footings are required, and the building is considered a high priority for upgrades to bring it up to current building codes.

- Renewal of the W.A.C. Bennett Library building will be conducted as part of a multi-phased, integrated development plan. Work on the project will commence once the Life Sciences Building is constructed and the Shrum Biology Building is vacated. Library programs and functions will temporarily move into the Shrum swing space during construction so as minimize disruptions to students, faculty and staff.

2.0 Project Description

- Reorganization and renewal of the entire building is required to accommodate changes and growth in demand including expanded student learning centre and improved study spaces with power and wireless Internet services.

- Material storage areas will be consolidated into more efficient storage and retrieval systems to free up space.
Spaces to support student study and learning will be created including tutorial rooms, private and group work areas.

Basic infrastructure and code improvements are also needed including seismic upgrades, washroom improvements, additional electrical and data services and accessibility improvements.

3.0 Project Objectives

This project aims to address deferred maintenance backlog, code and life safety systems deficiencies and improve accessibility.

It will also modernize the functionality of library facilities to suit current practices and to support the student academic experience. Demand for library services has changed with less space needed for storage of hard copy materials. This project will involve a redesign to provide a diversity of spaces to support current modes of learning and collaboration.

4.0 Options Considered

The most cost effective and practical option is to re-use the existing building.

There are no other buildings on campus that have space and would be suitable to host the library function. Locating off campus would be impractical given the need for students and faculty to access other resources available only on campus. The cost of acquiring and renovating an off-site building would far exceed the cost of renewing the existing Library Building.

5.0 Project Outcomes

**Infrastructure Improvements**

- The project will provide an improved environment to support teaching for undergraduate and graduate academic programs. The renewed facilities will also support enhanced research activities.

- The project is expected to reduce the FCI to below 0.1 and will resolve all life-safety and building code deficiencies.

- Renovating the space in line with how libraries have come to be used will also enhance space utilization.

**Cost Effectiveness**

- The project will resolve significant deferred maintenance requirements.
Cost savings will be accrued through more modern and efficient building systems.

Re-use of the existing structure will also be more cost effective than demolition and rebuilding.

**Innovation:**

The renewal project contemplates several innovative program changes to enhance the library's role and significance as a center of learning and collaboration of the university. These include a new Digitization Lab, up to 50 team rooms, a new Data Visualization Studio, and an expansion of the Research Commons.

**Strategic Alignment:**

The improved Library Building supports the Ministry Service Plan objective of building on current strengths to enhance the quality of our post-secondary education.

The project aligns with the institutional priorities of providing a dynamic integration of innovative education, cutting-edge research and equipping SFU students with the knowledge, skills, and inter-professional learning experiences necessary to succeed in an ever-changing and challenging world.

**Quality Education:**

The Library provides essential services to support learning activities including access to literature, study space and learning support.

**Energy and Emission Reduction:**

The project will include the renewal of several building enclosure components that affect the performance of the building, including resistance to water ingress and associated deterioration of components, as well as occupant comfort and heat transfer.

Resealing activities and the renewal of roof membranes, as well as the additional of increased insulation at the roof and decks, the use of better performing glazing systems (for example, the use of thermally improved frames, and double or triple glazing), the over-cladding exposed concrete with exterior insulated assemblies and improvements to the air barrier system to reduce air leakage will all have a significant affect in improving the energy efficiency of the facility and reducing GHG emissions.
6.0 Project Cost/Funding

- The total estimated project cost of the Library and Student Commons Learning Renewal Project is $135,894,000, including construction costs of $98,474,000.
- This project will be funded by AEST.
- There is little expected cost impact on operating or program costs as there is no expansion of program delivery anticipated.

7.0 Key Risks

- There is a risk that instructional activity will be disrupted if the Library and Student Commons renewal project is not completed on time. Such disruptions will be mitigated through comprehensive, realistic and well-communicated scheduling of activities. Clear requirements, roles and responsibilities and work completion milestones will be established with the City and project team. “Safe to occupy” and phased occupancy back-up plans will be developed. A comprehensive communication strategy will also be put in place to ensure campus community informed of work in progress.
- Risks of cost escalation will be mitigated by confirming budget estimates and ensuring appropriate contingencies. Major equipment will also be pre-ordered in the event of market-driven escalations.
- Schedule overruns will be mitigated using rigorous review and approval processes for timely approvals. User groups will be engaged early in the design process. Equipment lists will also be established early in the process.

