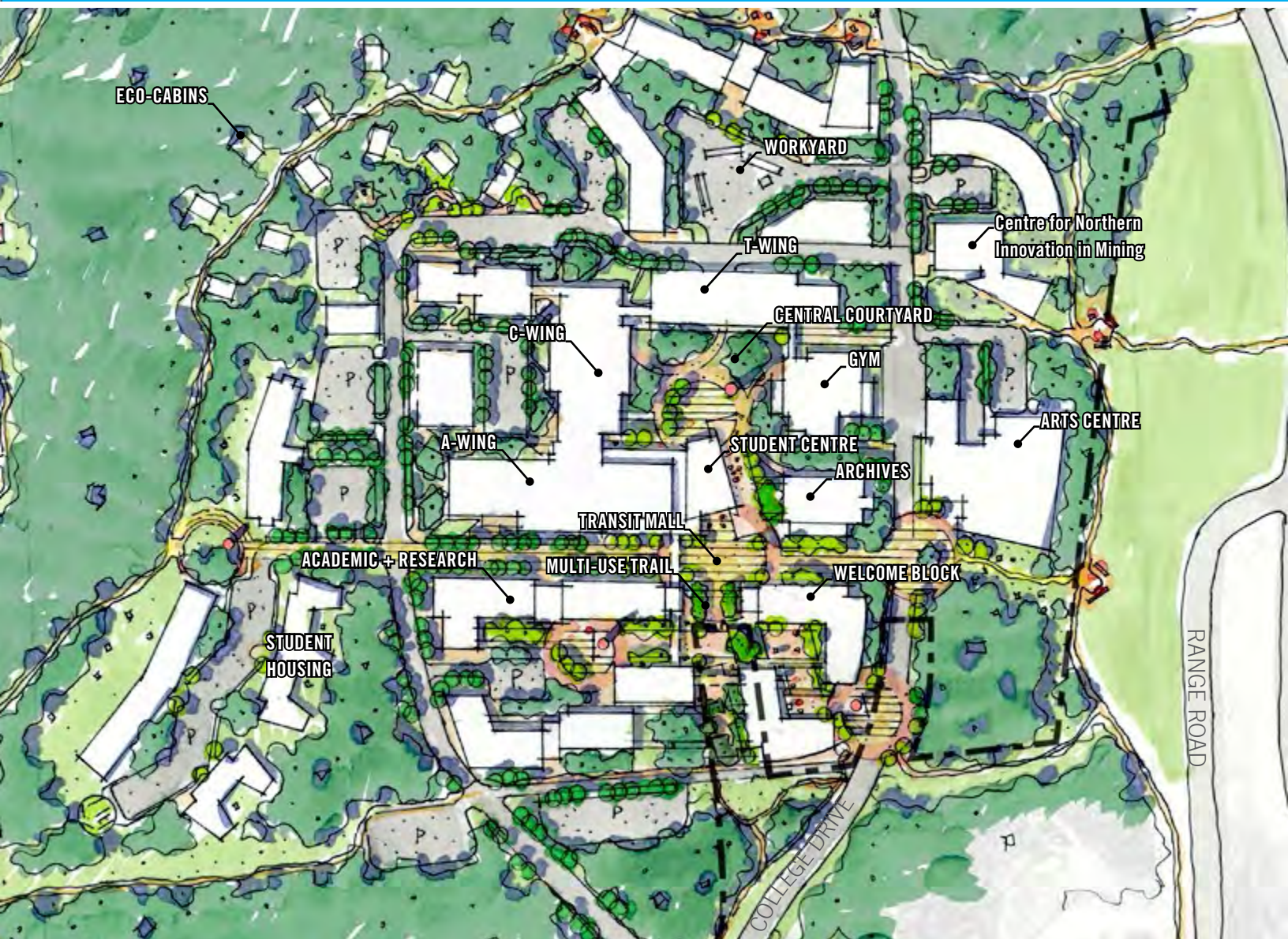


YUKON COLLEGE AYAMDIGUT CAMPUS MASTER PLAN



June, 2015

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PRESIDENT'S MESSAGE

Over the last year, Yukon College has engaged a wide range of stakeholders, including students, Faculty, staff, nearby neighbourhoods, First Nations, Yukon Government and the City of Whitehorse in creating a Master Land Use Plan for Ayamdigut Campus.

We focused on how the College could best serve our diverse community, connecting Whitehorse, the Community campuses and the whole of the Yukon. The goal has been to develop a compelling campus experience and chart a clear course for the future. After hearing from hundreds of people, and working through a series of technical studies and design exercises supported by leading architects and designers, the results of this creative and thoughtful process are now ready to share.

The plan makes use of the entire 97 hectare land reserve by celebrating and enhancing our natural setting and the opportunities it offers as a living classroom. It balances consideration for sensitive ecosystems and existing trails, with the need to grow the campus in the years ahead.

I am encouraged by the support people have shown throughout the planning process for the incorporation of green buildings, an expanded transit hub, community gathering spaces, and a variety of much-needed campus housing options. This plan allows the College to expand northern research and innovation opportunities as part of each stage of our future campus.

This plan is an important part of the College's transition to university status, yet by focusing on short-, mid-, and long-term priorities it provides flexibility to allow us to be responsive to the changing needs and shifting priorities of such an important evolution. We are very proud of Yukon College and the role it has played in Yukon's growth over the past 50 plus years. This plan builds on the strength of its current trades and academic programs, giving them space to continue to grow and develop.

The Yukon College Board of Governors will now begin the vital task of working with our many stakeholders to source funding and planning approvals to begin the incremental implementation of this Master Plan.

On behalf of our students and staff I would like to thank everyone who contributed to the creation of this plan. Together we will ensure that Ayamdigut campus remains a vital place of community, learning, and innovative research for many years to come.

Karen Barnes EdD
President & Vice-Chancellor
Yukon College





**Canadian Northern Economic
Development Agency**

**Agence canadienne de
développement économique du Nord**

The Government of Canada is a proud supporter of the development of the Yukon College Master Land Use Plan with \$150,000 in funding provided through the Canadian Northern Economic Development Agency (CanNor).

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EXECUTIVE SUMMARY

The Yukon College Campus Master Plan was initiated to provide a bold, innovative direction to optimize the potential of the College. It builds on the Strategic Plan and Education Plan to reflect the College's unique aspirations.

Purpose

The Yukon College 2015 Ayamdigut Campus Master Plan (CMP) is designed to guide and shape future planning and construction on the College's Ayamdigut Campus. The culmination of a year-long participatory planning process, the CMP reflects the College's key aspirations. These include creating a unique post-secondary education model, collaborating with First Nations, engaging the Yukon community, ensuring quality to attract and retain students and expanding northern research and innovation.

The Campus Master Plan is an important plan as the College transitions to university status.

Vision

Create a compelling new campus experience that will increase the appeal of the institution for students, faculty and the broader Yukon community while strengthening research and leadership in cold climate innovation, First Nations governance, and resource development.

Over-Arching Principles

- A. Culture + Language:** Reinforce northern art and culture throughout the campus and create vibrant places for people to gather and enjoy that speaks to the spirit of the north
- B. Learning:** Reinforce the College's leadership in cold climate innovation, First Nations governance, and resource development and support the integration of teaching, research and the community
- C. Sustainability:** Incorporate a holistic approach to sustainability that embraces the natural environment and introduces site-wide sustainable systems such as low carbon and renewable energy, local food production and low impact development

Principles

- 1. Connect to the environment:** Protect environmentally sensitive areas + make compelling visual, physical and programmatic connections to the natural setting
- 2. Implement site-wide sustainability:** Convert district energy to low carbon, generate renewable energy onsite, improve building efficiency, reduce waste + grow food locally
- 3. Promote healthy and sustainable transport:** Create a walkable campus where it is comfortable and convenient to travel by foot, bike, skis or transit
- 4. Reflect a unique northern identity:** Recognize the unique northern culture, context + site history in the physical design and program of the campus
- 5. Enhance campus life:** Ensure the campus environment enhances the academic and student life experience
- 6. Create a northern showcase:** create a northern showcase by strengthening and highlighting the College's leadership in renewable energy, cold climate research and resource development
- 7. Reflect the new university status:** Site and design campus buildings and open spaces to express the dignity and enhanced campus experience of a university



Figure 1 - Illustrative Campus Master Plan: Five Big Ideas

1. EXISTING CAMPUS CONDITIONS

This section summarizes the highlights from the Ayamdigut Campus Background Report. These baseline conditions provided the foundation on which to develop a future campus vision.

1.1 Introduction

1.1.1 Community Context

Yukon College's Ayamdigut campus is within the traditional territories of the Kwanlin Dun First Nation and Ta'an Kwach'an Council. It is located in Whitehorse, Canada's Wilderness City, and the Yukon's capital. As of the December 2014 Census, the City of Whitehorse's population was 27,962, representing 76% of the total population of the Yukon.

As a growing northern capital city, Whitehorse attracts a wide variety of new immigrants and transplants from other parts of Canada. With this comes the general transience associated with life in northern communities. The campus attracts students from across the north and around the world representing a rich cultural diversity that can be captured in future on-campus housing and the necessary supporting infrastructure associated with a critical mass of housing.

1.1.2 History of the College

In 1963 the Whitehorse Vocational and Technical Training Centre was established on the banks of the Yukon River. College status was granted in 1983 when the Training Centre became Yukon College. In 1988, the College moved its Whitehorse campus to the new facility at Yukon Place, alongside the Yukon Arts Centre and the Yukon Archives. The Northern Research Institute (now the Yukon Research Centre) was added in the 1990's and is used to facilitate exciting research on subjects particular to life in the north.

At the request of the Government of Yukon, Yukon College is currently preparing to become a university. The completion of the Ayamdigut Campus Master Plan is an important milestone in this process and will help the College in it's transition to university status.

1.1.3 Location

Yukon College's Ayamdigut campus is approximately 4km northwest of Downtown Whitehorse. The campus is immediately adjacent to McIntyre Creek, a sensitive environmental zone that borders the College lands to the northeast. Also immediately adjacent to the College is the Whitehorse Correctional Centre (WCC), a multi-level territorial correctional facility for adults. Yukon College's School of Community and Education Development has provided learning opportunities to inmates since the late 1970's.

Yukon College sits between several existing residential neighbourhoods including Takhini North, Takhini East, Takhini Trailer Park, Northlands Trailer Park. The college

is a short drive, and somewhat isolated geographically, from other surrounding neighbourhoods such as Porter Creek which is separated from the College site by McIntyre Creek. Whistle Bend, a master-planned neighbourhood just north of the College, is expected to house 8,000 new residents and include transit service, schools, retail, public parkland and trails. Construction has begun on initial phases and detailed engineering design for the final phases is underway.

1.1.4 Community Land Use

The College lands are designated as "Public Service" in the City of Whitehorse's Official Community Plan (OCP) and the City's Zoning Bylaw. This designation allows public and institutional facilities that service the entire community of Whitehorse. Commercial uses, such as retail and restaurants, are also permitted as ancillary uses.

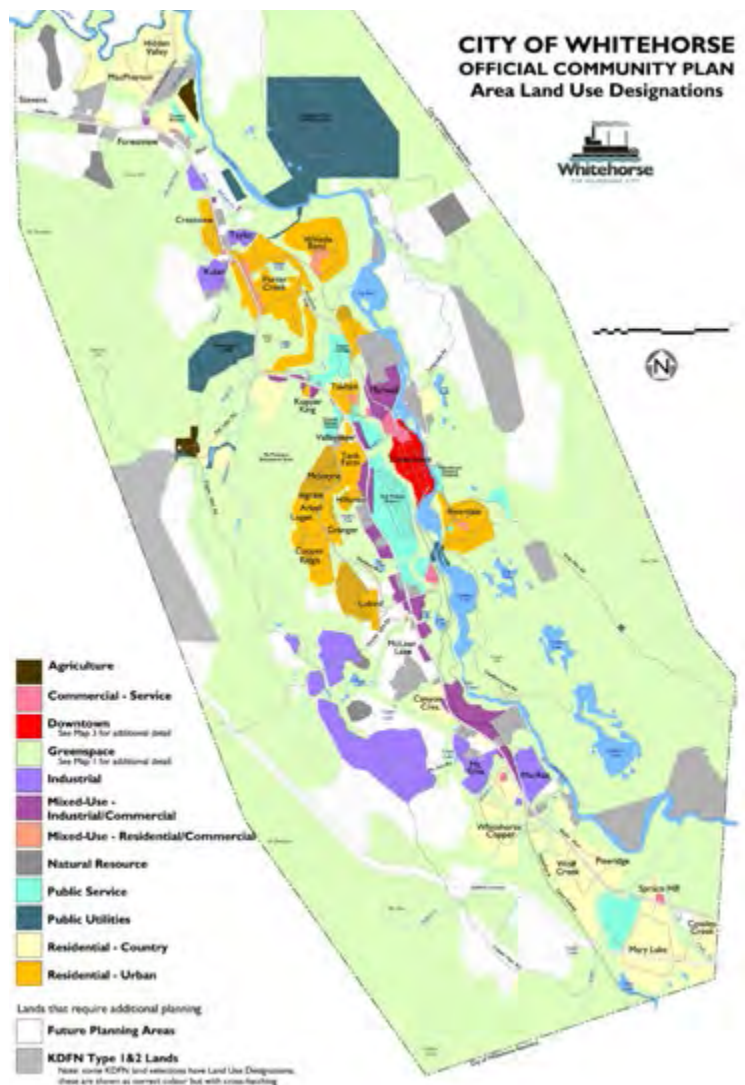


Figure 2 - Whitehorse Official Community Plan



Figure 3 - Community Context

1.1.5 Climate

At a latitude of 60.7 degrees north, Whitehorse is one of Canada's most northern cities. Its climate is milder than cities of similar latitude, however, due to its proximity to the Pacific Ocean. The longest day of the year lasts 19:08 hours, and the longest night 18:22 hours. The warm season lasts from mid May to early September and enjoys average daily highs above 13°C, while the cold season (mid November to mid February) has an average daily temperature below -7°C. Falling within the Cordilleran climate region, Whitehorse has a dry subarctic climate. Whitehorse is the driest city in Canada with an annual snowfall of 145cm and only 163mm of rain. Winds typically range from 0 m/s to 8 m/s over the course of a year, and are predominantly from the south or southeast.

1.1.6 Soil

The site is situated on a well-drained sand and gravel bluff. Based on a historical data review conducted in 2012 by EBA Engineering Consultants Ltd., general subsurface conditions on the Yukon College property consist of 5.3 - 6.0m of sand with trace silt underlain by 3.5 - 4.1 m of gravel overlying sand with some gravel of unknown thickness. There is no groundwater, permafrost or bedrock recorded in any boreholes.

1.1.7 Aspect + Views

Yukon College is situated on a small plateau that slopes steeply downward 20-25 metres to the south, west and east with a more gradual slope of similar elevation to the north. To the west the site slopes steeply towards McIntyre Creek and to the east it slopes towards Range Road and a large wetland beyond. Access to the College is granted along College Drive which climbs steadily from Range Road to the campus.

The dramatic topography of the site affords the College a number of significant views of the Whitehorse Valley towards the Yukon River and the City of Whitehorse's downtown core. There are also views to the west overlooking McIntyre Creek (Figure 5).



Figure 4 - Steep slopes



Figure 5 - Campus views

1.2 Land

1.2.1 Campus Land Use

The Existing Land Use diagram illustrates the full extent of the campus lands (97 hectares in total) and describes existing land uses.

Environmental Protection

To the west of the campus is the area adjacent to McIntyre Creek. This land is zoned for Environmental Protection in the City of Whitehorse's Zoning Bylaw. It is an integral part of a number of Yukon College programs and courses, offering unique opportunities for field experiences for students. The diversity of nearby habitats (ie. wetlands, creek and various forest types) significantly enhances instructional opportunities. In addition, the McIntyre Creek Hatchery is located just south of Mountain View Drive, adjacent to McIntyre Creek. The objective of the fish hatchery program is to field test and develop equipment and methods which could be used for salmon restoration at the community level in Yukon. The overall goal of the program is to conserve salmon stocks in British Columbia and the Yukon.



Figure 6 - The 'ponds' on McIntyre Creek

Outdoor Recreation

Outdoor recreation is an important part of the northern lifestyle and represents an excellent opportunity to strengthen connections between the campus and the community. The campus lands are crisscrossed with hiking, skiing and snow-shoeing trails and there are excellent cranberry patches for local berry pickers. An informal terrain park to the south of the campus core is well used by local residents and students.

Residential + Research

Residences are generally located around the western periphery of the existing campus development and include a Seniors Residence, a Student Residence, a YRC Residence, an Attached Family Residence and an Attached Singles Residence. The A-wing also includes a daycare for faculty, staff and students.

The Yukon Research Centre (YRC) is co-located with the residential uses on campus. It consists of YRC offices (within the Student Residence building), a standalone research lab and a demonstration site.

Campus Core

Academic, research and administration functions are concentrated in the campus core. These buildings are clustered around a central courtyard in three connected wings (the Academic wing, the Commons wing, and the Trades wing). A gymnasium is linked to these wings and forms the eastern boundary of the central courtyard. A new Centre for Northern Innovation in Mining (CNIM) building is currently in the final stages of construction and will be located in the northwest quadrant of the campus core.

Facility support including the heat and power plant and the Facilities Services operations are also located within the campus core.

Community Use

The Yukon Archives and the Yukon Arts Centre and the associated Sculpture Park are located to the southeast of the core campus. These uses are linked programmatically to the activities in the core campus but could be strengthened to improve community and campus integration.

Future Planning

The properties adjacent to Alaska Highway are zoned for Future Planning and could be used for commercial uses or incubator business/industry partnerships with the College.

