UNIVERSITY OF TORONTO

OFFICE OF THE GOVERNING COUNCIL

FOR ENDORSEMENT AND FORWARDING **PUBLIC** **CLOSED SESSION**

TO: Executive Committee

SPONSOR: Scott Mabury, Vice President Operations and Real Estate Partnerships
CONTACT INFO: 416-978-2031, scott.mabury@utoronto.ca

PRESENTER: Same as above
CONTACT INFO: Same as above.

DATE: January 31, 2022 for February 7, 2022

AGENDA ITEM: 3 (a)

ITEM IDENTIFICATION:

Capital Project: *Report of the Project Planning Committee for the Retail and Parking Commons, University of Toronto Scarborough (UTSC)* – Project Scope and Sources of Funding

JURISDICTIONAL INFORMATION:

Pursuant to section 5.6.2. of the Campus Affairs Committee's Terms of Reference, "…the Committee considers reports of project planning committees for UTSC capital projects and recommends to the UTSC Campus Council approval in principle of projects (i.e., site, space plan, 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 in excess of $50 million (Approval Level 3), will first be considered by the UTSC Campus Affairs Committee and the UTSC Campus Council, which shall recommend approval to Academic Board. The *Policy* further states that "any financing will be approved by the Business Board." Following consideration and approval by the Academic Board and Business Board, such proposals are then brought forward to the Executive Committee, and then forwarded to the Governing Council.

GOVERNANCE PATH:

A. Project Planning Report, Total Project Cost, and Sources of Funding

1. UTSC Campus Affairs Committee [for recommendation] (January 13, 2022)
2. UTSC Campus Council [for recommendation] (January 26, 2022)
3. Academic Board [for recommendation] (January 27, 2022)
4. Business Board [financing, for recommendation] (February 2, 2022)

5. **Executive Committee [for endorsement and forwarding] (February 7, 2022)**
6. Governing Council [for approval] (February 15, 2022)

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B. Execution of the Project:

1. Business Board [for approval] (February 2, 2022)

PREVIOUS ACTION TAKEN:

In June 2014, the Terms of Reference for a parking structure to be located at the University of Toronto Scarborough (UTSC) campus was approved. A Project Planning Committee was struck and meetings occurred in 2015 producing an Interim Project Planning Report.

On May 25, 2015, the CaPS Executive Committee approved the assignment of a site for the parking structure on the south campus identified in a 2015 Interim Project Planning Report in keeping with the UTSC Campus Master Plan. The project proposed a 494 stall parking garage fronting Military Trail on an existing parking lot south of the Highland Hall bus loop. The capacity of the parking structure was limited by the site area. In 2017-2018, new development projects in the north campus began planning. The size and extent of these projects required that additional parking be provided to account for the Highland Creek zoning by-law requirements, both in parking generated by the new building area and by the loss of existing surface lots as they became development sites. UTSC strategically determined that a larger parking structure was required to facilitate the north campus development and the south campus parking structure project was determined to require redefinition.

In March 2018, the UTSC Parking Structure Project Planning Committee reconvened with a revised membership and a proposed new location for the Retail and Parking Commons in the north campus, in line with the UTSC Secondary Plan. The Project Planning Committee developed an Interim Project Planning Report.

On April 12, 2019, the CaPS Executive Committee approved the engagement of consultants to develop the design of the UTSC Retail and Parking Commons. The approved funding was to hire consultants for completion of design services to the end of construction. Through a proposal call, gh3*, a local architecture firm, teamed with Behnisch Architekten (Boston, MA & Stuttgart, Germany) were selected as the project architectural team.

HIGHLIGHTS:

The University of Toronto Scarborough (UTSC) is planning a Retail and Parking Commons on its north campus that will provide centralized vehicular parking and allow for the near and distant future development of the north campus. In addition to parking, the facility will comprise: a central loading dock; the UTSC book store; parking departmental offices; and communal programming spaces.

The UTSC Parking Ancillary Operation will be responsible for maintaining the parking elements of this project including deferred maintenance costs and day to day operations, and the servicing of all the outstanding debt on this project; all revenue received will target this debt. Once debt revenues are complete, future revenues can be directed to the university operating budget. The Retail and Parking Commons was not conceived as an ancillary project and as such is not considered a 'Four Corners' (4C) project. A number of elements, including retail components and the

ability to adapt the project for future academic, residential and office use, have been included in this project, adding premium costs which cannot be charged back to the parking users and which preclude it from qualifying as a 4C project.

Parking requirements for the UTSC campus are mandated by by-laws based on square footage of campus buildings; the City of Toronto by-law requires a specific number of parking spaces be provided for each 100 gross square meter (gsm) of building. The proposed Retail and Parking Commons presents the most efficient and effective way to add new parking spaces to meet the City of Toronto by-law through centralizing current parking needs for the north campus development in one building to allow for the decommissioning of the existing surface parking lots for development of new roads and institutional and ancillary uses. It has been determined that the construction of an above grade parking structure is more cost effective per space than building below grade parking. Development projects at UTSC generate a need for parking through gsm generation in parallel with surface parking lot space reductions. The Retail and Parking Commons will allow for the development on north campus surface parking lots of the following capital projects currently in planning: Scarborough Academy of Medicine and Integrate Health (SAMIH); Literature, Art, Media and Pluralism building (LAMP); and the UTSC Vertical Farm.

The construction of the Retail and Parking Commons, including recent development of the Student Residence, Instructional Centre Phase 2 (IC-2) and Indigenous House projects, will result in a net surplus of 543 parking spaces in relation to the current by-law. This surplus would allow for proposed capital projects of 15,514 gsm of institutional space or 135,750 gsm of residential space for long-term future campus development.

The proposed Retail and Parking Commons will provide a central location for 1084 new parking spaces including: 25 accessible spaces, 217 electric vehicle charging stations, dedicated bicycle parking, Campus Parking offices, relocated Bookstore retail shell space and a centralized shipping and receiving facility for the district. This facility is a necessary component in the phased development of the north campus, allowing building's academic space and public realms to be unencumbered by loading facilities as well as removing delivery traffic from the interior of the north campus.

Located on what is now surface Lot H, a new 42,877 gsm, six-storey structure will serve staff and faculty on the north campus with permit parking on upper levels and short-term parking for visitors and for students who choose to pay by for short-term parking instead of buying term or annual permits.

Within the north campus, the proposed facility will be sited centrally along the proposed new Military Trail; tangentially across from Toronto Pan-Am Sports Centre (TPASC); across a new street to a future proposed hotel; and diagonally across a new intersection from the IC-2 building. The Retail and Parking Commons location will be readily accessed by visitors, students, faculty and staff from Morningside Drive via new Military Trail. The centralized Retail and Parking Commons will also serve to direct vehicular traffic away from the central campus core, creating a more attractive pedestrian experience as stipulated in the Master Plan and Secondary Plan documents. See https://www.utsc.utoronto.ca/aboutus/campus-growth-utsc-master-plan

The Retail and Parking Commons will be a gateway for a significant number of visitors to campus. The design of the Retail and Parking Commons will consider its frontage on all sides in response to its location and in anticipation of the future north campus master plan build-out.

In keeping with UTSC's value of accountable stewardship and U of T's commitment to fighting climate change, the Retail and Parking Commons will be mass timber construction. By switching from the typical use of concrete to mass timber construction, the Retail and Parking Commons avoids approximately 977 tonnes of CO2 compared to a pre-cast concrete structure and sequesters 3,763 tonnes of CO2 for a total environmental benefit of nearly 4,740 tonnes of CO2 which is the equivalent of keeping over 1000 automobiles off the road or the GHG produced by over 600 homes per year. Further sustainable initiatives include photovoltaic array providing 860 tonnes of equivalent CO2 offset; electrical vehicle charging stations providing 11,000 tonnes of equivalent CO2 offsets and efficient heat pump based building systems providing 1,000 equivlent CO2 offsets.

As an innovative and sustainable construction material, mass timber parking structures have precedent in Germany and Switzerland as well as in bridge construction in Quebec and Alberta but are unprecedented in Ontario. Extensive research with fabricators and negotiations with the City of Toronto Building Department were held with the consultants and UTSC around the implementation of a mass timber parking structure. Through discussions with the City of Toronto Building Department an alternative solution was determined to be necessary requiring an application for a building permit to initiate City review.

The building permit was applied for at the end of March, 2021 with City confirmation of receipt in April, 2021. A design assist contract will be included in the construction process to ensure best practices are followed between the mass timber manufacturers, designers, and installers.

In parallel to the mass timber structural system, the consultant team was tasked with preparing a pre-cast concrete structural system with a panelized metal façade system as a contingency should the City of Toronto not approve the mass timber structure. The pre-cast concrete was costed at schematic design and design development stages and presented to the U of T Design Review Committee. The pre-cast concrete option employs differing structural and façade systems than the mass timber option requiring more concrete and steel along with the pre-cast structural system. Because of this, the pre-cast concrete option would have a far greater embodied carbon content than the mass timber option affecting the sustainability goals for the project.

The Retail and Parking Commons is designed for use as the UTSC Farmer's Market location with storage for vendor stalls provided on the ground floor to support the UTSC Campus Teaching Farm, Food Studies Program, local Farmers and the Scarborough Community.

The Retail and Parking Commons is designed for future adaptive re-use into office or residential spaces. The parking ramps have been strategically located in the centre of the floor slab to allow future removal to create a courtyard building with appropriate floor plate depth and access to natural light and ventilation. Office/residential floor to floor heights and level floor slabs have been designed to support the future re-use of the structure accordingly. Further consideration of future adaption includes the creation of ground floor retail frontage along new Military Trail.

The Retail and Parking Commons project was presented twice to the U of T Design Review Committee in May 2020 and in February 2021. Application to the City of Toronto for the proposed zoning by-law amendment was submitted in May 2021 with the 'lifting of the H' approved by Community Council on June 25th 2021. A Site Plan Approval Application was submitted on March, 2021.

Project costing was completed at each stage of the design process. As the project design phase occurred during COVID-19, supply chain issues and resulting volatile construction market pricing value engineering was performed throughout the design to respond to the project costing and fluctuating construction market. Initiatives included reductions in building footprint, reductions in parking count, maximization of floor plates usable area through removal of 'unused' parking deck corners, maximization of photovoltaics with allowance for future expansion and the optimization of the foundation system. The value engineering strategies employed resulted in construction cost savings throughout the Retail and Parking Commons project.

During October and November of 2021 a peer review of the Class 'A' costing estimate (most accurate level of costing at 100% CD) was coordinated by U of T Capital Projects resulting in the Total Project Cost (TPC) included with this application.

The Retail and Parking Commons will pursue a Construction Management delivery methodology including Design Assist for the mass timber. The anticipated start of construction is targeted for summer 2022 with building occupancy in December 2023.

Schedule

The proposed schedule for the project is as follows:

- Costing & Value Engineering (Updated TPC) — September - November 2021
- Expected Site Plan Approval — June 2022 (Notice of Approved Conditions)
- CM Tender — January - February 2022
- CM Award — March 2022
- Design Assist Procurement & Award — March 2022 - August 2022
- Sequential Sub-Contractor Tendering & Award — March 2022 - January 2023
- Building Permitting — March 2021 - June 2022
- Site Mobilization — June 2022
- Substantial Performance / Occupancy — December 2023
- Project Completion — January 2024

FINANCIAL AND PLANNING IMPLICATIONS:

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

RECOMMENDATIONS:

Be It Resolved

THAT the following recommendations be endorsed and forwarded to the Governing Council

THAT the *Report of the Project Planning Committee for the Retail and Parking Commons at the University of Toronto Scarborough (UTSC),* dated December 3, 2021, be approved in principle; and,

` THAT the project totaling 42,877 gross square metres (gsm), be approved in principle, to be funded through: the UTSC Parking Ancillary Capital Construction Reserve; UTSC Major Capital Project Reserves Fund; UTSC Reserves; and Financing.

DOCUMENTATION PROVIDED:

- *Report of the Project Planning Committee for the Retail and Parking Commons at the University of Toronto Scarborough (UTSC)* dated December 3, 2021.

Report of the Project Planning Committee for the Retail and Parking Commons at the University of Toronto Scarborough

December 3, 2021

Office of University Planning - University Planning, Design and Construction
UTSC Business, Operations, and Strategic Affairs

I. Executive Summary

The University of Toronto Scarborough (UTSC) is planning a Retail and Parking Commons on its north campus that will provide centralized vehicular parking and allow for the near and distant future development of the north campus.

The proposed Retail and Parking Commons presents the most efficient and effective way to add new parking spaces to meet the City of Toronto by-law through centralizing current parking needs for the North Campus development in one building to allow for the decommissioning of the existing surface parking lots for development of new roads and institutional and ancillary uses. The construction of an above grade parking structure is more cost effective per space than building below grade parking.

The construction of the Retail and Parking Commons including recent development of the Student Residence, Instructional Centre Phase 2 (IC-2) and Indigenous House projects will result in a net surplus of 543 parking spaces in relation to the current by-law. This surplus would allow for proposed capital projects of 15,514 gsm of institutional space or 135,750 gsm of residential space for long term future campus development.

The proposed Retail and Parking Commons will provide a central location for 1084 new parking spaces including 25 accessible spaces, 217 electric vehicle charging stations, dedicated bicycle parking, Campus Parking offices, relocated Bookstore retail shell space and a centralized shipping and receiving facility for the district. This facility is a necessary component in the phased development of the North Campus, allowing building's academic space and public realms to be unencumbered by loading facilities as well as removing delivery traffic from the interior of the North Campus.

Located on what is now surface Lot H, a new 42,877 gsm, six-storey structure will serve staff and faculty on the North campus with permit parking on upper levels and short-term parking for visitors and for students who choose to pay by for short-term parking instead of buying term or annual permits.

Within the north campus, the proposed new facility will be sited centrally along the proposed new Military Trail; tangentially across from TPASC; across a new street to a future proposed Hotel and; and diagonally across a new intersection from the IC-2 building. The Retail and Parking Commons location will be readily accessed by visitors, students, faculty and staff from Morningside Drive via new Military Trail. The centralized facility will also serve to direct vehicular traffic away from the central campus core, creating a more attractive pedestrian experience as stipulated in the Master Plan and Secondary Plan documents.

The Retail and Parking Commons will be a gateway for a significant number of visitors to campus. The design of the Retail and Parking Commons will consider its frontage on all sides in response to its location and in anticipation of the future North Campus master plan build-out.

In keeping with UTSC's value of accountable stewardship and UofT's commitment to fighting Climate Change, the UTSC Retail and Parking Commons will be mass timber construction. By switching from the typical use of concrete to mass timber construction, the UTSC Retail and Parking Commons avoids approximately 977 tonnes of CO2 and sequesters 3,763 tonnes of CO2 for a total environmental benefit of

nearly 4,740 tonnes of CO2 which is the equivalent of keeping over 1000 automobiles off the road or the GHG produced by over 600 homes per year.

As an innovative and sustainable construction material, Mass Timber parking structures have precedent in Germany and Switzerland as well as in bridge Construction in Quebec and Alberta but are unprecedented in Ontario. Extensive research with fabricators and negotiations with the City of Toronto Building Department were held with the Consultants and UTSC around the implementation of a mass timber structure. Through discussions with the City of Toronto Building Department an alternative solution was determined to be necessary requiring an application for building permit to initiate City review.

The Building Permit was applied for at the end of March, 2021 with City confirmation of receipt in April, 2021. A design assist contract will be included in the construction process to ensure best practices are followed between the mass timber manufacturers, designers and installers.

In parallel to the mass timber structural system the consultant team was tasked with preparing a pre-cast concrete structural system as a contingency should the City of Toronto not approve the mass timber structure. The Pre-cast concrete was costed at SD and DD stages and presented to the UofT Design Review Committee.

The Retail and Parking Commons is designed for use as the UTSC Farmer's Market location with storage for vendor stalls provided on the ground floor to support the UTSC Campus Teaching Farm, Food Studies program, local Farmers and the Scarborough Community.

The Retail and Parking Commons is designed for future adaptive re-use into office or residential spaces. The parking ramps have been strategically located in the centre of the floor slab to allow future removal to create a courtyard building with appropriate floor plate depth and access to natural light and ventilation. Office/residential floor to floor heights and level floor slabs have been designed to support the future re-use of the structure accordingly. Further consideration of future adaption includes the creation of Ground Floor retail frontage along new Military Trail.

The Retail and Parking Commons Project was presented twice to the UofT Design Review Committee in May 2020 and in February 2021.

Application to the City of Toronto for the proposed Zoning Bylaw Amendment was submitted in May 2021 with the 'lifting of the H' approved by community council on June 25th 2021.

A Site Plan Approval Application was submitted on March, 2021.

Project costing was completed at each stage of the design process. As the project design phase occurred during COVID-19, supply chain issues and resulting volatile construction market pricing a value engineering phase was completed at the Contract Documents (CD) stage to reduce project costs.

During October and November of 2021 a peer review of the Class 'A' costing estimate (100% CD) was coordinated by UofT Capital Projects resulting in the Total Project Cost (TPC) included with this application.

The Retail and Parking Commons will pursue a Construction Management delivery methodology including Design Assist for the Mass Timber. The anticipated start of construction is targeted for summer 2022 with building occupancy in December 2023.

View of Retail and Parking Commons, New Military Trail and relocated Pan-Am Drive from the North-West (Image by gh3*/ Behnisch Architekten)

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Appendices (Under separate cover)
1. Total Project Cost Estimate (on request to limited distribution)

II. Project Background

a) Membership

Andrew Arifuzzaman, Chief Administrative Officer, UTSC (Co-Chair)

Gary Pitcher, Director, Campus Safety, and Security, UTSC (Co-Chair)

Sandi Richens, Campus Safety and Security, UTSC

Carvill Lo, Campus Safety and Security, UTSC

Tina Doyle, Director, Accessibility Services, UTSC

Therese Ludlow, Director of Operations, UTSC

Louise D'Orsay*, Project Coordinator and Office Administrator, UTSC

Jennifer Adams Peffer*, Director of Architecture, Planning and Project Development, UTSC

Brent Duguid, Director of Partnerships and Legal Counsel

Jeff Miller, Director, Facilities Management, UTSC

Darlene Costas, Project Manager, UTSC

Alex MacIsaac, Parking Services, U of T

Helen Morissette*, Director of Financial Services, UTSC

Larry Whatmore*, Assistant Director, Business Operations, Financial Services, UTSC

Ian Cole*, Senior Financial Analyst, Financial Services, UTSC

Ayaan Abdulle*, Vice President Academics & University Affairs, Student Union, SCSU, UTSC

Costas Catsaros*, Director, Project Development, U of T

Christine Burke*, Director, Campus & Facilities Planning, U of T.

