INTERIM
PROJECT PLANNING REPORT
FOR THE MEDICAL ACADEMY
AT THE UNIVERSITY OF TORONTO
MISSISSAUGA

Draft July 14, 2006

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INTERIM PROJECT PLANNING REPORT
FOR THE NEW MEDICAL ACADEMY
AT THE UNIVERSITY OF TORONTO AT MISSISSAUGA

I. Membership

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Co-Chair Ray de Souza, Chief Administrative Officer UTM
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Jennifer Anderson, Administrative Coordinator, UME Enrolment Expansion, Faculty of Medicine
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II. Terms of Reference

The project Committee must address the following items:

1. Identify the requirements for additional academic space necessary to accommodate a Medical Academy at UTM (the “Mississauga Academy”).

2. Demonstrate that the proposed space program will be consistent with the Council of Ontario Universities’ space standards and best practice guidelines for clinical space necessary for the program.

3. Identify all secondary effects (including site remediation if hazardous materials are present) and including space reallocations within the existing building, impact on the delivery of academic programs during construction, and the relocation of existing units affected by the construction.

4. Address campus-wide planning directives as set out in the campus master plan, open space plan, urban design criteria, and site conditions that respond to the broader University community.

5. Identify equipment and moveable furnishings necessary to the project and their estimated cost.

6. Identify all data and communication requirements and their related costs.

7. Identify all security, occupational health and safety, and accessibility requirements and their related costs.

8. Determine a total project cost for the capital project including all aspects identified above.

9. Identify a funding plan for capital and operating costs.

10. Report by May 19, 2006.

III. Background Information

The Faculty of Medicine and the University of Toronto at Mississauga have had discussions for some years regarding potential expansion of the MD program at UTM. In the spring of 2005, the Government of Ontario, in response to the shortage of primary care and generalist physicians, included in its budget a commitment to expand medical student enrolment by 104 positions per annum.

On February 9, 2006, the Ministry of Training, Colleges and Universities and the Ministry of Health and Long-Term Care announced a plan for many of the 104 new positions to be sited at satellite, community-focused campuses operated by three of Ontario's medical schools, as follows:

- Mississauga: 26 spaces (University of Toronto)
- Waterloo Region and St. Catharines: 38 spaces combined (McMaster University)
- Windsor: 14 spaces (University of Western Ontario)

The University of Toronto Undergraduate Medical Education (UME) program's 26-student expansion will take place incrementally over three years, producing a total first-year intake of 224 by September 2007:

- Current year 2005/06 6 additional students for a total of 204
- 2006/07 14 additional students for a total of 218
- 2007/08 6 additional students for a total of 224

Under the University of Toronto Faculty of Medicine's proposal, approved by Governing Council in early 2006, the Mississauga expansion of the UME will be operated under the "Academy" model that has long been successfully employed for all students at the downtown fully-affiliated teaching hospitals.[1] The new Mississauga Academy will focus on enhancing students' exposure to generalist practice (family and community medicine, general surgery, general internal medicine, general psychiatry, general pædiatrics, and general obstetrics/gynæcology) throughout the MD program.

[1] The three existing Academies are the FitzGerald Academy, located at St. Michael's Hospital, the Peters-Boyd Academy, a joint partnership of Sunnybrook Hospital and Women's College Hospital, and the Wightman-Berris Academy, at Mount Sinai Hospital, UHN-General Division, and UHN-Western Division.

The Mississauga Academy will have an enrolment of 36 students per year, comprised of the expansion number of 26 and an additional 10 students who will be reallocated from the existing Academies. The figure of 36 students was deemed to be the lowest viable number for an Academy, in view of the teaching model employed in the UME program and the critical number appropriate for an exceptional student experience (on par with the other Academies).

Student entry to the Mississauga Academy is planned to begin in the 2007/08 academic year with the first group of 36 students. The program will build over the subsequent three years so that all four years will be represented in Mississauga by 2010/11, as illustrated in Table 1. Thus, a total of 144 students will be designated to the Mississauga Academy once fully implemented.

Table 1. Roll-out of Undergraduate Students to Mississauga Academy.

	2007/08	**2008/09**	**2009/10**	**2010/11**
UG 1	36	36	36	36
UG 2		36	36	36
UG 3			36	36
UG 4				36
Total UG	**36**	**72**	**108**	**144**

Project Committee

Following the Government's formal announcement of the expansion in February 2006, a Project Planning Committee was established with the primary responsibility of developing a space plan to accommodate the increased number of medical students at the university. The higher enrolment and associated creation of the Mississauga Academy has implications for space, facilities, and infrastructure enhancements at:

- the Medical Sciences Building on the St. George campus,
- the University of Toronto at Mississauga (UTM) campus, and
- the proposed partner hospital sites, Credit Valley Hospital (CVH) and Trillium Health Centre (THC).

Space and Facilities Implications for the Medical Sciences Building (MSB)

The increased number of medical students requires expansion of the anatomy teaching laboratories and other teaching space in the MSB, while the distributed model of UME will rely on videoconferencing and web-casting of lectures and seminars between the UTM and St. George campuses; this will necessitate facility and audio visual and information technology improvements of lecture theatres and other seminar rooms in the MSB.

<u>Anatomy labs in MSB</u>
The first segment of the medical school curriculum, specifically the first ten weeks of the Structure and Function course, will be entirely delivered in the MSB on the St. George campus for all students, due to the specialized resources required for gross anatomy instruction. Similarly, six sessions of neuroanatomy laboratory teaching over approximately four weeks will also be conducted centrally on the St. George campus for all students. Facility changes, that is the creation of a new anatomy lab and an additional seminar room, within the anatomy suite, are required to accommodate the increased number of students. The added capacity is required

for the 2006/07 academic year due to the incremental expansion of the medical student population.

Lecture Theatres in MSB
The planned videoconferencing of lectures between the MSB and UTM for all courses in the first two years of the medical school curriculum will necessitate facility enhancements to the two key lecture theatres in the MSB (rooms 3153 and 3154) to incorporate the videoconferencing technology and associated infrastructure. Similarly, upgrades to seminar/small group learning rooms have been identified as an associated project..

Relocation and Improvements to Computing Facilities in MSB
Extensive use of information technology in support of the new Academy, in particular videoconferencing to permit remote delivery of lectures, will necessitate improvements to the Faculty of Medicine's Academic Computing facilities. Current plans call for a consolidation of staffing and operations with Administrative Computing into a new Discovery Commons and a move to the second (main) floor of the MSB, in the space currently occupied by Biomedical Communications. This new centre of computing would house, among other features, a video control room for monitoring of videoconferencing activities, a dedicated videoconferencing studio, equipment transfer rooms, a server room, a Help Desk, and staff offices.

Space and Facilities Implications for UTM

The establishment of a medical school Academy on the UTM campus will require a number of space, facility, and information technology enhancements to accommodate both teaching and student service space for the medical curriculum and research space for three new faculty positions created in conjunction with the Mississauga Academy. The necessary teaching space includes lecture rooms, seminar rooms, small-group teaching space, patient simulation (clinical skills) rooms, and associated administrative support space. Current utilization of UTM classrooms already exceeds the Council of Ontario Universities (COU)-recommended utilization, therefore new teaching space must be created to accommodate the delivery of the medical school curriculum. Student services will be provided in enhanced spaces already planned for UTM.

Project Approvals

The proposal entitled *Undergraduate Medicine (MD) Enrolment Expansion: Proposal to create a new Academy based at The University of Toronto at Mississauga (UTM) in partnership with the Mississauga community-affiliated hospitals* has been approved by the following Committees:

Faculty Council, Faculty of Medicine	December 2005
Erindale College Council	December 2005
University of Toronto Academic Board	February 16, 2006
University of Toronto Governing Council	March 23, 2006

On February 9, 2006, the Ministry of Training, Colleges and Universities and the Ministry of Health and Long-Term Care announced the medical student enrolment expansion to the Mississauga community and other provincial sites.

The Mississauga Academy will require accreditation approval by the Liaison Committee on Medical Education (LCME) of the Association of American Medical Colleges (AAMC) and the

Committee on Accreditation of Canadian Medical Schools (CACMS) of the Association of Faculties of Medicine of Canada (AFMC). This accreditation is required for any new sites for delivery of medical curriculum. An application for accreditation will be submitted this summer when more detailed plans for the space, facilities, and infrastructure can be provided.

IV. Statement of Academic Plan

Undergraduate medical education at the Faculty of Medicine, University of Toronto, is a four-year program divided into two phases: the first and second years comprise the "Preclerkship," while the third and fourth years are the "Clerkship." In 2004, the UME program was accredited for eight years following an extensive joint review by the AFMC Committee on Accreditation of Canadian Medical Schools (CACMS) and the AAMC/AMA Liaison Committee on Medical Education (LCME).

The Faculty of Medicine currently delivers its undergraduate medical curriculum in partnership with three Academies sited at fully affiliated teaching hospitals in Toronto. The Mississauga Academy will be the fourth Academy and will include both a campus-based venue at UTM for the more didactic parts of the curriculum and hospital sites for the clinically focused elements of the curriculum. The UME curriculum at all four Academies will be equivalent and is determined centrally by the Faculty of Medicine.

Delivery of the Preclerkship Curriculum

The faculty at UTM and the community-affiliated hospitals will work in partnership with the UME Preclerkship course directors to deliver the curriculum. Current faculty and new recruits from the UTM Departments of Biology, Chemistry and Physical Sciences, and Psychology are expected to complement the existing pool of Preclerkship instructors. In addition, new clinical faculty will be recruited from the two community-affiliated hospitals in Mississauga, Credit Valley Hospital and Trillium Health Centre.

Using advanced information technology, all students will be linked by videoconference to enable distributed learning across the campus sites. The Faculty has explored in detail the distributed campus model in British Columbia[2] and the Northern Ontario School of Medicine.

