

REPORT TO THE BOARD OF GOVERNORS

SUBJECT	UBC FIVE-YEAR CAPITAL PLAN
MEETING DATE	JUNE 14, 2018

Forwarded to the Board of Governors on the Recommendation of the President

APPROVED FOR SUBMISSION



Santa J. Ono, President and Vice-Chancellor

DECISION REQUESTED	IT IS HEREBY REQUESTED that <i>the UBC Board of Governors grant approval for the UBC Five-Year Capital Plan (2019-2020 to 2023-2024) for submission to the Ministry of Advanced Education, Skills and Training.</i>
Report Date	May 18, 2018

Presented By

- Peter Smailes, Interim Vice-President Finance & Operations
- Andrew Szeri, Provost & Vice-President Academic
- Gail Murphy, Vice-President Research
- Deborah Buszard, Deputy Vice-Chancellor & Principal, UBC Okanagan
- Philip Steenkamp, Vice-President External Relations
- Pam Ratner, Vice-Provost & AVP Enrolment & Academic Facilities
- John Metras, Acting Associate Vice-President, Facilities
- Jennifer Sanguinetti, Acting Managing Director, Infrastructure Development
- Michael White, Associate Vice-President, Campus & Community Planning

EXECUTIVE SUMMARY

Five-Year Capital Plan

To develop capital priorities for future consideration, the Ministry of Advanced Education, Skills & Training (AEST) requests five-year capital plan submissions from all public post-secondary institutions in June of each year. A draft UBC Five-Year Capital Plan has been developed in accordance with the University's established Capital Planning Principles and in alignment with Provincial priorities. The proposed projects, which are outlined in this report, were selected by the UBC Executive based on their potential to contribute to the University's strategic priorities and operational & risk mitigation priorities.

The Five-Year Capital Plan submission provides an opportunity to highlight UBC's capital priorities to government for potential funding. Board approval of the Plan does not commit the University to undertake any specific project(s) nor does it commit any UBC resources. Any project that the government may choose to support would be subject to the standard UBC capital approval process.

The Board is asked to consider the proposed Five-Year Capital Plan projects within the context of the University's long range priorities and current goals and to approve the Five-Year Capital Plan for submission to AEST.

INSTITUTIONAL STRATEGIC PRIORITIES SUPPORTED

✓ Learning

✓ Research

✓ Innovation

✓ Engagement
(Internal / External)

✓ International

or ✓ Operational

**DESCRIPTION &
RATIONALE**

Five-Year Capital Plan

To develop capital priorities for future consideration, the Ministry of Advanced Education, Skills & Training (AEST) requests five-year capital plan submissions from all public post-secondary institutions in June of each year. Board of Governors' approval is required for the submission. The Five-Year Capital Plan will provide AEST with a high-level understanding of UBC's capital requirements for new priority expansion projects, replacement/renewal projects and capital innovation projects.

UBC has developed a jointly funded Capital Plan which reflects the Provincial focus on technology innovation expansion, international education, economic development, jobs, and facility asset renewal. The proposed projects were identified through an extensive assessment and consultation process that considered how proposed projects contribute to the University's strategic objectives and operational performance & risk mitigation objectives. The prioritization criteria are as follows:

1) University Strategic Priorities

- Collaboration, Inclusion, Innovation – 20% weighting
- People & Places – 20%
- Research Excellence – 20%
- Transformative Learning – 20%
- Local & Global Engagement – 20%

2) Operational Performance and Risk Mitigation

- Health & Safety (e.g. seismic risk) – 25%
- Performance & Reliability (e.g. deferred maintenance) – 25%
- Legal / Regulatory / Reputation – 25%
- Business Case – 25%

The proposed UBC Five-Year Capital Plan includes priority academic projects totalling \$605 million with a request to the Provincial Government for \$331.5 million in funding. Demolitions or renovations associated with the new construction would reduce UBC's deferred maintenance by \$127.5 million and improve seismic ratings on specific buildings.

Approval of this plan does not commit the University to undertake any specific project(s) nor does it commit any UBC resources. Any project that the government may fund would be subject to the standard UBC capital approval process.

UBC Five-Year Capital Plan: Priority Academic Projects

The UBC Five-Year Capital Plan includes strategic academic projects which support UBC priorities and focus on teaching and research excellence. The proposed projects are intended to align with Provincial government priorities, in particular economic development and facility asset renewal. These projects are shown in the context of UBC's current list of Top 15 priorities and Future Priorities which is presented at each Board meeting in the Capital Projects Update report.

As careful prioritization of proposed capital projects is critical to ensure that limited capital is directed to help UBC achieve its goals, these projects have been ranked to align

with UBC's strategic and operational objectives. The projects proposed are shown in Table 1: UBC Five-Year Capital Plan: Academic Priorities and are described in more detail in Attachment 1: UBC Five-Year Capital Plan Academic Priorities Project Descriptions. The seismic mitigation impact of the proposed projects is provided in Attachment 2.