Adam Trotter*, Planner, Campus & Facilities Planning, U of T

*Added to membership since approval of Terms of Reference at CaPS Executive.

Previous members since approval of Terms of Reference at CaPS Executive:

Jim Derenzis, Director, Facilities Management, UTSC

Hovan Stepanian, Project Manager, Facilities Management, UTSC

Nicole Dionisio, Vice President Academics & University Affairs, Student Union, SCSU, UTSC

Joyce Hahn*, Assistant Director, Financial Services, UTSC

Christina Arayata*, Vice President Academics & University Affairs, Student Union, SCSU, UTSC

George Phelps, Director, Project Development, U of T

Sarah Hinves*, Senior Planner, Campus & Facilities Planning, U of T

Lisa Neidrauer*, Senior Planner, Campus & Facilities Planning, U of T

Roxanne Reid*, Project Coordinator and Office Administrator, UTSC

b) Terms of Reference

1. Make recommendations for a detailed parking program and functional layout for the new Parking Structure along with a detailed space program for any other mixed-use space at the University of Toronto Scarborough.
2. Identify all co-effects, including space reallocations from the existing site, traffic impact, impact on the delivery of academic programs during construction and the possible required relocation as required to implement the plan.
3. Identify user groups of the Parking Structure building
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 the ideal design and location for the Parking Structure.
6. Identify equipment and moveable furnishings necessary to the project and their estimated cost.
7. Identify all data, networking and communication requirements and their related costs.
8. Identify all security, occupational health and safety and accessibility and maintenance requirements and their related costs.
9. Identify all costs associated with transition during construction and secondary effects resulting from the realization of this project.
10. Determine a total project cost estimate (TPC) for the capital project including costs of implementation in phases if required, and also identify all resource costs to the University.
11. Identify all sources of funding for capital and operating costs.
12. Identify all necessary planning approvals, required to construct the Parking Structure.
13. Complete project planning report by February 23, 2015. (REVISED draft December 20, 2018)

c) Background Information

The University of Toronto Scarborough (UTSC) plans a new Retail and Parking Commons and Service Hub on its north campus that will provide centralized vehicular parking, North Campus servicing facilities, the Campus Bookstore and parking office and allow for the near and distant future development of the North campus. The Retail and Parking Commons is designed as one of the largest mass timber projects in North America.

UTSC now functions as a medium-sized, comprehensive, regional university in the eastern Greater Toronto Area. UTSC has benefited from strong growth and thus has exceeded its physical capacity within existing facilities. UTSC's undergraduate enrolment has increased by 2,120 headcount or 18% over the last 5 years and is planned to grow by another 1,129 or 8% by 2023-24. The medium-term plan is to have a 15,200 student campus by 2023-24 with a planned longer term goal of 18,000 students.

In June 2014 the Terms of Reference for a new Parking Structure to be located at the UTSC Campus was approved. A project planning committee was struck and meetings occurred in 2015 producing an Interim Project Planning Report.

On May 25, 2015 the CaPS Executive Committee approved the assignment of a site for the Parking Structure on the south campus identified in a 2015 Interim Project Planning Report in keeping with the UTSC Campus Master Plan. The project proposed a 494 stall parking garage fronting Military Trail on an existing parking lot south of the Highland Hall Bus Loop. The capacity of the Parking Structure was limited by the site area. In 2017-2018 new development projects in the North Campus began planning. The size and extent of these projects required that additional parking be provided to account for the

Highland Creek Zoning By-law requirements, both in parking generated by new building area and by the loss of existing surface lots as they became development sites. UTSC strategically determined that a larger parking structure was required to facilitate the North Campus Development and the south campus parking structure project was determined to require redefinition.

The north campus has seen three major developments in the last decade. In 2009, UTSC received Ministry funds to build Instructional Centre Phase 1 (IC1). This 7,874 nasm project built classrooms, labs, academic space and administration and student space. Shortly thereafter UTSC was successful in securing the aquatics facility for the 2015 Pan-American Games. A 23,500 nasm facility (TPASC) was built at the northern end of the north campus. This is a shared facility with the City of Toronto. Finally, the new 5,000 nasm Environmental Science & Chemistry building (ESCB) was constructed adjacent to IC1 and completed in 2015. The facility provided teaching, research lab space, as well as faculty, graduate and student space. On the south campus, the previous athletics facility, the R-wing (now called Highland Hall) has just undergone a significant transformation. UTSC is currently constructing a second 9,915 nasm Instructional Centre (IC-2) and a 750 bed student residence and dining hall and the 481 nasm Indigenous House.

Concurrently with these capital developments, UTSC has been engaged in a master planning process to ensure the north campus develops in a strategic and well-designed manner. Key drivers in the development of the North campus include: reinventing the existing Military Trail right-of-way as a landscaped spine for pedestrians and cyclists; maximizing pedestrian porosity to link North and South Campuses; enhancing regional connectivity; integrate an LRT into North and South Campus in a new right-of-way; and develop a network of supporting campus streets to support future growth. UTSC has developed these principles into a proposed Secondary Plan that is currently under review with the City of Toronto.

In March 2018, the UTSC Parking Structure Project Planning Committee reconvened with a revised membership and a proposed new location for the Retail and Parking Commons in the North Campus, in line with the UTSC Secondary Plan. The project planning committee developed an Interim Project Planning Report.

The proposed new Retail and Parking Commons will provide a central location for 1084 new parking spaces, 38 long-term bicycle parking spaces, Campus Parking offices, shelled space for the UTSC Bookstore and Cafe and a centralized shipping and receiving facility for the district. This facility is a necessary component in the phased development of the North Campus and represents a new model for parking on the UTSC campus. The proposed Retail and Parking Commons presents the most efficient and effective way to add new parking spaces to meet the City of Toronto By-law through centralizing current parking needs for the North Campus development in one building. This will allow for the decommissioning of the existing surface parking lots for development of n0ew roads and institutional and ancillary uses.

Within the north campus, the proposed new facility will be sited centrally along the proposed new Military Trail; tangentially across from TPASC; across a new street to a proposed Hotel and Conference Centre; and diagonally across a new intersection from the Instructional Centre Phase 2 (IC-2) building. The IC-2 will be a significant hub of activity on the north campus as it will house approx. 1/3 of all classrooms on campus, the department of Computers and Mathematical Sciences and Student Affairs. The Retail and Parking Commons location will be readily accessed by visitors, students, faculty and staff from Morningside Drive via New Military Trail and will serve to bridge the spatial gap between new TPASC facility to the north, and IC2 to the south. The centralized Retail and Parking Commons will also serve to direct vehicular traffic away from the central campus core, creating a more attractive pedestrian experience as stipulated in the Master Plan and Secondary Plan documents.

Since 2000, the University of Toronto Scarborough (UTSC) campus has experienced an unprecedented surge in enrolment that has transformed and expanded the campus from 5,752 headcount to 14,050 students in 2018. To accommodate a growing population, the North parking lots were constructed, adding nearly 1,200 spaces to the parking inventory. UTSC currently has 2,891 parking spaces in its inventory while the current parking budget covers 2,626 spaces.

UTSC is a commuter campus. A 2013 Smart Commute survey provides some insight into the commuting patterns at UTSC. Those surveyed indicate a commute distance too great to walk or cycle (68% of students and 69% of staff). That said, the rate of single occupancy vehicles (SOVs) on campus is low (12% of students and 55% of staff) as compared to Scarborough as a whole (71%). Current parking permit purchase rates are 9.6% student and 77% staff. Public transit options (TTC, Go Transit, Durham Region Transit, and York Region Transit) have increased significantly over the last 15 years. The 2013 survey reveals 69% of students and 35% of staff and faculty use public transit as compared to the Scarborough average of 14%. Given the relatively high use of alternative transportation, in 2014 UTSC made an application to reduce the parking requirement. The parking by-law was revised in 2016 to require 1.75 spaces per 100 square metres of building area (0.2 residential). City Council approved this amendment. As a result, the total number of parking spaces currently required is 2,775, providing a current surplus of 116 spaces.

While UTSC satisfies the by-law as amended, the campus continues to grow. UTSC is rapidly expanding its amenities to meet the needs of current and future generations of students. The 2011 Campus Master Plan created a vision for the development of the UTSC campus for the next 25 to 50 years, including provision for parking and potential locations. The current 15 year planned build-out of projects in the North Campus projects a need for 3,432 spaces. The Environmental Science and Chemistry building opened in 2015, Highland Hall opened in 2018, and planning has begun for next phases of campus development with the new student residence and the IC-2. The existing inventory of parking spaces is sufficient for the current size of the campus, however futures buildings will not only reduce the number of parking spaces in the inventory by consuming existing surface parking within their footprint, but will also generate need for additional spaces through By-law space factor requirements. This dual effect necessitates the construction of UTSC's first Parking Structure, proposed for development on the North campus, on the north edge of surface parking Lot H.

In addition to public transit options, vehicular transportation will remain a key component of campus access. The Parking Ancillary has seen consistent demand for parking from employees who drive to campus, and an increase in revenues generated by students purchasing daily and hourly parking. Failure to provide ongoing convenient and safe parking for the UTSC community may serve as a deterrent to those faced with a choice to attend UTSC or another university. Furthermore, failure to address parking inventory provision in the immediate future will have an impact on the University's ability to construct new buildings as laid out in the 2011 Campus Master Plan and 2016 Secondary Plan.

The current parking by-law requirement sits at the lower end of parking ratios for similar suburban post-secondary institutional campuses in the region.[1] The advent of the Eglington East LRT will present an opportunity for UTSC to revisit the parking by-law with the City. Increased public transportation service to the campus should result in a corresponding reduction in the parking ratios required by the zoning by-law. Further study will be required to demonstrate a reduced need for campus parking in conjunction with the implementation of the Eglington East LRT.

On April 12, 2019 CaPS Executive Committee approved the engagement of consultants to develop the design of the UTSC Retail and Parking Commons (formerly the UTSC Parking Structure) was confirmed.

[1] BA Group statement during Project Planning Committee Meeting

The approved funding was to hire consultants for completion of design services to the end of construction. Through a proposal call, gh3*, a local architecture firm, teamed with Behnisch Architekten (Boston, MA & Stuttgart, Germany) were selected as the project architectural team.

The proposed completion date for the Retail and Parking Commons is January 2024.

d) Statement of Academic Plan

UTSC's enrolment has grown substantially over the last decade and by 18% in the last five years alone. The table below shows undergraduate and graduate fall headcount enrolments from 2010 as well as projected enrolments to 2019. Also included is our longer term target to 2034-35.

Fall Enrolment (Headcount)

Year	Status	Degree		Total FT + PT
		Undergraduate	Graduate	Headcount
2010	Actual	10,426	203	10,629
2011	Actual	10,545	213	10,758
2012	Actual	11,107	208	11,315
2013	Actual	11,701	229	11,930
2014	Actual	12,262	281	12,543
2015	Actual	12,693	286	12,979
2016	Actual	13,132	297	13,429
2017	Actual	13,517	336	13,853
2018	Actual	13,694	356	14,050
2019	Plan	13,945	418	14,363
2020	Plan	14,105	445	14,550
2021	Plan	14,312	498	14,810
2022	Plan	14,584	499	15,083
2023	Plan	14,680	499	15,179
2034	Plan	17,232	759	17,991

UTSC's budget-appointed complement FTEs from 2010-11 to 2019-10 plan are shown in the table below:

Budgeted-Appointed Complement (FTE)

Year	Status	Appointed Complement
2010	Actual	692.6
2011	Actual	743.3
2012	Actual	758.8
2013	Actual	831.0
2014	Actual	860.0
2015	Actual	862.1
2016	Actual	907.3
2017	Actual	966.5
2018	Actual	991.1
2019	Plan	1,013.8
2023	Plan	1,105.8

Supporting this student population growth is the unfolding of the Campus Master Plan development. Planned new facilities include Highland Hall (R-Wing Renovation and Rejuvenation, opened in 2018), a new student residence, a second Instructional Center (IC-2), Indigenous House and a bridge linking the north and south campus, in addition to the Retail and Parking Commons. Estimated total nasm for projects under construction and in design or planning is approximately 36,800.

e) Space Requirements

Existing space

Existing parking facilities at UTSC are divided into two main areas; the South campus lots and the North campus lots. There are 342 spaces on the South campus, of which 119 are used by visitors and the remainder used by employee permit holders. The North lots provide 2,323 spaces, with 90 dedicated to the use of Centennial College permit holders and the remainder used by both permit holders and visitors paying by the day.

UTSC Parking Inventory	Existing No. of Parking Spaces
South Lots Space Inventory	
Lot A	119
Lot B	63
Lot C	63
Lot D	41
Lot E	50
Main Entrance (accessible)	6
South Lots Inventory	342
North Lots Space Inventory	
Centennial Parking @ Morningside	90
Lot F (Visitor)	381
Lot G (Centennial College Use)	905
Lot H	463
Lot J (Centennial College Use)	386
Lot K	91
Lot L	7
	232
North Lots Inventory	3
Other Lots Inventory	
Tunnel To Main Building Loading Dock	3
Child Care Centre	5
Science Research Building	6
Instructional Centre Turn-around	5

Miller Lash House	7
Paved Lot near Coach House	100
Unpaved Area east of Paved Lot	100
Other lots Inventory	226
Campus Inventory	**2891**

In addition to the By-law parking inventory there are two parking lots serving TPASC. These lots are not governed by the Zoning By-law requirements of the Campus, however, there is an agreement between UTSC and the City of Toronto that the current inventory of parking spaces serving TPASC be maintained.

TPASC Parking Lots

Parking Lot	No. of Spaces
TPASC North	181
TPASC South	291
Total	472

Centennial College

Since 2002, UTSC has had a standing agreement with Centennial College as part of a land lease. The agreements stipulates the following:

4.2 Minimum Spaces: The University will operate the parking facilities on the Parking Agreement Lands and will be entitled to receive all revenues from the sale of parking permits and daily cash sales for said parking facilities. The University agrees that a minimum of 1,000 parking spaces will be maintained on the Parking Agreement Lands for the non-exclusive use of the College Passholders. Although such spaces shall be non-exclusive and not segregated the University shall maintain adequate parking spaces to satisfy its own requirements so as to ensure that such 10000 parking spaces are generally and seasonably available to the College Passholders.

4.3 Locations: The University agrees to maintain the maximum possible number of parking spaces on the lands west of Military Trail permitted by Municipal By-Laws and mutually agreed landscaping, after making allowance for any University and College buildings that might be constructed. Additional parking spaces required to maintain the College's minimum requirement of 1,000 spaces may be located on the University lands east of Military Trail in an area mutually acceptable to both the University and College.

In the event the College constructs the future expansion to the Centre of Science and Technology, the parties will negotiate in good faith and appropriate accommodation of additional parking requirements for the College to facilitate operation of the expansion facility.

The current parking spaces included in the agreement with Centennial College are on the west side of Military Trail in Lot J (376 spaces) for use of Centennial permit holders. The balance of the 1,000 spaces are currently in Lots G&H. The 1,000 spaces was set as the minimum required for Centennial to meet its own by-law requirements at the time of construction.

The existing 1,000 spaces on parking lots J & G will be maintained in the near future. It is recommended that the parking by-law ratios for both UofT and Centennial College be reviewed with the City of Toronto in the near future in anticipation of future campus development and changes to public transportation including the implementation of the Eglington East LRT. It is expected that with an increase in public transportation service to the campus, the parking ratios should be reduced.

Occupant profile and parking requirement

Located on what is now surface Lot H, a new six-storey, 1084 space structure will serve staff and faculty on the North campus with permit parking on upper levels and short-term parking for visitors and for students who choose to pay by for short-term parking instead of buying term or annual permits.

The construction of the Retail and Parking Commons will result in a net surplus of 543 parking spaces in relation to the current by-law. This surplus would allow for proposed capital projects to proceed as illustrated by the comparison below.

2021 Existing

	Building (gsm)	No. spaces actual	No. spaces req'd By-law
Non-residential use*	130,426		2,282
Residential use	21,959		44
Total Existing Spaces		2,747	**2,338**
Total Existing vs. By-law Required			**+409**

The parking by-law (rev. May 2015) requires 1.75 spaces per 100 gross square metres of building area (0.2 residential).
* Includes IC, TPASC, ESCB and Highland Hall Projects

2021 Current Development (in Construction) (excluding Retail and Parking Commons)

	Building (gsm)	No. spaces existing/ proposed	No. spaces removed	No. spaces req'd By-Law	Delta
Existing (2021)	152,385	2,747		2,338	+409
Instructional Centre 2	19,646	60	147	262	-349
Indigenous House	984	0	58	48	-76
Student Residence	23,660	4	251	18	-295
Totals	**196,675**	**2,811**	**456**	**2,666**	**-311**

2021 Current Development with Parking Structure

	Building (gsm)	No. spaces existing/ proposed	No. spaces removed	No. spaces req'd By-Law	Delta

Current Development + Existing	196,675	2,811	456	2,666	-311
Retail and Parking Commons*	4,035	1092	167	71	854
Totals	**200,701**	**3,903**	**623**	**2,737**	**543**

* Retail and Parking Commons GSM for enclosed spaces only as per By-Law Definition: Spaces provided include 1084 spaces within the Retail and Parking Commons and 8 lay-by spaces along Pan-Am Drive.

The proposed Retail and Parking Commons will generate a campus surplus of 543 parking spaces that will accommodate 15,514 gsm of institutional space or 135,750 gsm of residential space for long term future campus development.

2021 Future Development (5-10 years)

	Building (gsm)	No. spaces existing/ proposed	No. spaces removed	No. spaces req'd By-Law	Delta
Existing + Current Development (2021)	196,675	2,811	456	2,666	-311
Retail and Parking Commons*	4,035	1092	167	71	854
Field House	14,202	0	0	249	-249
Hotel	7,730	0	141	15	-156
SAMIH	10,678	8	70	187	-249
LAMP	8,445	0	80	148	-228
Vertical Farm	18,600	0	62	326	-388
North Campus Green**	NA	200	314	0	-114
Totals	**260,365**	**4,111**	**1,290**	**3.662**	**-841**

The parking by-law (rev. May 2015) requires 1.75 spaces per 100 gross square metres of building area (0.2 residential).
* Retail and Parking Commons GSM for enclosed spaces only as per By-Law Definition
** North Campus Green Parking Capacity to be determined

At the current Parking By-Law requirements an additional 841 parking spaces will be required to allow development of the North Campus to the point included in the above analysis. Interim measures to meet the parking by-law in the next 5-10 years includes the addition of a temporary gravel lot accessed from Ellesmere Avenue to the east of the proposed student residence and connected to the existing gravel lot north of the existing woodlot. The scope of this temporary gravel surface lot is to be determined and is not included in the current project scope.

