



SUBJECT	CAPITAL PROJECTS UPDATE
MEETING DATE	SEPTEMBER 13, 2018

Forwarded on the Recommendation of the President

**APPROVED FOR
SUBMISSION**

Santa J. Ono, President and Vice-Chancellor

FOR INFORMATION

Report Date	August 24, 2018
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Presented By Peter Smailes, Vice-President Finance and Operations
 Andrew Szeri, Provost & Vice-President Academic
 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
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 Jennifer Burns, Chief Information Officer
 Michael White, Associate Vice-President, Campus & Community Planning
 Aubrey Kelly, President & CEO, UBC Properties Trust

EXECUTIVE SUMMARY

At each meeting, the Board receives a status update on current capital projects and capital priorities in planning. This includes details on major capital building projects (>\$5 million) as well as a summary of routine capital renewal and renovation projects (<=\$5 million). Information on Infrastructure Impact Charge (IIC) projects and Information Technology (IT) projects is also included.

Major Building Projects

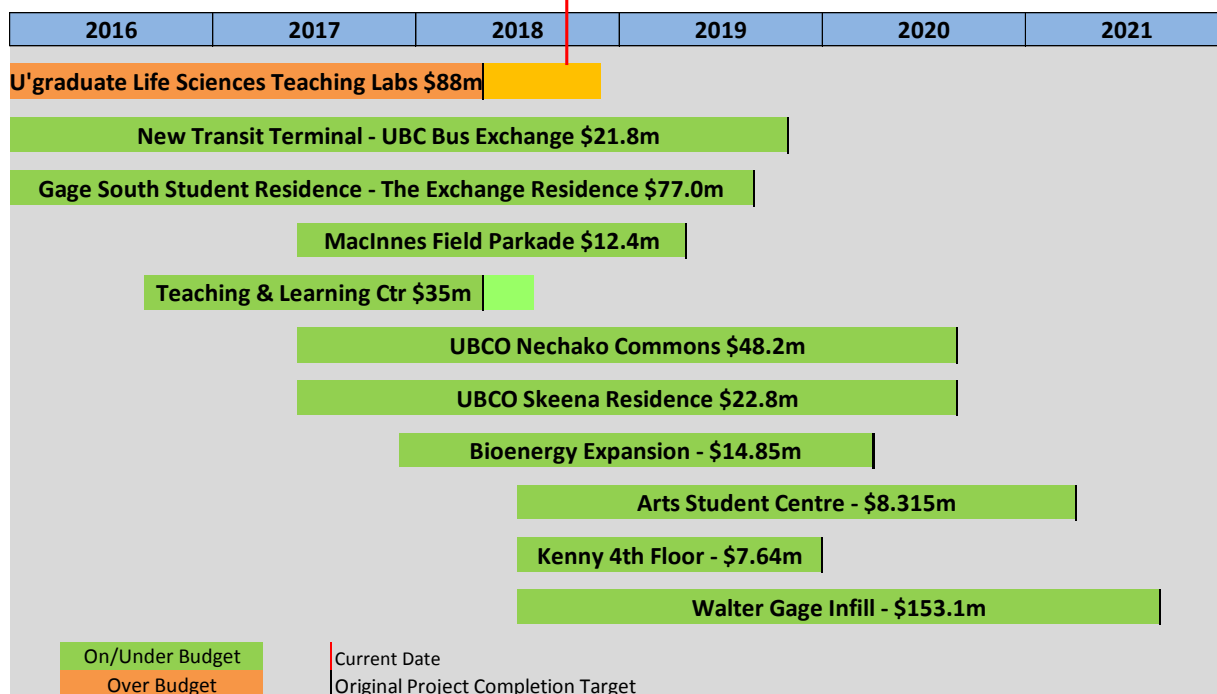
There are currently eleven major building projects in construction or design, with a total value of \$489 million. Eight projects are on the Vancouver campus, including the new UBC Exchange Bus Terminal and Exchange Student Residence. Three projects are on the Okanagan campus, including the Teaching & Learning Centre and two student housing projects. A summary and detailed information on the capital project portfolio are provided in Attachments 1 and 2. Building projects completed since January 1, 2010 are included in Attachment 5 for reference.

The highly active construction markets in Vancouver and Kelowna are currently resulting in reduced trade contractor availability, low bid coverage on tenders and escalating costs. These challenges have impacted recent and current UBC projects and are resulting in the need for budget adjustments and in some case the use of the Retained Risk Fund to address unanticipated cost overages.