The curriculum to be delivered at the UTM campus will consist predominantly of lectures, other large-group sessions, and seminars, as well as select clinical skills teaching for the various Preclerkship courses:

Structure and Function
Metabolism and Nutrition
Brain and Behaviour
Pathobiology of Disease
Foundations of Medical Practice
Determinants of Community Health (DOCH) I
Determinants of Community Health (DOCH) II
Art and Science of Clinical Medicine (ASCM) I
Art and Science of Clinical Medicine (ASCM) II

[2] Expanding undergraduate medical education in British Columbia: a distributed campus model; CMAJ, 173(6), Sept 13, 2005.

Large group lectures: Lectures are held for the entire group of students, and occupy approximately 10 to 15 hours each week in both first and second year. In the first 10 weeks of Structure and Function and on neuroanatomy teaching days in Brain and Behaviour, all students will attend lectures in the Medical Sciences Building on the St. George campus; during the remainder of the Preclerkship, Mississauga Academy students will attend lectures at UTM. For each lecture, it is expected that one lecturer will address the entire class from his or her choice of site (principally at St. George), with videoconferencing connecting the remote site.

Seminars: These sessions follow a fixed curriculum and are typically case-based and interactive; there is one seminar leader per group and generally one to two two-hour seminars per week, although courses vary. At the Mississauga Academy, seminar groups will consist of 18 students each. Some seminars in Mississauga will be sited on the UTM campus with seminar leaders who are faculty of UTM or clinician faculty from the hospitals. Other seminars will take place in the hospital setting. Flexibility in siting is required to minimize travel between sites for both students and faculty.

Clinical skills/bedside teaching: This format of learning occurs principally at the hospitals during Arts and Science of Community Medicine (ASCM I and ASCM II); however, the UTM campus will support student learning in these courses, providing facilities for student practice. The UTM campus will also provide a site for the Objective Structured Clinical Examinations (OSCEs), a series of examinations throughout the first and second years of the ASCM curriculum. OSCEs are also part of the student evaluation for several clinical rotations in Clerkship (Years 3 and 4).

Delivery of the Clerkship Curriculum

The Clerkship component of the undergraduate curriculum is primarily focused on clinical training. With the exception of DOCH III and DOCH IV, the Clerkship courses are conducted almost exclusively at clinical sites. The UTM campus will provide teaching space for the seminars and large group lectures/tutorials that are part of the clinical rotations, as well as seminar space for the DOCH courses.

Overall, the Mississauga Academy provides a valuable opportunity for the Faculty of Medicine to provide a more community-based and community-oriented undergraduate curriculum. Students will be able to receive almost all of their instruction in Mississauga, either at the UTM campus, the community-affiliated hospitals, or in the greater community, with the exception of hands-on anatomy teaching in the Preclerkship, which must be provided at the MSB.

V. Space Program

A. Nominal Space Requirements

A working sub-group of the Project Planning Committee has devoted considerable time and effort to developing a comprehensive space program for the new Academy that can accommodates the current UME curriculum. The space program identifies all of the spaces that will be required at UTM, in the MSB, and at the two community hospitals.

Typically, space requirements are calculated using the Council of Ontario Universities and University of Toronto space standards for undergraduate classrooms, teaching and research laboratories, academic and administrative office space, student service space, etc. These calculations are based on various input measures, such as full-time student enrolments (both undergraduate and graduate students), weekly student contact hours, and faculty and staff counts.

COU space standards, University of Toronto practices, the specialized nature of the UME curriculum and its accreditations requirements, and the unique circumstances with a distributed cohort at UTM were considered in developing the space requirements.

Anatomy Teaching Facilities

An important portion of the UME first-year Preclerkship curriculum involves the use of anatomy dissection laboratories. Currently, seven laboratories accommodate not only the first-year UME class (204 students[3]) and repeating MD students (2 reserved spots) but also students from graduate programs in Biomedical Communications (10 students) and Anthropology (5 students). Each of the existing dissection laboratories has a student capacity of 32 students for a total capacity of 224 students; the current enrolments of each of these programs are thus readily accommodated.

With the UME enrolment increasing to 224 students by the start of the 2007/08 academic year (as well as the continued inclusion of the 17 other MD and graduate students), another anatomy dissection laboratory will be required; as noted earlier, delivery of any practical anatomy instruction at UTM is not feasible due to resource implications.

Also, anatomy instructors and students have access to three small group teaching rooms; these existing rooms are considered to be inadequate in size and not capable of accommodating the planned enrolment expansion. A fourth small group teaching room will therefore be needed.

Locations for the proposed new anatomy dissection laboratory and small group teaching room were identified earlier this year; the design of these rooms have been completed by the University's Design Office and their construction is now underway for completion in August of this year.

Lecture Theatres, Classrooms, and Seminar Rooms

The two-year Preclerkship phase of the UME program involves a mix of formal large-group instruction (usually delivered to the entire year class at once) and small-group instruction such as seminars and problem-based learning (PBL) sessions. These scheduled activities currently involve a range of existing MSB facilities, including large tiered lecture theatres (250- to 260-

[3] The figure 204 includes the first stage of the enrolment expansion. Prior to 2005/06, the class size had been 198.

seat capacities), smaller lecture rooms (both OSM and departmental), and a number of wet teaching laboratories (which are employed for delivery of concurrent seminars rather than conducting experiments).

With the inclusion of the necessary videoconferencing and IT equipment and infrastructure, and related architectural, mechanical/electrical, and furniture/furnishings renovations, the existing large lecture theatres (rooms 3153 and 3154) could be made suitable for the UME expansion and new Academy at UTM.

The Faculty of Medicine is in the process of detailing the future conversion of a cluster of wet teaching laboratories into multifunctional small classrooms and the extension of AV/IT infrastructure to other facilities within the MSB.

UTM has undertaken a detailed examination of the timetables of its existing classroom inventory to determine if all or part of the Academy's instructional requirements could be accommodated. However, it was determined that the Academy's instructional needs could not be satisfied within the existing UTM classroom pool. Therefore, additional classroom space will be required at UTM.

For the UTM Academy cluster, the building program includes two 60-seat lecture rooms that will be scheduled and used in parallel with the two large MSB lecture theatres. These two rooms will be equipped with AV/IT equipment and infrastructure similar to that in their MSB counterparts.

As well, both the UME program and other departments at UTM would benefit from additional 30-seat and 20-seat classrooms. The 30- and 20-seat classrooms, along with the 60-seat theatres, will be located along public corridors within the former library space to make them readily accessible to both UME and other UTM programs. The 12-seat PBL/seminar rooms will be located within the Academy's discrete space cluster.

The number of classrooms and seminar rooms is largely dependent on meeting formal instruction needs, but also takes into consideration informal usage by students and staff. Moreover, the proposed rooms can serve as replacement space for those facilities that are planned for the hospitals in the event of an emergency (such as the recent SARS crisis, which severely limited access to hospitals and disrupted delivery of UME curriculum).

Other Instructional Facilities

An important aspect of the UME program involves formal instruction with professional "standardized patients" and informal clinical skills practice by students on their classmates. A suite of patient simulation rooms, which duplicate a physician's examination room, have been proposed along with a central observation room and support facilities. This design allows for direct observation of clinical practice through one-way mirrors or through digital video cameras, and can be used by teachers and students alike. Such facilities are already employed at the Toronto General Hospital's Helliwell Centre (Wightman-Berris Academy) and other medical schools, including the University of Western Ontario.

Teleconferencing and IT Facilities

Crucial to the establishment of the Mississauga Academy will be the AV/IT network connections between the two campus locations and throughout facilities at both campuses. This infrastructure and the technology in each room will require the development of a core of AV/IT

facilities, as well as the rationalization of existing computer service operations at both MSB and UTM. The core AV/IT facilities will be the video control rooms and videoconferencing studios.

Academy Office and Student Facilities

The Faculty of Medicine has identified the academic and administrative support that will be required to meet the needs of the new Medical Academy at UTM. The majority of these offices and student areas will be accommodated within new space that will be constructed or renovated for the Academy. However, some of the Academy's requirements will be addressed with existing or new UTM facilities (such as space within the new Academic Learning Centre, the renovated Council Chamber, and the proposed Student Services Plaza).

Hospital-Based Facilities

As well as extensive campus-based teaching, the UME program involves significant hospital-based instruction and experience. The Faculty of Medicine has submitted to the two Mississauga hospitals a list of rooms that the new Academy will require for consideration in their respective capital projects.

Summary of Total Space Requirements for Mississauga Academy

The working sub-group has determined that the new Mississauga Academy will require 1,100 net assignable square metres (nasm) of existing space renovated in the Medical Sciences Building and a total of 2,516 nasm of programmable space within new construction and renovated space on the UTM campus. In addition, a request of 726 nasm each has been submitted to Credit Valley Hospital and Trillium Health Centre.

Table 2. Total Space Requirements for Mississauga Academy at MSB and UTM.

	Nominal nasm	**Comments**
MSB		
Anatomy Lab/Seminar Room	138	AFD project summer 2006
Lecture Theatres	684	Upgrading of existing lecture theatres
Computing Services	278	Reallocation of 2nd and 3rd floor spaces
Subtotal MSB	*1,100*	
UTM		
Classroom Facilities	630	Shared, new construction and renovation
Mississauga Academy Cluster	779	Dedicated new construction and renovation
Research Labs/Faculty Offices	333	New construction
Council Chamber/Ante Room	267	Upgrading of existing Council Chamber, shared
Student Affairs Offices/Testing	34	Renovation of Student Services Plaza, shared
ALC Office/Study Spaces	41	Allocation within ALC
Computing Services/Video Studio	432	Renovation of existing space
Subtotal UTM	*2,516*	
TOTAL	3,616	

B. Implementation of Space Program

Overview

The Project Planning Committee has concluded that the space program for the new Mississauga Academy at UTM should involve both new construction and renovation of existing building space. New construction will include a two-storey addition to the west side of the South Building's former library block and a four-storey addition to the north end of the north wing of the South Building. Renovations will be undertaken on all three floor levels of the South Building's west block in floor areas that will be vacated by UTM's library in the fall of 2006.