In addition to the above building generated parking requirements the north campus development includes significant road work and open space which will remove existing surface parking, generating a need for replacement parking space to satisfy the by-law. Determining the full impact of the North Campus development on parking requirements will require on-going review and calibration with strategic planning and City of Toronto By-laws.

Parking

The proposed Retail and Parking Commons will meet the needs of a number of groups:

Ground level (Hourly/daily maximum payment):

- Students who wish to park close to classes, offices, retail and other campus amenities found on the North campus.
- Visitors attending to business on campus who require short term parking in a location centrally located on the North campus.
- Visitors to TPASC – evening and weekend visitors
- Visitors to proposed Hotel and Conference Centre
- Visitors attending events in the lecture halls.
- Visitor and permit parking for those with accessible parking requirements.
- Short-term parkers going to the service amenities located in the ancillary spaces (Bookstore, Postal Outlet or Parking Office).
- Specialty parking spaces for electric vehicles/charging stations, ZipCar and low emission vehicles.
- Bicycle parking facilities
- Retail outlet (Bookstore) with food services component, post office outlet and bookstore storage and production facility
- Campus Parking Offices
- Campus service vehicle fleet and Grounds Storage
- North Campus centralized loading facility with freight elevator to sub-grade service tunnel connected to Instructional Centre 2 with potential future connections to adjacent development sites

Upper levels (permit):

- Dedicated permit parking for Faculty, Staff and Students
- Visitor parking.
- Members of the campus community requiring accessible parking.

Roof:

- Solar panels/canopy generating power for the structure
- Specialty parking spaces for electric vehicles/charging stations, ZipCar and low emission vehicles. (Associated directly with photo voltaic canopy)
- Permit parking for Faculty, Staff and Students
- Visitor parking

Bicycle Parking:

UTSC has a bike program, which used to be located on the South Campus, but has moved to the new Toronto Pan Am Sports Centre TPASC. The Retail and Parking Commons presents an opportunity to include covered, secure bicycle parking as laid out in the master plan:

> "The campus will be designed to support active transportation, including walking and cycling, and ensure access for people with disabilities. The future campus will support the development of pedestrian and bike trails on and to campus, provide bike parking and other support facilities for cycling, and ensure universal design for people with mobility impairments."

Bicycle parking must be provided in a convenient location, near the entrance as required by the City of Toronto's Green Standard.

A shell space for future retail program consisting of the UTSC Bookstore and Food Service Outlet (Café) will be included in the Retail and Parking Commons to animate the street level and take advantage of the Retail and Parking Commons's location in the North Campus. The UofT Bookstore will be a one-stop-shop offering UofT branded apparel & other sprit products, textbooks & course materials, novels & bestsellers, stationery supplies, cell phones, giftware, drinks and snacks.

Parking will be provided for both permit and daily users using on-foot payment and permit card exit.

The UTSC Parking Office will be relocated from IC to be housed within the Retail and Parking Commons.

III. Project Description

a) Vision Statement

Parking and service areas are essential to the function of the campus. However, they must be carefully designed to minimize impacts on the campus experience. Though founded as a suburban, car-oriented campus, the University has evolved to become a more urban and accessible campus. With the integration of rapid transit, the growing popularity of ride-sharing, and autonomous vehicle technology on the horizon, a major shift in travel patterns is occurring and will continue to grow at UTSC. This shift will support the continued decrease in parking demand. However, over the long term, the campus will continue to rely on a large supply of parking, which will increasingly be provided in Parking Structures. Similarly, careful designed loading/service areas can be effectively integrated without significant impacts to the quality of campus. The following guidelines provide direction on how to support these essential functions while maintaining a high-quality public realm.

Parking

Parking areas will be located throughout the North and South Campuses to ensure efficient distribution of parking.

Visitor, short-term, and accessible parking will be strategically provided in surface and structure lots throughout campus to ensure a welcoming campus setting and provide convenient access for campus and ancillary functions.

Visitor parking should be highly visible and accessible, and where possible, accommodated through on-street parking. On-street parking has been targeted for campus roads and New Military Trail with the exception of the newly aligned Pan-Am Drive.

Surface parking areas will be designed and landscaped as high quality open spaces, and that landscape treatment should:

- Screen parking areas from views;
- Break up large parking areas into smaller lots;
- Maximize shade to reduce heat island effects; and
- Ensure the provision of safe, convenient, accessible and highly landscaped pedestrian travel routes to surface parking areas.

City of Toronto Guidelines for Greening Surface Parking Lots will be applied in the design of new parking areas.

Parking is encouraged to be located below or above grade. Above-grade Parking Structures are encouraged to be designed to minimize impacts to the campus environment by:

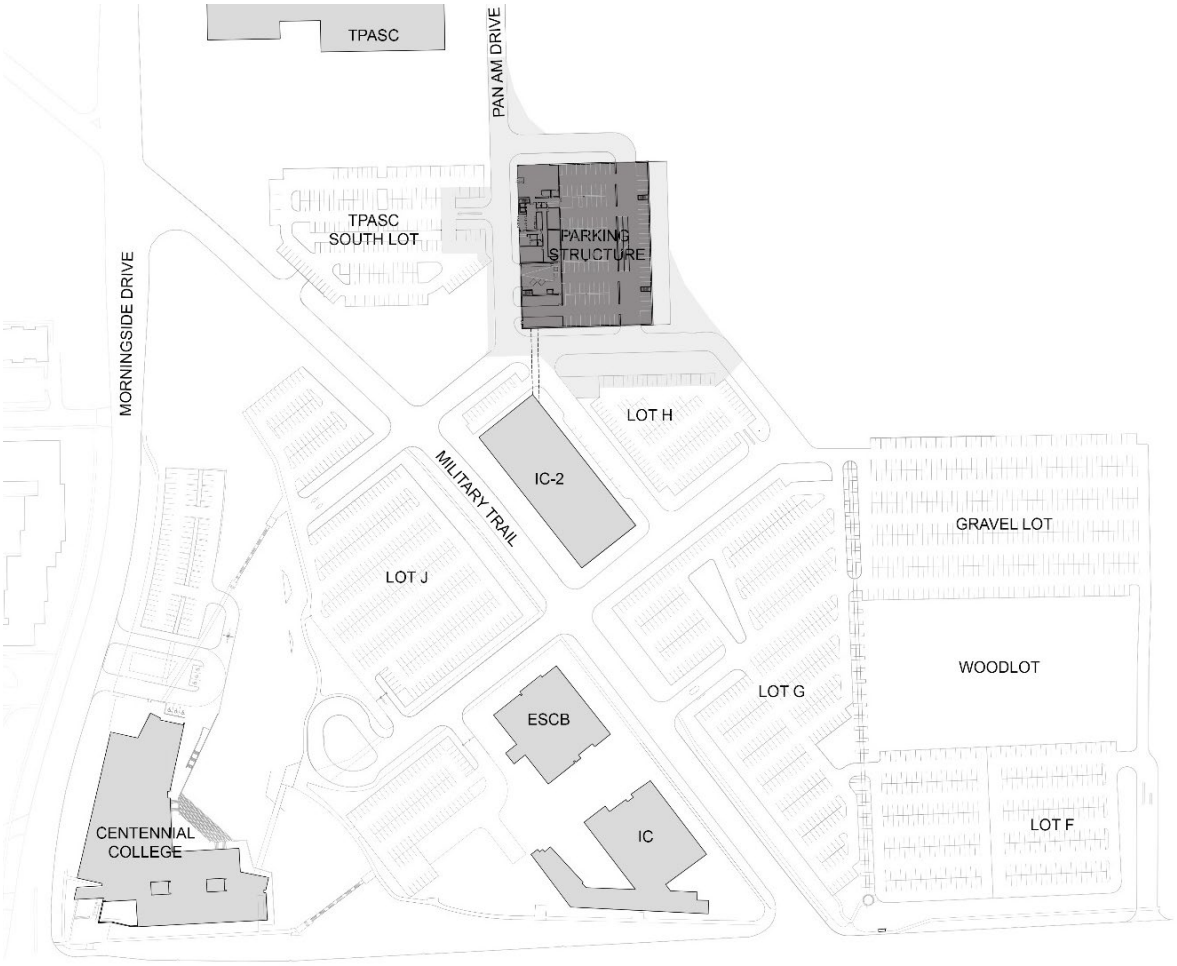
- Integrating with other uses and buildings, including locating behind such uses;
- Incorporating active or other uses at grade along building frontages; and
- Incorporating design features and landscaping to reduce visual impacts from parking

Loading/Servicing Areas
To ensure that the design of servicing and loading areas is sensitively integrated with development and promotes pedestrian safety, building servicing and loading should:

- Be accessed away from public streets and main pedestrian entrances where feasible;
- Be carefully screened with landscaping or other architectural features in order to avoid direct views and mitigate noise to adjacent streets;
- Prioritize the safety and comfort of pedestrians; and
- Serve multiple connected buildings.

The 2011 UTSC Campus Master Plan identified the campus lands north of Ellesmere Road as the focal point for new university development. The proposed 1084-space Retail and Parking Commons will be the first to be constructed at UTSC, and will be the fourth new building to be located on the North Campus. The new Parking Retail and Parking Commons is proposed to be located on the footprint of the existing surface Lot H near the re-aligned Military Trail. The prominent location of the structure will necessitate a well-designed attractive building that enhances the presence of UTSC along Military Trail. The features and amenities of this structure will be diverse, incorporating not only visitor and permit parking, but a small-scale mixed use component.

Project Location Plan



Project Site Area

The site area within the project scope is 18,650 sm including roads, sidewalks, bike paths, service corridor and the structure itself. Adjacent to the area of scope is an additional 7,712 sm of revisions to the TPASC South parking lot.

Site Element	**Area (sm)**
Roads	4,864
Existing Surface Parking Lot Work	6,385
Soft Landscaping	2, 020
Hard Landscaping (excluding roads)	4,441
Other	940
Total	**17,710**

b) Space Program and Functional Plan

The total project area is only 2,108.20 nasm of conditioned program area within an overall gsm of 42,877 gross square meters of space. The gross square meter includes 18,364.70 sm of parking spaces excluding drive aisles, ramps and structure.

Space Program

Room Name	Capacity	Area (nasm)	Notes
Bookstore - Shell	0.00	695.90	
Total		**695.90**	

Parking Office - Proposed

Room Name	Capacity	Shared Area	Notes
Command Centre / Admin Office Single	1.00	11.90	
Manager's Office	1.00	11.10	
Office Manager's Office	1.00	11.00	
Waiting Area / Reception	10.00	38.80	
Corridor	0.00	47.70	
Lunch Room (Kitchen/Copy/Storage)	0.00	12.60	
Storage - Parking Equipment	0.00	14.50	
Storage - Supplies and Permits	0.00	8.00	
Storage - Closet	0.00	1.00	
Meeting Room	5 to 10	19.60	
Total		**176.20**	

Other - Proposed

Room Name	Capacity	Shared Area	Notes
Bicycle Parking	38.00	145.00	38 bicycles
Facilities Management (Grounds) Storage	0.00	58.20	
Loading Dock (L1)	0.00	399.30	
Loading Storage	0.00	101.60	
Loading – Grade (Staging)	0.00	98.90	
Loading - Lower Level (L0) (Staging)	0.00	291.00	
Total		**1,094.00**	

Parking - Proposed

Room Name	No Spaces	Area per	Total Area
Electric Vehicle Charging	210	14.56	3,057.60
Electric Vehicle Charging - Accessible	7	27.44	192.08
Accessible Type B	15	27.44	411.60
Accessible WADS	3	35.62	106.86
Service Vehicles	10	14.56	145.60
Regular Parking Spaces	867	14.56	12,623.52
Total	**1,119.00**	**116.65**	**18,364.70**

Space Program Summary

Program	Area (nasm)
Bookstore	695.90
Parking Office	175.20
Bicycle Parking	145.00
Loading Dock, Staging & Storage (Incl. Lower Level Tunnel Staging)	890.80
Grounds Storage	58.20
Tunnel	142.90
Parking Spaces	18,364.70
Gross Area	**20,472.70**

The gross to nams ratio included below is included only for the ground floor and basement functional spaces and does not include the parking, parking ramps and drive aisles. Non-Assignable building areas included in the gross-up are as follows.

Program	Nasm	Gsm
Bookstore	695.90	801.00
Parking Office	175.20	267.00
Bicycle Parking	145.00	158.00
Loading Dock, Staging & Storage (Incl. Lower Level Tunnel Staging)	890.80	1,118.00
Grounds Storage	58.20	65.00
Tunnel	142.90	295.00
Total	**2,108.00**	**2,704.00**
Gross to Nasm Ratio		1.29

Non-Assignable space

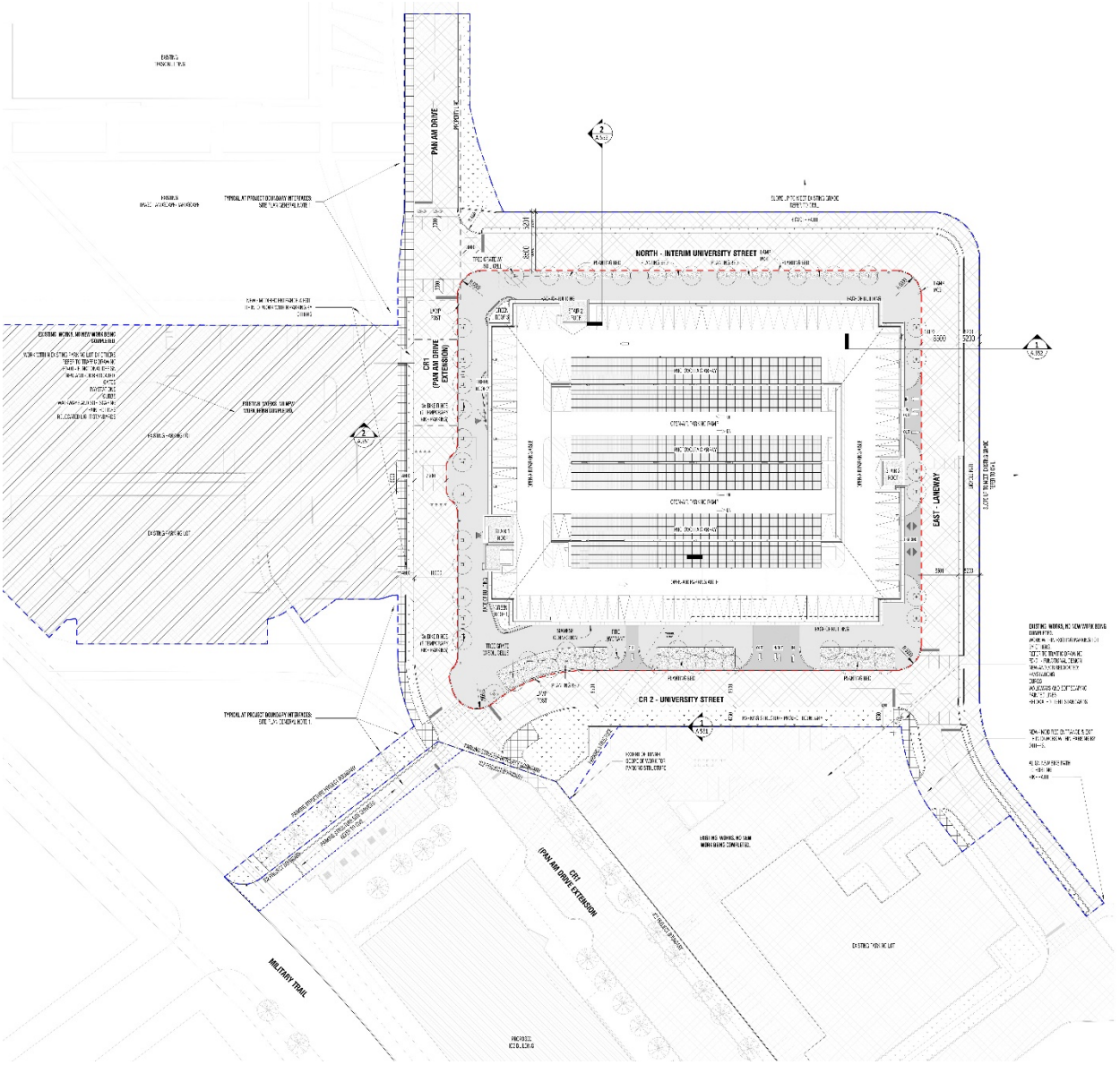
The Retail and Parking Commons is predominantly non-assignable space including parking spaces, aisles and ramping. In addition to parking areas, the following is a summary of the non-assignable interior program areas included in the Retail and Parking Commons project. It should be noted that the size of the electrical space relative to the mechanical space is related to the Photovoltaics, Electric Vehicle Charging Stations and ground source heating elements of the building.

