POLYTECHNIC UNIVERSITY

Facilities Master Plan

UNIVERSITÉ POLYTECHNIQUE

Plan directeur des installations

Le présent document contient la traduction française du sommaire.

Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest

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English

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French

Kīspin ki nitawihtīn ē nīhīyawihk ōma ācimōwin, tipwāsinān.
Cree

Tłı̨chǫ yatı k’ę̀è. Dı wegodı newǫ dè, gots’o gonede.
Tłı̨chǫ

ʔerıhtł’ís Dëne Sųłıné yatı t’a huts’elkër xa beyáyatı theɔ́ą ɔat’e, nuwe ts’ën yółtı. Chipewyan

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Edı gondı dehgáh got’ı̨e zhatıé k’ǫ́é edatł’éh enahddhę nıde naxets’é edahłí.
South Slavey

K’áhshó got’ı̨ne xədə k’é hederı ɔedı̨htl’é yerınıwę ní dé dúle.
North Slavey

Jii gwandak izhii ginjìk vat’atr’ijąhch’uu zhit yinohthan jì’, diits’àt ginohkhìi.
Gwich’in

Uvanittuaq ilitchurisukupku Inuvialuktun, ququaqluta.
Inuvialuktun

ᑕᖅᑯᐊ ᑎᑎᖅᑲᐃᑦ ᐱᓱᒪᒍᕆᑦ ᐃᓄᖅᑎᑐᓕᖅᓱᒪᓕᓂᑎᖅ, ᐅᕐᓭᑦᑎᓵᓄᑦ ᐅᖃᓕᓴᓵᓚᖅᑐᑎᑦ.
Inuktitut

Hapkua titiqqat pijumagupkit Inuinnaqtun, uvaptinnut hivajarlutit. Inuinnaqtun

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MINISTER'S MESSAGE

I am pleased to present the Polytechnic University Facilities Master Plan (FMP), a strategic planning document developed by the Government of the Northwest Territories (GNWT) and Aurora College. The FMP was identified as a critical milestone in the Aurora College Transformation Implementation Plan. It looks forward to the needs of a polytechnic university by providing a roadmap for the incremental enhancement and expansion of facilities over several years. It will be a key planning tool for the institution's Board of Governors as they take on strategic and operational leadership of facilities management, with the continued support of the GNWT.

The proposed polytechnic university facilities exemplify design excellence, will endure the environmental conditions of the North, will be reflective of the people and landscape of the Northwest Territories (NWT), and ensure a unique, Northern-focused identity. Over time, improvements will strengthen the post-secondary offerings for NWT residents by providing quality education opportunities close to home, in close connection to the land, and informed by Indigenous knowledge and culture. Moving forward, the polytechnic university will continue to work towards implementing the Calls to Action of the Truth and Reconciliation Commission by listening to and reflecting on the importance of Indigenous ways of being, knowing and doing in their approach to facilities.

Development of a new Yellowknife North Slave campus, removal of old residential school buildings at the Thebacha campus, the creation of new on-the-land learning spaces across the three campuses and an increased role for community learning centres across the NWT are just a few ways in which we can advance meaningful changes to our post-secondary system.

Collaboration has been key to understanding where change is needed and planning for the long-term successes of the Aurora College Transformation initiative. The current phase of transformation process will see continued opportunities for engagement, including working with Indigenous, community and federal governments to explore co-investment opportunities in the polytechnic university.

Though common in other parts of Canada, the FMP represents a change in approach for Aurora College and reflects a distinct shift in how we will maintain a shared vision for the ongoing enhancement and expansion of facilities. I would like to thank the many contributions of Aurora College staff, as well as the diverse range of partners and stakeholders who contributed to development of the FMP. I am truly excited by the wide-ranging changes proposed throughout this document. By moving forward together, we can ensure that Aurora College is transformed to a polytechnic university in the North, for the North and by the North.

We respectfully acknowledge that Aurora College is situated on the traditional territories and homeland of the Dene, Inuit and Métis peoples of the Northwest Territories. We are grateful to the many Indigenous peoples of the Northwest Territories for allowing us the opportunity to learn, work and live on their lands. We are also deeply grateful for the generous sharing of traditional knowledge, wisdom and ways of knowing, being and doing with our students and employees.

The development of the Polytechnic University Facilities Master Plan was supported by funding from Indigenous and Northern Affairs Canada.

The Polytechnic University Facilities Master Plan was prepared by Taylor Architecture Group, in partnership with PlanIt North Inc. and Urban Strategies Inc.

Content prepared by Taylor Architecture Group was submitted to the Department of Education, Culture and Employment on June 28, 2022. Any modifications since that date have been made directly by the Government of the Northwest Territories.

Reoccuring Acronyms

FMP	Polytechnic University Facilities Master Plan
GNWT	Government of the Northwest Territories
ECE	Department of Education, Culture and Employment
INF	Department of Infrastructure
NWT	Northwest Territories
CLC	Community Learning Centre

EXECUTIVE SUMMARY

Overview:

As part of the Aurora College transformation, the Government of the Northwest Territories (GNWT) and Aurora College have developed this Polytechnic University Facilities Master Plan (FMP). It is a strategic document that looks to the future needs of a polytechnic university, providing a roadmap for the enhancement and expansion of current Aurora College facilities over the next 5, 10 and 20 years. The FMP has been developed for the Department of Education, Culture and Employment (ECE) by leading technical experts in the fields of architecture, university design and community engagement.

It is important to recognize that the transformation of Aurora College goes beyond the enhancement or expansion of facilities. The operational needs of a polytechnic university are in many ways different than those of a regional college. It was understood that learning opportunities, research opportunities and student experience would change and needed to be supported by a new overall approach to facilities planning. The FMP also attempts to position the future institution at the centre of the knowledge economy by fostering partnerships with other public, private and non-governmental organizations.

The FMP is intended to provide a clear picture of proposed facilities at the Thebacha, Aurora and Yellowknife-North Slave campuses, as well as across the network of community centres. The FMP outlines how each campus will support learning and research, including through student and staff housing. It supports a cohesive institution, empowering a variety of facilities spread across the Northwest Territories (NWT) to work in unison. Detailed costs related to the enhancement and expansion of facilities are also identified.

Engagement:

To make sure that the FMP is comprehensive and reflects the needs and interests of the people who will be using the facilities, targeted engagements took place to support its development. Work on the FMP began in 2021 and involved over 90 engagement sessions and 300 participants, including Northern youth; Aurora College students, faculty and staff; Indigenous governments and community governments; post-secondary education partners; industry; GNWT departments and local community members.

Key themes emerged through engagements and served to guide development of the FMP. They helped foster ideas of how Aurora College can evolve into a world class polytechnic university by offering a build environment that inspires academic and research excellence.

A summary of engagements is provided as part of the FMP, with a more detailed account available as part of a What We Heard Report.

Planning Principles:

A number of planning principles were derived from best practices in university campus planning and from input received during engagement sessions, including:

- **Cultural safety and inclusivity**: Facilities will be comfortable, welcoming, accessible and safe for students from all backgrounds.
- **Engaging and supportive student experience:** The student experience will be enhanced by shared spaces that support community-building and services will be tailored to the needs of the student population.

- **Inspiring and innovative learning environment:** A dynamic educational environment will be designed to inspire continuous learning and exploration, in diverse forms.
- **Synergies with the community context:** Facilities will be designed to complement their community settings, and be responsive to existing infrastructure, services, amenities and contexts.
- **Flexible opportunities for long-term growth:** The planning approach will protect the institution's capacity for long-term growth, while remaining adaptable to evolutions in programming, technologies, contexts and pedagogical approaches over time.
- **High-quality and sustainable development:** Facilities will reflect design excellence and be built to endure the environmental conditions of the North, minimizing maintenance requirements and environmental impacts.
- **Unique northern-focused identity:** A distinct and cohesive character for the institution will be reinforced by the facilities design and be informed meaningfully by the diverse peoples and landscapes of the NWT.

Background Research:

Assessments on the existing Aurora College infrastructure were compiled and included the physical condition of each facility, its ownership, location and suitability to accommodate future programming. In addition to assessment of current facilities, preparing the FMP required significant background research.

Three decades worth of material were reviewed, including past needs assessments for buildings, facility condition reports, enrolment records and projections, program reviews and institutional reviews. Simultaneously, jurisdictional scans were undertaken to better understand polytechnic campuses across Canada, as well as other post-secondary institutions that operate in similar conditions internationally.

Results:

The FMP provides a strategic frame to inform annual capital planning decision for the three campuses. This includes facilities requirements, campus planning frameworks, site recommendations, development scenarios and cost estimates.

A conceptual approach was also taken with the community learning centres (CLCs). Based on targeted engagements to-date, opportunities are presented for CLC facilities, along with a preliminary vision and conceptual facility models. It is important to note that development of new CLC facilities will vary significantly between communities and is contingent on further engagement with community partners. A strategy for this engagement is proposed in the FMP, along with a series of frameworks and conceptual models to help guide discussions.

Next Steps:

The FMP will become a key planning tool of the Aurora College Board of Governors that is responsible for financial and capital planning decisions. In partnership with the GNWT, Aurora College will engage potential co-investment partners to support projects to enhance and expand facilities as outlined in the FMP.

The FMP has a 20 year outlook, but is intended to be renewed every 10 years from release.

SOMMAIRE

Aperçu:

Dans le cadre de la transformation du Collège Aurora, le gouvernement des Territoires du Nord Ouest (GTNO) et le Collège Aurora ont élaboré le présent Plan directeur des installations (PDI) de l'Université polytechnique. Ce document stratégique porte sur les besoins futurs d'une université polytechnique et fournit une feuille de route pour l'amélioration et l'agrandissement des installations actuelles du Collège Aurora au cours des 5, 10 et 20 prochaines années. Le PDI a été élaboré pour le ministère de l'Éducation, de la Culture et de la Formation (MÉCF) par des experts techniques éminents des domaines de l'architecture, de la conception d'universités et des échanges avec le public.

Il est important de reconnaître que la transformation du Collège Aurora va au-delà de l'amélioration ou de l'agrandissement des installations. Les besoins opérationnels d'une université polytechnique sont à bien des égards différents de ceux d'un collège régional. Il était entendu que les possibilités d'apprentissage et de recherche ainsi que l'expérience des étudiants allaient changer et devaient être soutenues par une nouvelle approche globale quant à la planification des installations. Dans le cadre du PDI, on tente également de positionner le futur établissement au centre de l'économie du savoir en favorisant les partenariats avec d'autres organisations publiques, privées et non gouvernementales.

De plus, le PDI vise à fournir une image claire des installations proposées aux campus Thebacha, Aurora et du Slave Nord (Yellowknife), ainsi qu'à l'échelle du réseau de centres communautaires. Il décrit la façon dont chaque campus soutiendra l'apprentissage et la recherche, notamment grâce aux logements pour les étudiants et le personnel. Il favorise une institution cohésive, permettant à une variété d'installations réparties aux Territoires du Nord-Ouest (TNO) de travailler à l'unisson. Il indique également les coûts détaillés liés à l'amélioration et à l'agrandissement des installations.

Processus d'échanges:

Afin de s'assurer que le PDI est complet et qu'il reflète les besoins et les intérêts des personnes qui utiliseront les installations, il a fallu organiser des échanges ciblés pour appuyer son élaboration. Les travaux sur le PDI ont commencé en 2021 et ont impliqué plus de 90 séances d'échanges et 300 participants, y compris des jeunes du Nord; des étudiants, des professeurs et du personnel du Collège Aurora; des représentants de gouvernements autochtones et d'administrations communautaires; des partenaires de l'éducation postsecondaire; des représentants de l'industrie; des représentants des ministères du GTNO; et des membres des collectivités locales.

Des thèmes clés sont ressortis de ces échanges et ont servi à orienter l'élaboration du PDI. Ils ont aidé à stimuler les idées sur la façon dont le Collège Aurora peut devenir une université polytechnique de classe mondiale en offrant un environnement bâti qui inspire l'excellence académique et en recherche.

Un résumé des échanges est fourni dans le cadre du PDI, et un compte rendu détaillé est accessible dans le rapport sur ce que nous avons entendu.

Principes de planification:

Un certain nombre de principes de planification ont été tirés des pratiques exemplaires en matière de planification de campus universitaires et des commentaires reçus lors des séances d'échanges, notamment :

- **la sécurité et l'inclusivité culturelles :** les installations seront confortables, accueillantes, accessibles et sécuritaires pour les étudiants de tous horizons.for students from all backgrounds.

- **un environnement d'apprentissage inspirant et innovant :** un environnement éducatif dynamique sera conçu pour inspirer l'exploration et l'apprentissage continus, sous diverses formes.
- **une synergie avec le contexte communautaire :** les installations seront conçues de manière à compléter leur environnement communautaire et à s'adapter aux infrastructures, aux services, aux commodités et aux contextes existants.
- **de la flexibilité pour une croissance à long terme :** l'approche de planification préservera la capacité de l'établissement à croître à long terme, tout en restant adaptable à l'évolution des programmes, des technologies, des contextes et des approches pédagogiques au fil du temps.
- **un développement durable de haute qualité :** les installations refléteront l'excellence en conception et seront construites pour résister aux conditions environnementales du Nord, en réduisant au minimum les exigences d'entretien et les répercussions environnementales.
- **une identité unique axée sur le Nord :** le caractère distinct et cohérent de l'établissement sera renforcé par la conception des installations et sera influencé de manière importante par les divers peuples et paysages des TNO**.**

Recherches préliminaires:

Les évaluations de l'infrastructure existante du Collège Aurora ont été compilées et portaient sur l'état physique de chaque installation, son propriétaire, son emplacement et sa capacité à accueillir les programmes futurs. Outre l'évaluation des installations actuelles, la préparation du PDI a nécessité d'importantes recherches préliminaires.

On a examiné des documents produits durant les trois dernières décennies, y compris les évaluations des besoins relatifs aux bâtiments, les rapports sur l'état des installations, les registres et les projections d'inscriptions, les examens des programmes et les examens institutionnels. Simultanément, des analyses de la situation dans d'autres administrations ont été menées afin de mieux comprendre les campus polytechniques du Canada, ainsi que d'autres établissements postsecondaires qui fonctionnent dans des conditions semblables à l'échelle internationale.

Résultats:

Le PDI fournit un cadre stratégique visant à orienter la prise de décisions annuelle sur la planification des immobilisations pour les trois campus, ce qui comprend les besoins en installations, les cadres de planification des campus, les recommandations de sites, les scénarios de développement et les estimations de coûts.

Une approche conceptuelle a également été adoptée pour les centres d'apprentissage communautaires (CAC). Des possibilités, ainsi qu'une vision préliminaire et des modèles conceptuels d'installations, sont présentées pour les installations des CAC selon les échanges ciblés organisés jusqu'à présent. Il est important de noter que la mise sur pied de nouvelles installations pour les CAC variera considérablement d'une collectivité à l'autre et dépendra des échanges avec les partenaires communautaires. Dans la PDI, on propose une stratégie pour ces échanges, ainsi qu'une série de cadres et de modèles conceptuels pour aider à orienter les discussions.

Prochaines étapes:

Le PDI deviendra un outil de planification clé pour le Conseil des gouverneurs du Collège Aurora, qui est responsable des décisions en matière de planification financière et des immobilisations. En partenariat avec le GTNO, le Collège Aurora fera appel à d'éventuels partenaires de co-investissement pour soutenir des projets d'amélioration et d'agrandissement des installations, comme prévu dans le PDI.

Le PDI s'étend sur une période de 20 ans, mais on prévoit de le renouveler tous les 10 ans à partir de sa publication.

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Appendices

1. Introduction

1.1. Purpose of the Facilities Master Plan

The Transformation of Aurora College into a polytechnic university will expand and enhance opportunities for post-secondary education in the NWT. The FMP supports this initiative by recommending how each of the institution's physical locations will be enhanced to offer an elevated experience of learning, research, innovation and community-building.

Aurora College currently operates across three campuses and twenty-one community learning centres across the NWT, delivering a broad range of educational programming. This document outlines a strategic plan for expanding or enhancing each of these existing locations, to better serve the needs of students and residents and to align with the goals of the new polytechnic university.

Along with providing a guiding framework for facilities planning, this document is intended to support decision-making by the institution. The FMP will serve as a starting point for further conversations with partners and stakeholders, to execute the vision for a polytechnic university in the NWT.

Goals of the Master Planning Process

- Support an educational and student experience that is on par with the standard of post-secondary institutions across Canada.
- Improve accessibility of post-secondary opportunities for Northern students, including interest in the student experience.
- Ensure that a sense of belonging to the institution is achieved regardless of a student's geographical location in the territory.
- Create a unique, Northern-focused educational environment.
- Reinforce mutually-beneficial relationships between the three campuses and the community learning centres.
- Expand and enhance research capacity at the institution and competitiveness in attracting faculty, researchers, and resources.
- Facilitate strategic decision-making for sustainable continuous growth of the institution.

1.2. Navigating This Document

The document is organized into two parts.

Part One: Context and Foundation summarizes the background work and relevant studies that have informed the Facilities Master Plan. This section expresses an overall vision for polytechnic university facilities, and a cohesive set of planning principles for all locations.

Part Two: Facilities Master Plan zooms into each place where the polytechnic university has a physical presence. In this section, specific scenarios are illustrated for campus expansions and enhancements that will fulfill the overall vision. Cost estimates are provided for each potential development scenario, in order to facilitate further planning, engagement and initiation of next steps.

Part Two, therefore, is organized by location. The three main campuses of the polytechnic university will build from the existing Aurora College campuses:

- Aurora Campus in Inuvik
- Thebacha Campus in Fort Smith
- Yellowknife North Slave Campus in Yellowknife

Along with work on the three campuses, an approach to CLC facilities is also outlined. Opportunities and frameworks are described based on engagement to date, along with conceptual facility models and a strategy for further engagement to inform the next phases of planning.

2. The Transformation Initiative

2.1. History

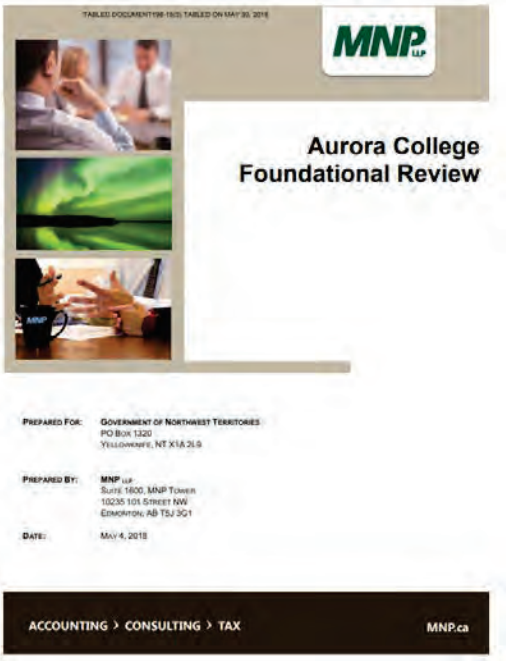
In 2017, the Minister of Education, Culture and Employment (ECE) committed to completing an Aurora College Foundational Review to establish a model for Aurora College that would be responsive to changing labour market demands and student needs, both now and in the future.

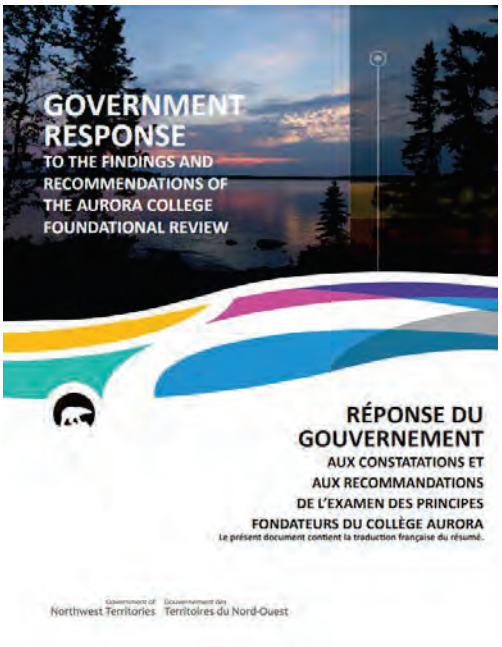
Following an independent examination of Aurora College, a Foundational Review Report identified opportunities for improvement in the areas of governance, accountability, academic program management, operations, and student recruitment and retention.

In response to the findings of the Foundational Review, and in order to position Aurora College to address student needs and meet labour market demand, it was concluded that the current state of Aurora College required significant change. The Government Response to the Findings and Recommendations of the Aurora College Foundational Review (October 2018) accepted the overarching recommendation that Aurora College be transformed into a polytechnic university.

The transformation process has been a collaboration between the Department of ECE and Aurora College. The process follows the Aurora College Transformation Implementation Plan (Implementation Plan) that maps critical and key milestones from 2018 to 2026, including the anticipated launch of the polytechnic university in May 2025.

All related documents and individual project updates can be found on the Aurora College Transformation website: https://www.ece.gov.nt.ca/aurora-transformation/

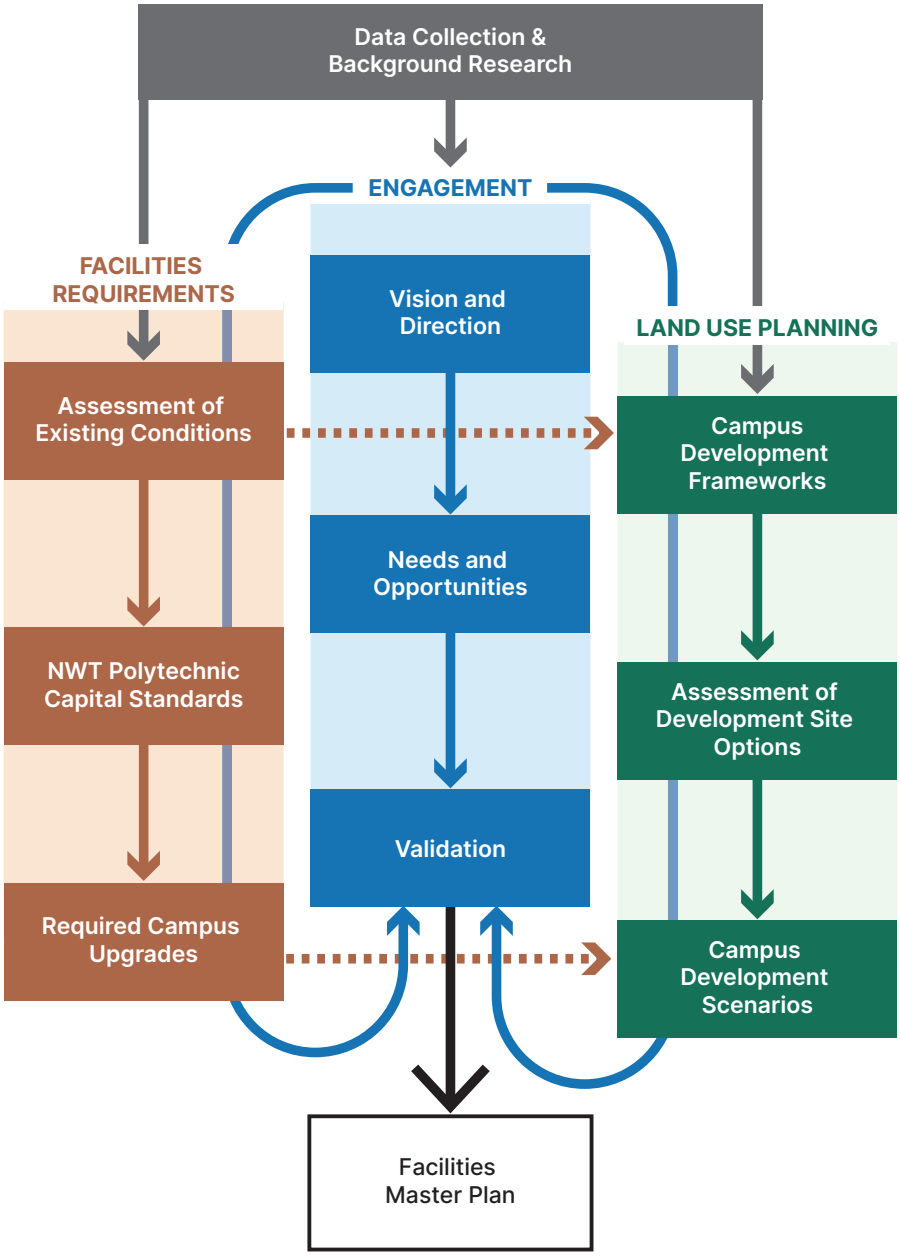




3. The Master Planning Process

3.1. Project Methodology

To complete the FMP, Taylor Architecture Group, PlanIt North Inc., and Urban Strategies Inc. were engaged by the Department of ECE and Department of INF in August 2021. The project developed over the course of a year, through a collaborative and multidisciplinary process. The diagram below shows three simultaneous streams of work that were undertaken by the planning and design team. An extensive process of targeted engagement was the underpinning approach, with each stage of the project feeding back into conversations with stakeholders.



Engagement
Over 90 engagement sessions with more than 300 participants took place between October 2021 and June 2022. Findings were documented in a What We Heard Report that was publicly released in August 2022. Key themes from this engagement process have guided the planning frameworks and recommendations throughout this report.

Background research and precedent studies
Existing documentation from Aurora College, spanning the past three decades, was reviewed by the project team and serves as the background for the FMP. Relevant material included past needs assessments, facility condition reports, enrolment information (past, present, future projections), the Foundational Review and background reports on the Transformation, among other items.

Simultaneously, relevant precedents were selected and studied by the team: including several polytechnic campuses across Canada, and other post-secondary institutions that operate in similar conditions internationally. This research is summarized in Appendix A.

Assessment of existing conditions
Information on Aurora College's existing infrastructure was compiled and assessed. This included the physical condition of each facility, its ownership and location, and its adequacy and suitability to accommodate current/future programming. This information was collected both through a review of technical documentation and through engagement about how the current facilities are meeting the needs of students, staff and the institution.

Development of space formulas and guidelines
A proposed set of capital space standards were also developed for the facilities of the NWT polytechnic university. The development of these standards and guidelines was informed by the following:

- Existing College documentation including the Capital Standards and Criteria for NWT College Facilities (2008).
- Guidelines and standards established by various advisory bodies including the Council of Ontario Universities, the Campus Alberta Quality Council, and the BC Government's Department of Education.
- Space allocation formulas and standards for several individual post-secondary institutions.
- Facilities needs and asks voiced consistently during Engagement.
- Best practices as understood by the campus planners and Northern-specialized architects on the team.

Facilities planning at each of three campuses
The following work was undertaken for each of the three main campuses of Aurora College: Aurora Campus in Inuvik, Thebacha Campus in Fort Smith, and Yellowknife North Slave Campus.

Facilities requirements
Facilities requirements at each campus were determined in three ways:

1. Needs assessment according to current condition, capacity and usage of existing facilities.
2. Application of the NWT Polytechnic University Capital Space Standards, using approximate numbers for student enrolment and faculty at each campus.
3. Insights and recommendations from key informant stakeholders during Engagement.

Campus planning frameworks

Conditions at each campus were analyzed with regards to the relationships between existing facilities (including main circulation routes, access points, orientation and frontages) and the integration between the campus and its respective community. Based on this analysis, opportunities were highlighted for reinforcing concepts such as connectivity, sense of identity, efficient use of infrastructure and community synergies.

A planning framework was developed for each campus, with the intent to guide future expansion of facilities and infrastructure in a way that best fulfills the available opportunities.

Site recommendations

Following from the established framework, viable site options were proposed for short-term future developments. Potential sites were assessed according to a range of factors including:

- Input from representatives of local governments, Aurora College and GNWT
- Current ownership and availability
- Access and servicing
- Proximity to or relationship with the campus
- Character of the site and opportunities presented

Development scenarios

All prior work led to a series of Campus Development Scenarios. Each scenario illustrates one way in which the required new facilities can occupy their respective recommended site(s), in alignment with the long-term planning framework for the campus.

Cost estimates

Class D cost estimates were developed for t he recommended upgrades. W hile some information remains to be confirmed – for example, specific functional programming for each facility – costing has been suggested to the greatest degree of accuracy that is possible at this stage. Cost estimates are accurate to approximately +/- 25%, assuming a 2023 construction start. Estimates and assumptions are attached as appendices.

Conceptual approach to community learning centres

Based on engagement undertaken to date, a set of opportunities were outlined for CLC facilities, along with a preliminary vision and conceptual facility models. The development of new CLC facilities will vary significantly among communities, and is contingent on further engagement with community partners. A strategy for further engagement is proposed in this report, along with a series of frameworks and conceptual models to help guide discussions.

4. Engagement: What We Heard

4.1. Engagement Process

An extensive engagement process informed the development of the FMP. Feedback from participants throughout the engagement process was analysed, and insights, ideas and recommendations are summarised in a What We Heard Report. Key themes are outlined in this chapter; for further details, please see the full What We Heard Report.

Over 90 engagement sessions with more than 300 participants took place between October 2021 and June 2022. Findings were documented in the What We Heard Report. Discussions focused on facilities and space planning, to inform conceptual planning for the growth and renovation of existing Aurora College facilities, and the future polytechnic university's built form.

4.2. What We Heard – Key Themes

Indigenization of the polytechnic university

Several interview and focus group participants shared a vision of the NWT polytechnic university as a unique institution within the Canadian post-secondary landscape, embracing and prioritizing Indigenous ways of being, knowing and doing. Here, Indigenous students will feel particularly at home, while non-Indigenous students will be attracted for the opportunity to learn from cutting edge pedagogy rooted in Indigenous knowledge and culture. In reflecting on the unique opportunity that an NWT university could create, many participants emphasized the importance of prioritizing the needs of Northern students, while also catering to Indigenous students from elsewhere. A polytechnic that embraces Indigenous ways of knowing would need to: reflect the diversity of NWT Indigenous cultures, incorporate Indigenous ways of learning, create spaces that meaningfully support on-the-land learning, and support Indigenous voices in governance and leadership.

Overview of Themes

- Indigenization of the polytechnic university
- Sufficient support for Northern students
- Community connections
- Family supportive
- Unique place for research
- Learning-in-place
- Relevant programming
- Animated student spaces
- Amenities and recreation
- Teaching and learning spaces
- Leveraging partnerships
- Student housing

Sufficient support for Northern students

Participants across the NWT noted the need for robust student support in order to create a successful learning environment for Northern students. In some cases, these supports are currently offered at Aurora College but with limited reach, while in other cases they would be new integrated services. Although these student supports would have space planning and capital cost implications, participants emphasized the need to dedicate operational funding and qualified, experienced human resources to ensure effective programming and services. These supports are wide ranging and include culturally appropriate wellness services, career and guidance counseling, transition support and academic support.

Community connections

Strong connections between communities and the polytechnic university will encourage Northern students to access post-secondary education in the North. These connections will

also create more vibrant and attractive campuses. Community connections should include opportunities for youth exposure to a post-secondary environment, community access to polytechnic university spaces, and learning opportunities on campus for community members.

Family supportive

Northern learners who attend post-secondary education often have families. The need for a family-friendly post-secondary institution was discussed by most participants, and recommendations for how to create learning environments that enable parents to focus on their studies include childcare, and family friendly design for the campus, housing and outdoor spaces.

Unique place for research

The NWT is a unique place for research, and participants noted that it will become increasingly so with climate change bringing new political and scientific focus to the Circumpolar region. There is already a significant amount of research from southern and global institutions taking place in the NWT, most of which does not include collaborations with Aurora College. As Aurora College transforms into a polytechnic university with a greater focus on research, participants recommended the institution should leverage the success of other models and access to remote regions to build research capacity and take on a greater role in research across the territory. Enhanced research capabilities will provide opportunities for careers in research, innovation and traditional knowledge. It will also offer collaboration between the institution, GNWT and Indigenous governments. At the new Yellowknife North Slave campus, there is opportunity for collaboration between the polytechnic university and GNWT departments, Indigenous governments and other agencies.

Learning-in-place

Several engagement participants emphasized the importance of maintaining the focus on supporting adult learning and upgrading in communities, while continuing to strengthen early childhood and secondary education to improve student outcomes. In addition, learning opportunities in communities should more strongly link to post-secondary options. Participants emphasized that many Northerners want to access learning opportunities in their home community, but that amidst low enrolment, the current model of delivery in community learning centres needs to be re-imagined. Supporting hands-on learning that builds on communities' strengths is key to this transformation.

Relevant programming

Almost all participants commented on programming even though it was not the focus of engagement. The challenge of discussing facilities and spaces without having an understanding of programming specifics was a concern repeated throughout the engagement process. Participants emphasized that the polytechnic university should focus on delivering programs that will be relevant to Northerners, and that will prepare Northerners for future roles across the NWT. Integrating Indigenous knowledge and culture into programs and bringing back former Aurora College programs which served Northerners' needs well (e.g. Education, Social Work, Practical Nursing) were key concerns among respondents.

Animated student spaces

Some respondents from within Aurora College noted a lack of vibrancy on the campuses today. Participants outside the College also noted that campus life was once more vibrant and inviting to community members, especially at the Thebacha campus in Fort Smith. Participants across the territory provided recommendations for how to renew a sense of community on campuses and in CLCs; overall, suggestions centred around creating inviting spaces for students and community members to participate in events and activities together on campus. Participants also provided recommendations for how to create animated student spaces, such as integrating community events with campus spaces and creating opportunities for students to have autonomy and ownership over student spaces.

Amenities and recreation

Northern high school students told us what they expected from a post-secondary institution: students are looking for a post-secondary experience to match those offered in southern Canada. Certain features of a Northern post-secondary experience may be more appealing to some students than a southern institution, such as access to country foods, land-based activities, and access to nature. These, along with many other amenities and services standard at southern institutions are required in order to attract Northern students to the polytechnic university.

Teaching and learning spaces

Aurora College staff noted limitations with existing teaching and learning spaces. They also shared lessons learned during COVID-19 about how to better facilitate on-line and hybrid (on-line and in-person) teaching and learning. Recommendations included introducing flexible and multi modal spaces for teaching, and expanding specialized spaces needed to meet program needs, such as nursing, early childhood education, environment and trades.

Leveraging partnerships

Many participants, especially those outside Aurora College, indicated that partnerships with a broad range of organizations and institutions will be critical to the polytechnic university's success, with the opportunity to create a more vibrant institution and leverage additional economic, human and other resources. Benefits of partnerships included access to research networks and faculty, reaching economies of scale for campus spaces and services, and the potential to create unique educational pathways and opportunities for Northern students.

Student housing

Existing housing in campus communities is limited, and often old and in poor condition. Almost every participant noted the many challenges with trying to access student housing, as well as challenges with losing access to housing in students' home communities upon moving to a campus community. Participants stated that CLCs would also benefit from staff, temporary researcher and practicum student housing.

4.3. What We Heard – Location-Specific

Engagement participants also spoke to the needs of specific campuses and community learning centres; key messages are summarized below.

Thebacha Campus

Feedback heard during engagements in Fort Smith centred around the need for expansion of trades spaces, expansion of office and meeting spaces and integration of family-supportive spaces on campus. The future of the Breynat Hall site was also a focus of discussion; recommendations centred on the need to involve local Indigenous leadership in decision-making regarding the site, which was formerly a residential school hostel.

Yellowknife North Slave Campus

Engagements in Yellowknife took into consideration the unique opportunity for a new, purpose-built campus as part of the Aurora College transformation into a polytechnic university. Participants recommended prioritizing the integrations of outdoor learning spaces and spaces to enable greater connections with communities at the new campus. Recommendations for specific spaces necessary in a new campus were also provided, including large gathering spaces, student spaces, labs, kitchen facilities, specialized teaching and learning spaces, and spaces to make sufficient support services available on campus. More details on specific facility recommendations are found in the full What We Heard Report.

Aurora Campus

Family housing was a focus of discussions in Inuvik, as additional student housing is envisioned on a medium-term time horizon. Participants also provided feedback on the need for investment in trades and crafts facilities as well as a community-use space that can incorporate student support services. Participants shared a vision of programming and facilities that were rooted in place, specific to the unique setting of the Arctic.

Community Learning Centres

Participants from across the NWT provided feedback on the Aurora College CLCs. Challenges such as low enrolment and lack of awareness about available programming, limited relevance of existing program offerings and lack of student support services were highlighted. Participants expressed a need for community learning centres to be re-imagined to incorporate deeper connections with communities and provide more relevant learning opportunities, including acting as a bridge to the main campuses. Staff and community members offered recommendations on how to increase the interest and enrolment in CLCs, including ideas such as hiring more local staff, hosting community events and offering evening programs. Ideas for future space additions such as labs, flexible study spaces and temporary housing to enable a two-way exchange of knowledge were discussed. Community members especially were keen to see greater collaborations and opportunities to create CLC spaces that meet individual community priorities and needs.

5. Guiding Vision and Principles

5.1. Vision for NWT Polytechnic University Facilities

The polytechnic university will establish a place of higher learning by Northerners, for Northerners, and express Northern values and aspirations. The institution will create new opportunities for study and research in an environment that uniquely serves the contexts of the NWT. The quality of education and student experience on offer will meet or exceed the standard set by post-secondary institutions across Canada.

The FMP envisions the polytechnic university as a strongly-interconnected network of spaces throughout the territory. The new institution builds from the existing framework of Aurora College, which currently operates across three campuses and twenty-one CLCs. By reinforcing pathways of exchange and integration between these locations, opportunities emerge. Students, staff and researchers are invited to participate in a diversified network of education and research hubs, each of which is rooted in its own community and context. This approach aims to improve accessibility of post-secondary education to Northerners, and to strengthen avenues of knowledge exchange between physically remote and culturally distinct places.

The polytechnic university will be an inclusive, vibrant and supportive community. Northern and Indigenous ways of being, knowing,and doing will be celebrated by the campus environments. Design of indoor and outdoor spaces will be informed by the diverse cultural and physical landscapes of the NWT. As a driving intent of the planning approach, facilities will be responsive to their surroundings, including both the natural environment and the community setting.

At each campus, the proposed upgrades are intended to create a more welcoming, engaging, and supportive experience for students. The FMP intends to elevate the quality and accessibility of academic spaces, amenities and housing to an improved standard across all locations – while enhancing the identifiable presence and integration of each campus in its host community.

Building on the strengths of existing campuses, this plan recommends an enhanced and expanded series of purpose-built facilities, which should be both:

- On par with the quality and standard of post-secondary educational environments across the country; and
- Deeply, uniquely rooted within the various contexts of the NWT.

The FMP outlines an incremental path for transforming each location of the institution to be a nodal point for a diversified, yet distinctly Northern, polytechnic university.

5.2. Planning Principles for Polytechnic University Facilities

These principles serve as a conceptual basis for the master planning work that follows throughout this document.

Cultural safety and inclusivity: Facilities should be comfortable, welcoming, accessible and safe for students from all backgrounds.

Engaging and supportive student experience: The student experience should be enhanced by shared spaces that support community-building, and services tailored to the needs of the student population.

Inspiring and innovative learning environment: A dynamic educational environment should be designed to inspire continuous learning and exploration in diverse forms.

Synergies with the community context: Facilities should be designed to complement their community settings, and be responsive to existing infrastructure, services, amenities and contexts.

Flexible opportunities for long-term growth: The master planning approach should protect the institution's capacity for long-term growth, while remaining adaptable to evolutions in programming, technologies, contexts and pedagogical approaches over time.

High-quality and sustainable development: Facilities should reflect design excellence and be built to endure the environmental conditions of the North, minimizing maintenance requirements and environmental impacts.

Unique Northern-focused identity: A distinct and cohesive character for the institution should be reinforced by the facilities design, and be informed meaningfully by the diverse peoples and landscapes of the NWT.

Part 2:
Facilities Master Plan

THEBACHA CAMPUS

6. Thebacha Campus

6.1. Master Planning Vision

Thebacha Campus is the largest and longest-standing purpose-built campus of Aurora College. The established facilities have a strong and meaningful presence in the Town of Fort Smith, which will be both leveraged and enhanced through the transformation. The campus will remain the administrative centre for the polytechnic university and the immediate upgrades proposed for this campus will significantly augment the existing assets and elevate the quality of student experience.

One hundred new student beds are proposed for this location: high-quality residential facilities in a variety of configurations designed specifically to meet the needs of this student population. A new student services centre is being proposed, offering access to additional amenities and supports.

The proposed development patterns aim to strengthen connectivity and integration of the campus within the larger community. New residences and amenity spaces will establish welcoming, comfortable and vibrant student spaces placed strategically to improve access to the academic spaces and to further activate this area of Fort Smith. Outdoor gathering spaces will be established at each new cluster of housing, and at the academic site.

Breynat Hall, formerly a residential school hostel, is to be disposed of. The functions currently housed in that building will be replaced in new, appropriate facilities. Future engagement about the use of this site will provide space for reflection on the history and future of both the site and the broader polytechnic university.

In addition to residential and student support facilities, reorganization of the Works Yard is recommended, and new construction to better support heavy equipment operations.

A framework for long-term expansion is proposed, with the aim to enhance the mutually-beneficial relationship between the polytechnic university and the community. Investment in this campus will augment its existing strengths, while meaningfully supporting transformation of housing, amenities and the student experience.

6.2. Existing Facilities

As illustrated in Figure 2 (on pg. 28), the Thebacha Campus has two distinct components:

- The academic site is bounded by Franklin Avenue, King Street, Raven Crescent and York Crescent. This area includes the existing main academic building, the Centre for Mine Industry Training and, between them, the Heavy Equipment Works Yard ("Works Yard"), which is shared with the Department of Infrastructure.
- Community and residential facilities are clustered in an area bound by Field Street, McDougal Road, King Street and Calder Avenue. This area contains most of Aurora College's existing student housing, and is also home to Fort Smith's community recreation centre, high school and primary school, as well as Uncle Gabe's Friendship Centre, the Northern Life Museum and a number of outdoor recreation facilities, including a running track, playground, skatepark and tennis courts.

In addition, the College has access to a number of sites in and near the Town where heavy equipment training and practice take place.

Although the two parts of the Thebacha Campus together function as a hub for community and educational activity within the Town, the elements within them do not relate well to one

another and lacks an organizing framework to guide development and other improvements. As a result, facilities are disconnected from one another and routes for pedestrians are not well defined. A framework of connections and open spaces will help ensure future investments in facilities and infrastructure are mutually supportive and contribute to a more cohesive campus overall, to the benefit of the polytechnic university and the Town.

The academic buildings at Thebacha Campus are in good condition and have capacity to accommodate enrolment growth. On the other hand, storage buildings in the Works Yard have been decommissioned or are nearing the end of their lifespan. Their replacement will create the opportunity to enhance teaching and storage facilities and better organize the yard.

