

FOR APPROVAL

CONFIDENTIAL

IN CAMERA

TO: Business Board

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DATE: June 1, 2016 for June 16, 2016

AGENDA ITEM: 13c (i)

ITEM IDENTIFICATION:

Capital Project: Report of the Project Planning Committee for the McLennan Physical Laboratories Renovation – Undergraduate Labs Year 1 – **Execution of the Project**

JURISDICTIONAL INFORMATION:

Section 5.2 (b) of the terms of reference for the Business Board states that the Board is responsible for “approval of capital expenditures for, and the execution of, approved projects, as required by approved policies.”

GOVERNANCE PATH:

- 1. Business Board [for approval] (June 16, 2016)**

PREVIOUS ACTION TAKEN:

The original discussion document for this project was created in August 28, 2013. It was then followed up with an updated document on January 29, 2014. The new document was a response to the request from the Faculty of Arts and Science for a more complete outline of renewal proposals for the U of T Undergraduate Experimental Physics program and the corresponding renovations of the labs located in the north wing of McLennan Physics (MP). In October 2014, a planning group was formed to generate a Project Planning Summary for the renovations of the Undergraduate area, first floor teaching labs. The report was provided to Project Development, University Planning, Design and Construction in April 2015 for the purpose of establishing a cost estimate. This cost estimate served to inform the group that the scale of the project necessitated a Level 2 governance approval.

The terms of reference for the project was approved by the CaPS Executive at the May 25, 2015 meeting.

In-between CaPS meeting approval for expenditure of consultant fees for the amount of \$435,000 was approved on March 9, 2016.

HIGHLIGHTS:

The aim of the Physics Department is to create Canada's best undergraduate Practical Physics program and ultimately recruit new generations of top physics students to the University of Toronto. This project addresses first year physics Practicals for the Physical Science stream, Physics Department and first year labs for Engineering. It also speaks to the challenges associated with the Practicals methodology concerning work space, storage, and equipment. The labs will serve the combined constituencies of:

- Physics students from FAS (65-75% usage)
- Engineering students from FASE (20-30% usage)
- Other students, outside groups and outreach (5-10% usage)

"Other" students include those in the distribution requirements and outreach activities, not physical science stream students. "Other" students also include those from high school outreach, camps, and potential others from enhanced activities particularly outside of the fall winter term. For example the Physics department would run a Science Camp, Math Camp, and other high school outreach activities in the new rooms on the first floor. The lab renewal would immediately improve the educational experience of both the first year Physics and Engineering students.

At the May 25, 2015 CaPS Executive Committee meeting, the expenditure of consultant fees to advance the design of the project was approved. Consultant selection will proceed prior to Executive Committee Confirmation in order to align with a September 2017 occupancy date.

Vision Statement and Academic Plan

The resulting Physics Practicals consist of weekly two-hour sessions promoting small-team, hands-on, guided discovery in Physics. The Practicals have replaced the bi-weekly lab plus weekly tutorial sessions previously used in these courses. The Practicals are delivered in three Practical Rooms; 125A, 125B & 125C. The plan for room 126 is to be used by PHY180 in the fall (Engineering) and by PHY205 "The Physics of Everyday Life" in the winter. PHY205 is a distribution requirement course for all students across the Faculty of Arts and Science that is very popular and oversubscribed. Currently the Practicals for this course run on the second floor of the Undergraduate wing scattered through many rooms. The new space on the first floor would allow the increase of the current enrolment cap of 200 and consolidate all activities into this space. Currently the department turns away about 100 students because of the restriction on the Practicals size.

This project will complete a renewal of the undergraduate labs located on the 1st and 2nd floors of the north wing of McLennan Physical Laboratories. Several areas have been identified for pedagogical and infrastructure renewal in the first year space. These include:

1. Space and equipment reflecting modern pedagogy
2. Improved integration of experimental, numerical and theoretical curriculum
3. A restructured Practicals experience that balances small team, collaborative, guided discovery with in-depth, independent experimental exploration.