Non-Assignable Space

Room Name	Total Area (nasm)
Vestibules	33.50
Elevators & Lobbies	206.20
Elevator Machine Room	19.10
Stairs and Lobbies	458.40
Corridors	61.00
Washrooms	6.80
Universal Washroom	8.50
Mechanical Space	109.10
Electrical Space	242.20
IT/Data/Comms Space	96.80
Total	**1,241.60**

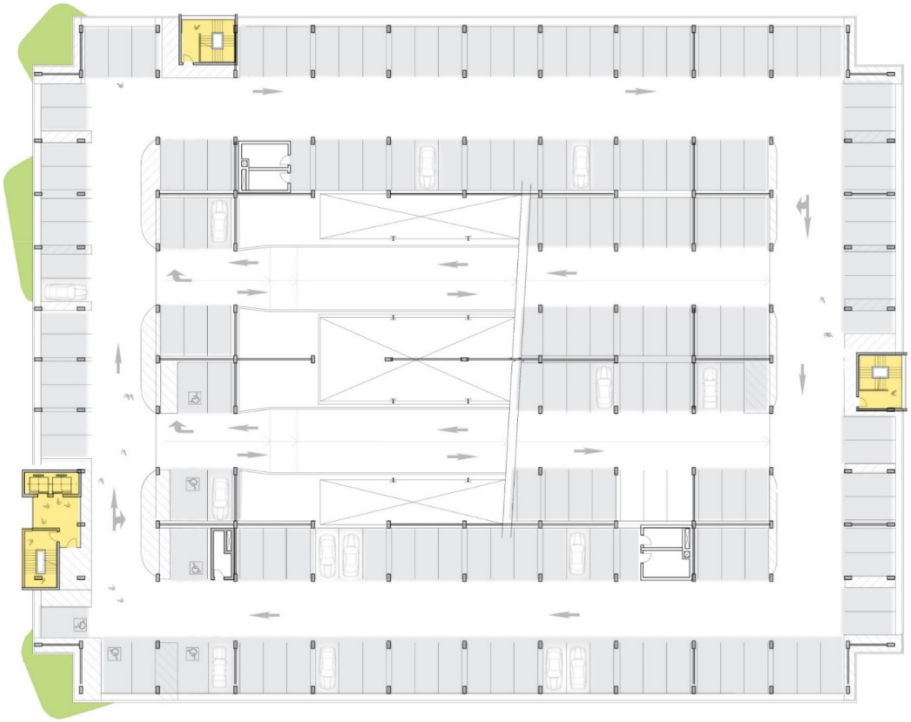
Functional Plan

Building Plans, Elevations and Typical Section

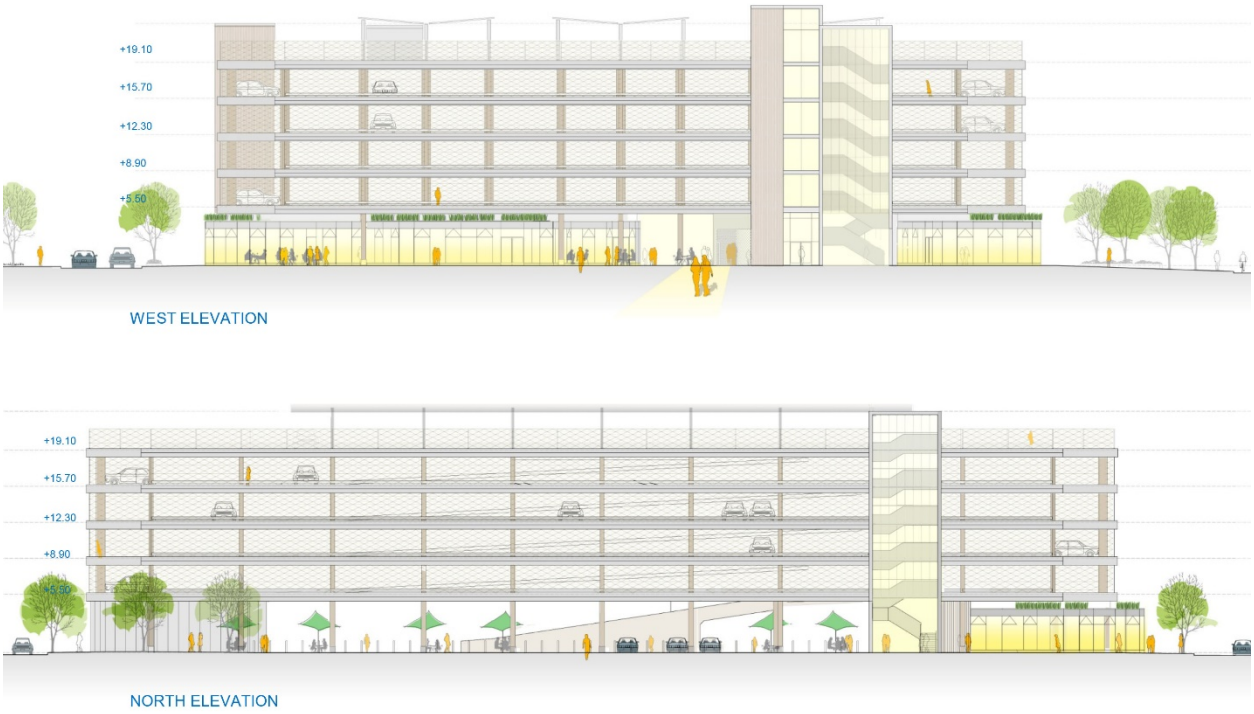


Site Plan showing area of scope and adjacent developments (Image by gh3*/Behnisch Architekten)

Ground Floor Plan (Image by gh3*/ Behnisch Architekten)



Upper Floor Plan (Levels 2-5) (Image by gh3*/ Behnisch Architekten)



Building Elevations (Image by gh3*/ Behnisch Architekten)

Building Section Showing relationship to new Campus Road at South Façade (Image by gh3*/ Behnisch Architekten)

Functional design elements to be included that will enhance the experience of facility users and community members alike:

1. Retail space on the ground floor, near IC1 and 2, ESCB and TPASC. Service provider considered is the UofT Bookstore. The Bookstore will include retail area, a light food service area such as a café, a manager's office, storage and a merchandise production facility. Kiosk services being considered include bank machines and parcel mailboxes. HVAC, water and sanitary services will be required for the retail component.
2. The location of the retail component is at the North-West corner of the ground floor. Prominent facades are to be visible from TPASC to the north and from the proposed Hotel to the west. The retail component must be highly visible from both outside the structure as well as inside from parking spaces/access routes.
3. The retail entrance is to be co-located with the Retail and Parking Commons main entrance vestibule with potential secondary entrances to the food services area.
4. The retail area will include a post-office/courier outlet which will be accessed from within the retail area and also directly from within the parking area.
5. Short term retail parking is to be located adjacent to the retail area.
6. The loading dock and storage area are to be directly accessible to the retail area, postal outlet and retail production facility.
7. The parking office is to be located on the ground floor with direct access to the street. The parking office is envisioned to be located on the west façade with direct pedestrian access from the proposed realigned Pam Am Drive.
8. The parking office will contain reception, workstation and office areas as well as secure storage, washroom and kitchenette facilities.
9. First and second floor visitor parking with convenient pay station options.
10. Upper floor permit parking with gated access.
11. Enhanced landscape features such as seating and plantings at locations outside structure along pedestrian routes.
12. Separate facility entrances for first and second floor visitor parking and for upper floor permit parking, with the intention of avoiding queuing and allowing efficient access/egress for all users. Traffic study to determine optimal design of access/egress roadways and circulation.
13. Provision for use of the ground floor on weekends for the UTSC Farmer's Market will be provided in terms of electrical servicing and storage areas for market stall tables.

Plan Showing Farmer's Market Configuration (Image by gh3*/ Behnisch Architekten)

View of Farmer's Market Configuration (Image by gh3*/ Behnisch Architekten)

c) Building Considerations

Standards of construction

As the Retail and Parking Commons will be a significant structure on campus and will have prominent frontage along New Military Trail as well as secondary campus streets it will act as a gateway for a significant number of visitors to campus. The design of the Retail and Parking Commons must consider a frontage on all sides in response to its location and in anticipation of the future North Campus master plan build-out.

During the design process, in keeping with UTSC's value of accountable stewardship and UofT's commitment to fighting Climate Change, the project team decided to pursue mass timber construction for the UTSC Retail and Parking Commons. As an innovative and sustainable construction material, Mass Timber parking structures have precedent in Germany and Switzerland as well as in bridge Construction in Quebec but are unprecedented in Ontario. By switching from concrete to mass timber, the UTSC Retail and Parking Commons avoids approximately 977 tonnes of CO2 and sequesters 3,763 tonnes of CO2 for a total environmental benefit of nearly 4,740 tonnes of CO2 which is the equivalent of keeping over 1000 automobiles off the road or the GHG produced by over 600 homes per year.

Extensive research with fabricators and negotiations with the City of Toronto Building Department were held with the Consultants and UTSC around the implementation of a mass timber parking structure. Through discussions with the City of Toronto Building Department an alternative solution was determined to be necessary requiring an application for building permit to initiate City review. The Building Permit was applied for at the end of March, 2021 with City confirmation of receipt in April, 2021. A design assist contract will be included in the construction process to ensure best practices are followed between the mass timber manufacturers, designers and installers.

As a leadership project in sustainable design, the Retail and Parking Commons' mass timber structure is left visible as a sustainability showcase to Students, Faculty, Staff and campus visitors

View of Retail and Parking Commons, New Military Trail and relocated Pan-Am Drive from the North-West (Image by gh3*/ Behnisch Architekten)

View of North Stairwell and Bookstore along New Military Trail (Image by gh3*/ Behnisch Architekten)

View of South Façade / Landscaping along New Campus Road (Image by gh3*/ Behnisch Architekten)

The following building design features are included in the project:

Structure:

- Mass Timber Structure
- Concrete Caisson Foundation
- An “open-structure” as described by the OBC designed to dissipate automobile fumes.
- Ventilated Glazing at Stairwells for visibility, daylighting and security
- Stainless Steel Mesh enclosures at perimeter from top of slab to underside of structure

Finishes/materials:

- local materials where possible for interior and exterior
- high quality, durable finish such as tiled floors and walls, with drywall ceilings in the stair/elevator lobbies
- tenants will be responsible for fit-up of retail space; UTSC to provide shell (concrete floor and perimeter walls)
- Asphalt membrane parking surface on concrete topping on waterproof membrane on mass timber decking and structure
- Screen (architectural mesh or similar); note: the façade must be appealing and provide secure protection to users while maintaining ventilation within the structure.
- Green roof treatment on ground floor programming projections
- Curtain Wall and insulated metal panel on ground floor programming
- Metal staircases with ventilated glazed / insulated metal panel enclosure

<u>Building characteristics and massing:</u>

Structural Bay	8.4-8.6 m (Mass Timber Structural Span)
Floor to floor heights:	
First Floor	5.5 m
Second – Fifth Floors	3.4 m
Sixth Floor/Roof	3.67m

In parallel to the mass timber structural system the consultant team was tasked with preparing a pre-cast concrete structural system as a contingency should the City of Toronto not approve the mass timber structure. The Pre-cast concrete was costed at SD and DD stages and presented to the UofT Design Review Committee. The pre-cast structure has a greater structural span and employs a bent metal screening system to reflect daylight into the interior of the parking structure.

<u>Building Massing</u>

The pedestrian experience primarily occurs in the spaces between buildings and streets. Consequently, achieving a balanced relationship between these two elements is fundamental to supporting a walkable campus environment. Generally, a comfortable pedestrian environment is achieved when building heights are comparable to the width of the streets upon which they front. However, in an academic campus setting, the diversity of building types and scales will ensure the creation of a pedestrian-oriented scale through the dynamic street relationships.

The proposed building massing creates pedestrian level scaled projections at the retail and office program areas with taller, transparent public access stairways and elevator lobbies on the North, West and East facades of the building. Upper floor corners are cut back to increase floorplate to parking efficiencies.

The proposed Retail and Parking Commons will front the main arterial street of the north campus – New Military Trail with university (campus) streets along its west and south facades as well as a service road to the east boundary. The following recommendations are provided for buildings along larger Arterial Streets and Military Trail, and for smaller University Streets and Laneways.

Arterial Streets and Military Trail

New development along Arterials Streets and re-aligned Military Trail should be designed to relate to the width of the street. Appropriate upper level stepbacks may be considered for taller buildings to minimize impacts on the adjacent Neighbourhoods, open spaces, and streets.

Streetwall and stepbacks should be designed to ensure appropriate skyview and shadowing conditions, with particular attention to impacts to neighbourhoods and open spaces. Angular planes and other tools may be used ensure appropriate conditions.

University Streets/Laneways

New development on University streets will reflect a variety of heights, floorplates and streetwall relationships to ensure a diverse and varied street wall. Continuous street walls will be disrupted through building articulation, stepbacks, and other architectural features.

New buildings in the University of Toronto Campus should:

- Frame and support the public realm at a scale that balances building height and built form with the scale of adjacent streets and open spaces; and
- Minimize shadowing and negative wind impact on the public realm where possible.

Development within Mid-Rise Campus Areas should:

- Accommodate a broad range of mid-rise institutional buildings with varied footprints and heights; and
- Provide an opportunity for transition in height between higher density uses along re-aligned Military Trail and low-rise buildings in Neighbourhood Transition Areas.

Development along the Military Trail Corridor should:

- Provide an intensive and consistent urban street wall
- Contribute to the evolution of re-aligned Military Trail as an active main street that can accommodate additional height, supported with enhanced setbacks and other design features intended to create a comfortable, safe and vibrant pedestrian environment.

Key factors begin to shape the layout and massing of the Retail and Parking Commons:

- retail space at grade with some integral canopy over entrances at the North-west corner of the Retail and Parking Commons in proximity to TPASC.
- vehicular access off the New Military Trail will be located/maintained at current entry point to Parking Lots H and G and via the proposed realigned Pan Am Drive.
- connectivity with existing and proposed pedestrian paths.
- desire for high visibility in stairwell and elevator (security).
- Main Parking vehicular entrances to be located at the East and South façades.
- Main Pedestrian entrance to be located at the west façade off of the new Pan Am Drive extension.
- Covered bicycle storage location should be located near the southwest corner.

- Loading dock to be located along the proposed east service road

Future Adaptive Re-use

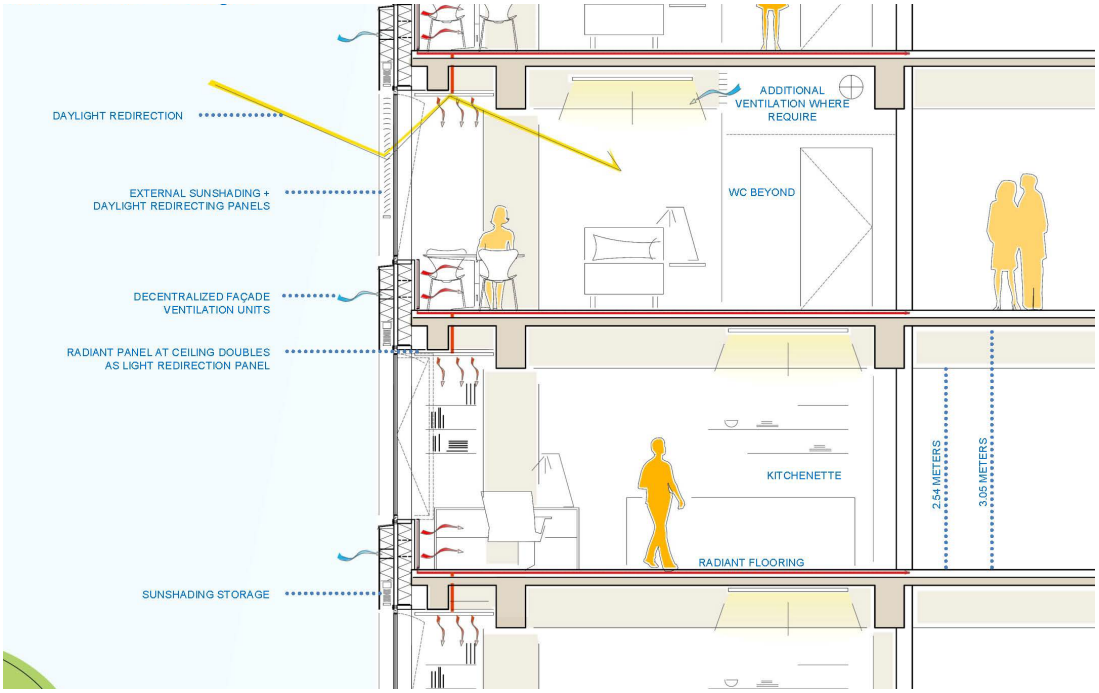
During planning the Project Planning Committee discussed the potential for the Retail and Parking Commons to be converted into other uses in the future. The Consultants were tasked by UTSC and by the DRC to ensure that the parking configuration could achieve other uses. DRC encouraged the consultants to increase the floor to floor heights from that of a typical parking structure to ensure that adaptive reuse would be possible in the future. The resulting floor to floor height was presented back to the DRC by the Consultants with two adaptive re-use scenarios for office and residential uses.

The conversion to both typologies included the removal of the interior speed ramps to create a courtyard shaped building with appropriate floor plate depth and access to natural light and ventilation. The east-west through block connection established in the Retail and Parking Commons design persists in the two re-use schemes as a connecting element in the North Campus Public Realm.

Future conversion to Academic use could be possible but is limited by the lower floor to floor heights more suitable to office and residential uses.

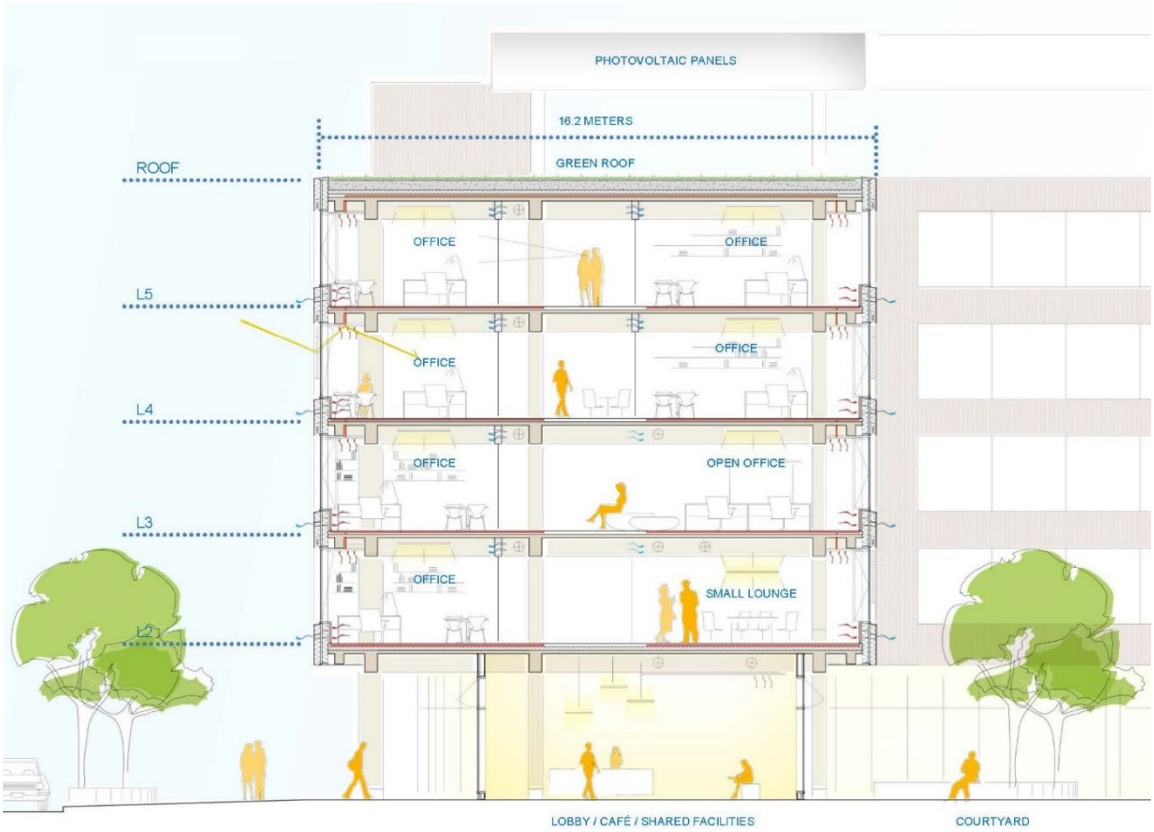
The location of the Retail and Parking Commons and potential re-use programming of Office or Residence would be consistent with the UTSC Master Plan and Secondary plan use for buildings fronting New Military Trail.