In the near term, the most significant opportunity for improvements to the Thebacha Campus is the replacement and expansion of student housing. Breynat Hall, a former residential school hostel, is intended to be demolished. This should take place after the single student housing and academic spaces within the facility have been replaced elsewhere. In addition, there is further need for housing for students living with families.

The combination of new housing in multiple buildings, amenity spaces and associated outdoor spaces has the potential to better connect the academic, residential and community facilities, and improve integration of Thebacha Campus with downtown Fort Smith.

Table 1. Existing facilities at Thebacha Campus

# on Fig2	Facility	Size	Year built	Ownership	Condition/Notes
	Academic and trades	**Area (m^2)**			
1	Trades Complex	5,448	1978	Own	Good
2	Academic and Library Building	4,025	1997	Own	Good
3	Centre for Mine and Industry Training	1,000	2018	Own	Good
4	Heavy Equipment (HE) Operations Centre	282	1970	Own	Poor
5	HE 2-Bay Garage	584	1970	Own	Poor
6	Cold storage	258	1970	Own	Poor
7	HE 8-Bay Garage	758	1970	Own	Decommissioned
11	Teaching kitchen in Breynat Hall	--	1965	Own	To be replaced
	Residential	**# beds**			
8	Thebacha Kue Townhouses	36	2006	Own	Good
9	Grand Detour Apartments	46	1986	Own	Fair
10	Aurora Garden Townhouses	81	2000	Lease	Good / To be replaced
11	Breynat Hall	52	1965	Own	To be replaced
12	Field Street 3 Houses + 3 Duplexes	28	1962	Own	Poor
--	McDougal Street 2 Duplexes	12	1958-62	Own	Poor
--	5 Pine Cres	3	1962	Own	Poor
13	83 King St	3	1962	Own	Poor
14	Mount Aven Centre	--	1962	Own	Decommissioned

Figure 2. Thebacha Campus: Existing Aurora College facilities in Fort Smith

6.3. Required Campus Upgrades

Replacement is required for the facilities that have been decommissioned, slated for replacement, or assessed as in poor condition (as listed in Table 1). In addition, expanded amenities and student support spaces are required as part of the transformation to a polytechnic university.

Area estimates for required upgrades are shown in Table 2. These figures have been generated through a combination of needs assessment, through engagement and review of existing conditions and usage, as well as through the application of the space allocation formulas for the polytechnic university.

Table 2. Area estimates for required facility replacements and campus upgrades

Building program	Area (m^2) (est.)	Phasing priority
Academic and student support		
Student services centre	1,942	A.1
Heavy equipment garage	800	A.2
Expansion of academic and industry training spaces	--	long-term
Residential		
Single student housing	2,526	R.1
Family student housing	4,828	
Staff and faculty housing	411	R.2

*Coding of priorities is explained in Section 6.3

Priority R.1) Student Housing: Singles + Family

As an immediate priority, Breynat Hall is to be disposed. Breynat Hall contains 52 beds for single students, in a dormitory-style configuration, with shared washrooms and kitchen spaces. A minimum of 52 new student beds should be constructed prior to the disposal of Breynat Hall, so that no additional housing need is created. This is an urgent priority for Thebacha Campus.

Student family housing at Thebacha is currently accommodated in a combination of College-owned townhouses, leased townhouses, single-family houses, and duplexes. All of these single-family houses and duplexes were built in the early 1960s and have reached the end of their lifespan. Serious issues with these buildings' condition have been reported in the existing College documentation. These buildings should be disposed of and replaced by suitable family housing.

Aurora Gardens, though currently in good condition as a facility, is to be replaced by a new family housing development that better supports sustainable operations at the institution.

To replace both the detached/semi-detached family housing and the Aurora Gardens development, a total of approximately 50 new student beds is required; each equipped with additional bedrooms to accommodate family members. Student family housing is expected to include two-bedroom, three-bedroom, and four-bedroom units, configured in a combination of row housing and multi-family residential buildings.

In total, 100 new student beds are to be built in Fort Smith: approximately half of which are for single students, and half for students with families.

In the Development Scenarios shown below, the specific typologies of student housing are as follows:

- Dormitory-style housing for single students: 40 beds.
- Multi-family residential building (apartment units): 16 flexible apartments for single students; 10 family housing units (combination of two-bedroom and three-bedroom)
- Townhouse-style family housing: 34 units. A combination of two-bedroom, three-bedroom, and four-bedroom units is accounted for, totaling 100 beds.

A preferred Development Scenario remains to be selected, and will require further engagement with stakeholders, including local governments. Once the preferred alternative is confirmed, the numbers and configurations above might still be modified to some degree, according to the constraints of the selected sites and development approach.

Priority A.1) Student services centre

The teaching kitchen currently housed in Breynat Hall will need to be replaced with a new space to facilitate culinary programming. A series of additional amenity and student support spaces are also required to facilitate the transformation to a polytechnic university at this campus. Through the engagement process and background research, the following supports and amenities have been identified as items to be made available to students at Thebacha Campus.

- Student commons. This area is required as part of providing a social, engaging and supportive student experience. Facilities may accommodate a combination of:
  - » Teaching/community-use kitchen.
  - » Canteen.
  - » Meeting/study rooms. This should include some private tutoring spaces where tutoring clinics and small workshops can be held.
  - » Workshop space for cultural activities, arts and crafts, games.
  - » Event space.
  - » Student lounge.
  - » Retail space.
  - » Exercise room/gym.
- Daycare. This service has been requested consistently by participants in the engagement process.
- Student wellness supports. A flexible space is suggested, to accommodate a combination of:
  - » Counseling services.
  - » Health centre.

The space required for these functions has been estimated using the capital space standards for the polytechnic university (see Appendix B). It is recommended that further engagement inform the specific functional program for the student services centre.

Priority R.2) Staff and faculty housing

The low availability of housing options in Fort Smith has been cited as a barrier to hiring staff and faculty at this campus. Purpose-built temporary housing for staff and faculty is recommended, to accommodate both:

- Staff in need of housing immediately upon their arrival in the community, until they secure long-term accommodations within the local housing market
- Visiting instructors delivering 8-week courses (or similar)

These units are suggested to be a combination of:

- self-contained studio and one-bedroom apartments
- housing "pods" in which private bedrooms and bathrooms share common spaces

Approximately ten staff housing units are recommended in the short-term. The location for these housing units is recommended to be off-site from the campus. The College-owned land parcels along Field Street or McDougal Rd. would be suitable sites for new staff housing.

Priority A.2) Heavy equipment garage

During the engagement process, representatives at the Thebacha Campus indicated a need for additional winterized garage space, to be used for storage and maintenance of heavy equipment – the majority of which is currently stored outdoors. During winter months (when outdoor temperatures are typically below -20°C), an individual piece of equipment must be towed into a heated garage space the day before it will be used for training, so that the equipment will be warm enough to start and then function.

An additional challenge to the manoeuvering of vehicles (especially when frozen) is presented by the relative disorganization of existing facilities in the Works Yard. Some of the facilities are owned and operated by the Department of INF rather than by the College; it is recommended that these assets and land be clearly delineated between INF and the polytechnic university, to simplify and optimize future planning activities. Additionally, decommissioned facilities (such as the centrally located 8-bay garage) should be demolished to create more functional/usable space in the yard.

To support the success of trades and industry training programs at this campus, new construction of a heated, high-bay industrial garage is recommended. At this stage in the planning process, an 8-bay garage is proposed, with the understanding that a specific count of equipment and associated storage/maintenance needs will be undertaken before the project moves into design. Further engagement with the Department of Infrastructure will be required to identify opportunities for future site enhancements.

Long-term) Expansion of academic, trades and industry training spaces; additional student housing

As programming evolves at the polytechnic university, additional academic, research and trades spaces may be required. Additional student housing may need to be procured in the future to support increased enrolment. A planning framework for long-term expansion at the Thebacha Campus is outlined in the sections that follow.

At the academic site and Works Yard, it is also recommended that the ownership/jurisdiction of land and assets be clearly delineated between the Department of INF and the polytechnic university.

6.4. Guiding Principles and Opportunities

Based on the analysis of existing conditions at Thebacha Campus, the recognized need for new student housing, and discussions with Aurora College staff, students and community leaders, the following principles were developed to guide planning for future facilities.

- **Integrate housing and amenities:** New housing should include or be conveniently located near amenities for students, such as outdoor and indoor social spaces, recreation facilities and child care.
- **Promote synergies and efficiencies between the polytechnic university and Town facilities:** Opportunities for facilities that may be shared with the Town, or generally made available for community programming to the benefit of students and other Fort Smith residents, should be considered.

- **Cluster development for community building and pedestrian comfort:** Future development should be relatively compact and help to connect academic, residential and community facilities, to reduce walking distances and encourage social interaction.
- **Create shared streets and infrastructure:** The network of streets and pedestrian connections should be enhanced and rationalized to better manage vehicular traffic and help to orient buildings.
- **Acknowledge the history of Breynat Hall:** The Breynat Hall site should be planned only after its future has been discussed and re-imagined through dialogue within the community.
- **Incorporate outdoor gathering and teaching space:** New open spaces should accommodate outdoor teaching as well as civic and ceremonial gatherings in a central location. Further planning will be required by the polytechnic university to identify policies on appropriate outdoor use.
- **Reinforce Conibear Crescent:** Future buildings and open spaces should help to define Conibear Crescent as an important public space and movement corridor leading to the Academic Campus.

6.5. Development Framework: Residential and Community Facilities

As illustrated in Figure 3 and described below, a framework of pedestrian and vehicular connections, open spaces and building sites has been prepared to guide the development of new facilities and infrastructure on the Thebacha Campus.

Axes and Connections

The framework is structured by a series of axes intended to organize development and improve connectivity. The axes effectively form development blocks and will help to stitch future development together with existing buildings, while also opening view corridors and establishing a coherent sense of place.

Conibear Crescent is the primary axis between the academic and residential sites. This axis becomes a central structuring element in the framework plan, reinforcing the road as the main entry to the overall campus from Mackenzie Road and, by extension, from downtown and the airport. Future buildings and open spaces along Conibear Crescent should be oriented to the street, and parking lots generally should be located at the rear of buildings where possible, with minimal frontage on the street.

As the Conibear Crescent axis comes to the existing Thebacha Campus academic buildings, forming the existing courtyard, it carries through the building entry further southwest to establish the central organizing aspect of the lands designated for future academic growth. Here again, new and retrofitted buildings should orient toward Conibear Crescent.

A secondary axis is proposed: perpendicular to Conibear Crescent, through the residential block, in order to increase the efficiency of the mobility network, improve pedestrian connections and establish additional frontage for future buildings. This new axis is a means of upgrading existing desire lines with a more formal connection made up of street segments, lanes and multi-use paths. This connection will facilitate movement between the Field Street neighbourhood to community amenities and the academic site by utilizing and extending an existing, but unbuilt, public right-of-way. In time, it may be appropriate for this connection to become a full public street.

The framework plan also includes tertiary axes for pedestrian connections and sightlines that will reinforce the overall structure for growth and improvements. These tertiary axes help establish future building setbacks and give clarity to the overall vision for the area.

Figure 3. Thebacha Campus: Development Framework

Development Sites

The framework plan delineates several development blocks that offer opportunities for new facilities. Three sites in particular have the potential to accommodate near-term development that would support the planning principles (see Figure 4):

- **Site 1:** The former Mount Aven housing site is desirable because of its size, land ownership and proximity to the academic site and Town recreation centre. Development on the site would also reinforce Conibear Crescent as an entry road and key pedestrian connection, which would better link the residential and community facilities to the academic site. On this site, a higher intensity development, such as single student housing and student services, would best capture the benefits of proximity and establish a strong public presence. The potential for a mixed-use building is high, with student services and other amenities on the ground floor and housing for single students on upper floors.
- **Site 2:** The Town-owned site between the running track and Breynat Hall, north of the tennis courts, is unused land that would be appropriate for family housing oriented to a future street on the secondary northwest-southeast axis, given its proximity to existing family housing south of Field Street. The Town-owned lands south of this parcel also have the potential to accommodate student housing and/or outdoor teaching and amenity space for students and the broader community.
- **Site 3:** The parking lot in front of Breynat Hall forms another development site on Conibear Crescent. The site's size and relationship to both the elementary school and high school make it less suitable for housing than for student and community amenities, such as a daycare, or other institutional uses.

Beyond these three key sites, the large privately-owned property north of the high school and west of the museum would also be appropriate for student housing, as well as general housing suitable for faculty and staff. In addition, the Thebacha Kue townhouse development site has the potential to accommodate additional housing. All of Aurora College's remaining multi-unit housing will give the polytechnic university long-term options for housing growth through redevelopment.

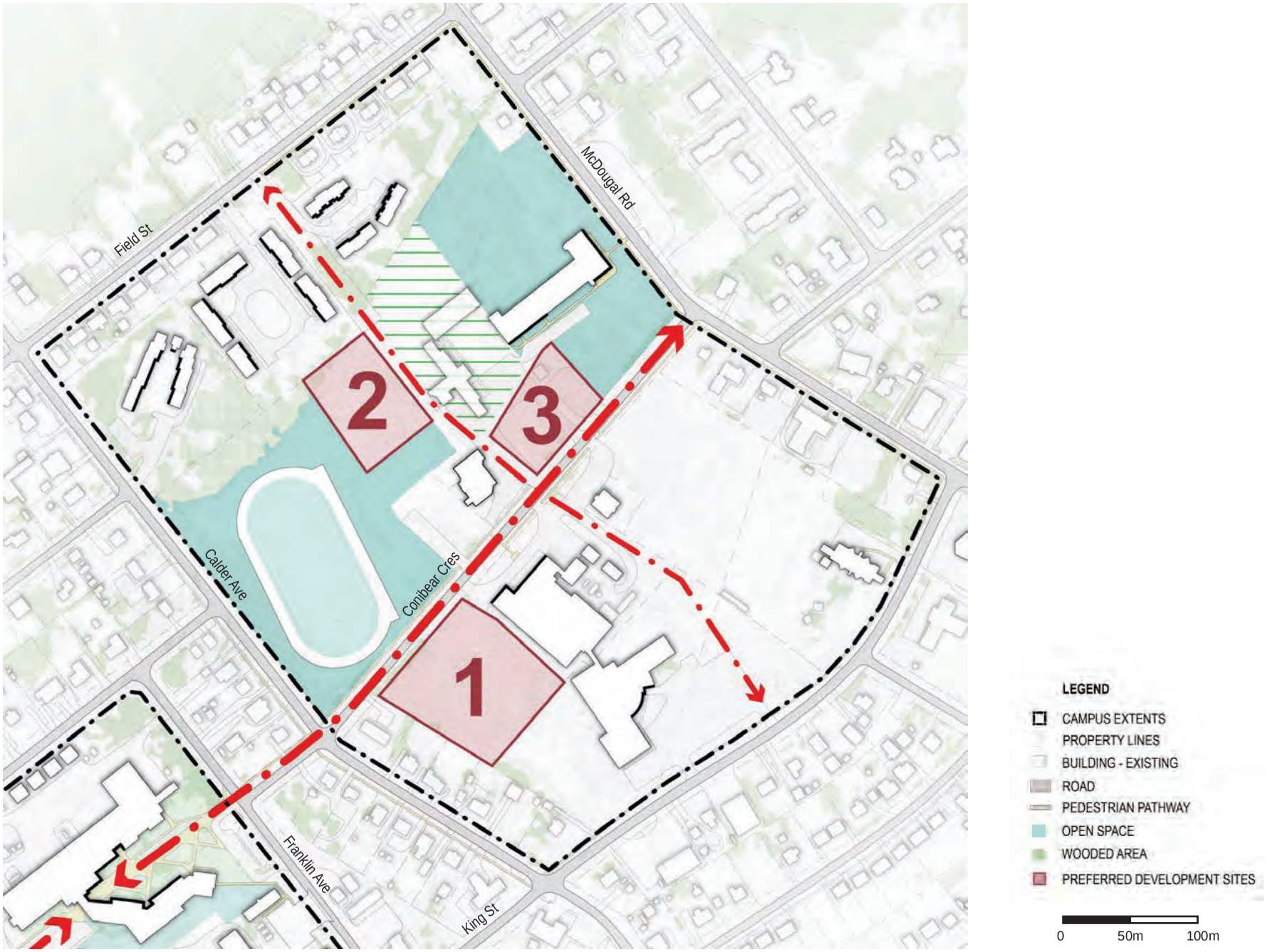


Figure 4. Thebacha Campus: Sites of Interest for Residential Development

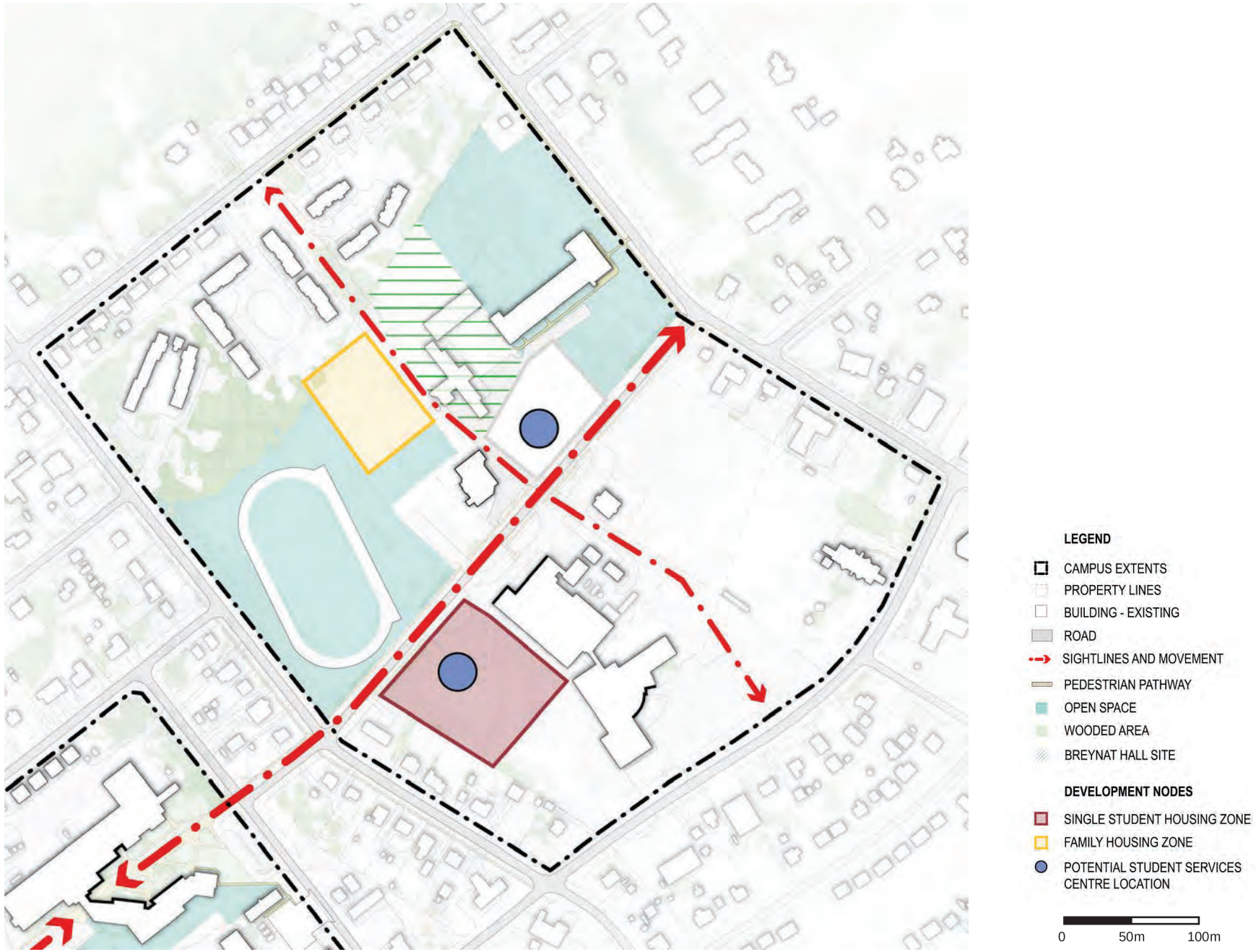


Figure 5. Thebacha Campus: Potential Development Sites and Preferred Uses

6.6. Development Scenario: Residential and Student Services Centre

The recommended development scenario for new residential and student services functions in Fort Smith is shown in Figure 6 on the following page. This approach envisions a mixed-use building on Site 1, with services and amenities for all students located on the ground floor, and single student housing located on upper floors. Housing for single students may be of dormitory-style, apartment-style, or a combination of both. This location is recommended because of its proximity to the academic site and prominence along the Conibear Crescent corridor. An outdoor learning/gathering space should be located at the rear or side of the building, adjacent to indoor social space.

Site 2 is envisioned as a neighbourhood for students with families. Close to existing family housing south of Field Street, this location has the benefit of also being close to schools and public open space. Figure 6 shows how family housing can be accommodated in blocks of traditional townhouses or stacked townhouses facing external open spaces and the planned Field-to-King Corridor, with parking located in an internal courtyard. However, the site can be developed with different combinations of housing types to best meet the needs of students, the institution and the Town. Figure 7 illustrates how back-to-back townhouses and apartment buildings for families could be accommodated on the site.

The recommended short-term development concept envisions Site 3 remaining as a parking lot, maintaining the opportunity for its future use to be considered in conjunction with the future vision for the larger Breynat Hall site. Alternatively, Site 3 would be an appropriate site for a standalone student services and amenities building with spaces and facilities intended to be routinely shared with the Town and/or external community groups. For example, this would be an appropriate site for a daycare, a cultural space, artist studios, a community/learning kitchen and a student welcome centre. In this “community hub” scenario, the mixed-use building proposed for Site 1 would still need to accommodate amenities on the ground floor (lounges, games room, etc.) and potentially other student services.

The framework plan for the Thebacha Campus (Figure 3) is intended to provide flexibility regarding the location and scale of future facilities. Although it is recommended that Site 1 be used for a mixed-use building, Site 2 for family housing, and Site 3 for partnership opportunities, there is variability in how each site is designed and developed. This flexibility recognizes that the institution’s needs will change over time, potential partnership opportunities may emerge, and the complexity and scale of projects may need to respond to economic priorities. So long as alternative developments pursued align with the framework plan and development guidelines, the long-term vision for the Thebacha Campus will be realized.

Figure 6. Thebacha Campus: Preferred Development Scenario

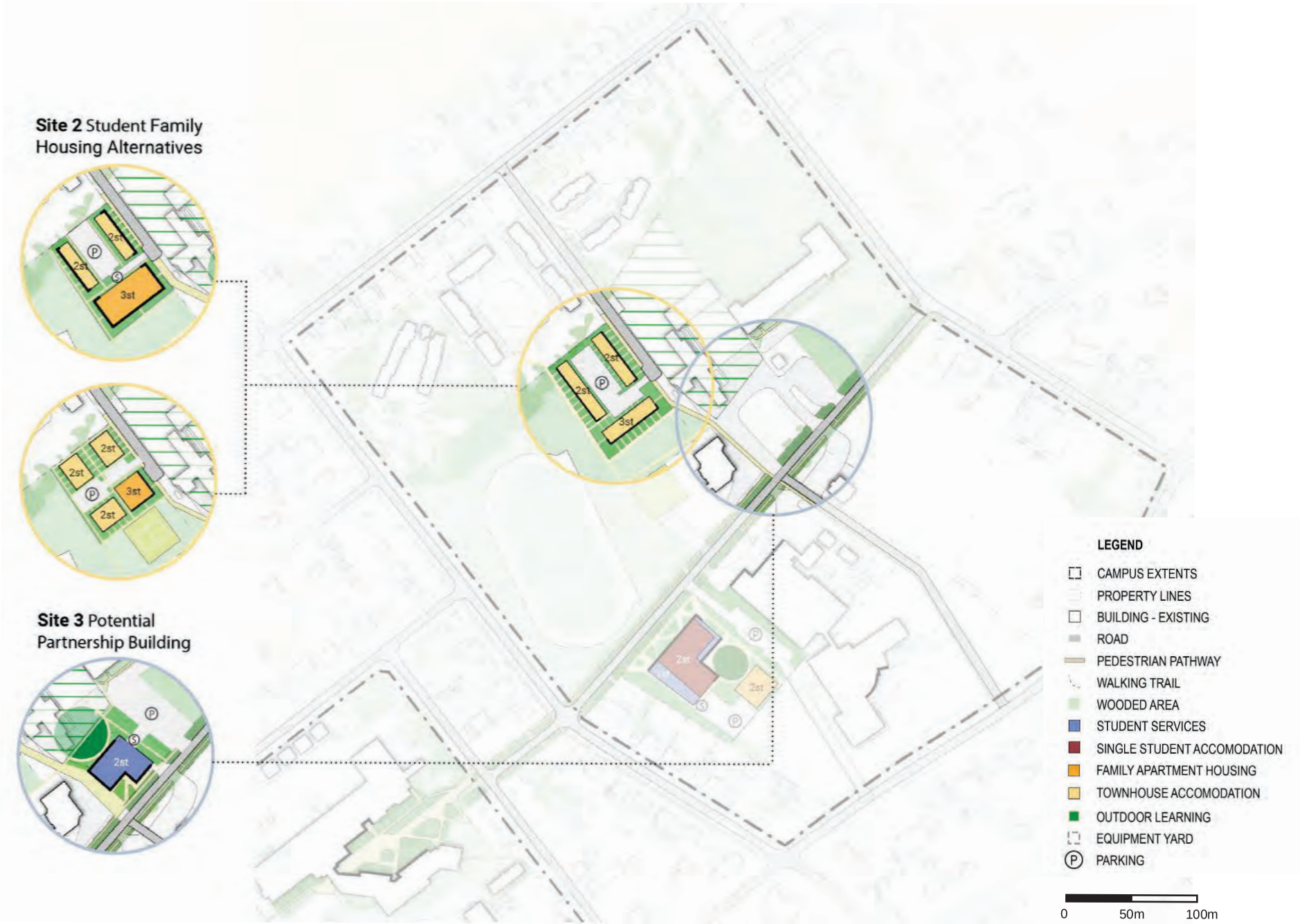


Figure 7. Thebacha Campus: Examples of Development Alternatives

6.7. Academic Site Development Framework

Compared to the residential and community block, the Thebacha academic site is well organized, with the main academic buildings oriented to a courtyard along the axis of Conibear Crescent to the east. With ample land for academic growth in the west half of the campus, future buildings for teaching, research, administration and amenities, other than those that belong in the Works Yard, should be oriented to a future central open space that effectively mirrors the existing courtyard and reinforces the Conibear axis (see Figure 3).

The existing Heavy Equipment Works Yard located immediately south of the Library and Arts Building is separated from the main academic buildings for reasons of safety and security. The most recent investment and cornerstone of the Works Yard is the Centre for Mine and Industry Training, with high-bay facilities, two classrooms and a simulation lab. There are several storage sheds and smaller buildings, including the HEO building, that offer additional high-bay and classroom facilities utilized by the institution. With several buildings nearing the end of their lifespan, or already decommissioned, a plan for growth is critical to ensure facilities are replaced appropriately and development contributes to a more cohesive sense of place.

The future development of the Works Yard will rely on a few simple structuring moves to rationalize circulation and create flexible sites for new buildings (see Figure 8). The first goal is to establish a yard space dedicated to vehicle movement and which should not be interrupted by new buildings. By creating a rectangular yard space in the centre of the site, existing buildings around the perimeter will have a consistent relationship to one another. This will result in not only a more practical, flexible yard space but will also reinforce a more unified façade for the polytechnic university facing King Street and Franklin Avenue, ensuring the Works Yard becomes part of the physical identity of the campus.

The most significant open space opportunity on the academic site is south of the Arts and Library Building and north of designated lands for trades yard growth. This open space can act as a landscape feature and be the main entry for a potential new trades building in the future.

The following are the next steps required to complete planning for the campus:

- Confirm the location for a new high-bay garage
- Assess the future demand for classroom and simulation spaces integrated into high-bay facilities
- Explore the possibility of officially splitting the yard into two distinct parts, one for the Department of Infrastructure's facilities and equipment, and one dedicated to the needs of the polytechnic university, giving control and autonomy to both parties

6.8. Development Scenario: Academic Site

The planning process confirmed that enhancements to the HE operations facilities, including winterized garage space, will be the most critical first project on the Thebacha academic site. The proposed conceptual building illustrated in Figure 9 would accommodate eight industrial bays nine metres in width. The primary pedestrian entrance to the building, along with any office or classroom space within the building, should be oriented north, toward a new open space at the heart of the campus, adjacent to the library. This will reinforce the relationship between academic and trades facilities on campus while maintaining safety in the yard with perimeter fencing.

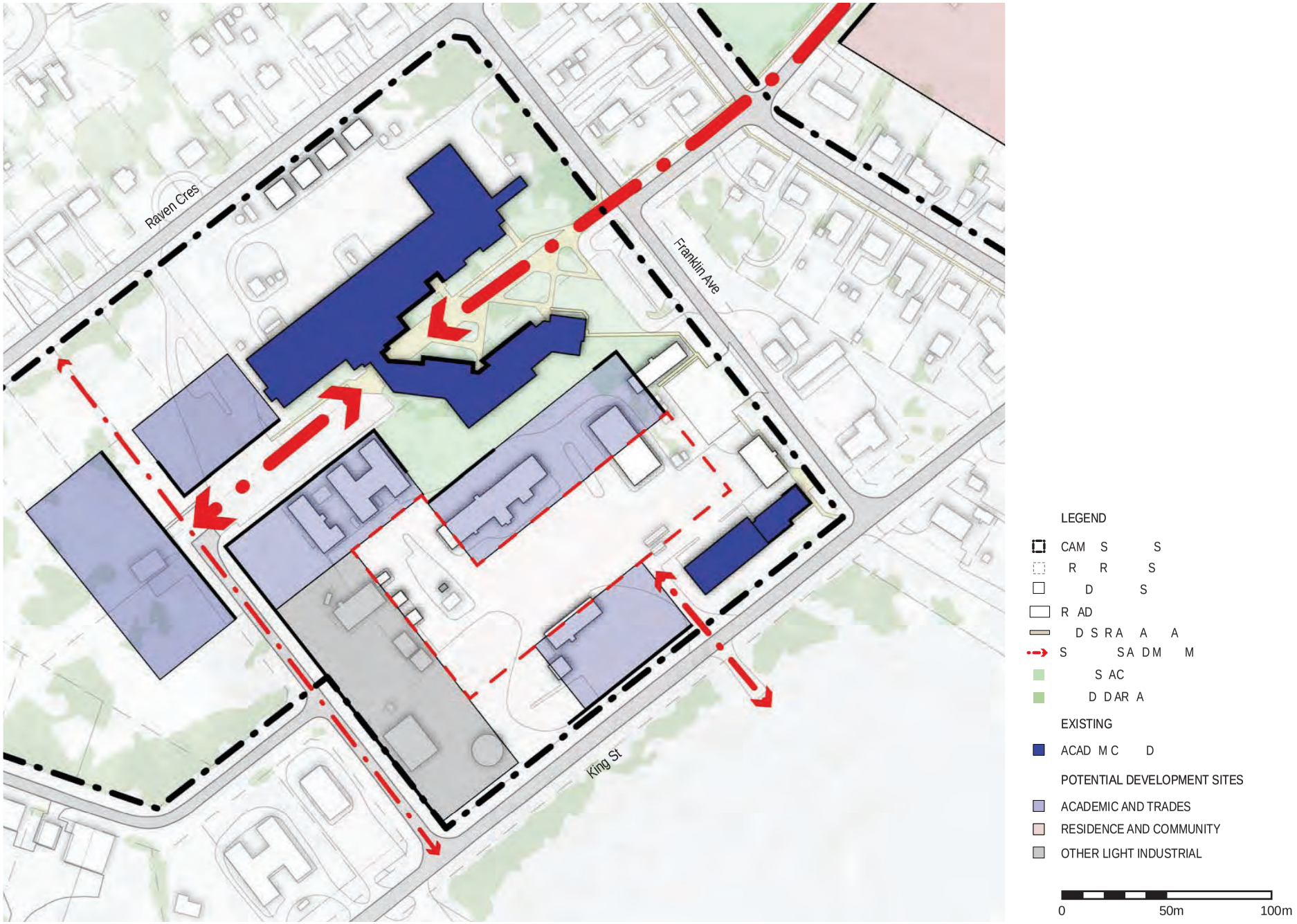


Figure 8. Thebacha Campus: Academic Site Development Framework

Figure 9. Thebacha Campus: Academic Site Development Scenario

6.9. Cost Estimates for Priority Developments

These cost estimates have been generated based on the space allocation formulas attached as Appendix C. Assumptions and limitations on the cost estimates as well as detailed construction cost estimates for each involvement are also attached as appendices. Project costs have been calculated by adding 25% for soft costs onto the construction estimate.

Table 3. Class D Cost Estimates for Priority Developments (Thebacha Campus)

Priority	Building program	Area (m^2) (est.)	Construction Cost ($) (est.)	Project Cost ($) (est.)
R.1	Single student housing	2,526	51,316,210	64,145,263
	Student family housing	4,828		
A.1	Student services centre	1,942	14,980,248	18,725,310
R.2	Staff and faculty housing	411	5,344,692	6,680,865
A.2	Heavy equipment garage	800	5,849,885	7,312,356

YELLOWKNIFE NORTH SLAVE CAMPUS

7. Yellowknife North Slave Campus

7.1. Master Planning Vision

In this location, where there are no College-owned facilities as a foundation for the polytechnic university, the development of a new campus offers a blank slate for establishing and embodying the values of the transformed institution. This campus offers an opportunity to realize, and also actualize, a vision for an educational community environment, specific to the unique context of the NWT.

The Yellowknife North Slave Campus will welcome students, staff and researchers from across the territory and from elsewhere. The campus is envisioned as a vibrant, supportive community, built with a dual focus on student safety and an inspiring learning environment. Its grounds and facilities will be designed to celebrate Indigenous ways of being, knowing and doing. The campus environment will be integrated with the natural landscape, supportive of land-based learning, and centred around cultural safety and diversified supports.

The campus grounds will be a defining feature, populated by outdoor learning and gathering spaces, and animated by community use. The Yellowknife North Slave campus will benefit from access to the nearby city amenities and services, while being grounded in the quiet expanse of the surrounding natural environment, bridging both.

Welcoming and supportive to students from remote Northern communities and from elsewhere, this campus environment will be designed to bring people together and to excite possibilities, while celebrating the character of the sub-arctic landscape, waters and skies.

7.2. Existing Facilities

Aurora College does not currently own facilities in Yellowknife. Academic functions and student residences are accommodated in a series of leased buildings, at the edges of downtown Yellowknife and near the territorial hospital.

The largest space being used by the College is inside the mixed-use and multi-tenant building called Northern United Place (NUP). The lower three floors of NUP's southeast wing were renovated in 2002 to accommodate administrative and academic functions for Aurora College. The annex side of the building has since been renovated to house additional offices, a nursing simulator and nursing lab. By 2006, these spaces were assessed as inadequate for the uses of the institution.

On the eighth and eleventh floors of the same building, one-bedroom and two-bedroom units are leased for student housing. Regarding this arrangement, issues cited by staff at the Yellowknife North Slave campus include a lack of control by the College over building maintenance, quality, security and regulations.

The ground floor of the Tallah Building (roughly 1km east of NUP) is also leased and primarily accommodates the Early Childhood Education program. This space has similarly been described by key stakeholders as deficient for its current use in terms of both size and layout. Additional space has been leased for offices, classrooms and a multi-functional lab on the 11th floor of the Precambrian Building, beginning in 2022.

Near Stanton Territorial Hospital, the College leases residential units in the multi-family buildings known as Beck Court and Stanton Suites. This housing is intended specifically for students in the Nursing program, who participate in work placements at the hospital. The close proximity of these units to the hospital is convenient for upper-year nursing students. The institution could consider retaining these leases as part of the polytechnic university's

housing portfolio, in the short-term or interim phases before the full requirements for new student housing are constructed.

Aside from housing dedicated to the Nursing program, the remainder of the College's leased space has been assessed as inadequately sized and unsuitable. Leased spaces are to be replaced with a purpose-built campus that meets the standards of a polytechnic university, and embodies the principles and vision outlined for the institution.

Table 4. Existing facilities at Yellowknife North Slave Campus

Facility	Size	Year built	Ownership	Adequacy
Academic and trades	**Area (m^2)**			
Northern United Place	2,468	1976	Lease	Inadequate size and unsuitable layout for current and future programming
Tallah Building	318	--	Lease	
Precambrian Building	--	--	Lease	To be leased in 2023
Residential	**# beds**			
Northern United Place	51	1976	Lease	Inadequate number of beds
Beck Court	8	--	Lease	Suites are adequate but distant from the campus.
Stanton Suites	32	--	Lease	

7.3. Space Requirements for a New Campus

With the academic facility at the new Yellowknife North Slave campus, a new building typology is being proposed – one without a precedent in the NWT.

Teaching, learning and research activities at the polytechnic university will be supported by a different ratio of spaces than the educational facilities that currently exist in the territory. An emphasis is to be placed on specialized research laboratories, faculty offices and additional spaces that support the student experience, as opposed to an emphasis on standard classroom spaces. Expanded academic spaces, as listed in Table 5, are required as part of a shift to supporting the academic freedom of researchers and faculty, which is a key criteria for meeting the standards of accreditation as a university. Further to this, additional programming is to be accommodated for student services and supports (see Table 6).

The space allocation recommendations in this report assume an increase to 175% of current full-time students at this campus, and are currently based on non-specific programming. To refine the proposed approach for this campus and define a functional program, the next step will be to finalize the academic programming. From here, the allocated space can be worked into a more specific and specialized set of functions that correspond to the programs offered at this campus.

For the full description of space allocation guidelines and formulas, see the polytechnic university's capital space standards and guidelines. Summary tables are included on the following page.

Table 5. Space allocation summary

Building program	Area (m^2) (est.)
Academic and student support	
Academic and research facilities	10,939
Student services centre	4,017
Residential	
Single student housing	2,616
Family student housing	14,121
Staff and faculty housing	411

Table 6. Overview of space allocation within academic facilities

Program category and description	Area (m2)	% of total bldg
Administrative functions	**522**	**4.8%**
Includes: Executive offices; Campus Director and supporting team offices; Reception, waiting rooms; Meeting rooms; Storage		
Faculty spaces	**1,413**	**12.9%**
Includes: Department chair office; Faculty offices; Reception; Meeting rooms; Storage and support space		
Laboratory and research spaces	**1,641**	**15.0%**
Spaces will be program-dependent. May include: Wet labs – with equipment storage, cold rooms, chemical storage; Dry labs – with secure procedural library, collection storage; Additional specialized spaces; Supporting offices		
Lecture halls and classrooms	**2,267**	**20.7%**
Includes: Large lecture hall / auditorium space; Assortment of large, medium, small classrooms; Computer labs; Conference rooms; Study rooms (medium, small, and individual)		
Library	**1,207**	**11.0%**
Includes: Library stacks, study carrels, computer stations; Display area; Reception, circulation; Meeting rooms and study rooms; Library administration offices; Storage		
General	**3,888**	**35.5%**
Includes: Circulation; Building systems; General storage; Washrooms; Interior partitions; Building structure		
Total	**10,939**	**100.0%**

Table 7. Overview of space allocation within student services centre

Program category and description	Area (m2)	% of bldg
Student commons	**1,264**	**31.5%**
Includes: Large gathering space; Kitchen; Canteen; Retail space (campus book store); Workshops/activities/events space; Exercise room/gym and changerooms; Storage; Loading dock		
Daycare	**962**	**23.9%**
Includes: Play area; Nap space; Office; Kitchen; Meeting/private room; Storage		
Student wellness supports	**108**	**2.7%**
Includes: Flexible counseling space; Reception; Private waiting area; Storage		
Health centre	**258**	**6.4%**
Includes: Practitioner's office; Examination/consultation rooms; Reception; Private waiting area; Storage		
General	**1,425**	**35.5%**
Includes: Circulation; Building systems; General storage; Washrooms; Interior partitions; Building structure		
Total	**4,017**	**100%**

Residential facility requirements for the Yellowknife North Slave Campus

Housing is a serious need at all three campuses. In Yellowknife, however, it is assumed that some students will be able to find accommodations within the larger housing market – more so than in Fort Smith and Inuvik. The existing NWT College Facilities Capital Standards and Criteria (2007) suggests that housing should be provided for 57% of enrolled students in Yellowknife, as opposed to approximately 95% in the other two campus communities.

The Facilities Master Plan brings forward the same assumption for Yellowknife. On-campus housing is proposed to accommodate 57% of the targeted enrolment numbers at this campus, understanding that approximately a third of the student body should be able to secure off-campus housing. Of the students accessing on-campus housing, 60% are assumed to have family members with them, based on current trends.

Following from these assumptions, student residences are proposed to accommodate 89 single student bedrooms and 134 family housing units. In addition, nine units are proposed as short-term accommodations for staff, faculty, and visiting researchers. Due to the high volume of new units being proposed, the construction of housing will occur in phases. 40% of total required student housing is proposed to be built in the first, immediate, phase of work.

Student housing is to be built on the campus site. This approach supports the vision for the polytechnic university by fostering an engaging student experience and a sense of community, while ensuring that students have ready access to services and supports provided by the institution.

7.4. Site Selection Criteria for a New Campus in Yellowknife

Key criteria for the campus site were established through targeted early engagement sessions, in combination with precedent studies and background research. Three minimum requirements for the site, based on this process, are summarized below.

A natural setting with access to the land

Yellowknife North Slave Campus should have a natural character and be equipped with ready access to the land. Reasons for this include the following:

- The student population at Aurora College, and likely at the new polytechnic university, is majority Indigenous. The campus should be designed to support and celebrate Indigenous ways of being, knowing and doing. Connection to the land is of paramount importance.
- To offer an experience of cultural safety, access should be provided to outdoor gathering areas, ceremonial spaces and outdoor work spaces. These places should be grounded within a natural setting.
- On-the-land educational programming has been cited as a key opportunity and interest by stakeholders. The campus should be equipped to support land-based learning.
- The campus should feel welcoming, safe and supportive to residents from smaller NWT communities who might travel to Yellowknife for post-secondary education. For these students, a quiet, compact community environment, set inside the landscape, would offer a comfortable and familiar setting.
- As the polytechnic university grows, it will support students and faculty from outside of the territory. A striking educational environment, responsive to the natural beauty of the NWT, will help attract students and staff to the institution. This, in turn, will establish the critical mass required to offer an engaging and high-quality post-secondary experience for Northerners.

