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THE UNIVERSITY OF BRITISH COLUMBIA

REPORT TO THE BOARD OF GOVERNORS

SUBJECT UNDERGRADUATE LIFE SCIENCES TEACHING LABS RENEWAL

MEETING DATE DECEMBER 2, 2014

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

**APPROVED FOR
SUBMISSION**

Arvind Gupta, President and Vice-Chancellor

Presented By

David Farrar, Provost & Vice-President Academic
 Lisa Castle, Vice-President Human Resources
 (Acting Vice-President Resources & Operations)
 Simon Peacock, Dean, Faculty of Science
 Gavin Stuart, Vice-Provost, Health and Dean, Faculty of Medicine
 John Metras, Managing Director, Infrastructure Development
 Michael White, Associate Vice-President, Campus + Community Planning
 Peter Smailes, Treasurer
 Al Poettcker, President & CEO, UBC Properties Trust

Report Date November 12, 2014

DECISION REQUESTED **IT IS HEREBY REQUESTED that the UBC Board of Governors grant BOARD 2 approval for the Undergraduate Life Sciences Teaching Labs Renewal project with authorization to issue the development permit and a funding release of \$5,500,000 to complete working drawings and tender documents and to proceed with swing space renovation and site works.**

Capital Budget	\$80,000,000
Operating Budget	\$ 1,503,000
Schedule	
Program	
Authorization to issue development permit	
Proceed to working drawings and tender	
Funding Release	\$5,500,000

Information

Expenses to Date	\$498,294
Funding releases to Date	\$1,500,000

EXECUTIVE SUMMARY

The Undergraduate Life Sciences Teaching Labs Renewal project involves an \$80 million renewal and expansion of the Biological Sciences complex to provide modern, well equipped teaching laboratories for over 2,000 students enrolled in undergraduate life sciences programs. This will replace and consolidate deteriorated teaching labs in the Biological Sciences Centre and North, Wesbrook and D.H. Copp buildings. The project will also address seismic risk associated with three of these buildings and ultimately result in the elimination of up to \$85M in deferred maintenance.

A functional program has been completed and aligned with the proposed project budget.

Funding is proposed to be contributed from three sources:

- 1) Pending Treasury Board Approval, the Ministry of Advanced Education has approved in principle a contribution (\$21.25 million) toward the renewal portion of the project.
- 2) An internal loan (\$21.25 million) repaid from the Central Operating Budget.
- 3) An internal loan (\$37.5 million) repaid from the Trek Endowment using the 3.5% annual spending allocation attributable to \$57.3 million in incremental endowed land development revenue made possible in part by this project. This land development revenue would be generated by shifting two rental University Housing projects (for those who work at or attend UBC) from Wesbrook Place to form part of the redevelopment of the current General Services & Administration Building (GSAB) and D.H. Copp building sites on University Boulevard. GSAB tenants have been relocated as part of a previously planned project to the Gerald McGavin, Donald Rix and Technology Enterprise Facility 3 buildings making the site available for development. Functional programming for the GSAB site and planning for the demolition of GSAB are underway. D.H. Copp uses would be shifted to the renewed and expanded Biological Sciences complex after its targeted completion in July 2017 thus making the D.H. Copp site available for development. Shifting the rental projects from Wesbrook Place frees up Market Leasehold gross buildable area in Wesbrook Place that would consequently generate \$57.3 million in prepaid lease revenue for endowment. The annual 3.5% endowment spending allocation on this amount will support debt service for a \$37.5 million loan for the Undergraduate Life Sciences Teaching Labs (Biological Sciences Renew) project. A schematic showing the flow of funds is provided in Attachment 1.

This represents a creative opportunity to develop a vibrant mixed-use academic gateway to campus, while at the same time supporting a much needed infrastructure renewal project impacting thousands of students.

Campus & Community Planning (C&CP) is in the process of developing, testing and consulting on options for the University Boulevard gateway area, including: the academic programming for the GSAB and Copp sites; the mix of uses in the precinct and integration of University Housing; and the design of gateway buildings and public realm to reinforce the academic gateway and arrival experience.

This Board 2 approval request is specifically for the Undergraduate Life Science Teaching project, including the proposed funding model. The project is a top priority in the UBC Capital Plan and received Board 1 approval on April 14, 2014. Separate Board approvals will be sought at the appropriate time for academic/housing projects in the University Boulevard area.

Place and Promise COMMITMENT(s) The University provides the opportunity for transformative student learning through outstanding teaching and research, enriched educational experiences, and rewarding campus life.

Place and Promise ACTION(s) Foster UBC's globally influential areas of research excellence.
Develop new global centres of excellence at UBC with international partners.
Enhance infrastructure to support leading edge research.