The Committee determined that the St. George campus portion of the Academy space program can be accommodated through the renovation of existing facilities in the Medical Sciences Building.

Although the UME enrolment expansion to 224 students will be realized with the start of the 2007/2008 academic year, the extent of new construction and renovations at both campuses, and the introduction of new state-of-the-art videoconferencing systems, would make it extremely difficult for the capital project to proceed through University governance (for approval) and the design/tender/construction process and be completed on time, even with an aggressive project schedule. A more realistic completion date for the Academy's complete space program at both campus locations is the start of the 2008/2009 academic year.

In order for the Faculty of Medicine to ensure that the new Academy can commence its activities at UTM and the Mississauga hospitals by the start of the 2007/2008 academic year, an interim space plan has been developed to temporarily accommodate essential first year instructional requirements and core staff and services within library space that will be vacated later this fall. The areas designated for temporary assignment to the Academy will not be required to satisfy the full space program. The construction of the new additions and needed renovations can therefore proceed to their completion by 2008/2009 without disruption to the Academy's interim accommodations.

The renovations within the MSB will be phased in with the added anatomy facilities becoming available by the start of the 2006/2007 academic year, the first-year lecture theatre and associated videoconferencing/IT facilities and infrastructure by 2007/2008, and the remaining facilities by 2008/2009.

Existing Space

<u>Medical Sciences Building</u>

Currently, the UME program utilizes a significant amount of facilities within the Medical Sciences Building. These facilities include, but are not limited to, anatomy dissection laboratories and small group teaching rooms, wet teaching laboratories (as seminar rooms), Academic Computing computer laboratories, large tiered-lecture theatres, and other classrooms and laboratories.

The anticipated UME enrolment expansion necessitates additional anatomy teaching facilities while the remaining facilities are adequate in capacity and numbers (if not quality). All necessary renovations that are required will take place in either existing Medicine or Office of Space Management (OSM) facilities.

University of Toronto at Mississauga

Much of the west wing of the UTM South Building was built to accommodate its library in 1971. It is centrally located with access directly adjacent to the “Meeting Place” on the main level and the primary administrative spaces on the upper level.

In 2005, a new library building for the Mississauga Campus was approved and is currently under construction and scheduled to be occupied in the fall of 2006. The move of library functions from their current location, therefore, provides an opportunity to develop facilities for the Mississauga Academy and to give UTM with additional facilities for academic, administrative and student services functions.

A feasibility study conducted by Campus and Facilities Planning early in 2006 produced several recommendations or guiding principles that would help accomplish an appropriate plan for future occupancy of the library space. The following recommendations were identified:

1. Open up the perimeter spaces for public functions to provide access to light into the core of the wing and allow views to surrounding areas.

2. Maximize adjacencies of use through the consideration of horizontal functionality and programming.

3. Work within the existing infrastructure of mechanical and structural systems.

4. Consider all spaces in the library wing, including those not serving library functions, when planning and programming the future use of the South Building west wing.

5. Introduce additional non-assignable space in the form of corridors to form a useable grid of spaces to accommodate academic facilities.

A detailed report is presented in Appendix D.

Interim Space Plan

As noted above, the long-range vision for the Medical Academy space at UTM will accommodate a cohort of 144 students (36 per year of the program), but cannot be fully implemented for the fall semester of 2007 when the Academy is scheduled to open. Consequently, an interim space program for UTM has been created based on the carefully identified requirements needed to support the first class in 2007/08. Permanent Academy space will then be completed in time for the 2008/09 academic year.

The interim space program provides for the UTM-based teaching, videoconferencing/IT, administrative, and student/social activities of the Academy in its first year, and is designed to minimize the amount of temporary construction that will later be removed for UTM’s space development program. Most of the interim space will be located in the vacated library area of the South Building, adjacent to the future Academy site. In keeping with the first-year curriculum, the interim program provides for the following teaching spaces: one lecture theatre, two classrooms, three PBL/seminar rooms, and six clinical-skills rooms. For student use in the first year, a small lounge and study room, as well as a locker bay, are planned. Temporary office space for the new Academy Director, visiting faculty, and staff is also included in the interim

program. Finally, the dedicated videoconferencing/IT space will be constructed in its permanent location by the fall of 2007 to reduce duplication of costs.

Despite its interim nature, the Academy space in 2007/08 is intended to provide a distinctive face to the medical school at UTM. A temporary external entrance leading directly from the Inner Circle will welcome visitors, and most of the rooms will be contiguous and linked internally between floors through an existing central stairway.[4] Students, faculty, and staff will thereby experience a cohesive medical school environment, while observing the ongoing construction of the permanent space of the Mississauga Academy. Indeed, it is hoped that the students in particular will shape the new Academy site by participating in its design and development over the course of their first year.

Table 3. Summary of Interim Space Requirements for 2007/2008.

	Nominal nasm	**Comments**
MSB		
Anatomy Lab/Seminar Room	138	AFD project summer 2006
Lecture Theatres	383	Upgrading of existing lecture theatres
Computing Services	278	Reallocation of 2nd and 3rd floor spaces
Subtotal MSB	*799*	
UTM		
Classroom Facilities	111	Temporary new classrooms in existing library
Mississauga Academy Cluster	274	Renovation in existing library
Research Labs/Faculty Offices	0	
Council Chamber/Ante Room	267	Upgrading of existing Council Chamber
Student Affairs Offices/Testing	34	Renovation in existing library
ALC Office/Study Spaces	41	Allocation within ALC
Computing Services/Video Studio	432	Renovation of existing space
Subtotal UTM	*1,159*	
TOTAL	1,958	

Permanent Facilities

A brief discussion of the Mississauga Academy's space program was presented in the preceding section on *Nominal Space Requirements*. The following tables provide a more detailed list of rooms by type, size, and number that are needed at both campus locations. Detailed room specification sheets for each room type are available on request..

[4] The principal exception will be the lecture theatre, which will be housed in the UTM Council Chambers, on the third floor of the South Building.

Table 4. Mississauga Academy – Space Program by Location

Room Description	nasm Per Room	No. Rooms	nasm Allocation
St. George Campus – Medical Sciences Building (Existing Facilities)			
Lecture Theatre – 1st-Year (264-seat; room 3153)	382.6	1	382.6
Lecture Theatre – 2nd-Year (288-seat; room 3154)	301.3	1	301.3
Anatomy Dissection Laboratory (32-stn)	94.7	1	94.7
Small Group Teaching Room (32-seat)	43.6	1	43.6
Academic Computing Staff Offices	120.0	1	120.0
Videoconferencing Studio	50.0	1	50.0
Video Control Room	50.0	1	50.0
Helpdesk	9.0	1	9.0
IT Workshop	13.0	1	13.0
AV Equipment Transfer Facility	9.0	3	27.0
St. George Campus Total (nasm)		**12**	**1,091.2**
University of Toronto at Mississauga (New construction and Existing Facilities)			
A. Within Mississauga Academy Cluster			
Lecture Theatres (60-seat)	116.2	2	232.4
Classrooms (30-seat)	66.9	4	267.6
Classrooms (20-seat)	49.1	2	98.2
Classroom Storage A	3.7	6	22.2
Classroom Storage B	3.3	3	9.9
PBL/Seminar Rooms (12-seat)	23.4	9	210.6
Patient Simulation Rooms	13.0	9	117.0
Central Observation Room	48.3	1	48.3
Patients' Waiting Room	13.0	1	13.0
Patients' Change, Shower, and Washrooms	24.0	2	48.0
Office – Academy Director	19.0	1	19.0
Office – Site Director DOCH	13.0	1	13.0
Visiting Faculty Offices (Shared)	11.0	3	33.0
Office – Executive Assistant to Academy Director	13.0	1	13.0
Office – UME Curriculum Co-ordinator	11.0	1	11.0
Offices – UME Administrative Support Staff	13.0	4	52.0
Office – Financial Counsellor	13.0	1	13.0
Office Support (copier, supplies, etc.)	10.0	1	10.0
Records & Archives Room	13.0	1	13.0
Mail Room (Faculty & Staff)	5.0	1	5.0
Lounge/Kitchenette (Faculty & Staff)	16.7	1	16.7
Reception/Waiting Area	15.0	1	15.0
Office – Medical Society (Storage)	11.0	1	11.0
Student Lounge (25-seat)	50.0	1	50.0
Student Study Room (10-seat)	20.0	1	20.0
Mail Room (Students)	6.5	1	6.5
Student Locker Room	41.2	1	41.2
UTM - Academy Cluster Sub-total		**63**	**1,409.6**

Table 4, continued

Room Description	Nasm Per Room	No. Rooms	Nasm Allocation
B. Outside of Mississauga Academy Cluster			
Research Laboratories	70.0	3	210.0
Research Support Rooms (40% of lab nasm)			84.0
Faculty Offices (Private)	13.0	3	39.0
UTM Council Chamber (room 3130)	214.0	1	214.0
UTM Council Chamber – Committee Room (room 3129)	53.0	1	53.0
Office – Student Affairs Coordinator	11.0	1	11.0
Office – Student Affairs Counsellors	11.0	1	11.0
Testing Facility for Students Requiring Accommodations	12.0	1	12.0
Office – Library Information Specialist (within ALC)	11.0	1	11.0
Student Study/Resource Area (within ALC)	30.0	1	30.0
Videoconferencing Studio	50.0	1	50.0
Video Control Room	50.0	1	50.0
UTM Computing Services Staff Area	200.0	1	200.0
Server Room	50.0	1	50.0
IT Office – Chief Information Officer	13.0	1	13.0
IT Workshop	13.0	1	13.0
Helpdesk	9.0	1	9.0
IT Storage Room	20.0	1	20.0
AV Equipment Transfer Facility	9.0	3	27.0
UTM - Outside Academy Cluster Sub-total		**22**	**1,107.0**
UTM Campus Total (nasm)		**85**	**2,516.6**
Grand Total Both Campuses (Existing Facilities and New Construction)		**97**	**3,607.8**

VI. Special Considerations

Campus Planning Issues

University of Toronto at Mississauga

The new Mississauga Academy will require two additions on the UTM campus: a two-storey addition at the west end of the South Building and a smaller four-storey addition for research laboratories to be located at the north end of the South Building. Both additions will provide opportunities to create improved pedestrian flow, improve the open space environment, and introduce the first phase of much needed research facility expansion that has been identified in UTM's Master Plan.