Enough space to get established and then to expand

Including academic and research facilities, a student services centre and housing, the short-term vision for the campus requires a total building area of approximately 32,500 m^2. To create an experience that responds to the natural setting (as outlined above), these facilities are envisioned to be no more than 2-3 storeys in height. Accordingly, the buildings would occupy a total footprint between 11,000 and 16,000 m^2. This area accounts only for the footprints of facilities; parking, outdoor learning space and outdoor circulation space is additional. The campus also requires space for future expansion in coming decades as student enrolment increases. Ideally this expansion will take place on the same site; room to grow needs to be planned.

Based on the approximate numbers above, a suitable site is recommended to be an absolute minimum of 22,000 m^2, and preferably larger.

Ready for development

The new campus is intended to be in development within three years. A suitable site for the campus must be ready and available for development by 2025.

7.5. Site Selection Methodology + Findings

Subject matter experts looked at how campuses across Canada and around the world are chosen and developed. They also heard through engagement about what elements were most important when looking at the best location for the future campus Three potential scenarios were considered for the desired typology of the campus setting and its relationship to the community of Yellowknife. These three scenarios are:

- **Central + Integrated** — This campus is embedded in the central core of a larger community, with buildings dispersed throughout the city
- **Central + Distinct** — Centrally-located to the larger community, but comparatively self-contained, with a sense of being distinct from the city
- **Peripheral + Distinct** — Located on the periphery of the community, and distinct from the city

Each model has different characteristics that shape the utility, learning experience and potential for growth. There are common campus design considerations among institutions in Canada that are reflected in the site selection considerations for the new Yellowknife campus. These considerations are reflected in Figure 8.

Figure 8

Considerations	Central Integrated	Central Distinct	Peripheral Distinct
Flexibility to accomodate and manage growth	○	◑	●
Critical mass to support complete campus	●	◑	○
Ability to establish campus identity	○	●	●
Presence of hard infrastructure	●	●	?
Accessible by public transit	●	◑	○
Options for parking	◑	●	●
Proximity to existing and future housing	◑	●	?
Proximity to community amenities	?	●	○
Proximity to potential academic partners	?	?	?
Potential for local economic impact	●	◑	○

● Strength
◑ Sufficient
○ Weakness
? Unknowns

A review of Yellowknife and surrounding land identified sites that met the technical requirements of a new campus, and these sites were organized under each campus model as seen in the Table 8.1 and 8.2.

Upon further review, c**entral integrated sites** provided only the minimal space and would present many of the same challenges to growth experienced by the current Yellowknife campus. **Peripheral distinct sites** were deemed to have potential, but an initial review suggested they would be more costly and would not draw students or provide a genuine university experience relative to the other two models.**Central distinct sites** were shown to balance land availability with the potential for an attractive and fully functional campus that can grow incrementally. This was determined to be the most appropriate approach.

The next step was to examine the sites associated with that model and work through the potential of each site. Sites included:

- Old Airport Road/Frame Lake: This site was taken out of consideration because the availability of land in the area is limited by an interim land withdraw.
- Niven Phase III: This site was taken out of consideration by the land owner(s).
- Con Mine: This site was taken out of consideration due to potential environmental liabilities and timing of availability.
- Taylor Road South: This site was taken out of consideration due to location. It is surrounded by old tailings ponds from Con Mine that significantly limit the potential for establishing a campus.

Figure 8.1 ***(see 8.2 for mapping of locations)***

Central Inegrated Site Options:
Site 1. City Geteway/Visitors Centre
Site 2. Block 38 (51st and 50th Ave)
Site 3. Akaitcho Hall

Cental Distinct Site Options:
Site 4. Tin Can Hill
Site 5. Con Mine
Site 6. Taylor Road South
Site 7. Niven Phase III
Site 8: Old Airport Road/Frame Lake

Peripheral Distinct Site Options:
Site 9: Airport Area
Site 10: by Giant Mine
Site 11: Former Treatment Plant

Figure 8.2

- Tin Can Hill: This site was reviewed multiple times and considered in the context of technical requirement, design limitations and opportunities for future expansion. Based on these considerations, it was identified as the most optimal. The significant benefits to this site include:
- **Size:** This property is large enough to accommodate all required campus facilities, campus grounds, and an expansion of the campus facilities in future, while also establishing and maintaining a sizable natural preserve on site.
- **Character:** Tin Can Hill is an undeveloped site exemplifying the rocky, treed landscape of the subarctic Canadian Shield, and occupies a wide waterfront with unencumbered views and direct access to Great Slave Lake. There is a great opportunity to develop a striking and unique campus identity here, one that communicates intimately with the landscape of the North Slave Region. The site creates a feeling of being embedded in nature, and even being remote to the city making it an ideal locale for establishing a peaceful and secure environment.
- **Location:** The downtown core of Yellowknife is a ten-minute walk from Tin Can Hill. Services and amenities such as grocery stores, restaurants, retail, banks, and government services are all within walking distance from the site. In addition, an existing transit line runs down School Draw Avenue (directly adjacent to the site) and could be extended to the new campus. Through engagements, we have heard that students from across the NWT should feel at home at the polytechnic university, and that access to services and amenities for themselves and their families is important. For students with families, there are two high schools and three elementary schools within a 1.5km radius.
- **Current Use/Ownership:** The site is currently owned by the City of Yellowknife and is primarily used as a recreational site by dog-walkers and skiers. This use can be maintained and potentially enhanced on the natural preserve that is intended to occupy a large portion of the new campus grounds.

The existing conditions of the site are shown in Figure 10.

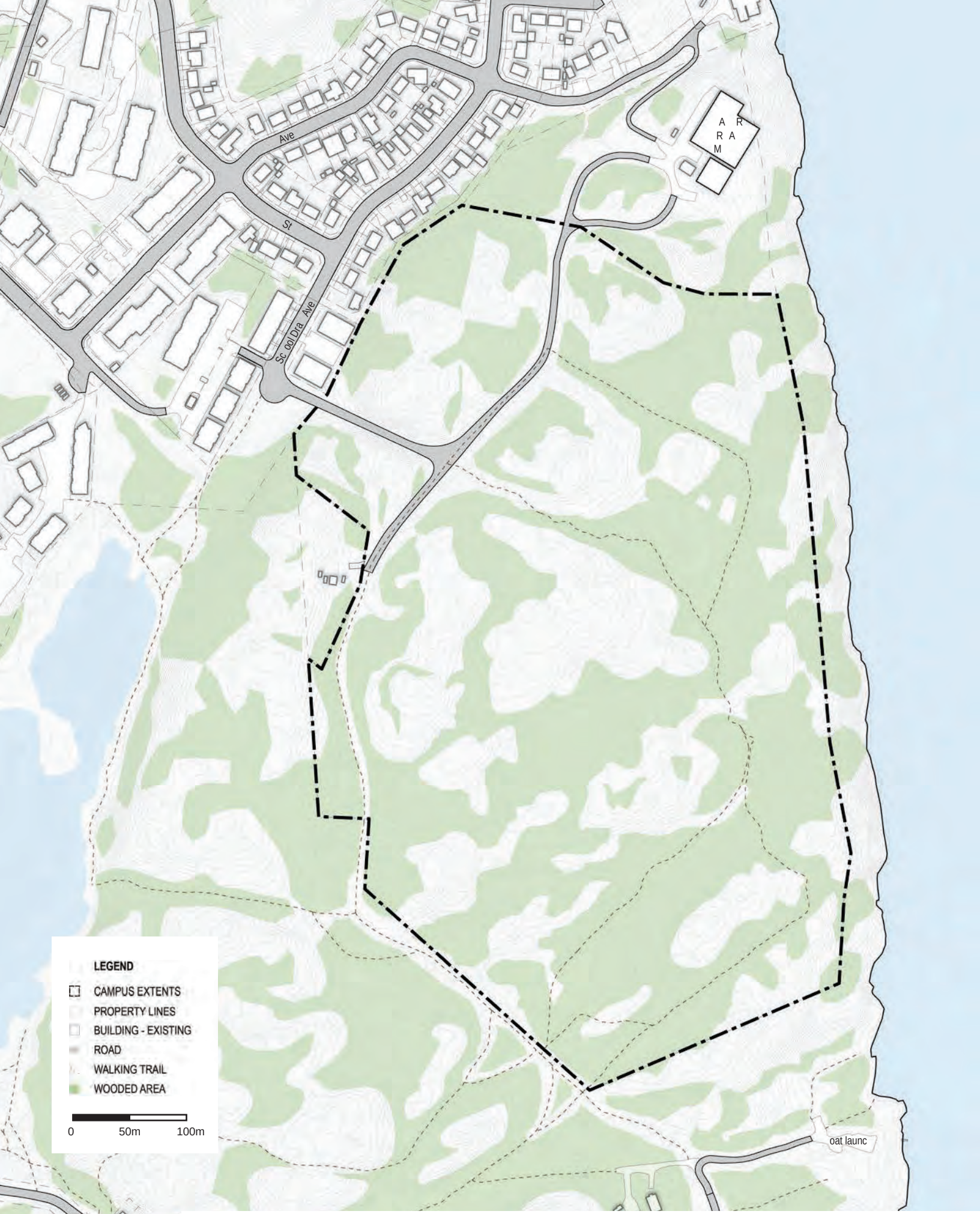


Figure 10. Existing Site Conditions

7.6. Guiding Principles and Opportunities

The following key principles have been applied specifically to the site planning approach for the new Yellowknife North Slave Campus.

Safety: Safety on campus incorporates a wide spectrum of issues; these may include barrier free accessibility, vehicular/traffic safety and personal safety concerns. In a practical sense, several steps can be taken at the campus planning stage to lay the groundwork for a safe campus:

- Separate vehicular traffic from pedestrian circulation. Parking should be removed from building entrances and buffered from the pedestrian-friendly core of the campus
- Ensure openness, transparency and lines of sight are afforded – both within buildings and throughout the outdoor site planning
- Gradual elevation changes across circulation routes are preferable
- Ensure vehicular access to buildings for emergency vehicles and servicing

Northern and Indigenous Experiences: There is a wide diversity of Northern and Indigenous experiences and cultures across the NWT. Common among these experiences is the importance of being connected to the land. This principle can be supported by integrating campus buildings with the surrounding environment, creating direct access to the land, and establishing space for land-based activities and gathering spaces.

- Integrate the built environment with the natural landscape
- Create access to an on-the-land experience
- Designate appropriate spaces for outdoor gathering spaces and land-based activities
- Foster a sense of community, and an identity for the campus where Northern students will feel comfortable, empowered and at ease

Preservation and enhancement of the natural setting: The existing natural environment should remain, and be enhanced, as an integral part of the campus development.

- Where possible, leverage visual and physical access to the waterfront
- Minimize the development footprint – e.g. leaving bedrock and forest preserved and traversed by footpaths, rather than blasting and paving large portions
- Design elements of the campus (buildings, parking, pathways) to respond cohesively to the natural site contours, materiality, climate, and features specific to the site.

Economical site development: With the development of a large new site, a balance should be considered. The up-front cost for the first phase of site development should be minimized. At the same time, the groundwork should be laid for future expansion in a way that allows new facilities to build sensibly on the initially-established infrastructure.

- Consider both short-term and long-term sustainability in the initial development plan
- Be frugal with proposed placement of roads, and with all blasting, grading, and paving
- Encourage synergies with other institutions and with nearby amenities as applicable.

Preservation of flexible opportunities for long-term growth: A significant section of the site should be protected for long-term expansion in a way that serves the future needs of the institution.

- Designate a protected area for long-term expansion
- Establish a framework with intentionality about the location of parking areas, access points and key connections
- Outline and protect the opportune areas for future development sites, while maintaining flexibility of each site to accommodate various development types

7.7. Development Framework

Guidelines for development on Tin Can Hill

Following from the planning principles for the new campus, and an assessment of the site conditions, character and opportunities presented, the following set of parameters are intended to guide the development of campus infrastructure on Tin Can Hill:

- **Respect the site topography:**
  - » Building sites follow the lines of the land rather than manufacturing a new development pattern
  - » Development of hard infrastructure is minimized: all facilities hinge off a single, simple vehicular circulation route – which builds on the existing road through the site
- **Maintain a natural, treed horizon:**
  - » Where facing the waterfront, buildings are nestled into the low points in the landscape rather than dominating the skyline
  - » A wide buffer is maintained between the new residential developments and the existing neighbourhood on School Draw Avenue
- **Celebrate the experience of the land and water:**
  - » Green space is preserved between every development parcel to maintain sense of being on (or close to) the land
  - » Existing vegetation, where possible, is maintained
  - » Views over the waterfront are afforded to developments that face the site's eastern edge
- **Create vibrant outdoor spaces through a pedestrian-focused approach:**
  - » Parking is maintained at some distance from the main academic buildings, encouraging an approach to facilities on foot
  - » Landscaped grounds are established as a central defining element of the campus
  - » Existing walking trails through the site are maintained, and remain accessible to the public
- **Distinct experience between public, semi-public and private:**
  - » Academic developments are accessed primarily on foot and face the waterfront
  - » Residences are clustered into neighbourhoods and buffered (by forested space) from the academic area, and from city streets
  - » Residential and academic sites are afforded separate access points and parking

Defining each component of the campus

Figure 11 illustrates an approach to the location, orientation and key access points for each main component of the campus.

- **Academic development sites** reach from the main access road towards the waterfront, stepping down the low areas in the natural topography. These sites are accessible by a

service loop, but the main approach is on foot.

- **Parking areas for academic functions** are maintained at a distance from the academic facilities. Main parking for the academic campus is located at the west edge of the site. A key pedestrian path is established between this parking lot and the phase 1 academic facility.
- **Equipment storage / light industrial sites** are provided in two locations, both of which are discrete (less visible from the water or from the main access road) but accessible by vehicular routes.
- **Residential development sites** in the framework diagram include private parking areas for the student residences. These development sites are accessible from the main road, while distinct from the more public academic areas. Residences are envisioned to take the form of small-scale buildings clustered together in neighbourhoods.
- **Natural preserve** sites are intended to be preserved in its natural state, unless outlined as one of the above development areas. These areas are preserved because:
  A) Some of the land is intended to be used for a variety of land-based programming, not requiring hard infrastructure.
  B) A natural buffer of treed landscape is to be maintained between each built component. For example, between the existing houses on School Draw Ave and the buildings on Tin Can Hill; between the new residential developments and the new academic developments; and between the two main academic facility sites.
  C) Some areas are impractical for development, due either to steep/uneven topography, or to distance/inaccessibility from servicing infrastructure.
- **"Maintained as is": area for long-term expansion:**
  The southern half of the site is to be protected by the institution until the polytechnic university grows beyond the maximum capacity of the outlined development areas. In its current state, this recreation site is an important community space and is well-used by the public. Preserving the area, with the existing walking trails intact, will facilitate community access to and interaction with the campus grounds, while at the same time, maintaining a distinct separation from private and semi-public areas on site.
  This massive natural preserve is an important component of the campus in its first phases of establishment. The natural site increases the attractiveness of the campus to students and staff, offers access to land, and can facilitate a sympathetic relationship between the campus grounds and city residents.
  To the greatest extent possible, trails will be maintained or expanded to preserve accessibility by the broader community.

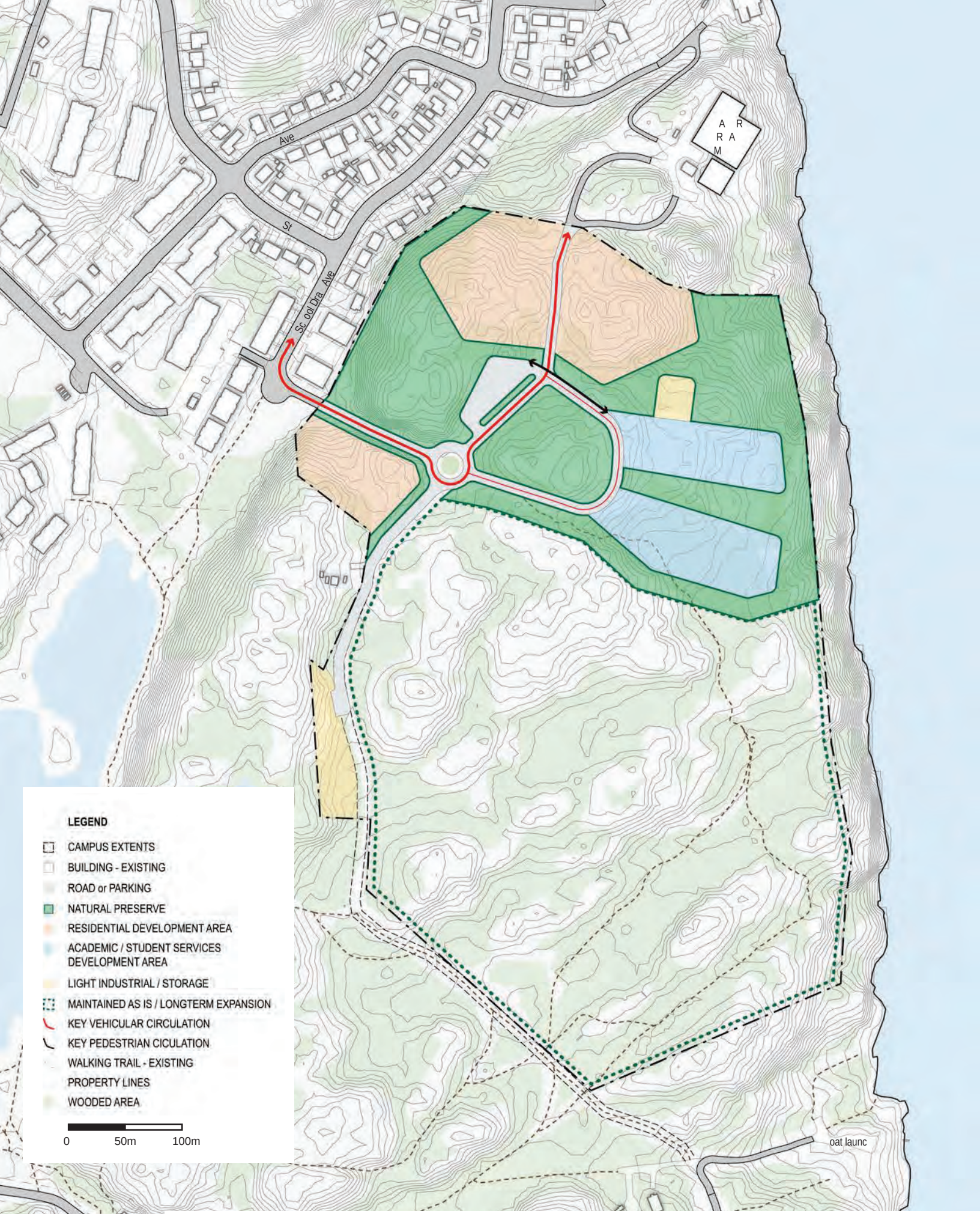


Figure 11. Yellowknife North Slave Campus: Development Framework

7.8. Campus Development Scenarios

Figures 12 to 14 illustrate a phased series of development scenarios for the Yellowknife North Slave Campus. The building areas shown on these plans correspond to the space requirements detailed in Section 8.3 and attached appendices.

The academic and research functions are housed in a single facility, set within a low point in the site topography, with prominent views toward Great Slave Lake. Ancillary buildings for academic functions include a storage shed to support land-based programming and a vehicle maintenance garage situated on the main access road.

Just north of the academic building is the student services centre, which is proposed to be built in two phases. Phase 2 assumes an expansion of the daycare function and of the student commons, as enrolment increases. Future needs assessments should also be undertaken to confirm the programming requirements for any facility expansions.

The academic and student services building share a large central courtyard which overlooks the water and ties into the existing public trail system. Green roofs on these buildings will lend them a natural and humble presence when viewed from the lake.

Phase 1 student residences are near the student services centre, though separated by a forested area. The student housing is conceived of as a series of small-scale multi-unit residential buildings, each sharing a neighbourhood courtyard. The intent is to cultivate a natural (rather than urban) setting, and offer a comfortable home environment for students from smaller communities. Residential facilities would be two or three storeys in height, depending on the topography: if occupying a low point, the building could be taller, without imposing on the site or its surroundings. During the design phases for these facilities, care should be taken to ensure the buildings are oriented to capture sunlight and shelter the courtyards from prevailing winds.

The Phase 1 plan shows 40% of student housing requirements, with another 40% built in Phase 2 and the remainder as Phase 3. These phases might be combined, further broken down or may be further considered as student enrolment increases. Each cluster of residences is provided a private parking lot. Parking is adjacent to the main access road rather than adjacent to each building to minimize the presence of roads or paving on site.

All buildings on campus are connected by a network of pathways. These are intended primarily for pedestrian usage, but should be wide enough to accommodate a service vehicle as required. This network will take the form of boardwalk-style pathways, which may be concrete, rather than asphalt. On the southern portion of the site, the existing public trail system is unimpacted, but could be expanded pending further community engagement.

Energy Systems Recommendations

The area calculations in Appendix C assume that each building will be served by its own heating plant. However, the potential exists to establish a district energy system for the campus. This approach would consolidate maintenance and space requirements to a single heating plant, would create opportunities for the campus to be heated with renewable energy, and would make the campus future-flexible, capable of changing over to new renewable and efficient heating options as they become available.

Initially, a district heating plant could be fueled with a biomass (wood-pellet) combustion boiler, which is the most common and cost-effective renewable heating system in Yellowknife.

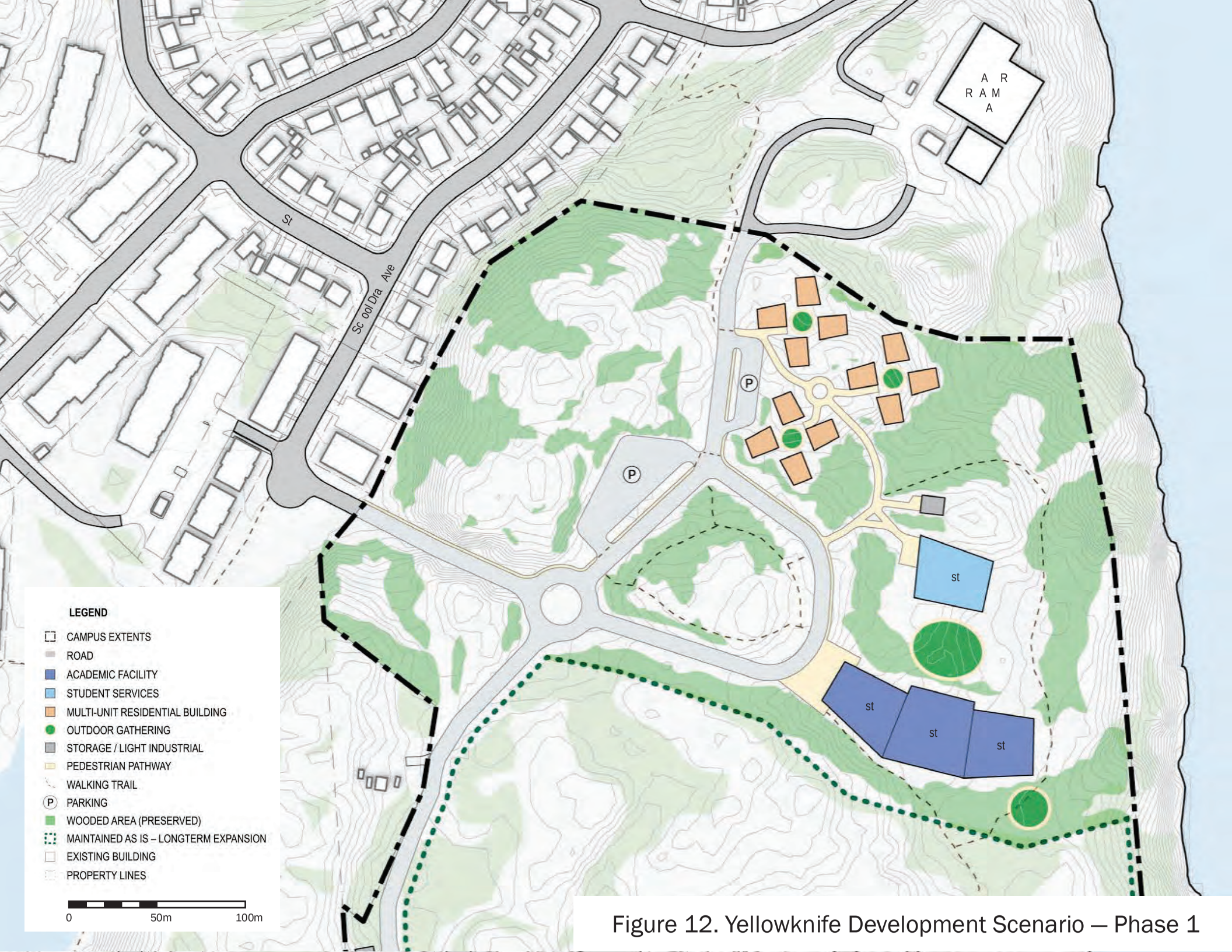


Figure 12. Yellowknife Development Scenario — Phase 1

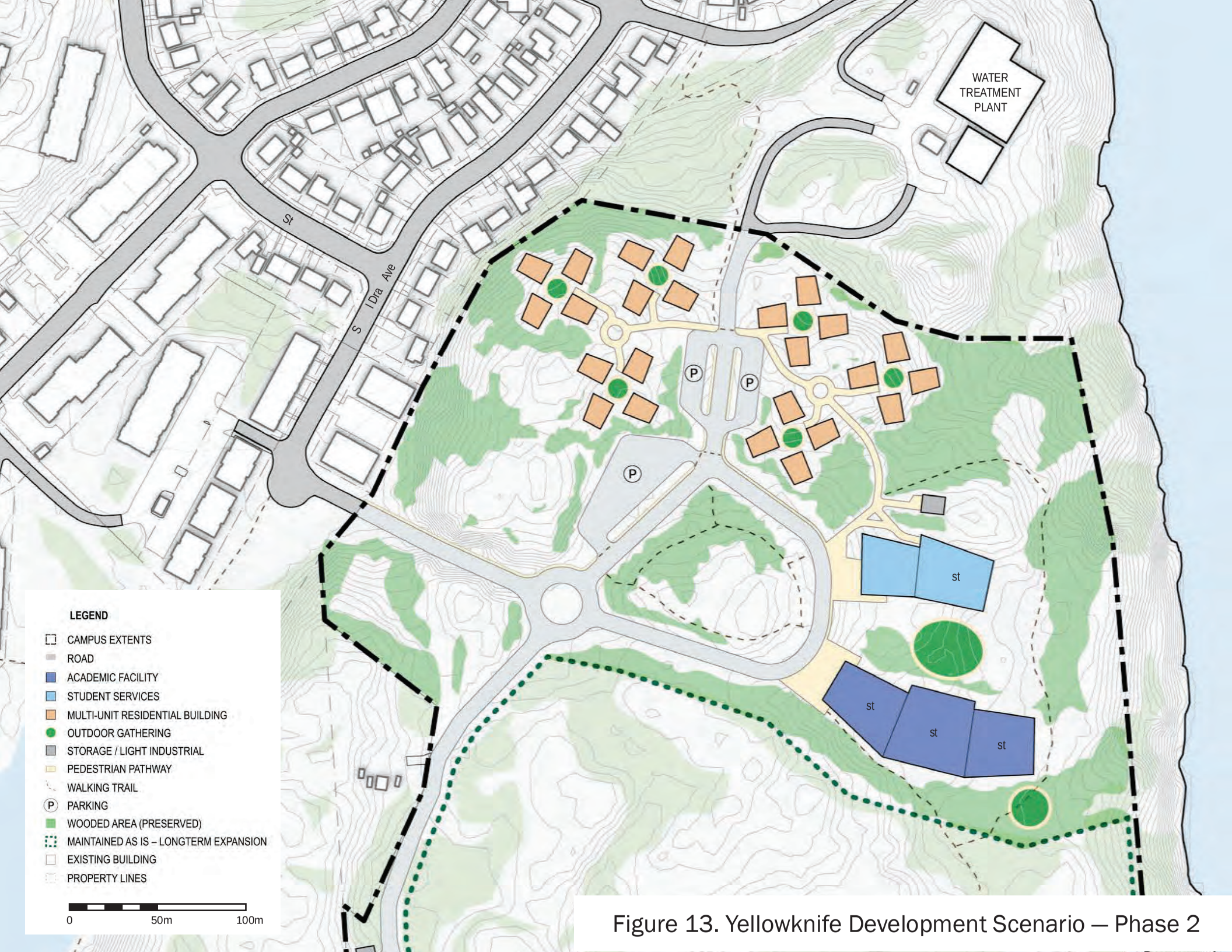


Figure 13. Yellowknife Development Scenario — Phase 2

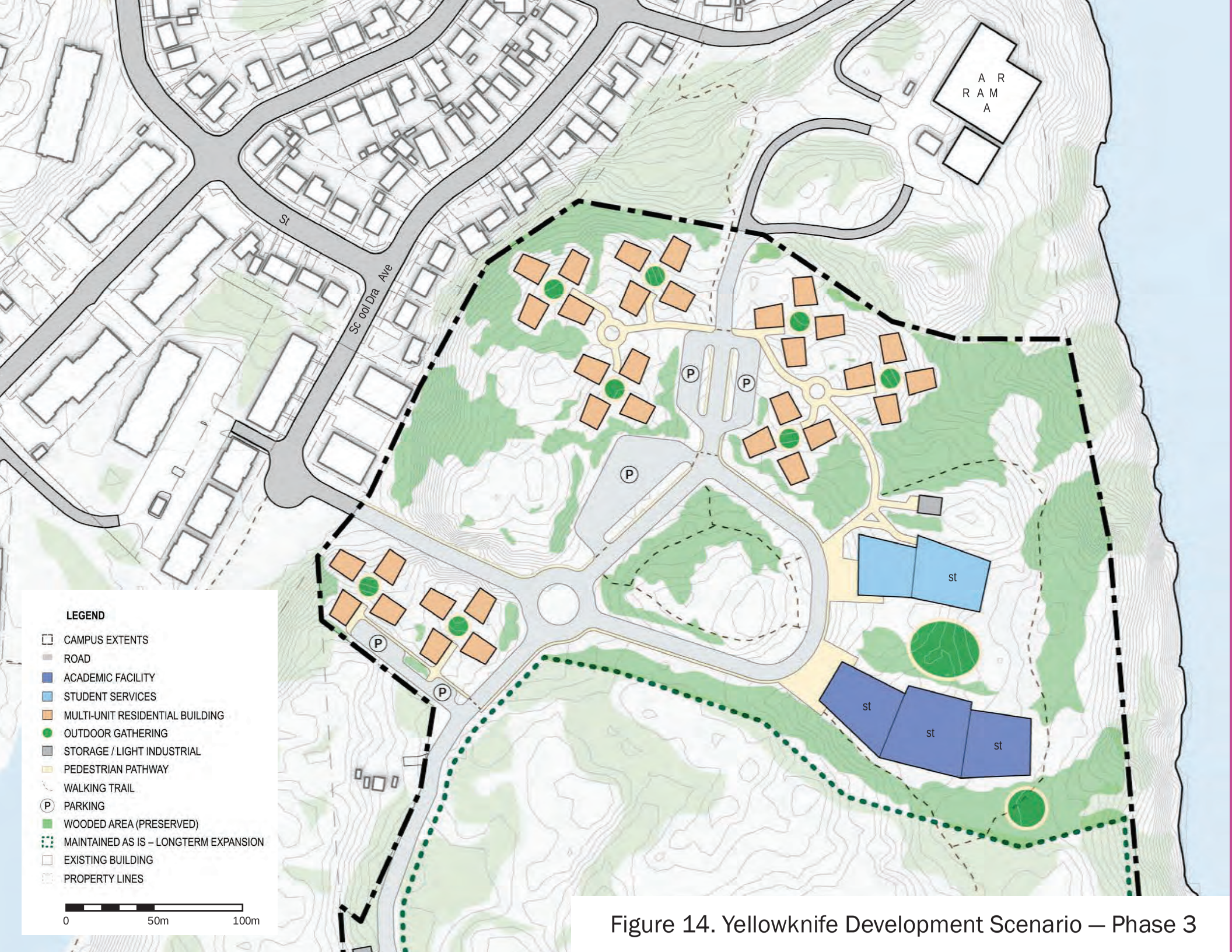


Figure 14. Yellowknife Development Scenario — Phase 3

A standard biomass combustion heating system would also accomplish a reduction in carbon footprint compared to conventional systems, reduce dependence on fossil fuels, and create operational cost savings compared to conventional oil and gas heating systems.

The heating load anticipated for the new campus could also be well suited to newer energy technologies, such as a Pyrolysis Carbon Capture and Storage (PyCCS) heating system. PyCCS heating has a carbon negative effect as it takes biomass fuel such as wood pellets or chips, and converts them to heat and to bio-char, which is a carbon capturing solid byproduct that can be used as a soil amendment in agriculture, mine remediation or other industrial uses. Planning for a carbon neutral option for heating, using available technology such as PyCCS, would make the campus demonstration project for renewable energy technology, thereby attracting further academic and research interests from within and outside of the territory.

It is recommended that a district energy system, with a central heating plant of biomass combustion boilers or PyCCS boilers, be included in the next phase of campus planning. A district energy system will centralize and consolidate maintenance, provide a single point backup and redundancy of heating systems, and offer the added benefit of being easily upgraded to accommodate future advances in heating technologies. Given the scale of this development and the energy prices in Yellowknife, an investment in cost-efficient renewable energy systems is likely to deliver a significant return in the coming decades.

7.9. Potential Co-location Partners in Yellowknife

At the outset of the facilities master planning process, specific potential co-location partners were identified. They were engaged as part of the planning process. Additional work is needed to solidify co-location plans, including funding arrangements. The space requirements for these partners have not been included in the space estimates in the FMP. The current understanding of their projected needs is summarized below.

Collège Nordique Francophone

Collège Nordique Francophone is an educational institution offering language courses, post-secondary education, professional development, and community workshops in French. The institution is interested in co-location with the polytechnic university. International students are a growth market, and the institution hopes to grow to have 50-100 full-time students over the next 20 years. To enable this growth, access to student housing for international students is a priority, with 10 units as a desired start. These students may also require access to daycare.

With their current student population, it may be possible to share teaching spaces with the polytechnic university, as many of their courses are offered outside of standard business hours. There is also interest in leveraging specialised teaching spaces, such as lab spaces for nursing and early childhood education. Collège Nordique is offering college level Early Childhood Education program through Collège La Cité this fall, and sees growth in Business Administration and Communications programs. Co-location would require that signage and wayfinding markers on campus reflect a linguistic duality or plurality within the specific context of the NWT's official languages. It may be that some common areas and student services areas, when shared, would also need to be mindful of this dynamic. Furthermore, spaces for Collège Nordique would need to be grouped to foster a Francophone space within the campus where most activities could be conducted in French (offices, student common room and teaching spaces) while also respecting any eventual bilingual or multi-lingual conventions.

At this point, Collège Nordique does not expect to have a presence in the polytechnic

university outside of the Yellowknife campus. They have had limited virtual students from Inuvik and Fort Smith.

Dechinta Centre for Research and Learning

Dechinta Centre for Research and Learning (Dechinta) is an Indigenous-led fully land-based educational centre. Dechinta's priorities are maintaining autonomy and self-determination. There is opportunity in collocating with the polytechnic university. Dechinta is currently offering programming in different areas of the NWT and would have a presence at the campuses and some community learning centres.

In Yellowknife, Dechinta currently requires an office with breakout spaces, co-working space for 10 staff, a six-car garage, two sea cans, and five parking stalls for trailers and snowmobiles. Both heated and cold storage is needed. With a purpose-built space, it is a priority for it to be reliable and accessible. Programming would utilize both accessible outdoor space on campus, and access to the water and snowmobile trails for land-based programs off-campus. Students would benefit from access to dorm-style student housing and shower facilities before and after their land-based programs – estimated at 20 beds.

In NWT's smaller communities, there is also the opportunity for Dechinta to use the community learning centres as a starting point for land-based programs. There is a need for internet access, space to host gatherings, and flexible teaching and office space. Currently, Dechinta's programming is growing in the Beaufort Delta with a presence in Aklavik, Tuktoyaktuk and Inuvik. Of note, programming shifts based on community champions and opportunities, so it is expected that regional programming will shift over time. Dechinta also has interest from visiting researchers.

Wilfrid Laurier University

Wilfrid Laurier University (Laurier) currently has 74 active projects across 48 research sites in the NWT. Laurier has an office in Yellowknife that has permanent staff and hosts visiting researchers. Laurier also leases space across the territory depending on specific project needs. Co-location with the polytechnic university is an interest. For the Yellowknife campus, the needs are office space, open workspace, access to lab space and a variety of storage for a range of needs from vehicles to water samples. There is an opportunity to build relationships in NWT communities between Laurier and the CLCs.

Taiga Labs

Taiga Environmental Laboratory is a government-run full-service analytical laboratory that performs a wide range of organic and inorganic chemical analyses on water. There is the opportunity to potentially collocate with the polytechnic university at the Yellowknife campus and provide opportunities for students to have placements in the lab. Taiga Labs has exceeded its current capacity in all areas including lab space, office space and storage. There are specific facilities considerations for Taiga Labs. It requires dedicated lab space and a dedicated entrance for clients to drop-off samples.

7.10. Other Partnership Opportunities

An interest has been identified to create opportunities to support local entrepreneurship and connect with existing infrastructure. There are many potential partners that would fit this category across the territory. Additional partnerships will continue to be explored and will be established between Aurora College and NWT communities.

7.11. Cost Estimates for Priority Developments

These cost estimates have been generated based on the area calculations attached as Appendix C. Assumptions and limitations on the cost estimates as well as detailed construction cost estimates for each involvement are also attached. Project costs have been calculated by adding 25% for soft costs onto the construction estimate.

Table 9. Class D Cost Estimates for Priority Developments (Yellowknife North Slave Campus)

Priority	Building program	Area (m^2) (est.)	Construction Cost ($) (est.)	Project Cost ($) (est.)
A.1	Site development and servicing at Tin Can Hill	--	30,803,915	38,504,894
	Academic and research facilities	10,939	74,038,841	92,548,551
	Phase 1 of student services centre	2,611	36,842,387	46,052,983
R.1	Phase 1 of student housing	6,859	49,815,312	62,269,140
A.2	Phase 2 of student services centre	1,406	19,838,208	24,797,760
R.2	Phases 2-3 of student housing	10,289	74,722,969	93,403,711
	Staff, faculty, and researcher housing	411	5,623,464	7,029,330

AURORA CAMPUS

8. Aurora Campus

8.1. Master Planning Vision

The vision for Aurora Campus in Inuvik is to support increasingly active hubs for both education and research, in a centralized capacity for the Beaufort Delta Region. This plan focuses on activating the full potential of existing facilities by first improving the supportiveness and accessibility of the on-campus experience.

Aurora Campus has two distinct and important elements. The main academic building, centrally located among community infrastructure, serves as a post-secondary and education upgrading facility for the Beaufort Delta Region. The Western Arctic Research Centre (WARC) occupies a nearby, but distinct, site and facilitates a variety of research activities and research partnerships in the High Arctic.

At both of these locations, short-term investments are being recommended to lay the groundwork for incremental and sustainable growth. Expansion of facilities at the WARC site is already underway; new all-season storage space is being constructed to improve the centre's functionality for field research.

At the main academic site, an increase in student enrolment will activate the existing facility, which is not currently operating at full capacity. As an immediate first step, appropriate housing for students with families should be constructed, to better serve the prospective student population. As enrolment increases, a new student services centre and amenity building is recommended.

An increasingly animated Aurora Campus is envisioned through strategic step-by-step improvements. The site surrounding the academic building will be landscaped for use as outdoor gathering space. In doing so, space will be actively delineated and protected for the purpose of future expansion. As a long-term vision, additional place-based programming and community partnerships will help create an integrated and activated polytechnic university campus.

8.2. Existing Facilities

The layout of existing Aurora College buildings in Inuvik is shown in Figure 15. There are two different sites: the Academic Campus (components numbered 1-3) and the Western Arctic Research Centre (components numbered 4-7).

The WARC facility is in good condition, but is in need of additional storage space. Accordingly, a new warehouse for the site is currently being constructed. The College owns a fourplex used by visiting researchers, which was built in the 1960's and has been listed as in "Fair/Poor" condition in a report from 2015. With the building being beyond its lifespan, replacement is recommended.

The main academic building is also in good condition and adequately sized to accommodate current programming, as well as additional academic programming or other, flexible functions. Expansion of academic facilities will be required if there is a significant expansion of programming in future.