- Undergraduate Life Sciences Teaching Labs – Due to construction market conditions, site-specific issues and operational decisions the project budget has been increased from \$80 million to \$88 million. This was approved by the Board in February 2018.
- UBCO Housing Commons & Skeena Residence – Significant construction cost escalation in Kelowna has contributed to increased budgets for these projects which were approved in April 2018 as part of Board 2 project approvals. Cost pressures continue on both projects. Significant value engineering work is underway in an effort to stay within Board 2 budgets.
- Federal Strategic Investment Fund (SIF) Projects – The schedules for the Undergraduate Life Sciences Teaching Labs and UBCO Teaching & Learning Centre projects have pushed substantial completion 7 months beyond the original April 30, 2018 SIF-mandated deadline. Schedule extension approval has been received for both projects. The other smaller UBC SIF projects (e.g. Sports Medicine Centre) were completed within the original deadline.
- Retained Risk Fund – The Retained Risk Fund (UBC Policy #125) provides internal “self-insurance” for major capital projects to address cost overages resulting from unanticipated construction issues that cannot be managed with standard project contingencies. The Retained Risk Fund had a total balance of \$6.9 million on August 31, 2018. This includes \$6.48m for the Vancouver campus and \$0.39m for the Okanagan campus. The following projects have recently received support from the Fund:
 - Orchard Commons/Vantage College - \$2.3m for construction coordination issues and overtime costs to achieve completion deadline. This amount has been paid out.
 - Quantum Matter Institute - \$600k due to construction delay costs (construction manager general conditions, construction financing) and additional roof installation costs not recoverable from trades or design team. This amount has been paid out.

No other deductions are expected at this time from the Retained Risk balances noted above, which are in compliance with the target level for the Retained Risk Fund of 1% of the value of active projects.

Major Building Project Status



Major IT Projects

Major information technology projects currently in planning or implementation include the Integrated Renewal Program (Student, HR, Finance), Recruitment - Customer Relationship Management (CRM) System (in early sustainment mode), and Learning Technology Ecosystem Renewal. A listing of major IT projects is provided in Attachment 3.

Upcoming Board Approval Requests

Project Name	Sep 2018	Dec 2018	Feb 2018	Apr 2019
UBCO Nechako Commons		Board 3		
UBCO Skeena Residence		Board 3		
Arts Student Centre			Board 2	
Douglas T. Kenny Building Fourth Floor Renovation		Board 2	Board 3	
Student Housing at Walter Gage In-Fill Site			Board 2	
UBC Farm Centre		Board 1		
Brock Commons Phase 2 Mixed-Use Student Housing	Board 1			Board 2
Innovation UBC Hub + Student Housing at Copp Site		Board 1		
Bioenergy Facility Expansion		Board 2		Board 3

Note that the timing of the submissions for the Innovation UBC Hub is contingent upon confirmation of funding sources for the academic components of this project.

Routine Capital Projects

Routine capital includes cyclical maintenance, rehabilitation, upgrade and renovation projects associated with campus buildings and infrastructure. These projects are generally valued less than \$5m and are funded from a variety of internal sources - Building Operations, Energy & Water Services, Faculties/Departments, Student Housing & Hospitality Services, Athletics, and Parking – as well as with a contribution from the Ministry of Advanced Education & Skills Training (AEST) for capital maintenance of core academic facilities.

AEST has increased Routine Capital funding to UBC to address much needed capital maintenance in campus buildings. The amounts are as follows:

- 2016/17: \$34.98m (received)
- 2017/18: \$39.49m (received)
- 2018/19: \$39.5m (AEST confirmed that the 2018/19 contribution was shifted down from previously communicated amount of \$44.13m)
- 2019/20: \$39.5m (planned)

AEST has specified that these funds be directed toward reduction of deferred maintenance in core academic facilities and that the overall package of projects in each year must be cost-shared between AEST and UBC on a 75%/25% basis. A small portion of the funding (\$1.66m) is allocated toward Carbon Neutral Capital Program projects. An overview of the program was provided in the 2018/19 Operating Budget.

The Routine Capital projects that have been completed over the past two fiscal years (2016/17 and 2017/18) have made a significant impact across the Vancouver campus. The total spend including both the contribution from AEST and the matching funds from UBC was \$40,585,333 in 2016/17 and \$47,457,000 in 2017/18. These funds allowed a total of 49 and 46 projects to be completed in each of the two fiscal years, respectively, plus two large projects that straddled these fiscal years. These projects have ranged in size and scope from small-scale washroom renovations to large-scale building renewals. The three-year funding plan has enabled strategic decision-making, successful partnerships and opportunities for innovation to execute much-needed renewal work.