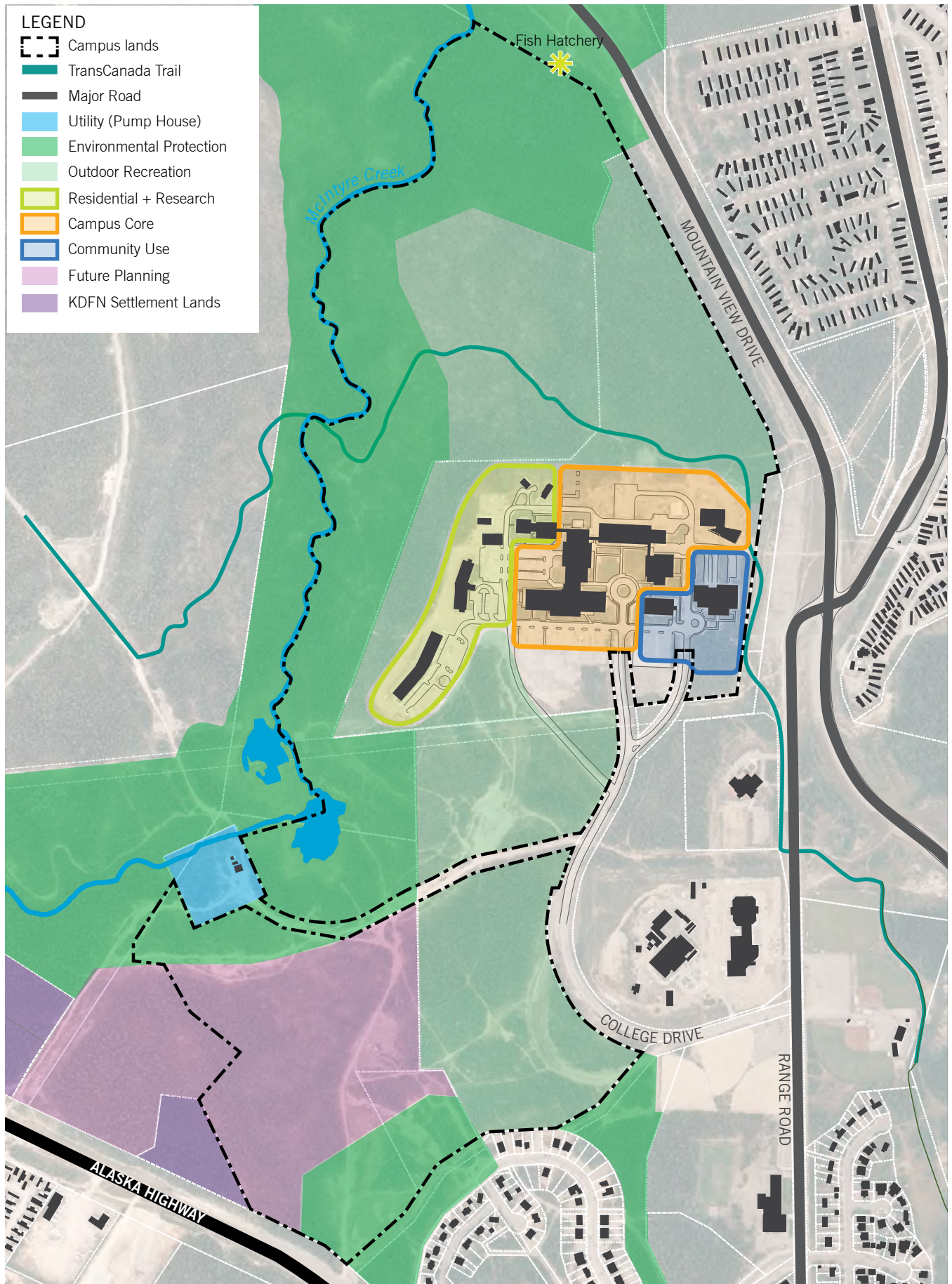


Figure 7 - Existing Land Use



1.3 Facilities

1.3.1 Primary Building Use

Residence

Residences on campus are clustered to the west of the core campus. The Family Attached Residence and the Singles Attached Residence are linked to student support services such as the cafeteria by a sheltered pedestrian walkway. Detached Residences, including the YRC Residence, are located within a short walk.

Instruction + Facilities

Building uses within the campus core generally include instruction uses with varying degrees of facility use, administration and student support services. The T-Wing to the north of the central courtyard includes classrooms, dedicated shop space (welding, mechanical, geo tech, carpentry, and electrical), offices and storage space. The College's Energy Centre is also located in the eastern portion of the building.

Instruction + Administration

The A-Wing to the southwest of the central courtyard includes classroom space, lecture halls and the majority of the College's administration space. Lab space is provided for computer science, nursing, physics, chemistry and biology. Daycare space is provided in the western portion of the building although this location

next to the science labs and faculty offices may not be optimal. The lower level of the A-Wing includes locker space for students, staff and faculty.

Instruction + Student Support

The C-Wing to the west of the central courtyard includes classroom space as well as the majority of the student support services on campus. These include the cafeteria, library, bookstore, student lounge, common space (the 'Pit') and learning centre. The main entrance to College is located on the lower floor of the C-Wing.

Recreation and Athletics

Recreation and athletic facilities are located within the gymnasium to the east of the central courtyard. The College does not currently have any sports fields.

Community Uses

The College is home to the Yukon Arts Centre and the Yukon Art Gallery, Yukon Archives, and Yukon Permanent Art Collection. Though not necessarily connected to the academic goals of the College, the cultural components attract significant community participation. Both the Yukon Arts Centre and the Yukon Archives are slated for major capital expansions in the next few years. There has been a recent study completed that recommends the location of a new Heritage Resources Centre at the college campus.



Figure 8 - Academic floor plans

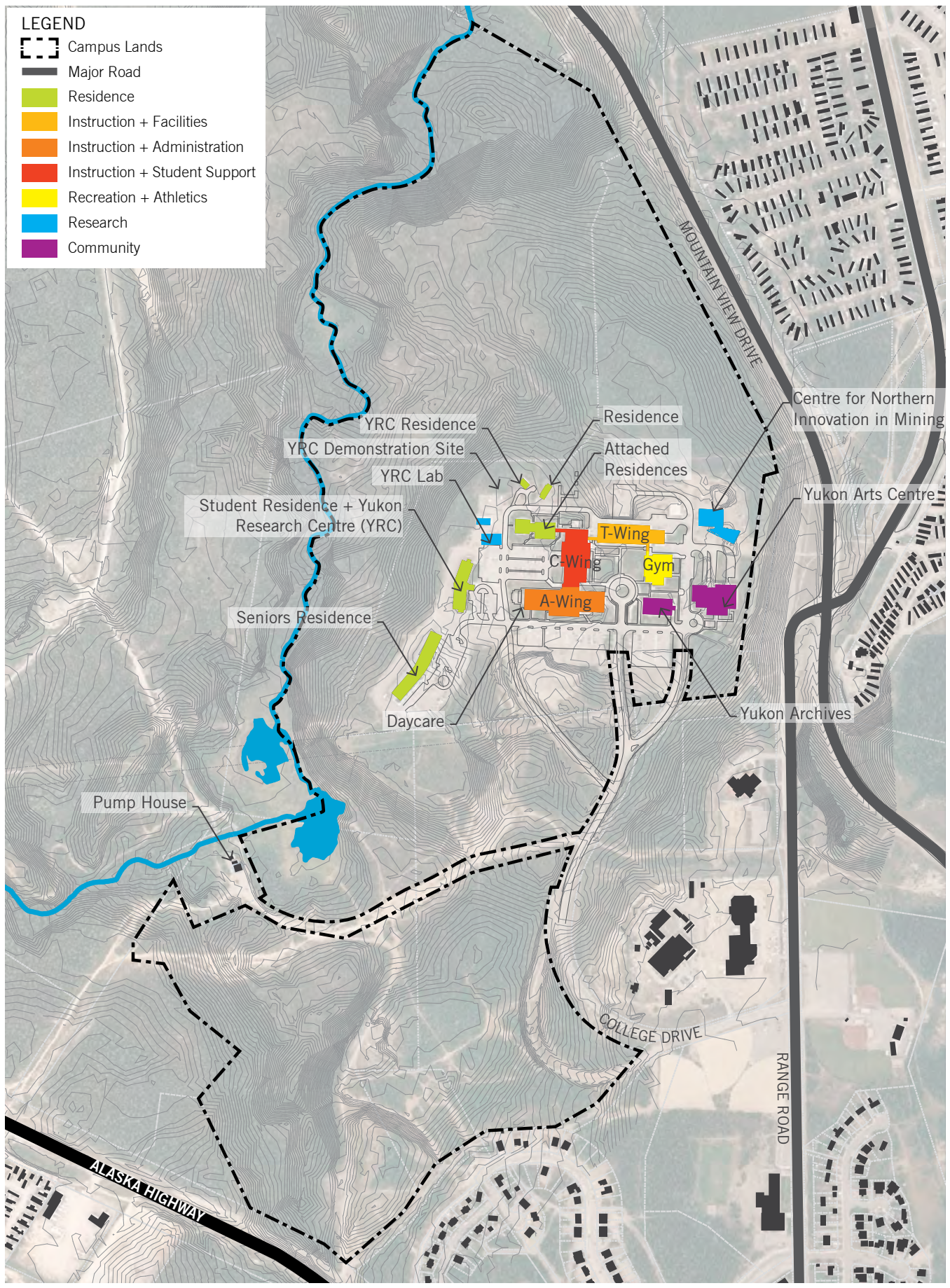


Figure 9 - Building Use Diagram: primary use(s) of existing campus buildings

50 150 meters ↑

1.3.2 Building Background + Condition

Original College Complex

The main Yukon College building complex was completed in 1988, and includes 5 wings: Academic Wing (A-Wing), Common Wing (C-Wing), Trades Wing (T-Wing), the Gymnasium, and the attached Family and Singles Residences.

A, C, and T-Wings

The two-storey A, C, and T wings are constructed using heavy timber columns and glulam beams with wood stud infill with some use of concrete on the lower level. These wings are built to a very high quality on the interior with durable finishes and natural light delivered through both perimeter windows and central skylights. Although the interior has been maintained and is in relatively good condition for its age, the exterior envelope has become a problem for the institution as it is poorly insulated (R-17 nominal), has been prone to leaking in certain areas, and the exterior finishes not durable enough for the harsh Yukon climate. Envelope issues have required siding replacement in the most affected areas.

The building envelope is comprised of an exterior insulation system with a heat-welded air/vapour membrane, and exterior semi-rigid batt insulation between metal z-girts. The assembly has protected the interior from water ingress in most areas, although moisture damage and mould have been found in critical junction points around windows and at the roof deck above the main entrance. Some repairs have already occurred to remedy damaged areas. While a project is currently underway to address remaining water ingress problems, no plans are currently in place to upgrade the buildings thermally.

Exterior walls are clad in wood siding with a simulated stone base. In most areas these are in good condition, but areas that have been exposed to water and snow build-up are in poor condition. Some of these areas have been replaced with hardboard siding. The exterior roof finish is comprised of a standing seam metal roof, which appears to be in good condition, while doors and windows are mainly thermally broken aluminum.

Gymnasium

The gymnasium is a steel framed structure with an exterior finish similar to the rest of the campus except that the large volume of the gymnasium is finished with stucco over an exterior insulation finish system (EIFS). It is in a condition similar to the other buildings.



Figure 11 - Skylights provide daylight within the internal circulation networks of the a-, c-, and t-wings

Residences

Located west of the C-Wing, the singles and family residences are two-storey wood framed buildings. Like the gym, these parts of the complex are finished to a slightly lower quality than the main wings. Unlike the other wings, the insulation is installed within the framing cavity. Exterior siding and windows were replaced in 2009, and are in good condition.

Yukon Archives + Yukon Arts Centre

The construction of the Archives and Arts Centre buildings followed that of the College Complex, with construction commencing in 1988. Both buildings are steel frame on a concrete foundation with wood stud infill. Similar to the educational buildings of the main complex, these buildings include high quality finishes on the interior with excellent access to natural light.

Recently the envelope of the Yukon Archives building was upgraded thermally by replacing the exterior insulation with mineral wool, and the aluminum windows with triple glazed vinyl. The original wood siding was also replaced with pre-finished fiber cement lap siding.

The Arts Centre has not been renovated on the interior or exterior, but appears to be in good condition.

Both institutions are planning building expansions to meet current and future program needs.

Yukon Research Centre Residence

Built as a residence, the wood-framed monocoque building was constructed in 1990 in association with the Canada Mortgage and Housing Corporation (CMHC) and National Research Council (NRC) to evaluate the livability and performance of a structure designed to withstand foundation movement due to permafrost. This building was built on site by the College's pre-apprenticeship carpentry program using standard materials, and included heat recovery ventilation, double glazed windows, high levels of insulation (R-35 to R-40), and a composting toilet.

The building also became a test location for off-grid hybrid energy technologies and included a wind generator and tracking photovoltaic solar panels connected to a battery/inverter system.

Initially the building was used as offices for the Northern Research Institute and Yukon Home Builders, but has since been transformed back into a residence for the Yukon Research Centre. The design was considered impractical due to high costs and difficult construction details, and was not replicated. Rather, it serves as a model for incorporating active research in new campus buildings.

There have been no issues with the performance of this building, and it is currently in good condition.

Singles Residence

This student residence located north of the C-Wing was initiated by the Yukon Carpenter's Union, and was completed in 1994. The two storey building was built to R-2000 standards by the College's carpentry program. Unlike the main complex this building is more reflective of residential construction quality, especially in regard to the finishes. As with the YRC residence, the project is a good example of student training opportunities on campus.

Athletes Village Housing

The family and seniors housing located at the southwest corner of the campus were built as part of the athletes village for the 2007 Canada Winter Games. The three-storey multi-unit residential buildings were built using modular construction. The Yukon Research Centre occupies the basement of the family residence building, while the seniors housing is owned and maintained by the Yukon Housing Corporation.

Due to the modular construction, it has been noted that

the maintenance of building services, particularly the plumbing, is difficult. Nonetheless, the buildings are in good condition.

Yukon Research Centre

Built in 2009, this one-storey wood-frame building functions as a multi-purpose laboratory and is located adjacent a cold storage building and fenced research demonstration compound.

Multi-Use Building (MUB)

This wood framed building houses shop space for the Carpentry program.

Centre for Northern Innovation in Mining (CNIM)

Currently under construction, the one-storey CNIM building is a combination of a pre-engineered steel structure for the shop areas and wood frame construction for the classrooms and offices. The building has been designed to incorporate energy conservation measures, proper orientation and daylighting, high insulation levels, district heating, and alternative energy to make it 40% better than the 2011 National Energy Code for Buildings.

1.4 Open Spaces

The Open Space diagram was developed to illustrate the existing character and use of the campus open spaces and pedestrian circulation.

Environmental Protection + Research Area

The campus is bounded by undeveloped lands containing a variety of habitats - wetland, creek, and forest. Easy access to nature and a range of natural ecosystems present terrific educational and research opportunities. The College is currently using campus and reserve lands as an outdoor lab and classroom. Programs that take advantage of the Environmental Protection and Research Area include Biology, Renewable Resources Management (RRMT), Northern Environmental Studies (ENVS), University Transfer Programs, Environmental and Conservation Science, Yukon Native Teacher Education Program and English as a Second Language (ESL). The campus lands are also used for teaching by high school science programs, and for volunteer work.

Forest Research + Recreation

The area surrounding the campus contains many trails, ranging from paved multi-use pathway to gravel and dirt trails which are used for recreational activities such as disc golf, biking, hiking and ATV-ing. There are also extensive cross-country ski and snowshoe trails located less than 3 kilometers away at the Mount McIntyre Recreation Centre. The Trans Canada trail loops around three sides (north, east and west) of the core campus area and there is the potential for a sub-loop encircling the campus.

In addition to their educational, research and recreational uses, these lands provide food, in particular cranberries to local foragers.

Outdoor Gathering Spaces

A. Central Courtyard

This is the College's central social and cultural gathering place. It features a sunken lawn edged on the north and west sides with terraced steps which provide informal event seating. The lawn is patchy in places but this is mitigated by existing trees and shrubs at the north east side of the courtyard which add character to the space. An east facing concrete terrace with picnic tables and bike racks is located next to the indoor student union space. Adjacent to the sunken lawn is a flag-lined concrete walk leading from the circular, tree-lined bus loop to buildings T-wing and C-wing. A second lawn is sited on the east side of the courtyard and houses a large work of sculpture.

B. Community Garden at Seniors Housing

A vibrant, active community garden featuring raised beds and a covered greenhouse is in place the seniors' residence. Community gardens are places not only to grow food, but also to foster collaborative relationships with neighbours and the extended neighbourhood.

C. Community Garden at Student Housing

A small scale student community garden consisting of a handful of raised beds and a picnic table is located adjacent to the student residences. This open space indicates a desire for space to grow food, participate in the community and interact with the land.

D. Roddy's Camp

This outdoor classroom is named after Roddy Blackjack, a respected First Nation Elder. Natural and informal in character, its boundaries are loosely defined by the edges of the forest. The major program element at this location is a fire pit.

E. Yukon Arts Centre and Sculpture Garden

The Yukon Arts Centre has a formal hard surface entry plaza with orthogonally arranged trees, benches and a prominently located work of sculpture. To the east is a lawn with terraced seating, ornamental plantings, and works of sculpture arranged to accentuate and direct views to the east and south. Just south of the Yukon Arts Centre, the Sculpture Garden has a uniquely northern character. Pieces are placed sensitively along an informal trail through the woods. This is a program that could be expanded in the future, therefore retention of the natural forest at this location is a priority.

View Shed Preserve

Due to its elevation and location, the campus enjoys outstanding views from its edges in all directions. Undeveloped open space has been retained in its natural state where at the edges of the campus allowing for views to and from site.

Pedestrian Circulation

College Drive is the major road to the campus and provides 2 lanes (one each way) of vehicular traffic with a paved shoulder used by bikes and pedestrians. Sidewalks are provided between buildings and along campus roads. Trails connect Yukon College to a larger, city-wide network of bike lanes and paths. A strong connection from campus circulation to the Trans Canada Trail is found north of the Yukon Arts Centre, and connections to the extensive trail network at various points including the Hydro right of way, south of the Seniors' Residence and Roddy's Camp.

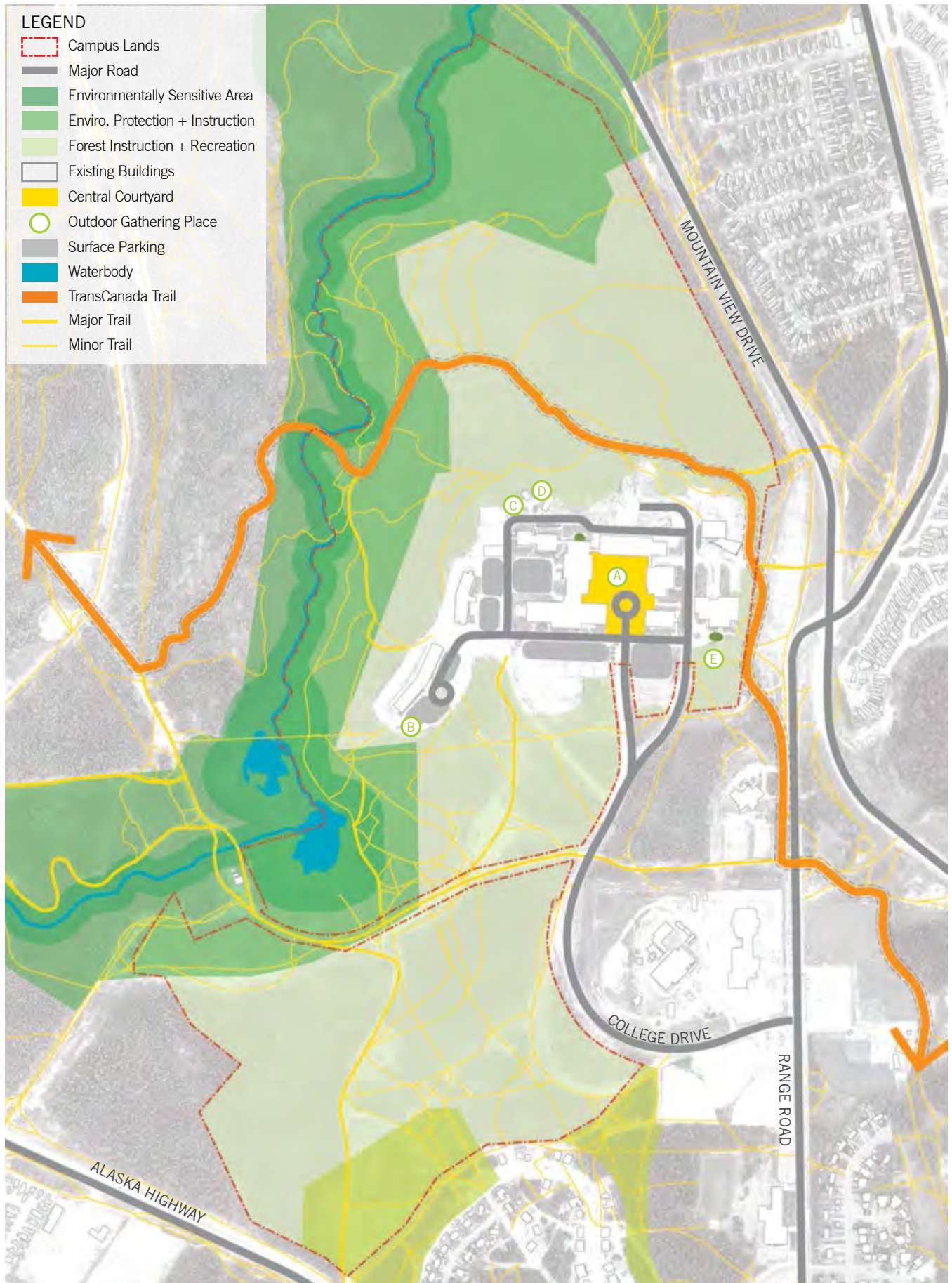


Figure 12 - Existing Campus Conditions: Open Space

1.5 Infrastructure

1.5.1 Circulation and Parking

The Circulation and Parking diagram illustrates primary vehicular circulation routes, transit and parking on campus.