Housing for single students is accommodated in a 30-bed dormitory, which is more than adequate to meet the current demand. On the other hand, the College owns no student family housing, since the 48 townhouses in the "Blueberry Patch" on Inuit Road were demolished without being replaced. The College currently leases twelve units of student

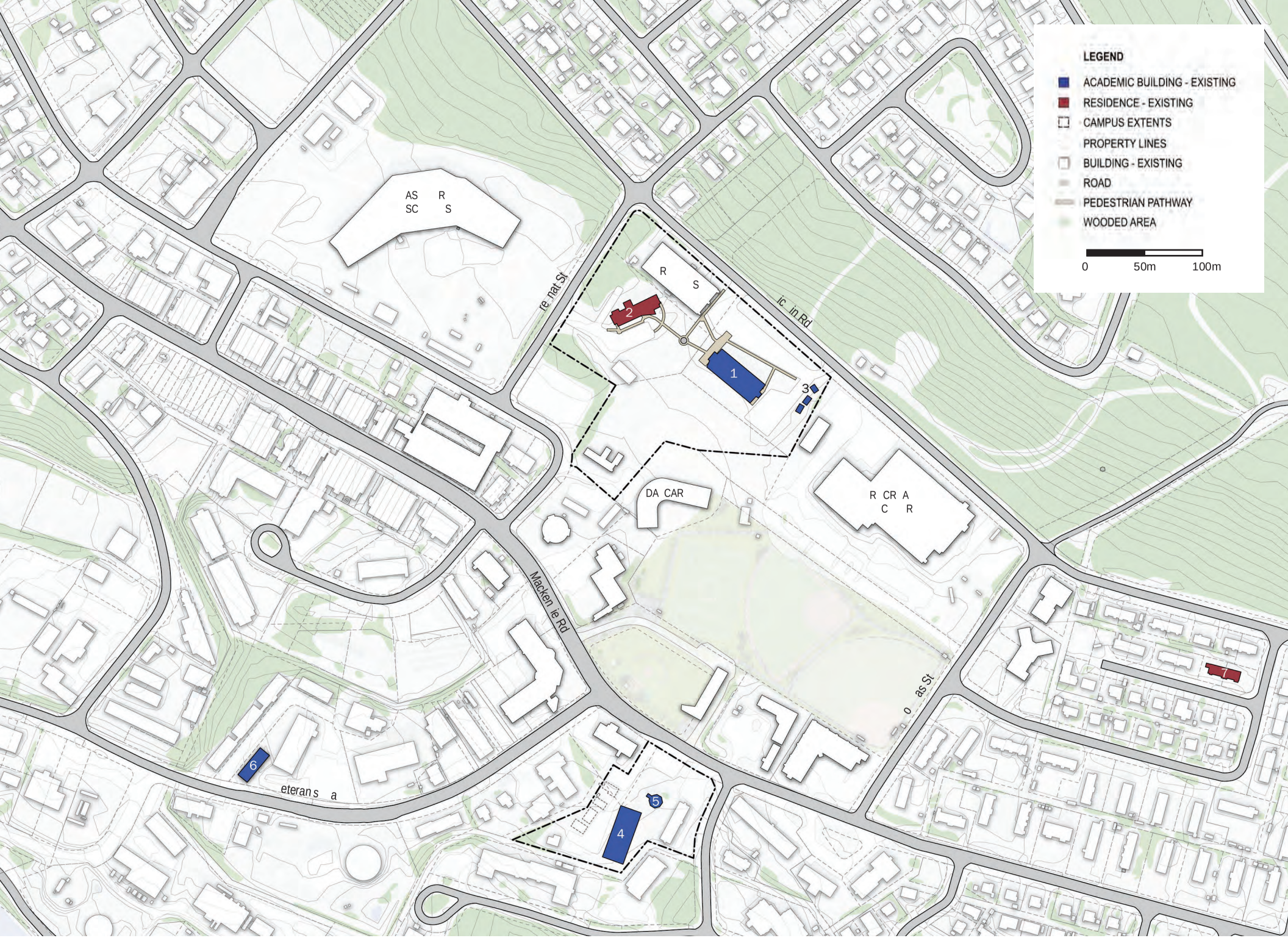


Figure 15. Aurora Campus: Existing Aurora College facilities in Inuvik

family housing from Northview REIT. Several issues arise from this: the College has no control over the building maintenance, quality, security, adequacy, health and safety, or student/tenant experience in these leased houses. In addition, the units are aging and have not always been well-maintained. By the standards aspired to for a polytechnic university, this housing is inadequate and should be replaced.

Table 10. Existing facilities at Aurora Campus

# on Fig15	Facility	Size	Year built	Ownership	Condition
	Academic site	**Area (m²)**			
1	Aurora Campus academic building	1,782	2004	Own	Good
3	Mobile trades trailers and storage sheds	--	--	Own	--
	Aurora Research Institute	**Area (m²)**			
4	Western Arctic Research Centre	1,423	2012	Own	Good
	Research centre warehouse (now in design)	--	--	Own	New
5	Cosmic Ray Building	--	1960	Own	Fair
6	Innovate Centre	300	--	Leased	--
	Residential	**# beds**			
2	Single student dormitory	30	2007	Own	Good
7	Aurora Research Institute 4-plex	12	~1960	Own	Poor
	Family student housing (12 units)	--	--	Leased	--

8.3. Required Campus Upgrades

Table 11. Additional facility requirements

Building program	Area (m²) (est.)	Phasing priority*
Academic and student support		
Delineation of future academic development site	--	A.1
Student services centre	1,328	A.2
Academic expansion which may include multi-use crafts studio, trade shop, or additional programming	1,209	Long-term
Residential		
Student family housing: 15 units	1,523	R.1
Staff or researcher housing: 10 units	867	R.2

Priority R.1) Family housing

The need for new family housing has been noted in the existing Aurora College documentation and through engagement. The demand for new family housing is estimated at fifteen units. A combination of 6 two-bedroom units, 7 three-bedroom units, and 2 four-bedroom units is proposed, yielding a total area of 1,523 m². Several potential site options for new family housing are explored in this report.

Priority A.1 Landscaping to delineate academic expansion site

Adjacent to the main academic building, the remainder of the buildable site should be preserved for the future expansion of academic and trades functions, once the polytechnic university is ready to expand. The area (outlined in Figure 3 below) should be clearly defined as "campus grounds" rather than informal parking or available land for other development.

A proposed method of preserving this land is to develop a network of walkways and an outdoor gathering area for use by the campus. This could be a fairly economical involvement, comprising of paved pathways and a simple pavilion. This landscaping would reinforce the presence and identity of the polytechnic university, and provide outdoor space for on-campus functions, while reserving the site for use by the institution.

Priority R.2 Temporary housing for visiting researchers or staff

Given the age and condition of the existing fourplex, replacement is recommended. An increase from four to twelve units is also required to meet the needs of the institution. The site currently occupied by the fourplex is suitable for researcher and faculty housing, given its proximity to WARC, its integration with a residential neighbourhood and its ownership by the GNWT. Additional site options for staff housing could also be considered as part of a future needs assessment. The ideal site will be located within walking distance of WARC, the main academic building and town amenities, and within a residential neighbourhood. Researcher/ faculty housing should be separated from student housing and from the main campus to provide a level of autonomy and integration with the larger community.

Priority A.2 Student services centre

Expansion of student supports is required as part of the transformation. Aurora Campus does not currently have dedicated space for student services (such as social areas, study rooms, daycare, counseling, etc); these should be planned for in the near future. Space allocation formulas for the polytechnic university have been used to estimate required program areas. Based on the current student numbers at Aurora College, the recommended area for student services is estimated at 1,328 m^2.

Long-term: Expansion of academic and trades facilities

While the academic facility is adequate for its current usage, an increase in programming at Aurora Campus would generate increased space requirements.

During the engagement phase of this master planning study, the following were the most commonly requested spaces for the academic/trades campus in Inuvik:

- Permanent trades shop (to replace the former/decommissioned trades shop and potentially to supersede the mobile trades trailers)
- Heavy mechanics garage
- Crafts studio, combined with a community-use space

It is recommended that future phases of development consider the addition of trades, mechanics, arts and crafts and community spaces, along with expansion of academic and research programming.

8.4. Guiding Principles and Opportunities

By applying the overall Master Planning Principles to the existing conditions at this campus, several opportunities emerge. The planning involvement at the Aurora Campus intends to achieve the following:

- Reserve the site south of the main academic building for future expansion of academic functions and student services
- Increase supportiveness of the student experience (and enrolment capacity at the campus) by improving the accessibility and suitability of housing options
- Reinforce the recognizable identity and centralized presence of the institution
- Plan for additional student support spaces and gathering areas
- Integrate new developments effectively within the larger community
- Maintain proximity of housing to the existing academic and research facilities as well as town amenities

These priorities are reflected in the recommendations that follow.

8.5. Development Site Options

Figure 3 outlines the parcel of land that should be reserved for expansion of academic and trades functions.

Several sites have also been identified for the top-priority new development, which is student family housing. The selection of potential sites took the following into consideration: proximity to the academic campus, community amenities and retail services; existing connections to utilities; and land ownership. Based on these criteria, four sites (shown in Figure 17) were identified as potential locations for new housing. A brief assessment of each follows. Further studies and further engagement will be required to confirm a final site.

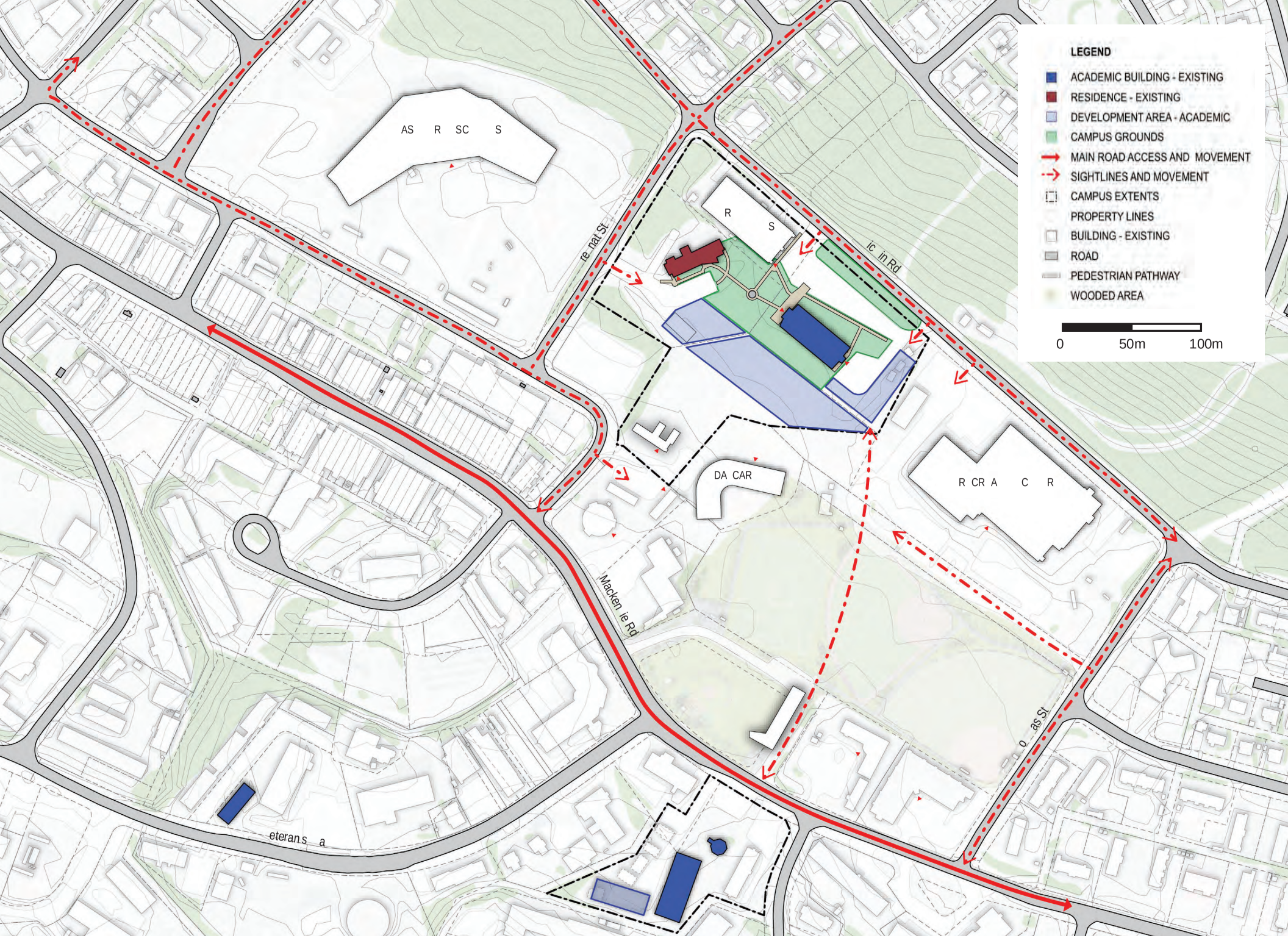


Figure 16. Aurora Campus: Development Framework for Academic Expansion

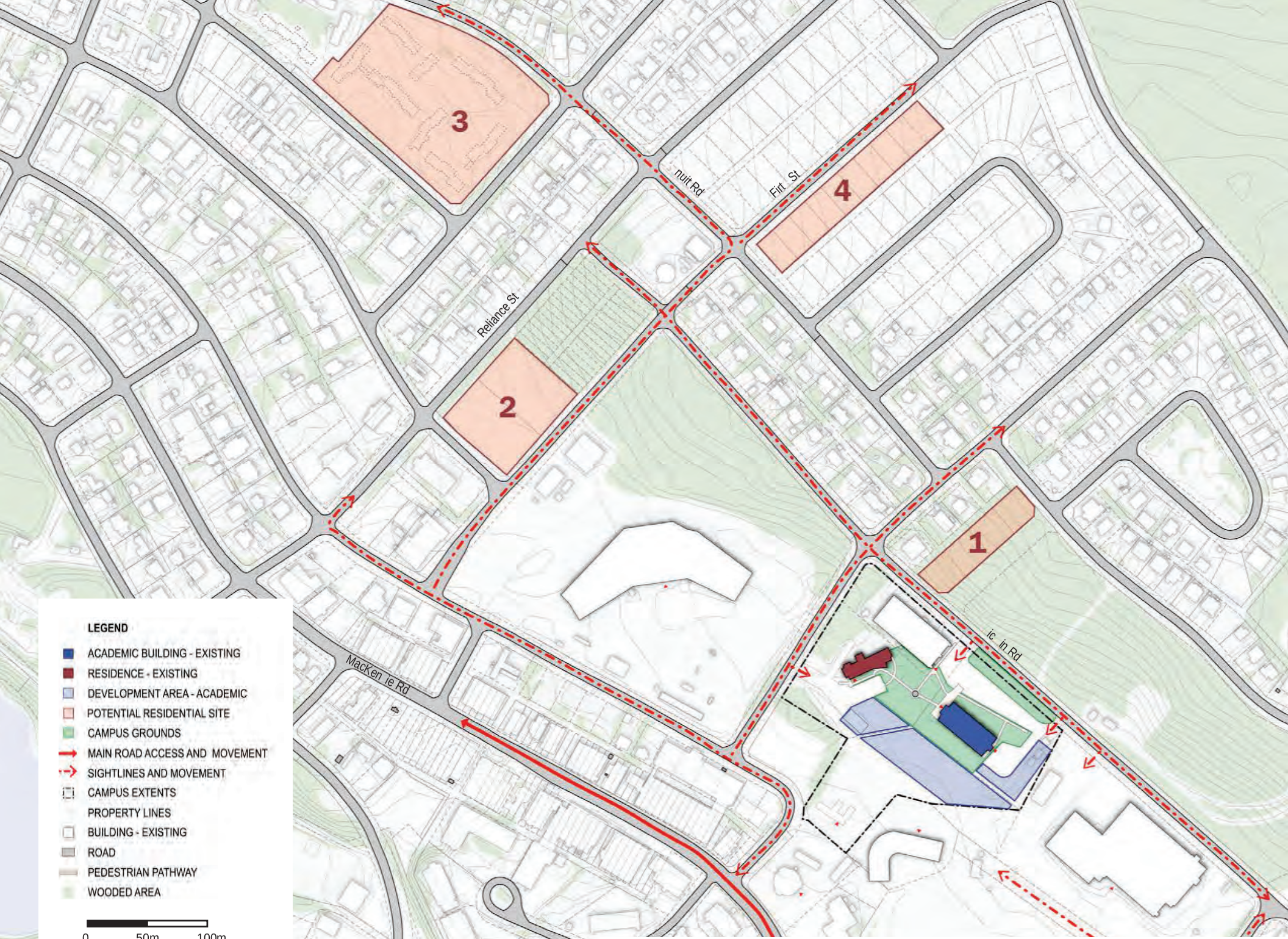


Figure 17. Aurora Campus: Site Options for Family Housing

Site 1: Adjacent to campus – Gwich'in Road

Directly across Gwich'in Road from the campus, four parcels of land have been subdivided from a larger swath of treed Commissioner's land. An easement is in place to build a future access road. At present, the lots are undeveloped.

This site is desirable for student housing for a variety of reasons:

- Direct proximity to the campus and the municipal amenities near the campus site
- The lots overlook a forested area, adjacent to the ski club and walking trails
- Character of the area supports a safe, healthy and accessible student experience
- Developing these lots would consolidate the assets of the college and help to establish a strong, centralized identity

Beyond student housing, this area could also be considered as a potential site for the future expansion of academic functions or student services.

During early engagement with the Town of Inuvik, the municipality indicated that these parcels are to be preserved as green space, rather than being developed. The viability of developing these lots would need to be assessed through further engagement with all local governments.

These four parcels are located on a forested slope. It is recommended that care be taken during any potential planning involvement, to minimize building footprints and preserve existing trees on these sites. Geotechnical review will also be required, as planning progresses, to validate potential sites.

Site 2: Gwich'in Development Corporation parcels – Reliance St and Bonnetplume Rd

Site 2 is owned by the Gwich'in Development Corporation (GDC). During engagement, a representative of the GDC advocated for partnering with the polytechnic university in the development of new college facilities, including potential new student residences. Developing housing on this site would be a starting point for realizing such a partnership.

The proximity to the academic campus is ideal, being within a five-minute walk. These lots are adjacent to an existing residential neighbourhood and to a forested area. The site is an adequate size both for the proposed fifteen units and for future expansion of a similar magnitude. It would be recommended that the empty southern portion of the site be developed, and the treed area to the north be retained as green space.

As with the other sites, further engagement with GDC as well as other local governments should undertaken to discuss the overall viability and potential approach to development here.

Site 3: Blueberry Patch – Centennial and Inuit Rd

The Inuit Road site or "Blueberry Patch" was formerly the site of 48 College-owned townhouses, and is currently under the jurisdiction of Housing NWT. Of the four site options, this one is the furthest from the main academic building, but is still easily walkable, within one kilometre. Through engagement to date, some members of Town Council and staff expressed support for this site to distribute the benefits of the campus through neighbourhood revitalization, rather than centralizing the infrastructure where there is already substantial investment.

The Blueberry Patch is a very large site and is in need of considerable investment. Fifteen new units would easily fit on the lot, but would likely be insufficient to revitalize the area. A larger scale of investment would be required to optimize the use of the site and to have an impact on the character of the neighbourhood.

Site 4: Firth St and Inuit Rd

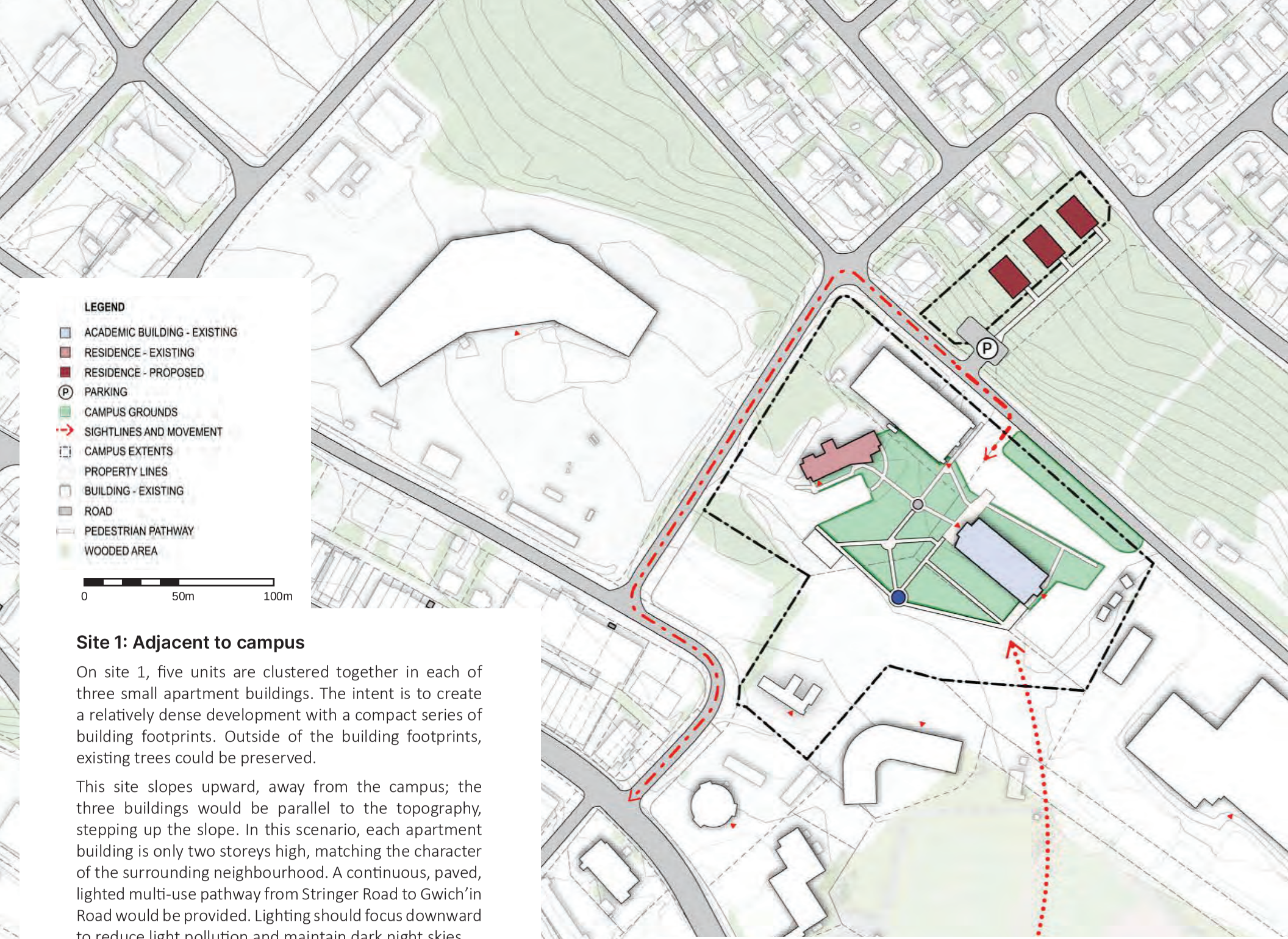
North of the campus there are two blocks of undeveloped land parcels which are slated for residential development. These parcels would be costly to develop as they are currently unserviced. There has also been pushback in this neighbourhood to any development of a higher density than single-family detached houses. This site might present more challenges than the other three options; it can be considered as a back-up option, as circumstances may evolve in coming years to make these parcels more desirable.

8.6. Development Scenarios

Three alternatives, or development scenarios, for new student family housing are shown below in Figures 18-20. Each scenario sets up a structure for potential development, with generalized building locations identified.

Paired with the housing development scenarios is a suggestion for minor landscaping upgrades at the main academic building site. These upgrades are intended to demarcate the site as campus grounds. A simple pavilion is proposed, creating sheltered space for outdoor activities on campus.

It should be noted that at present, all sites and housing scenarios are hypothetical, for the purposes of discussion and further engagement.



Site 1: Adjacent to campus

On site 1, five units are clustered together in each of three small apartment buildings. The intent is to create a relatively dense development with a compact series of building footprints. Outside of the building footprints, existing trees could be preserved.

This site slopes upward, away from the campus; the three buildings would be parallel to the topography, stepping up the slope. In this scenario, each apartment building is only two storeys high, matching the character of the surrounding neighbourhood. A continuous, paved, lighted multi-use pathway from Stringer Road to Gwich'in Road would be provided. Lighting should focus downward to reduce light pollution and maintain dark night skies.

Figure 18. Aurora Campus: Development Scenario A

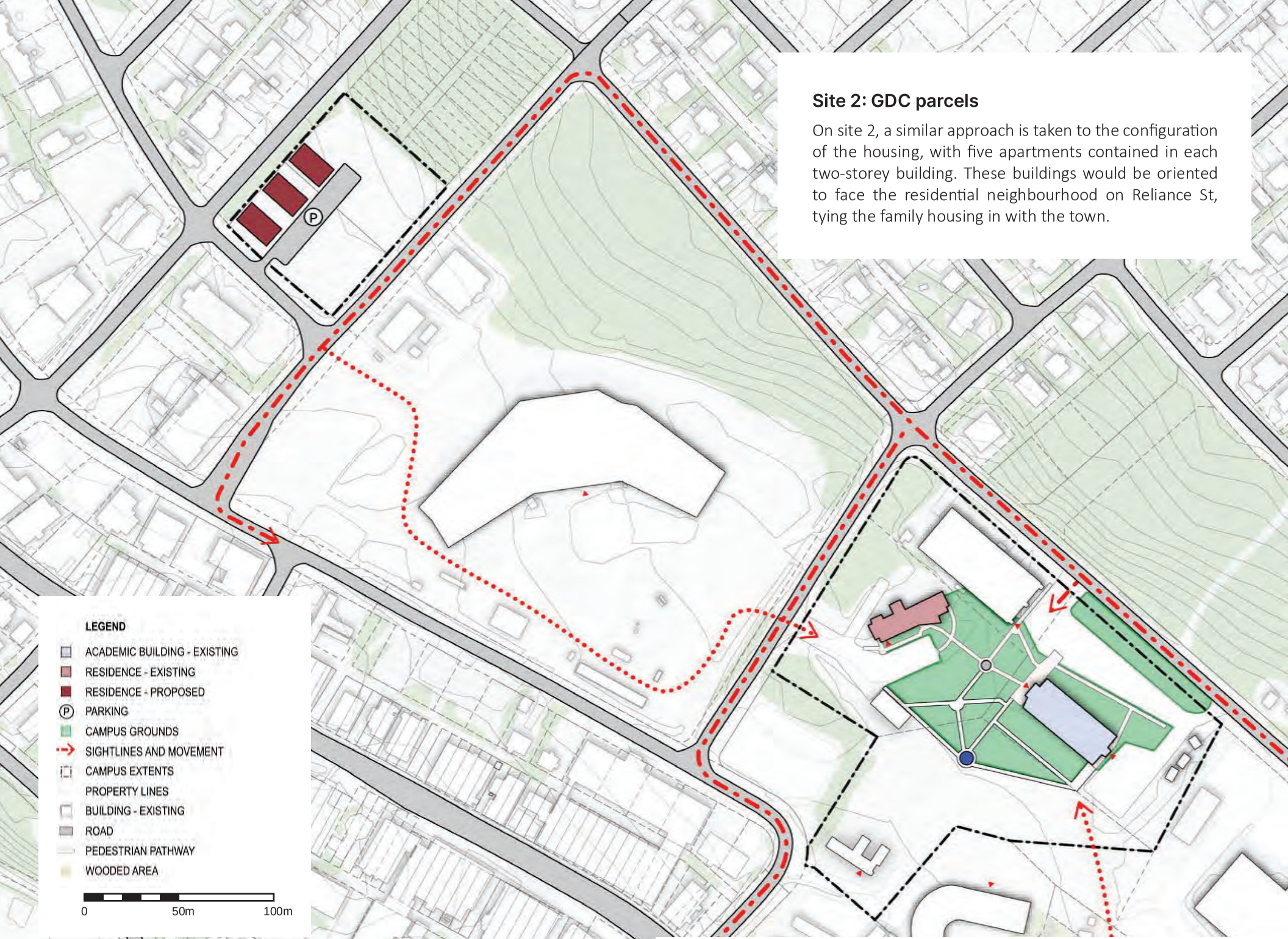
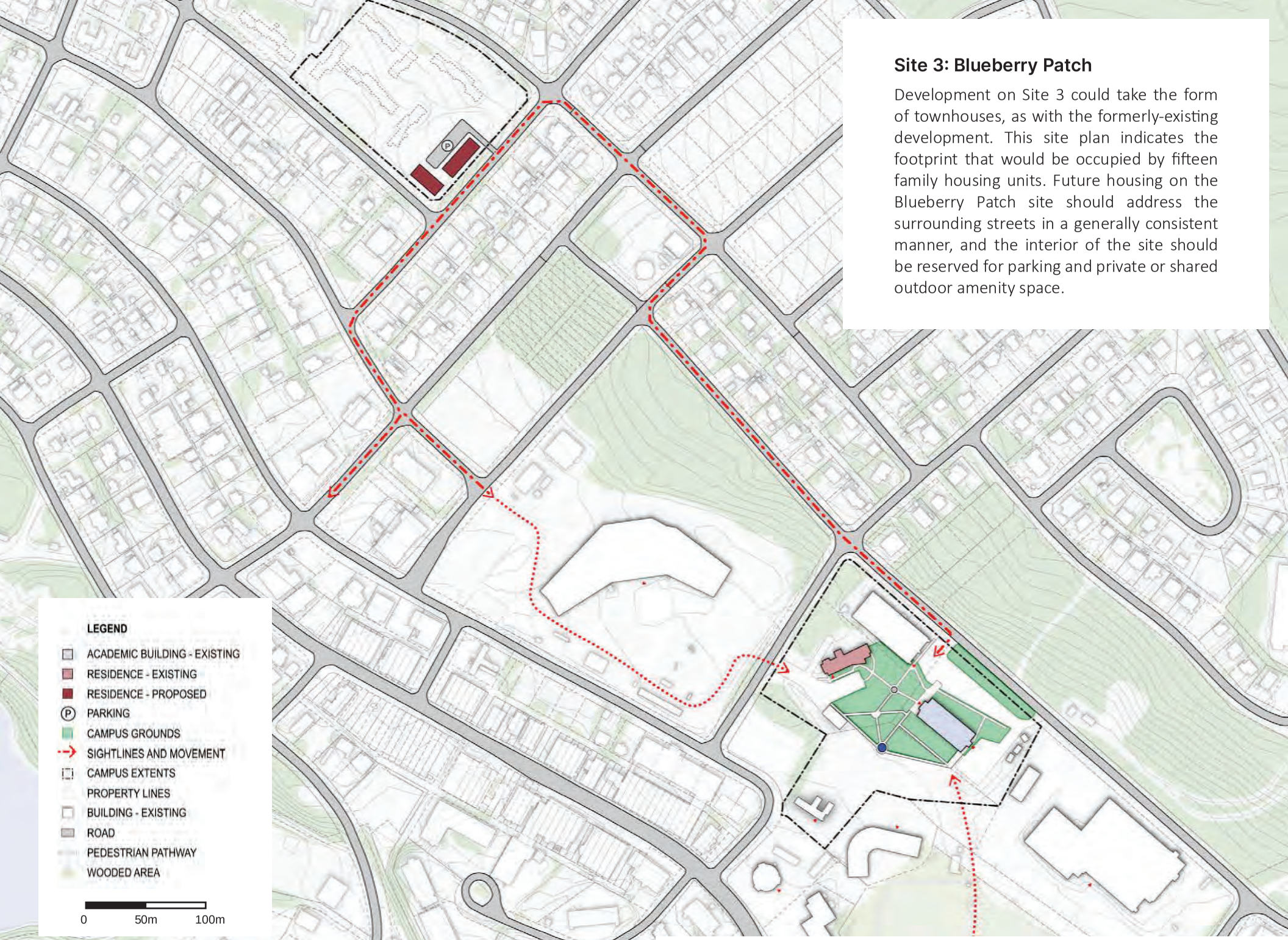


Figure 19. Aurora Campus: Development Scenario B



Site 3: Blueberry Patch

Development on Site 3 could take the form of townhouses, as with the formerly-existing development. This site plan indicates the footprint that would be occupied by fifteen family housing units. Future housing on the Blueberry Patch site should address the surrounding streets in a generally consistent manner, and the interior of the site should be reserved for parking and private or shared outdoor amenity space.

Figure 20. Aurora Campus: Development Scenario C

Development scenarios – Conclusion

The site analysis for student family housing in Inuvik has led to three potential development scenarios. Each site has its own opportunities and constraints that require further study. As the future phases of community engagement and facility needs assessments are completed, a recommended site for future housing in Inuvik will emerge.

8.7. Cost Estimates for Priority Developments

These cost estimates have been generated based on the area estimates attached as Appendix C. Assumptions and limitations on the cost estimates as well as detailed construction cost estimates for each involvement are also attached. Project costs have been calculated by adding 25% for soft costs onto the construction estimate.

Table 12. Class D Cost Estimates for Priority Developments (Aurora Campus)

Priority	Building program	Area (m^2) (est.)	Construction Cost ($) (est.)	Project Cost ($) (est.)
A.1	Landscaping upgrades to campus grounds	--	1,564,490	1,955,613
R.1	Student family housing	1,523	20,521,282	25,651,603
A.2	Student services centre	1,328	15,172,112	18,965,140
R.2	Staff and researcher housing	867	10,640,856	13,301,070

COMMUNITY LEARNING CENTRES

9. Community Learning Centres

9.1. Master Planning Vision

Through the engagement process, a strong vision for highly flexible and community-driven community learning centres (CLCs) emerged. These CLCs will be administered regionally, becoming extensions of the nearest main campus (in Fort Smith, Inuvik or Yellowknife). They will maintain a focus on adult literacy, academic upgrading and professional development, while also developing into active nodes for teaching, learning and research. Through flexible design and strong partnerships, CLCs can become vibrant and community-accessible spaces, which will enable both the polytechnic university's and the community's goals related to post-secondary education.

A key aspect of the transformed vision is the potential for a two-way exchange of learning and knowledge to develop between each campus and its respective CLCs. Several opportunities exist to activate, strengthen and enhance these potential education networks. For example, CLCs can support community-based work placements for students in programs like Nursing or Early Childhood Education. The facilities can also serve as launching points for fieldwork, facilitating travel by students, researchers and faculty. Further to this, they might support community-based teaching, through virtual courses in which community members can be learners or instructors. Each of these functions can offer new benefits to communities – in the form of improved services, programming and economic activity – and, also, to the polytechnic university, via the enhancement of training and research opportunities available through the institution.

CLCs can become collaboration hubs, fostering partnerships among secondary, post-secondary, community, government, and co-management organizations and strengthening community pathways to post-secondary education. By building on community priorities and potentially investments by other partners, CLC facilities may be designed to offer, for example trades training in communities, or launching points for field-based work in environmental stewardship and leadership.

Over time, as there are opportunities for re-investment in CLCs, strong regional and community engagement processes will bring together potential partners to determine the specifics of facility usage and design. At this point in the planning process, a base concept is presented, with the intention that the vision for CLCs will be further developed in collaboration with individual communities, other government departments, secondary school boards, and other potential co-investment partners.

9.2. Existing Facilities

Community learning centres are currently located in 21 communities across the NWT. Many are aging, having been built twenty-five to thirty-five years ago. Most of these facilities are standalone buildings owned by the GNWT, some are spaces leased from community partners, and some are spaces within community buildings (typically schools). Each CLC offers programming to between 0 and 25 Full-Time Equivalent students, in a space consisting of 1-4 classrooms and sometimes a combination of offices and meeting rooms. Most often, the CLCs are resourced with a full-time Community Adult Educator, along with visiting instructors who teach specialized courses and workshops. Adult Literacy and Basic Education (ALBE) is the program most-often offered at CLCs, though some also offer post-secondary programming such as Introduction to Underground Mining or Environmental Monitoring. Programming tends to be focused on strengthening adult literacy, upgrading adult students'

qualifications to enable either high school graduation and/or access to College programs, and short employment-focused courses. Some smaller NWT communities do not currently have a CLC.

Basic information about each CLC facility is included below.

Table 13. Summary table of CLC facilities in each non-campus community

Community	Post-secondary programming?	Avg. FT students*	Avg. PT students*	Full-time staff?	Standalone building?	#class-rooms	#offices	Year built / reno'd
Aklavik	N	10	7	FT	Y	2	1	1994
Behchokǫ̀	Y	--	--	FT	Y	2	1	1990
Colville Lake	no CLC							
Délı̨nę	N	25	3	FT	Y	2	1	1998
Dettah	no CLC							
Enterprise	no CLC							
Fort Good Hope	Y	0	14	FT	Y	2	1	1991
Fort Liard	N	0	14	FT	N	2	0	1988/2002
Fort McPherson	N	22	6	FT	N	2	0	1997
Fort Providence	Y	13	0	FT	N	2	0	1999
Fort Resolution	Y	11	0	FT	Y	1	1	1967/2000
Fort Simpson	Y	11	8	None	N	3	1	2009
Gamèti	N	--	--	PT (80%)	Y (lease)	2	1	?/2015
Hay River	N	20	1	FT	Y	4	1	1999
Jean Marie River	no CLC							
Kakisa	no CLC							
Kátł'odeeche	N	--	--	FT	Y	1	1	2011
Łutselk'e	N	--	--	PT (80%)	Y	2	1	2011
Nahanni Butte	no CLC							
Ndilo	N	--	--	PT (80%)	Y	4	1	1991/2000
Norman Wells	N	5	0	FT	(lease)	2	1	2007
Paulatuk	N	4	5	None	N (lease)	--	--	--
Sachs Harbour	N	--	--	None	(lease)	--	--	--
Sambaa K'e	no CLC							
Tsiigehtchic	N	--	--	PT (6 mo.)	Y	2	1	2011
Tuktoyaktuk	N	20	2	FT	Y	2	1	1992
Tulita	N	20	2	FT	Y	2	1	1991
Ulukhaktok	N	4	2	FT	Y	1	1	1967
Wekweètì	N	0	12	PT (75%)	Y	1	0	--
Whatì	N	0	10	FT	Y	1	0	2000
Wrigley	no CLC							

*Average number of students is historical data, documented in a 2012 capital planning report. While the specific numbers are now outdated, they have been included as they provide an order-of-magnitude comparison of historical enrolment numbers at each CLC.

Note: where marked "--", the information is not recorded in available documentation.

9.3. Guiding Principles and Opportunities

Further engagement between the polytechnic university and community leadership organizations will be needed to explore the governance and programming of such facilities. As the parameters of these relationships and partnerships are clarified, it will become increasingly clear what is possible for space and programming.

Planning Principles

It is intended that there will be a cohesive approach for enhancing and expanding CLCs, though specifics may differ as community and other partnerships are further explored. Upgrades or replacements may take place on individual timelines for each community in response to aging infrastructure or opportunities for partner investment. Planning principles may be prioritized according to a variety of factors, such as demand for programming, and potential synergies with other infrastructure or initiatives.

Through engagement, the following principles have emerged that can guide future investment in community learning centres:

- **Establish a cohesive sense of place or sense of belonging to the polytechnic university, across locations.** In addition to unique characteristics that may arise through partnerships, CLCs can incorporate a consistent sense of identity and belonging across communities, by establishing a standardized design approach for all facilities.
- **Reinforce or revitalize the relationship between a CLC and its host community.** CLCs should be flexible spaces and should be open to community collaborations.
- **Enhance interconnectivity between campuses and CLCs.** CLCs should strengthen Northern students' pathways to education by identifying synergies and opportunities for shared space programming between secondary schools, the CLC and main campuses. CLCs should foster two-way learning, enabling opportunities for post-secondary school work and research placements that both meet community prioritized objectives while also creating unique learning opportunities and cultural immersion in Indigenous communities. To do so, CLCs will need to either directly, or through planning with partners, support housing needs for students, teachers and researchers.
- **Improve accessibility of facilities and programming to local students.** CLCs should support community-prioritized education and research, which for many communities may include:
  - In-person and on-line language programs
  - Laboratory spaces to support community-led or community-collaborative field work related to environmental stewardship
  - Workshop spaces to emphasize learning in Indigenous Arts and Crafts and to strengthen pathways into the construction trades
  - Food preparation and processing spaces that emphasize learning related to Indigenous culture and harvesting, while also strengthening local food security

Opportunities

Many of the highlighted principles are underpinned by opportunities that exist or are emerging in some NWT communities. These include:

Two-way learning exchange

To strengthen the relationship between the campuses and communities, the CLCs can be viewed as nodes of exchange, facilitating two-way teaching and learning. This can include:

- More community hosted practicums, research projects or short courses. Work placements might include nursing, social work or teaching placements, for example, while short courses might include trades courses centred around specific community projects
- Bringing in more Indigenous Knowledge holders and teachers to teach or contribute to programming on the main campuses
- Support for Indigenous language speakers to share their knowledge, to encourage new speakers, and to research and apply best practices to learning
- Supporting community learners to participate virtually in activities happening on a campus, and vice versa
- Stronger day-to-day connectivity across polytechnic university facilities through IT networks, and integration of activities and programming

To facilitate this type of exchange, CLC facilities should be equipped with:

- Strong IT capabilities, equipment and stable internet connections
- Spaces that can function as virtual classrooms, considering appropriate acoustics
- Sub-dividable spaces or pods that enable individual virtual learning
- Potentially, short-term accommodations – see below

Responding to housing challenges

In many NWT communities, housing for instructors, researchers and students is a challenge. The situation varies, with some communities having accommodation businesses owned by their development corporations or private businesses, which should not be undercut. For other communities, additional accommodations may be needed, or targeted accommodations (e.g. bunkhouses built into facilities) may serve researchers and students economically without undercutting local businesses.

In the concept designs shown below, CLCs are equipped with a space that can be reconfigured into simple, temporary accommodations. This is intended to support travel between communities by polytechnic students, researchers and short-term instructors.

Enhancing capability for post-secondary programming and research

Future CLC programs and priorities might need access to:

- Flexible spaces that can be adapted to multiple uses
- Basic wet laboratory spaces with ample fridge and freezer spaces, lockable cupboards for chemical storage, and large sink spaces. These laboratories will enable community researchers and their academic collaborators to prepare for field sampling and to safely process and store samples for more detailed analyses elsewhere
- Ample storage space for field supplies and equipment, near to flexible open spaces that can be used to prepare, clean and organize gear in preparation for, or following field work
- Spaces that can also be used for food processing and preparation (possibly with kitchen facilities that will meet environmental health standards for public food service)

- Sufficient linkages to indoor and outdoor spaces to facilitate and respect Indigenous harvesting and food preparation practices, including, for example, outdoor space for fires (for feeding the fire and for gathering) and for hide tanning
- Appropriate space and equipment for language studies and research including studios with appropriate sound treatment for virtual teaching and recording

Strengthening pathways to learning through hands-on education

The leap to urban life at a university campus for some NWT residents accustomed to living in a small community must not be underestimated. Appropriate facilities at a CLC can strengthen education pathways. For example, construction workshop spaces and programs can be accessible to high school students, or programs can be offered that can count as credit towards polytechnic university programs later. In addition, such workshop spaces may enable more effective upgrading programs supporting adult learners to meet program entrance requirements; it is often more effective to teach applied math and literacy rather than theoretical courses. If spaces can be made sufficiently flexible, such spaces can also meet community program priorities, including supporting Indigenous cultural crafts and art.

CLC spaces that enable this type of maker education will likely need:

- Appropriate communal tools, work spaces and storage spaces, including properly designed ventilation and power supply, as well as personal protective equipment
- Sufficient storage both for supplies and finished art / construction products
- Depending on the detailed vision that emerges within a community, specialized spaces for different kinds of arts or trades

An additional opportunity to consider is that trades students at the polytechnic university can be engaged in the construction of CLC facilities. The standardized facility can be designed to maximize the potential for involving trades students and apprentices during the build process.

9.4. Planning Framework

The transformation of Aurora College into a polytechnic university has major implications across all aspects of physical and academic planning, including the future of community learning centres. As the growth of campus facilities brings increased student support, research opportunities and a fuller campus experience, the CLCs, too, have the opportunity to be enhanced as extensions of the Aurora, Thebacha, and Yellowknife North Slave campuses.

Further engagement will be needed to advance specific plans for each CLC. Ultimately, there are opportunities for a host of partners to come to the table and contribute to community infrastructure that will enable partnerships and strong community teaching and research. While there can be economies of scale found in having standardized solutions, and a recognizable look and feel to all polytechnic university facilities will help build community connections and pathways to the institution, there may be diverse possibilities for co-investment and final designs. Long-term leases, co-ownership (strata type models), or other models may increase the economic sustainability of facilities.