Table 1: UBC Five Year Capital Plan: Academic Priorities (in order of priority)

UBC Campus	Project	Delivery ¹	Cost in \$Ms	Funding	Request to AEST in \$Ms	Reduced Deferred Maintenance in \$Ms
Vancouver	School of Biomedical Engineering Building	Sep-22	\$70	Government \$20M UBC \$50M	\$20	\$0
Vancouver	Chemistry Laboratory Complex (Undergraduate Chemistry Teaching Labs + Chemistry Physics Research Labs)	Apr-23	\$196	Government \$140M UBC \$56M	\$140	\$39.0
Vancouver	Community Health Sciences + Recreation Facility + War Memorial Gym Renewal	Apr-23	\$210	Government \$80M Fundraising \$20M UBC \$110M	\$80	\$45.8
Vancouver	Mathematics Building + Klinck Building Replacement	Apr-23	\$106	Government \$80M Fundraising \$15M UBC \$11M	\$80	\$37.7
Vancouver	UBC Life Building Phase 2 / Integrated Mental Health Centre	Apr-22	\$23	Government \$11.5M UBC \$11.5M	\$11.5	\$5
	Total		\$605		\$331.5	\$127.5

1 - These target completion dates assume project funding approval by March 31, 2019.

BENEFITS See Attachment 1: UBC Five-Year Capital Plan Academic Priorities Project Descriptions
Learning, Research,
Financial, Sustainability
& Reputational

RISKS See Financial section
Financial, Operational
& Reputational

COSTS See table above.
Capital &
Lifecycle Operating

FINANCIAL The University currently has sufficient working capital liquidity to provide internal
Funding Sources, financing for several of the projects. In the event the University is successful in
Impact on Liquidity obtaining government funding for one or more of the proposed Five-Year Capital Plan
projects, the timing of existing priorities may require revision.

SCHEDULE The proposed dates of project delivery are shown for each project in Table 1: UBC Five
Implementation Year Capital Plan: Academic Priorities. These dates assume project funding approval by
Timeline March 31, 2019.

CONSULTATION UBC Capital Priorities are developed in accordance with the University's established
Relevant Units, Capital Planning Principles. Input on the capital priorities and prioritization process was
Internal & External sought and received from a range of different groups including:
Constituencies

- Committee of Deans
- Property & Planning Advisory Committee
- Senate Academic Building Needs Committee
- Senate Budget Committee
- Alumni Association
- Alma Mater Society
- Graduate Student Society
- Building Operations
- Energy & Water Services
- UBC Properties Trust

The Executive approved the final proposed Five-Year Capital Plan on May 1, 2018. A larger set of capital priorities, from which the Five-Year Capital Plan projects are drawn, is provided in Attachments 3 and 4.

UBCPT COMMENTS
Complete for all reports
that include a property
component

Date of Review:

Signed off by:

NA

Previous Report Date June 14, 2017

Decision The UBC Board of Governors approved the UBC Five-Year Capital Plan (2018-19 to 2022-23)
for submission to the Ministry of Advanced Education.

Action / Follow Up

Attachments:

1. UBC Five-Year Capital Plan Academic Priorities Project Descriptions
2. Seismic Impact of Five-Year Capital Plan
3. Top 15 Capital Priorities for UBC and/or Government Funding
4. Future Capital Priorities

Attachment 1: UBC Five Year Capital Plan Academic Priorities Project Descriptions

Note that some minor edits may be made to these project descriptions prior to final submission to AEST.

Institution/ Campus	Project Title:	Category	Estimate	Priority
UBC Vancouver	School of Biomedical Engineering Building	1	\$70 m	1 of 8

1.0 Current Situation

The School of Biomedical Engineering (BME) is a strategic partnership between the Faculty of Applied Science and Faculty of Medicine and will include new undergraduate and graduate education programs and research programs. The School of Biomedical Engineering will serve as an innovation hub for education and research across both the Faculties of Applied Science and Medicine, working with industry and health partners, to accelerate discoveries and improve health outcomes for BC and around the world. BME is currently based in the Biomedical Research Centre (BRC). While this facility can accommodate current graduate student enrolment and the start up of the undergraduate program in September 2018 with 60 students, a larger facility will be required to address planned program growth over the next 5 years to 600 undergraduate and 200 graduate students.

2.0 Project Description

The planned School of Biomedical Engineering building, a 10,700 GSM new building, will support the expansion of the undergraduate and graduate programs as well as research activities. The planned functional program includes classrooms, teaching laboratories, research laboratories, office space, meeting space and informal learning/student community space. The facility is proposed to be located between the Applied Science and Medicine precincts on the UBC Vancouver campus. Several potential locations are currently being assessed.

3.0 Project Objectives

- Provide sufficient space for expansion of BME undergraduate and graduate programs.
- Provide high capacity, flexible and efficient purpose-built facilities for BME research activities.

4.0 Options considered

Applied Science fully occupies 14 buildings on the Vancouver campus, with a significant presence in four additional buildings, and specific functions in another six buildings. Several of these facilities are small or special purpose, designed to accommodate one or more of the specialized processes critical to engineering research or the hands-on learning experience. Medicine similarly occupies space in multiple buildings on the Vancouver campus including the UBC Hospital. Infrastructure Development confirms that all of these core facilities are fully functional and intensively used. There is no existing space available to accommodate the planned BME expansion. New expansion is required and detailed planning is underway to determine project scope costing, site analysis, funding/financing strategy.