Description & Background and Academic Need

Rationale

UBC delivers life sciences teaching programs to more than 2,000 FTE students, preparing students for further study or a career in the life sciences sector. Laboratory experiences are essential to learning, providing hands-on opportunities to explore practical problems and conduct research.

Life sciences teaching programs are currently delivered in deteriorating buildings that are 1960-70's era or older and represent significant seismic risk. Original lab configuration and infrastructure hampers the ability of instructors to develop progressive teaching methods centered on student collaboration. Teaching lab sizes limit the ability of programs to respond to increased student demand for placement. Building finishes and systems are beyond or nearing the end of their serviceable life and renovation of individual labs is limited by the inability to improve overall deteriorating building infrastructure.

The proposed project will provide modern, well equipped laboratories and a consolidated home for undergraduate students and teaching faculty in the following programs:

- Faculty of Science: Biology, delivered by Botany and Zoology, currently located in Biological Sciences North Wing and Centre Block
- Faculty of Science: Microbiology & Immunology (M&I), currently located in the Wesbrook Building
- Faculty of Medicine: Biochemistry & Molecular Biology (B&MB), and Cellular and Physiological Sciences (CAPS), currently located in the D.H. Copp Building

Project Description

The project will renew Biological Sciences North Wing (built 1976) and replace the deteriorated Biological Sciences Centre Block (built 1948) and 2-storey Workshop Building with a new 5-storey addition on the east side of the courtyard. A project site plan is provided in Attachment 2. Total project area, including rooftop research and teaching greenhouse space, is 174,795 gross square feet. The project builds on the successful renewal of the Biological Sciences West and South Wings completed in 2011 as part of the Knowledge Infrastructure Program funded by the Federal and Provincial governments.

Demolishing Biological Sciences Centre and renewing Biological Sciences North will reduce deferred maintenance by \$45M and significantly reduce structural seismic risks. Teaching programs in Copp and Wesbrook are the primary functions remaining in those buildings, and relocating the programs paves the way for future demolition and an additional deferred maintenance reduction of \$40M.

In the short-term, a consultant team has been engaged to develop a scope of work for functional and life safety upgrades to Wesbrook and minor safety upgrades to Copp which will allow these facilities to be used for swing space to facilitate the Undergraduate Life Sciences Teaching Lab renewal and then potentially the planned Undergraduate Chemistry Teaching Lab renewal project (Wesbrook only). Government funding was secured for a limited portion of the life safety upgrade work and this scope of work has been tendered, awarded, and is under construction. The remainder of the swing space upgrade project has been tendered and the value of this work is noted in the budget as “Swing space cash”. Award of contract to undertake this work is pending Board 2 approval and release of funding. The design team also investigated undertaking a limited seismic upgrade to Wesbrook; however the scope of work required was far more extensive than allowed for in the project schedule and budget, and in consultation with Risk Management Services a decision was made to defer this upgrade. It is anticipated that Wesbrook will be demolished following its use as swing space for lab-intensive construction projects.

Functional Program

Resource Planning Group (RPG) was retained to develop a functional program for the project. Total new and renewed building area is approximately 15,408 gross square metres (165,840sf) plus 832 gross square metres (8,956sf) of rooftop research and teaching greenhouse space, for a total of 16,240 gross square metres (174,795sf). The project will include:

- Teaching laboratories for Biology, M&I, B&MB, and CAPS
 - Teaching lab support, including preparation rooms, environment chambers, and plant and specimen collections
 - Instructors’ offices and administrative support
 - Student help centre, informal learning space, and student association offices
 - Faculty of Science Co-op for life sciences programs (currently in Copp)
 - Replacement lecture theatres and classrooms
 - Replacement and upgrade of Biological Science complex functions currently in North Wing and Centre Block, including Botany administration hub, post-doctoral and graduate student offices, the BioImaging Facility, research greenhouse and growth chambers, loading/receiving, central stores, workshops, aquatics research and hummingbird lab.
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COSTS
Capital &
Lifecycle Operating

Capital Development Cost				
The following was prepared by UBC Project Services:	Board 1		Board 2	
	\$000s	\$/GSF	\$000s	\$/GSF
Construction	\$ 51,824	\$ 296	\$ 53,396	\$ 305
Design/Construction Contingency	\$ 1,785		\$ 3,443	
Construction Management	\$ 2,073		\$ 2,073	
Cash Allowances	2,633		2,633	
Planning & Design	5,182		5,360	
Furniture & Equipment	3,750		3,023	
Commissioning, Inspection, Moving	829		617	
IIC, CAC, Permits, Insurance & Legal	525		863	
Project Management	1,462		1,462	
UBC IT/AV/Security Allowance	2,000		2,000	
Swing Space	2,500		2,922	
Additional Wesbrook upgrades	2,580		-	
Subtotal	\$ 77,144	\$ 443	\$ 77,792	\$ 444
Tax	1,230		1,353	
Retained Risk Contingency	446		855	
Construction Financing	1,180		-	
Total Project Budget	\$ 80,000	\$ 458	\$ 80,000	\$ 458