8.0 Project Schedule

- Planning of the Library and Student Commons Renewal Project is scheduled to commence in Q1 of 2019/20. Anticipated completion of this project is March 2025.

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*Quarters relate to a fiscal year end of March
1.0 Current Situation

- Since opening its doors in 2002, SFU’s Surrey Campus has grown to more than the 2,500 FTEs in 32,257m² (347,211 sf) with no room for expansion. Surrey Campus was planned on 135 sf per FTE, which is significantly lower than the Ministry Space Standard that yields approximately 175 sf per FTE.
- SFU Surrey is seeing increasing enrollment demand from the growing university student-aged population in the south Fraser Valley.
- The next phases of development at Surrey Campus are being planned to accommodate the next forecasted enrollment growth of 2,500 FTEs and allow SFU Surrey to keep pace with growing demand. The Business and Creative Technologies Project is a key component of that expansion.

2.0 Project Description

- This new building will be the third of a four-phase expansion of Surrey Campus that will provide space required to serve the needs of 2,500 additional FTEs within a comprehensive and full-service campus of 5,000 FTEs.
- This phase will provide for creative technologies studies and will have specialized facilities such as a games studies laboratory for students, large screen and mobile screen interfaces, a 3-D printing laboratory with industrial strength flooring, an innovation laboratory for student teams, and an innovative consultation space with video conference capability to link student teams to industry mentors.
- The project will provide classrooms, research and teaching laboratories, and academic and staff support spaces.
- This project will provide space required to serve the needs of up to 420 undergraduate FTEs and 202 graduate FTEs in Business Innovation and Entrepreneurship and Creative Technologies.
- The estimated size of this project is 13,000 m².
3.0 Project Objectives

- Entrepreneurship and innovation are fundamental to economic growth and prosperity in Canada. Students at SFU with undergraduate degrees outside of Business will benefit from an accessible Minor in Business offered at the Surrey campus focused on venture development (entrepreneurship) and innovation within organizations (intrapreneurship).

- Business majors in this concentration will select into one of two broad themes of Science and Technology Entrepreneurship or Social Entrepreneurship. Students in the Business major concentrating in entrepreneurship and Innovation will be able to work to earn space in the Surrey Incubator through competition. Limited spaces would be provided for both Technology as well as Social Entrepreneurship.

- Creative technologies will reshape the way we experience the world in the 21st Century. The convergence of media, entertainment and communication will bring together historically separate industries, revolutionizing usual business methods. Development in social media, big data, gamification (i.e. the application of typical elements of game playing to other areas of activity) and the creative economy will transform the way businesses reach, engage, and manage their employees and customers.

- The projected annual growth in employment in the tech sector is 3,000 to 4,000 new jobs, many with requirements for new skill sets. Unfortunately, according to a 2012 analysis from BCTIA, BC is well behind the Canadian average in producing graduates in this area. SFU programs will answer the need for creative technologies workers across the economy.

- 152,700 job openings in BC are expected by 2027 in the Business, Finance and Administration occupations according to the BC Labour Market Outlook 2017-2027.

4.0 Options Considered

- Extensive investigation of partnerships with private developers and the Surrey Development Corporation have not resulted in any viable facilities alternatives.

- The project supports development of a university campus as part of the new Surrey downtown civic centre precinct.
5.0 Project Outcomes

- **Infrastructure Improvements:**
  - The project will allow for expansion of new graduate and undergraduate business and other programs at the Surrey campus, and provide support space for existing programs. The project will also help to enhance the development of the Surrey Central City community.

- **Strategic Alignment:**
  - This project will accommodate growth and labour market demand driven capacity. The project provides the opportunity for industry-based collaborations for which SFU Surrey has a strong reputation. The programs offered in this building will provide the training and education required to meet BC’s labour market needs and maintain a competitive economy.
  - The expansion of Surrey’s campus buildings and academic programs will support the institution’s vision for the integration of innovative education, cutting edge research and far-reaching community engagements. SFU Surrey has been a living example of what it means to be an “engaged university”.
  - This project is needed to meet the increasing enrollment demand from the rapidly expanding university student aged population in the south Fraser Valley.

- **Energy and Emission Reduction:**
  - The project will be designed to a LEED Gold Standard. The building will also be connected to the City of Surrey district energy system, which will utilize various low GHG emission sources.

6.0 Project Cost/Funding

- The estimated total project costs of the Business and Creative Technologies Project are $152,794,000, including $110,720,000 in construction costs.

- There are on-going discussions with other institutional and municipal bodies regarding the possibility of making this part of a larger development on the site.