The projects executed under this program were selected to address significant end-of-life building systems. The work was grouped strategically in complete building renewal projects, where possible, to achieve synergies in project delivery. The first of these projects was the Old SUB Swing Space Renovation, a key component of the program in that it provides teaching lab and classroom swing space to allow other routine capital renewal projects to be undertaken across campus. This project was substantially completed in December 2017. The Hebb Tower Renovation, which started construction in January 2018, is the largest of the subsequent projects. Smaller scale renewal work has been completed at the Anthropology & Sociology building.

Opportunities for partnerships with faculties and departments have been sought and incorporated into the Routine Capital program. For example, the Faculty of Arts had been considering upgrading the interior of the Buchanan Tower but recognized that there were significant issues with the base building systems that would make the interior upgrades less successful if the system issues were not addressed.

A strategy of completing renovations two or three floors per fiscal year was developed where the Faculty of Arts contributes to the upgrades that are not eligible expenses under the AEST program and the AEST program funds the mechanical, electrical, lighting and envelope upgrades that will address the operational issues experienced by building users. Floors 9 and 10 as well as the roof and mechanical and electrical system upgrades were completed in 2016/17; Floor 3 was completed and Floors 4 through 6 were started in 2017/18 and will be completed in 2018/19. The team has a plan to complete the entire building by 2022.

Another key theme for the distribution of the Routine Capital funds is to address projects that have a direct impact on the daily lives of the campus community. In 2016/17 and 2017/18, thirty-four washrooms across campus were renovated and modernized. Several accessibility upgrades were funded as well. The team also replaced three chillers, six emergency generators, six electrical substations, eight fire alarm panels and eight elevators, improving back-of-house building systems and reducing the risk of unexpected downtime.

Finally, the program team has looked for opportunities to innovate. With the funding cycle falling April 1 to March 31 of any given year, it is challenging to align roofing projects with a good weather window. In addition, the majority of roofing contractors are very busy over the summer, driving up prices due to demand. With this in mind, the team worked closely with the Roofing Contractors Association of BC to devise technically sound ways of completing roofing projects over the Fall and Winter. Using tents and scaffolding to shield the roofs has allowed for better contract pricing, better bid coverage and projects that can be completed within the fiscal year. When the three-year program is complete, it is expected that over \$20M will have been spent on roofing, allowing twelve significant campus buildings to get new roofs.

Significant current routine capital projects outside the AEST-funded program include:

- 1) Museum of Anthropology (MOA) Education Centre - \$4.56 million
 - Provides new theatre gallery for public education programming. Funded by Canadian Heritage, donor funding, MOA reserves and operating budget, and Faculty of Arts operating budget. The scope and budget of this project is currently being reviewed with potential for a donor funded expansion.
- 2) Graduate Research Commons & related projects at Koerner Library - \$4.3m
 - Provides technology-rich space and services for graduate students' scholarship and advanced research. Renovates space for Provost's Office and Office of VP Finance & Operations to accommodate working group changes. Funded through Central operating budget and donor funding.
 - Scope changes and market escalation are adding pressure to the budget for this project. An update will be provided soon for Executive and Board.
- 3) 3T MRI Imaging Lab (Centre for Brain Health) - \$3.24m
 - Provides the facility for a new 3T whole body MRI for research use. Funded through Canada Foundation for Innovation (CFI)/BC Knowledge Development Fund (BCKDF), Faculty of Medicine, Vancouver Coastal Health Research Institute and Central operating budget. Imaging equipment procurement is separate.

- 4) PET MRI Imaging Lab (Centre for Brain Health) - \$4.61m
 - Provides facility for new PET MRI for research use. Funded through CFI/BCKDF. Imaging equipment procurement is separate.
- 5) Wellington MRI Lab Addition at Centre for Comparative Medicine - \$3.21m
 - Magnetic resonance imaging (MRI) suite for innovative research on traumatic brain injury. Funded through CFI/BCKDF, vendor in-kind contribution, department funding and donor funding. Imaging equipment procurement is separate.
- 6) Geological Field School (Faculty of Science) - \$2.75m
 - Donor-funded project near Oliver, BC. Scope includes updating and expanding this historic facility including residences, dining facilities and a lecture hall.

Infrastructure Impact Charge (IIC) Program

The IIC program includes utility, roads and public realm projects required to meet the needs of campus growth. Funding is provided through Infrastructure Impact Charges on neighbourhood and ancillary development projects. A separate information report on the IIC program is provided annually to the Board.