Operating Budget		
Operating Costs	Annual	\$/GF
Annual Operations + Maintenance	\$ 1,113,444	\$ 6.37
Utilities	\$ 389,793	\$ 2.23
Total O & M Cost	\$ 1,503,237	\$ 8.60
Less: Savings from Demolished Space	\$ 474,931	5.67
Net O & M Cost	\$ 1,028,306	
Life Cycle Capital Costs	Annual	\$/GF
Cyclical Maintenance	\$ 613,530.00	\$ 3.51
Modernization / Upgrade	\$ 162,559.00	\$ 0.093
Total Capital Renewal Cost	\$ 776,089.00	\$ 3.60

Faculties of Science and Medicine will pay annual net O&M costs for their respective space. Central operating budget will fund Capital Renewal requirements to the extent possible.

FINANCIAL Funding Plan

Funding Sources,
Impact on Debt Ratios

The Undergraduate Life Sciences Teaching Labs project was included as the top priority in the last UBC Five-Year Capital Plan submission to the Provincial Government. This Plan proposed that funding for the project be split 50/50 between the Provincial Government and UBC. The Province has indicated that it has approved in principle the renewal portion of the project only, estimating its cost to be in the range of \$42.5 million. Pending Treasury Board approval in December 2014, the Province would contribute \$21.25 million toward this renewal component. The following funding plan is therefore proposed, including UBC internal sources for the balance of the project funding.

Funding Source	
Provincial Government – Pending Treasury Board approval, the Ministry of Advanced Education has approved in principle a contribution toward the renewal portion of the project.	\$21,250,000
Central Operating Budget - Internal loan (30 years, 5.75%) repaid from Central Operating Budget.	\$21,250,000
Trek Endowment – Internal loan (35 years, 5.75%) repaid from Trek Endowment using 3.5% annual spending allocation attributable to the \$57.3 million endowed land development revenue made possible by this project. Details noted below.	\$37,500,000
Total Funding	\$80,000,000

The \$57.3 million endowed land development revenue would be generated by shifting two rental University Housing projects (for those who work at or attend UBC) from Wesbrook Place to form part of the redevelopment of the current General Services & Administration Building (GSAB) and D.H. Copp building sites on University Boulevard. Shifting these rental projects would free up 301,500 ft² (132,700 ft² plus 168,800 ft²) of Market Leasehold gross buildable area in Wesbrook Place that would consequently generate \$57.3 million in prepaid lease revenue (\$190/ft² net of servicing and IICs) for endowment. The annual 3.5% endowment spending allocation on this amount will support debt service for a \$37.5 million loan amortized over 35 years at 5.75%. A schematic showing the funds flow is provided in Attachment 3.

GSAB tenants have been relocated to available office space in the Gerald McGavin, Donald Rix and Technology Enterprise Facility 3 buildings. This is part of a proactive strategy to address seismic risk, deferred maintenance and inadequacy of the building for current requirements. Functional programming for the GSAB site and planning for demolition of GSAB are underway. D.H. Copp uses would be shifted to the renewed and expanded Biological Sciences complex after its targeted completion in July 2017 thus making the D.H. Copp site available for development. Both GSAB and D.H. Copp have been assessed as very high risk for structural failure in the event of a seismic event and therefore their demolition represents a net benefit to the University from a risk management perspective.

The current UBC liquidity plan includes the required internal financing for this project, which is a top priority in the UBC Capital Plan. An assessment will be made prior to Board 3 to determine whether sufficient liquidity is available for the project to proceed on the proposed schedule.

UBCPT Financial Analysis of Proposed Land Use Change to GSAB and D.H. Copp Building Sites

The following value to UBC would be generated by shifting rental University Housing projects from Wesbrook Place to Academic lands on University Boulevard:

GSAB Site:

Site Area	47,400 ft ² (4,400 m ²)
Assumed built form	6-storey wood frame
Assumed FSR	2.8
Rental GBA	132,700 ft ²

Copp Site:

Site Area	60,300 ft ² (5,600 m ²)
Assumed built form	6-storey wood frame
Assumed FSR	2.8
Rental GBA	168,800 ft ²

Benefit to Wesbrook Place:

Shifting these rental projects would free up 301,500 ft² (132,700 ft² plus 168,800 ft²) of Market Leasehold gross buildable area (GBA)

Consequently, 301,500 ft² of wood-frame GBA in Wesbrook Place would return to UBC:

- **\$57.3 million in prepaid lease revenue (\$190/ft² net of servicing and IICs)**
- \$7.5 million in IIC (infrastructure impact charges) revenue (net increase market rate over rate for rental University Housing)
- \$8.0 million in the cost of servicing that could be applied to University Boulevard
- \$1.0 million in CAC (community amenity charges) revenue

Total return to UBC **\$73.8 million**

Once built, the new wood frame rental projects would generate Appraisal Surplus values of approximately **\$33 million to \$38 million** (\$110 to \$125/ft²).