Roadways

Currently the Yukon College campus is primarily a commuter campus where vehicles are the primary driver for the layout of the internal ring road. The single access to the campus (College Drive) is located off Range Road. This primary access point is non-descript and provides vehicle access but poor pedestrian access to the campus. A service road extends around the perimeter of campus to access parking areas, residences and shipping/receiving areas.

Parking

Two main parking lots for students currently exist, lot B and a portion of lot E as seen in Figure 13. Residence parking is located in lot D and a portion of lot E. Parking lot C is dedicated to the seniors residence adjacent to it. Public parking is located in lot A. Staff parking is located in lot F and at various points on the north side of

the perimeter road. Parking lot B is used extensively by students but those who park there generally do not enter the College from the main entrance. Accessible parking stalls for students are located on the east side of parking lot E closest to the main entrance.

Transit

The campus is connected to downtown Whitehorse via the Route 5 bus [Takhini - Lobird - Copper Ridge Express], which stops at the roundabout at the campus centre as well as the intersection of College Drive and Range Road. The bus runs every hour on weekdays between 7:20 am and 9:20 pm with additional service during peak periods every half hour between 7:20 am and 9:50 am and 3:50 pm and 6:50 pm. On Saturday the bus runs every hour from 8:20 am to 7:20 pm. Bussing times to the College vary greatly depending on pickup points, times range from 10 min from downtown to up to an hour in Copper Ridge. Currently there is no bus access from Whistle Bend Subdivision but the City of Whitehorse has future plans to incorporate the subdivision into its transit routes. Only one of five bus routes stop on campus but others stop within walking distance along Range Road or Mountain View Drive.

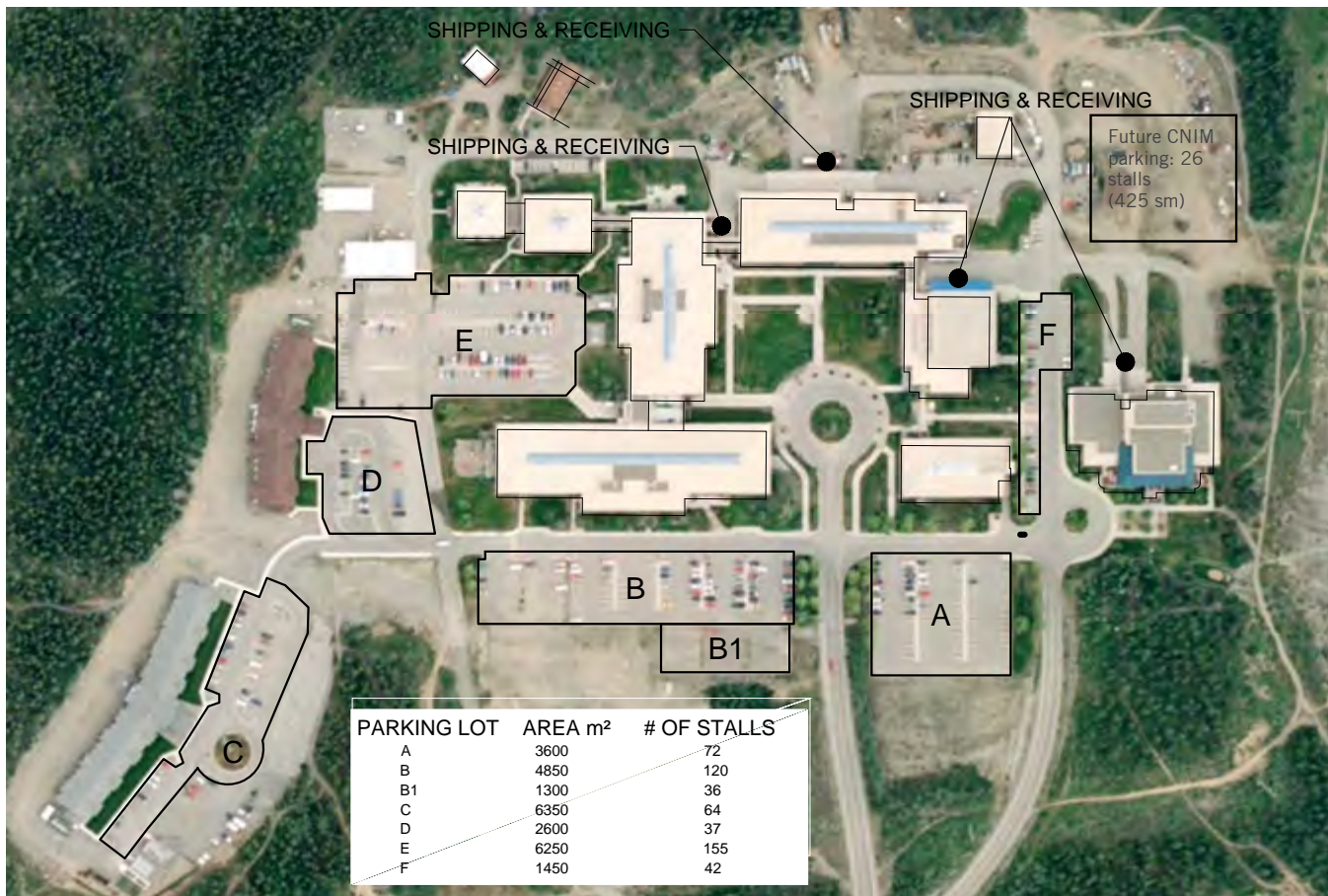


Figure 13 - Existing parking

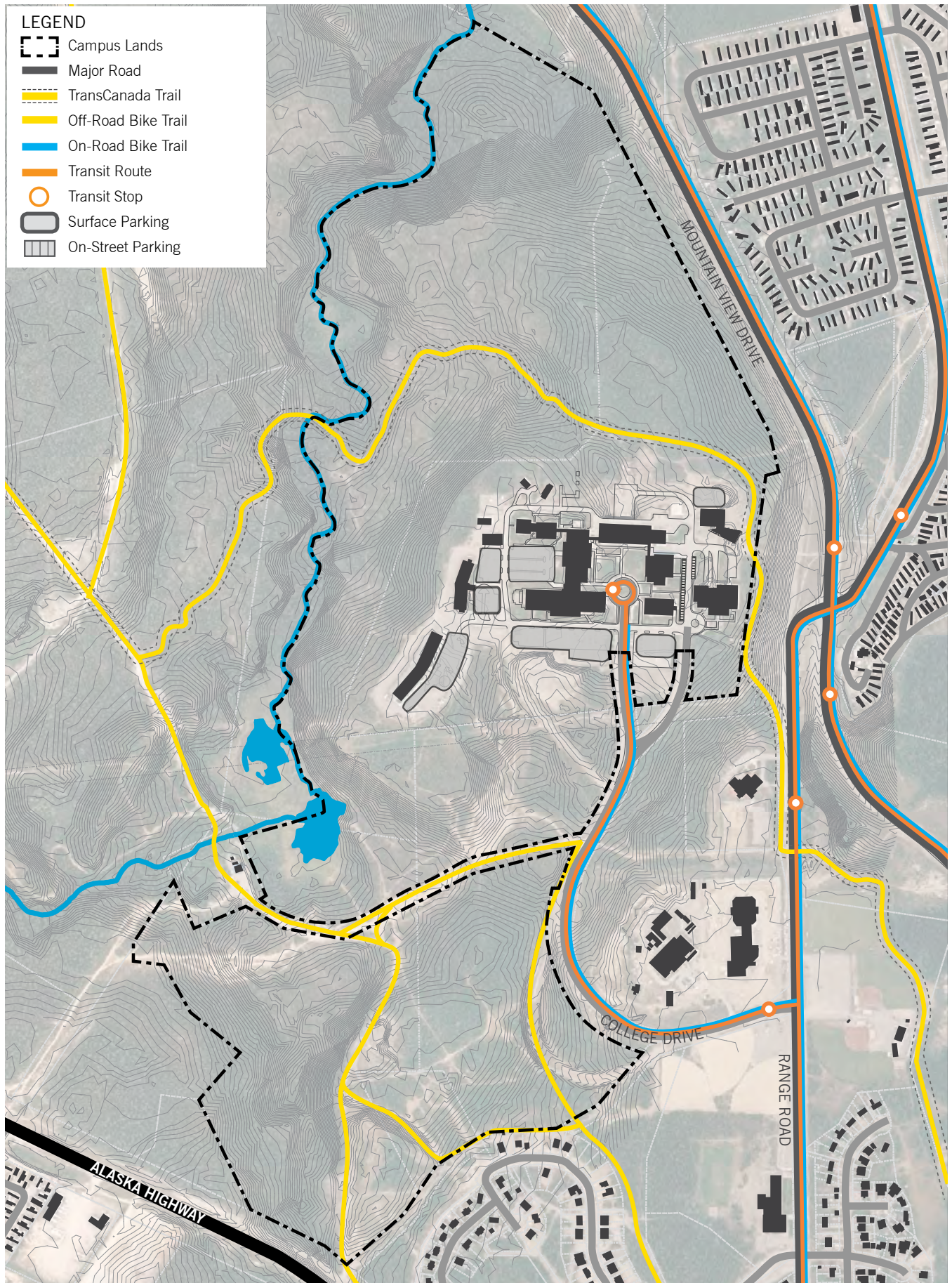


Figure 14 - Circulation and parking: bikes, transit and vehicles

50 150 meters ↑

1.5.2 Utility Network

Currently the campus is serviced from the existing City of Whitehorse distribution and collection system.

Existing Water

Yukon College water system is currently supplied by a 250 mm diameter water main installed underground along College Drive. Water in this system is sourced from the City of Whitehorse municipal supply via the Valleyview reservoir and Two Mile Hill booster station. This main supplies a 200 mm dia. ring loop that approximately follows underneath the perimeter road around the College. Multiple services of varying sizes are tapped into the ring loop to supply buildings on campus, including the recently constructed student residence and senior's complex.

According to the 2003 study of the City of Whitehorse's water and sewer infrastructure systems, fire flows at Yukon College met recommended guidelines and were considered adequate. The fire hydrant flows at the College were measured at 70 L/s and a pressure of 303 kPa. In the same study, water demand at the College was considered to be low at 0 – 25 L/s.

Future Water

The current demand on the existing water system at Yukon College is relatively low and therefore has some capacity to handle growth of the campus in the near term. Depending on the anticipated growth rate and student population of the campus, required upgrades to the existing system would be minimal at this time.

Looking forward to the future expansion, a water system upgrade may be required in the longer term based on full build out of the campus mostly to address fire protection concerns. Any future water system expansion should be designed as a recirculating system for frost protection. Within and adjacent to future buildings, implementation of design considerations that conserve water in landscape areas and internal fixtures should be explored.

For domestic water use, the College may wish to investigate sourcing water from either McIntyre Creek or an on site well in order to support ongoing training programs such as the small water systems certification programs. Developing an on site water source would provide the course with ongoing, real world, water treatment requirements.

Existing Sanitary

Yukon College sanitary sewage is collected in 150 mm

or 200 mm diameter underground main lines which converge on the south side of the Arts Centre and discharge off campus to existing City of Whitehorse infrastructure on Range Road. The Range road main flows into the Takhini outfall, to the Marwell Lift Station and across the Yukon River to the Livingston Trail Sewage Lagoons.

According to the 2003 study of the City of Whitehorse's water and sewer infrastructure, the loading capacity of the Takhini outfall system was 0 – 0.8. During ultimate loading events some sections of the system increased to a loading of 1.2. The influence of sewage volume from Yukon College on the downstream collection system is unknown. However, it is considered to have an impact. Depending on the configuration of new buildings on campus and the expected student population, some of the existing underground sanitary system will require upgrades and expansion. City of Whitehorse Standards specify minimum pipe diameter of 200 mm for sanitary mains.

Future Sanitary

With the expansion of the campus some of the smaller sized sanitary lines may require upgrades to accommodate additional flows. The College may wish to consider developing on site treatment for sanitary sewage as a benefit to current training programs at the College such as the small water system operators and mine water treatment programs. Discharge of such systems could be into adjacent wetlands or water courses providing opportunities for ongoing environmental monitoring. The College should also explore the possibility of water reuse and water reduction measures to lessen the sanitary flows in the future. Programs requiring large amounts of water or water for non-potable uses may be able to utilize rainwater collection, grey water reuse or snow melt as sources.

Existing Storm

Asphalt and concrete surfaces collect storm runoff water on campus and direct it to the storm sewer system. Landscaped and natural areas promote infiltration. Storm sewer is installed under the College Dr. roadway and discharges at an unknown point along College Dr. Sizing of system is unknown at this time.

Future Storm

Upon completion of the campus master plan, a storm water management plan should be developed for the overall proposed campus development. Within this plan, storm water from the site should be viewed as a resource for the campus rather than a waste. Within the development of such a plan the following possibilities

for storm water management could be explored with the aim of seeing storm water created onsite as a resource to the campus.

- Onsite collection and land treatment
- Utilizing existing wetlands for treatment
- Onsite collection of rain water and snow melt for high water intensity program's usage and/or as source water for current heat distribution system
- Rainwater collection utilized as irrigation sources

With the location of the campus on granular materials opportunities for storm water infiltration points or exfiltrating storm water collection systems should be seriously explored in any future expansions. Future

plans should re-enforce natural drainage patterns on campus with site specific landscaping. Additional hard surfacing for parking lots should consider permeable paving and/or directing water to landscaped areas to promote infiltration and passive treatment adjacent to the source prior to conveyance.

Snow removal should also be formalized in any future development plans. Currently snow removal is unorganized and typically piled off edges of current parking lots. We would recommend exploring formal snow removal storage sites where dirty snow collected can be stored. Concentrations of debris, possible contaminants and road sanding materials can be properly collected, sorted and treated or reused.



Figure 15 - Existing infrastructure

1.6 Supporting Plans

Yukon College Education Plan (2008 to 2013)

The College's former Strategic Plan (2008 to 2013) included six key directions for the College: promoting a community of learners, leading with strengths in research, programs, and service, working together with Yukon communities and First Nations, building a vibrant and sustainable organization, and improving the identity of the College.

Yukon College Strategic Plan (2013 – 2016)

The College's current Strategic Plan was developed with a broad consultation process that engaged over 420 people through public meetings, presentations, and focus groups. There were initial concerns that community input would not be incorporated in the plan, as a number of participants were cynical from the results of the previous plan's consultation process. To help alleviate these concerns, the College undertook a second phase of consultation in the form of a community forum. The forum involved over 120 people who explored key ideas and goals in greater depth.

The two-phase consultation process received important input from participants and resulted in a number of key values and directions for the short and long-term future of the College. The major themes that emerged from consultation were the importance of First Nations influence, the presence and leadership of the College in all communities and sectors, the importance of supporting community campuses, the challenge of the education gap for Yukon youth and adults entering post-secondary, the existing strengths of the College, the role of the College in the community, and the expectations of specific user groups such as students, employers and industry groups, governments, and the broader community.

Feedback included a significant focus on a supportive learning environment and accessibility (e.g., child care, housing, transportation), innovation and northern knowledge research (e.g., construction and permafrost, climate change, northern food production, First Nations governance, renewable energy, environmental protection, reclamation), skilled trades and training for local jobs (e.g., mining, mine reclamation, mental health), community partnerships (e.g., with government, other schools, First Nations initiatives, Northern Research Centre, Northern Institute of Social Justice, etc.), and community presence (e.g., facilities for community uses, arts and culture hub). Participants also raised concerns about the dynamics of changing from a College to a University in terms of funding, housing, students/teachers, community relations, and quality of learning.

Input from the two-phase consultation was compiled and refined by the Board of Governors into a focused three-year plan with the following key goals:

- Design a unique post-secondary education model that is influenced by the Yukon's unique culture, economy, and northern environment
- Collaborate with First Nations to strengthen relationships and enhance capacity.
- Engage Yukon Communities to enhance their educational opportunities.
- Ensure quality to attract and retain students.
- Expand northern research and innovation opportunities.

2. CAMPUS NEEDS

The campus needs assessment sets the broad direction for growth and development on campus over the next 25 years. The space requirements coming out of this analysis informed the campus concept described in Section 5.

2.1 Introduction

Trends

Design of today's college campuses calls for maximum adaptability to address the constant and significant change seen across the post-secondary domain. This means the campus "bones" – including facilities, infrastructure, transportation, and open space - must be planned for flexibility to meet unanticipated program and service needs. As Yukon College re-imagines its facilities, open space, circulation and infrastructure for the Year 2039 - and the "post-email" generation – it is critical to ask how physical and operational flexibility can best serve students with unprecedented experiences and expectations.

Strategically planned facilities in the 21st century are key to achieving Yukon College's Strategic Plan. When the right mix of programs, at the right place on campus, come together they can symbolize the mission, vision and values of the College. As the institution transitions to university status, the results of this planning can be magical. The proposed master plan takes the first step towards promoting a clear and comfortable sense of community, being adaptable for the long-term, allowing for public and private partners, fostering applied and innovative learning, and creating a welcoming and inviting environment. The result: a unique sense of Yukon College's "institutional DNA". Functioning as a community and instructional "hearthstone," the campus can become the place in Whitehorse where everyone chooses to come.

Supporting the Strategic Plan and Academic Mission

For most of the last century colleges have considered formal teaching experiences separate from co-curricular experiences. In an effort to enhance the holistic educational experience, Yukon College will need to plan and create environments that can frame previously un-choreographed campus activities into intentional learning experiences that assist in achieving educational outcomes. The new Student Centre, Research Gallery, Teaching Greenhouse, and Ecological Centre extend the academic and research enterprise into the public realm. Enhanced connections to the Trans Canada Trail, the proposed Learning+Culture Trail, First Nations public art, new Academic Courtyard, and improvements to the Central Courtyard, offer key bridges between facilities and learning landscapes.

The Space Between

Today, much of higher education occurs outside of formal learning environments. Likewise, education happens everywhere. The future of a truly exceptional campus relies on intentionally supporting this "space between". When fostering "real life" skills, like interactive collaboration and cooperative team work, a coffee shop or "maker space" can be more effective learning environments than a classroom. Activities that emerge within the multipurpose nature of the Welcome Block and the Trades Workyard will encourage this interactive learning potential.