5.0 Project Outcomes

- **Infrastructure Improvements**
- **Cost Effectiveness**
- **Quality Education/ Innovation/ Strategic Alignment** The School of Biomedical Engineering offers both undergraduate and graduate program options that emphasize a balance of biomedical engineering and life science study with a focus on clinical and industrial application. This interdisciplinary program uses engineering techniques and technologies to address needs within the medical and healthcare sectors. Opportunities for education and research exist in areas such as biomechanics, biomaterials, biochemical processing, cellular engineering, imaging, medical devices,

micro-electro-mechanical implantable systems, physiological modeling, simulation, monitoring and control, as well as medical robotics.

- **Energy & Emission Reduction** This project will target LEED Gold certification.

6.0 Project Cost/ Funding for the School of Biomedical Engineering Building

The anticipated capital budget is \$70 million.

Estimate	Total
Planning and Design	\$6,300,000
Construction	\$49,000,000
Contingencies	\$3,600,000
Completion Costs	\$10,000,000
Taxes	\$1,100,000
Total	\$70,000,000

Proposed Funding	Amount
UBC	\$50,000,000
Government	\$20,000,000
Total	\$70,000,000

Annual Operating + Maintenance	Amount
New Space @ \$92/GSM	\$984,000
Less Existing Space	
Total	\$984,000

Recapitalization	Amount
Cyclical Maintenance	\$404,260
Modernization/ Upgrade	\$107,112
Total	\$511,362

7.0 Key Risks

- Unusual construction cost escalation is currently being experienced due to a high level of market activity that has reduced contractor availability and bid coverage. An escalation contingency has been included in the cost estimate to mitigate this risk.
- Project costs and schedule overruns are mitigated by UBC's retained risk contingency policy and project risk management practices (e.g. risk registry).
- UBC will apply the experience gained from recently completed capital projects.

8.0 Project Schedule

This project can be completed in 42 months from date of funding approval.

Institution/ Campus	Project Title:	Category	Estimate	Priority
UBC Vancouver	Chemistry Laboratory Complex (Undergraduate Chemistry Teaching Labs + Chemistry Physics Research Labs)	1 + 2	\$196 m	2 of 8

1.0 Current Situation

Undergraduate demand for Chemistry courses has grown significantly over the years and will continue to grow. Every UBC science student's education includes chemistry courses and this requirement has increased with the introduction of UBC's Vantage College program and the approval of the biomedical engineering program. However, the layout, age, condition, and inadequate infrastructure of the existing teaching laboratory facilities restrict pedagogical approaches and growth in student numbers. The next generations of scientists, engineers and medical personnel must be trained in sophisticated, state of the art techniques that relate to analytical chemistry, nanomaterials, new drug discovery, and industrial catalysis. New undergraduate chemistry teaching laboratories are urgently required to deliver these programs and satisfy critical future demands for young people in British Columbia's medical, biotech, mining, environmental chemistry, materials science, quantum materials, forestry and wood processing industry sectors.

The Chemistry Physics research lab building has major mechanical and envelope issues which require significant investment to correct. New information regarding the seismic vulnerability of the building has led UBC to the conclusion that this building requires complete renewal and upgrade or replacement. A recent Master Program has identified a serious lack of lab support space to support modern lab research activities, and insufficient space for new hires.

2.0 Project Description

UBC proposes to build a 23,485 GSM expanded replacement facility for undergraduate Chemistry teaching and Chemistry Physics research activities which will fulfill capacity requirements and provide up to date, flexible space with full infrastructure capability.

3.0 Project Objectives

This replacement facility will:

- Provide the opportunity for transformative student learning through enhanced laboratory experiences in a facility with appropriate infrastructure to meet today's and tomorrow's standards
- Create flexible learning facilities that can adapt to evolving pedagogies
- Provide capacity for increased demand for Chemistry teaching
- Provide opportunities for group work and collaboration through informal learning spaces and innovative classrooms
- Aid in the recruitment and retention of exceptional students and faculty.

4.0 Options considered

Renewal of the Chemistry teaching buildings was considered, however, the existing buildings are insufficient in area and deficient in seismic capacity. The existing buildings total 16,430 GSM. The planned expansion brings the area to 23,485 GSM. The existing site will not accommodate additional built area. Therefore, the proposal is to build on the Wesbrook /Cunningham site.

	GSM	Date Built
Chemistry A Chemistry Physics (Bldg 447)	7,630	1989
Chemistry B Chemistry South(Bldg 148)	5,240	1959
Chemistry C Chemistry East (Bldg 144)	3,560	1963
Expansion to meet academic program	7,055	
Total Replacement Area	23,485	

5.0 Project Outcomes

• Infrastructure Improvements

A replacement facility will correct the problem of limited servicing in the Chemistry research buildings which is caused by the current location and configuration of Chemistry Stores. It will eliminate the outdated buildings' deferred maintenance issues which include envelope, electrical and mechanical systems and seismic upgrades, sprinklers and Code upgrades.