Plan Study showing potential future conversion to Student Residence through removal of central ramping (Image by gh3*/ Behnisch Architekten)



Section showing potential future conversion to Student Residence (Image by gh3*/ Behnisch Architekten)

Plan Study showing potential future conversion to Office Use through removal of central ramping (Image by gh3*/ Behnisch Architekten)



Section showing potential future conversion to Office Use (Image by gh3*/ Behnisch Architekten)

Plan showing potential future conversion to Retail with frontage along New Military Trail (Image by gh3*/ Behnisch Architekten)

Image showing potential future conversion to Retail with frontage along New Military Trail (Image by gh3*/ Behnisch Architekten)

Mechanical/ Electrical and Data

The project provides shell space for the retail component identified in the program. UTSC will provide each tenant with a shell unit including HVAC unit(s) and basic services (including drain and water) brought to a designated point within each leased premise. Tenants will be responsible for all other improvements to the unit including ductwork distribution and exhaust. Individual unisex washrooms in each unit, or as required by code, will be part of tenant fit-up.

Heating Ventilation and Air Conditioning

The building will have limited heating and cooling requirements with the exception of the tenant fit-up and support office space. This will be accomplished via electrically powered unitary equipment. Washroom exhaust and other safety exhaust systems may be required and with exhaust pathways co-ordinated through the upper levels of the building/structure

Domestic Water, Plumbing and Sanitary Sewers

Domestic water and sanitary sewer is required to service the washroom facilities, kitchenettes and retail spaces. This sanitary infrastructure will connect to Military Trail, and the water would connect to neighbouring water main. The hot water will be provided by the use of hot water heaters in the mechanical room.

Electrical Systems

The incoming service for the building will be separate from the remaining buildings. UTSC is coordinating an underground distribution system from the THES connection point (At Morningside) to the construction site and the Electrical Room will be on the Ground floor of the Retail and Parking Commons. This room will drop the voltage from high voltage 13.6 KV, 4160 V or 600 V to 120/208 V for most uses within the building. Sub-metering would be required for the car charging stations and possibly other building elements and will be the node point for interface of the renewables identified later in this section.

There shall be stacked electrical and communications rooms, sized to accommodate all required equipment for the current project and spare for future expansions. A riser by the main electrical room stack will serve as the main electrical room riser. Depending on the building footprint, and communications cable runs, multiple communication rooms per floor may be required. In all cases, the rooms shall be stacked for ease of creating a riser.

All lighting in the building shall be LED, with a CRI of 90+ and dimmable drivers. All light fixtures shall have centralized controlled system with alerts for the main user (UTSC facilities), with local override switches/dimmers. All LED light fixtures shall be tunable to create the colour temperature desired for the space by end users.

All receptacles in the common areas to be duplex receptacles with Type-A and Type-C USB connection ports for device charging.

An electrical room will be required to house the inverter for the solar panels and associated accessories. The estimated electrical service to the building would be 200 KW. The steady state consumption would be much lower.

The configuration of the electrical system and electrical room will seek minimal barriers from Hydro and ESA preventing the hook up of the panels to the grid. As well as the often different solar panel production (sometimes higher) and building power draw (sometimes lower).

In addition there will be basic panel provisions for the tenant spaces: approx. 400 Amp for the food outlet, 200 Amp for the Courier/postal outlet, and 100 Amp for service all the others are approximate preliminary estimates. The Parking structure should be on a separate meter. There will be a small scale intelimeter type sub-metering system for the tenants.

Two-small natural gas powered emergency generators 25 KW for the security, heating and lighting and 50 KW for the elevator are anticipated. These would be accommodated in the mechanical room. Battery power for all the lighting should be provided to allow safer evacuation of the structure.

Electrical infrastructure will be required for the future powering of Level 2 electrical vehicle charging stations at each parking space. Conduit and back-boxes will be supplied to all spaces with the current project scope with wiring, power and EV charging stations installed in only 20% of spaces. Power is to be connected to new substation in the IC-2 project via the service tunnel.

Standby Power

Standby power will be provided by a diesel generator with a main breaker on the generator supplying a splitter/main distribution panel, which will supply individual feeds to the life safety system, non-life safety system and the fire pump system. There will be two Automatic Transfer Switches serving the life safety and non-life safety systems.

Emergency power shall meet the minimum operation requirements for a period of no less than 2 hours. The fuel system shall be designed with separate automatic fuel filling system that holds 48 hours of fuel.

The building will also have a central Uninterrupted Power Supply (UPS) to serve the data and communication closets described below.

Communications (phone/data)

Telecommunications rooms will be placed in the building so as to support the maximum UTP cable length of 90m. Wireless will be deployed though out with a focus on high-speed and high reliability to support both the staff and students. For more details, please refer to:

"UTSC_Cable_Systems_Specification_V3.4" or later, and
"UTSC_Wireless_Systems_Specification_V1.0" or later.

- Life safety and fire protection (fire pump in light of the tower, elevator)
- Emergency lighting requirements
- Elevators
- Information Technology and Record keeping for business continuity
- CCTV Connections

Fire Protection

Fire service will be required from a feed from Morningside and will be part of a holistic solution through both a sprinkler system tailored to the wood structure and fire hydrant protection with a flow rate coordinated with the City's engineering and construction services departments.

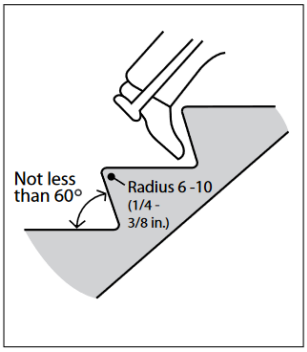
Accessibility

The design of the building will provide meaningful access for persons with disabilities. This will be achieved through a design which is informed by three principles: respect for dignity, individualization, as well as integration and full participation. To design for inclusiveness the concept of universal design must be applied. This will support the University in achieving our goal to remove barriers for students, staff, faculty and visitors with disabilities from fully participating in our environment without the need for modification, where possible.

The building will meet the highest level of accessibility standards throughout. Consideration for accessibility in all aspects of the building is required including the design for vehicular traffic (e.g., Wheeltrans drop-off), parking, exterior approach and entrances, interior circulation, services, washrooms, signage, wayfinding, emergency systems, finishes, and furniture layouts and designs.

The following key features will be required in the design:

- Parking spaces noted separately below
- Entrances will be designed for universal access rather than employing specialized ramps.
- Any required ramps will be 1:20.
- All openers are long lever to allow person with a disability to touch the opener with their foot or hands and a service animal to push at a lower level. Openers will be included on most classrooms, all washrooms and main entrances.
- At least one of the elevators must be large enough to accommodate scooters. All elevators will include tactile, audio and visual indicators.
- Stairs must be sloped to the riser at an angle not less than 60 degrees to the horizontal



- Fully accessible washrooms including Universal Washrooms throughout. One single-use & all gender washroom is to be included on the main level, with consideration for additional single use & all gender facilities throughout the building. Single use & all gender washrooms will include change tables for adults and children.
- Washrooms with stalls will include one accessible stall large enough for a scooter and will comply with university standards which includes a touchless sink, handryer and soap dispenser within the stall and close proximity to the sink.
- Space and clearance will allow for enough space to navigate the environment without barriers.
- Clear width of halls will consider two people with mobility passing each other.
- Service counters, fixed queuing guides, and waiting areas must consider the space needs of persons using mobility devices, as per the AODA O. Reg. 191/11: Integrated Accessibility Standards
- Clearance from obstructions must include a design that is cane detectable and not include hazards.
- Tactile surfaces will be used to indicate hazards and directional guidance such as a tactile warning surface on the top of stairs.
- Surfaces must provide visual contrast including the nosing on stairs.
- Illumination and lighting should reduce shadows and glares as this can be disorienting for people with disabilities.
- All handrails must be a ***round***, continuous surface which contrasts with the background and where possible, low thermal conductivity (e.g., wood or plastic coated steel).

- Service desks will allow space for a forward approach with a large wheelchair.
- Waterfountains should be accessed from all sides.
- Provide a dog relief area adjacent to the main entrance route.

We encourage innovative features, where possible, to create a welcoming, inclusive, accessible design (e.g., beacons for wayfinding).

The standards for accessibility include the university standards, OBC requirements, AODA standards while implementing the principles of Universal Design.

25 accessible spaces are required by the AODA Public Spaces Standard (Reg. 191/11), which came into effect January 1, 2016. Accessible spaces must be available for both users of the facility: short-term at grade, and permit parking on upper levels adjacent to the elevator. The regulation stipulates in paragraph 80.34 that two types of accessible spaces are to be provided:

- Type A, min. width of 3,400mm and signage that identifies the space as "van accessible'
- Type B, min. width of 2,400mm

Access aisles between parking spaces are required with a minimum width of 1,500mm for the full length of the parking space. The aisles must be marked with high tonal diagonal lines.

Accessible parking spaces are to be primarily located at grade adjacent to entrances with additional accessible spaces located on each floor adjacent to elevators in particular at permit parking floors.

The minimum number of accessible parking spaces is calculated as follows:

80.36 (1) .4

The proposed Retail and Parking Commons will have 1,084 spaces which is greater than 1000 spaces. The regulation requires that 11 accessible spaces, plus 1% of parking spaces be accessible. The required number of accessible spaces is 22 spaces. The regulation further defines that an equal number of each type of accessible space be provided.

The minimum number of accessible parking spaces is to be as follows:

Accessible Parking Space Type	**Quantity**
Type A	11
Type B	11

Furthermore, a full analysis of the off-street parking facilities on the North campus is required as per sub-clauses (2) which states:

(2) If an obligated organization provides more than one off-street parking facility at a site, the obligated organization shall calculate the number and type of parking spaces for the use of persons with disabilities according to the number and type of parking spaces required for each off-street parking facility.

Accessible Parking Requirements

Lot	# of	# of	# of accessible spaces		# of accessible spaces +/-
			Type A	Type B	
SOUTH					
A	119	5	2	3	0
B	63	4	1	2	1
C	63	14	1	2	11
D	41		1	1	-2
E	50		1	1	-2
S-wing	4	4	1		3
SRB*	4	1	1		0
Back of SRB	2		1		-1
Childcare Centre	5		1		-1
Tunnel to Loading	2		1		-1
Science Wing (b/w	4	4	1		3
	353	32	12	9	+11
NORTH					
F	358		4	5	-9
G	943		10	11	-21
H	504		5	5	-10
J	376	6	4	4	-2
K	100		2	2	-4
ESCB	7	3	1		2
Back of IC**	5	5	1		4
	2,29	14	27	27	-40
UTSC Total:	**2,64**	46	39	36	-29
Morningside	**94**				
By-law Total:	**2,74**				

Accessible parking requirements also need to consider the context of the parking lot. With the development of the North campus the quantity of accessible parking spaces will need to be adjusted to meet the requirements of the O reg. while the location will need to consider accessible building entrances and paths of travel as per the following sub-clauses (3):

‘In determining the location of parking spaces for the use of persons with disabilities that must be provided where there is more than one off-street parking facility at a site, an obligated organization may distribute them among the off-street parking facilities in a manner that provides substantially equivalent or greater accessibility in terms of distance from an accessible entrance or user convenience. ‘

Currently there is an 11 accessible space surplus in the South Campus and a 40 accessible space deficit in the North Campus. The deficit of spaces in the North Campus can be attributed to the lack of proximity to buildings for the majority of the existing north parking lots. The proposed Retail and Parking Commons would add 25 accessible spaces, creating a net deficit of 15 accessible spaces in the North Campus. With the construction of the IC-2, the new Student Residence and other new developments in the North Campus additional accessible parking spaces will need to be provided in existing lots in proximity to accessible building entrances.

The Retail and Parking Commons will provide 22 Type B accessible parking spaces and 3 Winnipeg Accessibility Design Standard (WADS) compliant spaces.

Personal safety and security

Each stairwell will have glass or windows to the exterior of the building so that it is visible to the outside. Within the structure, there should be unobstructed sight lines so that an individual can see from one end of the building to other.

The Retail and Parking Commons will be well lit with no dark corners, and a higher-end lighting system than would be typical for a parking structure: full LED lighting system with occupancy sensors, daylight harvesting and dimming.

A roof parapet (likely an extension of the proposed screen) is required in anticipation of solar panel installation.

Lighting levels should be high to allow the structure to be safe especially at night and white or light coloured paint should be considered to make high lighting levels easy to achieve.

There should be security cameras located strategically in the building to protect property and the public especially at night. These would be integrated into the building security system and to the campus police office via the IT network:

- Fixed cameras at the each stairwell entrance, connected to the Honeywell security system housed in the 4th Floor Data Centre in the Bladen Wing. Cameras will be live streamed to the Campus Police Office in SW304.
- Fixed cameras at each elevator lobby, connected to the Honeywell security system housed in the 4th Floor Data Centre in the Bladen Wing. Cameras will be live streamed to the Campus Police Office in SW304.
- One camera inside the elevator cab that is connected to the Honeywell System housed in the 4th Floor Data Centre in the Balden Wing. The camera will be live streamed to the Campus Police Office in SW304.
- Fixed cameras and intercoms at each parking gate, connected to the KeyScan System in the Parking Office in IC40.
- Code Blue Phones located at the entrance of each stairwell, the phones will directly dial Campus Police Dispatch at 416-287-7333

Tenants in the retail space will be responsible for their own security.

Servicing and fire access (Including Deliveries, Garbage)

Servicing will be from a loading facility created as part of the construction of this facility. The location of the loading facility will be on the west façade of the Retail and Parking Commons and accessed directly from the new North-South extension of Pan Am Drive.

Fire access will be via either Pan Am Drive or Military Trail in the short term and via the new secondary campus roads in the long term.

Annunciator panel is to be located within the main entrance vestibule for future access from campus road network.

All elevators are to be equipped with recall function connected to the fire alarm system with firefighter's manual override.

Servicing – Loading

The Retail and Parking Commons will contain a two bay Class 'B' loading dock, for shipping, receiving and waste management. The loading dock will be accessed from the new north-south road running along the east side of the Retail and Parking Commons. The loading facility will contain storage areas and be connected via a marked pathway through the parking area to connect to the retail and office programming. From this location goods can move either north to serve the bookstore, production facility, postal outlet and parking area or south via freight elevator and service tunnel to the IC-2.The service corridor, elevator and a below grade tunnel are to be adequately sized to accommodate services, deliveries and waste management between the Retail and Parking Commons and the Instructional Centre 2 (IC-2). The loading storage area will be directly accessed by the retail areas (bookstore, food services, postal outlet, production area). Separation between public vehicular access, service vehicle access, pedestrian throughways and loading is to be coordinated with programmatic requirements of the ground floor and proposed street network. The following tables provide preliminary forecasts of North Campus delivery schedules for the proposed loading facility.

Proposed North Campus Loading Dock (IC2, Retail and Parking Commons & Hotel)

Input	Frequency	Duration	Vehicle Used
Cleaning Supplies	2-3 / week	20 minutes	Box Truck
Hamster - Office Supplies	2-3 / week	20 minutes	Minivan
Food Services	2 / week	30 minutes	Tractor Trailer
Canada Post – Packages/Mail	1 / day	20 minutes	Minivan
Purolator – Packages/Mail	1 / day	20 minutes	Cargo Van
Fedex – Packages/Mail	1 / day	20 minutes	Cargo Van
Canpar – Package/Mail	1 / day	20 minutes	Cargo van
UPS – Packages	1 / day	20 minutes	Cargo Van
Amazon – Packages	2-3 / week	20 minutes	Cargo Van
Bookstore	1-2 / day	30 minutes	Box Truck

Proposed North Campus Loading Dock (IC2, Retail and Parking Commons & Hotel)

Output	Frequency	Duration	Vehicle Used
Waste/Recycling/Cardboard (3 bins)	2-3 / week	45 minutes	F550
Metal (1 bin)	1 / week	15 minutes	F550
Organic Waste (3 bins)	2-3 / week	15 minutes	Full-size Pick-Up Truck

Service Tunnel

A below grade service tunnel will run between the lower level loading area of the Retail and Parking Commons and the North-east basement of the IC-2. The service tunnel will be accessed via a freight elevator and exit stair at the Retail and Parking Commons loading facility and via an internal freight elevator at the IC-2. Cost of the service tunnel is to be pro-rated between the IC-2 and Retail and Parking Commons projects. The tunnel design will be coordinated between the two projects with the project boundary limiting the extent of budgetary and construction responsibility for each project. The potential to centralize building service rooms – electrical, data and mechanical rooms – in proximity to the service tunnel is to be further examined for efficiencies within the proposed North Campus development. Synergies between the proposed buildings and the new site servicing are to be encouraged.

Elevators

A Two passenger elevators will be provided to allow for full accessibility to the Retail and Parking Commons. At least one elevator is to be sized to accommodate a stretcher / maintenance equipment. Passenger elevators are to allow for 6 stops each. Exterior enclose of the elevator lobby to be provided at the roof deck level (L6).

A freight elevator is to provide vertical transport between the loading dock and the sub-grade service tunnel. The freight elevator size is to be coordinated with UTSC operations.

Building Signage

All signage is to abide by UTSC Signage and Graphics Standard dated January 30, 2017 or later and the AODA Information and Communication Standards. The ground floor should accommodate the display of public art, and space to display material relating to faculty and student work in public areas. At minimum, the space should be able to accommodate the length and width of glass vitrine cases. The exact sizing will be determined during the design phase.