Libraries and IT departments are merging into new information service areas and are being managed as multi-purpose academic space – the center of the academic enterprise – owned by everyone. Aspects of the Student Center and Media Center (with 3D printers and visualization devices) are being combined with support services, retail amenities, and extended, user-friendly hours. Decompression of volumes and off-site storage is being balanced by repurposing existing space into research and group study areas. Recommended improvements to C-Wing and the Student Centre Addition will set this potential in motion.

Distance education, online classes and eLearning is not slowing down face-to-face learning: added value is placed on problem-solving and collaboration with peers in active learning settings. Campus IT infrastructure is requiring capacity to connect across the campus as well as around the world to foster collaboration. Concurrently, power requirements are diminishing as battery life and wireless are increasing. The trend to BYOD (bring your own device) is stressing the ability to provide ubiquitous connectivity. Recommended facilities for Advanced Skills Technology and Academic+Research investments will need to be balanced with repurposing and renovations within A-Wing and T-Wing.

Crossing traditional program boundaries is strengthening the student experience by bridging the educational spectrum from formal to informal learning within research and internships. Strategic new development sites in the Academic+Research, Advanced Skills+Technology, and Alaska Highway Precincts offer attractive locations and synergies for public and private partners on and near the campus. Student housing in residential environments that cater to student age, lifestyle and learning choices is a trend that is encouraging a diverse on-campus community and 24/7 environment. Yukon College already has a rich mix of housing that includes seniors. The Campus Master Plan expands this potential with new cabin-style, four-plex and traditional housing models.

Learning Landscapes

The Yukon College buildings and grounds must integrate and support the entire array of planned programs and activities that take place on campus; they must also accommodate unplanned future events. Although no one can predict the future, the campus must maximize the potential for “planned serendipity”: the unchoreographed interactions so fundamental to a holistic educational experience.

The Campus Master Plan deliberately includes areas to support native ecosystems, food production, permaculture, learning landscapes, special purpose open space, “free speech” areas, public art and heritage displays, outdoor connections, reinforce existing campus pathways, and create new campus experiences. From the Reserve Lands to the Central Courtyard and from McIntyre Creek to the variety of “Hub and Satellite” experiences, the Yukon College campus is positioned to intrinsically connect sense of place with sense of program. Daylight, transparency, openness, clarity, sustainability, and connection to campus are the essence of recommended campus buildings.

Doing More with Less:

Colleges and universities across North America are facing the challenge of doing more with less. Responding to rising financial/operating costs (and sometimes shrinking financial support), institutional mergers and international/regional partnerships are increasing. International students are being targeted to maintain and grow enrollment. Yukon College is already promoting partnerships and attracting students from outside the region.

To generate revenue, translational science research is growing. University research that targets community and corporate partnerships is expanding to encompass economic development. Partnerships are linking curriculum to employer needs. Entrepreneurship as a discipline is emerging. Yukon College’s ability to pair and expand Advanced Skills+Technology with Academic+Research precinct programs and facilities gives it a distinctive advantage to succeed as a university.

The major renovations and new facilities are being driven as much by trends in post-secondary economic models as by new teaching models and tools. Renovation and adaptive re-use of A-, C-, and T-Wing interiors is also one of the most “green” strategies available to the College. In an effort to maximize precious capital resources, the repurposing of the existing building stock will support sustainability goals and simultaneously reduce capital costs.

The Triple Bottom Line

Economic and environmental crises are prompting institutions to assess their risk, resiliency, recovery and adaptation initiatives across health and safety, economic viability, and research and teaching. Across arctic and northern regions, campuses and their communities are placing increasing value on sustainability in terms of their distinct natural systems, economies, and cultures. In this context, the College can address sustainability in a broader, more inclusive way. The Campus Master Plan supports Yukon’s goals for exhibiting sustainability leadership that begin with patterns of human behavior and extends into the built environment.

Strengthening the Yukon Research Centre and the Cold Climate Innovation program will exhibit strategies for the next wave of environmentally conscious facility, site, circulation and infrastructure design. Yukon College’s sustainability targets go beyond merely reducing negative impacts to positively contributing to the environment through regenerative design. The Campus Master Plan imagines a future where buildings generate more power than they consume, harvest more water than they use, and become inseparably connected with the local ecosystem. Planning for green operations is the next step in Yukon’s progression towards a truly sustainable campus. Going beyond certification of new and renovated facilities, tracking building and campus operational performance - in terms of energy consumption, water use, landfill waste, and greenhouse gas emissions – is key to achieving sustainability goals.

Improving Health and Well-Being

The best campus master plans are embracing opportunities to improve and preserve health and well-being. Healthy people create healthy environments. Healthy environments support healthy lifestyles. Because good health is so strongly connected with the ability to work, learn, socialize, research, and impact society, colleges are seeking positive and meaningful impacts that improve the prospects and enrich the lives of students, faculty, staff and local people. Focus is moving from supporting individual fitness to a joint campus/community creation of wellness districts that support student achievement and retention goals. Campuses without a strong urban context are creating 24/7 activities that are lively, walkable, and include local culture and food initiatives. The Campus Master Plan’s emphasis on mobility and activity, walkability between precincts and throughout the Reserve Lands, healthy ecosystems from the forest to the campus core, and potential partnerships from College Drive to the Alaska Highway ensure a vibrant and verdant future.

2.2 Campus Needs Assessment

The following section is a high level functional analysis and space needs assessment of Yukon College's academic and administrative facilities. The outcome is a high level master space program that describes long range space requirement estimates by function and space type. The long range planning horizon is 25 years (to 2039) with interim planning horizons at 5 and 10 years. The space needs analysis involved the collection and analysis of current enrollment and current space for both support and teaching spaces for the Ayamdigut campus. Satellite campus facilities are excluded from the analysis.

2.2.1 Yukon College: Current State

Yukon College Academic programs are organized into 8 Schools:

1. School of Science
2. School of Management, Tourism and Hospitality
3. School of Liberal Arts
4. School of Education, Health and Human Services
5. School of Academic and Skills Development
6. School of Trades
7. School of Mining and Technology
8. School of Continuing Education

In addition to the schools, there are research focused programs and institutes on the Ayamdigut campus. The Centre for Northern Innovation in Mining provides a dedicated facility for trades training and applied research specific to the northern minerals and mining industry. The facility offers two mine training simulators capable of accommodating surface and underground training modules.

The Northern Institute for Social Justice provides training and professional development to front line workers who deliver social justice-related programs and services. Training is delivered to government and non-government organizations in professional development workshop sessions.

The Yukon Research Centre provides facilities that support research and innovative programs focused on climate change, cold climate innovation, environmental science, society and culture, and technology innovations.

Other areas of focus for the college include:

- International Students
- First Nations' Initiatives

Current Faculty and Staff

Currently there are 525 total faculty and staff employed at Yukon College. The total includes excluded/management staff, faculty, and non-faculty employees.

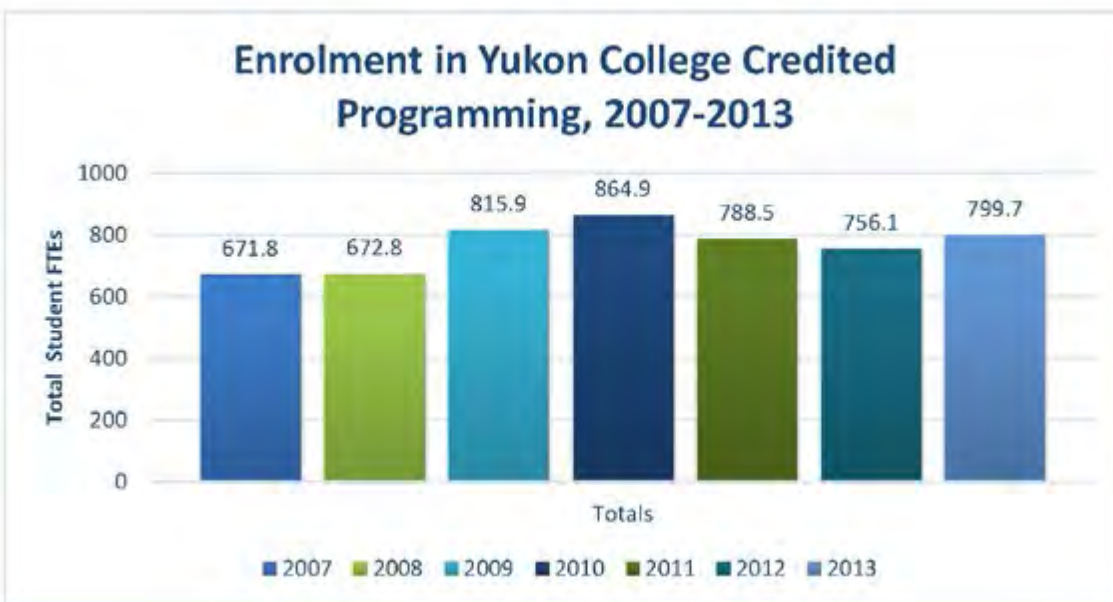


Figure 16 - Yukon College Enrolment

Existing Facilities

The following table shows the existing component gross areas by functional category.

Existing Space Summary m ²	
Space Category	Total
C1 - Classroom Facilities	2091.81
C2 - Laboratory, Undergraduate	1488.66
C4 - Academic Departmental Offices + Related Space	1749.03
C5 - Library Facilities + Study Space	1012.1
C6 - Athletic / Recreation Space	1350.79
C7 - Food Service	988.07
C8 - Bookstore + Merchandising Facilities	101.01
C9 - Plant Maintenance	50.46
C10 - Administrative Office + Related Space	780.01
C12 - Central Services	404.13
C13 - Health Service Facilities	8.96
C14 - Common Use + Student Activity Space	627.1
C15 - Assembly + Exhibition Facilities	70.53
C16 - Non-Assignable (Circulation, Plant, Washroom, Ho)	5940.03
C17 - Residential Space	1733.07
C19 - Other University Facilities	169.51
C20 - Health Science Clinical Facilities	145.33
C22 - Shop Areas and Supportive Spaces	3010.66
Grand Total	21701.28

Table 1 - Existing Facilities Gross Areas by Functional Category

2.2.2 Yukon College: Future State

The future state master program is informed by Yukon College's Strategic and Education Plans and with discussion with key stakeholders. One of the key drivers for change at the College is the support the Government of Yukon is providing to the College for a phased approach towards the evolution of a northern university. The College is currently creating degree programs with a focus on northern issues, such as the Bachelor of Science in Environmental and Conservation Sciences, First Nations Governance and Public Administration Program, and the Heritage and Culture Certificate Program.

For the master program, it is anticipated development of new degree programs will continue and the College will have University status within the long term planning horizon.

The impetus of the master program outlined below comes from the unique role of the College in:

- providing post-secondary education to students, not only at the Ayamdigut campus but at community based campuses across the Yukon,
- supporting the transition to a university,
- the continued emphasis on continuing education opportunities for the community, and

- the wish of the College to connect with the greater community of Whitehorse

The master program specifies:

- All teaching spaces must be adaptable to changes in pedagogy. Movable tables and chairs, smart boards, wireless technology are required for all classrooms, labs, and seminar rooms.
- Teaching will not only occur in typical classrooms but also will occur in spaces as outdoor teaching areas. These atypical teaching spaces require connectivity and technology to support learning.
- On-line/Distance learning – increasing need for this type of course delivery. Demand on space for course development, technology requirements to host the courses, etc. Classrooms should be audio/video conference capable with smart board technology, etc.
- Learning Commons – library/study space with internet access, group and private study areas.
- Need for crush space for students study/gathering areas – informal study spaces across the campus.
- A growing demand for Continuing Education programming with the ability to host larger seminars and fora. Currently there is only one lecture theatre on campus with limited seating for 75. There is a need for an additional lecture theatre to seat up to 200.
- Conference Centre for Professional Development – to attract students who are looking for professional/executive development programs (Executive MBAs, Leadership programming) and to provide a space to hold fora or meetings for other organizations, such as Northern Institute for Social Justice, First Nations, and outside organizations and community groups. The Centre shall include a conference centre, lecture theatre, seminar rooms, food services (bistro), and should have a First Nations focus.
- Current Yukon Research Centre focuses on environment, climatic change research. As the College transitions to a University than there will be a greater need for expanded research requiring more research space, both dry and wet bench.
- Along with research space there is a need for dedicated space to support visiting faculty/researchers. Hoteling workstations and meeting space, for temporary/sessional faculty, researchers, graduate students and fellows.
- With increased numbers of students on the campus

there is the need to provide more and better student services such as bookstore, cafeteria, Student Union, Health/Wellness Centre, Advising services, and Drop in Centre.

- For Campus Housing, it was assumed up to 12 percent of total students would be housed on site. The types of housing planned include: typical dormitory style facilities, cabins which can accommodate up to 4 people, and townhouses. Housing for temporary faculty/researchers, and Continuing Education students have been included in the total space allocated.
- For International Students – additional residential space and dedicated meeting/gathering space is required.
- First Nations – presence on campus Gathering Space (food services important) should be central to the campus.
- Continuing Education programs will continue to increase in number in the future. Additional teaching space has been added to the program to accommodate the increasing demand.
- The campus master planning should take into account the need to foster collaboration between faculties, staff and students. For instance, Fine

Arts may benefit from being adjacent to Trades as the welding shop could be used by both sets of students creating an opportunity for sharing ideas and exposing each group to new activities.

- 21st century learning delivery requires more flexible academic and common spaces to facilitate collaboration and support a range of teaching formats and approaches. This focus on more flexible spaces will be explored as the campus master plan progresses.

Projected Faculty and Staff

In the future the total number of faculty and staff will be projected to increase to 1247 by 2039. The total includes excluded/management staff, faculty, and non-faculty employees.

Future Enrollment Projections

The table below summarizes the projected future enrolment by school for Yukon College for the planning horizon years of 2019, 2024, and 2039 based on the assumptions stated above. The number of student FTEs are estimated to be 1847 by 2039 with Continuing Education enrolment increasing to over 10,000 students in the same timeframe.

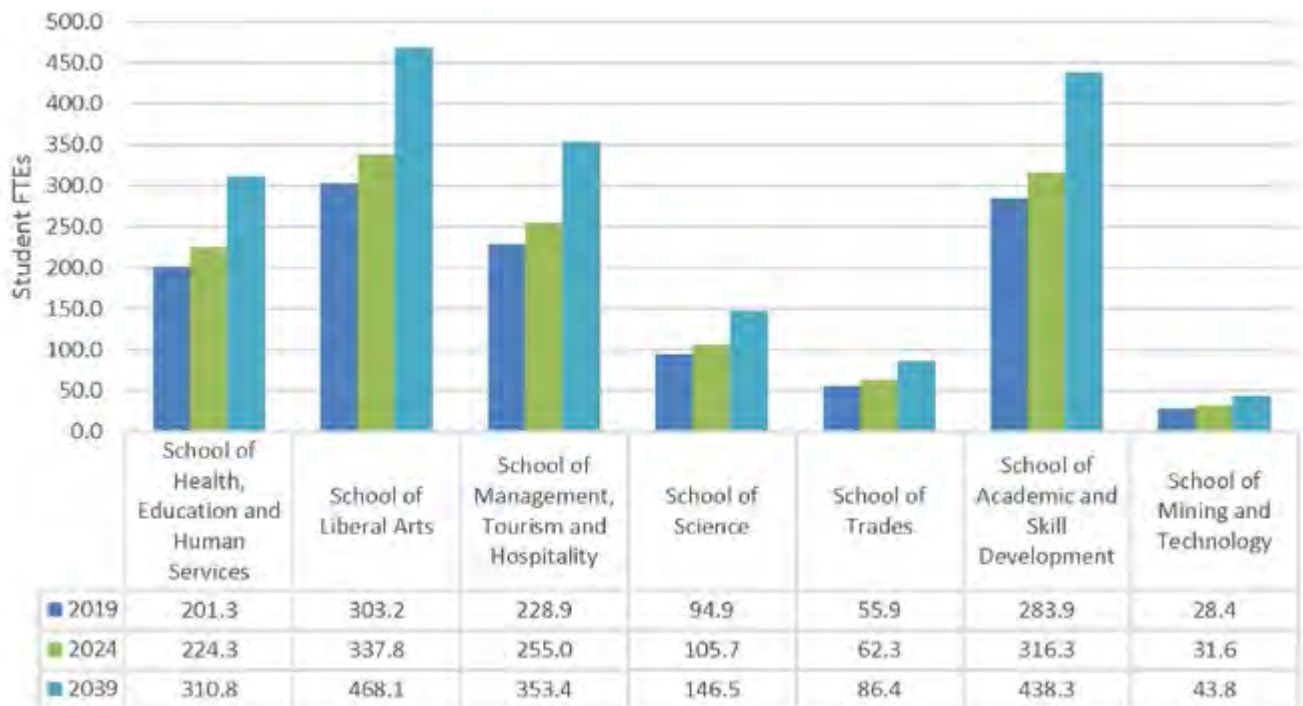


Figure 17 - Yukon College Future Projected Enrolment

Space Needs Analysis

The outcome of the space needs analysis is a master program for Yukon College, which is summarized in the following table.

The projected space requirements are based on the stated assumptions and specific objectives outlined above, and provide for the college's future needs as it transitions to a university. The table is organized by

component and shows existing and projected space requirements by planning horizon year.

It should be noted that the Yukon Research Centre, and the Centre for Northern Innovation in Mining have been excluded from the space needs analysis. By 2039, Yukon College will increase from nearly 22,000 sq.m. to nearly 66,000 sq.m.

Table 2 - Existing + Projected Space Requirements

Program Components	Existing Space	Projected Space TOTAL 2019	Projected Space TOTAL 2024	Projected Space TOTAL 2039
	NSM	NSM	NSM	NSM
Component Space Allocations				
Academic Spaces				
1 Classrooms	2,091.81	2,392.94	2,665.82	3,694.36
2 Teaching Labs Wet/Dry Labs Drop-In Centre	1,468.66	1,916.21	2,134.72	2,958.36
3 Continuing Education Teaching Space Allocation	0.00	460.00	513.00	710.00
4 Faculty Offices Non-Faculty Offices Departmental Support Offices Office Support Space	1,749.03	5,182.39	5,773.37	8,000.89
Subtotal	5,309.50	9,951.54	11,086.91	15,363.60
Administration				
4 Offices, Administration Program and Course Development	442.73	861.84	960.12	1,330.56
Subtotal	442.73	861.84	960.12	1,330.56
Student Support Services and Amenities				
5 Food Service Cafeteria Kitchenettes Food Storage	988.07	1,250.00	1,500.00	1,750.00
6 Student Services + Common Use Student Union College Relations Student Lounges Common + Staff Lounges	627.10	850.00	1,000.00	1,200.00
7 Health and Wellness Centre	8.96	150.00	150.00	150.00
8 Drop-in Centre (See Teaching Labs)				
Subtotal	1,624.13	2,250.00	2,650.00	3,100.00

Program Components		Existing Space	Projected Space TOTAL 2019	Projected Space TOTAL 2024	Projected Space TOTAL 2039
		NSM	NSM	NSM	NSM
Component Space Allocations					
Facility Operations					
9	Central Services Shipping/Receiving Equipment Storage + Repair	404.13	414.96	441.92	543.56
10	Facilities Maintenance Custodial Supply Rooms	50.46	100.00	100.00	100.00
Subtotal		454.59	514.96	541.92	643.56
Campus Housing					
11	Campus Housing	1,733.07	5,525.66	5,945.89	7,529.87
Subtotal		1,733.07	5,525.66	5,945.89	7,529.87
Trades					
12	Classrooms (see above)				
13	Shops and support spaces	3,010.66	8,391.83	9,348.79	12,955.80
Subtotal		3,010.66	8,391.83	9,348.79	12,955.80
Research					
14	Research Labs	0.00	887.51	988.72	1,370.19
Subtotal		0.00	887.51	988.72	1,370.19
Specialty Facilities					
15	Conference Centre	0.00	629.00	880.60	1,232.84
16	Gathering Place	0.00	67.50	67.50	67.50
17	Bookstore	101.01	175.00	175.00	175.00
18	Recreational Facilities	1,350.79	1,500.00	1,500.00	1,500.00
19	Café/Restaurant	72.27	216.81	216.81	216.81
20	Daycare	169.51	240.00	240.00	240.00
21	Exhibit Space	0.00	50.00	50.00	50.00
22	Theatre	70.53	140.00	140.00	140.00
Subtotal		1,764.11	3,018.31	3,269.91	3,622.15
Total Master Program Areas		14,338.79	31,401.64	34,792.26	45,915.73
Component Gross Area		0.00	40,822.13	45,229.94	59,690.45
Building Gross Area		21,795.00	44,904.35	49,752.93	65,659.49

3. VISION + GUIDING PRINCIPLES

This section describes the vision and principles underpinning the final campus master plan. They emerged at the outset of the project, and were presented to stakeholders and the public for refinement throughout the process. These principles were invaluable at key decision milestones as the campus master plan evolved.