- It is assumed that operating funding would be provided by AEST based on standard funding per FTE formula.
7.0 Key Risks

- Risks of cost escalation will be mitigated by confirming budget estimates and ensuring appropriate contingencies. Major equipment will also be pre-ordered in the event of market-driven escalations.

- Schedule overruns will be mitigated using rigorous review and approval processes for timely approvals. User groups will be engaged early in the design process. Equipment lists will also be established early in the process.

8.0 Project Schedule

- Planning of the Business and Creative Technologies Building is scheduled to commence in Q1 of 2021/22 for completion in December, 2024.

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*Quarters relate to a fiscal year end of March 31*. 
1.0 Current Situation

- The Multi-Purpose Complex was constructed in 1970. The building is 13,000 m² in size and comprised primarily of classrooms, computer laboratories, a lecture theatre and offices.
- This building is in poor condition with an FCI assessment of 0.83 and a VFA estimate of $40.9M in deferred maintenance and capital renewal needs.
- It has significant deficiencies with respect to the condition of mechanical and electrical systems. The exterior enclosure including windows and skylights are overdue for renewal. The interior public spaces are worn and dated, creating dark, unclear and labyrinthian circulation. Currently the public spaces do not meet the University’s standards for welcoming, inclusive spaces.
- The intent of the project is to retain and renew the existing building. The upgrade project will improve the R. C. Brown Building’s architectural, mechanical and electrical infrastructure and bring the facility up to current University standards for life safety, accessibility and to improve wayfinding.

2.0 Project Description

- The project includes a renewal of major building systems and infrastructure elements.
- Training areas will be redesigned to align to modern teaching approaches using flexible active learning classroom concepts. Improvements will also be made to main public spaces and amenities, general circulation and emergency exit routes.
- All areas will be upgraded to current code guidelines and will provide appropriate life safety systems including the addition of fire sprinklers.
- The main electrical and mechanical systems will also be upgraded to improve indoor air quality and energy efficiency.
- All interior finishes, hardware and lighting will be replaced.
3.0 Project Objectives

- The project will support SFU’s strategic vision of innovative education and cutting-edge research by improving learning conditions for students and improving research delivery areas.

- Renewal will address the deferred maintenance backlog and mitigate the ongoing cost of short-term maintenance repairs and continued risk of systems failures and their impact on the education and research activities in the Multi-Purpose Complex.

- Design changes will improve the functionality of teaching facilities to promote contemporary learning practices and to support the student academic experience.

- Systems replacement will improve the energy efficiency of the building.

4.0 Options Considered

- The most cost effective and practical option is to re-use the existing building.

- Locating off campus would be impractical given the need for students and faculty to access other resources available only on campus.

- The cost of acquiring and renovating an off-site building would far exceed the cost of renewing the existing Multi-Purpose Complex.

5.0 Project Outcomes

- Infrastructure Improvements:
  - The project will resolve significant deferred maintenance requirements and provide an improved environment to support teaching for undergraduate and graduate academic programs.
  - The project is expected to reduce the FCI to below 0.1 and will resolve all life-safety and building code deficiencies.

- Cost Effectiveness:
  - The project will result in a building that will meet LEED Gold standard. Energy consumption will be reduced through more efficient building systems. Re-use of the existing structure will be more cost effective than demolition and rebuilding.
**Innovation:**
- The project will result in the creation of flexible and responsive teaching and working environments including:
  - Spaces that are able to support new technologies;
  - Flexible and open space for teaching, learning and working; and
  - Increased access to natural light.

**Strategic Alignment:**
- The improved Multi-Purpose Complex supports the Ministry Service Plan objective of building on current strengths to enhance the quality of our post-secondary education.
- The project also aligns with the institutional priorities of providing a dynamic integration of innovative education, cutting-edge research and equipping SFU students with the knowledge, skills, and experiences that prepares them for life in an ever-changing and challenging world.

**Quality Education:**
- The renewed facilities will provide support for enhanced research activities.
- Redesigned training areas will enable the use of modern teaching approaches and flexible active learning classroom concepts.

**Energy and Emission Reduction:**
- The building will contribute to sustainability by re-using an existing building, improving energy efficiency and reducing greenhouse gases.

### 6.0 Project Cost/Funding

- The estimated total project budget for the RC Brown Renewal is $69,025,000, with an estimated $50,018,000 in construction costs.
- This project is to be funded by AEST.
- There is little expected cost impact on operating or program costs as there is no expansion of program delivery anticipated.