The \$57.3 million pre-paid lease revenue would be endowed and the associated increase in annual endowment spending be used to support financing for Undergraduate Life Sciences Teaching Labs project.

SCHEDULE Implementation ScheduleImplementation
Timeline

The project is targeting completion in June 2017. This will allow time for set-up of teaching labs prior to the start of the 2017/18 academic year. There have been no revisions to the projected schedule since Board 1 reporting.

	Board 1	Board 2
Executive 1, 2	July 2013	July 2013
PPAC	September 2013	September 2013
Executive 3	November 2013	November 2013
Information report to Board	February 2014	February 2014
UBC Board 1	April 2014	April 2014
Treasury Board Approval of Provincial Funding Contribution	Fall 2014	December 2014
UBC Board 2	December 2014	December 2014
UBC Board 3	June 2015	June 2015
Construction Start	July 2015	July 2015
Substantial Completion	June 2017	June 2017
Final Occupancy	July 2017	July 2017
Board 4	June 2019	June 2019

RISKS Project RisksFinancial, Operational
& Reputational

The primary risk for the project is that the Land Development and Central Operating Budget revenues required for project funding are not realized. This would create a funding shortfall requiring other projects supported by the Central Operating Budget to be potentially deferred. UBC Properties Trust has confirmed the potential land development revenue for the market housing development based on extensive experience and track record with similar developments on campus.

BENEFITS Benefits of the proposed project include:Learning, Research,
Financial,
Sustainability &
Reputational

- Provides modern teaching labs for 2,000+ students in life sciences program.
- Addresses seismic risk in three high or very high risk buildings
- Eliminates up to \$85 million in deferred maintenance
- Provides rental University Housing for those who work at or attend UBC

CONSULTATIONRelevant Units,
Internal & External
Constituencies

The project is currently ranked as a top priority in the UBC Capital Plan and is a top priority for the Faculties of Science and Medicine. Infrastructure Development - Facilities Planning has worked with the user group to develop the functional program and a swing space plan. The design team has completed schematic design and UBC Project Services has provided preliminary budget costing based on the schematic design drawings. Campus & Community Planning (C&CP) has provided input on off-site utilities, sustainability objectives, siting, and integration with the Public Realm. UBC Energy & Water Services has provided a preliminary assessment of utilities requiring relocation.

Architect selected: Diamond Schmitt/CEI Architecture

The project is managed by UBC Project Services (Infrastructure Development). Project Services managed the successful renewal of Biological Sciences West + South which was completed on time and under budget in 2011.

Following Board 1 approval the development review process for DP 14030 has included reviews by the Advisory Urban Design Panel, where the design was supported, and by the Development Review Committee.

A public open house was held on October 29, 2014 in the atrium of the Earth Sciences Building. Over 50 people attended the open house (35 signed the attendance sheet) and 10 feedback forms were received. Generally, the response to the project was positive. The project is at the stage where a Development Permit can be issued by the Director of Planning.

The planning and approval processes for the redevelopment of the GSAB and Copp sites are underway. Staff are in the process of developing, testing and consulting on options for the University Boulevard gateway area, including: the academic programming for the GSAB and Copp sites; the mix of uses in the precinct and integration of University Housing; and the design of gateway buildings and public realm to reinforce the academic gateway and arrival experience.

UBCPT COMMENTSDate of Review: Signed Off by:

Complete for all reports that include a property component

Previous Report Date	April 14, 2014
Decision	Board 1 approval with authorization to engage a prime consultant and for a funding release to undertake schematic design.
Action / Follow Up	