The primary Academy cluster in the South Building will replace the central presence that the library had provided in this area of the campus, both physically and programmatically. The new structure will complete the courtyard already framed by the Kaneff Centre and portions of the South Building. This will enable a new entrance to link the courtyard with

the “Meeting Place” in the South Building and the new Wellness Centre through a central activity spine. The significant amount of space that will be released with the relocation of the library to the Hazel McCallion Learning Centre will accommodate not only the Mississauga Academy but will provide UTM the opportunity to create a Student Services Plaza (a consolidation of existing services) and allow for the increase of needed central administrative and academic office facilities for UTM. The proposed Student Services Plaza may also incorporate the reorganization and renovation of the Meeting Place and adjacent facilities.

The secondary addition, for research laboratories, at the north end will be in close proximity to the existing research facilities of the South Building and designed to be constructed in modular form to be the first phase of the planned science wing. This new addition must be sited to ensure that the function of the CCIT Building is not compromised.

Inter-Campus AV Infrastructure

A critical element in the establishment of the new Mississauga Academy is the development of an effective infrastructure that will link key UME instructional facilities at UTM with their counterparts in the Medical Sciences Building via videoconferencing. Notably, UME in the new distributed model will involve simultaneous instruction at both locations and it is essential for quality of education and successful accreditation that students have the same learning experience regardless of where they attend class. This includes not only the ability to view a lecture, but moreover to interact not with the instructor and with their fellow students in the course of a session.

The end points of the interconnecting telecommunications will be the video control rooms. From these rooms, audio-video and data will be streamed not only between campuses but between the individual facilities within each campus location. The two large lecture theatres (rooms 3153 and 3154) within the Medical Sciences Building, the two new 60-seat lecture theatres at UTM, and the videoconferencing studios (one each per campus) will be fully videoconferencing-capable.

A significant portion of the Mississauga Academy’s project costs are related to the supply and installation of videoconferencing and IT equipment and infrastructure. A preliminary cost estimate is as follows:

UTM Equipment & Install	$1,880,800.
MSB Equipment & Install	$1,639,950.
Networking Infrastructure	$125,000.
Technical Support (First Year)	$106,250.
Total Cost Estimate	$3,752,000.

The above costs include a reasonable contingency given that the specifications of needed AV/IT equipment and the design of the networking infrastructure have yet to be developed to a point that would allow a more detailed estimate. The above costs do not include any applicable federal or provincial taxes.

A room-by-room listing of required AV/IT equipment and associated costs for each campus location is provided in Appendix B (to be inserted in the final report).

Secondary Effects

University of Toronto at Mississauga

The construction of two new additions to the South Building will have some impact on the occupants and users of the Kaneff Centre, the CCIT, and adjacent areas of the South Building. Although every effort will be made to mitigate or minimize disruptions and discomfort, there still remains the possibility that individuals and functions will be occasionally inconvenienced. As well, the renovation of the former library will have a similar impact to occupants and users of adjacent and nearby facilities.

A direct secondary effect of the Medical Academy project is the need to release a suite of Geography facilities on the ground floor of the South Building in order to permit the construction of the new videoconferencing and IT space, as well as the consolidation, rationalization and relocation of UTM's computer services. A cost allowance has been provided for this relocation but a temporary or final location has yet to be identified.

Another effect of the expansion project is the need for the Academy to conduct its first-year lectures and seminars in 2007/08 in UTM Council Chamber and the adjacent Committee Room both of which will undergo extensive renovations this summer.

Although not a direct secondary effect, the renovations that will be completed to accommodate the new Academy will present an opportunity for UTM to develop the remaining library space for its own purposes. The Mississauga Academy will require approximately a third of the space vacated by the library on the main and third floors, and its program will be located at the west end of the block. If the space between the new academy and the existing "Meeting Place" is not developed by UTM, then the academy and new classrooms will essentially be isolated from the rest of the building.

To that end, UTM has proposed that the available space be developed into academic expansion space for the Departments of Geography and Sociology, an administrative office cluster for a new Dean (third floor), and the consolidation of existing student-related operations into a new Student Services Plaza.

It is critical that the design and renovation of UTM's space program within the vacated library occur in parallel with the design and implementation of the new Medical Academy. Ideally, the same consultants should be used for these renovations as will be retained for the Mississauga Academy cluster . In order to realize this goal, UTM has been working to prepare and approve a space program and master plan for the remaining portion of the vacated library space.

Medical Sciences Building

There are two significant secondary effects associated with the renovations proposed for the Medical Sciences Building. In order for the renovations to the two large lecture theatres (rooms 3153 and 3154) to be completed in time for the start of the academic year, it will be necessary to begin work as soon as possible. The Faculty of Medicine will work with the Office of Space Management to explore the possibility of relocating and/or rescheduling classes to allow the hand-over of these rooms to contractors as early in the winter session of 2006/07 as possible.

The other secondary effect involves the release of space occupied by the Department of Biomedical Communications on the second floor of the Medical Science Building. This space is needed for the development of the new videoconferencing/IT facilities and the consolidation of the Faculty's computing operations. Temporary accommodations will be

required to relocate the Division of Academic Computing, when its space on the third floor of the Medical Sciences Building becomes the new site of Biomedical Communications.

The costs to renovate and relocate Biomedical Communications are not included within the scope of the Mississauga Academy project, but the temporary relocation of those space elements of Academic Computing that are carried in the approved Academy space program will need to included in this capital project.

As with UTM, these renovations could cause some discomfort to nearby neighbours, but every effort will be made during construction to minimize any adverse effects.

Interim Accommodation for the Mississauga Academy

University of Toronto at Mississauga

In order to commence instruction to UME students at UTM by the start of the 2007/08 academic year, it will be necessary to provide interim accommodation for the activities of the first-year class This interim plan is required as it is likely that the proposed new construction and renovations will not be completed until 2008/09.

A number of planning assumptions were made: interim accommodations will be developed in vacated library space not needed to satisfy the Academy's final space program, interim renovations should be kept to a minimum, and interim accommodations should not be developed for those facilities or functions that will be difficult or inadvisable to relocate (e.g. videoconferencing facilities) or can be temporarily accommodated elsewhere at UTM.

UTM will make available the renovated Council Chamber and Committee Room as the Academy's first-year, 60-seat lecture theatre and one of its 30-seat classrooms. The UME program coordinator has determined that existing small seminar rooms would be available to conduct activities scheduled for the Patient Simulation Rooms, with portable equipment and furnishings brought into the rooms as needed; this space requirement will therefore not need to be developed in the Academy's interim plan.

The area to the east and south of the library's central staircase on the main floor can be readily developed to accommodate the Academy's remaining instructional facilities, administrative and academic offices, support rooms, and student study and amenity spaces. This area can have its main entrance either off the existing central "Meeting Place" or the existing exterior doors on the south side. It is likely that an emergency exit from this floor area will be required and an exit corridor has been included in the interim floor plan.

It is recommended that the proposed video control room and videoconferencing studio be developed in concert with the existing videoconferencing and IT facilities at UTM (including Computing Services staff and operations); this AV/IT suite of rooms should be planned, designed, and constructed in its final location. The area vacated by the library on the ground floor will not be sufficient and adjacent space assigned to Geography will need to be released.

The Academy had initially requested that the research laboratory and faculty office addition proposed for the north end of the South Building be completed by the start of the 2007/08 academic year. As with the construction of the main addition onto the west end of the library and the academy's major renovations, this new addition will not likely be available until the start of 2008/09.

Medical Science Building

An interim space plan is not proposed for the Medical Sciences Building; as recommended for the AV/IT operations at UTM, the counterpart operations in the Medical Sciences Building should be accommodated in their final location on the second floor. Staging will only be required to release Academic Computing space for the aforementioned renovations for Biomedical Communications.

VII. Resource Implications

For the Interim Report, the Department of Capital Projects prepared a preliminary Total Project Cost estimate by identifying each of the logical segments of the UTM and MSB projects and applying a range of likely total costs per square metre. The rationale for this approach is that at present some portions of the total scope of work require further engineering and architectural work. The final report of the Project Planning Committee will present a more detailed Total Project Cost.

Medical Sciences Building

The renovation work within MSB directly related to the enrolment expansion and creation of a new Academy impacts 1,100 nasm within the anatomy laboratories, Academic Computing areas, and two lecture theatres. The estimated total cost is in the range of $2.46 – $4.36M. In addition to this is a proposed IT budget of $2.25M, for a total estimate in the range of $4.7 – $6.6M.

Not included in the Mississauga Academy project costs are two associated projects:

- additional renovation work that should occur coincident with the Academy work and is required to relocate Academic Computing. The costs for this are presently estimated to fall in the range $840 - $960k.
- IT and A/V work identified by Academic Computing/Administrative Computing where the scope of associated renovations is undefined at present, and whose budget remains to be proposed. The IT portion of this is presently $978k.

UTM

The proposed construction and renovation at UTM covers a new academic addition of 1,200 GSM, a lab addition of 664 GSM, as well as renovations to the old library space to be shared by both the Academy and UTM. In addition, the projects required for interim use by the Mississauga Academy as of September 2007, comprising the existing Council Chamber and Committee Room and the existing library administration area, are included in the costs. The construction project cost is estimated to be in the range of $14.2 – $16.7M, plus an IT cost of $2.55M for a total range of $16.7 – $19.3M attributable to the Academy.