### 7.0 Key Risks

- There is a risk that instructional activity will be disrupted should the work on this project not be completed on time. Such disruptions will be mitigated through comprehensive, realistic and well-communicated scheduling of
activities. Clear requirements, roles and responsibilities and work completion milestones will be established with the City and project team. “Safe to occupy” and phased occupancy back-up plans will be developed and a comprehensive communication strategy will be put in place to ensure campus community informed of work in progress.

- Risks of cost escalation will be mitigated by confirming budget estimates and ensuring appropriate contingencies. Major equipment will also be pre-ordered in the event of market-driven escalations.

- Schedule overruns will be mitigated using rigorous review and approval processes for timely approvals. Users groups will be engaged early in the design process. Equipment lists will also be established early in the process.

**8.0 Project Schedule**

- The Planning Phase of the Multi-Purpose Complex Renewal Project is scheduled to commence in Q3 2023/24. The project is expected to be completed in March, 2025.

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<th>Multi-Purpose Complex (BC Brown) - Phase 3</th>
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*Quarters relate to a fiscal year end of March 31.*
1.0 Current Situation

- Since opening its doors in 2002, SFU’s Surrey Campus has grown to more than the 2,500 FTE in 32,257 m² (347,211 sf) with no room for expansion.
- The Surrey Campus was planned based on 135 sf per FTE, which is significantly lower than the Ministry Space Standard that yields approximately 175 sf per FTE.
- SFU is seeing increasing enrollment demand from the growing university student-aged population in the south Fraser Valley.
- The next phases of development at Surrey Campus are being planned to accommodate the next forecasted enrollment growth of 2,500 FTEs and allow SFU Surrey to keep pace with growing demand. The Innovative Teaching and Other Facilities Project is a key component of that expansion.

2.0 Project Description

- This building will be the last of a four-phase expansion that will provide space required to serve the needs 2,500 additional FTE within a comprehensive and full-service campus of 5,000 FTE.
- This phase will provide for innovative teaching programs and graduate and research facilities. It will include classrooms, research and teaching laboratories, and academic offices.
- This project will provide space required to serve the needs of 490 undergraduate students and facilities for other graduate students in bridge programs.
- The estimated size of this project is 5,500 m².

3.0 Project Objectives

- The building will provide space for students in Faculty of Environment, Education and Science. The programs will be intertwined and SFU will seek to develop community partnerships and integrated educational pathways that improve employment prospects for graduates.
4.0 Options Considered

- The nature of integrated teaching and research requires hands-on experience in a laboratory setting. Alternative means of teaching and research without lab experience is not practical. Specialized lab facilities are not generally available in the marketplace and those that might be typically are not designed to meet the building code requirements for assembly use as required for university teaching functions. Locations distant from the Burnaby campus are also not practical.

- Extensive investigation of partnerships with private developers and the Surrey Development Corporation have not resulted in any viable facilities alternative.

- The project supports development a university campus as part of the new Surrey downtown civic centre precinct.

5.0 Project Outcomes

- **Infrastructure Improvements:**
  - The project will allow for expansion of facilities to support students at the Surrey campus and provide support space for existing programs.
  - The project will help to enhance the development of the Surrey Central City community.

- **Strategic Alignment:**
  - This project will accommodate growth and labour market demand driven capacity. The project provides the opportunity for industry-based collaborations for which SFU Surrey has a strong reputation. The programs offered in this building will provide the training and education required to meet BC’s labour market needs and maintain a competitive economy.
  - The expansion of Surrey’s campus buildings and academic programs will support the institutions vision for the integration of innovative education, cutting edge research and far-reaching community engagements. As planned, the SFU Surrey Campus is evolving into a living example of what it means to be an “engaged university”.
  - This project is needed to meet the increasing enrollment demand from the growing university student aged population in the south Fraser Valley.
4.0  Energy and Emission Reduction:
   - The project will be designed to LEED Gold Standard. The building will also be connected to the City of Surrey district energy system, which will utilize various low GHG emission sources.

6.0  Project Cost/Funding
   - Total estimated project costs for the Innovative Teaching and Other Facilities Project are $69,002,000, including $50,016,000 in construction costs.
   - There are on-going discussions with other institutional and municipal bodies regarding the possibility of making this part of a larger development on the site.
   - It is assumed that operating funding would be provided by AEST based on standard funding per FTE formula.