This 23,485 GSM project will demolish and replace Chemistry East (built in 1963), Chemistry South (1959) and Chemistry Physics (1989). These deteriorating buildings have reached the end of their service life and have been previously classified as high or very high risk buildings. Site investigation and analysis to date support these classifications. Demolition or retrofit of these buildings should result in reduced life safety risk on campus. If the Wesbrook/Cunningham site is selected for the Chemistry Laboratory Complex, 4 additional buildings would be removed from the very high seismic risk category and deferred maintenance would be reduced by an additional \$51.94 m.

Associated Deferred Maintenance	Deferred Maintenance in \$Ms	FCI	Built
Chemistry A Chemistry Physics (Bldg 447)	18.58	0.57	1989
Chemistry B Chemistry South(Bldg 148)	13.02	0.57	1959
Chemistry C Chemistry East (Bldg 144)	7.41	0.54	1963
Subtotal	\$ 39.01		
If Wesbrook site selected:			
Wesbrook (Bldg 864)	31.06	0.79	1949
Wesbrook Addition (Bldg 867)	2.5	0.57	198
Cunningham (Bldg 625)	10.12	0.74	1960
Cunningham Addition (Bldg 624)	8.26	0.75	1971
Subtotal	\$ 51.94		
Total	\$ 90.95		

• Cost Effectiveness

With the noted FCIs, the Chem B and C buildings are marginal but could be considered as candidates for building renewal. Their size, however is insufficient and renewal would perpetuate the inefficiency of a teaching program split between two buildings. There is also a challenge with insufficient fumehoods in these building. Chemistry A, however, is suffering from failed envelope and mechanical systems and the projected costs to repair are beyond consideration. Consolidation will encourage operational efficiencies, e.g. equipment and space sharing. A larger replacement building on the proposed site of Wesbrook /Cunningham site will intensify land use on a prominent central campus site.

• Quality Education/ Innovation/ Strategic Alignment

Laboratory experiences enhance learning by providing the opportunity to explore practical problems and research questions. Faculty have been exemplary in adapting desired lab experiences to suit existing conditions, but the physical space and infrastructure hamper their efforts to be innovative. New, flexible, up-to-date facilities to support today's trends in collaborative learning will lead to transformative student learning.

• Energy & Emission Reduction: This project will target LEED Gold certification.

6.0 Project Cost/Funding for Chemistry Laboratory Complex (Undergraduate Chemistry Teaching Labs + Chemistry Physics Research Labs)

Estimate	Total
Planning and Design	\$15,000,000
Construction	\$129,000,000
Contingencies	\$11,000,000
Completion Costs	\$31,000,000
Demolition Costs	\$7,000,000
Taxes	\$3,000,000
Total	\$196,000,000

Proposed Funding	Amount
UBC	\$56,000,000
Government	\$140,000,000
Total	\$196,000,000

Annual Operating + Maintenance	Amount
New Space @ \$92/GSM	\$2,160,620
Less Existing Space \$57.60/GSM	\$946,368
Total	\$1,214,252

Recapitalization Costs	Amount
Cyclical Maintenance	\$ 729,178
Modernization/ Upgrade	\$ 193,201
Total	\$922,379

7.0 Key Risks

- Unusual construction cost escalation is currently being experienced due to a high level of market activity that has reduced contractor availability and bid coverage. An escalation contingency has been included in the cost estimate to mitigate this risk.
- Project costs and schedule overruns are mitigated by UBC's retained risk contingency policy and project risk management practices (e.g. risk registry).
- UBC will apply the experience gained from recently completed capital projects.

8.0 Project Schedule

This project can be completed in 48 months from date of funding approval.

Institution/ Campus	Project Title:	Category	Estimate	Priority
UBC Vancouver	Community Health Sciences + Recreation Facility + War Memorial Gym Renewal	1 + 2	\$210m	4 of 8

1.0 Current Situation

The academic units intended to occupy this space are currently housed in 11 different UBC facilities. The current space is dispersed, outmoded and inadequate and all the units have well-identified facilities needs including outdated laboratories and teaching facilities, deficiencies in accessibility, aging and unreliable infrastructure and current space targeted for demolition or alternate use. Consolidation will improve program delivery, operations and provide opportunities for synergistic inter-professional education. Governments have recognized that the health professions are facing significant shortages if several factors persist, including the number of educational seats available, the number of projected retirements, and demands on the system. UBC is limited in its potential to expand the related programs because of the limitations of the facilities that currently house these programs.

The Community Health Sciences (CHS) building is envisioned as a leading knowledge centre in the field of sustainable community health. A model of cross-professional collaboration, the planning for the CHS is being undertaken by the School of Kinesiology (Faculty of Education), the School of Nursing (Faculty of Applied Sciences) and UBC Health, well known for their innovative work in community based health programs.

Through innovative approaches to sustainable community health, UBC will contribute directly to improved health and wellness in British Columbia, Canada and the world. CHS will emphasize disease prevention and community-based approaches to health by promoting healthy living and healthful environments, undertaking research into the prevention and management of chronic illnesses, and reducing inequities and risks for marginalized populations. Co-location with recreation and sport facilities, in the “health precinct” of the Vancouver campus, will strengthen Kinesiology and Recreation synergies, allow for program expansion, especially of nursing, development of health-related research and learning opportunities, and increase efficient space utilization.

