



FOR RECOMMENDATION

PUBLIC

OPEN SESSION

TO: Planning & Budget Committee

SPONSOR: Scott Mabury, Vice-President, Operations and Real Estate Partnerships
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PRESENTER: See Sponsor

DATE: February 16, 2022 for February 28, 2022

AGENDA ITEM: 7

ITEM IDENTIFICATION:

Capital Project: *Report of the Project Planning Committee for the Galbraith Structural Testing Facility - Project Scope and Sources of Funding*

JURISDICTIONAL INFORMATION:

Pursuant to section 4.2.3. of the Committee’s terms of Reference, “...the Committee considers reports of project planning committees and recommends to the Academic Board approval in principle of projects (i.e. space plan, site, overall cost and sources of funds) with a capital cost as specified in the *Policy on Capital Planning and Capital Projects*.”

The *Policy on Capital Planning and Capital Projects* provides that capital projects with costs between \$10 million and \$50 million (Approval Level 2) on the St. George campus, will first be considered by the Planning & Budget Committee, which shall recommend approval to Academic Board. Such projects will be confirmed by the Executive Committee of the Governing Council on the recommendation of the Academic Board.

GOVERNANCE PATH:

A. Project Planning Report

1. Planning and Budget [for recommendation] (Feb 28, 2022)
2. Academic Board [for approval] (March 10, 2022)
3. Executive Committee [for confirmation] (March 22, 2022)

B. Execution of Project

1. Business Board [for approval] (March 15, 2022)

PREVIOUS ACTION TAKEN:

At the November 24, 2020 Capital Project and Space Allocation Committee (CaPS) Executive Committee meeting Terms of Reference as well as a request for fees to conduct a feasibility study were approved.

In early 2021 the project was awarded to the consultant team led by DIALOG, and the feasibility study was subsequently finalized August 2021. The feasibility study and associated project costing were used by the Department of Civil & Mineral Engineering to determine next steps.

On October 12, 2021 the CaPS Executive Committee approved a budget increase for consultant fees to continue and complete the design of the new Galbraith Structural Testing Facility.

HIGHLIGHTS:

The Structural Testing Laboratory in the Department of Civil & Mineral Engineering is among the top few testing facilities in North America and has received numerous awards for the quality of research performed. The main laboratory facility spans the basements of the Sandford Fleming and the Galbraith building and includes numerous ancillary facilities such as a concrete mixing laboratory, machine shop, welding bay and woodworking area.

Historically, the Structural testing facility at the University of Toronto was divided into two separate laboratories, the Mark Huggins Structures Laboratory in the Galbraith building and the Sandford Fleming Laboratory. These two testing facilities were joined in 2009 as part of a large renovation and equipment upgrade sponsored by CFI and ORF and worth more than \$8 million.

The original Mark Huggins Structures Laboratory, constructed in 1960, provided the Department with one of the best such facilities in North America at that time. Experiments conducted in the laboratory have contributed significantly to the development of Canadian structural engineering codes and practice. The Mark Huggins Structures Laboratory was basically designed and equipped to test individual structural elements, (primarily individual beams and columns - i.e. bar-like specimens), under simple loading conditions.

The Sandford Fleming Structures Laboratory, which has approximately 700 m² of floor area and an 18 m x 12 m strong floor as well as a 5 m high by 5 m wide reaction wall, was constructed following a fire in 1977 and was officially opened in 1982. With the aid of an NSERC Major Installation Grant, this laboratory was then outfitted with "state-of-the-art" testing equipment for research on large scale structural specimens.

Based on the results of the feasibility study, the Department of Civil & Mineral Engineering would like to continue with the revitalization of their existing Structural Testing Facility located in the Galbraith building. The proposed work is part of a long-term initiative to design and build the world's first Adjustable Multi-Dimensional (AMD) Loading System in the Structural Testing Facilities at the University of Toronto. Extensive construction work, consisting of Project Areas, is planned as part of this project.

Two distinct project areas in the lab have been defined to assist in prioritizing design focus and to assist with cost containment (the third project area was removed from the project scope during the feasibility study due to cost constraints). Project Area #1 (now referred to as #1B) includes the installation of the new structurally isolated ultra-high-strength instrumented loading platform (a functional necessity for the lab to be realized), and Project Area #2 (now referred to as #2B) includes the relocation of existing Hydraulic Power Units (HPUs). The lab is approximately 667 nasm (709 m² gsm).

Scope in Project Area 2B may be further reduced to help control costs.

Secondary Effects

Due to the scale of the excavation, vibration and noise during construction will have effect throughout the building which houses offices and classrooms. Recommend that excavation be limited to the summer period if possible or after hours.

The Structural Testing Facility in Galbraith Building will be closed during the entire period of construction, with testing and lab functions to be relocated to Sanford Fleming to allow testing to continue (during the construction period). The cost of this effect will be covered by CivMin and is outside of the scope of this project.

Equipment and lab materials will be relocated to Sanford Fleming, with potential needs for offsite storage. The cost of this effect will be covered by CivMin and is outside of the scope of this project.

Schedule

The proposed overall project schedule is as follows:

Project Milestone	Anticipated Date
CFI Funding announced	November 18, 2020
CaPS Exec: TOR and request to conduct feasibility study	November 24, 2020
RFP for Feasibility Study	January 2021
Feasibility Study Complete	August 2021
Provincial Funding Announcement (ORF) announced	September 2021
CaPS Exec: request for increase in design fees	October 1, 2021
Schematic Design and Design Development	October to November 2021
CaPS Exec: for full project approval	January to March 2022
Conclude Construction Documents / Permit	March 2022
Project Tender	April 2022
Construction Start	May 2022
<i>Deadline to begin construction activities</i>	May 22, 2022

RESOURCE IMPLICATIONS:

Discussion of overall costs and sources of funds can be found in the *in-camera* document for this project.

RECOMMENDATION:

Be it Recommended,

THAT the project scope of the Galbraith Structural Testing Facility, as identified in the *Report of the Project Planning Committee for the Galbraith Structural Testing Facility*, dated January 21, 2022, be approved in principle; and,

THAT the project totaling 667 net assignable square metres (nasms) (709 gross square metres (gsm)), be approved in principle, to be funded by the Canadian Foundation for Innovation (CFI) funding, the Ontario Research Fund (ORF), Dean's Office, Faculty of Applied Science and Engineering Operating Funds and, Civil and Mineral Engineering Operating Funds.

DOCUMENTATION PROVIDED:

- *Galbraith Structural Testing Facility Interim Project Planning Report* dated January 21, 2022