7.0  Key Risks
   - Risks of cost escalation will be mitigated by confirming budget estimates and ensuring appropriate contingencies. Major equipment will also be pre-ordered in the event of market-driven escalations.
   - Schedule overruns will be mitigated through the use of rigorous review and approval processes for timely approvals. Users groups will be engaged early in the design process. Equipment lists will also be established early in the process.

8.0  Project Schedule
   - The Planning Phase of the Innovative Teaching & Other Facilities Building is scheduled to commence in March, 2023 and be completed in Q2 of 2025/2026.

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*Quarters relate to a fiscal year end of March 31*
1.0 Current Situation

- The present Shrum Biology and adjacent Physics buildings are both in poor condition and in need of renewal.

- The 10,305 m² (110,922 sf) biology wing of the Shrum Science Centre was constructed in 1965 with additions in the 1970’s and 1980’s. The main building has an FCI assessment of 0.84 and a VFA estimate of $54.5M in deferred maintenance and capital renewal needs.
  - The building is comprised primarily of undergraduate laboratories, and research labs and classrooms that no longer comply with modern academic facility design standards. It has significant deficiencies with respect to current seismic and building code requirements. There is also a shortfall in space.
  - Biological Sciences is the largest department in the Faculty of Science. The undergraduate program comprises 709 undergraduate FTEs, and 110 graduate, 10 teaching faculty and 36 research faculty.
  - The department has a shortfall in space, based on the Council of Ontario Universities (COU) formula. According to COU, the total actual space inventory is 76% of that entitled to it. The shortfall is greatest in office space, but there are also shortages in research and teaching space, which includes common space and large holding facilities (e.g. greenhouses, insectary facilities). Were these spaces to be included in the COU formula, the percentage of entitlement would be lower.
  - As the space needs of the department exceed that available in the Biology Wing of the Shrum Science Centre, the department has spread into other buildings: Technology & Science Complex 2 and the South Science Building. This diffuse location of departmental members and operations – as well the quality of the space - are a barrier to the continued growth in collaborative and interdisciplinary excellence in both teaching and research.
The Physics Wing of the Shrum Science Centre was constructed in 1970. This building, located adjacent to the Biology wing, is 10,305 m² in size and is in poor condition with an FCI assessment of 0.92 and a VFA estimate of $47.8M in deferred maintenance and capital renewal needs.

- The building is comprised primarily of undergraduate laboratories, and research labs and classrooms that no longer comply with modern academic facility design standards. It also has significant deficiencies with respect to current seismic and building code requirements.

### 2.0 Project Description

- This project involves a renewal of all major building systems and infrastructure elements of both the Shrum Biology and Physics buildings.

- The intent is to renew the buildings primarily for labs that do not require intensive infrastructure, classrooms and offices. This will include consolidating teaching labs to provide flexibility in class size and to allow sharing of support spaces.

- Laboratory areas will be redesigned following the model of the Chemistry renewal project that was completed in 2011. Research labs will also be consolidated into larger labs allowing flexibility for expansion and contraction of space assignments as research project needs change over time.

- The renovation standard will be contemporary, modular and flexible to allow for easy adaptation to changing research and academic needs. Improvements will be made to general circulation and emergency exit routes. All areas will be upgraded to current code guidelines and will provide appropriate life safety systems.

### 3.0 Project Objectives

- A primary project objective is to continue with the phased renewal of the Shrum Science Complex begun with the Chemistry renewal project completed in 2011.

- The project will support SFU’s strategic vision of innovative education and cutting-edge research by improving learning conditions for students and improving research delivery areas.
Renewal will address the deferred maintenance backlog and mitigate the ongoing cost of short-term maintenance repairs as well as the continued risk of systems failures and their impact on the education and research activities in the Biology building.

4.0 Options Considered

- The cost to renew to the existing building to current science standards would far exceed cost of constructing a new purpose-built facility. As well, the logistical challenges and costs of disruption and relocation of occupants would be significant.
- A retrofit of the existing space would not allow researchers with similar interests to be co-located; there simply is not enough space to do so. Whereas, a new building can be purpose-built to improve the level of engagement within and across research groups in Biological Sciences.
- Locations outside of the Burnaby campus are not practical. The nature of science teaching and research requires hands on experience in a laboratory setting. In addition, alternative means of teaching and research without lab experience is not practical. Specialized lab facilities are not generally available in the marketplace and those that might be are not typically designed to meet the building code requirements for assembly use, as required for university teaching functions.