Space Program and Scope of Work

The proposed project will result in 713 nasm of renovated space. The space program for the proposed renovation area consists of:

- An enhanced and enlarged teaching lab 126B
- A new enclosed teaching lab 126
- An improved and enlarged teaching lab 222
- Several drop-in study/work areas 225
- A more effective lab technician support and storage space 127
- A vestibule area outside classrooms 134 and 137 to segregate the traffic flow from the adjacent teaching labs and create a useful space for students to gather and have arranged electrical/data access at a built-in countertop 126K
- Short-term, standing only, work counters in common corridor 102K and 107K

Room #	Room Type	NASM	Appendix #	Room Data Sheet
125	Drop-In Work/Study Area	88	3c	RDS2
126	Teaching Lab	146	3c	RDS4
126B	Teaching Lab	166	3d	RDS3
127	Technician Workroom/Storage Room	112	3e	RDS5
222	Teaching Lab	201	3f	RDS6
120K	Corridor/Open Work Space	N/A	3c	RDS1
126K	Corridor/Open Work Space	N/A	3c	RDS1
127K	Corridor/Open Work Space	N/A	3d	RDS1
TOTAL NASM		713		

Secondary Effects

The renovations outlined in this project are proposed to occur from late December 2016 through to the end of August 2017. It is expected that classes can proceed as usual assuming some scheduling accommodations are made. Access to rooms 125 A, B and C must be maintained during scheduled classes throughout construction. Swing space for the lab technicians during the renovations will be required. After discussions with ACE rooms 101, 201 and 229 are preferred. The following project parameters have been identified, and will require consideration:

- Rooms 134, 137, 102, 103, 202, 203:
 - Wait for the Fall 2016 exam period to finish before any demolition related to the project can start
 - ACE would need full use of the rooms until the end of the Winter 2016 term

- Rooms 135, 137:
 - Rooms are not needed during the Spring 2017 term
- Rooms 102 and 202:
 - The two associated classrooms, rooms 102 and 202 respectively, cannot schedule classes for students that require entry at the front of the room. This holds true during the construction period only. ACE will schedule classes accordingly.

The Department of Physics currently operates a drop-in centre in room 125 that provides academic assistance to physics students. This will have to be relocated during the renovations, created by partitioning MP200. This must be completed before the start of classes in January 2017, and can be constructed when there are no classes, either in late December or late August 2016.

Schedule

The proposed schedule is as follows:

CaPS Exec Approval	29 February, 2016
Consultant Selection	May 2016
Executive Committee Confirmation	14 June, 2016
Tender	mid-October 2016
Award	late November 2016
Site Vacancy/Clean-up	December 2016
Construction Start	January 2017
Substantial Completion	August 2017
Occupancy	September 2017

Disruptions to the existing occupants are to be expected during the course of construction; however, every effort must be made by the general contractor team to minimize such disruptions through construction scheduling and carefully considered access and implementation strategies.

The schedule assumes all municipal approvals may be achieved within the timelines.

FINANCIAL IMPLICATIONS:

a) Total Project Cost

The total estimated project cost for the McLennan Physical Laboratories Renovation – Undergraduate Labs Year 1 is \$5,004,332. This includes estimates or allowance for:

- construction costs
- contingencies
- taxes
- hazardous materials
- secondary effects

- demolition
- permits and insurance
- professional fees, architect, engineer, misc. consultants, project management
- computer and telephone terminations
- moving and staging, decommissioning of labs being vacated
- furniture and equipment
- miscellaneous costs [signage, security, other]
- commissioning
- escalation

An in-between CaPS Executive approval for expenditure of consultant fees for the amount of \$435,000, included in the Total Project Cost, was received on March 9, 2016.

b) Funding Sources

The funding sources for the project are as follows:

Faculty of Arts & Science Operating Funds	\$3,984,332
Department of Physics Operating Funds	\$ 400,000
Faculty of Applied Science and Engineering Operating Funds	\$ 620,000
<u>Total</u>	<u>\$5,004,332</u>

c) Operating Costs

Current annual operating costs are estimated to be \$209.00/net assignable square meters, including utilities, maintenance and cleaning. No additional operating costs are anticipated as a result of the proposed renovations.

RECOMMENDATIONS:

Be It Resolved:

THAT the Vice-President, University Operations be authorized to implement the capital project for the McLennan Physics Laboratories Renovation – Undergraduate Labs Year 1 at a total project cost of \$5,004,332.

DOCUMENTATION PROVIDED:

- Report of the Project Planning Committee for the University of Toronto McLennan Physical Laboratories Renovation – Undergraduate Labs Year 1, dated April 7, 2016.