2.0 Project Description

Community Health Sciences (CHS) is proposed to be co-located and integrated with a new Recreation Facility and redeveloped War Memorial Gym (varsity sport facility) within a new and distinct campus precinct, University Boulevard Neighbourhood, a key gateway and symbolic entrance to the campus which will play a significant role in expressing the academic identity and values of the university. The recreation and varsity sport facilities are envisioned to incorporate Canadian Sport Institute programming and form a Global Centre for Sport and Health (GCSH). The vision for the GCSH is to be inspiring and transformative by developing a world-class integrated hub of research and applied science, high performance athletics, coach development and community focused health and wellbeing programs.

CHS will be a key academic component and it is for this \$95 million part of the project that UBC will seek Provincial funding of \$80 million. The remaining \$115m of the overall \$210m package of projects will be funded by UBC (\$95m), including a student funding contribution for the Recreation Facility, and through donor fundraising (\$20m).

This new integrated, state-of-the-art 18,900 GSM CHS facility will address individual and collective teaching, learning, community engagement and research mandates in the fields of community health, healthcare and science. CHS will accommodate the School of Kinesiology (Faculty of Education) and School of Nursing (Faculty of Applied Sciences) and UBC Health, which are currently housed in dispersed, outmoded and inadequate space. These groups are committed to inter-professional interaction that will contribute to each School’s

continued leadership nationally and globally. Using highly connected teaching with virtual and simulation models, they will focus on flexible learning delivered through inter-professional education and practice and play an important provincial role in health policy development, health service delivery planning, education of health service providers and knowledge translation in health care.

This project proposes a new world class facility which will provide a unique integration of research, teaching, clinical training and community outreach focusing on healthy living and aging, chronic illness prevention and management, and risk reduction for vulnerable populations.

Key concepts for CHS are:

- Community contexts and social determinants of health
- Design of healthful, sustainable living environments
- Role of active, healthy living in disease prevention and recovery
- Health behaviour change
- Home, community, and healthcare systems
- Vulnerable populations and health across lifespan
- Knowledge capture, translation, and implementation.

The three academic units will be co-located to facilitate inter-program interaction that contributes to each unit's continued leadership nationally and globally. Using highly connected teaching with virtual and simulation models, they will focus on flexible learning delivered through interprofessional education and practice.

3.0 Project Objectives

This new integrated, state-of-the-art building envisions these academic goals:

- Innovative knowledge centre in sustainable community health that will contribute directly to improved health and wellness in BC, Canada and the world
- Unique integration of research, teaching, clinical training and community outreach focusing on health living and aging, chronic illness prevention and management, and risk reduction for vulnerable populations.
- Emphasis on disease prevention and community-based approaches to health, and
- Inter-disciplinary, cross-professional learning, research and collaboration among complementary disciplines

4.0 Options considered

Status Quo: Given the dispersed and inadequate nature of their existing facilities, these groups can no longer be accommodated in their current facilities.

Lease, Sublease, Use/rental of vacant or underutilized public assets: No adequate space in these categories is available at the UBC Vancouver campus.

Phased approach: Phasing has been reviewed and is a possibility that can also work for UBC. The logistics must be reviewed further.

Build New: The optimal solution is to build a new facility in a single phase as proposed.

Distance learning will be a component of this building as it is with the distributed medical teaching model.

5.0 Project Outcomes

• Infrastructure Improvements

Relocating from 11 different buildings to one will provide the most benefit for improved space utilization and opportunities for inter-professional experience and program expansion. Much needed learning space will be provided. Existing space will be demolished or re-used and reallocated. Nursing can relinquish inadequate space in UBC Hospital.

- **Cost Effectiveness**

Combining Nursing, Kinesiology and UBC Health in the CHS offers economies of scale, academic support and other opportunities for synergies through shared use of space. CHS will meet LEED Gold certification standard as per UBC and Provincial government policy. The design team will be encouraged to look for efficiencies in the shared common area spaces (washrooms, changerooms, lobbies, stair systems, service areas) that would otherwise require duplication.

- **Strategic Alignment and Innovation**

CHS will contribute directly to the BC government's goals to ensure BC's position as a global destination of choice for students to learn, stay to live, work and invest. These programs support the provincial goals of improved health and wellness for British Columbians, the City of Vancouver's plans for healthy, active communities, and the Federal government's initiatives to increase health, wellness and well-being of Canadians.

- **Quality Education**

The UBC Schools of Nursing and Kinesiology are currently faced with space shortages and rising demands for teaching and research capacity. These units are expecting further significant enrolment increases in both undergraduate and graduate student cohorts. The new CHS facility will address these demands for quality learning and research space.

The most effective means of ensuring sustainable health care is through the promotion of healthy living and healthful environments, prevention and management of chronic illnesses, provision of accessible primary health care, and the reduction of inequities and risks for marginalized populations. CHS is committed to moving health care 'upstream' to support prevention and community based approaches.