The UTM space program for the remainder of the old library space has not yet been finalized, but it is critical that all design and construction work be done simultaneously to achieve the most appropriate solutions and to minimize disruption to the activities of the Academy. The remaining space in the old library, renovated for other UTM purposes, would be in the range of $8.6 – 9.8M.

Estimated Total Project Costs

The grand total project cost for construction work and IT systems in all areas currently programmed as attributable to the Mississauga Academy program is forecast to fall in the range $21.45– $25.9M.

Table 5. Estimated TPC.

Location	Mississauga Academy	Non Mississauga Academy
MSB		
Construction	$2.46 - $4.36M	$840 - $960k
IT	$2.25M	$978k
MSB total	*$4.7 – $6.6M*	*$1.818 - $1.938*
UTM		
Construction	$14.2 - $16.7M	$8.6 – 9.8M
IT	$2.55M	
UTM total	*$16.7 - $19.3M*	*$8.6 – 9.8M*
TOTAL	$21.4 - $25.9M	

Initial Design Fees

Calculating roughly 50% consulting fees expended as an interim measure until full approval is received results in an estimate of $2M. This breaks down as:

Mississauga Academy construction-related, MSB and UTM	$1.00M
Mississauga Academy IT-related, MSB and UTM	$0.39M
FOM related	$0.13M
UTM non-MA work	$0.48M
Total Fees	$2.00M

Operating Costs – AV/IT Infrastructure

An annual operating cost of $698,125 has been identified for the continued support of the AV/IT equipment and infrastructure at both campus locations; it is assumed that these costs are to be evenly split between both campuses.

VIII. Funding Sources

Elizabeth

IX. Schedule

A preliminary project schedule for completion of the interim and permanent facilities is as follows:

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Appointment of consultant(s) August 2006

Schematic designs for Mississauga Academy spaces, both interim and final	November 2006
Construction cost estimate	December 2006
Approval for full project	January 2007
Tender UTM interim projects and MSB	February 2007
Complete MSB and UTM interim projects	July 2007
Tender main UTM MA projects	June 2007
Complete UTM MA projects	July 2008
Move-in	August 2008

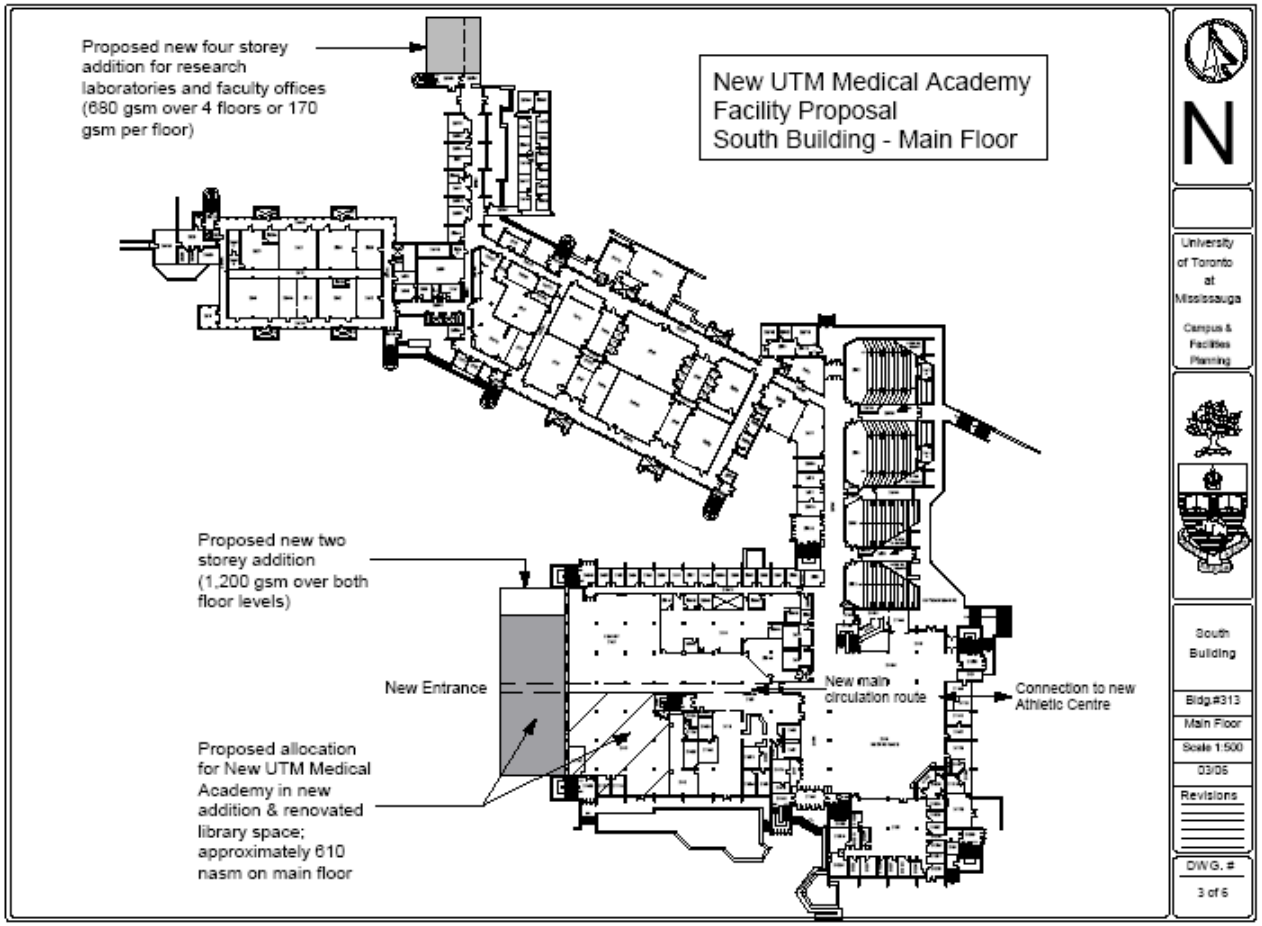
X. Recommendations

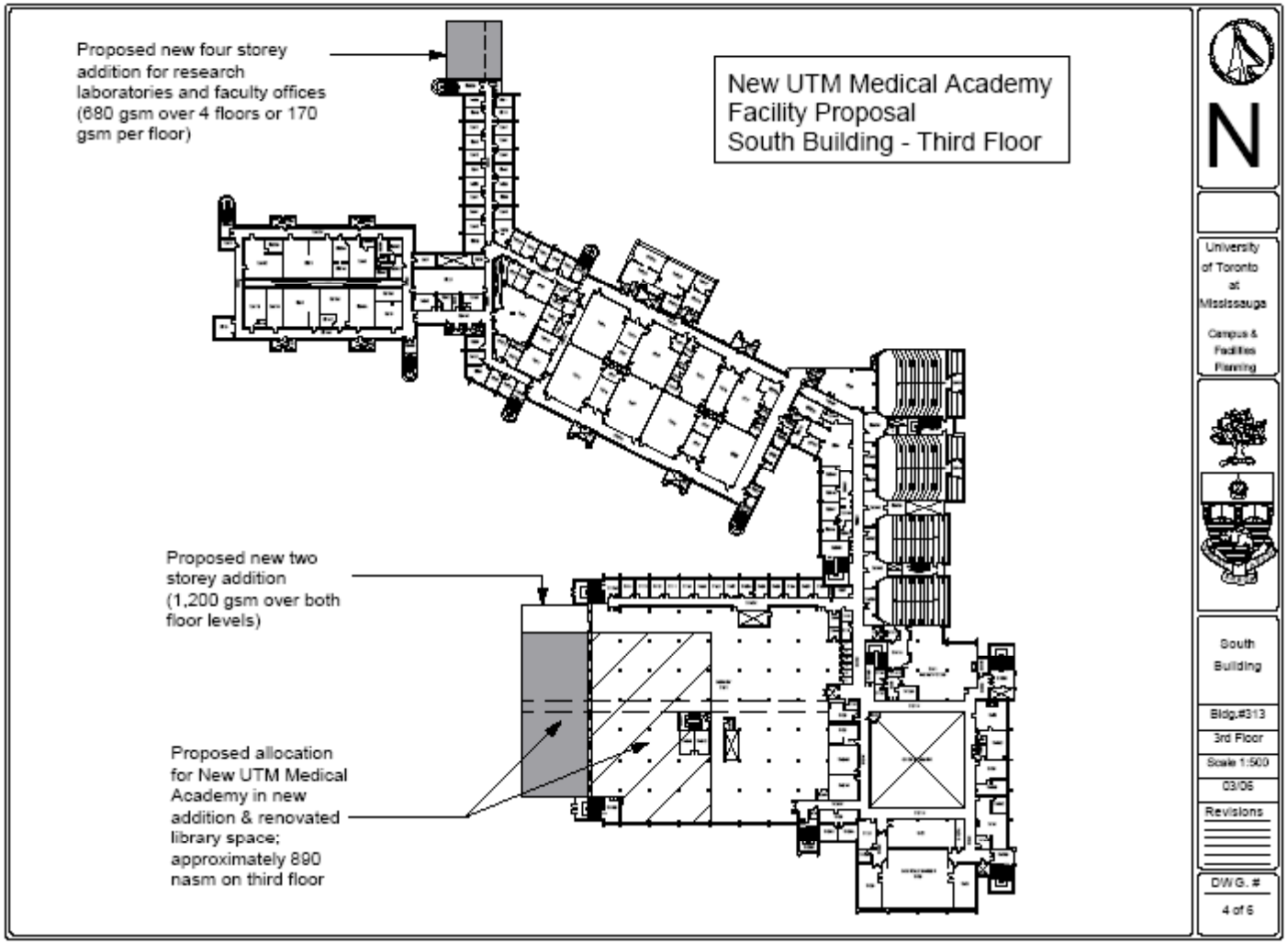
That the Planning and Budget Committee recommend to the Academic Board:

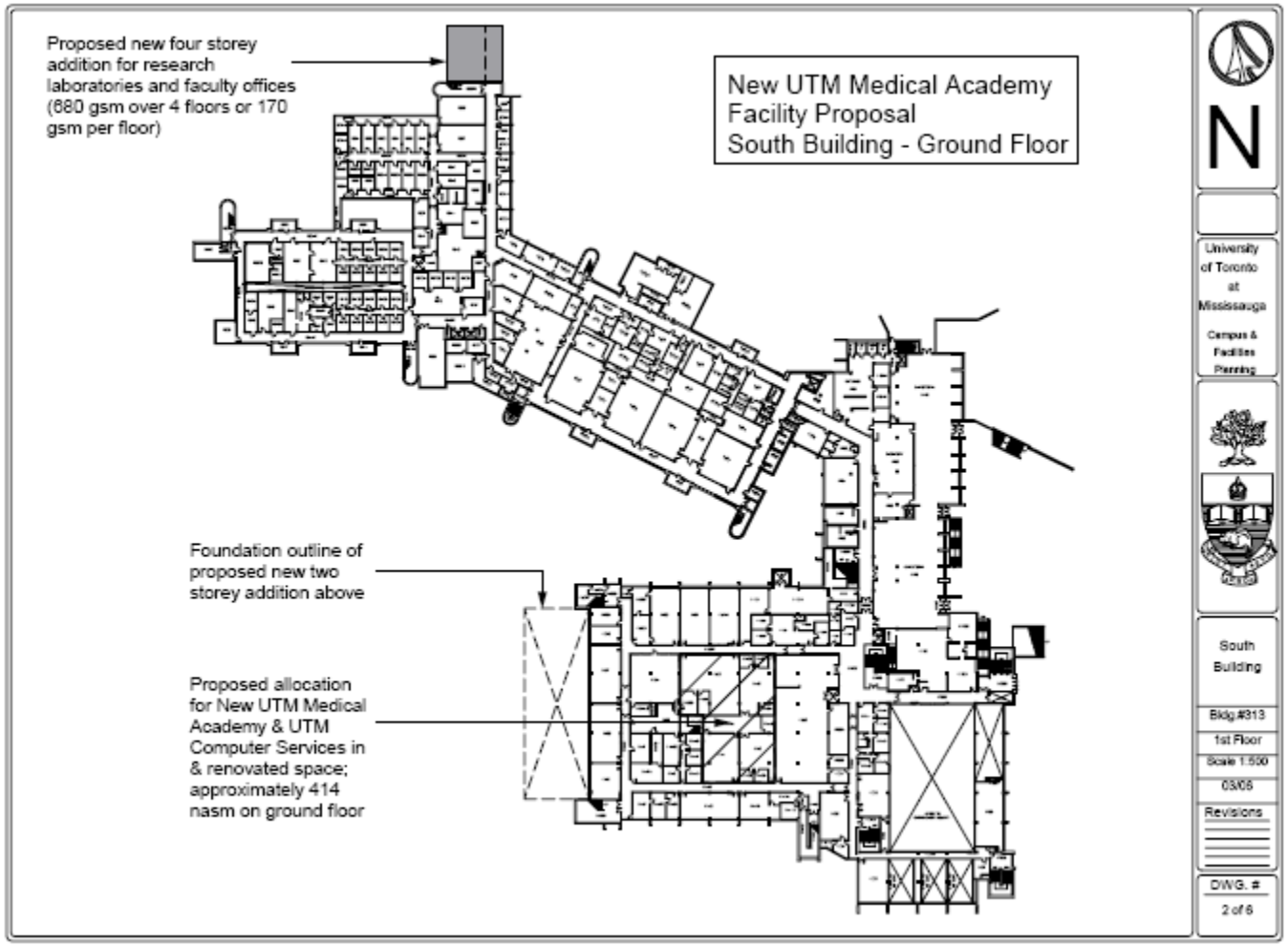
1. THAT the Interim Project Planning Report for the Medical Academy at the University of Toronto at Mississauga be approved in principle.

2. THAT $2.0M be authorized to be spent on consulting fees associated both directly and indirectly with the Mississauga Academy project drawn from the following sources:…….

APPENDIX A – PROPOSED CONCEPT PLANS




Proposed new four storey addition for research laboratories and faculty offices (680 gsm over 4 floors or 170 gsm per floor)
New UTM Medical Academy Facility Proposal South Building - Third Floor
Proposed new two storey addition (1,200 gsm over both floor levels)
Proposed allocation for New UTM Medical Academy in new addition & renovated library space; approximately 890 nasm on third floor
N
University of Toronto at Mississauga
Campus & Facilities Planning
South Building
Bldg.#313
3rd Floor
Scale 1:500
03/06
Revisions
DWG. #
4 of 6


Proposed new four storey addition for research laboratories and faculty offices (880 gsm over 4 floors or 170 gsm per floor)
New UTM Medical Academy Facility Proposal
South Building - Ground Floor
Foundation outline of proposed new two storey addition above
Proposed allocation for New UTM Medical Academy & UTM Computer Services in & renovated space; approximately 414 nasm on ground floor
N
University of Toronto at Mississauga
Campus & Facilities Planning
South Building
Bldg.#313
1st Floor
Scale 1:500
03/06
Revisions
DWG. #
2 of 6

APPENDIX B – AV/IT EQUIPMENT

AV/IT Equipment List and Cost Estimate **UTM Campus**	**Unit Cost**	**No. Units**	**Total Cost**
Lecture Theatres, 60-seat (2 new theatres plus interim Council Chamber setup)			
Large-room VC codec, HD capable	$30,000.00	3	$90,000.00
HD PTZ cameras	$12,000.00	6	$72,000.00.
Hitachi ES70 VisionCube (for lecture thtr display)	$35,000.00	9	$315,000.00
Matrix switch	$50,000.00	3	$150,000.00
Document camera, 3-chip	$12,000.00	3	$36,000.00
Press-to-talk boundary microphone	$500.00	90	$45,000.00
Mic mixer for per-student mics in lecture thtrs	$20,000.00	3	$60,000.00
Installation of per-student microphones	$80.00	60	$4,800.00
Standard U of T Teaching Station	$20,420.00	3	$61,260.00
Upgraded Crestron touchscreen for Teaching Stn	$13,000.00	3	$39,000.00
Crestron Pro controller	$4,000.00	3	$12,000.00
Large-room audio amplifier & speakers, room enhancement	$30,000.00	3	$90,000.00
Classroom PC w. large flat-screen monitor	$4,500.00	3	$13,500.00
VC networking, per port	$1,000.00	3	$3,000.00
CNS Classroom Network	$3,500.00	3	$10,500.00
19" Rack to mount equipment	$1,500.00	3	$4,500.00
Monitoring equipment for control booth technician	$5,000.00	3	$15,000.00
UPS for power backup and filtering	$2,000.00	3	$6,000.00
Wireless microphone and base stations	$1,500.00	3	$4,500.00
Custom-built cart for lecturer displays and presenter camera	$5,000.00	3	$15,000.00
21" LCD monitors for lecturer display	$800.00	9	$7,200.00
Installation of VC equipment	$80.00	150	$12,000.00
Installation of Audio equipment	$0.00	225	$18,000.00
Room Subtotal Cost			$1,084,260.00
Classrooms, 30-seat (4 rooms)			
Classroom PC w. large flat-screen monitor	$4,500.00	4	$18,000.00
Ceiling-mounted 2500 lumen DLP data projector + screen	$7,000.00	4	$28,000.00
Wall-mounted Crestron push-button touchpad	$2,000.00	4	$8,000.00
VC cart w. 2 flat screens, camera, codec	$25,000.00	1	$25,000.00
VC networking, per port	$1,000.00	4	$4,000.00
CNS classroom network, per port	$1,000.00	4	$4,000.00
Installation of equipment (8 hrs each room)	$80.00	32	$ 2,560.00
Room Subtotal Cost			$89,560.00
Classrooms, 20-seat (2 rooms)			
Classroom PC w. large flat-screen monitor	$4,500.00	2	$9,000.00

Ceiling-mounted 2500 lumen DLP data projector + screen	$7,000.00	2	$14,000.00
Wall-mounted Crestron push-button touchpad	$2,000.00	2	$4,000.00
VC cart w. 2 flat screens, camera, codec	$25,000.00	1	$25,000.00
VC networking, per port	$2,000.00	2	$4,000.00
CNS classroom network, per port	$1,000.00	2	$2,000.00
Installation of equipment (8 hrs each room)	$80.00	16	$1,280.00
Room Subtotal Cost			$59,280.00
PBL / Seminar Rooms, 12-seat (9 rooms)			
Classroom PC w. large flat-screen monitor	$4,500.00	9	$40,500.00
CNS classroom network, per port	$1,000.00	9	$9,000.00
Wall-mounted Crestron push-button touchpad	$2,000.00	9	$18,000.00
Room Subtotal Cost			$67,500.00
Patient Simulation Rooms (9 rooms)			
Regular PTZ cameras, 2 per room	$1,000.00	18	$18,000.00
Wall-mounted Crestron 6" colour touchscreen (3000-model)	$3,000.00	9	$27,000.00
Installation and setup of equipment (6 hrs per rm)	$80.00	54	$4,320.00
Room Subtotal Cost			$49,320.00
Central Observation Room (1 room)			
Classroom PC w. large flat-screen monitor	$4,500.00	4	$18,000.00
CNS classroom network, per port	$1,000.00	4	$4,000.00
Private patient simulation network switch, wiring	$2,000.00	1	$2,000.00
Press-to-talk intercom and headsets	$1,500.00	9	$13,500.00
Crestron Pro controller (for all Patient Sim. Rooms)	$4,000.00	1	$4,000.00
Wall-mounted Crestron 6" colour touchscreen (3000-model)	$3,000.00	1	$3,000.00
Streaming media and content recording system	$30,000.00	1	$30,000.00
Installation and setup of equipment	$80.00	60	$4,800.00
Room Subtotal Cost			$79,300.00
Videoconferencing Studio (1 room)			
VC cart w. 2 flat screens, camera, codec	$25,000.00	1	$25,000.00
Ceiling-mounted 2500 lumen DLP data projector + screen	$7,000.00	2	$14,000.00
VC networking, per port	$1,000.00	1	$1,000.00
CNS classroom network, per port	$1,000.00	1	$1,000.00
Classroom PC w. large flat-screen monitor	$4,500.00	1	$4,500.00
Wall-mounted Crestron push-button touchpad	$2,000.00	1	$2,000.00
Installation and setup of equipment	$80.00	24	$1,920.00
Room Subtotal Cost			$49,420.00