3.1 Vision

Create a compelling new campus experience that will increase the appeal of the institution for students, faculty and the broader Yukon community while strengthening research and leadership in cold climate innovation, First Nations governance, and resource development.

Culture + Language

Reinforce northern art and culture throughout the campus and create vibrant places for people to gather and enjoy that speaks to the spirit of the north

Learning

Reinforce the College's leadership in cold climate innovation, First Nations governance, and resource development and support the integration of teaching, research and the community

Sustainability

Incorporate a holistic approach to sustainability that embraces the natural environment and introduces site-wide sustainable systems such as low carbon and renewable energy, local food production and low impact development



3.2 Principles

The following principles were developed and refined throughout the Ayamdigut Campus Master Planning process. The principles address the social, economic and environmental aspirations of the plan and provide direction for future planning, design and construction on campus. While a plan cannot hope to predict and respond to every future condition, these principles will help to guide decision-making in the future to ensure that it is in line with the intent of the plan.



ENVIRONMENT/ PROTECT ENVIRONMENTALLY SENSITIVE AREAS + MAKE COMPELLING VISUAL, PHYSICAL AND PROGRAMMATIC CONNECTIONS TO THE NATURAL SETTING



SUSTAINABILITY/ CONVERT DISTRICT ENERGY TO LOW CARBON, GENERATE RENEWABLE ENERGY ON-SITE, IMPROVE BUILDING EFFICIENCY, REDUCE WASTE + GROW FOOD LOCALLY





TRANSPORTATION/ CREATE A WALKABLE CAMPUS WHERE IT IS COMFORTABLE AND CONVENIENT TO TRAVEL BY FOOT, BIKE, SKIS OR TRANSIT



NORTHERN CULTURE/ RECOGNIZE THE UNIQUE NORTHERN CULTURE, CONTEXT + SITE HISTORY IN THE PHYSICAL DESIGN AND PROGRAM OF THE CAMPUS





CAMPUS LIFE/ ENSURE THE CAMPUS ENVIRONMENT ENHANCES BOTH THE ACADEMIC AND STUDENT LIFE EXPERIENCE



NORTHERN SHOWCASE/ STRENGTHEN AND HIGHLIGHT THE COLLEGE'S LEADERSHIP IN RENEWABLE ENERGY, COLD CLIMATE RESEARCH + RESOURCE DEVELOPMENT





UNIVERSITY STATUS/ SITE AND DESIGN CAMPUS BUILDINGS AND OPEN SPACES TO EXPRESS THE DIGNITY AND ENHANCED CAMPUS EXPERIENCE OF A UNIVERSITY



4. ENGAGEMENT

This section summarizes the extensive public and stakeholder engagement led by the project team throughout the year-long Campus Master Plan process. This collaborative initiative involved working closely with students, faculty, management, staff, stakeholders, and community members to create a bold new campus vision and implementation plan for Ayamdigut campus.



4.1 INTRODUCTION

In August 2014, Yukon College launched a year-long master-planning process called “Design Your Campus”. This collaborative process sought ideas from our students, faculty, staff and community stakeholders as well as from other Northern universities around the world to create an exciting new plan for future stewardship and use of the College’s Ayamdigut campus and reserve lands.

The “Design Your Campus” project responds directly to the College’s Strategic Plan’s focus on creating a unique post-secondary model, collaborating with First Nations, engaging Yukon communities, attracting and retaining students, and expanding Northern research and innovation.

An internationally-renowned team (led by Perkins +Will and integrating Yukon-based architects and engineers) worked closely with students, faculty, management, staff, stakeholders, and community members to create a bold new campus vision and a detailed implementation plan. An advisory committee was involved throughout the process to ensure respect for evolving academic plans and community needs as well as best practices from other northern institutions and communities.

4.1.1 Communications + Engagement Strategy

To guide the public and stakeholder engagement process, a coordinated Communications and Engagement Strategy was developed. The strategy identified a list of

audiences to first make aware of the project, and then to involve in various ways. Audiences included:

- Students (full and part-time; on-campus, online, and at community campuses; young and old)
- Faculty / Staff / Management (everyone employed by Yukon College)
- First Nations (with a focus on Kwanlin Dun and Ta’an Kwachan First Nations, as well as the President’s Committee on First Nations Initiatives - including representatives from all Yukon First Nations)
- On-Campus Stakeholders (College Seniors Residence, Yukon Arts Centre and Yukon Archives)
- Off-Campus stakeholders (local residents, Porter Creek & Tahkini North Community Associations, Yukon Conservation Society, Friends of the McIntyre)
- Government (City of Whitehorse, Yukon Chamber of Commerce, Yukon Government Departments of Education, Property Management, Community Services)
- Education groups (Yukon College Student Union, Yukon College Board of Governors)

We asked the public and stakeholders to help us create a compelling campus experience/identity; respond to evolving trends/opportunities; and identify how we could best use the land and shape our buildings and infrastructure



Figure 18 - Process diagram

4.2 APPROACH

Yukon College has a deep and standing commitment to informing and involving a range of stakeholders in planning and policy processes. To ensure a creative and responsive process, the project team used a range of engagement tactics to involve diverse audiences in different activities as the plan progressed. The input gained helped the team to understand the concerns, dreams, ideas and aspirations of various groups and people, which in turn directly informed and infused the design process.

4.2.1 Process

The process followed International Association of Public Participation (IAP2) standards, beginning with awareness raising, then broad ideas about goals and needs, and finally moving to more focused discussions about design concepts and details. The final stage is narrower still, asking for feedback on the preferred design concept and asking, “what do you think?” “have we missed anything?” and “how can this be improved?”

The process followed a structured 4-phase process to allow participants to understand and contribute as the design progressed. There were three streams of consultation throughout the phased process; stakeholders, the advisory committee, and the general public.

Phases 1 and 2 focused on raising awareness of the project and process, performing detailed background research and analysis, and initial engagement activities with students, staff, faculty, neighbours, First Nations, local government agencies, and stakeholders. Key themes guiding the evolving campus plan included increasing walkability, preserving as much of the natural environment as possible, celebrating northern culture, adding needed amenities and gathering spaces, environmentally sustainable design, and experiential learning.

Phase 3 built off the ideas from Phases 1 and 2 to develop initial design concepts related to parks and open space, mobility and built form. The design team worked closely with the project's Advisory Committee and key stakeholders to create initial concepts, which were presented to the public for review and feedback through the Design Decisions Event and online questionnaire.

Phase 4 took the ideas and feedback received throughout the process to develop a preferred campus concept and final Campus Master Plan.

4.3 RESULTS

The following section summarizes the results from engagement activities. The ideas and feedback collected were used to shape the final Ayamdigut Campus Concept and Final Campus Master Plan.

4.3.1 Site Master Plan Advisory Committee (SMPAC) Meetings

To ensure the consultation and design process went smoothly, the consultant team worked with the Site Master Plan Advisory Committee (SMPAC), tying their ideas and concerns in with evolving trends in demographics, learning approaches, student numbers, teaching practices, and other opportunities. Members of the SMPAC included representatives from:

- Faculty
- Academic Leadership
- Students
- The City of Whitehorse
- Yukon Government
- First Nations
- Board of Governors
- Yukon Research Centre
- Local Businesses (Chamber of Commerce)

The SMPAC convened at least once in each phase to review initial ideas and provide feedback on the public engagement process. The major SMPAC workshops in Phase 2 and 3 included an expanded membership to include representatives from Yukon Arts Centre, adjacent community associations, the Seniors residence, Friends of McIntyre Creek and the Yukon Conservation Society.



SMPAC MEETING #1 Phase 1 – August 26, 2014

Framework: The first SMPAC meeting was held August 26th to discuss the key directions and goals of the College’s Strategic Plan and to begin brainstorming on the overarching vision, themes and principles to guide the Campus Master Plan.

Findings:

Strategic Plan: Directions + Goals

- Design a unique post-secondary model: the College recently received endorsement to transition to university status with a full spectrum of certificates and degrees available. Participants suggested a focus on First Nations governance and capacity building, resource innovation and climate change.
- First Nations: strengthen relationships + enhance capacity: Work with the 14 First Nations in the Yukon (particularly Ta’an and KDFN), focus on research and professional development through the First Nations Institute, and work to better integrate First Nations perspectives into programs and campus design.
- Engage Yukon communities to enhance educational opportunities: Integrate the community campuses and provide better connections to the Whitehorse community, particularly high school students.
- Ensure quality to attract + retain students: Provide flexible classes (distance education), emphasize campus life, international students, child-friendly

spaces/daycare, dog-friendly spaces, social spaces, and year-round outdoor recreation/enjoyment.

- Expand northern research + innovation: Promote the new mining research building/program as well as cold climate tech and climate change innovation, build a culture of research attract new students (mesh academics and research), collaborate with other universities, and find synergies with core tenants (government, archaeology, geological survey groups, etc.).

Vision, Themes + Principles

- Campus life: social spaces and gathering places
- Unique Identity design should reflect mining, First Nations, innovation, arts, tourism and outdoors
- Connecting to the land: opportunities for outdoor/experiential learning (for example, archaeological sites along McIntyre Creek), bring the native landscape into the campus in a more meaningful way.
- Buildings: seamless connection between inside and outside while maintaining energy performance
- Transportation: Improving connections, working collaboratively with the City and province to manage roads, improving transit.
- Recreation: healthy campus, good connections between interior/exterior activities, outdoor education.
- Sustainability: expanding recycling/composting,



SMPAC MEETING #2 Phase 2 - November 28, 2014

Framework: The session further explored opportunities, constraints and ideas generated by the public, stakeholders and the design team in Phases 1 and 2. Participants were split into three groups and the discussion was structured around the broad topics of mobility, natural environment, land use, open space and built form, culture and identity, academic programs, and northern research and sustainability.

Findings:

- Mobility: Circulation and Parking: Improve access to the campus for all modes. Strategies could include a secondary vehicle access, improved transit service, better connections to adjacent trails and a new paved, multi-modal pathway linking the campus to downtown Whitehorse and adjacent residential areas. Accommodate parking in smaller lots that are integrated into the landscape and tucked behind or under buildings.
- Natural Environment: Protect environmentally sensitive areas, ensure low impact development, bring the landscape into the campus core, and promote opportunities for outdoor education and recreation such as 'teaching trails' and more natural landscaping.
- Land Use: Create reasons for people to come and stay on campus. This could include expanded housing options on campus, stronger partnerships with the community and industry, and expanded retail/amenities.
- Open Space + Built Form: Site and design open space and buildings to create comfortable indoor and outdoor gathering spaces and take advantage of the natural setting and dramatic views.
- Culture + Identity: Reinforce a strong First Nations Presence throughout the campus and reflect the northern history and culture through building design, building names and an interpretive/educational network.
- Academic Programs: Provide flexible spaces to meet the needs of 21st century learning delivery and strengthen programmatic connections to the natural setting, the Yukon Archives and the Yukon Arts Centre.
- Northern Research + Sustainability: Strengthen the College as a leader in northern sustainability through campus design and programs.



SMPAC MEETING #3 Phase 3 - January 16, 2015

Framework: An intensive design workshop was held with SMPAC members, key College stakeholders and the project team to review early Big Ideas, generate new ideas and develop 2-3 concept directions for the campus. Participants were split into three groups and the discussion was structured around 1) parks and open space, 2) mobility, and 3) built form and programming.

Findings:

Throughout the design and engagement process there has been strong consensus around certain elements but mixed support for a few key areas. Participants at the design workshop developed a number of alternative approaches for these areas that were presented to the public for review and comment at the Phase 3 Design Decisions event.

- Parks and Open Space: Strong consensus was shown for protecting the natural environment and strengthening connections (through trails, views and programs) to the natural setting.
- Participants looked at alternate locations for outdoor activities including a) next to student housing, b) within an existing parking lot, or c) in the central courtyard.
- Mobility: Feedback suggested there is a need to improve access to the campus for all modes of transportation. Strategies could include a secondary vehicle access, improved transit service, better

connections to adjacent trails and a new paved, multi-modal pathway linking the campus to downtown Whitehorse and adjacent residential areas and activity nodes. Parking could be accommodated in smaller lots that are integrated into the landscape and tucked behind or under buildings.

- Participants discussed a number of alternative approaches for the secondary access point as well as vehicle circulation.
- Built Form and Programming: Key directions for the built form and programming are to: site and design open spaces and buildings to support campus life, create comfortable indoor and outdoor gathering spaces, reinforce the College's leadership in research, sustainability and innovation, and reflect the new university in the design of the campus.
- Participants discussed alternative strategies for integrating student housing into the design and development of new academic buildings as well as alternate locations for the First Nations Institute.



SMPAC MEETING #4 Phase 4 - March 31, 2015

Framework: An intensive design workshop was held with SMPAC members, key College stakeholders and the project team to explore the campus concepts developed in Phase 3 and provide direction on the development of a preferred campus concept.

Findings:

Parks + Open Space

- The Parks + Open Space Plan needs to work in winter and in summer. Trails should link strongly to the campus with signage/wayfinding at key intersections. Protected pedestrian walkways should link new buildings to the existing campus core.
- The campus needs stronger connections to the community (physically and programmatically). There is an opportunity for a bird-viewing area tied to the Eco-Centre and linked to the College programming. Roddy's camp relocated closer to EcoCentre
- Design: The Pedestrian/Transit Mall could have deciduous trees decorated with white lights during winter months. Look to Whistler as a precedent for designing with bears.

Mobility

- Road access: prioritize secondary access from Alaska Highway to become main entrance to campus.
- Ensure access and adequate parking for the Trades precinct.

- Ensure the multi-use paved trail system connects to City network - potentially with an overpass or underpass at the Alaska Highway
- Proof of parking: phase the plan according to parking requirement over time - confirm parking numbers and supply at each phase: parking requirements could transition from 0.65 to 0.4 per student

Built Form + Programming

- Industrial lands to support entrepreneurial space/ maker space - transatlantic relationships - educationally oriented (business incubator and research)
- Precincts: can we integrate uses into the same building/area - to be more interdisciplinary - research is everywhere
- Common areas provide important linkages - funding may favor grouping of similar uses
- Phasing: first phase should focus around the Pedestrian/Transit mall and a new Student Centre
- Yukon College is a centre of excellence in Science - critical mass towards becoming a university (science-based conferencing, shared use)
- Sustainability: Biomass should be located to the north of campus and YRC co-located with Trades
- Develop Housing, Research, Community and Trades nodes at each of the four corners of the campus

4.3.2 Stakeholder Meetings

To gather specific information and local knowledge, the team engaged stakeholders from several key groups in small group discussions.

PACFNI STAKEHOLDER MEETING

In January 2015, the Consultant Team met with the President's Advisory Committee on First Nations Initiatives (including representatives from the 14 First Nations of the Yukon). The intent of the meeting was to present the early directions developed for the Ayamdigut Campus Master Plan and solicit input on future directions to explore.

PACFNI members highlighted the relationship between language and culture and discussed opportunities to bring the campus community together with First Nations elders. These opportunities included a First Nations Institute, shared 'home-cooked' meals and space for informal gatherings.

STUDENT STAKEHOLDER MEETING

In January 2015, the Consultant Team attended an open mike session at the Student Lounge on campus. The intent of the meeting was to present the early directions developed for the Ayamdigut Campus Master Plan and solicit input on future directions to explore.

Students highlighted the need for better communal gathering spaces (for students and non-students) on campus, including expanded student services. They identified a need for more student housing and better transit connections/service.

FACULTY STAKEHOLDER MEETING

In February, a meeting was held with Yukon College staff and faculty to discuss ideas surrounding open space and sustainability, infrastructure, and built form.

Findings:

- **Open Space & Sustainability:** Participants suggested providing outdoor space for meetings, conferences and classes, using natural plants to reduce water use, and identifying an area for growing food that is integrated into the residential buildings.
- **Infrastructure:** Comments addressed vehicle plugs for winter, outdoor outlets (for laptops) near benches and seating areas, a wifi hub, and a place for faculty during spring and summer months. Participants also suggested thinking about the future and potential innovations in transportation that may substantially reduce the need for parking and vehicle infrastructure.

- **Walking:** Faculty discussed the environment surrounding the College and some felt it was not very welcoming to pedestrians; issues included the need for better maintenance of trails and sidewalks (especially in winter and spring when snow and mud are issues), safe pedestrian crossings (particularly across Range Road), traffic, and a general lack of visual interest and vegetation. Other comments suggested that pedestrians and cyclists should not have to cross the parking area and that parking should be easy for visitors to find.
- **Transit:** Participants suggested moving the transit pick-up location near the gym entrance to reduce issues with vehicles and provide a more comfortable location for transit users (i.e., sunny side of the street). Other suggestions included increasing transit service by extending the peak-time services throughout the day, subsidizing bus passes for College staff, and providing a designated smoking area or enclosure closure to the transit stop.
- **Built Form:** Numerous participants suggested the need for SAD (Seasonal Affective Disorder) lights in classrooms and lounge areas to benefit both students and staff. Other suggestions addressed spaces for studying, group work, socializing, relaxation and wellness for students and staff. Integrating vegetation/food, multi-language signage, First Nations culture, technology, and showcases of student work (showcases) were identified as important concepts. Other ideas included security, more computer labs, larger classrooms, underground buildings, and an eco-housing village (designed by students). Participants suggested the new building could be located in the small area in front of the Gathering Space and could include other services and spaces such as IT Services, Writing Centre, Drop-in Centre, Learning Assistance Centre, Counselling, and Student Lounge.

KWANLIN DUN

In January 2015, Yukon College met with the Kwanlin Dun Lands and Resources Department. An overview of the Master Plan project was provided along with early directions developed through the first public consultation.

Highlights included recognizing the area on which the College resides – Kwanlin Dun and Taan Kwach'an territories as well as First Nations cultural heritage in the area described under the Master Plan.