Case study research, undertaken as part of this facilities master planning process, identified that typically stand-alone facilities serve at least 100 students, four times the current average served by a CLC. Engagement work also revealed that many community members and leaderships feel removed from existing CLCs. CLCs do not feel accessible to most community members and are not integrated into community initiatives. Bringing together complementary uses and partnerships may ensure that a facility is optimally used, as the times or seasons those different users need a facility may differ. For instance, a makerspace or trades focused facility may be used by a secondary school on weekdays, whereas a polytechnic university

program may be most appropriately scheduled evenings or weekends to enable participation of part-time learners or those otherwise employed. With such small user numbers (given the small size of NWT communities) it may be more realistic to imagine a polytechnic university running a program during one semester, with the high school running a program the following one. Similarly, there may be programs that can be available to both teenage and adult learners.

There are existing models that demonstrate how strong partnerships can help to meet community goals, while creating dynamic hubs for research and learning. For example, Wilfrid Laurier University is into its second formal ten-year partnership with the GNWT. Collaborating researchers undertake community-driven field-work in many NWT communities; including the small communities of Kakisa (population of approximately 30 people) and Sambaa K'e (population of approximately 90 people). With several students conducting fieldwork in the community annually, and with community accommodations becoming tight, Wilfrid Laurier was able to enter into an agreement to lease a house that the Ka'a'gee Tu First Nation had newly acquired. The agreement enabled the First Nation to maintain an asset that it may otherwise have been unable to upkeep. The First Nation is also able to 'rent back' rooms to fill accommodation needs for other community projects, while also defraying the WLU research team's rental costs. Similarly, research collaborators in both communities use existing community spaces (Band Hall and the Community Centre) for meetings and workshops, ensuring that research dollars defray community costs and support critical community infrastructure. Community and polytechnic university partnered projects have invested in new community based infrastructure, including greenhouses and gardens. These examples presents simple models of what might be possible with CLCs, wherein partnerships may enable creative forms of governance and more extensive and specialized spaces than if the polytechnic university were to operate all of its CLCs independently.

Given the diversity of models that may be possible, a further comprehensive engagement process is recommended that is initially regional, and then community specific, and that initially casts a broad net in terms of potential partnerships.

9.5. Parties for future engagement

There are many potential partners within communities that are likely to have a shared interest in education and research. Actual interest, resources and capacity for collaboration among groups will differ between communities; however, further planning for CLCs should at least initially cast a broad net to create opportunities to explore a range of possibilities. Table 14 on the following page provides some examples of partners that may be brought forward with interest in specific kinds of spaces that have been identified as important within a CLC. It is important to note that this is a preliminary list, and as engagement progresses, additional partners or collaborators may be identified.

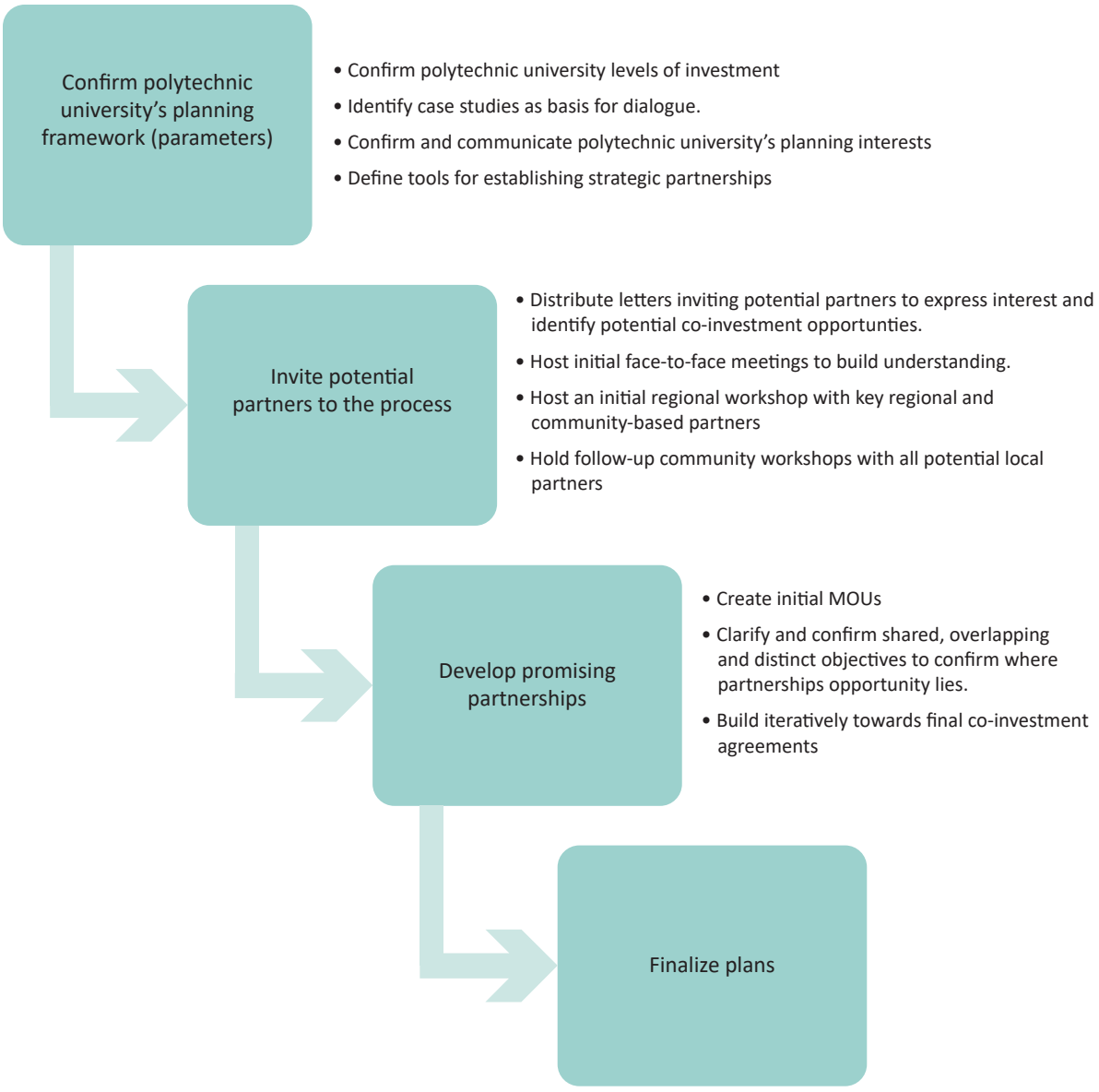
Table 14: Examples of parties to further engage in planning for specific CLCs

Potentially interested party or potential partner	Example of potential interest
Indigenous and Community governments (these tend to be blended / cohesive in some of the smaller communities)	• Opportunity to leverage space investments for research that may be integrated with community initiatives (such as wellness, food security, cultural restoration, arts craft and culture). • Many localcommunities have related facilities flagged in their strategic planning documents or capital plans, such as maker spaces and spaces that support wellness programming and food production. • May have existing underutilized infrastructure that would become more sustainable through long-term investment of the polytechnic university. • May have strategic programs or goals with potential synergies to the polytechnic university.
Land Corporations	• Are enabled to invest in education as permitted activities within Claim agreements and are mandated to support Members. Often own business development arms.
Indigenous owned business arms	• May be well placed to invest in the facility. Additional community prioritized needs could also be incorporated to the final design, creating economies of scale and optimizing community access.
Renewable Resources Councils or Hunters and Trappers Committees	• Currently often have key roles in research collaborations related to culture, Indigenous Knowledge and environmental stewardship. (There may be additional or new management bodies associated with IPCAs).
JK-12 Education Authorities	• Some types of spaces (ex. Trades or workshops spaces, kitchens) may be of interest to use also for occasional secondary education. • May have insights to community-based need and possibilities related to practicums in education. • May be opportunities to consider polytechnic university program delivery when secondary schools are slated for new construction or renovation.
Existing university community collaborators / researchers	• May run field programs or other research programs with space requirements (ex. workshop or laboratory, equipment storage) and may have research funds that support a business case for some spaces, including bunk houses or other types of built-in accommodations.
Government of the Northwest Terrtories	• Environment and Natural Resources: May have synergistic needs to access workshop, laboratory and/or other research related spaces. • Health and Social Services: May have insights to community-based need and possibilities related to practicums in nursing, social work, and potentially other programs.
Co-management Boards	• May have synergistic needs to access workshop, laboratory and/or other research related spaces either directly for themselves or for research partners that they facilitate.

Activities for future engagement

Future engagement for CLCs can be community focused, identifying an investment from the polytechnic university, and then working with potential partners to identify which, if any, may be interested in co-investment and/or co-location. It will be important that the polytechnic university creates clear planning parameters that define acceptable governance and ownership models, clarify the possible level of investment by the polytechnic university, and structure any other interests that will bound partnership development. From there, it will be possible to invite partners to engage in the planning process and together explore promising partnerships. Though planning processes will ultimately need to be community focused, it will be useful to start at a regional scale and reference back to a regional scale to ensure that investments are appropriately distributed within a region. Recommended steps for further engagement about CLCs include the following sequence in Figure 21.

Figure 21: Engagement towards community-driven CLCs



9.6. Development Scenarios

Though a number of scenarios and final designs may be possible, it is helpful to bring forward a number of interests for space programming that can help to guide partnership discussions and that articulate the core needs of any CLC. A base model is proposed to be as flexible as possible to accommodate some of the identified interests, leaving opportunities for specific space programming to be designed in collaboration with community governments and other community partners. CLCs across the board will need flexible spaces that accommodate classroom and virtual learning, as well as more flexible gatherings spaces for workshops or talking circles, as an example. Table 15 summarizes some key interests for space programming that have emerged from community engagement to date.

Table 15: Space considerations for potential components of a CLC

Space module	Conceptual design considerations
Base community learning centre	• Strongly integrated IT hardware and effective internet connectivity • Pods, barriers, and/or acoustic treatment that effectively enable virtual learning and teaching, including for Indigenous languages • Equipment appropriate to teaching, learning, recording and documenting in Indigenous languages • Flexible spaces that enable classroom, virtual learning and group working spaces such as workshops and talking circles • Community-facing and accessible in design • Thoughtful interfaces between indoor and outdoor spaces which facilitate Indigenous cultural uses
Field research, cultural practices	• Field equipment storage • Field equipment staging space (open work space) • Equipment may include equipment to support on-the-land initiatives beyond field work in the natural sciences
Laboratory uses (for processing and storing samples and equipment)	• Easy to clean space with large, multiple sinks, locking cabinets for chemical storage • Substantial freezer and fridge space (a wide range of samples may be sampled and stored, for example, water, soil, fish, animal parts or carcasses etc). • Counter space for sample preparation, sample processing • Back-up power generation to protect frozen and refrigerated items
Food security	• May be possible to use flexible laboratory space above • Consider (commercial) kitchen add-on • Spaces to process and prepare traditional country foods • May consider indoor and outdoor integrations with food growing (greenhouse, compost, garden)
Makerspace / Indigenous arts and craft	• Workshop space with material storage • Work tables / bench space • Appropriate shared tools depending on focus
Construction trades	• May be compatible with above, or construction trades may require own or larger space • Appropriate shared tools depending on focus
Accommodation	• Accommodations for short-term student, instructor and research stays • Could include a mix of accommodation types with some bunkhouse and some more private accommodations

As a basis for discussion and planning, three partnership models are presented.

Partnership model A: Permanent standalone building dedicated to polytechnic university programming. Other complementary services, such as childcare or health care, may occupy a portion of the building.

Partnership model B: The polytechnic has a dedicated space, such as a classroom, within a broader multi-use facility. This may be a school, healthy facility or other shard facility in the community.

Partnership model C: Polytechnic university programming is offered virtually, or occasionally through shared or lease spaces. The space used and delivery approach may be modified from time to time.

9.7. Concept Designs for Basic and Expanded Facility Models

While other designs may emerge through exploration of the partnership models above, two design concepts are brought forward demonstrating potential models for purpose-built CLC facilities: a basic or standard model, and an expanded model. It is expected that the two-storey, expanded model might be built in larger communities, in regional centres, or in communities where partners have demonstrated an interest in co-investment.

The spaces illustrated in the concept plans are intended to be highly flexible. Multi-use learning rooms can be equipped with various furnishings and fixtures to accommodate different programming. In each concept, a flexible bunk area is built in, offering simple, temporary accommodations for visiting researchers or short-term instructors.

The construction methodology for these facilities is envisioned to be simple and replicable. An economical but recognizable built identity could be established across all facilities.

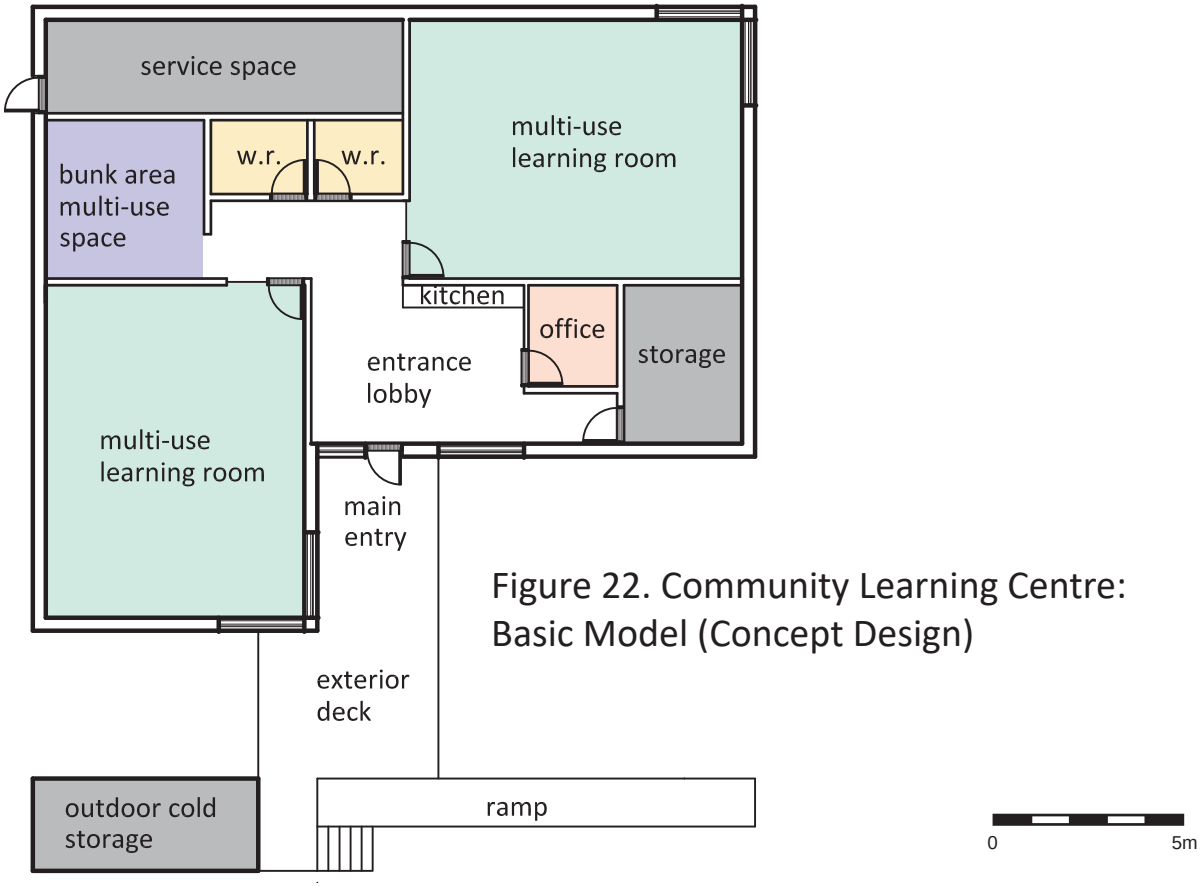
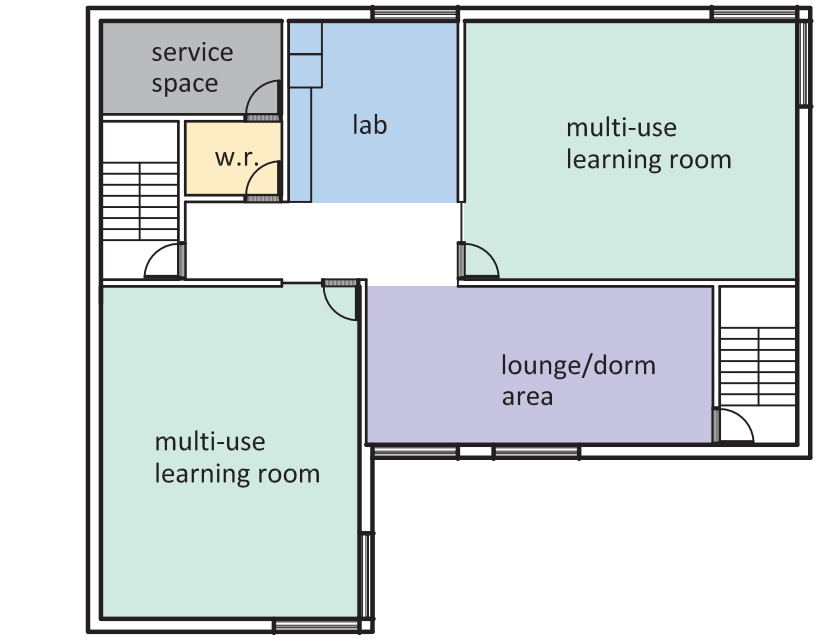
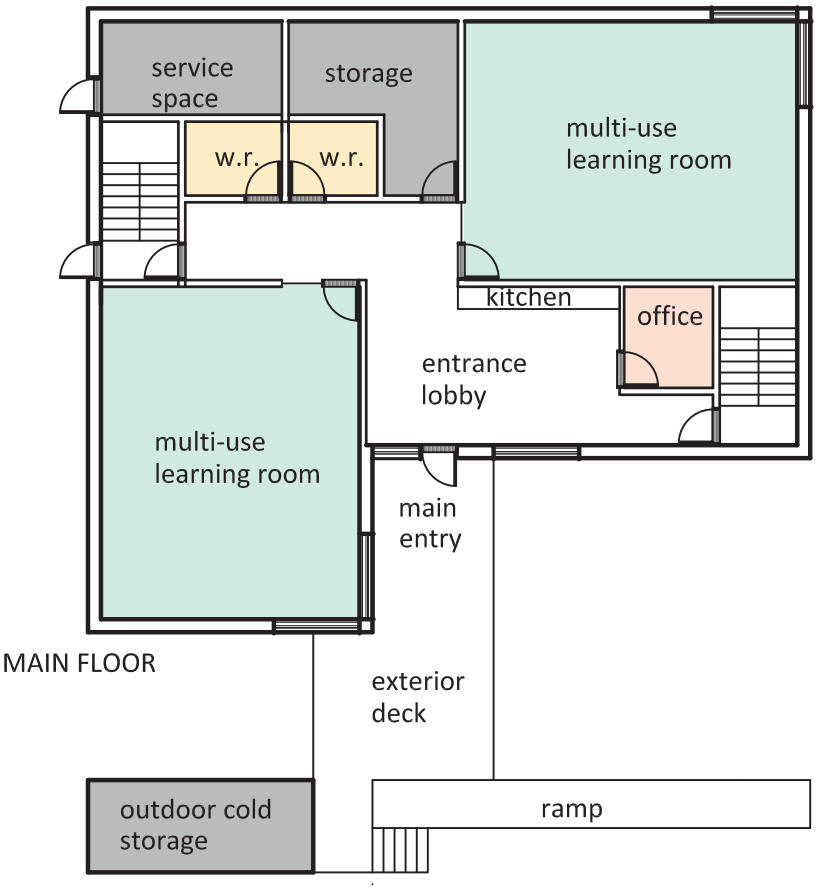


Figure 22. Community Learning Centre: Basic Model (Concept Design)

Figure 23. Community Learning Centre: Expanded Model (Concept Design)



SECOND FLOOR



MAIN FLOOR

9.8. Cost Estimates for Facility Models

These cost estimates have been developed for the conceptual facility plans shown above. A soft cost of 30% has been added onto the cost estimates for construction, to arrive at a total estimated project cost for each type of facility.

These estimates are provided for the purpose of supporting further project planning and engagement. An estimate has been provided for both types of facility in each community, understanding that specific decisions about facility types, programming and locations will only be made after significant further engagement. Assumptions and limitations on cost estimates are included in appendices.

Table 16. Project cost estimate for each facility model in each non-campus community

Community	Construction Factor	Basic facility model ($) (est.)	Expanded facility model ($) (est.)
Aklavik	2	8,282,092	12,175,576
Behchokǫ̀	1.25	5,176,308	7,609,735
Colville Lake	2	8,282,092	12,175,576
Délı̨nę	1.75	7,246,831	10,653,629
Dettah	1.15	4,762,203	7,000,956
Enterprise	1.15	4,762,203	7,000,956
Fort Good Hope	1.75	7,246,831	10,653,629
Fort Liard	1.6	6,625,674	9,740,461
Fort McPherson	1.9	7,867,987	11,566,798
Fort Providence	1.4	5,797,464	8,522,903
Fort Resolution	1.4	5,797,464	8,522,903
Fort Simpson	1.3	5,383,360	7,914,125
Gamèti	1.8	7,453,883	10,958,019
Hay River	1	4,141,046	6,087,788
Jean Marie River	1.5	6,211,569	9,131,682
Kakisa	1.5	6,211,569	9,131,682
Kátł'odeeche	1	4,141,046	6,087,788
Łutselk'e	1.9	7,867,987	11,566,798
Nahanni Butte	1.5	6,211,569	9,131,682
Ndilo	1	4,141,046	6,087,788
Norman Wells	1.75	7,246,831	10,653,629
Paulatuk	2.25	9,317,354	13,697,523
Sachs Harbour	2.25	9,317,354	13,697,523
Sambaa K'e	2	8,282,092	12,175,576
Tsiigehtchic	1.85	7,660,935	11,262,408
Tuktoyaktuk	1.9	7,867,987	7,867,987
Tulita	1.75	7,246,831	10,653,629
Ulukhaktok	2.25	9,317,354	13,697,523
Wekweètì	1.85	7,660,935	11,262,408
Whatì	1.75	7,246,831	10,653,629
Wrigley	1.5	6,211,569	9,131,682

10. Implementation

The FMP provides a framework, guidelines and strategic direction for the polytechnic university's physical development over the next 10 years. This section summarizes next steps for priority projects on the three main campuses, outlines a path toward enhancing CLCs, and recommends a planning process for future projects to ensure they align with the master plan and support the institution's overall mission and goals.

10.1. Priority Initiatives at Each Campus

The following facilities are needed to meet the short-term objectives for the polytechnic university with respect to academic programming, student housing and campus experience.

Thebacha Campus

- Student services and amenity building (including outdoor amenity space).
- Approximately 50 new units for single students.
- Approximately 50 new housing units for students with families.
- Heavy equipment garage.
- Temporary housing for staff and visiting researchers.

Yellowknife North Slave Campus

- Road and utility infrastructure for a new campus on Tin Can Hill.
- New academic building, including equipment storage and outdoor amenity space.
- New student services facility, including outdoor amenity space.
- Approximately 134 new housing units for students with families.
- Approximately 89 new housing units for single students.
- Temporary housing for staff and visiting researchers.

Aurora Campus

- Approximately 15 new housing units for students with families.
- Site development work at the academic campus.
- Student services and amenity building.
- Temporary housing for staff and visiting researchers.

10.2. Project Costs and Phasing

All of these initiatives are intended to be realized within the next ten years. Given the overall scale of the recommended developments, the projects have been categorized into two sets of priorities. Priority 1 facilities are recommended in the very short-term, and are necessary to allow an increase in student enrolment at each campus. Priority 2 facilities may be required after student enrolment has increased or, otherwise, are required as an independent item from student enrolment.

A summary of recommended projects, phasing, and cost estimates is included in Table 17 on the following page.

Table 17. Summary of estimated project costs for priority developments

Phase	Facility	Project Cost ($) (approx.)	Phase Totals
Thebacha Campus			
1	Student housing – singles and families	64.1 M	82.8 M
	Student services centre	18.7 M	
2	Heavy equipment garage	7.3 M	14.0 M
	Staff and faculty housing	6.7 M	
	Total – Thebacha Campus		**96.9 M**
Yellowknife North Slave Campus			
1	Site development – roads and servicing	38.5 M	239.4 M
	Academic and research facility	92.5 M	
	Phase 1 of student services building	46.1 M	
	Phase 1 of student housing (40%)	62.3 M	
2	Phase 2 of student services building	24.8 M	125.2 M
	Phase 2-3 of student housing (60%)	93.4 M	
	Staff and faculty housing	7.0 M	
	Total – Yellowknife North Slave Campus		**364.6 M**
Aurora Campus			
1	Student family housing	25.7 M	27.7 M
	Academic site development	2.0 M	
2	Student services centre	19.0 M	32.3 M
	Researcher housing	13.3 M	
	Total – Aurora Campus		**60.0 M**

10.3. Programming and Project Planning

For each of the developments listed above, several next steps will occur before the project moves into the design phase.

The available budget needs to be confirmed for each project.

For several of the facilities, multiple development scenarios have been proposed in this plan. An ideal scenario remains to be discussed and selected through further engagement with key stakeholders and with the broader communities. The selection, transfer and re-zoning of new sites for development in all three campus communities will require further engagement and collaboration with local Indigenous governments and communities.

The academic programming strategy for the polytechnic university is currently in development, and has been running in parallel to the FMP. Similarly, an overall business case, organizational design and set of student enrolment targets for the polytechnic are being finalized by the GNWT and Aurora College. Once all of these pieces are in place, a detailed functional program for each facility can be developed. Note that at the present time, area calculations have been developed using a set of space formulas. The next step is to detail the functional and technical requirements for each building. A combination of internal (Aurora College and GNWT) and external (consultant) expertise will likely be required to work towards detailed functional programming documents for all above-listed projects.

Once the budget, site and functional program for each project has been established, the next step will be to initiate a concept design process with a consultant team led by an architect.

Given the scope of these upcoming involvements, a governance structure may need to be further established for this work at the transformed institution. This may require, for example, the formation of a committee under the Board of Governors, which is specifically equipped for oversight of the polytechnic facilities and infrastructure.

The polytechnic university should establish a consistent and rigorous process for the development, review and approval of future facility projects. The FMP should be referenced at all project stages and milestones, including at the outset of project formulation, to ensure the development frameworks and guidelines for each campus are respected and the goals of the plan are achieved. Other stages include program development, site selection, concept design and design development (schematic and detailed). At each key decision point in the process, including final approval by the Board, the project proponent should report on how it aligns with the Facilities Master Plan, and justify any variation from it. The planning process should include steps when internal stakeholders, Indigenous and community governments, and the broader public should be consulted.

10.4. Community Learning Centres

The FMP describes and illustrates potential new facilities for CLCs, which are intended to better meet local needs, support research and other field work, and establish strong linkages between CLCs and the main campuses. The next step is to work with each community to identify where the greatest need for facility improvement or replacement exists. Discussions and proposals should be informed by the polytechnic university's academic programming goals and pedagogical approach, its "Pathways to Learning" strategy, and opportunities for partnerships with local communities intended to enhance local services. Sections 10.4-10.5 of this report provide further recommendations for the next steps of engagement on CLCs.

10.5. Monitoring the Facilities Master Plan

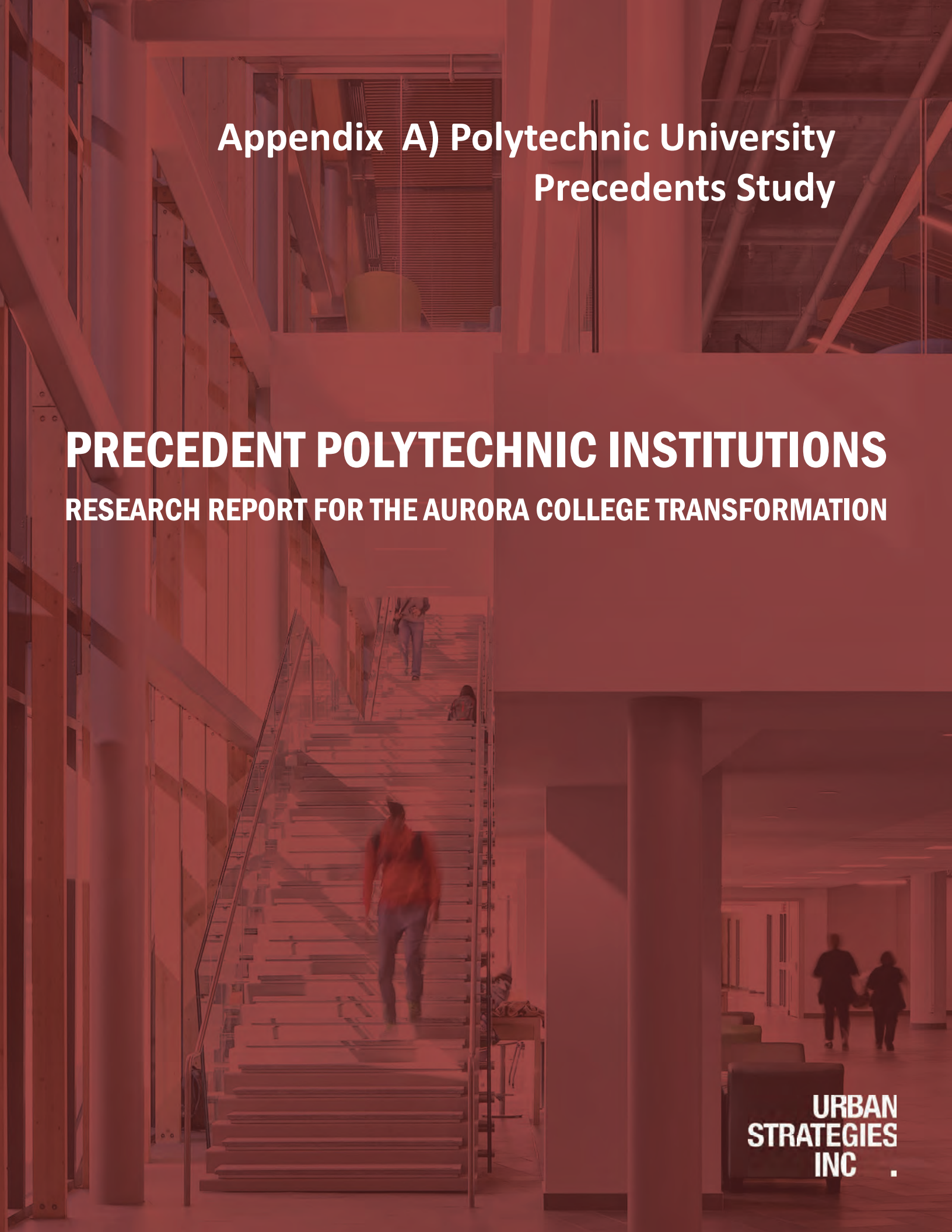
While the FMP provides clear direction for short-term initiatives on the three main campuses, it is intended to be a flexible guide for longer-term development, recognizing the needs and priorities of the institution will change over time. The frameworks and guidelines for each campus should be reviewed, refined and updated periodically, at least every ten years, to ensure it remains relevant. In the intervening periods, it may be appropriate to prepare more detailed campus plans to provide specific guidance for projects, particularly for the new Yellowknife Campus. Modifications to the FMP also may be appropriate as unforeseen issues and opportunities arise, for example, potential partnerships with communities, non-governmental organizations or other institutions for shared facilities. Every effort, however, should be made to ensure such modifications support the overall goals for each campus.

APPENDICES

Appendix A) Polytechnic University Precedents Study

PRECEDENT POLYTECHNIC INSTITUTIONS

RESEARCH REPORT FOR THE AURORA COLLEGE TRANSFORMATION



URBAN STRATEGIES INC.

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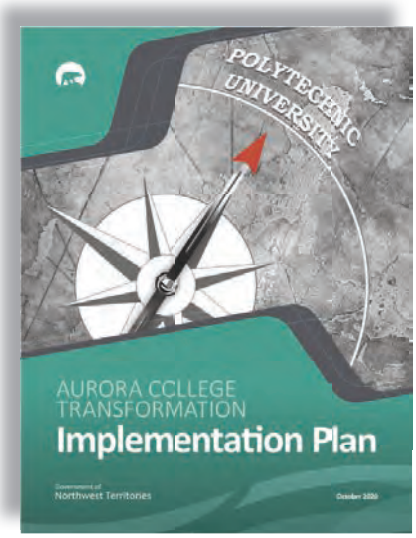
1.0 INTRODUCTION

1.1 Purpose of the Report



In October 2018, the Government of the Northwest Territories (GNWT) committed to transforming Aurora College into a polytechnic university. To advance this transformation, a consultant team led by Taylor Architecture Group and including PlanIt North Inc. and Urban Strategies Inc. has been retained for the development of a Polytechnic University Facilities Master Plan.

The purpose of the Facilities Master Plan is to identify development goals for the new polytechnic university facilities and produce a plan to guide the incremental transformation of the existing college into a "polytech". The Facilities Master Plan will plan for institutional growth that is effective, efficient and sustainable, both in the short term and long term. The planning process is intended to engage stakeholders and communities in transformation, help develop capacity at the polytechnic university, and build a culture that supports ongoing facility planning and improvement.

To support the master planning process, Urban Strategies Inc. has prepared this report summarizing the common characteristics of polytechs based on research on existing institutions in Canada and abroad. The primary purpose of the precedent research was to identify the type, form and quality of facilities that should be considered to achieve the goals for a polytechnic university serving the Northwest Territories. The study findings will inform the vision for the polytechnic university and the recommendations of the Facilities Master Plan.

The study of precedents recognizes that each polytech is unique and, in particular, that the future polytech for the Northwest Territories will be a relatively small institution with limited resources, at least for the foreseeable future. In light of this, the scale of some of the facilities found at precedent institutions, and the full range of facilities, will not be appropriate for the future NWT polytech. Nevertheless, there are themes among the precedents that will guide the Facilities Master Plan and should influence the design of new and renewed spaces. More specifically, the polytech's facilities should:

- Be multi-functional and flexible;
- Include a variety of inviting, multi-purpose social spaces;
- Include housing suitable for individuals and families;
- Reflect Indigenous values and incorporate Indigenous gathering space;
- Ensure students, faculty and staff have convenient access to a range of amenities;
- Have a quality of design and construction that supports excellence in programming and helps attract students, faculty and staff from within and outside the NWT.

A more detailed summary of the study findings can be found in Section 3 of the report.

1.2 What Makes a Polytechnic University?

Polytechnic universities are institutions of higher education that provide advanced technical training and applied, hands-on learning. Typically, polytechnic institutions offer a range of applied degrees, diplomas, certificates and/or apprenticeship training options that are responsive to local industry demand.

The evolution of Canadian polytechs

Most polytechnic institutions were originally established as colleges primarily focused on vocational programs in construction and technical trades and service industries, offering technical certificates and diplomas to students living within the surrounding region. They were generally built in more fringe, suburban locations, which both reflected broader city-building trends of the time and gave ample space for teaching facilities and parking. Over time, polytechs expanded their educational role in response to advances in technology and labour market demands, offering more programs and increasing research efforts. While still offering trades and technical programs, Canadian polytechnics evolved from traditional colleges by their contributions to applied research through meaningful partnerships and by offering degree granting programs, although many remain colleges in name.

KWANTLEN POLYTECHNIC UNIVERSITY, SURREY, BC

As polytechnics increasingly balance trades education with degree and advanced diploma programs, their campuses have also evolved in terms of their locations and the experiences they offer students, faculty and staff. New and improved trades programs and research initiatives are typically looking to co-locate alongside partnership institutions to strengthen applied research, education and work experience opportunities. Most polytechs have multiple campuses, establishing new ones as opportunities arise to better serve the regional population and accommodate special programs. A growing trend, among traditional universities and polytechs, is to establish downtown campuses that are easy to access by public transit and take advantage of local amenities, such as housing, food services and retail. At the same time, many suburban polytech campuses are becoming more like those of traditional universities, offering a range of amenities and putting more emphasis on architectural excellence.

SKILLED TRADES AND TECHNOLOGY CENTRE, RED RIVER COLLEGE

One of the most dramatic changes to Canadian polytechs in the past decade has been the growth in enrollment by international students, a strategy aligned with the country's immigration goals. The higher tuition paid by international students has allowed polytechs to continuously improve programs, facilities and campuses, benefiting all students.

Basic facility requirements

Although each polytech may be unique based on its social, economic and geographic context, they all have general facility requirements. One way to understand these requirements is through a hierarchy of needs, from essential to optional.

Essential requirements are absolutely necessary facilities to support the day-to-day function of the institution as a polytechnic:

- Teaching and research spaces (e.g., flexible class rooms, wet and/or dry labs, high-bay labs and shops)
- Study spaces
- Faculty and staff offices
- Service and storage space

Generally desirable features are facilities that are common to many polytechnic institutions but not strictly required to meet core teaching and research missions. Older institutions have tended to add or enhance these facilities as they've grown and diversified:

- Recreation facilities (work-out rooms, gymnasiums)
- Kitchen and dining space
- Event and meeting space
- Cultural space
- Outdoor gathering space

Optional facilities include amenities that may be associated with an academic program, such as health services, personal care services or a restaurant, or added to a campus to meet the particular needs of a segment of the student and staff population, such as a daycare or housing.

Considerations for a polytechnic university in the NWT

A polytechnic university in the Northwest Territories naturally will require essential facilities for teaching, research and administration. The Territories' distinct social, economic and geographic context, however, will make other desirable facilities generally found at most polytechs more challenging, while other optional facilities will be essential.

The expected population of each of the three planned polytech campuses will be in the hundreds of students for at least the next decade, which will not provide the critical mass necessary to support recreation facilities on campus other than perhaps a work-out room, leaving students, faculty and staff reliant on community facilities, as is the case today for Aurora College. Permanent dining facilities also may not be economically viable at all campuses.

With respect to cultural facilities, gathering spaces for Indigenous students, faculty and staff likely will be an essential consideration at all of the polytech's campuses, and potentially defining features, while other facilities for performances or exhibitions are likely to be found in the community.

Since the majority of students will continue to travel from remote communities to study at the polytech, many bringing their families, housing and potentially daycares will be among the facilities that distinguish the polytech from most of those in southern Canada and overseas.

1.3 How the Relevant Precedents Were Identified

The process for selecting precedents relevant to a future polytechnic university in the Northwest Territories was iterative and informed by input from the Aurora College Transformation Team. Initially, nineteen polytechnic institutions were identified and reviewed. From this long list, ten institutions were identified for further study.

The polytechs most relevant to the conditions and opportunities for one in the Northwest Territories were selected based on the following criteria:

- Located in a small and/or remote community
- Multiple campuses
- Offers a diverse range of programs, including programs within at least one of the four proposed areas of specialization for the NWT polytech (skilled trades and technology; mineral resource and environmental management; northern health, education and community services; business and leadership)
- Includes distinct research institutes and facilities
- Campus includes significant Indigenous elements
- Provides on-campus student housing

	Precedents	Small/Remote Community	Multiple Campuses	Similar Program Specializations	Distinct Research	On-Campus Indigenous Elements	On-Campus Housing
		Relevance					
Indigenous & Canadian	Kwantlen Polytechnic University		✓	✓	✓	✓	
	Saskatchewan Polytechnic	✓	✓	✓	✓	✓	
	British Columbia Institute of Tech.		✓	✓	✓		✓
	Northern Alberta Institute of Tech.		✓	✓	✓		
	Algonquin College	✓	✓	✓	✓	✓	✓
	Red River College	✓	✓	✓	✓	✓	✓
	Six-Nations Polytechnic	✓	✓	✓		✓	
International	University of Highlands and Islands	✓	✓	✓	✓	n/a	✓
	Lapland University of Applied Science	✓	✓	✓		n/a	
	Otago Polytechnic		✓	✓	✓	✓	✓

Precedents were selected based on characteristics relevant to Aurora College and the opportunities that will come with Transformation.

AURORA COLLEGE, THEBACHA CAMPUS. FORT SMITH

MINE SIMULATOR, CENTRE FOR MINE INDUSTRY AND TRAINING, THEBACHA CAMPUS

Section 2 describes and illustrates a range of facilities and features drawn from the short-listed precedents, as well as other examples of facility trends, which will inform the Facilities Master Plan for the future NWT polytech. The precedents and trends are grouped under the following essential considerations:

- Teaching and Research Facilities
- Study and Social Spaces
- Indigenous Identity and Placemaking
- Campus and Community Amenities
- On-Campus Housing

While the precedent research focused on established polytechs elsewhere in Canada and overseas, it is acknowledged that Aurora College today is home to teaching and training facilities that are precedents for the types and quality of academic facilities the polytechnic university might require in the future. These include high-quality research and training facilities at the Aurora and Thebacha campuses. In the latter campus, the College recently invested $10 million in a new Centre for Mine and Industry Training that features vehicle bays, space for mining equipment, classrooms, offices and an innovative high- tech mine simulator for training purposes.

2.0 FACILITY PRECEDENTS AND TRENDS

2.1 Teaching and Research Facilities

Polytechnic teaching and research facilities support education, trades training and research opportunities that respond to the regional context. Depending on the range of programs and the size of the institution, such facilities can include everything from lecture halls and classrooms of varying sizes to wet and dry science labs, high-bay labs and shops, and specialized training facilities. With technologies in almost all fields advancing ever more rapidly and regional economies in a constant state of change, many polytech programs are highly variable. Multi-functionality and flexibility designed into teaching and research facilities allow a polytech to more easily adapt to the needs of new and evolving programs over time. In addition, with learning in many programs increasingly happening via the web, institutions are recognizing the importance of planning spaces outside of the classroom for learning on laptops and other devices.

HEALTH SCIENCE CENTER FOR ADVANCED SIMULATION, BCIT

BCIT Health Sciences Centre

Construction is nearing completion on BCIT's new Health Sciences Centre on its main campus. Much of the 10,355-square-meter building will contain teaching and simulation spaces to support programs in nursing, medical lab services and radiology, among others. The ground floor will function as a gathering place for the broader campus, with generous lounges, dining space and amenities.

NEW SCIENCE BUILDING, YUKON UNIVERSITY

Science Building, Yukon University

Yukon University has secured federal funding toward a new science building intended to support programs in resource development, climate change research and other fields, bringing together Western science and Indigenous traditional knowledge.