The design must include allocation for signs on street side of building or lawn, in addition to signs affixed to building. Accessible parking spaces are to be signed in conformance with Ontario regulations. External building signage is to be in conformance with UofT standards and all provincial regulations including but not limited to the Ministry of Transportation Ontario.

Sustainability Design and Energy Conservation

The University of Toronto is committed to reducing its scope 1 and 2 greenhouse gas (GHG) emissions by at least 37% below its 1990 level of 116,959 tonnes eCO2 by 2030, targeting a net-zero GHG institution by 2050. To accomplish this, the University has retired the previous Energy Performance and Modelling Standard (April 1, 2019) and introduced this now-governing Tri-Campus Energy Modelling & Utility Performances Standard. This new standard provides project-specific energy and water efficiency targets, used to calculate energy and GHG project budgets, and necessary to achieve the 2030 goal, while also introducing a streamlined modelling and documentation submission approach Although the UTSC Retail and Parking Commons design was initiated prior to the implementation of newer energy standards, the Retail and Parking Commons project planning committee was invested in maintaining a leadership role in sustainable design.

The previous U of T Policy Statement of Energy Efficiency (Policy) requirements for new buildings, effective January 1, 2017, is that all new buildings shall have an energy use index at a minimum, 40% better than that calculated using ASHRAE 90.1 – 2013, Appendix G "Performance Rating Method". In addition, the Project Consultant Team shall present design options that could achieve 60% better energy performance compared to ASHRAE 90.1-2013 preferably with payback of 15 years or less for consideration by the U of T Implementation Committee.

ASHRAE provides Standards for all components within buildings – HVAC, windows, lighting, modeling, envelope, ventilation and reviewed by industry experts. It allows for prescriptive and performance based compliance paths to meet the minimum energy use. Toronto Green Development Standards (TGDS), OBC** and LEED use ASHRAE 90.1 to define energy efficiency targets.

Building energy performance modeling during the design of a new building shall serve several purposes. The primary objective is to inform design decisions in a way that guides the designs toward the University's goals of sustainable energy efficiency, reduced carbon footprint and optimal long-term building performance and comfort of its occupants. It is recognized that the detail and resolution of the performance assessment through modeling will refine as the design progresses from concept through design development to tendering and then on-going measurement and verification.

Energy modeling coupled with Life Cycle Cost Analyses (LCA) will serve as tools throughout design to evaluate design options and make appropriate choices that support the University of Toronto's pursuit of sustainable reduced energy use and lower carbon footprint with long term comfort.

At each design phase model submission, the consultant team will be expected to submit the energy model with EUI (Energy Use Intensity) metrics to test the energy performance for alignment with U of T Policy and standards. See Appendix 5 for UofT's Energy Modeling Guidelines.

As with recent building projects at the University this project should be designed and constructed to a minimum LEED® Silver level, however the project is not anticipated to be certified LEED. The building is designed to meet the Toronto Green Building Standard Tier 1.

During the design process, in keeping with UTSC's value of accountable stewardship and UofT's commitment to fighting Climate Change, the project team decided to pursue mass timber construction for the UTSC Retail and Parking Commons. By switching from concrete to mass timber, the UTSC Retail and Parking Commons avoids approximately 977 tonnes of CO2 and sequesters 3,763 tonnes of CO2 for a total environmental benefit of nearly 4,740 tonnes of CO2 which is the equivalent of keeping over 1000 automobiles off the road or the GHG produced by over 600 homes per year.

Sustainability strategies include the use of recycled construction materials, locally manufactured materials, energy efficient LED lighting and advanced lighting control, thoughtful heating and cooling system design, passive design to reduce heat gain, operable windows where appropriate, sustainable high albedo roof, low flow plumbing fixtures, materials from sustainable sources, low VOC paints and carpets, the use of storm water for irrigation, and attention paid to the minimization of non-recyclable waste during construction.

The building design team has incorporated:

- low carbon and carbon sequestering building materials and has designed a Mass Timber structure which displaces 8000 equivalent tonnes of CO2

- strategies to maximize the use of natural energy or passive strategies such as the use and control of sunlight both to reduce electrical lighting levels and conversely promote reductions in solar heat gain, promote ventilating air movement, and both capitalize and minimize the effects of diurnal and seasonal temperatures. This can be accomplished concepts like significant thermal performance of building envelope in particular in areas of controlled occupancy such as offices.
- minimize energy use for heating, cooling and lighting through the careful design of the building envelope, mechanical and electrical systems, and the use of low energy fixtures in combination with natural daylight and task lighting wherever possible,
- water conservation through the use of water saving fixtures and closed-looped equipment cooling systems,
- metering of energy and water use in the building, or parts of it for benchmarking, energy management and optimized operation.
- building materials (e.g. drywall) , finishes (e.g. paint), furnishings (e.g. carpets), fixtures (e.g. lighting) and furniture which are not only emission-free (to provide building occupants with highest quality of indoor environment) but are also the most environmentally friendly in their manufacture and installation.
- provision of recycling depots for source-separation of waste throughout the building to meet the needs of the University's recycling and waste reduction programs and vehicular access to these sites.
- conveniently and sufficiently locating waste receptacles to minimize litter buildup
- directing rainwater (roof) runoff and other sources of 'gray' water to satisfy landscaping needs,
- using water penetrable systems in outdoor areas where hard landscaping is required to minimize flows to the City's storm water system (or into the building), and choosing paving materials to assist the University in minimizing the amount of salt used in snow and ice clearance. This includes the design of infiltration galleries in the supporting university service roads
- the design and structural reinforcement of roofs and access to them to permit use as an outdoor green space by building users
- the landscape design to promote local plant species that require low maintenance.
- the design of outdoor spaces for all-season use, with shade and cool air movement for the summer, and sun-trapping and wind shelter for winter use, and sensitive accommodation of smokers away from the building entrances to reduce potential harm from second hand smoke.
- elements such as LED lighting, both internal and external, Low Temperature Heating and heat recovery for building reheating and the other options identified in the central utilities plant could enhance this as well. A view to the envelope overall would improve the energy consumption
- provision of Electric Vehicle Charging stations
- rooftop photovoltaic panels array

As a parking facility, the project is not eligible for LEED. However, the project can receive a GGC (Green Garage Certification), an associated agency to the USGBC/CaGBC. Application for a GGC is being reviewed.

Roof-mounted photovoltaic panels have been discussed as a way for this project to be energy exemplar. The array's scale and prime location will serve as a beacon of advocacy for the sustainability. A 551 PV (400 KW) panel array will be installed to meet the 40% better than ASHRAE energy use requirements. Included in the current construction are electrical and structural rough-ins provided for the remaining

capacity of 1044 PV (800 KW) panels. The Photovoltaic panels are to designed to provide solar shading at the roof level.

Roof-mounted photovoltaic panel example

Energy efficient fixtures and equipment should be considered such as solar powered emergency phones, occupancy and day light controls etc.

Sustainable transportation alternatives will be encouraged with car-sharing spaces, ecoPark designated spaces for low emission vehicles, and electric vehicle charging stations; these should be sub-metered with data provided to the parking office via the campus data network. In compliance with the Ontario Building Code and Toronto Green standard the following parking space amenities are to be provided:

Type of Parking Space	Quantity	Equipment	Notes
Low Emission Vehicle (LEV)	85	Designated Spaces - Signage	10% of Space above Zoning By-law Requirement (846 space surplus)
Electric Vehicle Charging (Current)	217	1- Level 2 Charger per space	20% of Parking Spaces
Electric Vehicle Charging (Future)	867	Conduit and infrastructure in place for future charging stations	Remaining Parking Spaces

Electrical capacity for the Retail and Parking Commons is to be scaled to accommodate 100% (1084) of the parking spaces with charging stations. Further review by the University is required to determine financial mechanisms for vehicle charging in the short term and long term operations of the facility. All parking spaces will be conduit ready for future installation of Level 2 electrical vehicle charging stations.

Environmental Health and Safety

The dissipation of automobile fumes should be accomplished through an “open structure” as defined by the OBC. In a closed structure; heating, large ventilation and air quality monitoring would all be required adding considerable cost to the building and making it less safe. Also a pre-action type fire protection system would be required.

The tenant and support spaces would be required to be sprinklered. There will be fire-hose cabinets on the parking levels c/w a standpipe connection at the building and hydrants on the perimeter. Any specialty fire protection systems for the tenant spaces would be required to be provided the tenant in the fit-up.

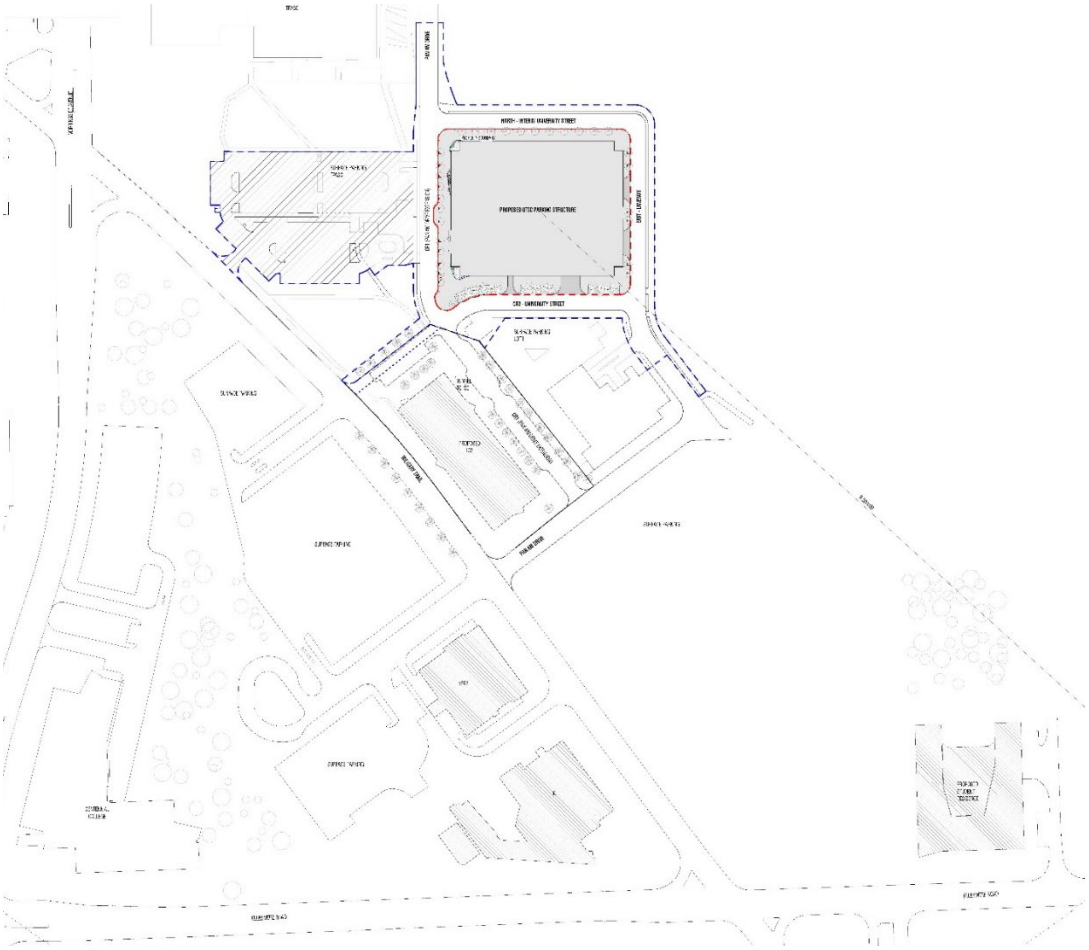
The Retail and Parking Commons will require a fire alarm system. This system will conform to the University of Toronto Scarborough standard for fire alarm systems. The system will also include a public address system to allow for one-way communication to transient occupants.

Other considerations include:

- Lighting
- Environmental emissions (MOE submission considerations)
- Safety (supply ventilation, chemical hazard quantity, specialized equipment and venting requirements)
- Special considerations for venting or sewage traps for hazardous chemicals
- Safety design for receiving areas and loading docks
- Ergonomic design of mechanical rooms

d) Site Considerations

Site context



Retail and Parking Commons and New Roads Location within North Campus (Image by gh3*/ Behnisch Architekten)

The project will face the proposed new Military Trail and LRT, establishing the southern boundary of the proposed new street. A new north-south road will realign the current Pan-Am Drive along the west side of the Retail and Parking Commons and connect to the newly established road running between the IC-2 and parking lot H. Along the southern façade a new east-west road will connect the intersection of the new north-south road to the southern end of the existing Pan Am Drive. Future vehicular entrance/exit points to the Retail and Parking Commons are proposed at the north, south and east facades to allow for traffic flow in keeping with recommendations from current traffic analysis of the north campus block plan.

A temporary east-west road, anticipating the future re-aligned Military Drive will connect the proposed Retail and Parking Commons' north entrance/exit to the new north-south extension of Pan Am Drive.

New north-south roads will provide access to the Retail and Parking Commons and connect Pan-Am Drive and the initial New Military Trail with a new east-west road to the south of the Retail and Parking Commons. Service vehicles and deliveries will be directed to this proposed road to allow the extended Pan-Am Drive to be a pedestrian friendly corridor connecting TPAC to the Retail and Parking Commons and the IC-2.

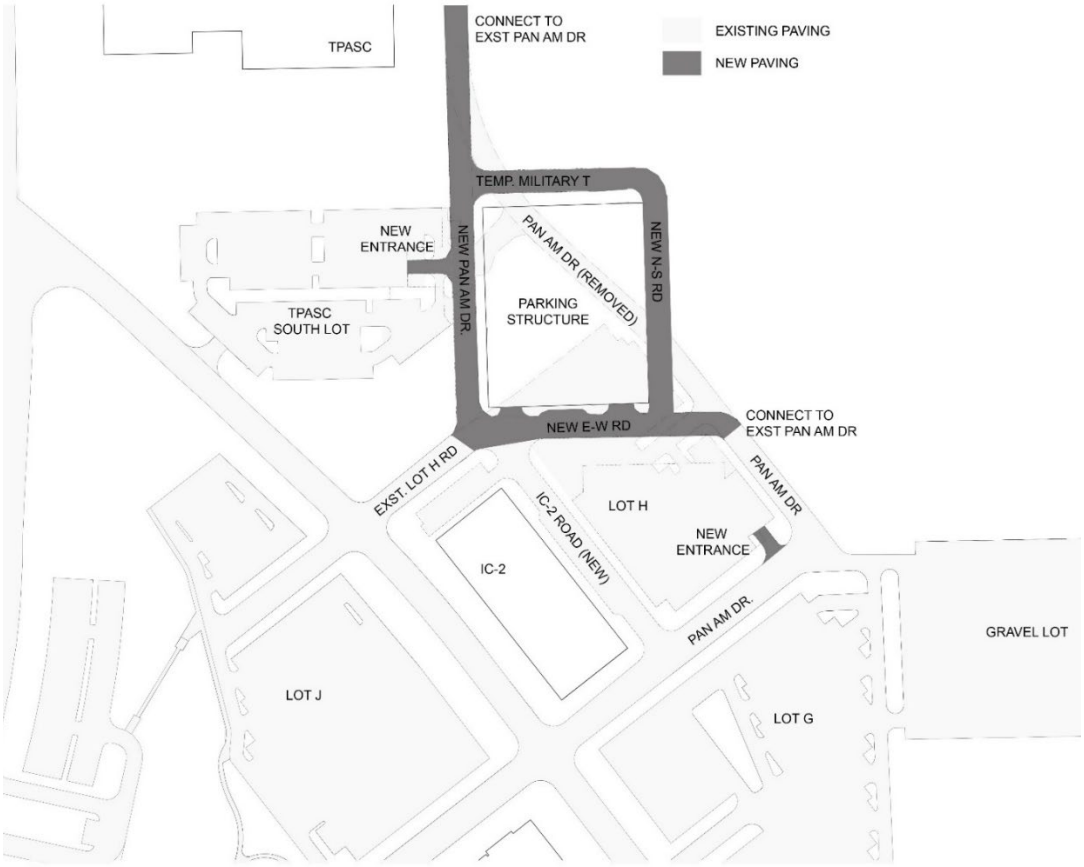
In keeping with the North Campus Masterplan an open space/landscaped area is to be included along the east boundary of the new eastern north-south road. A secondary open space/landscaped area is to run along the south edge of the new east-west road between the new IC-2 road and the existing Pan Am Drive. This new landscaping, along with the new east-west road will reduce the existing parking lot H area and require relocation of the existing parking lot entrance. The design is to consider the extended future linear open space to the current project landscaping.

A new entrance to parking lot H will be included in the site development. The location of this entrance is to be determined with further traffic flow analysis.

The existing entrance to the TPASC South parking lot will be reworked to accommodate the new road network. The new entrance and reduced parking lot area will result in an anticipated loss of 30 spaces. These spaces, serving TPASC will be supplanted by new spaces within the Retail and Parking Commons.

Secondary landscaping will be required where existing paving and roads have been removed.

Proposed Road Development Diagram



Traffic Flow

With the IC2 project and the continued development on the North Campus, the UTSC Campus density will normalize between the North and South Campuses. The Retail and Parking Commons will be located proximally to the large Academic facilities being developed on the North Campus and will be situated as a Node with access from Morningside and Pan Am Drive to begin to alleviate traffic from Military Trail and capture traffic from the 401 then down Morningside in a modernized fashion.