4.3.3 PUBLIC EVENTS + ACTIVITIES

The general public, including students, local residents and organizations, were central to the engagement process. Their keen interest was evident as they generated unique and interesting ideas and provided useful and meaningful feedback at events and activities throughout the process.

ACTIVITY 1: IDEAS COMPETITION

Phase 1 - October 30 – November 20, 2014

Framework: We asked students, staff, faculty and community members to submit their ideas for the future of Ayamdigut campus. We asked participants: what do you love about Ayamdigut campus? What makes this

place work well? What needs to change? What new ideas do you have? Prizes were offered and heavy promotion to all identified stakeholders helped raise awareness and drive participation.

Findings: We received 33 submissions with ideas covering building design, amenities, housing, culture, transportation, programming, and nature. The submissions were carefully narrowed down and the top 3 winners were chosen for their creativity and meaningful expression of ideas related to people, land and learning.

Key themes from submissions:



Summary of winning ideas:

- Greenhouse corridors to connect buildings & grow food: Greenhouses would support local food production, integrate with agriculture and science programs, and provide a community asset. (Submitted by: Dawne Mitchell)
- Sacred space on campus to reflect and rejuvenate: A sacred space where anyone can go to pray, rest, meet with Elders, or just be. A calm, soothing, and cultural space. (Submitted by: Tosh Southwick)
- A nature centre to learn about local plants & animals: A centre to educate the public, tourists, and students about the Yukon’s unique flora and fauna. (Submitted by: Dorothy Bradley)





photo: Cathie Archbould

BIG IDEAS EVENT

Phase 1 - November 25, 2014

The Big Ideas event was held in the College cafeteria and included an online questionnaire for those who were unable to attend the in-person event.

Framework: The event provided background information on the project and the process as well as information on key topics such as land use and buildings, environment and mobility. A number of fun and interactive activities collected ideas and feedback from participants. Over 115 people attended the event. The online survey provided background information and asked the same questions as the in-person event. 11 responses were received in total.

Findings: A number of key ideas emerged from the feedback received from students, staff, faculty, stakeholders, and community members.

- **Access and walkability:** walking/cycling/skiing trails should be protected and enhanced and connect to adjacent neighbourhoods and other key locations. Major trails should be well-lit, marked with interpretive/wayfinding signage, maintained (i.e., plowed during winter), and safe from vehicle traffic. Transit should be improved (i.e., increase frequency, routes, convenient stop locations, etc.).
- **Protecting the natural environment** (especially sensitive habitats such as McIntyre Creek), minimizing disturbance to undeveloped areas, and preserving mountain/forest views. Learning facilities and trails could be located throughout
- **Experiential/outdoor learning:** mainly for science-based programming but also for other sectors such

as culinary arts and tourism/hospitality. Outdoor education to celebrate the area's unique ecology and link to College programming. Lands should be available for the broader community (including the public, tourists, local elementary and high schools, community groups)

- **Celebrating northern culture** in both indoor and outdoor spaces. Including a wide range of unique ideas including sacred spaces for reflection, healing gardens, cultural art/building facades/décor, First Nations Institute/programming, and using First Nations languages for place/building/trail names. Also integrate other cultures into the campus design to create an inclusive and welcoming atmosphere.
- **Amenities and community:** more gathering places, recreation opportunities and amenities for students, staff, residents, and broader community. Expanded day care, a small grocery store, a swimming pool, student lounge, a café, a pub, dog daycare/off leash areas, a skating rink, ski trails/huts, a nature centre, public meeting spaces/rooms, and community events to get more people out to the campus. Mentoring programs and learning opportunities for different age groups such as youth and seniors.
- **Sustainable design and renewable energy:** the College becomes a leader in northern sustainability and renewable energy. Buildings should integrate renewable energy (especially solar), take advantage of natural light, avoid sprawling development and keep new buildings close to the existing core so they are walkable.



photo: Cathie Archbould

DESIGN DECISIONS EVENT

Phase 3 - March 31, 2015

The Design Decisions event was held on March 31, 2015 in the College cafeteria. The online questionnaire was available from March 31 – April 15, 2015 for those who were unable to attend the in-person event.

Framework: The event presented the initial design ideas re: parks and open space, mobility and built form and collected feedback from participants. Approximately 80 people attended the event. The online questionnaire provided the same information and asked the same questions as the in-person event. 9 responses were received in total.

Findings: Key themes that occurred in feedback from the in-person event and questionnaire included:

- Protecting natural spaces, creeks and trails and minimizing the impact of new development
- Maintaining a visual and physical connection to nature (views, natural light)
- Ensuring buildings and transportation routes are accessible for all users (including those with disabilities), compact and well-connected (especially considering the harsh winter climate)
- Creating a pedestrian and cyclist friendly campus with well connected trails, safe streets and appropriate storage/changing facilities
- Links to the broader community (via trails, shared recreation facilities)
- Incorporating more recreation opportunities (trails, disc golf, and indoor facilities such as a gym)
- Providing student housing that is well connected and low-impact
- Emphasizing programs other than trades (such as arts, science and technology)

Participants were asked for feedback on a number of initial design ideas:

- Parks and Open Space: Strong support was shown for the pedestrian/transit mall, central courtyard, and concepts for the surrounding campus. The majority of participants also showed support for the north and south residential, trades public realm, and terraced front door, although to a lesser extent.
- Mobility: Strong support was shown for the transit loop and streetscape improvements. As in the previous phases, support for secondary access alternatives and parking options was more mixed. Some participants were strongly opposed to providing a secondary access, especially via Alaska Highway, due to the impact to natural open spaces and environmental features such as McIntyre Creek. Others felt a secondary access is essential for the College to serve the needs of current and future users.
- Built Form & Program: Very strong support was shown for green buildings, retrofitting existing buildings and district heating/energy. Support was also shown for the hub and satellite concept and program clusters although to a lesser extent.



THE WAY FORWARD

Phase 4 - June 10, 2015

The 'Way Forward' event and unveiling of the Campus Master Plan was held on June 10th at the Old Fire Hall in Whitehorse. The event was well attended by the larger Whitehorse community and represented an opportunity to engage with a wide audience. An online questionnaire was available from June 10th to June 17th for those who were unable to attend the in-person event.

Framework: The final Open House began with a presentation of the plan by the Yukon Minister of Education. In attendance were representatives from the City, Yukon Government, Campus dignitaries both past and present as well as members of the public. Afterwards, participants were invited to review display boards that summarized key elements of the draft plan and provide their feedback. The online questionnaire provided the same information and asked the same questions as the in-person event.

Findings:

Participants at the in-person event had the opportunity to provide written feedback, either through the display boards or an additional feedback form; however, we did not receive any written comments at the event. Verbal feedback at the event was generally positive with conservation groups saluting the team for the holistic approach to the environment and the Minister citing the plan's importance to the future of the Yukon.

The online questionnaire received 16 responses in total.

- The majority of comments focused on arts, culture

and heritage and strengthening connections with the Yukon Arts Centre and Yukon Archives as well as the broader community.

- Respondents suggested the design, particularly the new access road to Mountain View Drive could segregate the Yukon Arts Centre and Archives buildings from the rest of the campus, making it "boxed in" and harder for users and visitors to access and park, difficult for loading vehicles to make large deliveries, and limit the ability of these spaces to expand in the future.
- Further engagement, collaboration, and integration with the arts and culture community as well as the broader Whitehorse community to identify how to integrate these spaces in the future.
- Overall, participants supported the focus on improving pedestrian and cyclist connections and routes and minimizing disruption to the natural environment. Several participants suggested more spaces for arts and culture would be beneficial, such as work spaces or residences for local artists.

5. THE FUTURE CAMPUS

This section describes the Ayamdigut Campus Master Plan starting with the big ideas that drive it. Various layers of the concept are then presented in more detail including parks and open space, mobility and built form and programming.

5.1 The Big Ideas

Five Big Ideas capture the key direction of the Ayamdigut Campus Master Plan. These ideas are described below.



1 Transition to a University 2 Celebrate Natural Setting

The College's future designation as a University is celebrated in all aspects of the plan. First, acknowledging the new campus boundary that extends the campus presence deeply into the surrounding setting and community. Secondly, by creating buildings and open spaces that reflect a fresh and dignified identity. Beautifully landscaped courtyards offer many diverse settings for a wide range of university activity throughout the year. These spaces are shaped by the buildings embracing them, showcasing arctic ingenuity in design and performance.

The College's exceptional location surrounded by forest is a key part of its identity. To reinforce this, landscape corridors are proposed to push deep into the campus open spaces where they enhance both existing and new indoor and outdoor spaces. Views are also a key part of the Campus memory and wherever possible, buildings and open spaces tie the campus to local mountains and the Yukon Valley.



3 Reinforce the Core **4 Connect Campus + Community** **5 Create A Living Laboratory**

A key opportunity for Yukon College is to use new buildings to enliven the original core, especially introducing active common areas. The prime strategy is a new Student Centre marking the entry to Administration and the central courtyard with lounges, study areas and cafes clearly tying student life to the ‘campus heart’. Further activating this space, a proposed ‘greenhouse’ common area and fitness space additions are also proposed within the courtyard. This active hub becomes the focus for the expanding campus.

Reinforcing the public realm network around and through the campus will strengthen the relationship between the campus and the larger community. This starts with the TransCanada Trail and the proposed Learning + Culture Trail and extends to the many open spaces within the campus. A gently terraced courtyard at the gateway to the campus welcomes visitors as they arrive on College Drive. Multiple opportunities to reflect the unique cultural spirit and the people of this arctic campus are key to place-making whether through art, building design or special places supporting cultural activity.

Drawing on the College’s mission and reputation for northern research, the plan seeks multiple ways to embed this: in buildings demonstrating cold climate innovations, in renewable energy systems like geothermal heating and in ‘satellite’ learning spaces located to directly access the local environment, a key component of the College’s natural sciences and environmental programs.

5.2 Parks + Open Space

Intent: Provide a variety of open space uses on campus while minimizing disturbance of adjacent natural areas, referencing local ecologies in landscape features and taking maximum advantage of views.

The open space plan integrates the campus with its surrounding ecological context by emphasizing important views, maintaining existing vegetation, and bringing nature into the core campus. A Learning and Culture Trail winds through the forest providing access to various habitat types, the Fish Hatchery and satellite elements along its way. Public art is placed at key locations to showcase local artists and tie back to the sculpture garden, the Yukon Arts Centre and the site's rich First Nations and cultural history.

A connected network of greenways, trails and sidewalks support walking, cycling, skiing and showshoeing on campus. The use of site-adapted local plant material reduces the need for irrigation and fertilization and provides habitat and foraging for local fauna. Retention and use of forest areas for education, research and recreation preserves healthy ecosystems and the services they provide. The forest provides provisioning services (food, water, medicines), regulating services (air quality, moderation of extreme events, erosion prevention, maintenance of soil fertility, pollination) habitat services (maintenance of life cycles, genetic diversity) and cultural services (recreation and tourism, inspiration for art, spiritual experience).

Creation of social spaces allows for collaboration across departments and disciplines increasing the potential for sharing of ideas and learning. A proposed research gallery at the Gateway landscape allows for sharing of faculty and student research with site users. The placement of small housing units and satellite elements in a forest setting gives students an opportunity to learn from and experience a northern landscape.

5.2.1 Big Ideas

1. HIERARCHY OF TRAILS

The campus is surrounded by an extensive network of connected trails varying in character and use, including the TransCanada Trail. The open space plan for the campus connects to the existing trail system and proposes enhancements to it.

Learning + Culture Trail

With connections to the Trans Canada Trail and existing forest trails, the Learning and Culture Trail is seen as both a teaching tool for faculty and students as well as an attraction for visitors to campus.

Campus Circulation

An integrated network of vehicular and pedestrian / cycle circulation services the campus supporting a pedestrian focused campus core. A major transit node is located at the Campus Greenway with strong linkages to the Trans Canada Trail and forest trail system.

Commuter Trails

The open space plan builds upon an already existing system of commuter trails. These extend from Range Road to campus to the Alaska Highway and are well used, even in winter months. Proposed additional commuter trails flank existing major roads Range Road and College Drive and proposed roads to the north and south of the campus.

2. INTEGRATION OF NATURAL ENVIRONMENT

The over arching design concept for the open space plan is to extend the surrounding landscape into the campus to create rich streetscapes and meaningful social spaces. Fingers of surrounding forest are found along pedestrian routes, the Campus Greenway, and through the Gateway landscape in an extension and celebration of the northern landscape.

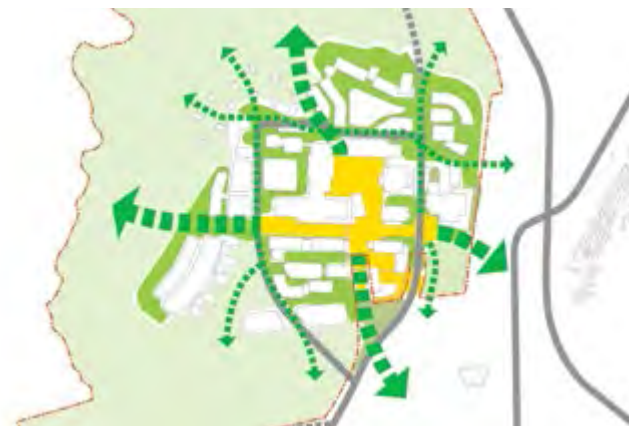


Figure 19 - Green fingers concept

3. PUBLIC REALM ARRIVAL SEQUENCE

The public realm arrival sequence consists of three main elements: the Terraced Gateway, Transit Mall, and Central Courtyard. These spaces work together to create a strong sense of arrival and ceremony as one approaches the campus core.

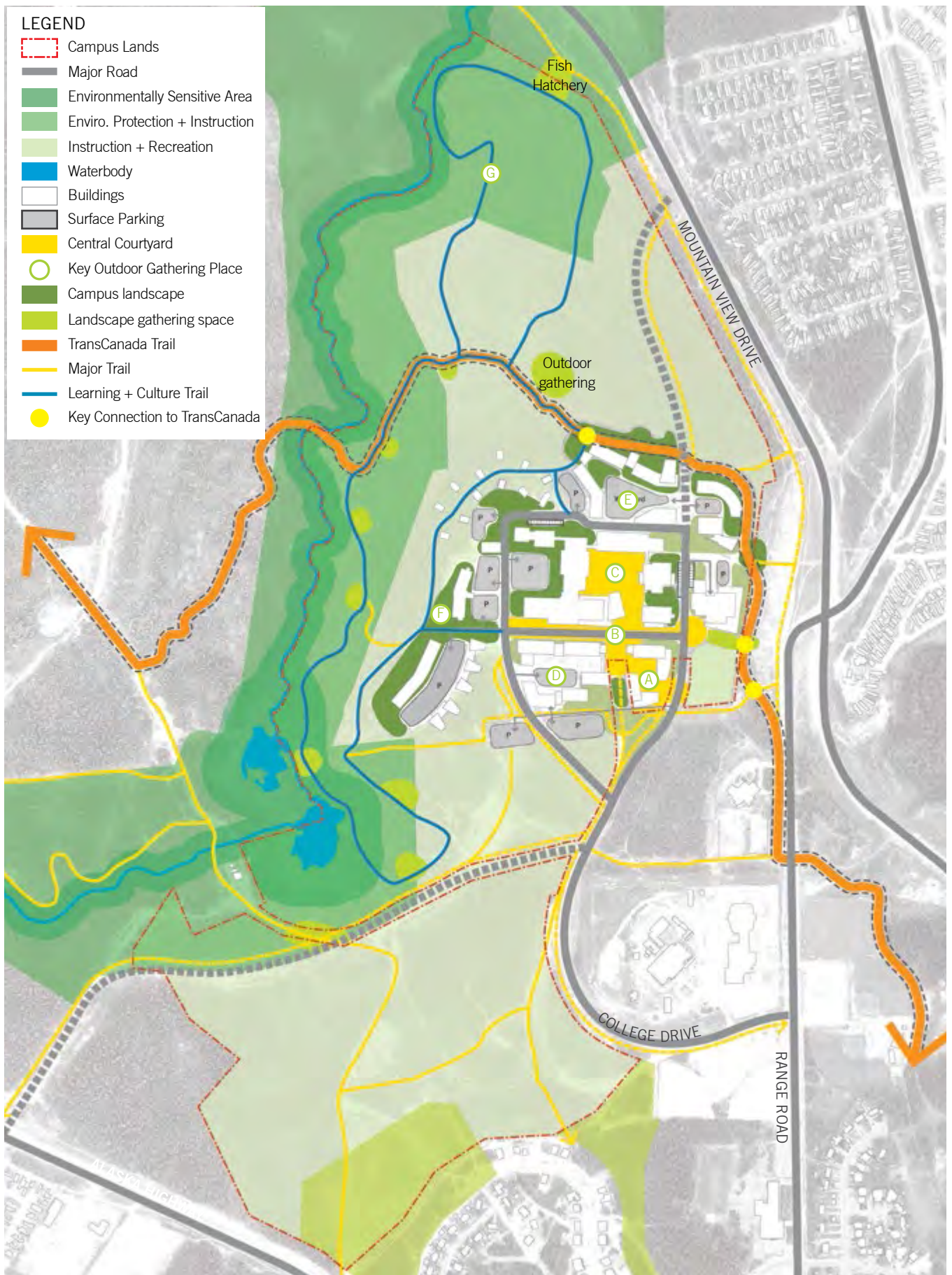
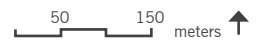
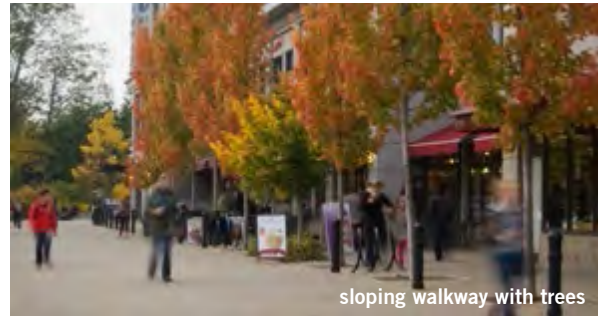


Figure 20 - Overall Public Realm Plan



5.2.2 Terraced Gateway (A)

With great views to the Yukon River and mountains beyond, this terraced landscape creates places for people to gather. Seating is located adjacent to buildings to take advantage of favourable micro-climates. Planting features local vegetation, bringing the surrounding landscape character in to the Gateway. A Research Gallery showcases the work of students and faculty while a large work of First Nations art marks the entrance to campus. Parking is accessed from a new road at the Hydro right of way. A pedestrian path travels through in informal landscape leading from College Drive to the Pedestrian/Transit Mall. A large crosswalk connects the Gateway to the Campus Core helping to create a landscape that is safe and pleasant for pedestrians.