Labs, Shops and Simulation Facilities

Many precedent institutions offering trades and other vocational training incorporate a combination of legacy facilities and new technologies customized for particular programs. Legacy spaces often have a single focus on serving trades programs and typically consist of large industrial spaces for intensive trades training. In comparison, new build and refurbished training facilities are better designed to support multiple programs across disciplines as well as social interactions between students of different faculties and programs.

CENTRE FOR CONSTRUCTION EXCELLENCE, ALGONQUIN OTTAWA

Centre for Construction Excellence, Algonquin College

This building has two distinct program and acoustic zones, one with high bay spaces for multiple trades programs and the other being a five-storey building with labs, classrooms, offices, student study spaces and an atrium with ample social/study spaces. The 194,00 square foot facility opened in 2011 on Algonquin College's Ottawa campus. The facility cost $79 million, nearly 90% of the cost coming in equal parts from the federal and provincial governments.

TRADES TRAINING CENTRE, OTAGO POLYTECHNIC

Trades Training Centre, Otago Polytechnic (Dunedin, NZ)

Anticipated to be ready for 2023, the Trades Training Centre will provide specialized training space and is designed to facilitate an interdisciplinary learning experience with common learning spaces. The funded facility is forecasted to cost $27.4 million (CAD), $21 million of which is coming from government grants.

Contemporary research and teaching facilities are designed to accommodate a mix of specialized and generalized spaces to serve various programs.

NAIT CENTRE FOR ADVANCED MEDICAL SIMULATION

NAIT Centre for Advanced Medical Simulation

The Simulation Centre at NAIT is an interactive and interdisciplinary centre that gives students the opportunity to practice clinical situations in a safe and controlled environment. The Simulation Centre features a wide array of immersive simulation learning spaces in nine specialized theatres. There are four elevated and five ground-level control rooms with one-way glass and audio-video recording capabilities, allowing instructors to capture simulations in progress and debrief with their students afterwards.

RED RIVER COLLEGE MOBILE TRAINING LAB

Mobile Facilities for Trades Training

To support learning in remote communities, some polytechnic universities rely on mobile learning units and community learning centres. **Aurora College** currently provides a range of programming at 21 CLCs across the Northwest Territories and has mobile trades training facilities to teach carpentry, plumbing and electrical skills. **Red River College's Mobile Trades Facility** (pictured) also offers mobile trades training facilities to support remote community learning.

Flexible Classrooms

Many precedent institutions have a mix of new and retrofitted classroom facilities designed to be flexible and technology-enabled. Movable furniture and, increasingly, movable walls allow classes of different sizes and set-ups to occupy the same space over different times of the day. These multi-functional learning spaces can expand and contract while having the technology to allow distance learning and promote hybrid learning as the future of post-secondary education moves towards greater flexibility for students.

TECHNOLOGY ENABLED CLASSROOM FOR HYBRID LEARNING, BCIT

THE INDEPENDENT SCHOOL, VICTORIA AUSTRALIA

CLASSROOM, NAIT CENTRE FOR APPLIED TECHNOLOGY

Centre for Applied Technology, NAIT

The large building accommodates NAIT's School of Health and Life Sciences, the JR School of Business, and the School of Applied Sciences and Technology. The flexible classrooms and laboratory spaces allow multiple programs to utilize the same spaces effectively throughout the building. Many technology-enabled classrooms have the potential to use all four walls and furniture can be easily re-oriented.

Spaces for learning that are ready to adapt to the changing needs of institutions and students is critical for transformation.

HONG KONG POLYTECHNIC UNIVERSITY

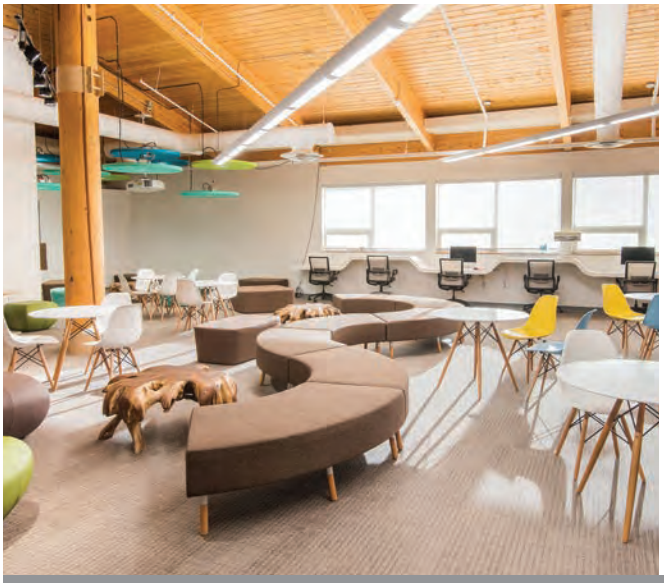
STANFORD d.SCHOOL

2.2 Study and Social Space

Study and social spaces have become the infrastructure around which contemporary institutions are often designed. Like traditional universities, polytechs recognize that generous, inviting common spaces for eating, socializing, laptop work and hanging out are essential to attracting students, as well as faculty and staff. Such spaces come in various sizes, from small, quiet lounges and nooks with soft furnishings to large central atria typically containing food and beverage services and sometimes other student services. They include libraries, which are often called learning commons and dominated by seating, tables and computers, not books. Large gathering spaces can be multi-functional, meeting the daily needs of students most of the time and being converted at other times to accommodate community events and conferences.

LEARNING RESOURCE CENTRE, UNIVERSITY OF HIGHLANDS AND ISLANDS

NAIT CENTRE FOR APPLIED TECHNOLOGY



INNOVATION COMMONS, YUKON UNIVERSITY

Innovation Commons, Yukon University

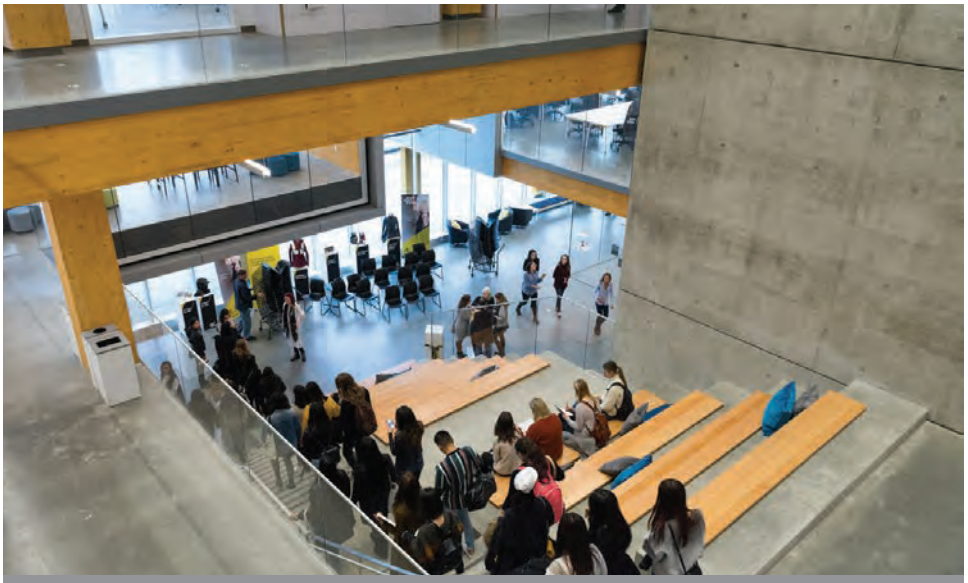
Yukon University renovated its library in 2018, at a cost of $3 million, to create the Innovation Commons, a learning and common space for students. The space includes a series of open and closed spaces for varying levels of interaction, noise and privacy. Most of the funding came from matching grants from the Post-Secondary Institutions Strategic Fund and the Yukon Territorial government, with the University itself contributing more than $500,000.

Social spaces are the infrastructure around which contemporary institutions are often designed.

STUDENT COMMON, ALGONQUIN PEMBROKE

Student Commons, Algonquin College, Pembroke Campus

Algonquin College's 9,300 square-meter (100,000 square feet) Pembroke Campus opened in 2012 at a cost of $44.9 million. The single building campus houses a variety of academic programming and orients around a central atrium space known as the Student Commons. The space sits at a nexus point in the building, connecting the multiple building functions and entrances in one location, and offers multi-purpose seating. The commons is the cafeteria seating, a study and socializing space, and a central events space for private and institutional events.



ATRIUM, WILSON SCHOOL OF DESIGN

Wilson School of Design, Kwantlen Polytechnic University

KPU's Wilson School of Design opened in 2018, at a cost of $36 million. Its 5,570 square meters (60,000 square feet) is home to 680 students. The center of the mass timber building is an atrium, with auditorium steps allowing students to study and socialize while also connecting the ground and second floors. Classrooms, studio spaces and the top-floor conference space orient themselves towards the atrium, which is also used to host talks and other events.

2.3 Indigenous Identity and Placemaking

Increasingly, polytechnic universities are applying Indigenous design and planning perspectives to create inclusive, respectful and welcoming campuses that foster a sense of belonging for Indigenous students and invite all members of the campus community to learn from and with Indigenous people. Reflecting the place, values and culture of local Indigenous people can take many different forms and happen at various scales depending on the resources and network of amenities available at an institution.

Indigenous spaces can provide specific services to support the academic, economic and social success of Indigenous students, faculty and elders while also creating opportunities for Indigenous students to connect with their cultural and spiritual identities. Indigenous spaces on campus may also present a tangible way to realize some of the goals of the Truth and Reconciliation Commission recommendations.

INDIGENOUS CULTURAL MARKERS, HUMBER COLLEGE

ISKODEWAN COURTYARD, DARE DISTRICT, ALGONQUIN COLLEGE

DARE DISTRICT, ALGONQUIN COLLEGE

DARE District, Algonquin College

The DARE District is a multi-purpose building designed with input from local Indigenous communities and pays homage to the College's Indigenous foundations. This is reflected in the integration of Indigenous spaces such as the Iskodewan Courtyard with a gathering circle and fire vessel, the Nawapon Indigenous Learning Commons & Library, Pidaban Institute for Indigenization and the Three Sisters Garden.

Increasingly, polytechnic universities are creating campuses that reflect the place and values of local Indigenous peoples.

INTERIOR *EXTERIOR ENTRY*

KPU Gathering Place, Kwantlen Polytechnic University, Surrey Campus

The KPU Gathering Plan was created by renovating existing classroom space, a hallway and two offices. Renovations included lighting and window upgrades, new finishes and furnishings as well as ceremonial art installations. A private entrance now opens onto a forest, the central courtyard and a pond.

INNOVATION COMMONS, RED RIVER COLLEGE *ROUNDHOUSE AUDITORIUM*

Innovation Commons, Red River College, Exchange District

RRC's Innovation Commons will be a 100,000 square foot building featuring prominent art from Anishinaabe artist Jackie Traverse and Cree/British artist KC Adams, which is meant to provide representation and inspiration for Indigenous learners and community members. The Roundhouse Auditorium is a 210-seat space that is available for interactive lectures, traditional teachings, ceremonies and large events. The Roundhouse, as well as the round meeting room below it, is fully ventilated and allows for the use of the four sacred medicines.

2.4 On-Campus Housing

Traditionally, most polytechnic institutions have not needed to provide housing for their students, since they functioned largely as commuter schools. Only recently have some polytechs responded to a growing demand for on-campus housing, mostly from out-of-town and international students who do not have local relatives they can live with while attending school and cannot find or afford off-campus housing.

Since Aurora College serves not just the communities surrounding its campuses but the entire Northwest Territories, providing housing for many of its students, both individuals and families, has been essential. Housing plays a critical role in student retention and success, and this will continue to be the case as the College transforms into a polytechnic university.

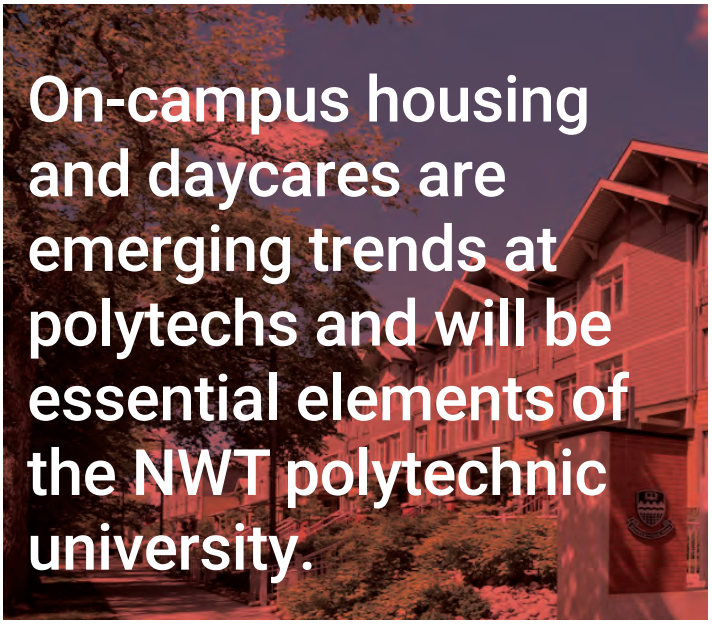
EXTERIOR. OTAGO POLYTECHNIC STUDENT VILLAGE

STUDENT COMMONS, OTAGO POLYTECHNIC STUDENT VILLAGE

LIVING FACILITIES, OTAGO POLYTECHNIC STUDENT VILLAGE

Otago Polytechnic (Dunedin, NZ)

The 231-bed Student Village at Otago Polytechnic offers single bedrooms, studio apartments and 4-bedroom apartments, as well as open-plan communal spaces, where there is access to a range of activities and events. The complex is managed by Campus Living Villages, private company that specializes in operating purpose-built student housing.



YUKON UNIVERSITY

Yukon University

Yukon University's Ayamdigut Campus has four student housing buildings, with a total of 92 units for 108 students. The unit mix includes two- and three-bedroom apartments for individuals sharing a unit or families and dorm rooms for singles and couples.

NUNAVUT ARCTIC COLLEGE

Nunavut Arctic College

This residence and daycare provides housing for twenty students studying at the Cambridge Bay Nunavut Arctic College. Five fully equipped living pods each have four bedrooms and common kitchen and dining areas. The flexibility of this design allows units to be occupied by four single students or a family.

2.5 Campus and Community Amenities

Over time, many polytechnic institutions have evolved to become much more than places for education and training. To attract students, faculty and staff, and support their home community, many have become community hubs offering a range of amenities and services, primarily to the on-campus population but also, in some cases, to local residents. Larger institutions typically will accommodate a variety of food and beverage outlets. Some amenities may be directly tied to teaching programs, such as a daycare, a restaurant, and health-related or personal care services. Larger institutions may share on-campus recreation and other community facilities, reducing capital, operating and maintenance costs for both the institution and the municipality. Smaller institutions may instead take advantage of municipal facilities, as is the case for Aurora College.

HARRY BAILEY PUBLIC POOL, SASKATCHEWAN POLYTECHNIC

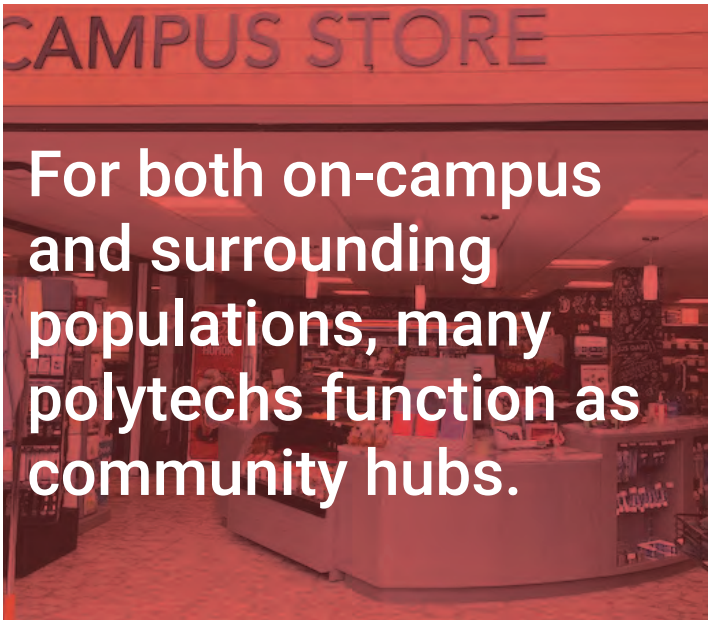
LANGLEY AUDITORIUM, KWANTLEN POLYTECHNIC UNIVERSITY

STUDENT SUPPORT SERVICES, ALGONQUIN COLLEGE

FITNESS CENTRE, ALGONQUIN COLLEGE

Algonquin College, Pembroke Campus

Algonquin's Pembroke Campus is a single-building that includes a range of amenities for its roughly 1,000 students. The ground floor of the four-storey facility offers a cafeteria, student lounge, bookstore, health and student services, fitness center and gymnasium. The completion of the facility allowed the student body to immediately grow by 300 and have space for more planned growth. The riverside location affords access to nature and is a short walk from Pembroke's main street and other public amenities.



For both on-campus and surrounding populations, many polytechs function as community hubs.

YUKON NATIVE LANGUAGE CENTRE

Yukon University, Ayamdigut Campus

Because of Ayamdigut Campus's relatively isolated location at the edge of Whitehorse, there is a broad and diverse set of amenities offered on campus. Students and staff have access to (publicly accessible) daycare, recreation and fitness facilities, student lounges, a student services office, cafeteria, shop, IT help desk, and more. Public amenities, such as the Yukon Native Language Centre, Yukon Arts Centre and Yukon Archives, are also located on the campus, along with seniors housing.

ON-CAMPUS DAYCARE

CAFETERIA SEATING AND STUDENT SOCIAL SPACE

3.0 SUMMARY OF FINDINGS

The transformation of Aurora College into a polytechnic university will significantly enhance the educational opportunities for residents of the Northwest Territories, bringing economic and other benefits to communities across the NWT. The polytech's three campuses will also have the potential to attract southern and international students, as well as researchers, seeking unique learning and research opportunities and a university experience in the north.

Aurora College's existing teaching and research facilities in Fort Smith and Inuvik will provide a home for many of the polytech's academic and training programs, while the intent is that new facilities will be built in Yellowknife and community learning centres in many smaller communities will be improved. New or upgraded housing is expected to be a significant part of all three campuses.

The success of Transformation, and the future success of students at the polytech, will rely on the range and quality of the programs that are offered. It will also rely just as heavily on the range and quality of campus facilities, both to support the academic programs and to ensure students, faculty and staff have an overall positive and enriching experience while at the institution. Given the intense competition among post-secondary institutions within Canada and internationally, university and colleges everywhere are recognizing the importance of building and maintaining top-notch facilities and attractive campuses.

The review of relevant polytechnic institutions summarized in this report highlights a number of trends to be considered in the planning, development and improvement of facilities for the NWT polytechnic university. Specifically:

- Significant new academic buildings should be mixed-use. Generally, buildings should be shared among faculties and departments to optimize capital investments and support high utilization of space. In addition, the ground floor of major buildings should include generous social spaces where students can study, socialize and dine, and where faculty and staff can also meet.
- New and retrofitted classrooms and labs should be designed for maximum flexibility so they can be adapted to different methods of teaching and learning and to new audio-visual and information technologies. Tables and chairs generally should be movable, and movable walls should also be considered.
- The design of larger gathering spaces on the campuses, such as dining halls, libraries and atria, should consider opportunities to accommodate special events, including community events and conferences, which would help to integrate the campuses with the surrounding communities.
- In addition to larger gathering spaces, smaller lounges and study nooks should be integrated throughout academic buildings.
- Recreation facilities that support physical and mental well-being, specifically gymnasiums, work-out rooms and sports fields, are increasingly popular on polytech campuses. Where such facilities are not physically or economically feasible, access to nearby community facilities will continue to be important.
- Indigenous elements, such as gathering places and art, make polytech campuses more inviting to Indigenous students, support their success, and promote a greater understanding of Indigenous history and culture. More broadly, Indigenous values and principles should inform the design of new facilities.
- Polytechs that have added housing to their campuses have mixed unit types and sizes to offer choices for students. Providing amenities with housing, such as daycares, shared kitchens, games rooms and storage space, helps meet the daily needs of students and supports community building.
- Large polytech campuses typically offer a full range of food and beverage options. The NWT polytech campuses that do not have the critical mass necessary to support options on campus should promote opportunities for nearby off-campus restaurants to serve both the campus population and the surrounding community
- Finally, while many polytechs continue to maintain highly utilitarian legacy facilities, there is an increasing emphasis on architectural excellence and landscape design to help establish a distinct institutional identity, reflect high-quality programs, and enhance the campus experience for students, faculty and staff.

The polytechnic university for the Northwest Territories established through Transformation will be unique in almost every way, given the NWT's environmental, social and economic context. Nevertheless, in planning its facilities, there is much to learn from the successes of precedent institutions. Through future phases of the Facilities Master Planning process, the findings of this report will be used in developing long-term visions for the three Aurora College campuses and identifying facility priorities. Other critical inputs will be analyses of the existing Aurora College campuses and the site, once selected, for a new North Slave Yellowknife campus. Stakeholder and public engagement will also inform the facility visions and priorities.

Precedent Polytechnic Institutions
Comparison of Short-listed Precedents

Canadian Precedents

	Kwantlen Polytechnic University	Saskatchewan Polytechnic	BCIT	NAIT
Intituional Overview				
Year Established	1981	1941	1961	1,959
Year of Polytechnic Transition	2008	2012	2004	2008
Student Population	20,000	28,000	50,000	16,000
Faculty + Staff	1,400	1,500	2,400	1,976
International Students	~5000	1660 (6%)	6,400 (13%)	2,200
Indigenous Students	n/a	5,320 (19%)	1,600 (3%)	n/a
Degree Granting	✓	✓	✓	✓
Campus Information				
Number of campuses	5	4	5	4
Large mulit-program campuses	3	1	1	1
Small multi-program campuses	2	3	0	0
Small specialty campuses	0	0	4	3
Context	suburban, industrial, urban	Suburban, industrial	Suburban, industrial	Suburbn, industrial
Programming				
Environmental Management	X	✓	✓	✓
Health	✓ (yes nursing)	✓ (no nursing)	✓ (yes nursing)	✓ (no nursing)
Business	✓	✓	✓	✓
Skilled Trades	✓	✓	✓	✓
Research Institutes	3	3	16	7
Facilities + Accessibility				
Recreation Facilities	On-Campus	On-Campus	On-Campus	On-Campus
Public Facilities on Campus	X	✓	X	X
Cultural Facilities	✓	X	X	✓
Conference Centre	✓	X	✓	✓
Finances				
Operating Budget (CAD millions	$137 (2016/2017)	$216.5 (2019/2020)	358 (Total Annual Expenses)	$359.20
Research Budget	n/a	n/a	n/a	n/a
Housing				
Student Housing	X	✓ (Saskatoon & Regina)	✓ (Burnaby)	X

International Precedents

	Highlands and Islands	Lapland UAS	Otago Polytechnic
Intituional Overview			
Year Established	2011	2014	1944
Year of Polytechnic Transition	n/a	n/a	1991
Student Population	9,905	5,600	12,000
Faculty + Staff		550	1,712
International Students	594 (6%)	n/a	7,000 (58%)
Indigenous Students	n/a	n/a	n/a
Degree Granting	✓	✓	✓
Campus Information			
Number of campuses	12	2	3
Large mulit-program campuses	1	2	1
Small multi-program campuses	9	0	1
Small specialty campuses	2	0	1
Context	Suburban, rural, industrial	Suburban	urban, rural
Programming			
Environmental Management	✓	X	X
Health	✓ (yes nursing)	✓ (yes nursing)	✓ (no nursing)
Business	✓	✓	✓
Skilled Trades	X	X	✓
Research Institutes	19	X	X
Facilities + Accessibility			
Athletic/Recreation Facilities	On-Campus	Off-Campus	On-Campus
Public Facilities on Campus	X	X	X
Cultural Facilities	X	X	✓
Conference Centre	✓	✓	X
Finances			
Operating Budget (CAD millions)	240	n/a	86.3 (Total Expenses)
Research Budget	n/a	nn/a	n/a
Housing			
Student Housing	✓(8/12 campuses)	✓(all campuses)	✓ (Dunedin)

	Algongquin College	Red River College	Yukon University
Intituional Overview			
Year Established	1967	1981	1963
Year of Polytechnic Transition	n/a	2008	2020 (University)
Student Population	20,000	20,000	6,000
Faculty + Staff	4,400	1,400	n/a
International Students	4,000	1400 (7%)	n/a
Indigenous Students	n/a	870 (4.3%)	1,500 (25%)
Degree Granting	✓	✓	✓
Campus Information			
Number of campuses	3	8	13
Large mulit-program campuses	1	1	1
Small multi-program campuses	1	5	0
Small specialty campuses	1	2	12
Context	Suburban	Suburban, industrial, urban	Suburban, urban
Programming			
Environmental Management	✓	✓	✓
Health	✓ (yes nursing)	✓ (yes nursing)	✓ (yes nursing)
Business	✓	✓	✓
Skilled Trades	✓	✓	✓
Research Institutes	10	5	3
Facilities + Accessibility			
Recreation Facilities	On-Campus	On-Campus	On-Campus
Public Facilities on Campus	X	X	✓
Cultural Facilities	X	X	✓
Conference Centre	✓	X	X
Finances			
Operating Budget (CAD millions		$208.6 (Total Expenses)	$50.7 (Total Expenses)
Research Budget	n/a	n/a	$4.47 (2019)
Housing			
Student Housing	✓(Ottawa)	✓(Exchange District)	✓(Whitehorse)

Appendix B) Proposed* Application of Capital Space Standards

Space Standards - proposed for NWT polytechnic university

Number of full time students	161
Number of full time faculty	41
Number of Departments	3

Number of students to receive housing	92
Single student rooms	37
student with family accommodation	55

Student Services Building	Commons	709
	Services	108
	Daycare	115
	Clinic	156
	Misc	596
	Total area	**1683**

Thebacha Campus

Total Academic Bldg	9962
Total Student support	1683
Total Housing	7765
Heavy Equip. Garage	800
Proposed total Area	**20210.7**

Housing buildings	Single housing	2526
	Family housing	4828
	Staff housing	411
	Total housing s	**7765**

Note - Existing campus (arts/library & trades complex): 9473m2. Also there is the new Mining Centre. Therefore new academic/trades/labs not anticipated as currently necessary.

New Heavy Equipment Garage/shop building required - to accommodate at least ten heavy equipment vehicles. Required in next five years.

Function	Department	Room Name	Unit Area	Circulation gross-up	Proposed area for program space	Number of rooms	Sub-Total room areas	Sub-total department area	Total Functional area	Percentage of whole building
Offices									**858**	13.4%
7.90%	Administration									
		polytech university Dean office	25	5	30	1	30	118.8		
		Storage room	4	0.8	4.8	1	4.8			
		Meeting room	30	6	36	1	36			
		Reception	10	2	12	1	12			
		waiting area	30	6	36	1	36			
	Campus Director & team	Campus Director office	20	4	24	1	24	739.2		
		Finance Officer	14	2.8	16.8	1	16.8			
		Student Relations office	14	2.8	16.8	1	16.8			
		Curriculum Office	14	2.8	16.8	1	16.8			
		Misc Office	14	2.8	16.8	34	571.2			
		Storage room	4	0.8	4.8	1	4.8			
		Meeting room	30	6	36	1	36			
		Reception	14	2.8	16.8	1	16.8			
		waiting area	30	6	36	1	36			
Faculty									**976.8**	15.2%
22.50%		Department Chair	16	3.2	19.2	3	57.6	976.8		
		Faculty office	12	2.4	14.4	41	590.4			
		Reception	10	2	12	3	36			
		Storage	10	2	12	3	36			
		meeting room (large)	26	5.2	31.2	3	93.6			
		meeting room (small)	16	3.2	19.2	3	57.6			
		Lounge	40	8	48	1	48			
		Work room (photo copier etc)	16	3.2	19.2	3	57.6			
Labs & Research									**1054.8**	16.4%
15%	**Wet Labs**									
		Lab (includes fume hood)	115	23	138	3	414	720		
		Equipment storage	17	3.4	20.4	3	61.2			
		Cold rooms	17	3.4	20.4	3	61.2			
		Chemical storage	17	3.4	20.4	3	61.2			
		Other	17	3.4	20.4	3	61.2			
		Office support/admin (+/-16% of lab space)	17	3.4	20.4	3	61.2			
	Dry Labs									
		Research Lab	55	11	66	3	198	334.8		
		Secure prcedural library	5	1	6	3	18			
		PI Office	16	3.2	19.2	3	57.6			
		Collection storage	17	3.4	20.4	3	61.2			
Lecture Halls and Classrooms									**2324.4**	36.2%
11.50%	**Lecture Hall**									
		Hall (200 students)	200	40	240	1	240	2324.4		
	Classroom									
		Large (60 students)	100	20	120	3	360			
		Medium (30 students)	60	12	72	6	432			
		Small (16 students)	40	8	48	12	576			
	Computer cluster rooms									
		Large (10 students)	40	8	48	1.5	72			
		Medium (8 students)	35	7	42	3	126			
		Small (2 students)	10	2	12	6	72			
	Conference and study rooms									
		Conference room (large - 16-20)	60	12	72	1.5	108			
		Conference medium (6-10)	40	8	48	3	144			
	Study rooms (students)									
		Group study room (4-6)	30	6	36	3	108			
		Study room (2)	12	2.4	14.4	6	86			
Library									**1207.2**	18.8%
8.80%	**Main Library**									
		Stacks	160	32	192	2	384	960.8		
		Study Carrols	60	6.4	66.4	2	133			
		Computer research stations	30	6	36	1	36			
		Display area	100	20	120	1	120			
		Circulation	220	44	264	1	264			
		Reception/check-out	20	4	24	1	24			
7.90%	**Meeting room**									
		Large meeting room	60	6	66	1	66	154		
		medium meeting room	40	4	44	2	88			
	Library administration									
		Head Librarian office	16	1.6	17.6	1	18	92.4		
		support librarian office	14	1.4	15.4	2	31			
		book repair room	20	2	22	1	22			
		storage	20	2	22	1	22			
	Sub-Total Building Area (m2)						**6421.2**			
General space									**3541.3**	
	General Circulation (40% - includes verti. Circulation, janitors, washrooms etc)						2568.5			
	Interior partitions & Structure (5%)						321.1			
	Building Systems (Mech/Elect) - 7%						651.8			
Total Building Area									**9962.5**	

Proposed Residential Areas
Thebacha Campus

Student Housing - Singles

Space Description	Student Qty **	Rm Qty	Room Area (m2)	Total Area (m2)	Functions
Singles Accommodation - dorm style				**1104**	
Bedrooms	40	40	12	480	
Shared common spaces		8	55	440	kitchen, living, washrooms, showers, laundry, storage (shared by 5 suites each)
Building supervisor office		2	12	24	
Building supervisor apartment		2	66	132	one bedroom apartment
Public washroom		2	4	8	
Misc. building storage		1	20	20	
Total Students	40				
Subtotal Useable Areas				**1104**	
Building Services (12%)				132	heating, ventilation, water, tankage, power & communications
Circulation (30%)				331	assumes all units are grouped together into larger multi-unit buildings
Structure (3%)				33	exterior and interior wall area
Total Area				**1601**	
Area per student (m2)				40	
Percentage of overall number of student beds				40%	

Student Housing - Singles

Space Description	Student Qty **	Unit Qty	Unit Area (m2)	Total Area (m2)	Functions
Singles Accommodation - apartment style				**638**	
Studio	4	4	50	200	one student per unit
Two bedroom	6	3	79	237	two students per unit
Three bedroom	6	2	97	194	
Common Laundry		1.8	4	7	4m2 for every 5 units
Total Students	16				
Subtotal Useable Areas				**638**	
Building Services (12%)				77	heating, ventilation, water, tankage, power & communications
Circulation (30%)				191	assumes all units are grouped together into larger multi-unit buildings
Structure (3%)				19	exterior and interior wall area
Total Area				**925**	
Average area per student (m2)				58	
Percentage of overall number of student beds				16%	

Student Housing - Single

Space Description	Student Qty **	Unit Qty	Unit Area (m2)	Total Area (m2)	Functions
Singles Accommodation - townhouse style				**0**	
Two bedroom		0	89	0	two students
Three bedroom		0	107	0	
Four bedroom		0	120	0	
Total Students	0				
Total Area				**0**	
Average area per student (m2)				#DIV/0!	
Percentage of overall number of student beds				0%	

Student Housing - Family

Space Description	Student Qty **	Unit Qty	Unit Area (m2)	Total Area (m2)	Functions
Family Accommodation - townhouse style				**3552**	
Two bedroom	12	12	89	1068	
Three bedroom	12	12	107	1284	
Four bedroom	10	10	120	1200	
Total Students	34				
Total Area				**3552**	
Average area per student (m2)				104	
Percentage of overall number of student beds				34%	

Student Housing - Family

Space Description	Student Qty **	Unit Qty	Unit Area (m2)	Total Area (m2)	Functions
Family Accommodation - multi unit buildings				**880**	
Two bedroom	5	5	79	395	
Three bedroom	5	5	97	485	
Four bedroom	0	0	110	0	
Total Students	10				
Subtotal Useable Areas				**880**	
Building Services (12%)				106	heating, ventilation, water, tankage, power & communications
Circulation (30%)				264	assumes all units are grouped together into larger multi-unit buildings
Structure (3%)				26	exterior and interior wall area
Total Area				**1276**	
Average area per student (m2)				128	
Percentage of overall number of student beds				10%	

Grand total st 100
Grand total built area 7354

capital space standards pending GNWT approval at time of FMP release

Student Services										**1088**	16.9%
11%	**Student commons**										
		Large public lounge	104.65	10.5	115.1	1	115	708.8			
		meeting rooms	40	8	48	2	91				
		games room	60	12	72	1	72				
		storage room	30	6	36	2	72				
		Store	25	5	30	1	30				
		canteen/kitchen	34.9	7.0	41.9	1.0	41.9				
		loading area/dock	40.0	8.0	48.0	1.0	48.0				
		Exercise/Gym	72.5	100.0	172.5	1.0	172.5				
		Lockers/change rooms	20.1	2.0	22.1	2.0	44.3				
		storage etc for gym	20.1	2.0	22.1	1.0	22.1				
	Student support										
		Councilor office	14.0	2.8	16.8	4.0	67.2	108.0			
		Reception	10.0	2.0	12.0	1.0	12.0				
		enclosed wiating area	16.0	3.2	19.2	1.0	19.2				
		Storage	8.0	1.6	9.6	1.0	9.6				
	Daycare: Number of kids:	**11**									
		Entrance vestibule	5.4		5.4	1.0	5.4	114.5			
		kitchen	5.4	0.5	5.9	1.0	5.9				
		coat closet	2.7	0.3	3.0	1.0	3.0				
		washroom	3.8	0.4	4.1	1.0	4.1				
		staff washroom	2.1	0.2	2.4	1.0	2.4				
		Office	12.0	1.2	13.2	1.0	13.2				
		Meeting room	8.1	0.8	8.9	1.0	8.9				
		Play area	42.9	4.3	47.2	1.0	47.2				
		Nap space	7.2	0.7	7.9	1.0	7.9				
		Main circulation	12.5		12.5	1.0	12.5				
		exit vestibule	3.8	0.4	4.1	1.0	4.1				
	Student Medical Centre										
		Waiting area (enclosed)	20.0	6.0	26.0	1.0	26.0	156.3			
		Reception desk	12.0	3.6	15.6	1.0	15.6				
		Exam room	14.0	4.2	18.2	1.9	34.9				
		doctors office	10.0	3.0	13.0	1.9	24.9				
		weight & general checks room	14.0	4.2	18.2	1.0	18.2				
		Rest area/room	20.0	6.0	10.7	1.0	10.7				
		Storage	14.0	4.2	18.2	1.0	18.2				
		File storage (can be part of reception)	6.0	1.8	7.8	1.0	7.8				
	Sub-Total Building Area (m2)						**1079.8**				
General space										**595.5**	
	General Circulation (40% - includes verti. Circulation, janitors, washrooms etc)						431.9				
	Interior partitions & Structure (5%)						54.0				
	Building Systems (Mech/Elect) - 7%						109.6				
Total Building Area										**1683.1**	

Staff Housing

Space Description	Staff Qty **	Unit Qty	Unit Area (m2)	Total Area (m2)	Functions
Staff Accommodation - dorm style				**115**	
Bedrooms	5	5	12	60	
Shared common spaces		1	55	55	kitchen, living, washrooms, showers, laundry, storage (shared by 5 suites each)
Staff Accommodation - self contained				**168**	
Studio	2	2	50	100	
One bedroom	2	1	66	66	
Common Laundry		0.6	4	2	4m2 for every 5 units
Total Staff serv	**9**				
Subtotal Useable Areas				**283**	
Building Services (12%)				34	heating, ventilation, water, tankage, power & communications
Circulation (30%)				85	assumes all units are grouped together into larger multi-unit buildings
Structure (3%)				9	exterior and interior wall area
Total Area				**411**	
Average area per staff (m2)				46	

Space Standards - proposed for NWT polytechnic university

North Slave Campus

Number of full time students	392
Number of full time faculty	60
Number of Departments	4.7

Total Academic Bldg	10939
Total Student support	4017
Total Housing	17148

Number of students to receive housing	223
Single student rooms	89
student with family accommodation	134

Proposed total Area	**32104**

Academic Building	Offices	522
	Faculty	1413
	Labs and Research	1641
	Lecture halls and Classrooms	2267
	Library	1207
	General space (service, circulation etc)	3888
	Total proposed Area for Academic Building	**10939**

Student Services Building	Commons	1264
	Services	108
	Daycare	962
	Clinic	258
	Misc	1425
	Total area	**4017**

Housing buildings	Single housing	2616
	Family housing	14121
	Staff housing	411
	Total housing area:	**17148**

Function	Department	Room Name	Unit Area	Circulation gross-up	Proposed area for program space	Number of rooms	Sub-Total room areas	Sub-total department area	Total Functional area	Percentage of whole building
Offices									**522**	4.8%
	Administration									
		polytech university Dean office	25.0	5	30	1	30.0	118.8		
		Storage room	4.0	0.8	4.8	1	4.8			
		Meeting room	30.0	6	36	1	36.0			
		Reception	10.0	2	12	1	12.0			
		waiting area	30.0	6	36	1	36.0			
	Campus Director & team	Campus Director office	20.0	4	24	1	24.0	403.2		
		Finance Officer	14.0	2.8	16.8	1	16.8			
		Student Relations office	14.0	2.8	16.8	1	16.8			
		Curriculum Office	14.0	2.8	16.8	1	16.8			
		Misc Office	14.0	2.8	16.8	14	235.2			
		Storage room	4.0	0.8	4.8	1	4.8			
		Meeting room	30.0	6	36	1	36.0			
		Reception	14.0	2.8	16.8	1	16.8			
		waiting area	30.0	6	36	1	36.0			
Faculty									**1413.2**	12.9%
		Department Chair	16.0	3.2	19.2	5	89.6	1413.2		
		Faculty office	12.0	2.4	14.4	55	796.8			
		Reception	10.0	2	12	5	56.0			
		Storage	10.0	2	12	5	56.0			
		meeting room (large)	26.0	5.2	31.2	5	145.6			
		meeting room (small)	16.0	3.2	19.2	5	89.6			
		Lounge	75.0	15	90	1	90.0			
		Work room (photo copier etc)	16.0	3.2	19.2	5	89.6			
Labs & Research									**1640.8**	15.0%
	Wet Labs									
		Lab (includes fume hood)	115.0	23	138	5	644.0	1120		
		Equipment storage	17.0	3.4	20.4	5	95.2			
		Cold rooms	17.0	3.4	20.4	5	95.2			
		Chemical storage	17.0	3.4	20.4	5	95.2			
		Other	17.0	3.4	20.4	5	95.2			
		Office support/admin (+/-16% of lab space)	17.0	3.4	20.4	5	95.2			
	Dry Labs									
		Research Lab	55.0	11	66	5	308.0	520.8		
		Secure procedural library	5.0	1	6	5	28.0			
		Private Office	16.0	3.2	19.2	5	89.6			
		Collection storage	17.0	3.4	20.4	5	95.2			
Lecture Halls and Classrooms									**2267.2**	20.7%
	Lecture Hall									
		Hall (200 students)	200.0	40	240	1	240.0	2267.2		
	Classroom									
		Large (60 students)	100.0	20	120	2	280.0			
		Medium (30 students)	60.0	12	72	5	336.0			
		Small (16 students)	40.0	8	48	9	448.0			
	Computer cluster rooms									
		Large (10 students)	40.0	8	48	2	112.0			
		Medium (8 students)	35.0	7	42	5	196.0			
		Small (2 students)	10.0	2	12	9	112.0			
	Conference and study rooms									
		Conference room (large - 16-20)	60.0	12	72	2	168.0			
		Conference medium (6-10)	40.0	8	48	5	224.0			
	Study rooms (students)									
		Group study room (4-6)	30.0	6	36	2	84.0			
		Study room (2)	12.0	2.4	14.4	5	67.2			
Library									**1207.2**	11.0%
	Main Library									
		Stacks	160.0	32	192	2	384.0	960.8		
		Study Carrols	60.0	6.4	66.4	2	132.8			
		Computer research stations	30.0	6	36	1	36.0			
		Display area	100.0	20	120	1	120.0			
		Circulation	220.0	44	264	1	264.0			
		Reception/check-out	20.0	4	24	1	24.0			
	Meeting room									
		Large meeting room	60.0	6	66	1	66.0	154		
		medium meeting room	40.0	4	44	2	88.0			
	Library administration									
		Head Librarian office	16.0	1.6	17.6	1	17.6	92.4		
		support librarian office	14.0	1.4	15.4	2	30.8			
		book repair room	20.0	2	22	1	22.0			
		storage	20.0	2	22	1	22.0			
	Sub-Total Building Area (m2)						**7050.4**			
General space									**3888.3**	35.5%
	General Circulation (40% - includes verti. Circulation, janitors, washrooms etc)						2820.2			
	Interior partitions & Structure (5%)						352.5			
	Building Systems (Mech/Elect) - 7%						715.6			
Total Building Area									**10938.7**	100.0%