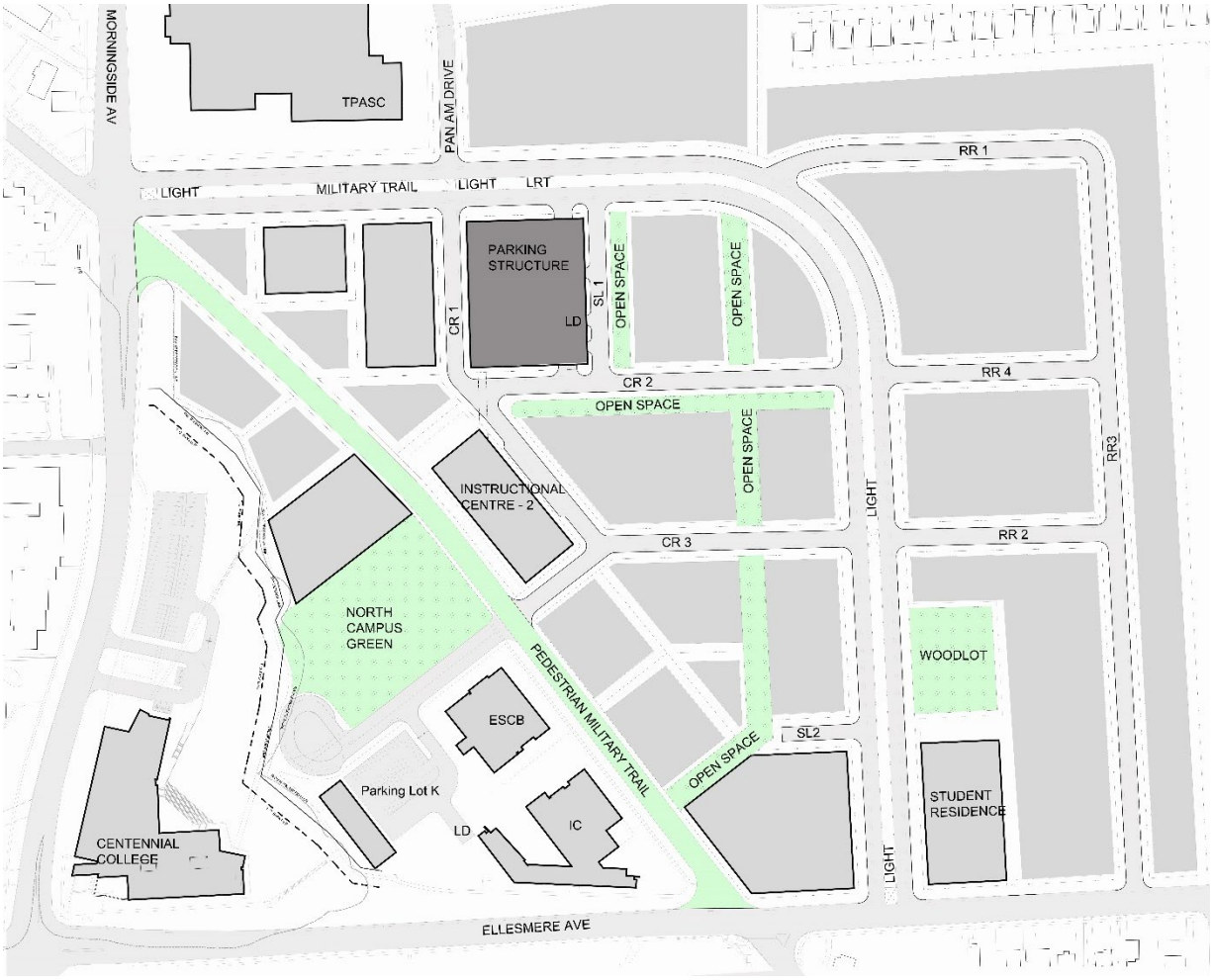
A traffic flow study will be required to be provided by the design consultant. The traffic flow study will need to consider the proposed UTSC Master Plan and Secondary Plan. The traffic flow study is to provide predictive analysis on daily schedules and the impact on campus roads to the full build-out of the North Campus Master Plan.

Master Plan/Secondary Plan

Founded over fifty years ago at the edge of the City, the University of Toronto Scarborough was envisioned as an intimate, interactive, and interdisciplinary campus where exciting new technologies and bold approaches to research and education could be tested and explored. The University has continued this commitment to innovation and academic excellence, growing from a small satellite campus to a major mid-sized university serving a rapidly expanding city-region.

In 2008, UTSC determined it needed a new vision and master plan to guide the future expansion of its physical campus. Developed through extensive consultation, the vision provides direction for the evolution of the campus and its relationship to the surrounding community and region. The 2011 master plan and subsequent proposed secondary plan (in progress) is the fulfillment of the campus vision, providing a comprehensive framework to guide UTSC as it reaches its full potential. The framework continues past traditions, where ideas of innovation and excellence informed the built environment, and it establishes a new direction, where a hub of institutional and ancillary uses promotes openness and integration and creates a vibrant centre for learning and community.

North Campus Plan



As the campus embarks on this plan to develop the North Campus, it is important that the campus vision be understood with a long-term view. The master plan and proposed secondary plan (in progress) represent this long-term view, outlining large patterns of development that can serve the needs of the campus over the next 50 years or more. With this framework in place, the university is positioned to make more detailed development decisions with a full understanding of the larger context. As development unfolds, elements of this plan will be phased to meet the requirements of the day for the university.

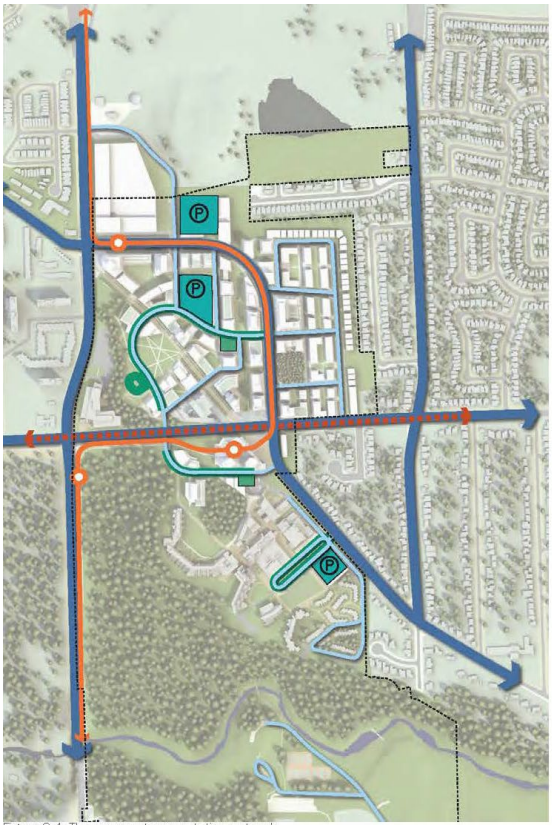
Achieving the following master plan objectives create the essential conditions for the realization of the UTSC Master Plan by providing a physical framework for the future growth and evolution of the University of Toronto Scarborough campus.

- Create a unified and accessible campus
- Realign Military Trail to accept municipal transit expansion, better connect north and south campus and create distinct development opportunities
- Construct a bridge over Ellesmere Road to improve pedestrian circulation across campus
- Foster an inclusive campus community
- Develop the lands surrounding the Military Trail/Ellesmere Road
- Maintain continuity with existing Neighbourhood
- Develop low-rise residential uses to ensure an appropriate connection to the adjacent residential neighbourhood
- Preserve land for academic uses
- Preserve open spaces for future investment
- Expand UTSC development opportunities
- Design the campus for improved mobility

The Retail and Parking Commons project will see the realignment of Pan-Am Drive and the establishment of the first segment of the E-W portion of New Military Trail as well as secondary campus roads. Connectivity of transit infrastructure between the City and the Campus included in the UTSC Master Plan and Secondary Plan includes strategically located parking structures within the North Campus to allow for development of existing surface lots as well as predictively account for reductions in parking demand.

The UTSC Retail and Parking Commons will be a major transit hub on campus, providing not only parking but a location for pick-up and drop offs. This is of significant importance for future transit use trends in car-sharing and driverless vehicle strategies. The Retail and Parking Commons also serves a strategic importance as a centralized loading, shipping and receiving and service vehicle facility serving adjacent buildings and the North Campus. By locating loading and service vehicles in the Retail and Parking Commons, the overall north campus development is able to be developed with more public facing building facades, unencumbered with loading docks, waster removal areas and service roads. This strategy will allow for a better public realm, more integrated landscaping, building design and pedestrian experience.

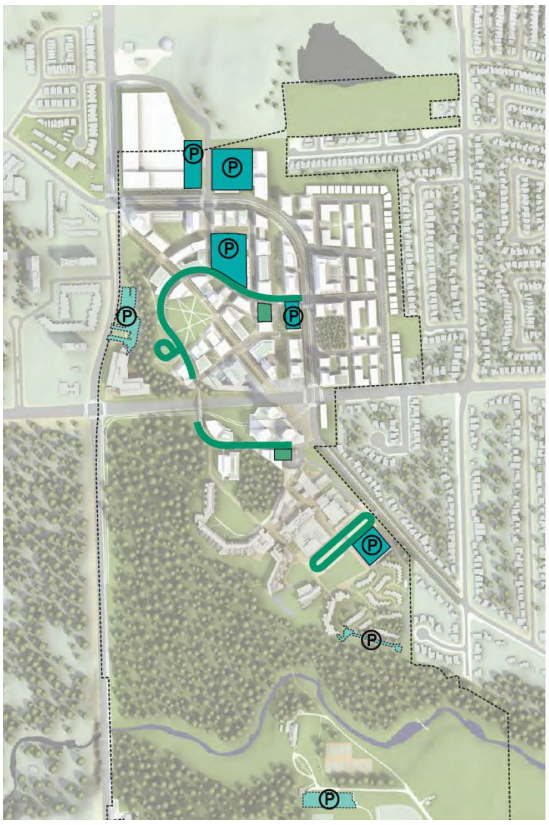
Excerpts from the UTSC Master Plan



With planned and potential light rail and bus rapid transit connections into campus, the university will employ a "transit first" approach to favour transit and other travel options over car use.

Legend

- Major street
- Campus street/driveway
- Rapid transit line
- Rapid transit station
- Bus rapid transit line
- Major parking structure
- Pick-up/drop-off location



3.3.5 Parking, Servicing, and Pick-up/Drop-off

The North Campus parking lots are one of UTSC's most visible assets, but represent a commuter campus legacy that will not continue into the future. With a shift in regional travel patterns and significant rapid transit investments, increased travel demand will be accommodated by more sustainable means of transportation, and parking demand is not expected to grow despite population growth. Large surface parking lots will slowly be replaced by new campus development, and parking supply will primarily accommodated primarily in parking structures and below buildings.

Legend

- Potential location for a major parking structure
- Surface parking lot
- Pick-up/drop-off lot
- On-street pick-up/drop-off area

Excerpt from the UTSC Secondary Plan

3.5 Parking, Servicing, and Pick-up/Drop-off

With a shift in regional travel patterns and significant rapid transit investments, increased travel demand will be accommodated by more sustainable means of transportation, and parking demand is expected to decrease over time. Large surface parking lots will slowly be replaced by new campus development, and parking supply will be accommodated primarily in parking structures.

With a large local population, carpooling and pick-up/drop-off will continue to be a viable means of travelling to the University. The rapid growth of ridesharing platforms and anticipated development of driverless cars will demand seamless pick-up/drop-off zones. Pick-up/drop-off facilities will be located throughout the campus in highly-visible, pedestrian-oriented spaces. Technological advances can improve the efficiency of these functions, such as cell phone lots, and an expanded internal circulation network will allow for more informal pick-up/drop-off activities on local streets throughout campus.

Like all active universities, the campus relies on efficient building servicing and deliveries to maintain academic activities and support the large campus population. While essential, these services should not impact the quality of the campus. To the extent possible, they should operate unnoticed in the background. Centralized receiving facilities will be encouraged in new development and such facilities will be located, designed and landscaped to minimize impacts on the pedestrian-oriented campus environment.

Secondary Plan Parking Policies

1. Total consolidated parking rates for the Secondary Plan area will be established taking into account the success of the TDM measures and the provision of light rail transit to the area.

2. The University will transition from surface parking lots toward structured or underground parking.

3. On-street parking and lay-bys will be provided where appropriate, and will be designed to minimize hazards for pedestrians and cyclists.

4. New pick-up and drop-off areas will be designed as pedestrian oriented spaces, integrated with surrounding buildings and landscapes. Traffic circulation in these areas will be designed to minimize adverse impacts and disruptions to street and pedestrian networks.

5. Pick-up and drop-off activity in the North Campus will primarily be accommodated within University streets.

6. In the South Campus, pick-up and drop-off activities will be centralized, such as the south bus loop.

7. Surface parking lots will be limited. Where appropriate, they will be located to minimize their visual impact on the public realm, and be designed in accordance with the Toronto Green Standard and Greening Surface Parking Lots Guidelines.

8. Parking structures can be considered at appropriate locations and will be integrated into building form with active ground floor uses along the edges of the public realm.

9. Servicing and loading spaces will be located away from primary frontages and shared between buildings where possible to minimize the land required for these functions. Loading and servicing facilities will be designed to minimize conflict with pedestrians and cyclists.

10. Opportunities for shared loading facilities will be encouraged to minimize the amount of land devoted to these functions.

Zoning Regulations

Currently, the UTSC campus is part of the Highland Creek Community Secondary Plan. The zoning permits a building up to five storeys in height. The proposed site is designated Institutional in use, however the site has a “hold” on it, based on the Highland Creek Zoning Bylaw.

The “H”, or holding, zone designation was put in place to address environmental concerns due to the site’s proximity to a closed City of Toronto municipal waste site. In order to clear the site of the “H” (Holding) designation and make it available for development, paragraph 29.5 of the Highland Creek By-law (10827, see appendix) details several requirements that must be satisfied, including the submission, by UTSC to the City of Toronto, of several consulting reports (site servicing, transportation, environmental, storm-water management, etc). During the planning process for two recent academic buildings on Military Trail, this designation was successfully lifted. The same result was achieved for this project.

Parking Space Bylaw and Inventory

UTSC is required to provide parking spaces for all of existing buildings and for those currently under construction. This includes Centennial College, which sits on land leased from UTSC. Prior to May 5, 2015, the City of Toronto Parking By-Law, as it applied to the University of Toronto at Scarborough, required 2.15 parking spaces per 100 gross square metres of non-residential building area (0.75 residential). In 2014, UTSC applied to the City of Toronto to reduce the number of required from the historical figure to a reduced number of 1.75 spaces per 100 square metres (0.2 residential). A statutory public meeting was held in December 2014 and City of Toronto Council approved the amendment on May 5th. The table below shows the effect of the recent reduction in parking space bylaw requirements both currently and in future with full build-out of the Master Plan.

Parking Space by-law: 2021 Requirement

	Building m^2	No. spaces req'd per $100m^2$	Total No. spaces req'd
Non-residential use	155,091	1.75	2,714
Residential use	45,619	0.2	91
			2,805

Includes: Student Residence, IC-2, Indigenous House and Parking Structure Area

Future requirement at 5-10 year campus development

	Building m^2	No. spaces req'd per $100m^2$	Total No. spaces req'd
Non-residential use	207,016	1.75	3,623
Residential use	53,349	0.2	107
			3,729

Includes: Field House, SAMIH, LAMP, Hotel and Vertical Farm Areas

The Highland Creek zoning by-law governs the entire UTSC campus. The by-law Provision 1.5.1, mandates the maximum height of any above-grade Parking Structure shall be 3.7 m. The proposed Retail and Parking Commons is between 22.77m to top of roof stair enclosures, exclusive of solar panels. Due to a significantly greater proposed height (19.07 m), a Zoning Bylaw Amendment application or a Minor Variance Application might be needed – depending on project timing relative to the Secondary Plan updates for the UTSC North Campus. The rezoning process typically takes nine months to a year to complete, while a minor variance application might take five to six months to complete.

Bicycle Parking Space Bylaw and Inventory

Bicycle parking spaces are required as part of the September 15, 2021 By-Law amendment. Prior to this date, the Highland Creek Community By-Law did not require bicycle parking. The requirement will apply to new projects moving forward, and will be based on interior area for new construction.

Zoning for bicycle parking was amended as follow:

Post Secondary (Bicycle Zone 2)
0.6 bike parking spaces for long term parking per 100 sq.m
3 + 0.18 bike parking spaces for short term parking per 100 sq.m

Retail (Bicycle Zone 2)
0.13 bike parking spaces for long term parking per 100 sq.m
3 + 0.25 bike parking spaces for short term parking per 100 sq.m

For the purpose of the by-law, the proposed Retail and Parking Commons will have a total Gross Floor Area of 1,401 sm per the by-law definition of Gross Floor Area for Bicycle Parking Space Calculations (230.5.10.1(6)). The overall gross floor area will be divided between Retail Store and Office designations as follows:

Retail: 695.90 gsm
Post Secondary: 1,269.20 gsm

The City of Toronto Zoning By-law 507-2015 requires the following Bicycle parking spaces:

Bicycle Zone '2'		
Space Type	**Rate**	**No. of Spaces Required**
Post Secondary		
Short Term	(3+0.18 per 100sm of interior floor area)*	0.91
Long Term	(0.6 per 100sm of interior floor area)*	7.62
Retail		
Short Term	(3+0.25 per 100sm of interior floor area)*	4.74
Long Term	(0.13 per 100sm of interior floor area)*	5.29
Total		
Short Term		10
Long Term		9

* 1,269.20 gsm of enclosed floor of Post Secondary and 695.90 gsm of Retail area used for calculation purposes; refer to space program

A total of 10 short term and 9 long term bicycle parking spaces is required. Long term spaces are to be located within the building on the first floor level. Short term spaces are to be located within 30m of a building entrance.

Although the By-law predicates 9 long term covered bicycle parking spaces, opportunity to provide enclosed bicycle parking within the Retail and Parking Commons is to be further reviewed for potential opportunities to provide long term bicycle parking spaces for adjacent future buildings. Currently the space program includes 145 nasms to house 38 bicycles meeting and surpassing the by-law generated requirement. 12 short term bicycle parking spots are located along new Pan-Am Drive at the west side of the Retail and Parking Commons near the retail entrance and the Instructional Centre 2 doubling the By-law requirement.

<u>Environmental Site Conditions</u>

The site does not have any "top of bank" issues with the TRCA and is well beyond the boundaries of the TRCA designated Environmentally Significant Area. Storm-water management and runoff has been reviewed as part of the Site Plan Application and large infiltration galleries in the service roads have been incorporated into the design

Investigations have taken into account small amounts of methane detected east of the site and the incorporation of an impermeable membrane around the basement and foundational building elements and a passive venting system has been designed. In addition, there are likely Salt impacts and heavy metals in the soil on the site that will be required to be excavated, removed from site and backfilled. The design team, project management team and stakeholders are managing this with the city to encapsulate the limited soil impacts through the City's municipal approval/peer review process.

Landscape and Open Space Requirements

A new streetscape along Military Trail has been coordinate with (as an extension of) the Instructional Centre 2 (IC-2) and TPASC projects as well as the new UTSC Landscape Master Plan currently in development. It is anticipated that retail frontage will require pedestrian and exterior dining supportive paving. Pedestrian connections will be required at the North-west corner to TPASC and at the South-West corner to IC-2. The design of the Retail and Parking Commons must acknowledge the future adjacent developments in the North Campus, including a Hotel and Conference Centre to the west and a Field House to the north.