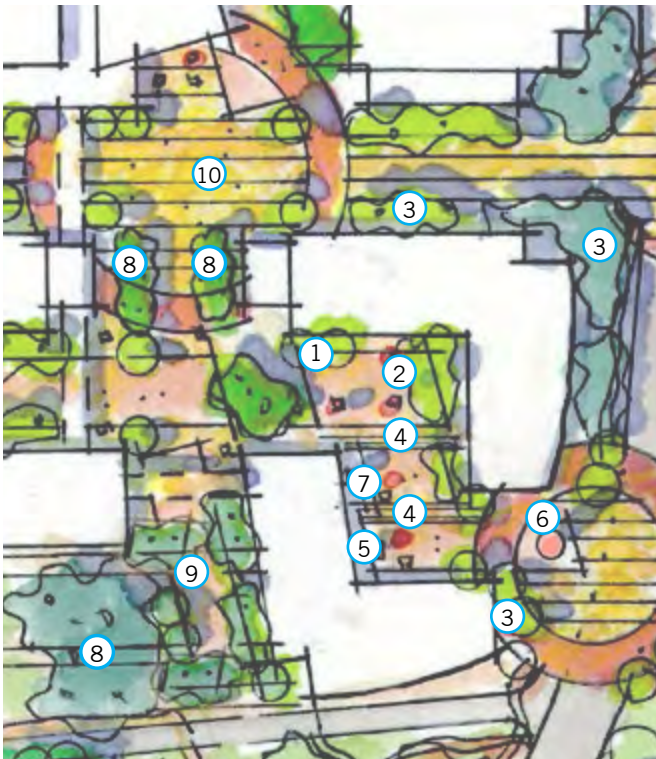
sloping walkway with trees



research gallery precedent



informal seating



LEGEND - LANDSCAPE ELEMENTS

- ① Lookout with Mountain Views
- ② Retail Seating
- ③ Forest Inspired Planting Using Local Plants
- ④ Seat Stair and Terrace
- ⑤ Research Gallery
- ⑥ First Nations Art as Campus Landmark
- ⑦ Informal Seating
- ⑧ Retained Existing Trees
- ⑨ Major Bike/Pedestrian Pathway
- ⑩ Crosswalk

5.2.3 Transit Mall (B)

The Pedestrian / Transit Mall is a highly pedestrian-friendly, traffic-calmed street knitting together the existing campus buildings with future development to the south. Informal groupings of local plants and trees line the mall contributing to its informal character and bringing the forest character in to site. Benches provide seating opportunities for those waiting for the bus, a ride or meeting friends. An existing double row of trees frames the south side of a major crosswalk which connects the Gateway to the Central Courtyard to the north.

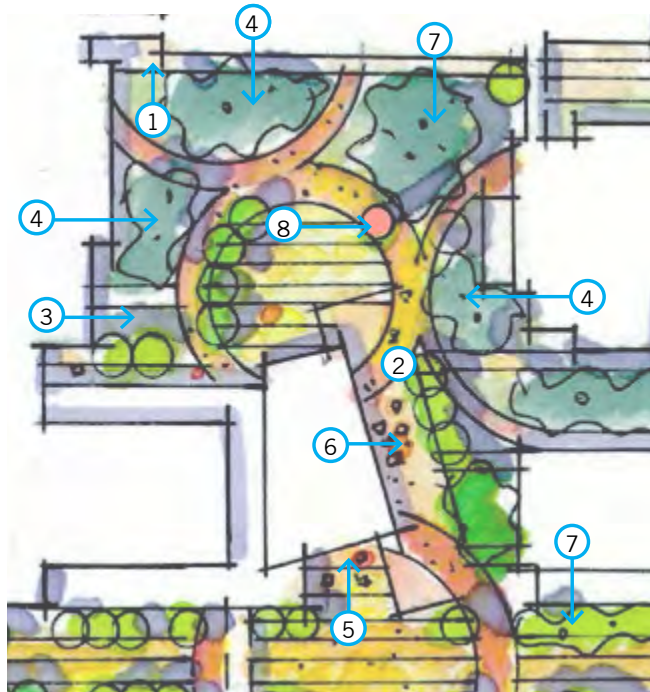
LEGEND - LANDSCAPE ELEMENTS

- ① Forest Inspired Planting Featuring Local Plants
- ② Informal Seating
- ③ Bus Shelter Location
- ④ Pedestrian Crossing / Special Paving
- ⑤ Bike Locker Location
- ⑥ Retained Existing Trees



5.2.4 Central Courtyard (C)

A redesigned central courtyard creates a gathering space that is sheltered from the southerly winds, connected strongly to indoor spaces and active year-round. A plaza area can be used for events or arts displays in summer months and converted to a skating rink in the winter. Existing mature trees are retained and new, additional plantings consist of local plants. A teaching greenhouse is proposed at the northwest corner of the courtyard adjacent to the student union building and will be a place where students and faculty can take a break from winter and enjoy humid air and lush greenery. Outdoor terrace space is provided at the Native Language Centre creating an opportunity to be cultural learning outdoors. A major work of public art is proposed for the courtyard.



LEGEND - LANDSCAPE ELEMENTS

- ① Teaching Greenhouse
- ② Event Space: Carving, Seasonal Ice Rink
- ③ Terrace at Native Language Centre
- ④ Local Forest Inspired Planting
- ⑤ Outdoor Seating
- ⑥ Formal Outdoor Seating
- ⑦ Retained Existing Trees
- ⑧ Public Art



5.2.5 Academic Courtyard (D)

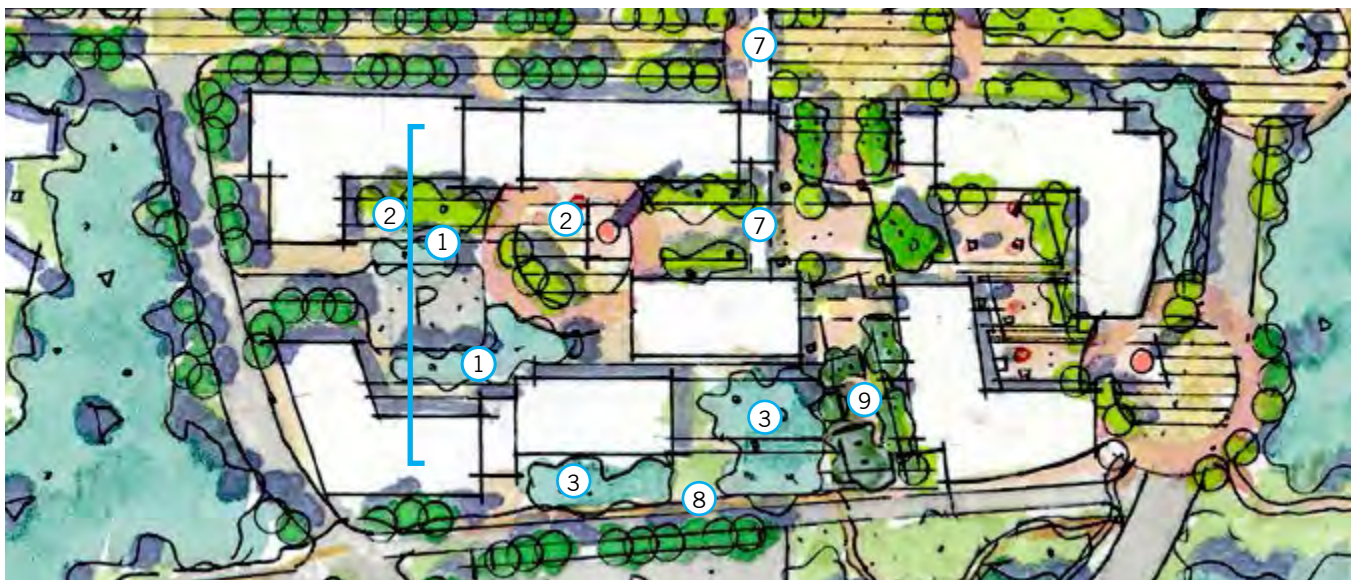
As Yukon College transitions to a University at the forefront of cold climate innovation and research, the Academic Courtyard will serve to showcase best practices in research and sustainability. Plantings will showcase disease resistant, low water use local plants that provide food and habitat for birds and insects. Siting planting adjacent to active outdoor spaces gives students the opportunity to engage with the natural environment. Surface run off is allowed to percolate on site through terraced storm water features. Certain areas of the courtyard could be made available for research projects, monitoring of landscape performance, storm water quality or displays of student and faculty work.

Social spaces are oriented to take advantage of microclimates and southern solar exposure. A major outdoor terrace creates the opportunity to bring classes and research outdoors. Public art is intended to animate the courtyard and could perform a role in celebrating innovation and learning.

Below grade parking is located at the southern portion of the courtyard. This minimizes the amount of the site area required to accommodate cars, while at the same time providing covered parking for staff and students. Generous plantings are planned for the edges of surface parking to maximize shading, and reduce the heat island effect.

LEGEND - LANDSCAPE ELEMENTS

- ① Planting Using Local Plants
- ② Outdoor Seating
- ③ Minimize Removal of Vegetation
- ④ Surface Parking
- ⑤ Underground Parking
- ⑥ Pedestrian Lighting
- ⑦ Protected Pedestrian Walkway
- ⑧ East-West Trail Connection
- ⑨ Main Bike/Pedestrian Entrance



5.2.6 Trades Workyard (E)

This is an opportunity to view the interesting activities taking place in this precinct by showcasing student work out of doors and providing space for social interaction. The workyard is more than a story below the main road on campus, creating an outlook where the day to day activities of students will be visible to others on campus. Interior social spaces are reinforced with open space nodes which will accommodate displays of student work and satellite elements along the Trans Canada Trail to the north.



LEGEND - LANDSCAPE ELEMENTS

- ① Potential Satellite Element
- ② Student Research Display
- ③ Trades Work Yard
- ④ Lookout with Views into Works Yard
- ⑤ Social Space at Building Node
- ⑥ Local Forest Inspired Planting

5.2.7 Community Gathering (F)

Sensitively placing buildings in the existing forest provides residents with the experience of living in a cabin in a northern forest. Informal social spaces reinforce the forest character and may include a fire pit, or additional student community garden plots. Care is to be taken to minimize disturbance to existing vegetation. The Learning and Culture Trail connects to the campus trail system and winds it way through the cabins before connecting to the TransCanada Trail and the forest beyond. Introducing social spaces between existing buildings will provide residents with increased amenity, while bringing forest character into the parking area will create a strong connection to the surrounding landscape and improve the pedestrian experience.



fire pit



forest cabin



childrens play area

LEGEND - LANDSCAPE ELEMENTS

- ① Forest Inspired Planting Using Local Plants
- ② Connect to Trail System
- ③ Minimize Disturbance to Existing Forest
- ④ Additional Community Garden Plots
- ⑤ Learning and Culture Trail
- ⑥ Lookout with Views to Golden Horn
- ⑦ Pedestrian Crossing
- ⑧ Social Space with Play Elements
- ⑨ Cultural Sculpture Element
- ⑩ Meadow Planting Using Local Plants

5.2.8 Research + Recreation (G)

Research and recreation programs take advantage of the spectacular setting by placing programs in the surrounding area that require minimal disturbance and allow users to experience the unique ecology and history of this place. Program elements include a Learning and Culture Trail that winds through the campus lands, an Ecological Centre overlooking the wetland at the lakes and a multi-use meadow at a clearing near the Trades building. Satellite elements are also located in the forest and will create interesting and changing opportunities for the display of art, performing research and recreation in a spectacular setting.



① Learning and Culture Trail: connects to environmental areas, the fish hatchery and riparian area as well as historical interpretive sites.



② Ecological Centre: a small scale building celebrating the ecology of this site for teaching students and engaging the community.



③ Forest Gathering: a community space for outdoor gatherings in all seasons. Potential uses include festivals and informal sports events.

5.3 Mobility

Intent: Create a people oriented campus that is easy and comfortable to traverse by foot, bike, skis or transit.

The Mobility Diagram (Figure 22) illustrates recommended circulation routes across campus, a sequence of gateways as one arrives on campus, and the location and type of parking.

5.3.1. Transit Loop

Reconfigure the traffic circulation to create a transit loop that drops passengers off at the new Student Centre and picks them up closer to the Seniors Residence. If a secondary access is provided from Mountain View Drive, transit could use this new route to gain access to the campus. A transit stop located closer to the Advanced Skills + Technology precinct would provide better transit access for students.

Transit shelters should be integrated with buildings where possible to provide safe and comfortable environments for transit users, particularly during cold winter months.



Figure 21 - Transit loop

5.3.2. Secondary Access

The Ayamdigut campus is currently served by a single vehicle access along College Drive. This single access point could represent a health and safety concern as access to and from the campus is limited in a emergency situation. As the campus grows, this single access could also become increasingly congested, particularly during special events.

Two options to provide secondary access to the campus are described below.

Alaska Highway

The College has been considering developing a secondary access to the campus from Alaska Hwy for many years. This option would provide access to the commercial properties on Alaska Highway and provide a new gateway to the campus.

Opportunities include:

- Direct access to the highway
- Better access to potential development areas (commercial adjacent to the Highway and residential on College Drive)
- Partially located on an existing service road

Challenges include:

- Longer route (1,100m)
- Adjacent to environmentally sensitive areas
- Higher cost

Mountain View Drive

Providing secondary access to the campus from Mountain View Drive would improve access to new residential development to the north and would provide a more efficient transit/bike route to the campus.

Opportunities include:

- Shorter route (650m) and lower cost to construct
- Better access (including transit) to Porter Creek and WhistleBend

Challenges include:

- Adjacent to environmentally sensitive areas
- More clearing of existing vegetation required
- Significant regrading

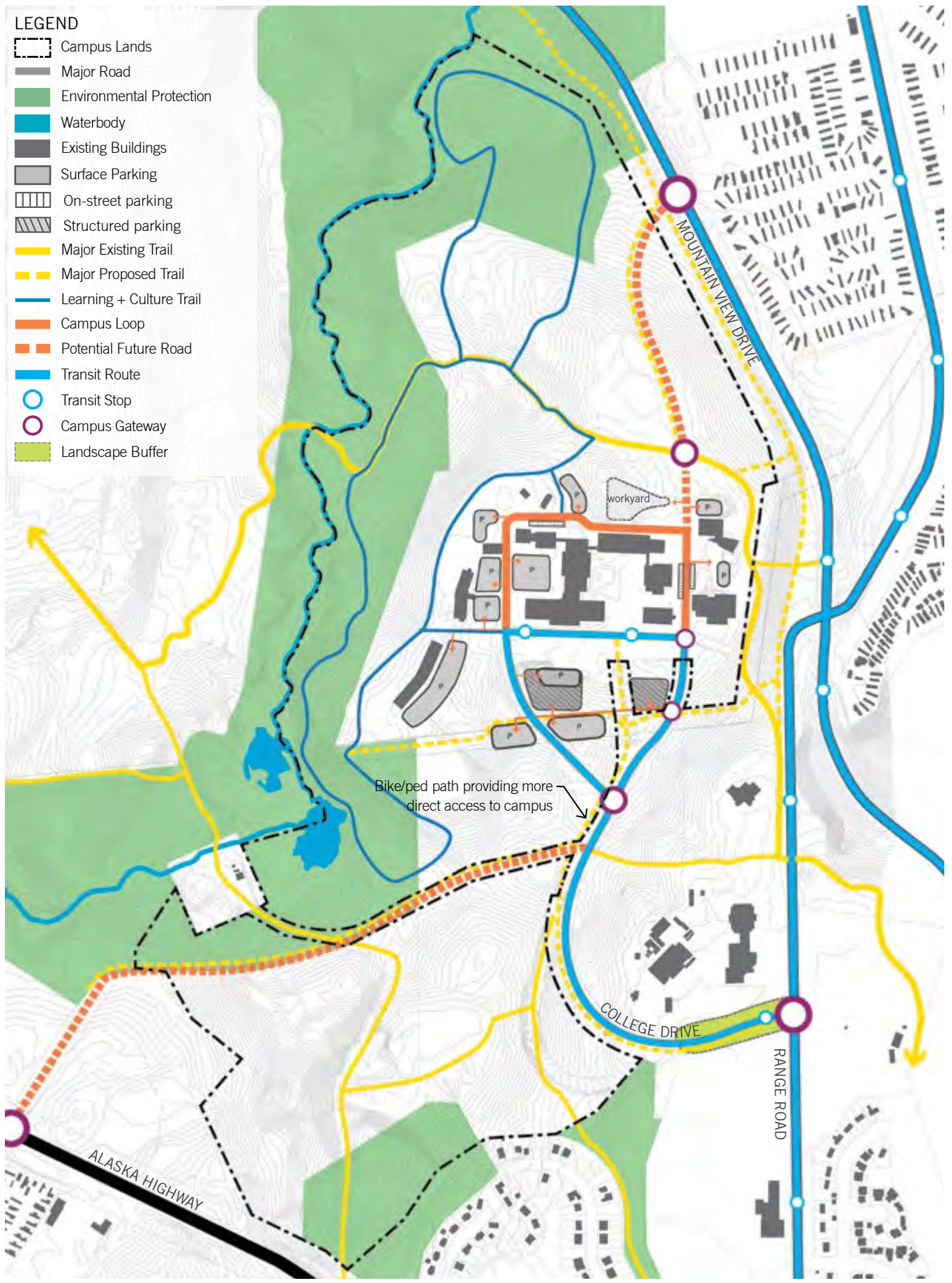


Figure 22 - Overall Mobility Plan

5.3.3. PARKING

One of the identified long term visions of the Ayamdigut Campus Master Plan is to reduce the rate of personal vehicle trips to campus and therefore the overall ratio of parking spaces to campus users. In order to facilitate this reduction, the campus plan will increase building density, decrease surface parking lot size and create an environment more conducive to walking, cycling and transit. Campus development will address transit service improvements, a key component in reducing personal vehicle trips and parking space. The following goals were addressed in relation to parking and transportation:

- Reduce the ratio of parking stalls to campus users
- Reduce personal vehicle trips to campus
- Reduce surface area parking
- Increase building accessibility
- Improve transit access
- Increase alternative transportation/transit use
- Address ill-defined parking areas

Currently, the majority of Yukon College is served by surface level parking lots. These lots are generally located close to the main education and residence buildings and provide easy access for campus users with personal vehicles. Many are located in areas proposed for new building construction and the parking spaces lost due to new development will be required to be reallocated. The remaining parking on campus consists of 90 degree street parking stalls at various points on the campus ring road. These parking stalls are generally used by staff of the Yukon Archives, Arts Centre or College and will not be significantly impacted by new development. Some of the parking areas on campus are currently unorganized and will be addressed in the development process by refurbishing, relocating or eliminating.



Figure 23 - Existing surface parking on campus

Analysis

Two options were explored for analyzing current and future parking needs on the Ayamdigut campus. These two options are a way to measure the state of campus parking and establish targets for the years 2023, 2031 and 2039. Table 3 outlines current estimated parking areas on campus, their size and number of stalls.

Table 3 - Current Parking Data

Area Description	# of stalls	Parking Area (m ²)
A - Arts Centre & Archives	100	3,600
B - South Campus Building A	120	4,850
B1 - Unorganized Parking South Campus Building A	36	1,300
C – Senior’s Complex	64	4,800
D - Residence	37	2,600
E - Main Entrance	155	6,250
F - Art Centre and College Staff Parking	62	1,920
Total*	574	25,320

Option 1

The first option compares the number of parking stalls on campus to full time equivalent (FTE) students (a common indicator for campus parking assessments).

- Yukon College currently has 0.64 total parking spaces to FTE students.
- The average ratio of several British Columbia Colleges and Universities of similar size and/or in rural locations was 0.29.
- The University of Northern British Columbia (UNBC) is targeting 0.5 in their 2012 Master Plan. UNBC’s campus is situated in a similar northern context, outside of the city core. Therefore it may be reasonable to compare the Yukon College to UNBC for planning purposes as there are similarities between the two campuses.