Capital Priorities in Planning

Attachment 4 shows proposed major capital building projects currently in planning that have not yet been brought forward for Board approval. The UBC Executive undertakes an annual prioritization of major capital projects with assistance from the Capital Planning Working Group and input from campus stakeholders. This process generates an updated Five-Year Capital Plan that is submitted each year to the Provincial government. The Board of Governors approved the latest Five-Year Capital Plan (2019/20 – 2023/24) in June 2018.

In addition, the most recent UBC Capital Priorities (Top 15 + Future Priorities) were approved by the Board in June 2018. Proposed capital projects are evaluated and prioritized using an assessment model that considers how each project contributes to the University's strategic objectives and operational performance & risk mitigation objectives. Consistent with *Shaping UBC's Next Century* the 2018-28 strategic plan, 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%

Initial prioritization is “needs-based” therefore funding potential is not a criterion. Political and funding realities are considered separately when decisions are made on projects to be included in the Five-Year Capital Plan or approved for internal funding allocation.

Input on the capital planning process and capital priorities is sought from the following groups:

- Committee of Deans
- Property & Planning Advisory Committee
- Senate Academic Building Needs Committee
- Vancouver Senate Budget Sub-committee
- Information Technology Advisory Committee
- Alma Mater Society
- Graduate Student Society
- Alumni Association
- Building Operations and Energy & Water Services
- UBC Properties Trust (for information)

Seismic Mitigation Plan

Work is currently underway to update the seismic mitigation (or resilience) plan for the Vancouver campus. A seismic hazard assessment and screening-level building vulnerability assessments have been completed by our consultant (Arup). The hazard assessment quantifies the seismic hazard facing the campus and reflects current knowledge of earthquake types, intensities, return periods and probabilities. The building vulnerability assessments utilize the US Federal Emergency Management Agency’s (FEMA) visual screening methodology augmented with simplified structural analysis to provide a reasonable and conservative identification of high risk buildings. These assessments led to a recommended list of priority buildings for which detailed structural engineering analysis using advanced 3D modelling is currently being undertaken to determine specific structural vulnerabilities, retrofit strategies and costs. Arup additionally provided a set of operational recommendations to improve campus resilience in the event of an earthquake. A progress update was provided to the Board in April 2018. The draft seismic resilience plan, incorporating the results of the detailed engineering analysis as well as the planned operational measures, is targeted for presentation to the Board in December 2018.

Attachments

1. Capital Projects Update – Summary by Project Type and Board Approval Level
2. Major Capital Building Projects – Detailed Information
3. Information Technology (IT) Projects – Detailed Information
4. Capital Plan + Future Priorities
5. Capital Projects Completed since January 1, 2010

INSTITUTIONAL STRATEGIC PRIORITIES SUPPORTED

- ✓ Learning
 - ✓ Research
 - ✓ Innovation
 - ✓ Engagement
(Internal / External)
 - ✓ International
- or ✓ Operational

DESCRIPTION & RATIONALE

The Capital Projects Update provides summary information on major capital building projects (>\$5 million), routine capital renewals and renovations, Infrastructure Impact Charge (IIC) projects and Information Technology (IT) projects.

Details provided on major building projects include schedule, budget, costs to date, confirmed funding sources, outstanding unfunded amounts, and debt financing requirements for each project. Also included is an estimate of the impact that each project has toward reducing the University’s deferred maintenance backlog, either due to demolition of old facilities to make way for new construction or as the result of major building renewal.

A separate section on Capital Priorities is included to show proposed projects currently in planning that have not yet been brought forward for Board 1 approval. These Capital Priorities have been determined through consultation with academic and operational stakeholders on both the Vancouver and Okanagan campuses. Final decisions on capital priorities are made by the UBC Executive and the Board.

Information on major building projects completed since 2010 is also provided.

BENEFITS

Ongoing capital investment in physical infrastructure and information technology provides direct support and significant benefit to UBC’s core objectives of teaching, learning, research excellence, student experience and community engagement.

RISKS
Financial,
Operational &
Reputational

Capital projects are subject to cost, schedule and funding risks. These risks are managed through careful planning, on-going monitoring and use of contingency allowances in project budgets. UBC also has in place a Retained Risk Fund (RRF) for building projects >\$2.5 million. The RRF acts as an internal self-insurance fund to address unforeseen cost impacts that cannot otherwise be addressed through standard project contingencies. Each major capital project pays into the RRF and is eligible for support with approval from the Provost and Vice-President, Finance & Operations as per the terms of Policy #125 – Retained Risk Fund for Major Capital Projects.