5.0 Project Outcomes

- Infrastructure Improvements:
  - Space utilization will be improved by developing larger open teaching and research labs that will allow for greater sharing of centralized support spaces, greater flexibility in accommodating various class sizes as well as the expansion/contraction of research projects.

- Cost Effectiveness:
  - The project will resolve significant deferred maintenance requirements and realize cost savings through energy efficiencies gained through a more modern and more efficient building systems.

- Innovation:
  - The project design will provide for open labs, which will enhance space utilization, safety and equipment sharing.
o Creative use of “plug and play” infrastructure concepts will provide flexibility for change and facilitate varied teaching models to enhance student learning.

o Movable casework and the placement of plumbing in perimeter walls will provide maximum flexibility for space configurations and changing instructional needs.

- **Strategic Alignment:**
  o The improved Shrum Sciences Complex supports the Ministry Service Plan objective of building on current strengths to enhance the quality of our post-secondary education.
  o The project aligns with the institutional priorities of providing a dynamic integration of innovative education, cutting-edge research and equipping SFU students with the knowledge, skills, and experiences that prepares them for life in an ever-changing and challenging world.

- **Quality Education:**
  o The renewal will provide an improved environment to support teaching for undergraduate and graduate academic programs. The renewed facilities will further provide support for enhanced research activities.

- **Energy and Emission Reduction:**
  o The project will result in a building that will meet LEED Gold standard. Energy consumption will be reduced through modern and more efficient building systems.

### 6.0 Project Cost/Funding

- The total estimated project cost for the Shrum Sciences Renewal Project is $112,556,000, including $81,562,000 in construction costs.
- This project is to be funded by AEST.
- There is little expected cost impact on operating or program costs as there is no expansion of program delivery anticipated.

### 7.0 Key Risks
There are risks associated with the construction logistics of renewing a wing of a larger occupied facility mega structure. Proposed mitigation strategies focus on thorough pre-design work to identify issues, assess options and analyze existing infrastructure.

The relocation of occupants for duration of project poses a risk, which will be mitigated through a detailed move strategy with phasing as required.

Unknown existing conditions will be mitigated by detailed investigation including strategic destructive exploration during design to minimize unknowns.

Budget overruns will be managed by way of a thorough investigation of options for renovations with cost estimates including adequate contingencies for the type of work.

Schedule delays will be mitigated through the preparation of a detailed schedule with milestones including relocation of existing occupants.

Risks associated with equipment coordination will be mitigated through the development of an early equipment list to establish technical requirements, inform design and construction documents and avoid coordination conflicts and unexpected costs/schedule impact.

8.0 Project Schedule

Planning of the Shrum Biology Renewal Project is scheduled to commence in Q3, 2022/2023 with completion in July 2027.

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</table>

*Quarters relate to a fiscal year end of March 31s.*
1.0 Current Situation

- The Academic Quadrangle is the largest and among the oldest and most iconic buildings on SFU Burnaby Campus. Located in the center of the SFU Burnaby Campus, this six-floor, 27,420 m² building is also the most heavily utilized facility on campus.

- The building currently houses Arts & Social Sciences, Canadian Studies, Chinese Studies, CUPE, Education, English, Faculty Association, Food Services, Gender Sexuality and Women’s Studies, Geography, Hellenic Studies, History, the Human Rights Office, Humanities, International Services, Mathematics, Office for Aboriginal Peoples, Political Science, Psychology, the Science Technical Centre, Sociology & Anthropology and the Terry Fox Foundation among others.

- Built in 1965/67, the building is overdue for renovation with an FCI assessment of 0.85 and a VFA estimate of $107.3M in deferred maintenance and capital renewal needs. It is important that the building’s iconic architectural heritage features be preserved.

- A full building system renewal is required for the exterior enclosure, including the windows, roof assembly, and exposed concrete walls. The building’s electrical, mechanical, and plumbing systems are all beyond useful life. Interior construction and equipment are also worn out.

2.0 Project Description

- The initial phase of upgrades will address building envelop, HVAC, lighting, seismic, finishes and functional upgrades such as fire protection and hazardous material removal and improvements in select areas of the building. Carrying out the work is also a significant challenge requiring multi-phasing to minimize disruption to building occupants and programming.
3.0 Project Objectives

- The purpose of the renewal project is to address deferred maintenance issues pertaining to this central facility of SFU Burnaby and ensure the long-term integrity of one of the campus’ architectural centerpieces and main hubs of student activity.

4.0 Options Considered

- Given the architectural significance of the Academic Quadrangle and its central location on campus, renovation of the building is the best option for renewal.