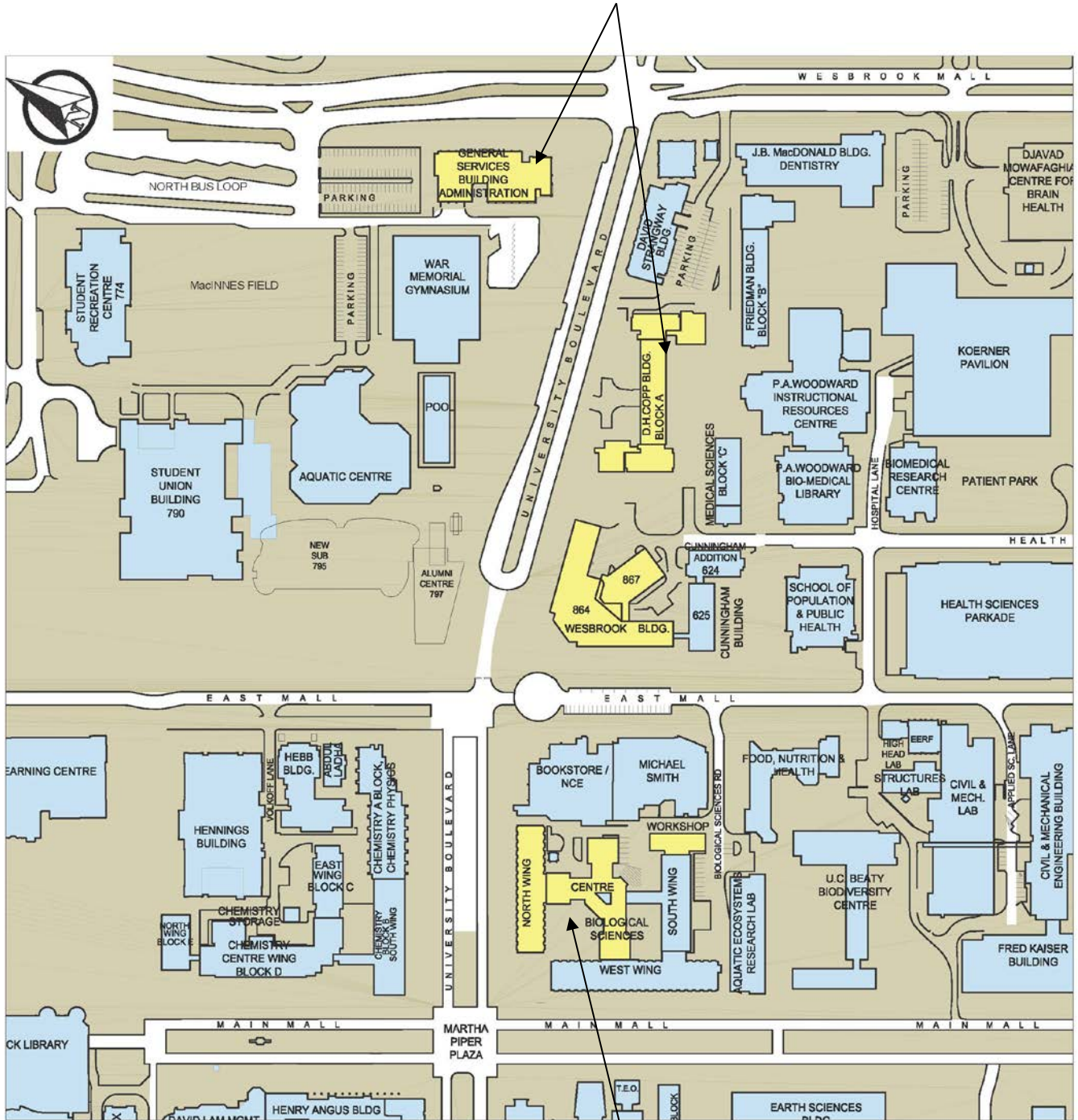
Previous Report Date	February 4, 2014
Decision	Information to Board
Action / Follow Up	

Attachments

1. Context Map with Relevant Buildings
2. Biological Sciences North & Centre Project Site
3. Land Development Funding Model - Flow of Funds
4. Undergraduate Life Sciences Teaching Labs Renewal - Preliminary Design Rendering
5. Capital Project Accountability Scope & Planning
6. Capital Project Accountability Budget & Funding