Video Control Room (1 room)			
VC Technician workstation, 4 monitors	$5,500.00	2	$11,000.00
VC networking, per port	$1,000.00	2	$2,000.00
Installation and setup of equipment	$80.00	25	$2,000.00
Room Subtotal Cost			$15,000.00
Offices (2 rooms)			
VC appliance for offices, also use as monitor	$4,500.00	2	$ 9,000.00
VC networking, per port	$1,000.00	2	$2,000.00
Room Subtotal Cost			$11,000.00
UTM Total AV/IT Equipment Cost Estimate			**$1,504,640.00**

AV/IT Equipment List and Cost Estimate Medical Sciences Building	Unit Cost	No. Units	Total Cost
Lecture Theatre - 1st Year, 260-seat (1 room, includes control booth at back)			
Large-room VC codec, HD capable	$30,000.00	1	$30,000.00
HD PTZ cameras	$12,000.00	3	$36,000.00
Hitachi ES70 VisionCube (for lecture theatre display)	$35,000.00	6	$210,000.00
Matrix switch	$50,000.00	1	$ 50,000.00
Document camera, 3-chip	$12,000.00	1	$12,000.00
Press-to-talk boundary microphones, 1-per-2 students	$500.00	130	$65,000.00
Mic mixer for per-student mics in lecture thtrs	$20,000.00	1	$20,000.00
Installation of per-student microphones	$80.00	120	$9,600.00
Standard U of T Teaching Station	$20,420.00	1	$20,420.00
Upgraded Crestron touchscreen for Teaching Stn	$13,000.00	1	$13,000.00
Annotation tablet	$2,000.00	1	$2,000.00
Crestron Pro controller	$4,000.00	1	$4,000.00
Large-room audio amplifier & speakers, room enhancement	$30,000.00	1	$30,000.00
Classroom PC w. large flat-screen monitor	$4,500.00	1	$4,500.00
VC networking, per port	$1,000.00	1	$1,000.00
CNS Classroom Network	$7,000.00	1	$7,000.00
19" Rack to mount equipment	$1,500.00	1	$1,500.00
Monitoring equipment for control booth technician	$5,000.00	1	$5,000.00
UPS for power backup and filtering	$2,000.00	1	$2,000.00
Wireless microphone and base stations	$1,500.00	2	$3,000.00
Custom-built cart for lecturer display / presenter camera	$5,000.00	1	$5,000.00
21" monitors for lecturer display	$800.00	3	$2,400.00
Installation of VC equipment	$80.00	100	$8,000.00
Installation of Audio equipment, incl. mic mixers	$80.00	150	$12,000.00
Room Subtotal Cost			$553,420.00
Lecture Theatre - 2nd Year, 250-seat (1 room,includes control booth at the back)			
Large-room VC codec, HD capable	$30,000.00	1	$30,000.00
HD PTZ cameras	$12,000.00	3	$36,000.00
Hitachi ES70 VisionCube (for lecture theatre display)	$35,000.00	6	$210,000.00
Matrix switch	$50,000.00	1	$50,000.00
Document camera, 3-chip	$12,000.00	1	$12,000.00
Press-to-talk boundary microphone, 1-per-2 students	$500.00	125	$62,500.00
Microphone mixer for per-student mics in lecture thtrs	$20,000.00	1	$20,000.00
Installation of per-student microphones	$80.00	120	$9,600.00
Standard U of T Teaching Station	$20,420.00	1	$20,420.00
Upgraded Crestron touchscreen for Teaching Station	$13,000.00	1	$13,000.00
Annotation tablet	$2,000.00	1	$2,000.00
Crestron Pro controller	$4,000.00	1	$4,000.00
Large-room audio amplifier & speakers, room enhancement	$30,000.00	1	$30,000.00
Classroom PC w. large flat-screen monitor	$4,500.00	1	$4,500.00

VC networking, per port	$1,000.00	1	$1,000.00
CNS Classroom Network *	$3,500.00	1	$3,500.00
19" Rack to mount equipment	$1,500.00	1	$1,500.00
Monitoring equipment for control booth technician	$5,000.00	1	$5,000.00
UPS for power backup and filtering	$2,000.00	1	$2,000.00
Wireless microphone and base stations	$1,500.00	2	$3,000.00
Custom-built cart for lecturer displays and presenter camera	$5,000.00	1	$5,000.00
21" Monitors for lecturer display	$800.00	3	$2,400.00
Installation of VC equipment	$80.00	100	$8,000.00
Installation of Audio equipment	$80.00	150	$12,000.00
Room Subtotal Cost			$547,420.00
Videoconferencing Studio (1 room)			
VC cart w. 2 flat screens, camera, codec	$25,000.00	1	$25,000.00
Ceiling-mounted 2500 lumen DLP data projector + screen	$7,000.00	2	$14,000.00
VC networking, per port	$1,000.00	1	$1,000.00
CNS classroom network, per port	$1,000.00	1	$1,000.00
Classroom PC w. large flat-screen monitor	$4,500.00	1	$4,500.00
Wall-mounted Crestron push-button touchpad	$2,000.00	1	$2,000.00
Installation and setup of equipment	$80.00	24	$1,920.00
Room Subtotal Cost			$49,420.00
Video Control Room (1 room)			
19" Rack to mount equipment	$1,500.00	1	$1,500.00
16-port HD-capable bridge w. CP and transcoding	$60,000.00	1	$60,000.00
VC network management / scheduling system	$35,000.00	1	$35,000.00
Streaming media and content recording system	$30,000.00	1	$30,000.00
UPS for power backup and filtering	$2,000.00	1	$2,000.00
VC Technician workstation, 4 monitors	$5,500.00	2	$11,000.00
VC networking, per port	$1,000.00	4	$4,000.00
Installation and setup of equipment	$80.00	90	$7,200.00
Room Subtotal Cost			$150,700.00
Offices (2 rooms)			
VC appliance for offices, also use as monitor	$4,500.00	2	$ 9,000.00
VC networking, per port	$1,000.00	2	$2,000.00
Room Subtotal Cost			$11,000.00
MSB Total AV/IT Equipment Cost Estimate			**$1,311,960.00**

APPENDIX C – TOTAL PROJECT COST ESTIMATE

Medical Academy - Draft top level budgets

At MSB	Area NASM	Budget - Low per NASM	Budget - Hi per NASM	Attributed to Med Acad. Low	Attributed to Med Acad. High	Attributed to FOM Low	Attributed to FOM High	
Anatomy lab upgrade	138.3	$3,268	$3,268	$452,000	$451,964			already committed
Academic computing incl. MA per FOM	502.0	$3,500	$4,000	$1,757,000	$2,008,000			
Temp. accommodate computing - allow	120.0	$500	$1,000	$60,000	$120,000			
Less allocated to FOM	-240.0	$3,500	$4,000	($840,000)	($960,000)	$840,000	$960,000	
Reno 2 lecture theatres 3153,	684.0	$1,500	$4,000	$1,026,000	$2,736,000			Scope needs definition.
Misc other renos associated with IT/AV						tbd	tbd	Scope needs definition.
IT/AV				$2,250,000	$2,250,000	$978,000	$978,000	per FOM email of 10th July 2006. Program rooms only.
subtotal				$4,705,000	$6,605,964	$1,818,000	$1,938,000	Other Faculty costs estimated at $850,107

At UTM	Area NASM	Budget - Low per NASM	Budget - Hi per NASM	Attributed to Med Acad. Low	Attributed to Med Acad. High	Attributed to UTM Low	Attributed to UTM High	
Interim space renovation (old library admin area)	390.0	$1,000	$1,500	$390,000	$585,000			
New addition - academic - 1,200 GSM	670.0	$7,200	$8,000	$4,824,000	$5,360,000			
less allocated to UTM - 170 GSM	-94.0	$7,200	$8,000	($676,800)	($752,000)	$676,800	$752,000	
New addition - 4 labs - 664 GSM	444.0	$11,000	$13,000	$4,884,000	$5,772,000			
less allocated to UTM - 1 Lab	-111.0	$11,000	$13,000	($1,221,000)	($1,443,000)	$1,221,000	$1,443,000	
Renovation for MA cluster 1,500 NSM	834.0	$3,500	$4,000	$2,919,000	$3,336,000			
Reno for UTM - bal of L 2 & 3 -3,250 NSM approx	1,800.0	$3,500	$4,000	$0	$0	$6,300,000	$7,200,000	
Council chamber & Comm rm	267.0	$2,333	$2,333	$622,813	$622,813			In progress. Budget per UTM.
less 50% allocated to UTM				($311,407)	($311,407)	$311,407	$311,407	
shared offices - 3	34.0	$3,500	$4,000	$119,000	$136,000			scope undefined
less 50% allocated to UTM				($59,500)	($68,000)	$59,500	$68,000	
IT cluster per program + video conf & control + sec eff	619.0	$3,500	$4,000	$2,166,500	$2,476,000			incl relocate Geography computing 188 NASM
New PH or infrastructure addition??				$500,000	$1,000,000			scope yet to be determined - awaiting info from UTM.
IT/AV				$2,540,000	$2,540,000			per FOM email of 10th July 2006.
subtotal				$16,696,607	$19,253,407	$8,568,707	$9,774,407	

Grand total			**$21,401,607**	**$25,859,371**
created	5th July 2006	jcb		
revised	12th July 2006	jcb		

APPENDIX D – EXISTING LIBRARY SPACE – SOUTH BUILDING, UTM

The library structure at the University of Toronto at Mississauga was purpose-built in 1971, occupying much of the west wing of the UTM South Building. The library is conveniently located with access directly adjacent to the “Meeting Place” on the main level and the primary administrative spaces on the upper level. With the completion of the Wellness Centre and its direct connection to the Meeting Place, the library wing will be well located at the hub of activities in the South Building.