5.0 Project Outcomes

- Infrastructure Improvements:
  - The first phase of renewal work proposed will see the upgrading and renewal of the building envelope, HVAC, lighting and finishes in select areas of the building.

- Cost Effectiveness:
  - The project will result in a building that will meet LEED Gold standard. Energy consumption will be reduced through modern and more efficient building systems.

- Innovation:
  - The project will result in the creation of flexible and responsive teaching and working environments including:
    - Spaces that are able to support new technologies;
    - Flexible and open space for teaching, learning and working; and
    - Increased access to natural light.

- Strategic Alignment:
  - Renewal of the Academic Quadrangle will serve to enhance the learning, research and meeting space for a large and diverse number of faculties, organizations and services at SFU Burnaby – and in this way clearly supports the Ministry Service Plan objective of building on current strengths to enhance the quality of our post-secondary education.
The project also aligns with the institutional priorities of providing a dynamic integration of innovative education, cutting-edge research and equipping SFU students with the knowledge, skills, and experiences that prepares them for life in an ever-changing and challenging world.

- The renewed facilities will provide support for enhanced research activities.
- Redesigned training areas will enable the use of modern teaching approaches and flexible active learning classroom concepts.

### Energy and Emission Reduction:
- The building will contribute to sustainability by re-using an existing building, improving energy efficiency and reducing GHG emissions.

#### 6.0 Project Cost/Funding
- The total estimated project cost for the Academic Quad Renewal Project is $66,763,000, including $48,379,000 in construction costs.
- This project is to be funded by AEST.
- There is little expected cost impact on operating or program costs as there is no expansion of program delivery anticipated.

#### 7.0 Key Risks
- The relocation of occupants for duration of project poses a risk, which will be mitigated through the preparation of a detailed move strategy with phasing as required.
- A detailed investigation, including strategic destructive exploration during design, will be carried out to uncover all aspects, challenges and potential issues associated with the existing conditions.
- Budget overruns will be managed by way of a thorough investigation of options for renovations with cost estimates including adequate contingencies for the type of work.
- Schedule delays will be mitigated through the preparation of a detailed schedule with milestones including relocation of existing occupants.
- Risks associated with equipment coordination will be mitigated through the development of an early equipment list to establish technical
requirements, inform design and construction documents and avoid coordination conflicts and unexpected costs/schedule impact.

8.0 Project Schedule

- Planning of the Academic Quadrangle Renewal Project is scheduled to commence in Q3 of 2023/24 with full project completion in April 2027.

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*Quarters relate to a fiscal year end of March 31st*
ATTACHMENTS

- PROPOSED CATEGORY 1: NEW PRIORITY PROJECTS, CATEGORY 2: WHOLE ASSET REPLACEMENT & RENEWAL PROJECTS, CATEGORY 3: STUDENT HOUSING PROJECTS

- SUMMARY OF MAJOR ONGOING AND PLANNED SELF-FUNDED PROJECTS (> $5 MILLION)

- EXISTING STUDENT HOUSING BUILDING INVENTORY DATA
## Five-Year Capital Plan Instructions (2019/20-2023/24)

**Attachment 3**

### Project Categories
- **Category 1: New Priority Projects**
- **Category 2: Whole Asset Replacement & Renewal Projects**
- **Category 3: Student Housing Projects**

<table>
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<tr>
<th>#</th>
<th>Institution</th>
<th>Campus</th>
<th>Project Description</th>
<th>Project Category</th>
<th>Anticipated Construction Start Date</th>
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*This update to the Five Year Capital Plan reflects Simon Fraser University's current priorities and is based on the best information and data available at this time.*
Five-Year Capital Plan Instructions (2019/20 - 2023/2024)
Attachment 4 - Summary of Major Ongoing and Planned Self-Funded Projects (>5 million)

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<th>Institution</th>
<th>Campus</th>
<th>Project Description</th>
<th>Anticipated Construction Start Date</th>
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<th>Total Cashflow Forecast Outgoing Years</th>
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$156,950,000

This update to the Five Year Capital Plan reflects Simon Fraser University’s current priorities and is based on the best information and data available at this time.
### Five-Year Capital Plan Instructions (2019/20-2023/24)