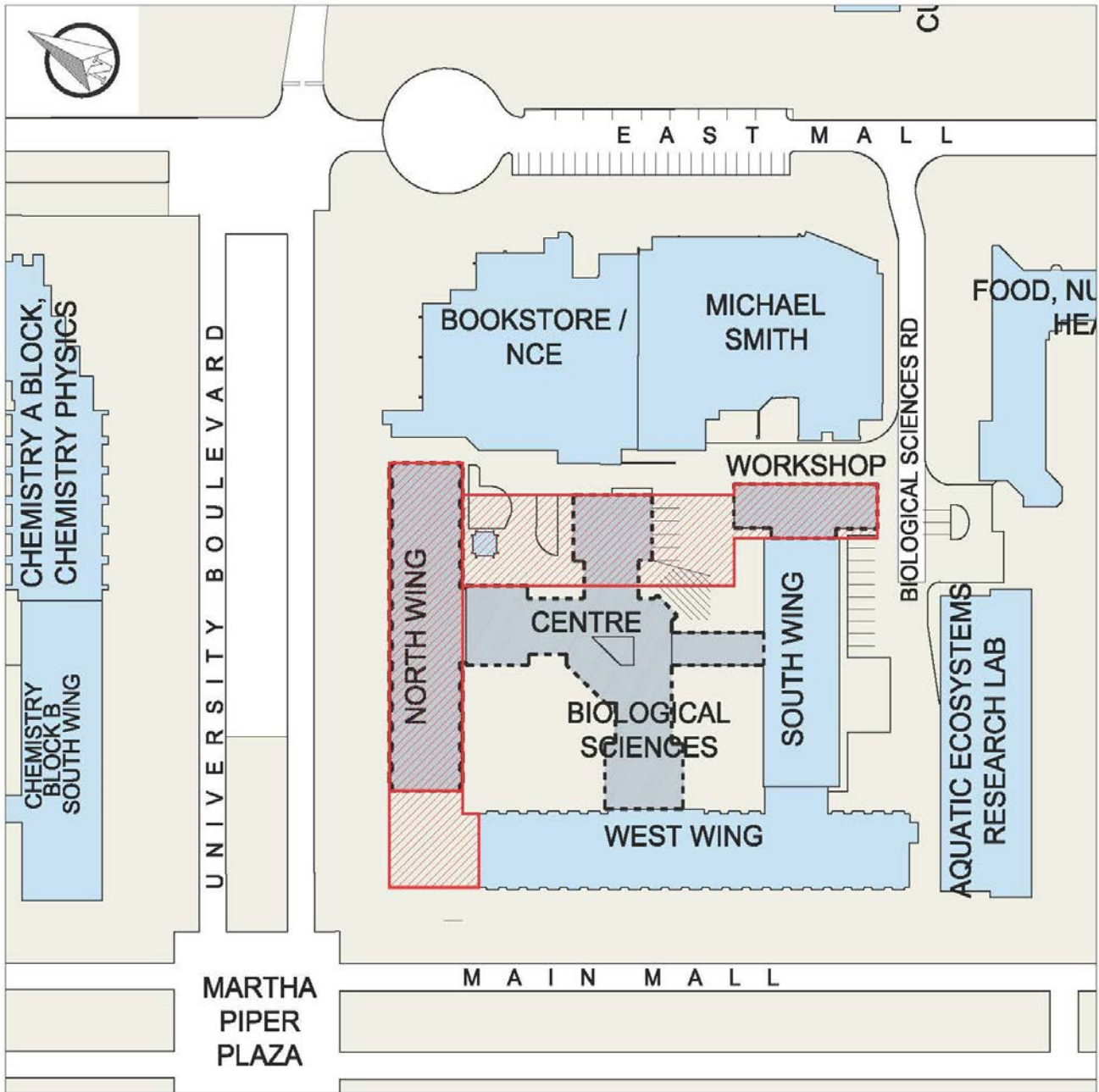
Attachment 1: Context Map with Relevant Buildings