CHS offers programs in community health, health care and science that can:

- Increase student participation in learning and service.
- Increase support for international collaborations by faculty, staff, and alumni.
- Expand recruitment of outstanding students and faculty from around the world.
- Increase the number of substantial strategic partnerships in regions of priority to UBC.
- Enhance UBC's scholarly communications on global issues, including on the web.
- Strengthen UBC's role in international development

- **Energy & Emission Reduction**

This project will target LEED Gold certification. Integrated programs have an opportunity to share previously duplicated core space resources

6.0 Project Cost/Funding (Community Health Sciences only)

Estimate	Total
Planning and Design	8,100,000
Construction	68,000,000
Contingencies	4,630,000
Completion Costs	12,850,000
Taxes	1,420,000
Total	\$95,000,000

Annual Operating + Maintenance	Amount
New Space @ \$92/GSM	\$ 1,749,610
Total	\$ 1,749,610

Proposed Funding	Amount
UBC	10,000,000
Government	80,000,000
Fundraising	5,000,000
Total	\$95,000,000

Recapitalization	Amount
Cyclical Maintenance	\$ 714,085
Modernization/ Upgrade	\$ 185,133
Total	\$899,218

Associated Deferred Maintenance	Deferred Maintenance in \$Ms	FCI	Built
War Memorial Gym (Bldg 428)	24.8	0.73	1950
Robert F Osborne 1 (Bldg 430)	13.5	0.78	1970
Robert F Osborne 2 (Bldg 431)	7.5	0.66	1972
Total	\$ 45.8		

7.0 Key Risks

- Unusual construction cost escalation is currently being experienced due to a high level of market activity that has reduced contractor availability and bid coverage. An escalation contingency has been included in the cost estimate to mitigate this risk.
- Project costs and schedule overruns are mitigated by UBC's retained risk contingency policy and project risk management practices (e.g. risk registry).
- UBC will apply the experience gained from recently completed capital projects.

8.0 Project Schedule

This project can be completed in 48 months from date of funding approval.

Institution/ Campus	Project Title:	Category	Estimate	Priority
UBC Vancouver	Mathematics Building + Klinck Building Replacement	1 + 2	\$106 m	5 of 8

1.0 Current Situation

The Department of Mathematics at UBC is one of the strongest mathematics departments in Canada. The Department has strong connections with other departments and institutes at UBC, and has a major role in the cross-disciplinary Institute of Applied Mathematics (IAM), with members from across Science, Applied Science and other UBC faculties.

The layout, age, condition, and inadequate infrastructure of Mathematics, Mathematics Annex and LS Klinck restrict pedagogical development and are inadequate to address the increasing demand for mathematics courses. This project proposes to replace the Mathematics Building and the Mathematics Annex, 2-storey wood frame structures with exterior stucco and interior plaster finishes constructed in 1924-5 and have now reached the end of their service life. The LS Klinck Building and addition have limited accessibility, lack a sprinkler system, and have been identified as very high seismic risk. Although building systems have been partially upgraded over time as needs have arisen or as renovations occurred, these buildings have large amounts of deferred maintenance and have had recent water and structural problems.

2.0 Project Description

Faculty/Department: Science – Mathematics including PIMS, IT and Integrated Sciences

This project proposes to build 11,700 GSM to replace deteriorating buildings which have reached the end of service life. The proposed plan is to build an expansion and replacement facility to address teaching needs, fulfill capacity requirements and provide up to date, flexible space with full infrastructure capability. This will include replacement of lecture theatres and classrooms that serve the wider precinct. A new structure, designed to facilitate collaboration, will provide a more relevant, contemporary learning environment, built to accommodate modern teaching and learning styles. A complex scenario of swing space use and consequential moves must accompany this project.

3.0 Project Objectives

- Provide higher capacity, more flexible and efficient facilities.

4.0 Options considered

Consideration of renewal and replacement options are underway. New expansion is required and detailed planning is underway to determine project scope costing, site analysis, funding/financing strategy.

5.0 Project Outcomes

- **Infrastructure Improvements**

Associated Deferred Maintenance	Deferred Maintenance in \$Ms	FCI	Built
Mathematics (Bldg 518)	8.05	0.78	1924
Mathematics Annex (Bldg 519)	2.71	0.69	1925
LS Klinck & Addition (Bldg 308, 308-1)	26.95	0.75	1947
Total	\$ 37.7		

- **Cost Effectiveness**

Consideration of renewal and replacement options are underway.

- **Energy & Emission Reduction** This project will target LEED Gold certification.

6.0 Project Cost/ Funding for Mathematics & Annex and LS Klinck Building Replacement

Estimate	Total
Planning and Design	\$9,000,000
Construction	\$76,000,000
Contingencies	\$5,080,000
Completion Costs	\$14,280,000
Taxes	\$1,640,000
Total	\$106,000,000

Proposed Funding	Amount
UBC	\$11,000,000
Government	\$80,000,000
Fundraising	\$15,000,000
Total	\$106,000,000

Annual Operating + Maintenance	Amount
New, Renewed Space \$92/GSM	\$ 2,025,610
Less Existing Space \$57.60/GSM	\$ 932,141
Total	\$1,093,469

Recapitalization Costs	Amount
Cyclical Maintenance	\$ 830,241
Modernization/ Upgrade	\$ 215,248
Total	\$1,045,489

7.0 Key Risks

- Unusual construction cost escalation is currently being experienced due to a high level of market activity that has reduced contractor availability and bid coverage. An escalation contingency has been included in the cost estimate to mitigate this risk.
- Project costs and schedule overruns are mitigated by UBC's retained risk contingency policy and project risk management practices (e.g. risk registry).
- UBC will apply the experience gained from recently completed capital projects.