Landscaping will be provided at the perimeter of the building with both hard and soft landscaping providing a welcoming environment for pedestrians. Landscaping is to consider the campus masterplan, proposed secondary plan and landscape master plan provisions for open space in the north campus. A small exterior hardscaped area should be incorporated as part of the ground floor adjacent to the food services and bookstore. This area should incorporate hard and soft landscaping, with accommodation for café tables, benches, bicycle parking, in line with the campus' standard palette of street furniture and materials. Planting is to be strategic in shielding the open nature of the Retail and Parking Commons from prevailing winds across existing surface parking lots.

Site access

Site access will be provided in the short term via Pan Am Drive and a partial implementation of the New Military Trail extending east from Pan Am Drive to the eastern extent of the Retail and Parking Commons. A new road is proposed to re-route Pan-AM Drive along the west side of the Retail and Parking Commons connecting existing Pan Am Drive at TPASC to the new road to the east side of the IC-2 in keeping with the UTSC master plan and proposed secondary plan. Layby Parking Spaces will be included at the East side of this new road. The existing remaining parking lot H is to be reworked with a new entrance at the east or south connected to existing Pan Am Drive. The long term vision places vehicular access via the new road along the north, west and south edges of the building with service access at the west. A new loading dock, drop-off spaces, bicycle lanes and pedestrian circulation space will be incorporated into the design.

The front facade of the Retail and Parking Commons will face onto the future realigned Military Trail. The main vehicular entrance will be along the East façade with a secondary entrance at the South façade. Main pedestrian entrances will be located along the west façade as well as at the north-west and south-west corners. Accessible access is required at all entrances, short-term retail parking, drop-off and loading areas. Provision for ambulance, police and Wheel-Trans vehicles is required.

Soil conditions

According to a several recent subsurface environmental investigation, the soil is mostly sand fill and gravel. This has provided good subsurface conditions for foundation design. There are some existing fill

locations providing softer conditions to the north of the site. The foundation design has been optimized with a blend of spread and strip footings and helical piles to optimize the design both for stability, constructability and cost.

Wayfinding

Interior signage and way-finding strategies are to abide by the University of Toronto Scarborough Signage Standards. Exterior way-finding should match what exists on the South Campus. The public plaza is a possible spot for public art that can supplement the way-finding strategies of the campus.

Wayfinding will include graphics and colour coding of parking levels and stairwells to increase recognition.

Wayfinding will also contain information on the sustainability initiatives included in the Retail and Parking Commons Structure project.

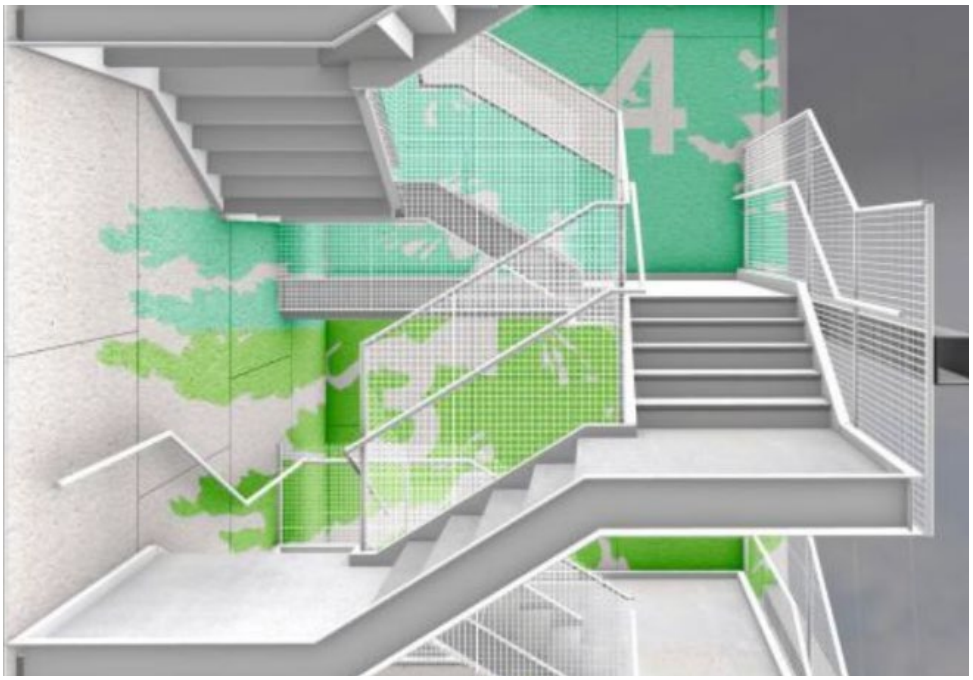


Image wayfinding graphics at stairwells (Image by gh3*/ Behnisch Architekten)

Demolition of Existing Structures

The site is primarily undeveloped with an existing surface lot and roads and does not require building demolition, no existing structures exist on the site. It is undisturbed, for the most part, although there may be the remains of one or two foundations/basement walls from old residences that used to be on the site. Drawings and specifications for this project will include for their removal if encountered.
Removal of existing parking surfaces, roads, curbs, landscaping, gates, lights and trees will be required to coordinate with new work. Site grading, especially at the north-east corner of the site boundary may be extensive.

The site is proposed to be located on the existing parking lot H and the entrance to the TPASC south lot. The existing parking gates located at the east entrance to parking lot H and at the east entrance to TPASC South lot will be removed.

Site servicing: existing and proposed

Existing site servicing currently only consists of stormwater piping + electrical services (LV electrical + communications) for parking gates. These will have to be relocated prior to construction as these services need to be maintained during construction. Underground telecommunications and electrical supply for Code Blue emergency phones on the North Parking lots must be relocated prior to construction.

Hazardous waste disposal

There will be very limited hazardous waste removal required as this will not be a teaching/academic facility. Hazardous materials will be limited to grounds and services operations. Hazardous materials will be removed using University EH&S practices and housed in certified receptacles in a closed room in the storage area of the facility managed by facilities and EH&S staff.

e) Campus Infrastructure Considerations

Utilities (electrical, water, gas, steam lines)

The main electrical service will come from the Morningside feeder system. See the electrical building services section for further details.

Storm Water (Connection to Military Trial), Sanitary (Connection to Military Trail), Fire and Domestic Water (Morningside) have been incorporated in the design and are moving through stages of municipal approvals.

Sewer and storm water management

Storm runoff will be managed through an infiltration based storm water system such as a “storm tech”. Water conservation and other sustainable approaches such as bio-swales and porous landscaping featureshave been incorporated where possible.

Roads and Pedestrian Pathway Landscaping

A new streetscape adjacent to the Retail and Parking Commons was coordinated with (as an extension of) the IC-2 project and the UTSC Campus Landscape Masterplan, currently in development. The north-west retail frontage will require more considered landscape design and potentially allow for outdoor seating serving the food service facility. In keeping with the Landscape Master Plan the south landscaping will contain more extensive planting beds to capitalize on Southern exposure. A pedestrian connection will be required at the south-west corner to the IC-2 and at the north-west corner to TPASC. The east façade will front a dedicated open space. Landscaping along the east façade, and eastern edge of the proposed north-south access road will be in keeping with the requirements of the UTSC landscaping standards and masterplan.

A through-block connection is included; running east-west from the east service road to the main elevator lobby at the west façade. This passage, marked for pedestrian safety, will provide wayfinding to the main pedestrian parking entrance, retail components, parking office and bicycle storage from future developments along the eastern portion of New Military Trail.

New roads are to be designed to accommodate necessary traffic flow and are to confirm the to requirements of the UTSC Masterplan and proposed Secondary Plan. A traffic study will be required to be provided by the consultant team as part of the Site Plan application as well as to determine optimal design of access/egress roadways and circulation. The consultant team will coordinate with UTSC's representative Traffic Engineer to ensure that the intent of the proposed secondary plan and the proposed Eglington East LRT criteria are met.

Campus Service Vehicle Fleet & Plan

The Retail and Parking Commons and IC2 will be used as an opportunity to establish service vehicle storage/service and access to the growing needs on the North Campus. With the development of the North Campus, the service vehicle types will shift from snow removal and management of large parking lots to mixed-use vehicles to serve the growing compliment of campus roads, buildings and open space. The service vehicle hub at the North Campus Retail and Parking Commons will help to relieve the south campus loading dock of its intense mixed use traffic patterns; with loading, deliveries and service vehicles all mixing with public traffic at the campus drop off. Additionally, by creating a centralized service vehicle hub in the North Campus, process and service efficiencies will be realized through moving vehicles closer to their areas of use. The Retail and Parking Commons will provide parking for 8-10 service vehicles and dedicated storage for service vehicle maintenance and materials. The following is a list of anticipated schedules Service Vehicles planned to serve the North Campus.

Service Vehicles Need for Proposed North Campus

Service Vehicle Model	Action
Kabota B2650	Increase
Kabota RTV 1100 C	Increase
Kubota rtvx1100c	Increase
Kubota b2650	Increase
Bobcat 3450	Increase
Cat 416c it	Maintain
Tennant 355	Increase
Tennant atlv 4300	Maintain

Parking Office

The USTC Parking Office is currently located within the Instructional Centre. The parking office is responsible for the oversight and management of the UTSC parking lots, parking permits, ticketing, fee collection, equipment and maintenance of the parking inventory. In September and January, the parking office issues the term parking permits for which considerable line-ups frequently exceed the current location's waiting and reception area's capacity.

With the concentration of parking in the North campus shifting to the Retail and Parking Commons, the Parking Office will be co-located within the Retail and Parking Commons. The parking office will be located at street level. A dedicated entrance will provide direct patron access to the waiting area from the

west façade. A separate staff entrance is needed to the office area. Signage, exterior glazing will promote visibility as well as provide occupants with natural light and ventilation.

The parking office will contain a reception area, administrative workstations, private offices, a dedicated secure storage room, a data room, a meeting room for 10 people and a staff kitchenette. The parking office will be served by a universal washroom and two washrooms. Access from the parking office to the interior of the Retail and Parking Commons and service areas will be required. There is also a need for a storage area for parking equipment that needs to be in close proximity to the parking vehicle. Campus Safety and Security and Parking Services will require two parking spaces in close proximity to the office.

Retail and Ancillary Uses

The UTSC Bookstore location will provide students, faculty, staff and community members with service, expertise and quality offerings. The bookstore will be a hub to browse for new meeting reading materials, latest UofT gear and everything you would expect from your favourite corner store. The UofT Bookstore will be a one-stop-shop offering UofT branded apparel & other sprit products, textbooks & course materials, novels & bestsellers, stationery supplies, cell phones, giftware, drinks and snacks.

The bookstore will be a campus hub where students can find staff support and trusted advice on course material. The students will be offered products and advice to help them to achieve their academic goals and gear to show their school pride. Staff will be trained to advise on products available in-store, as well as help customers navigate the online assortment and other campus resources.

The UTSC Bookstore will be located at the North-West corner of the Retail and Parking Commons at street level. The bookstore location will serve the student population, which expected to increase dramatically in the North Campus with the completion of the IC-2, Student Residence and Retail and Parking Commons projects. The bookstore will also take advantage of its proposed location to attract business from TPASC users, potentially extending it's operating hours to early mornings, evenings and weekends.

A light fare café style food services outlet will provide bookstore patrons with a place to meet, study and catch up on reading. The café will also serve the TPASC community in the early mornings, evenings and weekends, providing refreshments, equipment and UofT branded apparel. The food service area will be positioned to have direct street access and be able to be closed off from the remaining retail area in order to allow for extended hours of operation. An outdoor seating area is proposed for the sidewalk/setback adjacent to the café area with supportive hardscaping and landscaping.

Adjacent to or contained within the bookstore will be a Postal/Courier outlet. The outlet is envisioned to be accessible from the parking garage elevator lobby area. Dedicated, short-term parking spaces will be identified in close proximity to the Postal/Courier outlet.

A production facility for the UTSC bookstore will provide space for the processing and manufacturing of UofT branded apparel, publications and other in-house products. The production facility and the bookstore will have direct access to the loading dock as well as provided with a dedicated storage area.

Access to the bookstore will be from:

1. A dedicated street entrances
2. Main Elevator Lobby Area
3. Service areas including Production Facility, Loading Dock and Storage

The Retail and Parking Commons scope of work will include the construction of the building structure, enclosure and servicing of the bookstore areas with tenant fit-up to be completed for building occupancy. Included in the base building scope will be servicing for a universal washroom and two washrooms serving the bookstore area.

Lighting, Signage and wayfinding for the Bookstore is to be integrated with the Retail and Parking Commons design and coordinated with UTSC standards.

Security systems are to be included within the tenant fit-up scope with power and communications service provided by base building scope.

Secondary Effects (Co-Effects)

The 1084-space Retail and Parking Commons will be constructed on existing Lot H, TPASC South Lot and Pan Am Drive, resulting in a short term loss of 84 spaces. During staging and construction, Pan Am Drive will be closed and parts of Lots H will be unavailable to all but fire services and construction vehicles, impacting permit holders, drivers using accessible parking spaces, visitors, and those dropping off/picking up students and transit passengers.

- Employees with Lot H permits will be re-directed to alternate lots for the duration of construction.
- Visitor parking at TPASC south Lot will be redirected to the TPASC North lot.
- A temporary gravel parking lot to provide parking capacity during construction is envisioned to be located to the east of the existing gravel lot and woodlot with access from Ellesmere and the existing gravel lot. This lot will be a separate project with its full scope to be determined.
- Centennial College Parking Lot Spaces, formerly contained in Parking Lot H will be re-designated to parking Lot G

Access to Lots H are to be maintained for fire route and construction staging access only.

The Parking Office will vacate 71.95 nasms of space from the Instructional Centre. This space is currently being considered for use by Campus Security due to the existing data infrastructure.

Room Name	Room	Seat	Shared Area	Standard Description
Command Centre / Admin Office Single	IC40	0.9	9.85	Reception Etc
Manager's Office	IC40A	1	11.63	Manager's Office
Cage 6 - Storage	IC12G		13.59	Office Storage
Command Centre / Admin Office Single	IC40	2.1	22.97	Reception Etc
Storage	IC40B	0	8.28	Office Storage
Storage	IC40C	0	5.63	Office Storage
Total			**71.95**	

The UTSC Bookstore will vacate 375.01 nasms of space from the Bladen Wing.

Room Name	Room	Seat	Shared Area	Standard Description
Bookstore	B390	0	329.03	Merchandising Facilities
Bookstore Storage	B390A	0	7.81	Merchandising Storage
Manager's Office	B390B	1	6.46	Manager's Office
Bookstore Storage	B390C	0	17.37	Merchandising Storage
Bookstore Pick-up Counter	B390D	0	14.34	Merchandising Facilities
Total			**375.01**	

f) Schedule

A Construction Management with Design Assist timeline is anticipated for the project, with a desired 2023 occupancy.

Milestone	Dates
CaPS Executive Committee – Terms of Reference Approval	June 2014
CaPS Executive Committee –Site Selection Approval	May 2015
Project Planning Committee	March 2018
CaPS Executive Committee –Consultant Fees	April 2019
RFSQ/RFP	June 2019 – October 2019
Consultant Selection	November 2019
Schematic Design	December 2019-June 2020
DRC Meeting No. 1	May 2020
Design Development	June 202-December 2020
DRC Meeting No. 2	February 2021
Contract Documents	December 2020-June 2022
Rezoning Application	May 2021
Site Plan Approval Application	March 2021
Building Permit Application	March 2021
Rezoning Application	May 2021
Rezoning Approval	June 2021
CaPS Executive Committee	December 3, 2021
UTSC Campus Affairs Meeting	January 13, 2021
Planning & Budget Committee	January 12, 2021
University Affairs Board	January 19, 2021
UTSC Campus Council	January 26, 2021
Academic Board	January 27, 2021
Business Board	February 2, 2021
GC Executive Committee	February 8, 2021
Governing Council	February 15, 2021
Construction Document Phase	July-November, 2020
Site Plan Approval NOAC (Anticipated)	June 2022
Building Permit Approval (Anticipated)	June 2022
Construction Manager Procurement	January 2022 – March 2022
Design Assist	March 2022 – August 2022
Construction	June 2022 – November 2023
Occupancy & Substantial Performance	December 2023
Project Close-Out	January 2024

I. Resource Implications

g) Total Project Cost Estimate

Project costing was completed at each stage of the design process. As the project design phase occurred during COVID-19, supply chain issues and resulting volatile construction market pricing a value engineering phase was completed at the Contract Documents (CD) stage to reduce project costs.

During October and November of 2021 a peer review of the Class 'A' costing estimate (100% CD) was coordinated by UofT Capital Projects resulting in the Total Project Cost (TPC) included with this application.

The Retail and Parking Commons will pursue a construction management delivery methodology with an anticipated start of construction is targeted for early 2022 with building occupancy in August 2024.

On April 12, 2019, consultant fees were approved by CaPS Executive to engage consultants to initiate design services.

The total estimated project cost for the UTSC Retail and Parking Commons is included in the attached appendices

h) Operating Costs

Operating Costs will be assumed by the UTSC Parking Ancillary Operation. The Debt Service Costs associated with this project will be assumed by the UTSC Parking Ancillary Operation.

The Retail and Parking Commons will become part of the existing parking operation at UTSC. It will solve broader campus parking issues and additionally generate revenue. It will be consolidating parking in order to free up land for further implementation of the campus master plan. It will act as a central receiving, utility vehicle storage and transportation hub for the north campus to further campus operational efficiencies.

Overall the parking ancillary operation will stay positive over the long-term, on a cash flow basis. Although the Retail and Parking Commons is expected to provide 1084 parking spaces, only 330 will be net new spaces; the 330 spaces have the potential to generate $511,101 in additional annual income, at the 2024-25 permit rate. Existing capacity within the Parking Ancillary budget, from all other permits and cash parking will be contributing to the additional new costs.

Annual operating costs include utilities and services, maintenance and cleaning, security and communications.

i) Funding Sources

The Total Project Cost will be funded through: the UTSC Parking Ancillary Capital Construction Reserve; Infrastructure Fund; UTSC Reserves; and Long-term Debt

APPENDICES: (under separate cover)

2. Total Project Cost Estimate (on request to limited distribution)