The library has been incrementally renovated over the years to best suit changing functions. This space, as currently configured, provides a total of 5470 nasm of space for library uses.

All floor to floor heights are modest (approximately 10ft) and are equipped with drop ceilings to allow for mechanical service space. Painted concrete block wall construction has been continued throughout the library. Floors are covered with vinyl tile or carpet. Two exposures (west and south) allow access to natural light through generously proportioned windows.

In 2005 a new library building for the UTM campus was approved; construction is currently underway and the space is scheduled to be occupied in the fall of 2006. The move of library functions from their current location provides an opportunity to create facilities to accommodate a portion of the new Medical Academy and to offer UTM additional space for academic, administrative, and student services functions.

As the UTM library was purpose-built for library functions which require large, open floor plates, configuration of the space for the functions described above – all of which generally require more definition – additional non-assignable space in the form of corridors will need to be introduced reducing the overall useable space somewhat. A test of how the space may be laid-out (Figure D-1) demonstrates that an 85% efficiency may be reached, yielding approximately 4650 nasm of useable space (of which approximately 2000 nasm is located on the main (second) level and 2325 nasm on the third level) for these types of activities if the space remains the same in all other respects.

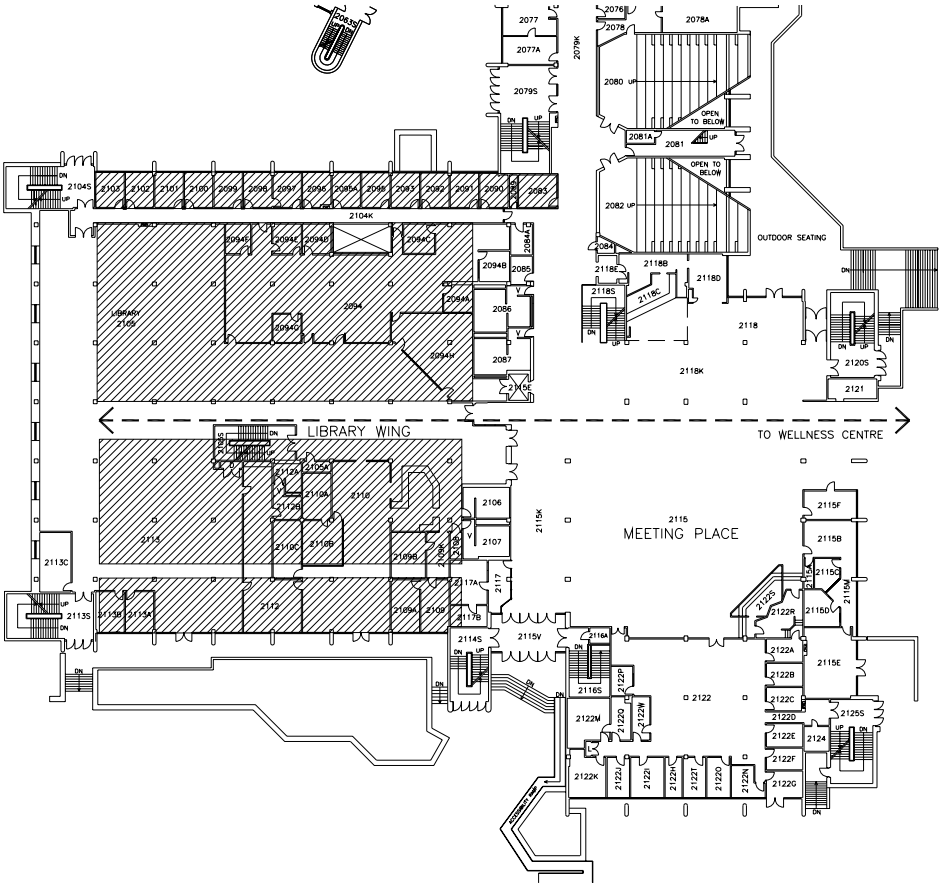


Figure D-1: Main Level Test Layout

Figure D-1 demonstrates the introduction of additional public/corridor space to the vacated library area. In this iteration, a wide primary corridor is added that may function as the "main street" running off the Meeting Place "town square." Smaller secondary "streets" divide the remaining space into useable parcels. The further division of the area is necessary in order to accommodate the varying depth of space required for the different facilities. For example, a faculty or administrative office requires far less depth than does a large classroom or large cluster of open offices or student-related service spaces. Finally, smaller, more dispersed public spaces may be introduced within this grid of functions to allow for a variety of public uses. Here, an open "piazza" ends the vista down the "main street" and provides a different, more intimate space than the Meeting Place for interaction and exchange.

In considering the future use and programming of vacated library spaces, it is reasonable to consider all areas accommodated within the library wing, including several non-library spaces. The Departments of Geography and Sociology line the north wall of this wing. Together, they occupy 387 nasm of space within this area. A further 212 nasm of central administrative space, departmental support space, and classroom space occupies parts of the east end of the wing at the connection to the South Building. Combining these areas with the projected space available in the vacated library, 5250 nasm of space may be considered available within this wing, assuming those functions currently accommodated here are relocated or reconfigured within this space.

Physical Infrastructure

Access to Light/Views

The vacated space of the UTM library is primarily held on two levels – main (second) and third. Each has access to natural light only from two perimeter walls (south and west). A third perimeter wall (north) currently accommodates Geography and Sociology faculty offices off a single loaded corridor. The final wall connects the library to interior spaces in the South Building including the Meeting Place on the main level.

Access to natural light will be one of the greatest challenges in the adaptive reuse of this space as the span of the structure has been purpose built for library holdings, which require large floor plates, and not for a typical academic use that assumes offices, classrooms, and other facilities all requiring access to direct or passive natural light sources where possible. The somewhat low floor to floor [JA1]height (approximately 10ft on each level) will exacerbate any attempt to bring light into the core of the structure.

Some carving out of the upper floors may be possible to create a skylight and bring natural light down to all levels at the centre. This may be achieved in conjunction with the introduction of an open central stair connecting all levels. Any carving out of space to allow for additional natural light penetration would, however, decrease the overall useable area, but would increase its value in terms of occupant comfort. Similarly, if those departments located along one wall of the structure could be consolidated on one level or in a different location within UTM facilities, further access to natural light would be possible.

Figure D-2: Access to Light

Figure D-2 demonstrates the means by which natural light may be maximized through the strategic positioning of open office or public spaces around the circumference of the building and through the introduction of a skylight element at the centre of the structure.

Views should also be given consideration when planning the occupancy of this area. In particular, the view to the south overlooks the pond. The opportunity to maximize this elevation for public spaces should not be missed. Secondary views to the north and west should also be given consideration. Following the example in Figure D-2, views may be maximized for more people by opening up the window wall to common functions.

Horizontal Connection
Connection at all levels poses interesting possibilities in terms of consolidating and better utilizing existing spaces. The current main level of the library connects directly to the Meeting Place – the metaphorical "town square". This is a vibrant, open space where students, staff, and faculty can meet, eat, and converse; furthermore, several major student services can be accessed off of the Meeting Place, including the Registrar's Office and a food court. The Wellness Centre, currently under construction, will connect into the Meeting Space, further enlivening this central gathering area. Because of the proximity of vacated spaces to this hub of activity, certain natural occupants may be identified for occupancy here.

The current second level of the library physically connects with the corridor wrapping the Meeting Place atrium, around which much of the key administrative space is housed. Again, proximity to key administrative spaces may lead to certain synergies of occupancy in the adjacent vacated spaces.

Structure
A study of the structural capacity of the existing building will be necessary to determine how additional floor(s) may be added to increase the useable space in this location. The library was built with extra capacity to hold compact shelving which has never been installed. Based on preliminary discussions, it is reasonable to believe that sufficient capacity has been built into the original structure to allow for the addition of one or more floor levels.

Mechanical Capacity
Mechanical systems, life safety, and code compliance will need to be reviewed to assess any modifications necessary for a change of use. Preliminary discussions with users of the current space have revealed uneven heating/cooling in main level offices and noisy mechanical systems at the second level.

Functional Plan

- Main Level – At the main level, the opportunity to connect to the Wellness Centre (currently under construction) through the Meeting Place and to the newly available spaces requires careful thought around the specific uses allocated to this level. UTM is considering the consolidation of student services here, which would allow for a seamless transition from open student facilities and provide a critical mass of functions in one easily accessed location. The relocation of some of these functions from their current locations would, as a secondary effect, free up space to accommodate academic and administrative functions on other levels.
- Lower Levels (first and basement). A small amount of space is currently occupied by library study and computing functions on the first level and storage is located in the basement.

- Upper (Third) Level. Proximity to existing administrative space would naturally allow for the enhancement of administrative and academic functions on this level.

Recommendations/Guiding Principles

The above discussion may be distilled into several recommendations or guiding principles that will help to inform an appropriate plan for future occupancy of the library space. These recommendations/guiding principles are as follows:

1. Open up the perimeter spaces for public functions to provide access to light into the core of the wing and allow views to surrounding areas.

2. Maximize adjacencies of use through the consideration of horizontal functionality and programming.

3. Work within the existing infrastructure of mechanical and structural systems.

4. Consider all spaces in the library wing, including those not serving library functions, when planning and programming the future use of the South Building west wing.

5. Introduce additional non-assignable space in the form of corridors to form a useable grid of spaces to accommodate academic facilities.