Potential Mixed-Use Academic/University Housing Sites

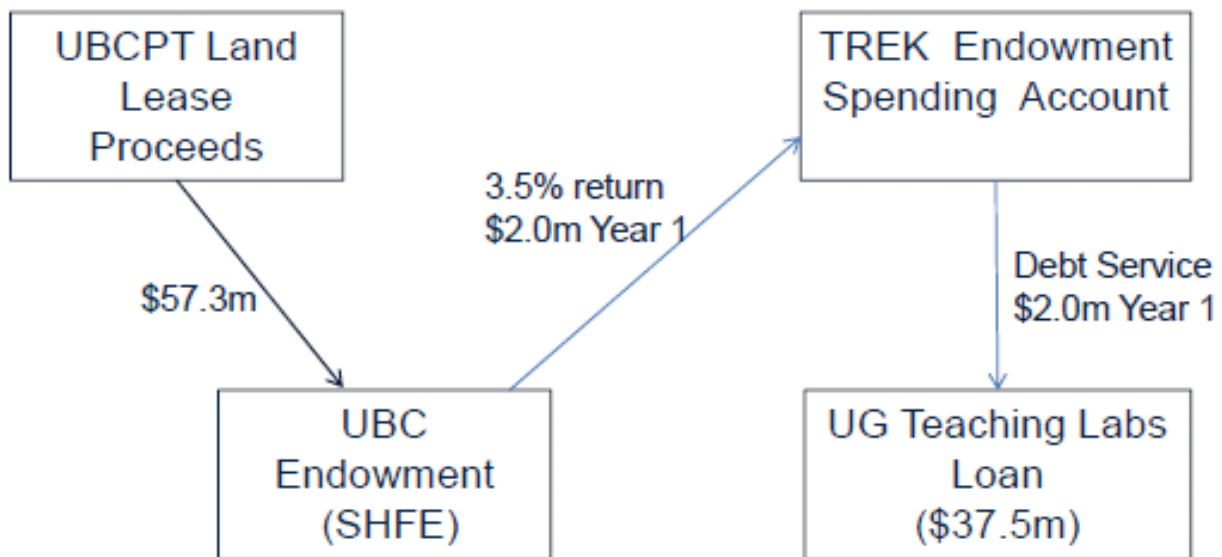


Undergraduate Life Sciences Teaching Labs Project Site

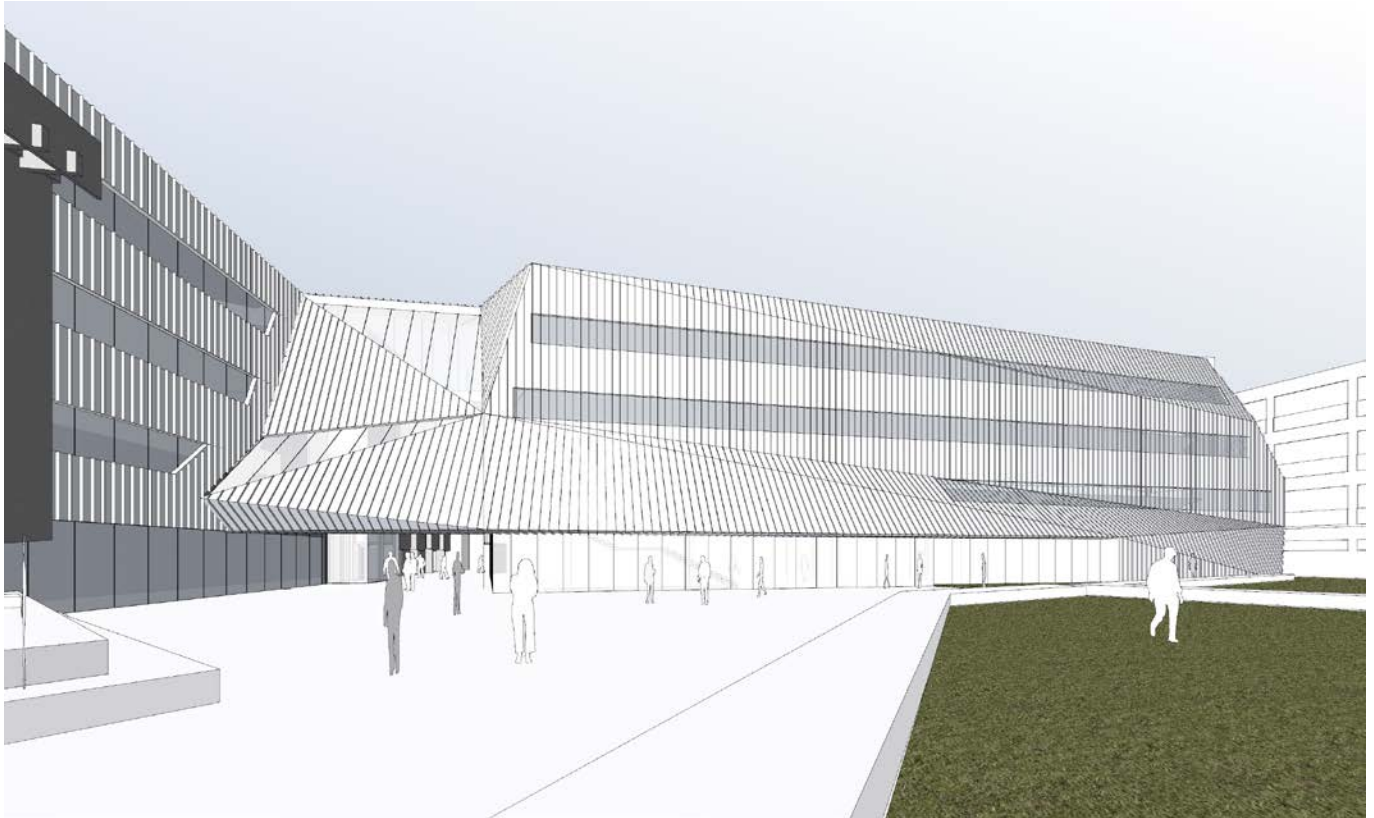
Attachment 2: Biological Sciences North & Centre Project Site