#### Attachment 5 - Existing Student Housing Building Inventory Data

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<th>Institution</th>
<th>Campus</th>
<th>Neighbourhood / Building Group Name</th>
<th>Building Name</th>
<th>Type (ex Single, Quad, Duplex)</th>
<th>Description</th>
<th>Number of Beds</th>
<th>Year Built</th>
<th>Year Renovated (if applicable)</th>
<th>Description of Renovations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Towers</td>
<td>Barbara Rae House</td>
<td>single-occupancy</td>
<td>Undergraduate Student housing; tower</td>
<td>256</td>
<td>2004</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Hamilton Hall</td>
<td></td>
<td>single-occupancy</td>
<td>Graduate Student; studio suites</td>
<td>103</td>
<td>1993</td>
<td>2008/09</td>
<td>Building envelope</td>
</tr>
<tr>
<td>3</td>
<td>SFU</td>
<td>Burnaby</td>
<td>McTaggart-Cowan Hall</td>
<td></td>
<td>single-occupancy</td>
<td>Undergraduate Student housing; lowrise</td>
<td>200</td>
<td>1986</td>
<td>2016/17</td>
<td>rebuild washrooms and kitchens, add sprinkler system and emergency power</td>
</tr>
<tr>
<td>4</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Towers</td>
<td>Pauline Jewett House</td>
<td>single-occupancy</td>
<td>Undergraduate Student housing; tower</td>
<td>249</td>
<td>2005</td>
<td>NA</td>
<td></td>
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<td>5</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Towers</td>
<td>Shadbolt House</td>
<td>single-occupancy</td>
<td>Undergraduate Student housing; tower</td>
<td>222</td>
<td>2004</td>
<td>NA</td>
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<td>6</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Shell House Residence</td>
<td></td>
<td>single-occupancy</td>
<td>Undergraduate Student housing; lowrise</td>
<td>130</td>
<td>1967</td>
<td>2012/13/14</td>
<td>rebuild washrooms, add sprinkler system, re-roofing, remove asbestos flooring</td>
</tr>
<tr>
<td>7</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Townhouses</td>
<td>Chilcotin</td>
<td>single-occupancy</td>
<td>Undergraduate Student housing; townhouses</td>
<td>44</td>
<td>1993</td>
<td>2012</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Townhouses</td>
<td>Cowichan</td>
<td>single-occupancy</td>
<td>Undergraduate Student housing; townhouses</td>
<td>40</td>
<td>1993</td>
<td>2012</td>
<td></td>
</tr>
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<td>SFU</td>
<td>Burnaby</td>
<td>Townhouses</td>
<td>Kelowna</td>
<td>single-occupancy</td>
<td>Undergraduate Student housing; townhouses</td>
<td>44</td>
<td>1993</td>
<td>2015</td>
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<td>10</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Townhouses</td>
<td>Kimberley</td>
<td>single-occupancy</td>
<td>Undergraduate Student housing; townhouses</td>
<td>40</td>
<td>1993</td>
<td>2018</td>
<td>Building envelope</td>
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<td>11</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Townhouses</td>
<td>Kitimat</td>
<td>single-occupancy</td>
<td>Undergraduate Student housing; townhouses</td>
<td>44</td>
<td>1993</td>
<td>2010</td>
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<td>SFU</td>
<td>Burnaby</td>
<td>Townhouses</td>
<td>Penticton</td>
<td>single-occupancy</td>
<td>Undergraduate Student housing; townhouses</td>
<td>44</td>
<td>1993</td>
<td>2018</td>
<td>Building envelope</td>
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<td>13</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Townhouses</td>
<td>Quesnel</td>
<td>single-occupancy</td>
<td>Undergraduate Student housing; townhouses</td>
<td>44</td>
<td>1993</td>
<td>2018</td>
<td>Building envelope</td>
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<td>14</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Townhouses</td>
<td>Squamish</td>
<td>single-occupancy</td>
<td>Undergraduate Student housing; townhouses</td>
<td>44</td>
<td>1993</td>
<td>2018</td>
<td>Building envelope</td>
</tr>
<tr>
<td>15</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Townhouses</td>
<td>Charles Chang Innovation Centre</td>
<td>single-occupancy</td>
<td>Graduate Student; studio and 2 bdrm suites</td>
<td>68</td>
<td>2016</td>
<td>NA</td>
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<td>16</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Madge Hogarth House</td>
<td></td>
<td>Low rise; undergrad</td>
<td>CLOSS</td>
<td>1965</td>
<td>2008</td>
<td></td>
<td>Flood repair</td>
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<tr>
<td>17</td>
<td>SFU</td>
<td>Burnaby</td>
<td>Madge Hogarth House</td>
<td></td>
<td></td>
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