8.0 Project Schedule

This project can be completed in 48 months from date of funding approval.

Institution/ Campus	Project Title:	Category	Estimate	Priority
UBC Vancouver	UBC Life Building Phase 2 / Integrated Mental Health Centre	2	\$23 m	5 of 6

1.0 Current Situation

The UBC Life Building (Old SUB Swing Space) Phase 1 project was completed in December 2017 as part of the Routine Capital program. Phase 1 scope included renewal of base building systems, seismic upgrades and tenant improvements for interim swing space use to support the Routine Capital program over the next 3-4 years. Some initial UBC Life program uses such as Go Global, International Student Development, a collegium and a fitness facility were also included in Phase 1. AMS renovations to their retained space in the basement are currently underway. Once the current teaching lab swing space uses on the 2nd floor are completed in 2021, the Phase 2 renovations can commence to complete the long-term vision for the UBC Life Building as a central hub to support the diversity of student needs, increase peer connections, enrich intercultural student life, and help build a strong, healthy UBC community.

2.0 Project Description

The UBC Life Building Phase 2 scope includes fit-out of the second floor for long-term term use as a hub consolidate and integrate essential student services now distributed across campus. This includes Integrated Mental Health services, counselling and psychiatric services, health and wellbeing programs, academic and career advising, informal learning spaces, and potentially the VP Students Office. Phase 2 will allow student service program uses to be re-located from older, lower quality facilities such as the Wesbrook Building. Phase 2 scope is also intended to include upgrades to exterior windows and doors not completed as part of Phase 1.

3.0 Project Objectives

- Provide hub for essential student services, including an Integrated Mental Health Centre.
- Complete remaining building system renewals including replacement of exterior windows and doors.

4.0 Options Considered

This project is intended to complete the original vision for the UBC Life Building.

5.0 Project Outcomes

- **Infrastructure Improvements** – The project will complete remaining building system upgrades.
- **Cost Effectiveness** – Cost to renew existing building estimated at less than two-thirds that of a replacement building.
- **Quality Education/ Innovation/ Strategic Alignment** – Supports fundamental need for student mental health and wellness services.
- **Energy & Emission Reduction** - This project will target LEED Gold certification.

6.0 Project Cost/Funding for the UBC Farm Centre

Estimate	Total
Planning and Design	\$1,800,000
Construction	\$15,200,000
Contingencies	\$1,800,000
Completion Costs	\$3,825,000
Taxes	\$375,000
Total	\$23,000,000

Proposed Funding	Amount
Government	\$11,500,000
UBC	\$11,500,000
Total	\$23,000,000

Annual Operating + Maintenance	Amount
No new space	\$0
Total	\$0

Recapitalization	Amount
Cyclical Maintenance	\$ 142,741
Modernization/ Upgrade	\$ 37,820
Total	\$180,561

7.0 Key Risks

- Unusual construction cost escalation is currently being experienced due to a high level of market activity that has reduced contractor availability and bid coverage. An escalation contingency has been included in the cost estimate to mitigate this risk.
- Project costs and schedule overruns are mitigated by UBC's retained risk contingency policy and project risk management practices (e.g. risk registry).
- UBC will apply the experience gained from recently completed capital projects.

8.0 Project Schedule

This project can be completed in 36 months from date of funding approval.

Attachment 2: Seismic Mitigation Impact of Five Year Capital Plan

	UBC Campus	Project	Seismic impact (Demolition or Renewal)
1	Vancouver	School of Biomedical Engineering	None
2	Vancouver	Chemistry Laboratory Complex (Undergraduate Chemistry Teaching Labs + Chemistry Physics Research Labs)	Chemistry A (Chem Physics) (Bldg 447) Chemistry B (Chem South-Bldg 148) Chemistry C (Chem East -Bldg 144) * Wesbrook Building & Annex (Bldg 864,867) *George Cunningham & Annex (Bldg 625, 624)
3	Vancouver	Community Health Sciences + Recreation Facility + War Memorial Gym Renewal	War Memorial Gym (Bldg 428) Robert F Osborne Centre Unit 1 (Bldg 430) Robert F Osborne Centre Unit 2 (Bldg 431)
4	Vancouver	Math Building Renewal/Replacement (including Klinck Building)	Mathematics & Annex (Bldg 518, 519) LS Klinck (Bldg 408, 408-1)
5	Vancouver	UBC Life Phase 2 / Integrated Mental Health Centre	None (seismic upgrades were completed as part of the UBC Life Building Phase 1 project)

- If the Wesbrook/Cunningham site is selected, these buildings would be demolished.