Proposed Residential Areas
North Slave Campus

Student Housing - Singles

Space Description	Student Qty **	Rm Qty	Room Area (m2)	Total Area (m2)	Functions
Singles Accommodation - dorm style				**1804**	
Bedrooms	89	89	12	1073	
Shared common spaces	18	35	626		kitchen, living, washrooms, showers, laundry, storage (shared by 5 suites each)
Building supervisor office	1	12	12		
Building supervisor apartment	1	66	66		one bedroom apartment
Public washroom	2	4	8		
Misc. building storage	1	20	20		
Total Students	**89**				
Subtotal Useable Areas				**1804**	
Building Services (12%)				216	heating, ventilation, water, tankage, power & communications
Circulation (25%)				541	assumes all units are grouped together into larger multi-unit buildings
Structure (3%)				54	exterior and interior wall area
Total Area				**2616**	
Area per student (m2)				29	
Percentage of overall number of student beds				40%	

Student Housing - Family

Space Description	Student Qty **	Unit Qty	Unit Area (m2)	Total Area (m2)	Functions
Family Accommodation - townhouse style				**14121**	
Two bedroom	45	45	89	3977	
Three bedroom	45	45	107	4782	
Four bedroom	45	45	120	5363	
Total Students	**134**				
Total Area				**14121**	
Average area per student (m2)				105	
Percentage of overall number of student beds				60%	

Staff Housing

Space Description	Staff Qty **	Unit Qty	Unit Area (m2)	Total Area (m2)	Functions
Staff Accommodation - dorm style				**115**	
Bedrooms	5	5	12	60	
Shared common spaces	1	55		55	kitchen, living, washrooms, showers, laundry, storage (shared by 5 suites each)
Staff Accommodation - self contained				**168**	
Studio	2	2	50	100	
One bedroom	2	1	66	66	
Common Laundry		0.6	4	2	4m2 for every 5 units
Total Staff serv	9				
Subtotal Useable Areas				**283**	
Building Services (12%)				34	heating, ventilation, water, tankage, power & communications
Circulation (30%)				85	assumes all units are grouped together into larger multi-unit buildings
Structure (3%)				9	exterior and interior wall area
Total Area				**411**	
Average area per staff (m2)				46	

Student Services									**2592**	
	Student commons									
		Large public lounge	254.8	25.5	280.3	1.0	280.3	1263.7		
		meeting rooms	40.0	8.0	48.0	4.6	221.4			
		games room	60.0	12.0	72.0	1.0	72.0			
		storage room	30.0	6.0	36.0	2.0	72.0			
		Store	25.0	5.0	30.0	1.0	30.0			
		canteen/kitchen	84.9	17.0	101.9	1.0	101.9			
		loading area/dock	40.0	8.0	48.0	1.0	48.0			
		Exercise/Gym	176.4	100.0	276.4	1.0	276.4			
		Lockers/change rooms	49.0	4.9	53.9	2.0	107.8			
		storage etc for gym	49.0	4.9	53.9	1.0	53.9			
	Student support									
		Councilor office	14.0	2.8	16.8	4.0	67.2	108.0		
		Reception	10.0	2.0	12.0	1.0	12.0			
		enclosed wiating area	16.0	3.2	19.2	1.0	19.2			
		Storage	8.0	1.6	9.6	1.0	9.6			
	Daycare: Number of kids:	**101**								
		Entrance vestibule	50.3		50.3	1.0	50.3	962.4		
		kitchen	50.3	5.0	55.3	1.0	55.3			
		coat closet	25.1	2.5	27.7	1.0	27.7			
		washroom	35.2	3.5	38.7	1.0	38.7			
		staff washroom	20.1	2.0	22.1	1.0	22.1			
		Office	12.0	1.2	13.2	1.0	13.2			
		Meeting room	75.4	7.5	83.0	1.0	83.0			
		Play area	402.2	40.2	442.4	1.0	442.4			
		Nap space	67.0	6.7	73.7	1.0	73.7			
		Main circulation	117.3		117.3	1.0	117.3			
		exit vestibule	35.2	3.5	38.7	1.0	38.7			
	Student Health Centre									
		Waiting area (enclosed)	20.0	6.0	26.0	1.0	26.0	257.5		
		Reception desk	12.0	3.6	15.6	1.0	15.6			
		Exam room	14.0	4.2	18.2	4.7	84.9			
		Health provider work-office	10.0	3.0	13.0	4.7	60.7			
		weight & general checks room	14.0	4.2	18.2	1.0	18.2			
		Rest area/room	20.0	6.0	26.1	1.0	26.1			
		Storage	14.0	4.2	18.2	1.0	18.2			
		File storage (can be part of reception)	6.0	1.8	7.8	1.0	7.8			

	Sub-Total Building Area (m2)						**2583.8**			

General space									**1424.9**	
	General Circulation (40% - includes verti. Circulation, janitors, washrooms etc)						1033.5			
	Interior partitions & Structure (5%)						129.2			
	Building Systems (Mech/Elect) - 7%						262.3			
Total Building Area									**4016.5**	

Space Standards - proposed for NWT polytechnic university

Aurora - Inuvik Campus

Assumed that numbers of student can expect to remain constant for next 5-10 years

Number of full time students	84
Number of full time faculty	20
Number of Departments	1

Total Academic Bldg	5036
Total Student support	1328
Total Housing	2399

Existing Academic Building is 2,404m2. The Arctic Research Centre is 1,423m2 - total area: 3,827m2. Assumption - new Academic

Current College housing standards require College to provide for 97% of FTE students. Single Student housing already existing. Proposed 15 family units plus 12 staff units

Number of students to receive housing	48
Single student rooms	19
student with family accommodation	29

Proposed total Area		**8762.7**

Student Services Building	Commons	524
	Services	108
	Daycare	104
	Clinic	123
	Misc	469
	Total area	**1328**

Housing buildings	Single housing	0
	Family housing	1523
	Staff housing	876
	Total housing a	**2399**

Function	Department	Room Name	Unit Area	Circulation gross-up	Proposed area for program space	Number of rooms	Sub-Total room areas	Sub-total department area	Total Functional area	Percentage of whole building
Offices									**303.6**	9.4%
7.90%	Administration									
		polytech university Dean office	25	5	30	1	30	118.8		
		Storage room	4	0.8	4.8	1	4.8			
		Meeting room	30	6	36	1	36			
		Reception	10	2	12	1	12			
		waiting area	30	6	36	1	36			
	Campus Director & team	Campus Director office	20	4	24	1	24	184.8		
		Finance Officer	14	2.8	16.8	1	16.8			
		Student Relations office	14	2.8	16.8	1	16.8			
		Curriculum Office	14	2.8	16.8	1	16.8			
		Misc Office	14	2.8	16.8	1	16.8			
		Storage room	4	0.8	4.8	1	4.8			
		Meeting room	30	6	36	1	36			
		Reception	14	2.8	16.8	1	16.8			
		waiting area	30	6	36	1	36			
Faculty									**448.8**	13.8%
22.50%		Department Chair	16	3.2	19.2	1	19.2	448.8		
		Faculty office	12	2.4	14.4	20	288			
		Reception	10	2	12	1	12			
		Storage	10	2	12	1	12			
		meeting room (large)	26	5.2	31.2	1	31.2			
		meeting room (small)	16	3.2	19.2	1	19.2			
		Lounge	40	8	48	1	48			
		Work room (photo copier etc)	16	3.2	19.2	1	19.2			
Labs & Research									**351.6**	10.8%
15%	**Wet Labs**									
		Lab (includes fume hood)	115	23	138	1	138	240		
		Equipment storage	17	3.4	20.4	1	20.4			
		Cold rooms	17	3.4	20.4	1	20.4			
		Chemical storage	17	3.4	20.4	1	20.4			
		Other	17	3.4	20.4	1	20.4			
		Office support/admin (+/-16% of lab space)	17	3.4	20.4	1	20.4			
	Dry Labs									
		Research Lab	55	11	66	1	66	111.6		
		Secure prcedural library	5	1	6	1	6			
		PI Office	16	3.2	19.2	1	19.2			
		Collection storage	17	3.4	20.4	1	20.4			
Lecture Halls and Classrooms									**934.8**	28.8%
11.50%	**Lecture Hall**									
		Hall (200 students)	200	40	240	1	240	934.8		
	Classroom									
		Large (60 students)	100	20	120	1	120			
		Medium (30 students)	60	12	72	2	144			
		Small (16 students)	40	8	48	4	192			
	Computer cluster rooms									
		Large (10 students)	40	8	48	0.5	24			
		Medium (8 students)	35	7	42	1	42			
		Small (2 students)	10	2	12	2	24			
	Conference and study rooms									
		Conference room (large - 16-20)	60	12	72	0.5	36			
		Conference medium (6-10)	40	8	48	1	48			
	Study rooms (students)									
		Group study room (4-6)	30	6	36	1	36			
		Study room (2)	12	2.4	14.4	2	29			
Library									**1207.2**	37.2%
8.80%	**Main Library**									
		Stacks	160	32	192	2	384	960.8		
		Study Carrols	60	6.4	66.4	2	133			
		Computer research stations	30	6	36	1	36			
		Display area	100	20	120	1	120			
		Circulation	220	44	264	1	264			
		Reception/check-out	20	4	24	1	24			
7.90%	**Meeting room**									
		Large meeting room	60	6	66	1	66	154		
		medium meeting room	40	4	44	2	88			
	Library administration									
		Head Librarian office	16	1.6	17.6	1	18	92.4		
		support librarian office	14	1.4	15.4	2	31			
		book repair room	20	2	22	1	22			
		storage	20	2	22	1	22			
	Sub-Total Building Area (m2)						**3246**			
General space									**1790.2**	
	General Circulation (40% - includes verti. Circulation, janitors, washrooms etc)						1298.4			
	Interior partitions & Structure (5%)						162.3			
	Building Systems (Mech/Elect) - 7%						329.5			
Total Building Area									**5036.2**	

Student Housing - Family

Space Description	Student Qty **	Unit Qty	Unit Area (m2)	Total Area (m2)
Family Accommodation - townhouse style				**1523**
Two bedroom	6	6	89	534
Three bedroom	7	7	107	749
Four bedroom	2	2	120	240
Total Students	**15**			
Total Area				**1523**
Average area per student (m2)				102
Percentage of overall number of student beds				

Staff Housing

Space Description	Staff Qty **	Unit Qty	Unit Area (m2)	Total Area (m2)
Staff Accommodation - dorm style				**0**
Bedrooms		0	12	0
Shared common spaces		0	55	0
Staff Accommodation - self contained				**604**
Studio		4	50	200
One bedroom		6	66	396
Common Laundry		2	4	8
Total Staff served				
Subtotal Useable Areas				**604**
Building Services (12%)				72
Circulation (30%)				181
Structure (3%)				18
Total Area				**876**
Average area per staff (m2)				876

Student Services									**859**	26.4%
11%	**Student commons**									
		Large public lounge	54.6	5.5	60.1	1.0	60.1	523.8		
		meeting rooms	40.0	8.0	48.0	1.0	47.4			
		games room	60.0	12.0	72.0	1.0	72.0			
		storage room	30.0	6.0	36.0	2.0	72.0			
		Store	25.0	5.0	30.0	1.0	30.0			
		canteen/kitchen	18.2	3.6	21.8	1.0	21.8			
		loading area/dock	40.0	8.0	48.0	1.0	48.0			
		Exercise/Gym	37.8	100.0	137.8	1.0	137.8			
		Lockers/change rooms	10.5	1.1	11.6	2.0	23.1			
		storage etc for gym	10.5	1.1	11.6	1.0	11.6			
	Student support									
		Councilor office	14.0	2.8	16.8	4.0	67.2	108.0		
		Reception	10.0	2.0	12.0	1.0	12.0			
		enclosed wiating area	16.0	3.2	19.2	1.0	19.2			
		Storage	8.0	1.6	9.6	1.0	9.6			
	Daycare: Number of kids:	**5.6**								
		Entrance vestibule	4.2		4.2	1.0	4.2	104.1		
		kitchen	12.0	1.2	13.2	1.0	13.2			
		coat closet	6.0	0.6	6.6	1.0	6.6			
		washroom	6.0	0.6	6.6	1.0	6.6			
		staff washroom	4.0	0.4	4.4	1.0	4.4			
		Office	12.0	1.2	13.2	1.0	13.2			
		Meeting room	12.0	1.2	13.2	1.0	13.2			
		Play area	22.4	2.2	24.6	1.0	24.6			
		Nap space	6.0	0.6	6.6	1.0	6.6			
		Main circulation	7.1		7.1	1.0	7.1			
		exit vestibule	4.0	0.4	4.4	1.0	4.4			
	Student Medical Centre									
		Waiting area (enclosed)	20.0	6.0	26.0	1.0	26.0	122.6		
		Reception desk	12.0	3.6	15.6	1.0	15.6			
		Exam room	14.0	4.2	18.2	1.0	18.2			
		doctors office	10.0	3.0	13.0	1.0	13.0			
		weight & general checks room	14.0	4.2	18.2	1.0	18.2			
		Rest area/room	20.0	6.0	5.6	1.0	5.6			
		Storage	14.0	4.2	18.2	1.0	18.2			
		File storage (can be part of reception)	6.0	1.8	7.8	1.0	7.8			

	Sub-Total Building Area (m2)						**850.7**			

General space									**469.2**	
	General Circulation (40% - includes verti. Circulation, janitors, washrooms etc						340.3			
	Interior partitions & Structure (5%)						42.5			
	Building Systems (Mech/Elect) - 7%						86.3			
Total Building Area									**1327.7**	

Appendix C) Cost Estimates

NWT Polytechnic University Facilities Master Plan:
Class D Cost Estimates

Prepared for: GNWT Department of Infrastructure (INF) &
Aurora College Transformation Team (ACT)

May 26th, 2022
TAG #21-051

TAYLOR ARCHITECTURE GROUP
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Contents

Attached as appendices:

- Summary table of construction cost estimates
- Class D cost estimates for each proposed development

1 Cost Estimates: Approach & Limitations

The attached cost estimates have been developed based on the NWT Polytechnic University Capital Space Standards, and the application of these to each campus.

Cost estimates are also provided for two potential models of Community Learning Centre facilities. The standard CLC model is a single storey, two classroom unit. The Regional learning centre is proposed to be two storeys, including three classrooms and a staging space. More information on the proposed CLC facilities is included in the NWT Polytechnic University Facilities Master Plan.

1.1 Estimate Limitations

The cost estimates are developed using Taylor Architecture Group's Class D estimate system. This system was created as a means of checking project costs in advance to the start of a project. It is therefore a useful approach for costing the proposed infrastructure for the polytechnic at this stage. It should be noted that, for this project, the estimates are intended to provide a sense of the scope of the proposed involvements. Exact facility configurations have not yet been established, as functional programs have not yet been ascertained.

Class D estimates are typically provided at the concept design phase, once a program has been established, and are accurate to within 20-30% depending upon the construction market conditions. In this instance, as a program has not yet been determined, these estimates should be considered to have a margin of error of +/- 30-40%.

Recent market trends (2020-22) have seen erratic changes in project costs, due to supply chain and labour issues. Mid-2022, with likely increases of interest rates, would seem to suggest a levelling off for construction costs.

1.2 Estimate Assumptions

The assumptions made for the development of the estimates are as follows:

- High Quality building systems and products
- 50-100 year building life expectancy
- Work on the Yellowknife Campus site will be undertaken with intent to safeguard as much of the site existing conditions as possible including trees around the buildings. Intent is not to blast site flat but rather to work with the existing site conditions. The site is to remain a primarily natural environment, into which the campus is discreetly inserted.
- While the existing academic and trades training buildings at the Thebacha and the Aurora Campuses are in good condition, some minor upgrades were noted (missing T-bar, scrapped paint surfaces, etc). It is assumed that these will be addressed by O&M rather than through new capital investment. Maintenance costs for existing facilities are not included in the attached estimates.

2 List of Attached Cost Estimates

There are two separate sets of estimates attached:

- Cost estimates for priority developments at each campus
- Cost estimates for Community Learning Centre facilities

2.1 Developments at Each Campus

Thebacha and Aurora Campus are proposed to receive new facilities and/or site works. The Yellowknife North Slave Campus is to be a brand new campus. Cost estimates are attached for the following developments:

Thebacha Campus (Fort Smith)

- Student Housing
- Staff Housing
- Student Services Building
- Heavy Equipment Garage

North Slave Campus (Yellowknife)

- New Academic building with student services facility (assumed to be in one building)
- Student housing
- Staff housing
- Site development costs

Aurora Campus (Inuvik)

- Student Housing
- Staff Housing
- Student Services Building
- Site development costs

2.2 Priorities at Each Campus

Each development is identified to be either Priority 1 or Priority 2. Priority 1 initiatives should be undertaken immediately. Priority 2 should occur within ten years.

Priority 1 initiatives are:

Thebacha Campus (Fort Smith)

- Student Housing
- Student Services Building

North Slave Campus (Yellowknife)

- New Academic building with student services facility (assumed to be in one building)
- Student housing
- Site development costs

Aurora Campus (Inuvik)

- Student Housing
- Site Development costs

Priority 2 initiatives are:

Thebacha Campus (Fort Smith)

- Staff Housing
- Heavy Equipment Garage

North Slave Campus (Yellowknife)

- Staff housing

Aurora Campus (Inuvik)

- Staff Housing
- Student Services Building

A cost summary document is attached, followed by Class D estimates for each of the proposed involvements.

2.3 Community Learning Centres

New Community Learning Centres are proposed to replace existing aged facilities (note: most existing CLC's are 30-55 years in age).

The Facilities Master Plan suggests a modified scope for the CLC facilities: servicing both as learning centres for each community and as staging centres for visiting research groups. To this end, two types of new, purpose-designed facilities are proposed: a Standard model for the majority of communities, and a Regional model for larger communities or regional centres.

While these models are proposed to be standardized across locations, the costs for construction in communities fluctuates due to a number of conditions (ground, service capacity, access, etc). The cost of each CLC facility can be expected to vary significantly between communities. Estimated cost differentials are captured in the attached summary table.

Further engagement with communities will be required before any decision is made about where a new Standard CLC model, or a new Regional CLC model, will be constructed. Therefore, a cost estimate has been provided for both a Standard CLC a Regional CLC, in each community.

Until a functional program and concept design has been developed, these estimates are intended to offer a sense of scale for the projects, rather than definitive costs.

Proposed Facility Cost Estimate Summary

Proposed Campus improvements

Campus	Facility	Project established priority	Facility Area	Facility Class D Estimated Cost	Combined Class D Cost estimate per Campus	Soft Costs (Design, Furniture, project management etc) - 25%	Combined Class D estimate for construction and soft costs	Priority one costs	Priority two costs
Thebacha Campus					**$ 77,491,035**	**$ 19,372,758.75**	**$ 96,863,793.75**		
	Housing - students	R1	7354	$ 51,316,210		$ 12,829,052.50		$ 64,145,263	
	Housing - Staff	R2	411m2	$ 5,344,692		$ 1,336,173.00			$ 6,680,865
	Student Services Buildling	A1	1,683m2	$ 14,980,248		$ 3,745,062.00		$ 18,725,310	
	Heavy Equipment Building	A2	800m2	$ 5,849,885		$ 1,462,471.25			$ 7,312,356
Yellowknife North Slave Campus					**$ 291,685,096**	**$ 72,921,274.00**	**$ 364,606,370.00**		
	Academic Building	A1	10,939m2	$ 74,038,841		$ 18,509,710.25		$ 92,548,551	
	Student Services Building (65%)	A1	2,611m2	$ 36,842,387		$ 9,210,596.69		$ 46,052,983	
	Student Services Building (35%)	A2	1,406m2	$ 19,838,208		$ 4,959,552.06			$ 24,797,760
	Housing - student (40% phase one)	R1	6,859m2	$ 49,815,312		$ 12,453,828.00		$ 62,269,140	
	Housing - student (60% phase two & three)	R2	10,289m2	$ 74,722,969		$ 18,680,742.25			$ 93,403,711
	Housing - Staff	R2	411m2	$ 5,623,464		$ 1,405,866.00			$ 7,029,330
	Site Development road and services costs	A1		$ 30,803,915		$ 7,700,978.75		$ 38,504,894	
Aurora Campus					**$ 47,898,740**	**$ 11,974,685.00**	**$ 59,873,425.00**		
	Student Services Building	A1*	1,328m2	$ 15,172,112		$ 3,793,028.00		$ 18,965,140	
	Housing - students	R1	1,523m2	$ 20,521,282		$ 5,130,320.50		$ 25,651,603	
	Housing - Staff	R2	876m2	$ 10,640,856		$ 2,660,214.00			$ 13,301,070
	Site Development	A1		$ 1,564,490		$ 391,122.50		$ 1,955,613	
					$ 417,074,871	**$ 208,537,436**	**$ 521,343,589**	**$ 368,818,496**	**$ 152,525,093**

Proposed Community Learning Centre New Facilities

Community Location	Community Construction Factor	Standard CLC Unit		Regional CLC Unit	Project Costs for Standard Model with soft costs	Project Cost for Expanded Model with soft costs
Aklavik	2	$ 6,370,840		$ 9,365,828	$ 8,282,092	$ 12,175,576
Behchoko	1.25	$ 3,981,775		$ 5,853,643	$ 5,176,308	$ 7,609,735
Colville Lake	2	$ 6,370,840		$ 9,365,828	$ 8,282,092	$ 12,175,576
Deline	1.75	$ 5,574,485		$ 8,195,100	$ 7,246,831	$ 10,653,629
Dettah/Ndilo	1.15	$ 3,663,233		$ 5,385,351	$ 4,762,203	$ 7,000,956
Enterprise	1.15	$ 3,663,233		$ 5,385,351	$ 4,762,203	$ 7,000,956
Fort Good Hope	1.75	$ 5,574,485		$ 8,195,100	$ 7,246,831	$ 10,653,629
Fort Liard	1.6	$ 5,096,672		$ 7,492,662	$ 6,625,674	$ 9,740,461
Fort McPherson	1.9	$ 6,052,298		$ 8,897,537	$ 7,867,987	$ 11,566,798
Fort Providence	1.4	$ 4,459,588		$ 6,556,080	$ 5,797,464	$ 8,522,903
Fort Resolution	1.4	$ 4,459,588		$ 6,556,080	$ 5,797,464	$ 8,522,903
Fort Simpson	1.3	$ 4,141,046		$ 6,087,788	$ 5,383,360	$ 7,914,125
Gameti	1.8	$ 5,733,756		$ 8,429,245	$ 7,453,883	$ 10,958,019
Hay River	1	$ 3,185,420		$ 4,682,914	$ 4,141,046	$ 6,087,788
Jean Marie River	1.5	$ 4,778,130		$ 7,024,371	$ 6,211,569	$ 9,131,682
Kakisa	1.5	$ 4,778,130		$ 7,024,371	$ 6,211,569	$ 9,131,682
Katl'odeeche	1	$ 3,185,420		$ 4,682,914	$ 4,141,046	$ 6,087,788
Lutselk'e	1.9	$ 6,052,298		$ 8,897,537	$ 7,867,987	$ 11,566,798
Nahanni Butte	1.5	$ 4,778,130		$ 7,024,371	$ 6,211,569	$ 9,131,682
Ndilo	1	$ 3,185,420		$ 4,682,914	$ 4,141,046	$ 6,087,788
Norman Wells	1.75	$ 5,574,485		$ 8,195,100	$ 7,246,831	$ 10,653,629
Paulatuk	2.25	$ 7,167,195		$ 10,536,557	$ 9,317,354	$ 13,697,523
Sachs Harbour	2.25	$ 7,167,195		$ 10,536,557	$ 9,317,354	$ 13,697,523
Sambaa K'e	2	$ 6,370,840		$ 9,365,828	$ 8,282,092	$ 12,175,576
Tsiigehtchic	1.85	$ 5,893,027		$ 8,663,391	$ 7,660,935	$ 11,262,408
Tuktoyaktuk	1.9	$ 6,052,298		$ 8,897,537	$ 7,867,987	$ 11,566,798
Tulit'a	1.75	$ 5,574,485		$ 8,195,100	$ 7,246,831	$ 10,653,629
Ulukhaktok	2.25	$ 7,167,195		$ 10,536,557	$ 9,317,354	$ 13,697,523
Wekweeti	1.85	$ 5,893,027		$ 8,663,391	$ 7,660,935	$ 11,262,408
Whati	1.75	$ 5,574,485		$ 8,195,100	$ 7,246,831	$ 10,653,629
Wrigley	1.5	$ 4,778,130		$ 7,024,371	$ 6,211,569	$ 9,131,682

	Construction costs	Project Costs
Regional CLC Unit Cost - if built in Yellowknife	$ 4,682,914	$ 6,087,788
Standard CLC Unit Cost - if built in Yellowknife	$ 3,185,420	$ 4,141,046

NWT Polytechnic University - Class D Estimate

Prepared by Taylor Architecture Group

Facilities Master Plan - Aurora Campus Housing - staff

May-22

ESTIMATE				
Category	**Description**	**Quan**	**Item Subtotal**	**Category Subtotal**
Foundations				204,269.21
	Civil Allowance (municipal water and sewer connections)	1.00	44,400.00	
Exterior Envelope				2,714,795.08
	Floor, New, Wood I-Joist (inc. subfloors)	766.00	546,241.69	
	Exterior Wall, New, Cement Board (High) Cladding (inc. insulation)	1,294.00	964,312.76	
	Roof, New, MBM Finish (inc. Insulation)	766.00	676,120.10	
	Gutters and Downspouts	245.00	32,156.25	
	Canopies	6.00	7,714.29	
	Roof Lanterns	6.00	9,000.00	
	Main Entrance Doors (Premium Quality)	6.00	135,000.00	
	Exterior Doors (Regular Quality)	3.00	20,250.00	
	Windows and Curtain Walls	216.00	324,000.00	
Interiors				4,037,244.66
	Interior Partitions, Steel Framing	7,720.00	1,803,171.43	
	Interior Glazing	600.00	308,571.43	
	Access Flooring	-	-	
	Wall Finishes	8,000.00	364,285.71	
	Floor Finishes	2,400.00	206,777.52	
	Ceiling Finishes	2,400.00	370,285.71	
	Millwork	78.00	384,428.57	
	Window Coverings	816.00	104,502.86	
	Interior Doors (blended cost)	81.00	212,321.43	
	Hardware Premium, Premium/Institutional Level	81.00	72,900.00	
	Staircases	6.00	45,000.00	
	Lifts	1.00	75,000.00	
	Appliances	40.00	90,000.00	
Mechanical				1,479,975.29
	Mechanical System	1,532.00	1,285,278.68	
	Sprinkler System	1,532.00	121,571.61	
	Biomass Boiler	-	-	
	Fume Hood	-	-	
Electrical				884,444.96
	Electrical System	766.00	734,444.96	
	New Electrical Service Connections	3.00	120,000.00	
	New Site Electrical Poles	2.00	30,000.00	
Site Works				666,768.94
	Exterior Decks	54.00	86,556.60	
	Exterior Ramps	120.00		
Wood Entrances	Exterior Stairs	54.00		
	Exterior Handrails and Guards	220.00	127,285.71	

Driveways	Asphalt Driveway	450.00	303,750.00	
Surface Walkways	Concrete Walkways	200.00	31,950.00	
	Site Lighting Allowance	1.00	40,000.00	
	Chain Link Fence (inc. concrete anchors)	72.00	6,569.13	
	Chain Link Fence Gates	1.00	187.50	
	Timber Retaining Wall (140x140 PT timber, inc. deadheads)	90.00	33,750.00	
	Bike Racks (inc. concrete anchor pads)	30.00	33,750.00	
	Bollards (electrified)	3.00	1,080.00	
	Bollards (standard)	6.00	1,890.00	
	Planter Boxes	-	-	
	Direct Construction Cost		10,282,028	10,282,028
	General Conditions (admin, supervisor, tools, fuel, etc.)	20%		2,056,406
	Design and Pricing Allowance	10%		1,233,843
	Escalation Allowance	5%		678,614
	Contractor Profit	20%		2,850,178
	Contingency	20%		3,420,214
	Total Construction Cost (not including soft costs)			**20,521,282**

Notes:

- Precision of Class D cost estimate is +/- 30%.
- Estimate assumes a minimum of 5 general contractors will bid on the project and 3 subcontractors will bid on subtrades work.
    - If fewer contractors bid or the project is direct awarded, construction costs may be higher than estimated.
- Estimate assumes a typical level of local labour involvement.
- Estimate does not include furniture.
- New electrical system service connection assumes a 3-phase incoming line (not 1-phase).
- Estimate has allowed for (2) new electrical poles.
- Estimate is based on current market pricing and assumes project will be tendered within 30 days of estimate submission.
    - If project is to be tendered at a later date, an escalation allowance of at least 8% per annum should be added.
- Estimate does not include the following items:
    - Contaminated soil remediation
    - Hazardous material removal and disposal
    - Land procurement costs
    - Financing costs
    - Value-added taxes such as GST or HST
- Estimate does not include soft costs:
    - Development and building permits
    - Trade tariffs and duties
    - Land development costs, except where explicitly noted
    - Legal fees and expenses
    - Owner's project management costs
    - Preventative maintenance contracts
    - Ongoing operations and maintenance costs
    - Relocation and moving fees, including furniture and equipment
    - Hazardous material removal and disposal

NWT Polytechnic University - Class D Estimate

Prepared by Taylor Architecture Group

Facilities Master Plan - Aurora Campus site development - Gazebo and site paths

May-22

ESTIMATE				
Category	**Description**	**Quan**	**Item Subtotal**	**Category Subtotal**
Foundations				45,374.07
	Civil Allowance (municipal water and sewer connections)	1.00	5,850.00	
	Piles	5.00	26,250.00	
	Pile Caps and Beam Saddles	5.00	750.00	
	LVL Framing	1.00	2,613.00	
	Bolts and Connections	10.00	75.00	
	Skirting and Misc	80.00	9,836.07	
Exterior Envelope				51,186.62
	Exterior Wall, New, Cedar Siding Cladding (inc. insulation)	-	-	
	Roof, New, MBM Finish (inc. Insulation)	100.00	40,815.19	
	Gutters and Downspouts	48.00	6,300.00	
	Canopies	2.00	2,571.43	
	Roof Lanterns	1.00	1,500.00	
Interiors				25,714.29
	Wall Finishes	600.00	10,285.71	
	Ceiling Finishes	100.00	15,428.57	
Electrical				50,000.00
	Electrical System	100.00	10,000.00	
	New Electrical Service Connections	1.00	40,000.00	
Site Works				573,150.33
Surface Walkways	Concrete Walkways	40.00	6,390.00	
	Site Lighting Allowance	1.00	20,000.00	
	Chain Link Fence (inc. concrete anchors)	120.00	10,948.54	
	Chain Link Fence Gates	1.00	187.50	
	Timber Retaining Wall (140x140 PT timber, inc. deadheads)	1,250.00	468,750.00	
	Bike Racks (inc. concrete anchor pads)	-	-	
	Bollards (standard)	8.00	2,520.00	
	Planter Boxes	20.00	3,000.00	
	Direct Construction Cost		783,876	783,876
	General Conditions (admin, supervisor, tools, fuel, etc.)	20%		156,775
	Design and Pricing Allowance	10%		94,065
	Escalation Allowance	5%		51,736
	Contractor Profit	20%		217,290
	Contingency	20%		260,748
	Total Construction Cost (not including soft costs)			**1,564,490**

Notes:

- Precision of Class D cost estimate is +/- 30%.
- Estimate assumes a minimum of 5 general contractors will bid on the project and 3 subcontractors will bid on subtrades work.
  - If fewer contractors bid or the project is direct awarded, construction costs may be higher than estimated.
- Estimate assumes a typical level of local labour involvement.
- Estimate does not include furniture.

- New electrical system service connection assumes a 3-phase incoming line (not 1-phase).
- Estimate does not include allowance for new electrical poles.
- Estimate is based on current market pricing and assumes project will be tendered within 30 days of estimate submission.
    - If project is to be tendered at a later date, an escalation allowance of at least 8% per annum should be added.
- Estimate does not include the following items:
    - Contaminated soil remediation
    - Hazardous material removal and disposal
    - Land procurement costs
    - Financing costs
    - Value-added taxes such as GST or HST
- Estimate does not include soft costs:
    - Development and building permits
    - Trade tariffs and duties
    - Land development costs, except where explicitly noted
    - Legal fees and expenses
    - Owner's project management costs
    - Preventative maintenance contracts
    - Ongoing operations and maintenance costs
    - Relocation and moving fees, including furniture and equipment
    - Hazardous material removal and disposal

NWT Polytechnic University - Class D Estimate

Prepared by Taylor Architecture Group

Facilities Master Plan - Aurora Campus Student Services Building

May-22

ESTIMATE				
Category	**Description**	**Quan**	**Item Subtotal**	**Category Subtotal**
Foundations				509,973.93
	Civil Allowance (municipal water and sewer connections)	1.00	76,950.00	
	Piles	64.00	336,000.00	
	Pile Caps and Beam Saddles	64.00	9,600.00	
	LVL Framing	10.00	58,800.00	
	Bolts and Connections	128.00	960.00	
	Skirting and Misc	225.00	27,663.93	
Exterior Envelope				1,612,862.96
	Exterior Wall, New, Cement Board (High) Cladding (inc. insulation)	588.00	487,328.49	
	Roof, New, MBM Finish (inc. Insulation)	1,328.00	757,123.76	
	Gutters and Downspouts	180.00	23,625.00	
	Canopies	8.00	10,285.71	
	Roof Lanterns	4.00	6,000.00	
	Main Entrance Doors (Premium Quality)	4.00	90,000.00	
	Exterior Doors (Regular Quality)	2.00	13,500.00	
	Windows and Curtain Walls	150.00	225,000.00	
Interiors				1,756,365.42
	Interior Partitions, Steel Framing	2,000.00	467,142.86	
	Interior Glazing	200.00	102,857.14	
	Access Flooring	-	-	
	Wall Finishes	2,250.00	112,714.29	
	Floor Finishes	1,328.00	115,348.85	
	Ceiling Finishes	1,328.00	204,891.43	
	Millwork	60.00	295,714.29	
	Window Coverings	350.00	36,000.00	
	Specialties, Institutional	1,328.00	256,968.00	
	Interior Doors (blended cost)	38.00	87,028.57	
	Hardware Premium, Premium/Institutional Level	38.00	34,200.00	
	Appliances	16.00	36,000.00	
Mechanical				1,158,906.83
	Mechanical System	1,328.00	1,053,523.60	
	Sprinkler System	1,328.00	105,383.23	
Electrical				713,452.25
	Electrical System	1,328.00	658,452.25	
	New Electrical Service Connections	1.00	40,000.00	
	New Site Electrical Poles	1.00	15,000.00	
Site Works				820,961.90
Surface Walkways	Concrete Walkways	260.00	41,535.00	
	Site Lighting Allowance	1.00	20,000.00	

Chain Link Fence (inc. concrete anchors)	120.00	10,948.54	
Chain Link Fence Gates	1.00	187.50	
Timber Retaining Wall (140x140 PT timber, inc. deadheads)	40.00	15,000.00	
Bike Racks (inc. concrete anchor pads)	20.00	22,500.00	
Bollards (standard)	8.00	2,520.00	
Planter Boxes	4.00	600.00	
Direct Construction Cost		7,601,868	7,601,868
General Conditions (admin, supervisor, tools, fuel, etc.)	20%		1,520,374
Design and Pricing Allowance	10%		912,224
Escalation Allowance	5%		501,723
Contractor Profit	20%		2,107,238
Contingency	20%		2,528,685
Total Construction Cost (not including soft costs)			**15,172,112**

Notes:

- Precision of Class D cost estimate is +/- 30%.
- Estimate assumes a minimum of 5 general contractors will bid on the project and 3 subcontractors will bid on subtrades work.
    - If fewer contractors bid or the project is direct awarded, construction costs may be higher than estimated.
- Estimate assumes a typical level of local labour involvement.
- Estimate does not include furniture.
- New electrical system service connection assumes a 3-phase incoming line (not 1-phase).
- Estimate has allowed for (1) new electrical poles.
- Estimate is based on current market pricing and assumes project will be tendered within 30 days of estimate submission.
    - If project is to be tendered at a later date, an escalation allowance of at least 8% per annum should be added.
- Estimate does not include the following items:
    - Contaminated soil remediation
    - Hazardous material removal and disposal
    - Land procurement costs
    - Financing costs
    - Value-added taxes such as GST or HST
- Estimate does not include soft costs:
    - Development and building permits
    - Trade tariffs and duties
    - Land development costs, except where explicitly noted
    - Legal fees and expenses
    - Owner's project management costs
    - Preventative maintenance contracts
    - Ongoing operations and maintenance costs
    - Relocation and moving fees, including furniture and equipment
    - Hazardous material removal and disposal

NWT Polytechnic University - Class D Estimate

Prepared by Taylor Architecture Group

Facilities Master Plan - Aurora Campus Housing - staff

May-22

ESTIMATE				
Category	**Description**	**Quan**	**Item Subtotal**	**Category Subtotal**
Foundations				111,672.74
	Civil Allowance (municipal water and sewer connections)	1.00	25,500.00	
Exterior Envelope				1,388,240.98
	Floor, New, Wood I-Joist (inc. subfloors)	438.00	312,341.85	
	Exterior Wall, New, Cement Board (High) Cladding (inc. insulation)	530.00	394,965.81	
	Roof, New, MBM Finish (inc. Insulation)	438.00	386,606.53	
	Gutters and Downspouts	138.00	18,112.50	
	Canopies	6.00	7,714.29	
	Roof Lanterns	6.00	9,000.00	
	Main Entrance Doors (Premium Quality)	2.00	45,000.00	
	Exterior Doors (Regular Quality)	2.00	13,500.00	
	Windows and Curtain Walls	134.00	201,000.00	
Interiors				2,007,615.33
	Interior Partitions, Steel Framing	3,720.00	868,885.71	
	Interior Glazing	200.00	102,857.14	
	Access Flooring	-	-	
	Wall Finishes	4,500.00	190,714.29	
	Floor Finishes	876.00	74,849.62	
	Ceiling Finishes	876.00	135,154.29	
	Millwork	42.00	207,000.00	
	Window Coverings	334.00	41,211.43	
	Interior Doors (blended cost)	50.00	131,942.86	
	Hardware Premium, Premium/Institutional Level	50.00	45,000.00	
	Staircases	6.00	45,000.00	
	Lifts	1.00	75,000.00	
	Appliances	40.00	90,000.00	
Mechanical				760,676.60
	Mechanical System	876.00	643,630.51	
	Sprinkler System	876.00	69,514.84	
Electrical				422,788.86
	Electrical System	438.00	367,788.86	
	New Electrical Service Connections	1.00	40,000.00	
	New Site Electrical Poles	1.00	15,000.00	
Site Works				472,110.51
	Exterior Decks	24.00	38,469.60	
Wood Entrances	Exterior Ramps	40.00		
	Exterior Stairs	20.00		
	Exterior Handrails and Guards	60.00	34,714.29	
Driveways	Asphalt Driveway	450.00	303,750.00	

Surface Walkways	Concrete Walkways	200.00	31,950.00	
	Site Lighting Allowance	1.00	40,000.00	
	Chain Link Fence (inc. concrete anchors)	72.00	6,569.13	
	Chain Link Fence Gates	1.00	187.50	
	Timber Retaining Wall (140x140 PT timber, inc. deadheads)	30.00	11,250.00	
	Bike Racks (inc. concrete anchor pads)	2.00	2,250.00	
	Bollards (electrified)	3.00	1,080.00	
	Bollards (standard)	6.00	1,890.00	
	Planter Boxes	-	-	
	Direct Construction Cost		5,331,517	5,331,517
	General Conditions (admin, supervisor, tools, fuel, etc.)	20%		1,066,303
	Design and Pricing Allowance	10%		639,782
	Escalation Allowance	5%		351,880
	Contractor Profit	20%		1,477,897
	Contingency	20%		1,773,476
	Total Construction Cost (not including soft costs)			**10,640,856**

Notes:

- Precision of Class D cost estimate is +/- 30%.
- Estimate assumes a minimum of 5 general contractors will bid on the project and 3 subcontractors will bid on subtrades work.
    - If fewer contractors bid or the project is direct awarded, construction costs may be higher than estimated.
- Estimate assumes a typical level of local labour involvement.
- Estimate does not include furniture.
- New electrical system service connection assumes a 3-phase incoming line (not 1-phase).
- Estimate has allowed for (1) new electrical poles.
- Estimate is based on current market pricing and assumes project will be tendered within 30 days of estimate submission.
    - If project is to be tendered at a later date, an escalation allowance of at least 8% per annum should be added.
- Estimate does not include the following items:
    - Contaminated soil remediation
    - Hazardous material removal and disposal
    - Land procurement costs
    - Financing costs
    - Value-added taxes such as GST or HST
- Estimate does not include soft costs:
    - Development and building permits
    - Trade tariffs and duties
    - Land development costs, except where explicitly noted
    - Legal fees and expenses
    - Owner's project management costs
    - Preventative maintenance contracts
    - Ongoing operations and maintenance costs
    - Relocation and moving fees, including furniture and equipment
    - Hazardous material removal and disposal

NWT Polytechnic University - Class D Estimate

Prepared by Taylor Architecture Group

Facilities Master Plan - Thebacha Campus Housing - students

May-22

ESTIMATE				
Category	**Description**	**Quan**	**Item Subtotal**	**Category Subtotal**
Foundations				1,697,909.88
	Civil Allowance (municipal water and sewer connections)	1.00	134,900.00	
	Excavation	8,089.40	597,716.78	
	Concrete Footings	166.00	283,860.00	
	Foundation Walls	1,364.00	494,995.60	
	Slab on Grade (inc. rebar and finish)	157.00	186,437.50	
Exterior Envelope				6,027,123.71
	Floor, New, Light Steel Framing + Steel Deck + Conc	3,677.00	602,568.38	
	Floor, Upgrade,	-	-	
	Exterior Wall, New, Cement Board (High) Cladding (inc. insulation)	4,851.00	2,546,291.34	
	Exterior Wall, Upgrade, Cladding	-	-	
	Roof, New, MBM Finish (inc. Insulation)	3,677.00	1,327,684.17	
	Roof, Upgrade, Finish	-	-	
	Gutters and Downspouts	714.00	59,351.25	
	Canopies	16.00	13,028.57	
	Roof Lanterns	16.00	15,200.00	
	Main Entrance Doors (Premium Quality)	16.00	228,000.00	
	Exterior Doors (Regular Quality)	16.00	68,400.00	
	Windows and Curtain Walls	1,228.00	1,166,600.00	
Interiors				7,643,605.41
	Interior Partitions, Steel Framing	11,500.00	1,701,178.57	
	Interior Glazing	800.00	260,571.43	
	Access Flooring	-	-	
	Wall Finishes	58,000.00	917,428.57	
	Floor Finishes	7,184.00	392,135.39	
	Ceiling Finishes	7,184.00	701,979.43	
	Millwork	654.00	2,041,414.29	
	Window Coverings	2,028.00	149,481.14	
	Specialties, Institutional	3,677.00	450,616.35	
	Interior Doors (blended cost)	221.00	290,080.24	
	Hardware Premium, Premium/Institutional Level	221.00	125,970.00	
	Staircases	16.00	76,000.00	
	Lifts	8.00	380,000.00	
	Appliances	110.00	156,750.00	
Mechanical				4,281,226.40
	Mechanical System	7,354.00	3,911,628.60	
	Sprinkler System	7,354.00	369,597.81	
Electrical				2,946,752.40
	Electrical System	3,677.00	2,607,752.40	
	New Electrical Service Connections	8.00	320,000.00	
	New Site Electrical Poles	2.00	19,000.00	