Attachment 3: Land Development Funding Model – Flow of Funds



Attachment 4: Preliminary Design Rendering - East Wing Courtyard Elevation



Attachment 6: Capital Project Accountability Budget & Financing

PROJECT NAME										
	Project Name:	Undergraduate Life Sciences Teaching Labs								
	Department/Unit:	Faculty of Science, Faculty of Medicine								
	Sponsor:	David Farrar, Provost & VP Academic								
CAPITAL BUDGET (\$000s)				LIFE-CYCLE OPERATING BUDGET						
Capital Development Cost		\$000s	\$/GSF	Operating Costs		Annual \$	\$ / GSF	Funding Source		
Construction		\$ 53,396	\$ 305	Ops & Maintenance*		\$ 1,113,444	\$ 6.37	Faculties		
Design/Construction Contingency		\$ 3,443		Utilities		\$ 389,793	\$ 2.23	Faculties		
Construction Management		\$ 2,073		Gross Total O&M Cost		\$ 1,503,237	\$ 8.60	Faculties		
Cash Allowances		2,633		Less: Savings from Demolished Space**		\$ 474,931	\$ 5.67			
Planning & Design		5,360		Net O&M Cost		\$ 1,028,306		Faculties		
Furniture & Equipment		3,023		* Amt derived from Whitestone Research & excludes landscape, mgmt overhead						
Commissioning, Inspection, Moving		617		**DEMOLITIONS: Bio Ctr 59,695 GSF; Bio North Rooftop Greenhouses 4240 GSF; Bio North Rooftop Mech PH 2960 GSF; 3rd flr bridge between BioSci N&W 2196 GSF; BioSouth Spoke 6738 GSF; Workshop 7642 GSF; Paper Recycle/Flamm Stor 291 GSF; TOTAL 83,762 GSF (7782 GSM)						
IIC, CAC, Permits, Insurance & Legal		863		Life-Cycle Capital Costs		\$ 613,530	\$ 3.51	Central		
Project Management		1,462		Cyclical Maintenance		\$ 162,559	\$ 0.93	Central		
UBC IT/AV/Security Allowance		2,000		Modernization/Upgrade		\$ 776,090	\$ 4.44	Central		
Swing Space		2,922		Total Cap Renewal Cost		\$ 776,090	\$ 4.44	Central		
Subtotal		\$ 77,792	\$ 444							
Tax		1,353								
Retained Risk Contingency		855								
Construction Financing		-								
Total Project Budget		\$ 80,000	\$ 458							
Capital Budget Notes:		\$/GSF unit rates will vary with areas that are in renewed and new portions of project.			Operating Budget Notes:		Faculties of Science and Medicine will pay O&M cost for net new space. Life-cycle capital costs will be funded to the degree possible by the Central Operating budget.			
FUNDING AGREEMENTS (\$000s)				FINANCING AGREEMENTS						
Funding Source	Liability with:	Committed	Secured*	Debt Serviced By:	Loan Amt*	Amort.	Int.	Ann. Payment		
UBC Central	Internally financed	\$ 21,250	\$ -	Central Op Budget	\$ 21,250	30	5.75%	\$ 1,488		
Provincial Govt		\$ 21,250	\$ -							
Trek Endowment	Internally financed	\$ 37,500	\$ -	Trek Endowment	\$ 37,500	35	5.75%	\$ 2,491		
			\$ -					\$ -		
			\$ -					\$ -		
Total		\$ 80,000	\$ -	Total	\$ 58,750			\$ 3,979		
* Funding paid or firmly committed to be paid before end of construction				* Loan amts in this case represent liabilities for unsecured funding sources						
Funding Notes:				Debt Capacity Impact:		Undergrad Life Sciences Teaching Labs Project is a top priority project in the Capital Plan Plan and therefore sufficient liquidity is available to support the immediate development of the project.				
PROJECT REQUIREMENTS CHECKLIST & SIGN-OFF										
CHECK	REQUIREMENT	NAME		SIGNATURE		DATE				
	Programmatic need and benefit	Dean, Faculty of Science Dean, Faculty of Medicine		Simon Peacock Gavin Stuart		12-Nov-14				
	Project scope and budget P3 screen Project manager assignment Swing space requirements	Infrastructure Development Managing Director		John Metras		12-Nov-14				
	Project site Development review process Sustainability measures	Campus & Community Planning Associate Vice President		Michael White		12-Nov-14				
	Funding & financing agreements Debt capacity	Treasury Treasurer		Peter Smailes		12-Nov-14				
	Fundraising plan	Development Office AVP, Development Services		N/A						
	Life-cycle operating costs	Infrastructure Development Managing Director		John Metras		12-Nov-14				
	Security & access control Parking	University Community Services Managing Director		N/A						
ATTACHMENTS										