Attachment 3: Top 15 Capital Priorities for UBC and/or Government Funding

Rank	PROPOSED TOP 15 PROJECTS (FOR UBC AND/OR PROVINCIAL FUNDING)	Faculty / Dept	Capital Cost (\$000s)
1	School of Biomedical Engineering	Applied Science/Medicine	\$70,000
2	Chemistry Lab Complex	Science	\$196,000
3	Gateway Project (Community Health Sciences + Recreation Facility + War Memorial Gym Renewal)	Kinesiology/ Nursing/A&R	\$210,000
4	Math Building + Klinck Building	Science	\$106,000
5	UBC Life Building (Phase 2) / Integrated Mental Health Centre	VP Students	\$23,000
6	Seismic Upgrade Projects	Central Administration	\$500,000
7	Innovation Hub (integrated with student housing at Copp site)	VP Research	\$45,000
8	Learning Exchange	VP External	\$5,000
9	Robson Square / Downtown Presence	VP External	\$20,000
10	Policy School	Arts	\$30,000
11	Student Services + Academic Uses at Brock Commons Phase 2	VP Students/Provost/Arts	\$37,200
12	SALA Building + Lasserre Upgrade	Applied Science	\$50,000
13	UBC Farm Centre	Land + Food Systems	\$33,000
14	UBC Okanagan Digital Learning Factory	UBCO/Applied Science	\$105,000
15	Asian Centre	Arts/Library	\$30,000
Total Top 15			\$1,460,200

Five-Year Capital Plan projects for 2018/19 shown in red.

Attachment 4 – Future Capital Priorities

FUTURE ACADEMIC PROJECTS (alphabetical order)	Faculty / Dept	Capital Cost (\$000s)
Arts Student Centre	Arts	\$7,660
Belkin Expansion	Arts	\$8,000
Biodiversity Expansion	Science	TBD
Centre for Interactive Research on Children's Learning Environments (CIRCLE)	Medicine/Applied Science	\$10,000
Computer Science Expansion	Science	\$40,000
Douglas Kenny Building 4th Floor Renovation (Psychology)	Arts	\$7,700
Forestry Expansion	Forestry	\$30,000
Geography Building	Arts	\$50,000
JB MacDonald Building Expansion (Dentistry)	Dentistry	\$65,000
Medicine One	Medicine	TBD
Music Renewal + Expansion	Arts	\$50,000
Sauder Graduate School Expansion	Sauder	\$65,000
UBCO Industrial Scale Engineering Lab	Applied Science	\$10,000
Total Future Academic		\$343,360

SEISMIC PLAN PROJECTS (alphabetical order)	Faculty / Dept	Capital Cost (\$000s)
Anthropology & Sociology Building	Arts	TBD
Bookstore	VP Students	TBD
Cecil Green Park House	Central Administration	TBD
Civil & Mechanical Engineering (CEME) Building	Applied Science	TBD
Douglas Kenny Building (Psychology)	Arts	TBD
Frank Forward Building	Applied Science	TBD
H.R. MacMillan Building Renewal	Land + Food Systems	TBD
Jack Bell Building (Social Work)	Arts	TBD
Lower Mall Research Station (LMRS)	Science/ApSci/Kin	TBD
MacLeod Building	Applied Science	TBD
Medical Block C	Science/	TBD
MOA Great Hall	Arts	TBD
Old Administration	Central Administration	TBD
Robert Osborne Centre - Units 1 & 2	Kinesiology	TBD
Woodward Library	Library	TBD
Total Seismic Plan		\$500,000

Advanced structural analysis being undertaken to determine specific risks, mitigation options and costs.

STUDENT HOUSING PROJECTS (delivery date order)	Faculty / Dept	Capital Cost (\$000s)
Walter Gage Infill Site - Student Residence (1,000 beds, 2021)	SHHS	\$153,000
Brock Commons Phase 2 (600 beds, 2022)	SHHS/Arts	\$85,000
Student Housing at Copp Site (with Innovation Hub) (500 beds, 2022)	SHHS/VPRI	\$76,000
Armoury Commons (1,000 beds, 2023)	SHHS/Arts	\$120,000
Totem Park East / Totem Field (700 beds, 2024/25)	SHHS	\$119,000
Orchard Commons In-Fill (200 beds, TBD)	SHHS	\$30,000
St. John's College Graduate Residence Expansion (100-150 beds) + Conference Centre (TBD)	St. John's College/SHHS	TBD
Total Student Housing		\$583,000

Attachment 4 – Future Capital Priorities (cont'd)

ATHLETICS & RECREATION PROJECTS (alphabetical order)	Faculty / Dept	Capital Cost (\$000s)
Baseball Stadium (Phase 2)	Athletics & Recreation	\$5,000
Thunderbird Stadium Redevelopment	Athletics & Recreation	\$35,000
UBCO Gymnasium Expansion	UBCO Athletics	\$30,000
Total Athletics & Recreation		\$70,000

CAMPUS OPERATIONS PROJECTS (alphabetical order)	Faculty / Dept	Capital Cost (\$000s)
Administration Consolidation	Finance/HR/External Relations	TBD
Building Operations Enterprise Maintenance Management System (EMMS)	Building Operations	\$6,000
Cogeneration Plant	Energy + Water Services	\$56,000
Diesel Fuel Storage Facility	Energy & Water Services	\$5,000
Water Pump Station Replacement	Energy & Water Services	\$15,000
Total Campus Operations		\$82,000

Total Capital Priorities		\$3,038,560
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* Rapid Transit is not included on the Capital Priorities because it is being managed as a separate partnership initiative without academic or operating funding.