Site Works				1,099,179.16
Wood Entrances	Exterior Decks	256.00	164,592.90	
	Exterior Ramps	192.00		
	Exterior Stairs	80.00		
	Exterior Handrails and Guards	368.00	85,402.29	
Driveways	Asphalt Driveway	1,200.00	513,000.00	
Surface Walkways	Concrete Walkways	600.00	60,705.00	
	Gravel Walkways	-	-	
	Site Lighting Allowance	1.00	120,000.00	
	Chain Link Fence (inc. concrete anchors)	360.00	20,802.23	
	Chain Link Fence Gates	1.00	118.75	
	Timber Retaining Wall (140x140 PT timber, inc. deadheads)	200.00	47,500.00	
	Bike Racks (inc. concrete anchor pads)	100.00	71,250.00	
	Bollards (electrified)	40.00	9,120.00	
	Bollards (standard)	24.00	4,788.00	
	Planter Boxes	20.00	1,900.00	
	Direct Construction Cost		23,695,797	23,695,797
	General Conditions (admin, supervisor, tools, fuel, etc.)	25%		5,923,949
	Design and Pricing Allowance	10%		2,961,975
	Escalation Allowance	5%		1,629,086
	Contractor Profit	25%		8,552,702
	Contingency	20%		8,552,702
	Total Construction Cost (not including soft costs)			**51,316,210**

Notes:

- Precision of Class D cost estimate is +/- 30%.
- Estimate assumes a minimum of 5 general contractors will bid on the project and 3 subcontractors will bid on subtrades work.
    - If fewer contractors bid or the project is direct awarded, construction costs may be higher than estimated.
- Estimate assumes a typical level of local labour involvement.
- Estimate does not include furniture.
- New electrical system service connection assumes a 3-phase incoming line (not 1-phase).
- Estimate has allowed for (2) new electrical poles.
- Estimate is based on current market pricing and assumes project will be tendered within 30 days of estimate submission.
    - If project is to be tendered at a later date, an escalation allowance of at least 8% per annum should be added.
- Estimate does not include the following items:
    - Contaminated soil remediation
    - Hazardous material removal and disposal
    - Land procurement costs
    - Financing costs
    - Value-added taxes such as GST or HST
- Estimate does not include soft costs:
    - Development and building permits
    - Trade tariffs and duties
    - Land development costs, except where explicitly noted
    - Legal fees and expenses
    - Owner's project management costs
    - Preventative maintenance contracts
    - Ongoing operations and maintenance costs
    - Relocation and moving fees, including furniture and equipment
    - Hazardous material removal and disposal

NWT Polytechnic University - Class D Estimate

Prepared by Taylor Architecture Group

Facilities Master Plan - Thebacha Campus Student Services Building

May-22

ESTIMATE				
Category	**Description**	**Quan**	**Item Subtotal**	**Category Subtotal**
Foundations				884,094.70
	Civil Allowance (municipal water and sewer connections)	1.00	61,750.00	
	Excavation	3,702.60	273,581.00	
	Concrete Footings	152.00	259,920.00	
	Foundation Walls	328.00	119,031.20	
	Slab on Grade (inc. rebar and finish)	143.00	169,812.50	
Exterior Envelope				1,541,721.49
	Floor, New, Light Steel Framing + Steel Deck + Conc	1,683.00	275,801.63	
	Floor, Upgrade,	-	-	
	Exterior Wall, New, Cement Board (High) Cladding (inc. insulation)	628.00	329,637.39	
	Exterior Wall, Upgrade, Cladding	-	-	
	Roof, New, MBM Finish (inc. Insulation)	1,683.00	607,694.44	
	Roof, Upgrade, Finish	-	-	
	Gutters and Downspouts	206.00	17,123.75	
	Canopies	8.00	6,514.29	
	Roof Lanterns	10.00	9,500.00	
	Main Entrance Doors (Premium Quality)	8.00	114,000.00	
	Exterior Doors (Regular Quality)	6.00	25,650.00	
	Windows and Curtain Walls	164.00	155,800.00	
Interiors				1,618,911.27
	Interior Partitions, Steel Framing	2,800.00	414,200.00	
	Interior Glazing	400.00	130,285.71	
	Access Flooring	-	-	
	Wall Finishes	9,305.00	216,654.29	
	Floor Finishes	1,683.00	95,378.77	
	Ceiling Finishes	1,683.00	164,453.14	
	Millwork	60.00	187,285.71	
	Window Coverings	564.00	36,740.57	
	Specialties, Institutional	1,683.00	206,251.65	
	Interior Doors (blended cost)	58.00	107,051.43	
	Hardware Premium, Premium/Institutional Level	58.00	33,060.00	
	Appliances	16.00	22,800.00	
Mechanical				1,748,378.56
	Mechanical System	3,366.00	1,034,209.92	
	Sprinkler System	3,366.00	169,168.65	
	Biomass Boiler	-	450,000.00	
	Fume Hood	5.00	95,000.00	
Electrical				1,028,473.28
	Electrical System	1,683.00	689,473.28	
	New Electrical Service Connections	8.00	320,000.00	
	New Site Electrical Poles	2.00	19,000.00	
	Solar PV Array	-	-	

Site Works				684,156.81
	Exterior Decks	200.00	128,588.20	
Wood Entrances	Exterior Ramps	30.00		
	Exterior Stairs	10.00		
	Exterior Handrails and Guards	200.00	46,414.29	
Driveways	Asphalt Driveway	800.00	342,000.00	
Surface Walkways	Concrete Walkways	260.00	26,305.50	
	Gravel Walkways	-	-	
	Site Lighting Allowance	1.00	60,000.00	
	Chain Link Fence (inc. concrete anchors)	120.00	6,934.08	
	Chain Link Fence Gates	1.00	118.75	
	Timber Retaining Wall (140x140 PT timber, inc. deadheads)	40.00	9,500.00	
	Bike Racks (inc. concrete anchor pads)	20.00	14,250.00	
	Bollards (electrified)	10.00	2,280.00	
	Bollards (standard)	8.00	1,596.00	
	Planter Boxes	6.00	570.00	
	Direct Construction Cost		7,505,736	7,505,736
	General Conditions (admin, supervisor, tools, fuel, etc.)	20%		1,501,147
	Design and Pricing Allowance	10%		900,688
	Escalation Allowance	5%		495,379
	Contractor Profit	20%		2,080,590
	Contingency	20%		2,496,708
	Total Construction Cost (not including soft costs)			**14,980,248**

Notes:

- Precision of Class D cost estimate is +/- 30%.
- Estimate assumes a minimum of 5 general contractors will bid on the project and 3 subcontractors will bid on subtrades work.
    - If fewer contractors bid or the project is direct awarded, construction costs may be higher than estimated.
- Estimate assumes a typical level of local labour involvement.
- Estimate does not include furniture.
- New electrical system service connection assumes a 3-phase incoming line (not 1-phase).
- Estimate has allowed for (2) new electrical poles.
- Estimate is based on current market pricing and assumes project will be tendered within 30 days of estimate submission.
    - If project is to be tendered at a later date, an escalation allowance of at least 8% per annum should be added.
- Estimate does not include the following items:
    - Contaminated soil remediation
    - Hazardous material removal and disposal
    - Land procurement costs
    - Financing costs
    - Value-added taxes such as GST or HST
- Estimate does not include soft costs:
    - Development and building permits
    - Trade tariffs and duties
    - Land development costs, except where explicitly noted
    - Legal fees and expenses
    - Owner's project management costs
    - Preventative maintenance contracts
    - Ongoing operations and maintenance costs
    - Relocation and moving fees, including furniture and equipment
    - Hazardous material removal and disposal

NWT Polytechnic University - Class D Estimate

Prepared by Taylor Architecture Group

Facilities Master Plan - Thebacha Campus Heavy Equipment Building

May-22

ESTIMATE				
Category	**Description**	**Quan**	**Item Subtotal**	**Category Subtotal**
Demolition				209,010.23
	Interior Selective Demo	669.51	34,982.01	
	Exterior Bulk Demo	800.00	99,766.72	
	Hauling to Dump	137.00	32,537.50	
	Tipping Fee	137.00	26,030.00	
	Container Rental	0.70	2,394.00	
	Crane Rental	40.00	13,300.00	
Foundations				246,495.44
	Civil Allowance (municipal water and sewer connections)	1.00	29,355.00	
	Excavation	1,760.00	130,044.44	
	Concrete Footings	-	-	
	Foundation Walls	240.00	87,096.00	
	Slab on Grade (inc. rebar and finish)	-	-	
Exterior Envelope				861,320.53
	Floor, New,	-	-	
	Floor, Upgrade,	-	-	
	Exterior Wall, New, Steel (Corrugated, Flatstock) Cladding (inc. insulation)	616.00	228,653.82	
	Exterior Wall, Upgrade, Cladding	-	-	
	Roof, New, Standing Seam Steel Finish (inc. Insulation)	800.00	337,189.56	
	Roof, Upgrade, Finish	-	-	
	Gutters and Downspouts	784.00	65,170.00	
	Canopies	4.00	3,257.14	
	Main Entrance Doors (Premium Quality)	10.00	142,500.00	
	Exterior Doors (Regular Quality)	2.00	8,550.00	
	Windows and Curtain Walls	80.00	76,000.00	
Interiors				442,442.14
	Interior Partitions, Steel Framing	400.00	59,171.43	
	Interior Glazing	4.00	1,302.86	
	Wall Finishes	1,120.00	12,160.00	
	Floor Finishes	100.00	7,980.00	
	Ceiling Finishes	800.00	78,171.43	
	Millwork	4.00	12,485.71	
	Window Coverings	84.00	5,211.43	
	Specialties, Institutional	1,600.00	196,080.00	
	Interior Doors (blended cost)	20.00	49,454.29	
	Hardware Premium, Premium/Institutional Level	20.00	11,400.00	
	Staircases	1.00	4,750.00	
	Appliances	3.00	4,275.00	
Mechanical				716,282.13
	Mechanical System	800.00	266,282.13	
	Biomass Boiler	-	450,000.00	

Electrical				177,521.42
	Electrical System	1,600.00	177,521.42	
Site Works				140,504.83
Surface Walkways	Concrete Walkways	80.00	8,094.00	
	Site Lighting Allowance	1.00	120,000.00	
	Chain Link Fence (inc. concrete anchors)	120.00	6,934.08	
	Chain Link Fence Gates	1.00	118.75	
	Bollards (electrified)	6.00	1,368.00	
	Bollards (standard)	20.00	3,990.00	
	Direct Construction Cost		2,813,798	2,813,798
	General Conditions (admin, supervisor, tools, fuel, etc.)	25%		703,449
	Design and Pricing Allowance	10%		351,725
	Escalation Allowance	5%		193,449
	Contractor Profit	20%		812,484
	Contingency	20%		974,981
	Total Construction Cost (not including soft costs)			**5,849,885**

Notes:

- Precision of Class D cost estimate is +/- 30%.
- Estimate assumes a minimum of 5 general contractors will bid on the project and 3 subcontractors will bid on subtrades work.
    - If fewer contractors bid or the project is direct awarded, construction costs may be higher than estimated.
- Estimate assumes a typical level of local labour involvement.
- Estimate does not include furniture.
- New electrical system service connection assumes a 3-phase incoming line (not 1-phase).
- Estimate does not include allowance for new electrical poles.
- Estimate is based on current market pricing and assumes project will be tendered within 30 days of estimate submission.
    - If project is to be tendered at a later date, an escalation allowance of at least 8% per annum should be added.
- Estimate does not include the following items:
    - Contaminated soil remediation
    - Hazardous material removal and disposal
    - Land procurement costs
    - Financing costs
    - Value-added taxes such as GST or HST
- Estimate does not include soft costs:
    - Development and building permits
    - Trade tariffs and duties
    - Land development costs, except where explicitly noted
    - Legal fees and expenses
    - Owner's project management costs
    - Preventative maintenance contracts
    - Ongoing operations and maintenance costs
    - Relocation and moving fees, including furniture and equipment
    - Hazardous material removal and disposal

NWT Polytechnic University - Class D Estimate

Prepared by Taylor Architecture Group

Facilities Master Plan - Thebacha Campus Housing (staff)

May-22

ESTIMATE				
Category	**Description**	**Quan**	**Item Subtotal**	**Category Subtotal**
Foundations				110,970.34
	Civil Allowance (municipal water and sewer connections)	1.00	7,600.00	
	Excavation	453.20	33,486.44	
	Concrete Footings	10.00	17,100.00	
	Foundation Walls	116.00	42,096.40	
	Slab on Grade (inc. rebar and finish)	9.00	10,687.50	
Exterior Envelope				436,749.48
	Floor, New, Light Steel Framing + Steel Deck + Conc	206.00	33,758.25	
	Exterior Wall, New, Cement Board (High) Cladding (inc. insulation)	365.00	191,588.61	
	Roof, New, MBM Finish (inc. Insulation)	206.00	74,382.09	
	Gutters and Downspouts	90.00	7,481.25	
	Canopies	8.00	6,514.29	
	Roof Lanterns	2.00	1,900.00	
	Main Entrance Doors (Premium Quality)	2.00	28,500.00	
	Exterior Doors (Regular Quality)	1.00	4,275.00	
	Windows and Curtain Walls	93.00	88,350.00	
Interiors				851,784.61
	Interior Partitions, Steel Framing	1,329.00	196,597.07	
	Interior Glazing	200.00	65,142.86	
	Wall Finishes	1,400.00	36,642.86	
	Floor Finishes	411.00	22,425.38	
	Ceiling Finishes	1,500.00	146,571.43	
	Millwork	55.00	171,678.57	
	Window Coverings	293.00	23,429.71	
	Specialties, Institutional	206.00	25,245.30	
	Interior Doors (blended cost)	31.00	50,906.43	
	Hardware Premium, Premium/Institutional Level	31.00	17,670.00	
	Staircases	2.00	9,500.00	
	Lifts	1.00	47,500.00	
	Appliances	27.00	38,475.00	
Mechanical				349,979.00
	Mechanical System	412.00	349,979.00	
Electrical				282,819.33
	Electrical System	206.00	233,319.33	
	New Electrical Service Connections	1.00	40,000.00	
	New Site Electrical Poles	1.00	9,500.00	
Site Works				435,664.76
	Exterior Decks	40.00	25,717.64	
Wood Entrances	Exterior Ramps	24.00		
	Exterior Stairs	12.00		

	Exterior Handrails and Guards	44.00	10,211.14	
Driveways	Asphalt Driveway	100.00	285,000.00	
Surface Walkways	Concrete Walkways	200.00	20,235.00	
	Gravel Walkways	-	-	
	Site Lighting Allowance	1.00	20,000.00	
	Chain Link Fence (inc. concrete anchors)	360.00	20,802.23	
	Chain Link Fence Gates	3.00	356.25	
	Timber Retaining Wall (140x140 PT timber, inc. deadheads)	200.00	47,500.00	
	Bike Racks (inc. concrete anchor pads)	5.00	3,562.50	
	Bollards (electrified)	4.00	912.00	
	Bollards (standard)	4.00	798.00	
	Planter Boxes	6.00	570.00	
	Direct Construction Cost		2,467,968	2,467,968
	General Conditions (admin, supervisor, tools, fuel, etc.)	25%		616,992
	Design and Pricing Allowance	10%		308,496
	Escalation Allowance	5%		169,673
	Contractor Profit	25%		890,782
	Contingency	20%		890,782
	Total Construction Cost (not including soft costs)			**5,344,692**

Notes:

- Precision of Class D cost estimate is +/- 30%.
- Estimate assumes a minimum of 5 general contractors will bid on the project and 3 subcontractors will bid on subtrades work.
    - If fewer contractors bid or the project is direct awarded, construction costs may be higher than estimated.
- Estimate assumes a typical level of local labour involvement.
- Estimate does not include furniture.
- New electrical system service connection assumes a 3-phase incoming line (not 1-phase).
- Estimate has allowed for (1) new electrical poles.
- Estimate is based on current market pricing and assumes project will be tendered within 30 days of estimate submission.
    - If project is to be tendered at a later date, an escalation allowance of at least 8% per annum should be added.
- Estimate does not include the following items:
    - Contaminated soil remediation
    - Hazardous material removal and disposal
    - Land procurement costs
    - Financing costs
    - Value-added taxes such as GST or HST
- Estimate does not include soft costs:
    - Development and building permits
    - Trade tariffs and duties
    - Land development costs, except where explicitly noted
    - Legal fees and expenses
    - Owner's project management costs
    - Preventative maintenance contracts
    - Ongoing operations and maintenance costs
    - Relocation and moving fees, including furniture and equipment
    - Hazardous material removal and disposal

NWT Polytechnic University - Class D Estimate

Prepared by Taylor Architecture Group

Facilities Master Plan - North Slave Campus Site Development - roads and services

May-22

ESTIMATE				
Category	**Description**	**Quan**	**Item Subtotal**	**Category Subtotal**
Site Works				14,224,030.09
Driveways	Asphalt Driveway	4,488.00	13,464,000.00	
Surface Walkways	Concrete Walkways	2,000.00	213,000.00	
	Gravel Walkways	1,000.00	22,200.00	
	Site Lighting Allowance	1.00	450,000.00	
	Chain Link Fence (inc. concrete anchors)	400.00	24,330.09	
	Chain Link Fence Gates	4.00	500.00	
	Timber Retaining Wall (140x140 PT timber, inc. deadheads)	200.00	50,000.00	
	Bike Racks (inc. concrete anchor pads)	-	-	
	Bollards (electrified)	-	-	
	Bollards (standard)	-	-	
	Planter Boxes	-	-	
	Direct Construction Cost		14,224,030	14,224,030
	General Conditions (admin, supervisor, tools, fuel, etc.)	25%		3,556,008
	Design and Pricing Allowance	10%		1,778,004
	Escalation Allowance	5%		977,902
	Contractor Profit	25%		5,133,986
	Contingency	20%		5,133,986
	Total Construction Cost (not including soft costs)			**30,803,915**

Notes:

- Precision of Class D cost estimate is +/- 30%.
- Estimate assumes a minimum of 5 general contractors will bid on the project and 3 subcontractors will bid on subtrades work.
    - If fewer contractors bid or the project is direct awarded, construction costs may be higher than estimated.
- Estimate assumes a typical level of local labour involvement.
- Estimate does not include furniture.
- New electrical system service connection assumes a 3-phase incoming line (not 1-phase).
- Estimate does not include allowance for new electrical poles.
- Estimate is based on current market pricing and assumes project will be tendered within 30 days of estimate submission.
    - If project is to be tendered at a later date, an escalation allowance of at least 8% per annum should be added.
- Estimate does not include the following items:
    - Contaminated soil remediation
    - Hazardous material removal and disposal
    - Land procurement costs
    - Financing costs
    - Value-added taxes such as GST or HST
- Estimate does not include soft costs:
    - Development and building permits
    - Trade tariffs and duties
    - Land development costs, except where explicitly noted
    - Legal fees and expenses
    - Owner's project management costs
    - Preventative maintenance contracts
    - Ongoing operations and maintenance costs
    - Relocation and moving fees, including furniture and equipment
    - Hazardous material removal and disposal

NWT Polytechnic University - Class D Estimate

Prepared by Taylor Architecture Group

Facilities Master Plan - North Slave CampusStudent Services building

Jun-22

ESTIMATE				
Category	**Description**	**Quan**	**Item Subtotal**	**Category Subtotal**
Foundations				1,708,309.78
	Civil Allowance (municipal water and sewer connections)	1.00	169,000.00	
	Excavation	9,626.32	748,713.78	
	Concrete Footings	198.00	356,400.00	
	Foundation Walls	528.00	201,696.00	
	Slab on Grade (inc. rebar and finish)	186.00	232,500.00	
Exterior Envelope				4,742,344.51
	Floor, New, Light Steel Framing + Steel Deck + Conc	4,376.00	754,860.00	
	Floor, Upgrade,	-	-	
	Exterior Wall, New, Cement Board (High) Cladding (inc. insulation)	2,503.00	1,382,974.15	
	Exterior Wall, Upgrade, Cladding	-	-	
	Roof, New, MBM Finish (inc. Insulation)	4,366.00	1,659,438.93	
	Roof, Upgrade, Finish	-	-	
	Gutters and Downspouts	280.00	24,500.00	
	Canopies	150.00	128,571.43	
	Roof Lanterns	10.00	10,000.00	
	Main Entrance Doors (Premium Quality)	4.00	60,000.00	
	Exterior Doors (Regular Quality)	12.00	54,000.00	
	Windows and Curtain Walls	633.00	633,000.00	
	Skylights	10.00	35,000.00	
Interiors				12,141,154.83
	Interior Partitions, Steel Framing	12,000.00	1,868,571.43	
	Interior Glazing	12,000.00	4,114,285.71	
	Access Flooring	-	-	
	Wall Finishes	12,000.00	250,000.00	
	Floor Finishes	10,939.00	973,571.00	
	Ceiling Finishes	10,939.00	1,125,154.29	
	Millwork	150.00	492,857.14	
	Window Coverings	12,643.00	1,140,548.57	
	Specialties, Institutional	4,375.60	564,452.40	
	Interior Doors (blended cost)	232.00	358,514.29	
	Hardware Premium, Premium/Institutional Level	232.00	139,200.00	
	Staircases	8.00	40,000.00	
	Lifts	1.00	50,000.00	
	Elevators	2.00	1,000,000.00	
	Appliances	16.00	24,000.00	
Mechanical				7,601,586.46
	Mechanical System	8,752.00	6,588,577.43	
	Sprinkler System	8,752.00	463,009.03	
	Biomass Boiler	-	450,000.00	
	Fume Hood	5.00	100,000.00	

Electrical				4,921,692.67
	Electrical System	4,375.60	4,791,692.67	
	New Electrical Service Connections	2.00	80,000.00	
	New Site Electrical Poles	5.00	50,000.00	
	Solar PV Array	-	-	
Site Works				3,073,121.03
	Exterior Decks	200.00	284,960.00	
	Exterior Ramps	40.00	56,992.00	
Steel Entrances	Exterior Stairs	20.00	28,496.00	
	Exterior Bridges	60.00	16,182.86	
	Exterior Handrails and Guards	240.00	123,428.57	
Driveways	Asphalt Driveway	500.00	2,000,000.00	
Surface Walkways	Concrete Walkways	900.00	95,850.00	
	Gravel Walkways	400.00	8,880.00	
Play Surfaces	Basketball Court (concrete surface, inc. nets)	-	-	
	Rubber Tile Play Area (inc. base)	200.00	31,000.00	
	Site Lighting Allowance	1.00	165,800.00	
	Flagpoles (inc. metal bases and anchor bolts)	6.00	48,000.00	
	Chain Link Fence (inc. concrete anchors)	420.00	25,546.60	
	Chain Link Fence Gates	1.00	125.00	
	Timber Retaining Wall (140x140 PT timber, inc. deadheads)	400.00	100,000.00	
	Bike Racks (inc. concrete anchor pads)	100.00	75,000.00	
	Bollards (electrified)	40.00	9,600.00	
	Bollards (standard)	6.00	1,260.00	
	Planter Boxes	20.00	2,000.00	
	Direct Construction Cost		34,188,209	34,188,209

General Conditions (admin, supervisor, tools, fuel, etc.)	25%	8,547,052
Design and Pricing Allowance	10%	4,273,526
Escalation Allowance	5%	2,350,439
Contractor Profit	25%	12,339,807
Contingency	20%	12,339,807
Total Construction Cost (not including soft costs)		**74,038,841**

Notes:

- Precision of Class D cost estimate is +/- 30%.
- Estimate assumes a minimum of 5 general contractors will bid on the project and 3 subcontractors will bid on subtrades work.
    - If fewer contractors bid or the project is direct awarded, construction costs may be higher than estimated.
- Estimate assumes a typical level of local labour involvement.
- Estimate does not include furniture.
- New electrical system service connection assumes a 3-phase incoming line (not 1-phase).
- Estimate has allowed for (5) new electrical poles.
- Estimate is based on current market pricing and assumes project will be tendered within 30 days of estimate submission.
    - If project is to be tendered at a later date, an escalation allowance of at least 8% per annum should be added.
- Estimate does not include the following items:
    - Contaminated soil remediation
    - Hazardous material removal and disposal
    - Land procurement costs
    - Financing costs
    - Value-added taxes such as GST or HST
- Estimate does not include soft costs:
    - Development and building permits

- Trade tariffs and duties
- Land development costs, except where explicitly noted
- Legal fees and expenses
- Owner's project management costs
- Preventative maintenance contracts
- Ongoing operations and maintenance costs
- Relocation and moving fees, including furniture and equipment
- Hazardous material removal and disposal

NWT Polytechnic University - Class D Estimate

Prepared by Taylor Architecture Group

Facilities Master Plan - North Slave Campus Student Services building

Jun-22

ESTIMATE				
Category	**Description**	**Quan**	**Item Subtotal**	**Category Subtotal**
Foundations				826,955.11
	Civil Allowance (municipal water and sewer connections)	1.00	77,600.00	
	Excavation	4,417.60	343,591.11	
	Concrete Footings	91.00	163,800.00	
	Foundation Walls	352.00	134,464.00	
	Slab on Grade (inc. rebar and finish)	86.00	107,500.00	
Exterior Envelope				2,689,745.72
	Floor, New, Light Steel Framing + Steel Deck + Conc	2,008.00	346,380.00	
	Floor, Upgrade,	-	-	
	Exterior Wall, New, Cement Board (High) Cladding (inc. insulation)	1,517.00	838,182.90	
	Exterior Wall, Upgrade, Cladding	-	-	
	Roof, New, MBM Finish (inc. Insulation)	1,998.00	759,404.25	
	Roof, Upgrade, Finish	-	-	
	Gutters and Downspouts	324.00	28,350.00	
	Canopies	200.00	171,428.57	
	Roof Lanterns	10.00	10,000.00	
	Main Entrance Doors (Premium Quality)	4.00	60,000.00	
	Exterior Doors (Regular Quality)	12.00	54,000.00	
	Windows and Curtain Walls	387.00	387,000.00	
	Skylights	10.00	35,000.00	
Interiors				10,316,545.00
	Interior Partitions, Steel Framing	12,000.00	1,868,571.43	
	Interior Glazing	12,000.00	4,114,285.71	
	Access Flooring	-	-	
	Wall Finishes	12,000.00	250,000.00	
	Floor Finishes	4,017.00	357,513.00	
	Ceiling Finishes	4,017.00	413,177.14	
	Millwork	100.00	328,571.43	
	Window Coverings	12,397.00	1,123,680.00	
	Specialties, Institutional	2,008.00	259,032.00	
	Interior Doors (blended cost)	232.00	358,514.29	
	Hardware Premium, Premium/Institutional Level	232.00	139,200.00	
	Staircases	6.00	30,000.00	
	Lifts	1.00	50,000.00	
	Elevators	2.00	1,000,000.00	
	Appliances	16.00	24,000.00	
Mechanical				5,662,514.33
	Mechanical System	4,016.00	4,900,054.97	
	Sprinkler System	4,016.00	212,459.35	
	Biomass Boiler	-	450,000.00	
	Fume Hood	5.00	100,000.00	

Electrical				3,693,676.34
	Electrical System	2,008.00	3,563,676.34	
	New Electrical Service Connections	2.00	80,000.00	
	New Site Electrical Poles	5.00	50,000.00	
	Solar PV Array	-	-	
Site Works				2,983,421.03
	Exterior Decks	200.00	284,960.00	
	Exterior Ramps	40.00	56,992.00	
Steel Entrances	Exterior Stairs	20.00	28,496.00	
	Exterior Bridges	60.00	16,182.86	
	Exterior Handrails and Guards	240.00	123,428.57	
Driveways	Asphalt Driveway	500.00	2,000,000.00	
Surface Walkways	Concrete Walkways	900.00	95,850.00	
	Gravel Walkways	400.00	8,880.00	
Play Surfaces	Basketball Court (concrete surface, inc. nets)	-	-	
	Rubber Tile Play Area (inc. base)	200.00	31,000.00	
	Site Lighting Allowance	1.00	76,100.00	
	Flagpoles (inc. metal bases and anchor bolts)	6.00	48,000.00	
	Chain Link Fence (inc. concrete anchors)	420.00	25,546.60	
	Chain Link Fence Gates	1.00	125.00	
	Timber Retaining Wall (140x140 PT timber, inc. deadheads)	400.00	100,000.00	
	Bike Racks (inc. concrete anchor pads)	100.00	75,000.00	
	Bollards (electrified)	40.00	9,600.00	
	Bollards (standard)	6.00	1,260.00	
	Planter Boxes	20.00	2,000.00	
	Direct Construction Cost		26,172,858	26,172,858

General Conditions (admin, supervisor, tools, fuel, etc.)	25%	6,543,214
Design and Pricing Allowance	10%	3,271,607
Escalation Allowance	5%	1,799,384
Contractor Profit	25%	9,446,766
Contingency	20%	9,446,766
Total Construction Cost (not including soft costs)		**56,680,595**

Notes:

- Precision of Class D cost estimate is +/- 30%.
- Estimate assumes a minimum of 5 general contractors will bid on the project and 3 subcontractors will bid on subtrades work.
    - If fewer contractors bid or the project is direct awarded, construction costs may be higher than estimated.
- Estimate assumes a typical level of local labour involvement.
- Estimate does not include furniture.
- New electrical system service connection assumes a 3-phase incoming line (not 1-phase).
- Estimate has allowed for (5) new electrical poles.
- Estimate is based on current market pricing and assumes project will be tendered within 30 days of estimate submission.
    - If project is to be tendered at a later date, an escalation allowance of at least 8% per annum should be added.
- Estimate does not include the following items:
    - Contaminated soil remediation
    - Hazardous material removal and disposal
    - Land procurement costs
    - Financing costs
    - Value-added taxes such as GST or HST
- Estimate does not include soft costs:
    - Development and building permits

- Trade tariffs and duties
- Land development costs, except where explicitly noted
- Legal fees and expenses
- Owner's project management costs
- Preventative maintenance contracts
- Ongoing operations and maintenance costs
- Relocation and moving fees, including furniture and equipment
- Hazardous material removal and disposal

NWT Polytechnic University - Class D Estimate

Prepared by Taylor Architecture Group

Facilities Master Plan - North Slave Campus Housing - Students

Jun-22

ESTIMATE				
Category	**Description**	**Quan**	**Item Subtotal**	**Category Subtotal**
Foundations				3,736,922.22
	Civil Allowance (municipal water and sewer connections)	1.00	264,900.00	
	Excavation	15,092.00	1,173,822.22	
	Concrete Footings	310.00	558,000.00	
	Foundation Walls	3,600.00	1,375,200.00	
	Slab on Grade (inc. rebar and finish)	292.00	365,000.00	
Exterior Envelope				14,898,620.15
	Floor, New, Light Steel Framing + Steel Deck + Conc	6,860.00	1,183,350.00	
	Floor, Upgrade,	-	-	
	Exterior Wall, New, Cement Board (High) Cladding (inc. insulation)	12,840.00	7,094,441.91	
	Exterior Wall, Upgrade, Cladding	-	-	
	Roof, New, MBM Finish (inc. Insulation)	6,860.00	2,607,363.96	
	Roof, Upgrade, Finish	-	-	
	Gutters and Downspouts	1,860.00	162,750.00	
	Canopies	30.00	25,714.29	
	Roof Lanterns	-	-	
	Main Entrance Doors (Premium Quality)	30.00	450,000.00	
	Exterior Doors (Regular Quality)	30.00	135,000.00	
	Windows and Curtain Walls	3,240.00	3,240,000.00	
Interiors				11,627,950.66
	Interior Partitions, Steel Framing	13,000.00	2,024,285.71	
	Interior Glazing	1,200.00	411,428.57	
	Access Flooring	-	-	
	Wall Finishes	22,000.00	702,857.14	
	Floor Finishes	21,581.00	1,229,787.80	
	Ceiling Finishes	17,148.00	1,763,794.29	
	Millwork	630.00	2,070,000.00	
	Window Coverings	4,440.00	331,885.71	
	Specialties, Institutional	6,860.00	884,940.00	
	Interior Doors (blended cost)	545.00	981,971.43	
	Hardware Premium, Premium/Institutional Level	545.00	327,000.00	
	Staircases	60.00	300,000.00	
	Lifts	6.00	300,000.00	
	Appliances	200.00	300,000.00	
Mechanical				7,654,425.35
	Mechanical System	13,720.00	6,478,593.09	
	Sprinkler System	13,720.00	725,832.26	
	Biomass Boiler	-	450,000.00	
	Fume Hood	-	-	

Electrical				4,349,120.68
	Electrical System	6,860.00	4,049,120.68	
	New Electrical Service Connections	6.00	240,000.00	
	New Site Electrical Poles	6.00	60,000.00	
	Solar PV Array	-	-	
Site Works				15,239,814.94
	Exterior Decks	400.00	284,960.00	
Wood Entrances	Exterior Ramps	240.00		
	Exterior Stairs	120.00		
	Exterior Handrails and Guards	440.00	113,142.86	
Driveways	Asphalt Driveway	4,800.00	14,400,000.00	
Surface Walkways	Concrete Walkways	1,200.00	127,800.00	
	Gravel Walkways	-	-	
	Site Lighting Allowance	1.00	180,000.00	
	Chain Link Fence (inc. concrete anchors)	360.00	21,897.08	
	Chain Link Fence Gates	3.00	375.00	
	Timber Retaining Wall (140x140 PT timber, inc. deadheads)	200.00	50,000.00	
	Bike Racks (inc. concrete anchor pads)	60.00	45,000.00	
	Bollards (electrified)	40.00	9,600.00	
	Bollards (standard)	24.00	5,040.00	
	Planter Boxes	20.00	2,000.00	
	Direct Construction Cost		57,506,854	57,506,854
	General Conditions (admin, supervisor, tools, fuel, etc.)	25%		14,376,714
	Design and Pricing Allowance	10%		7,188,357
	Escalation Allowance	5%		3,953,596
	Contractor Profit	25%		20,756,380
	Contingency	20%		20,756,380
	Total Construction Cost (not including soft costs)			**124,538,281**

Notes:

- Precision of Class D cost estimate is +/- 30%.
- Estimate assumes a minimum of 5 general contractors will bid on the project and 3 subcontractors will bid on subtrades work.
    - If fewer contractors bid or the project is direct awarded, construction costs may be higher than estimated.
- Estimate assumes a typical level of local labour involvement.
- Estimate does not include furniture.
- New electrical system service connection assumes a 3-phase incoming line (not 1-phase).
- Estimate has allowed for (6) new electrical poles.
- Estimate is based on current market pricing and assumes project will be tendered within 30 days of estimate submission.
    - If project is to be tendered at a later date, an escalation allowance of at least 8% per annum should be added.
- Estimate does not include the following items:
    - Contaminated soil remediation
    - Hazardous material removal and disposal
    - Land procurement costs
    - Financing costs
    - Value-added taxes such as GST or HST
- Estimate does not include soft costs:
    - Development and building permits
    - Trade tariffs and duties
    - Land development costs, except where explicitly noted
    - Legal fees and expenses
    - Owner's project management costs
    - Preventative maintenance contracts
    - Ongoing operations and maintenance costs
    - Relocation and moving fees, including furniture and equipment
    - Hazardous material removal and disposal

NWT Polytechnic University - Class D Estimate

Prepared by Taylor Architecture Group

Facilities Master Plan - North Slave Campus Housing (staff)

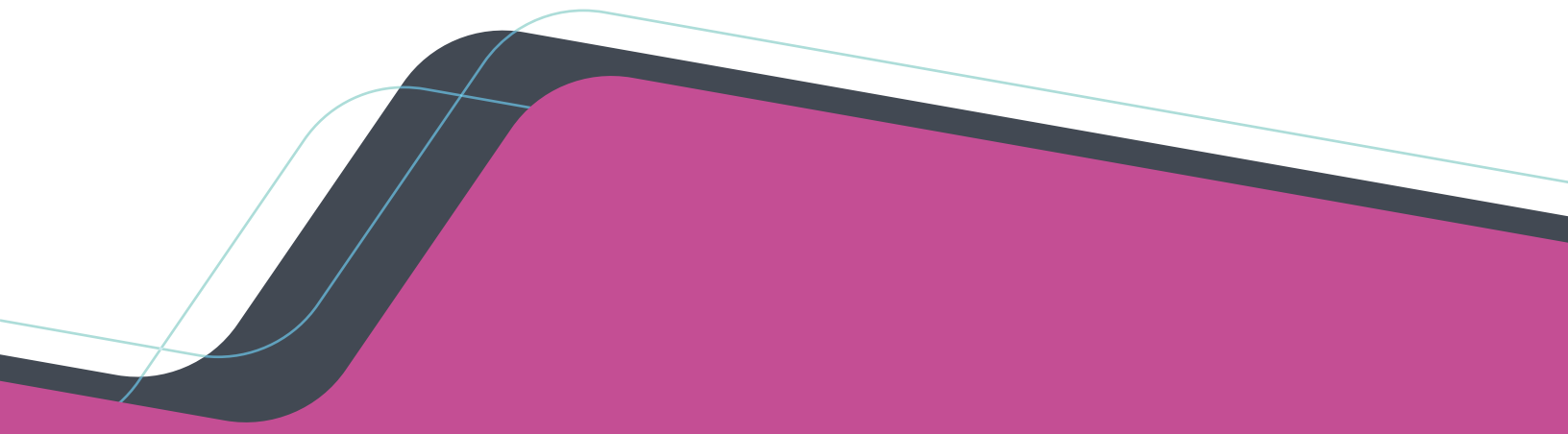
May-22

ESTIMATE				
Category	**Description**	**Quan**	**Item Subtotal**	**Category Subtotal**
Foundations				116,810.89
	Civil Allowance (municipal water and sewer connections)	1.00	8,000.00	
	Excavation	453.20	35,248.89	
	Concrete Footings	10.00	18,000.00	
	Foundation Walls	116.00	44,312.00	
	Slab on Grade (inc. rebar and finish)	9.00	11,250.00	
Exterior Envelope				459,736.30
	Floor, New, Light Steel Framing + Steel Deck + Conc	206.00	35,535.00	
	Exterior Wall, New, Cement Board (High) Cladding (inc. insulation)	365.00	201,672.22	
	Roof, New, MBM Finish (inc. Insulation)	206.00	78,296.94	
	Gutters and Downspouts	90.00	7,875.00	
	Canopies	8.00	6,857.14	
	Roof Lanterns	2.00	2,000.00	
	Main Entrance Doors (Premium Quality)	2.00	30,000.00	
	Exterior Doors (Regular Quality)	1.00	4,500.00	
	Windows and Curtain Walls	93.00	93,000.00	
Interiors				896,615.38
	Interior Partitions, Steel Framing	1,329.00	206,944.29	
	Interior Glazing	200.00	68,571.43	
	Wall Finishes	1,400.00	38,571.43	
	Floor Finishes	411.00	23,605.66	
	Ceiling Finishes	1,500.00	154,285.71	
	Millwork	55.00	180,714.29	
	Window Coverings	293.00	24,662.86	
	Specialties, Institutional	206.00	26,574.00	
	Interior Doors (blended cost)	31.00	53,585.71	
	Hardware Premium, Premium/Institutional Level	31.00	18,600.00	
	Staircases	2.00	10,000.00	
	Lifts	1.00	50,000.00	
	Appliances	27.00	40,500.00	
Mechanical				368,398.94
	Mechanical System	14,368.00	368,398.94	
Electrical				295,599.30
	Electrical System	206.00	245,599.30	
	New Electrical Service Connections	1.00	40,000.00	
	New Site Electrical Poles	1.00	10,000.00	
Site Works				459,532.37
	Exterior Decks	40.00	28,496.00	
Wood Entrances	Exterior Ramps	24.00		
	Exterior Stairs	12.00		

	Exterior Handrails and Guards	44.00	11,314.29	
Driveways	Asphalt Driveway	100.00	300,000.00	
Surface Walkways	Concrete Walkways	200.00	21,300.00	
	Gravel Walkways	-	-	
	Site Lighting Allowance	1.00	20,000.00	
	Chain Link Fence (inc. concrete anchors)	360.00	21,897.08	
	Chain Link Fence Gates	3.00	375.00	
	Timber Retaining Wall (140x140 PT timber, inc. deadheads)	200.00	50,000.00	
	Bike Racks (inc. concrete anchor pads)	5.00	3,750.00	
	Bollards (electrified)	4.00	960.00	
	Bollards (standard)	4.00	840.00	
	Planter Boxes	6.00	600.00	
	Direct Construction Cost		2,596,693	2,596,693
	General Conditions (admin, supervisor, tools, fuel, etc.)	25%		649,173
	Design and Pricing Allowance	10%		324,587
	Escalation Allowance	5%		178,523
	Contractor Profit	25%		937,244
	Contingency	20%		937,244
	Total Construction Cost (not including soft costs)			**5,623,464**

Notes:

- Precision of Class D cost estimate is +/- 30%.
- Estimate assumes a minimum of 5 general contractors will bid on the project and 3 subcontractors will bid on subtrades work.
    - If fewer contractors bid or the project is direct awarded, construction costs may be higher than estimated.
- Estimate assumes a typical level of local labour involvement.
- Estimate does not include furniture.
- New electrical system service connection assumes a 3-phase incoming line (not 1-phase).
- Estimate has allowed for (1) new electrical poles.
- Estimate is based on current market pricing and assumes project will be tendered within 30 days of estimate submission.
    - If project is to be tendered at a later date, an escalation allowance of at least 8% per annum should be added.
- Estimate does not include the following items:
    - Contaminated soil remediation
    - Hazardous material removal and disposal
    - Land procurement costs
    - Financing costs
    - Value-added taxes such as GST or HST
- Estimate does not include soft costs:
    - Development and building permits
    - Trade tariffs and duties
    - Land development costs, except where explicitly noted
    - Legal fees and expenses
    - Owner's project management costs
    - Preventative maintenance contracts
    - Ongoing operations and maintenance costs
    - Relocation and moving fees, including furniture and equipment
    - Hazardous material removal and disposal



September 2022