In addition, the project management teams at both UBC Properties Trust and Project Services (Infrastructure Development) have re-examined their risk and contingency practices in light of the rapidly escalating construction market as well as other current issues faced by project teams including increasing quantities of hazardous

materials being discovered in building renewal or demolition projects. While every project has always created a risk register, an updated format with increased focus on quantifying the cost impact of risk has been added. In addition, higher, standardized contingencies have been set for projects moving forward.

Construction escalation has continued to pressure project budgets of all sizes. Statistics Canada shows that Vancouver has the highest non-residential Construction Price Index of the eleven major metropolitan areas that they track (4.7 % Q1 2017 to Q1 2018). The volume of building permits issued in Kelowna has also increased sharply, resulting in limited trade availability. The UBCO Nechako Commons and Skeena Residence projects and MacInnes Field Parkade are all experiencing cost pressures due to these market influences. The teams are currently working to try to keep these projects within budget. While UBC Properties Trust has indicated that they are seeing signs that the steep escalation is peaking, it has not slowed yet so estimates are still carrying a 6% cost escalation contingency.

COSTS Cost details on current projects are provided in the Attachments.

FINANCIAL Funding and financing details on current projects are provided in the Attachments.

SCHEDULE Schedule details on current projects are provided in the Attachments.

CONSULTATION Major building projects at UBC are developed in consultation with campus stakeholders and are subject to Executive and Board approval processes as well as a review and approval process by Campus & Community Planning (C&CP) for issuance of a development permit (DP). The DP process involves review of the project schematic design by the Advisory Urban Design Panel (AUDP) and the Development Review Committee (DRC). A public open house is held for each DP application in order to engage with the campus community and solicit input on the proposed project.

Relevant Units,
Internal & External
Constituencies

UBC Capital Priorities are developed in accordance with the University's established **Capital Planning Principles**, as follows:

1. **Academic Consultation** - Capital infrastructure needs and priorities are identified through on-going consultation with academic stakeholders including Deans, Provost's Office, Deputy Vice Chancellor Office (Okanagan campus), VP Students Office, VP Research Office and unit heads.
2. **Funding Allocation** - UBC capital funding (exclusive of government funding, self-funding projects such as student housing, and donor funding) should be allocated among infrastructure categories according to the following target ratio: 70% academic, 20% student experience, 10% campus community. This is the best current estimate of the allocation to support learning and research priorities, meet student needs and provide necessary community infrastructure. The allocation model is regularly reviewed. Allocation of UBC capital funding for recent, current and planned projects is as follows:

	Academic	Student Experience	Campus Community
<i>Target allocation</i>	70%	20%	10%
Projects completed since January 1, 2010	58%	17%	25%
Current projects in design or construction	80%	20%	0%
Five-Year Capital Plan projects	78%	16%	6%
Future priorities	78%	21%	1%
Total of all projects above	70%	18%	12%

3. **Operational Overlay** - Building Operations, Energy & Water Services and Risk Management Services are consulted to determine deferred maintenance, seismic and other operational priorities and opportunities for synergies.
4. **Fundraising and Financing Assessment** - The Development Office prepares donor fundraising assessments for specific projects and establishes fundraising goals with reasonable (though not guaranteed) probabilities of success based on known donor prospects. Treasury determines the available financing capacity for specific projects based on current and projected internal liquidity.
5. **Efficiency** - Stated infrastructure needs are assessed against accepted standards. The proposed Capital projects are those that provide the most effective and efficient use of land, building space and capital. Opportunities are sought to optimize and re-use existing infrastructure first before replacing or expanding. Academic priorities are synergized with infrastructure renewal/seismic priorities wherever possible.
6. **Flexibility** - Flexibility is allowed in the Capital Plan in order to respond to emerging priorities and funding opportunities. Funding opportunities and financing capacity are key factors in determining project timing.
7. **Integration** - The Capital Plan is developed through integration of academic needs, strategic priorities, infrastructure renewal and risk management requirements, target UBC funding allocation and alignment with government priorities. The Provost (Vancouver campus) and Deputy Vice Chancellor (Okanagan campus) make the final recommendations on capital priorities to be presented for Executive and Board approval.
8. **Approval** - Capital priorities are reviewed and approved by the Executive, and then the Board of Governors, at least once per year. Mandatory approval is required in advance of submission of the UBC Five-Year Capital Plan to the Province in June each year.
9. **On-going Review** - Minor adjustments to the capital priorities can take place throughout the year in response to emerging issues. The Board receives an up-to-date list of capital priorities at every Board meeting.

Previous Report Date	June 14, 2018
Decision	For Information
Action / Follow Up	