We chose to set a reduction target between the average ratio of the institutions researched and UNBC to account for the impact of the community uses on campus (particularly the Yukon Arts Centre). This target should be phased over time to allow the College to implement TDM strategies (Table 4).

Table 4 - Parking Requirements Option 1

Year	FTE Students	Target Ratio of FTE to Parkings Stalls	Parking Stalls Required
2015	800	0.64	512
2023	1149	0.50	575
2031	1498	0.45	680
2039	1847	0.40	900

Option 2

The second option compares the size and use of the campus buildings to the City of Whitehorse Zoning Bylaw. Although the bylaw may not have to be strictly followed for campus development it provides a reasonable point of reference for parking considerations. The Bylaw would determine the minimum parking requirements for the campus, a future reduction target could be set as a percentage below the minimum requirement. Table 5 outlines the current requirements and projected targets based on the City of Whitehorse Bylaw.

Table 5 - Parking Requirements Option 2

	Yukon Archives	Yukon Arts Centre	College Buildings	Total
Bylaw	'Library + Museums' 2 spaces per 100 m ² gross floor area	'Spectator Entertnmt' 1 space per 5 seats	'College' 10 spaces per classroom	
2015	Area: 1,800 m ² Stalls: 36	Seats: 430 Stalls: 86	Class: 40 Stalls 400	522
2023	Area: 1,800 m ² Stalls: 36	Seats: 430 Stalls: 86	Class: 52 Stalls: 520	642
2031	Area: 2,000 m ² Stalls: 40	Seats: 430 Stalls: 86	Class: 63 Stalls: 630	756
2039	Area: 2,000 m ² Stalls: 40	Seats: 430 Stalls: 86		876

* Existing and future classrooms were estimated based on Yukon College floorplans

Based on the above analysis of the City of Whitehorse bylaw, applying a reduction factor to the future parking targets would allow time for transit operations and campus accessibility to improve, and encourage a reduction of personal vehicle trips to campus. A reduction of 10% may be a reasonable goal to set. This would result in approximately 788 stalls required in 2039

Comparison

The FTE student to parking space ratio would require fewer number of total parking stalls in the final build out in comparison against the City of Whitehorse Bylaw. Both analyses determine that for any new construction, parking spaces that are eliminated would be required to be replaced along with the addition of parking spaces to account for the expansion of campus and the student population.

Currently the Yukon College has approximately 574 parking stalls accounting for 25,320 m² of space including aisles, lanes, and landscaping. This is approximately one stall per 44 m². Based on the City of Whitehorse Bylaw, the minimum standard calculated for 90 degree parking stalls, including aisles, walkways and landscaped boulevards, is approximately 35 m² per stall. However, this space allotment does not allow much flexibility for parking layout and would only be achievable in large rectangular lots. We therefore recommend using a space allotment of 40 m² per parking stall. The Yukon College Master Plan has proposed 31,500 m² of parking space in the full build out layout. The parking will be a mix of structured and surface parking. Assuming a parking density of one space per 40m², this would amount to 788 parking stalls for the future build out, including the 24 stalls required for the senior's complex. Parking lot size constraints and additional landscaping considerations, in the future may reduce this number further. Table 6 compares the results of the analysis.

Table 6 - Parking Comparison Table

	Planned Parking Stalls	Required Stalls (option 1)	Required Stalls (option 2)
2015	512	512	522
2023	572	575	578
2031	681	674	680
2039	788	763	900

Phasing

Phasing of the construction build out process will be critical in addressing parking needs for the planning horizon; the two analysis options would be used as guidelines for minimum requirements during the build out period. The College may end up with parking shortfall in the development years due to new construction eliminating existing parking areas. The analyses vary the most in the later stages of the planning horizon; therefore some flexibility exists for accommodating future parking. If the more aggressive reduction targets are used, and transit and alternative transportation networks are improved, the areas identified on the Master Plan could accommodate future parking needs.

The long term vision of the Yukon College is to reduce the number of vehicle generated trips to campus and the ratio of parking stalls required for campus users.

However, in the short term, the majority of parking on the Yukon College campus will remain as surface lots. As the campus grows and buildings are constructed on existing surface parking lots, the lost parking area will have to be accommodated elsewhere. The goal is not to replace these spaces with equivalent surface parking, but to incorporate structured parking, smaller surface parking lots and encourage alternative transportation. Improved transit services and alternative transportation networks will be important to facilitate a smooth transition in the reduction of parking availability.

Surface Parking

We envision a reduction in the area of surface parking lots as the campus develops. Surface parking lots should be reduced in size and constructed adjacent to new buildings to provide accessible parking, staff parking



Figure 24 - Buildings + Parking Phase 1



Figure 25 - Buildings + Parking Phase 2

and limited student parking. Some larger lots could remain in place to accommodate student parking.

On-street Parking

On-street parking areas are generally used by staff and will not be significantly affected by new construction. New street parking stalls could be incorporated near new buildings as they are constructed to provide accessible parking stalls and parking stalls for new staff members.

Structured Parking

No structured parking currently exists on campus but future expansion would warrant the use. Proposed new buildings on the south side of campus could take advantage of the natural slope in the area by

constructing ground floor parking, accessed from the south, while having access to the campus at ground level on the north side. Multi-story structured parking buildings are another solution to consider; this type of structure would increase parking density on campus and could account for a significant number of the parking stalls required.

Class D Costing

Surface parking lots and street parking stalls are the simplest and cheapest options for parking in terms of design and construction. It is estimated that surface and street parking could be constructed at an estimated cost of \$1,500 - \$2,500 per stall.

But, these two options alone do not align with the long term vision of Yukon College. As the campus expands and current surface parking spaces are eliminated, pushing parking further to the perimeter will become a recurring and increasing cost. Structured parking incorporated into new buildings is an opportunity to increase density and provide functional parking at a reasonable price. It is estimated that heated structured parking would cost approximately \$15,000 - \$25,000 per stall.

Some of the costs associated with parking construction and maintenance could be recovered with the introduction of parking fees.



Figure 26 - Buildings + Parking Phase 3

5.3.4. STREETScape IMPROVEMENTS

Streetscape Improvements: Design streets to be safer, more comfortable and attractive for pedestrians and cyclists. The sections below show potential street designs that balance vehicle access, parking, pedestrians, bicycles and transit.

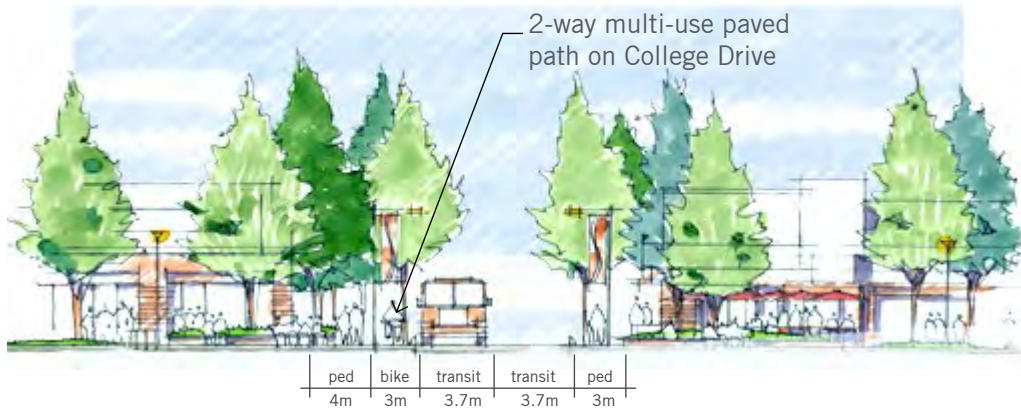


Figure 27 - Transit/Pedestrian Street

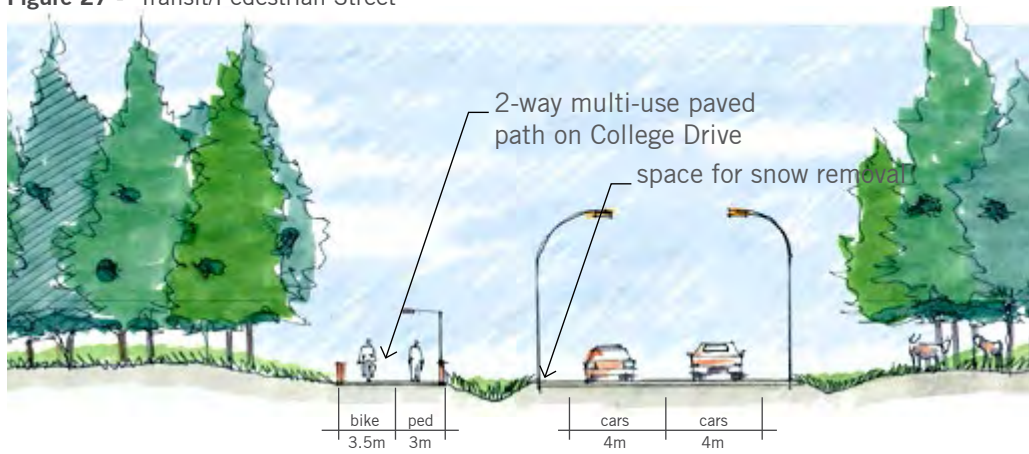


Figure 28 - College Drive



Figure 29 - Campus Loop (90 degree parking adjacent to the Yukon Arts Centre)

5.4 Land Use

Intent: Site, design and program buildings to support campus life, reflect the new university status and showcase northern priorities and innovation

Culture, learning, and sustainability are expressed throughout the campus with an integrated approach to land use that focuses activity, maximizes interaction, provides a range of experiences for students, faculty, staff, and the community, and protects the natural environment. More intensive uses are focused within the campus core to build a sense of community while also protecting the natural environment. Natural areas are reserved for low impact eco-structures, instructional spaces and low impact recreational activities.

Housing: This plan supports expansion of the residential housing precinct at the western edge of the core campus. This area allows for diverse housing types such as dorm-style student housing, fourplex units with shared kitchen and common space and small scale eco-cabins in the forest. The design, construction and operation of these eco-cabins could be associated with the sustainability research currently being conducted through the Yukon Research Centre.

The residential area is knit together by a strong public realm including trails, pathways, and gathering spaces. Amenities in this area include a daycare, community gardens and play areas. As the campus grows, opportunities for cafe/retail uses can be expanded on campus. These uses will be focused on the Transit Mall as well as building off of the existing cafeteria to the north of the C-Wing. Figure 30 also illustrates opportunities to bring food/retail uses closer to residential uses to help support campus life.

Research, Academics + Instruction: Classroom improvements and expansion will be achieved through a combination of renovation and new construction within the core campus area. The deployment of programs within the core campus is described in more detail in Section 5.6 but generally speaking it includes teaching and research labs, classroom space, faculty offices and administration, shop space, student services, learning commons, continuing education and both informal and formal gathering spaces. It also includes the Yukon Research Centre (YRC). The YRC should continue to have a strong presence on campus and reinforce the College's leadership in cold climate research and sustainability.

Focusing these uses within the campus core will focus activity and create a more integrated campus community. The increased pedestrian activity will enliven the campus environment and diminish the sense of separation between residential, campus and community uses.

Community and campus uses overlap in the 'Welcome Block' at the main entrance to the Ayamdigut campus. This area could include a new First Nations Institute, conference centre, exhibition/theatre space as well as community-facing teaching and research space.

Community Uses: The Ayamdigut campus is home to a number of existing community uses including the Yukon Arts Centre and the Yukon Archives. These uses should continue to be integrated into the life and activity of the campus. This can be done through expansion of College programs, retrofit of the existing buildings and the construction of new buildings.

To strengthen the physical and programmatic connections between the Ayamdigut campus and the larger community, community uses are encouraged throughout the campus and focused in a designed 'Welcome Block' where community, student life and academic/research uses overlap to create a vibrant mix of users and activities that bring campus and community together. The 'Welcome Block' represents a unique opportunity for new buildings that integrate campus and community uses within the same building. This could include a future First Nations Institute, conference/exhibition space, continuing education and gathering spaces.

Future Growth Areas/Opportunities: Two potential growth areas have been identified to the south of the core campus. The area fronting onto the Alaska Highway would be suitable for commercial development, partnerships with local industry/business and research. With the construction of a secondary access from Alaska Highway, this area represents an opportunity to create a new front door to the campus.

Outdoor Instruction + Recreation: The forested areas surrounding the core campus will continue to be used for outdoor instruction and recreation. The Kit of Parts described in Section 5.7 illustrates ways to formalize these uses in an environmentally and culturally sensitive way.

Environmental Protection: The area adjacent to McIntyre Creek has been designated for Environmental Protection by the City of Whitehorse. This plan retains that designation with the understanding that this area will continue to be important for low impact instructional/recreation activities and could include an Eco-Centre bringing science programs together with First Nations/community uses next to McIntyre Creek.

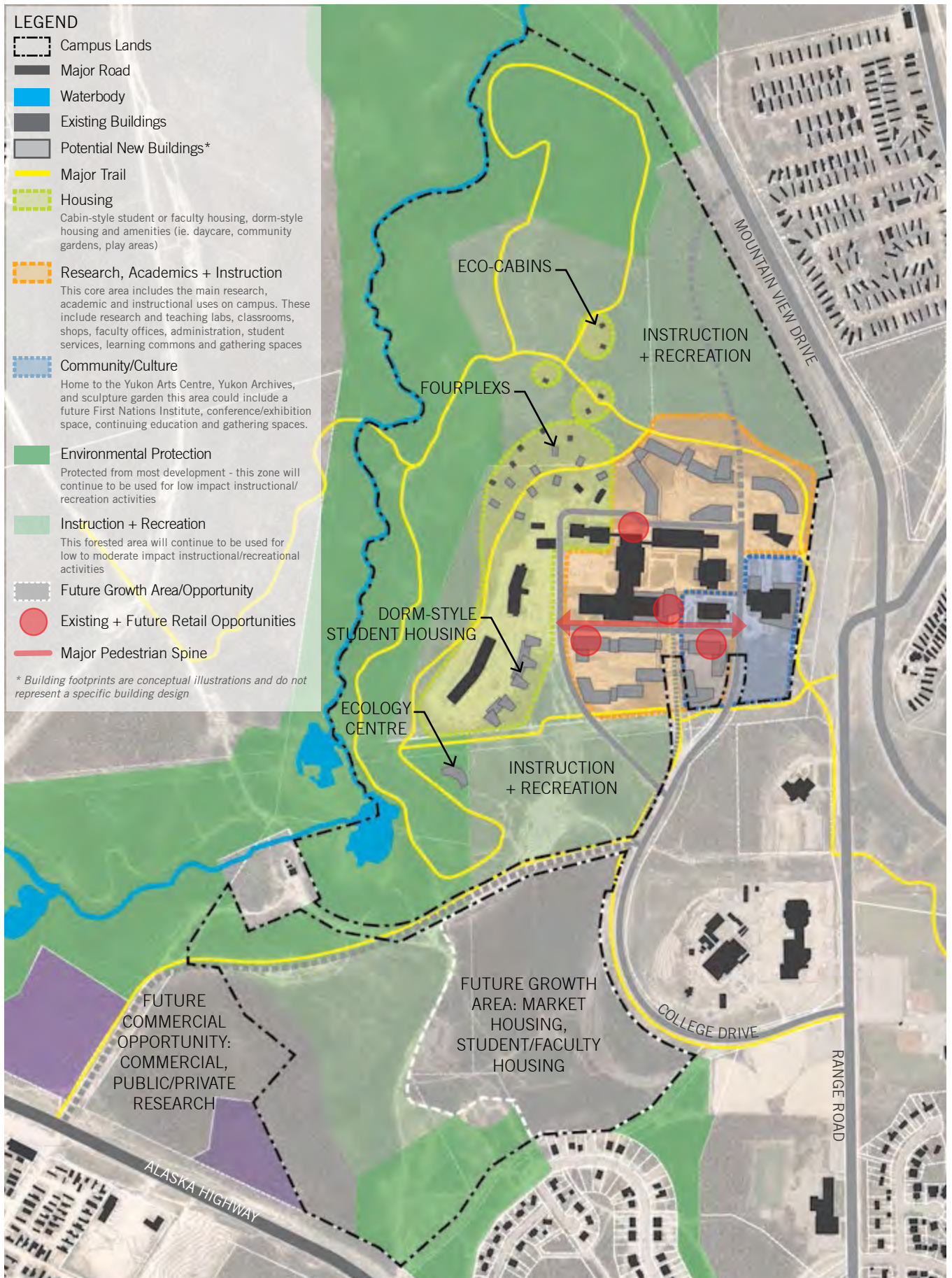


Figure 30 - Overall Land Use Plan: illustrates the overall development areas on campus designated by primary use

50 150 meters ↑

5.5 Built Form + Programming

Intent: Site, design and program buildings to support campus life, reflect the new university status and showcase northern priorities and innovation

The built form and programming diagram (Figure 31) illustrates the deployment of projected future growth based on the campus needs assessment undertaken as part of this planning process (Section 2). Building footprints are conceptual in nature but illustrate a general approach to new development based on the following principles:

- Focus activity along the east-west Transit Mall;
- Cluster compatible programs within 'character areas' to take advantage of location synergies and reinforce a strong sense of place;
- Ensure integration of different disciplines with shared indoor and outdoor common spaces; and
- Integrate sensitively with the natural environment.

More detail on the precincts described below can be found in Section 6.1: Design Guidelines.

1. Welcome Block

The Welcome Block is where housing, campus and community uses come together to create a vibrant, mixed-use gateway to the new Yukon College campus. The scale and quality of the architecture in this block should reflect the highest aspirations of the College as it transitions to a university. It will showcase its core research and academic areas and include conferencing space, a First Nations Institute and a dignified public realm that speaks to the image of a progressive northern institution.

2. Academic + Research

Academic and research uses are celebrated throughout the campus and focused within the Academic + Research precinct. This new precinct will reinforce activity along the Transit Mall and provide dedicated space for traditional classrooms and lecture space as well as teaching and research labs. Diverse disciplines can be brought together through their co-location in this precinct and shared gathering spaces will provide opportunities for collaboration and cross-pollination.

3. Housing

As described above the housing precinct expands the student and faculty housing opportunities to create the critical mass necessary for a vibrant campus community. A range of housing types are provided including opportunities for eco-cabins that can be

designed, constructed, operated and studied as part of a sustainable construction/research program similar to the one underway at Alaska Fairbanks.

As the population living on campus increases, opportunities for additional amenities such as expanded daycare, doggy daycare, indoor and outdoor gathering spaces and commercial/retail spaces improve. These uses are situated in key locations to knit the campus and community together in a meaningful way.

4. Student Services

A new student centre in the heart of the campus will provide critical student support and gathering spaces for the College as it transitions to a university. This precinct would include expanded food services, a bookstore, student union space and lounge space. It could include a building integrated transit shelter to provide a comfortable place for people to wait for buses during the cold winter months.

5. Community + Culture

The Community and Culture precinct includes several existing and future community and cultural uses. The Yukon Arts Centre includes a performing arts centre, art gallery, rehearsal spaces, collections storage and an outdoor sculpture garden. Also within the precinct is the Yukon Archives, a high level repository for the Yukon's archival material and heritage resources.

6. Advanced Skills + Technology

The Advanced Skills and Technology precinct is a hands-on education hub including training in a wide range of construction and resource-related industries. The configuration of the buildings allows for large outdoor work spaces and maneuvering for large equipment. This workyard space is framed by buildings and pedestrian walkways that create opportunities to view the inner workings of these programs.

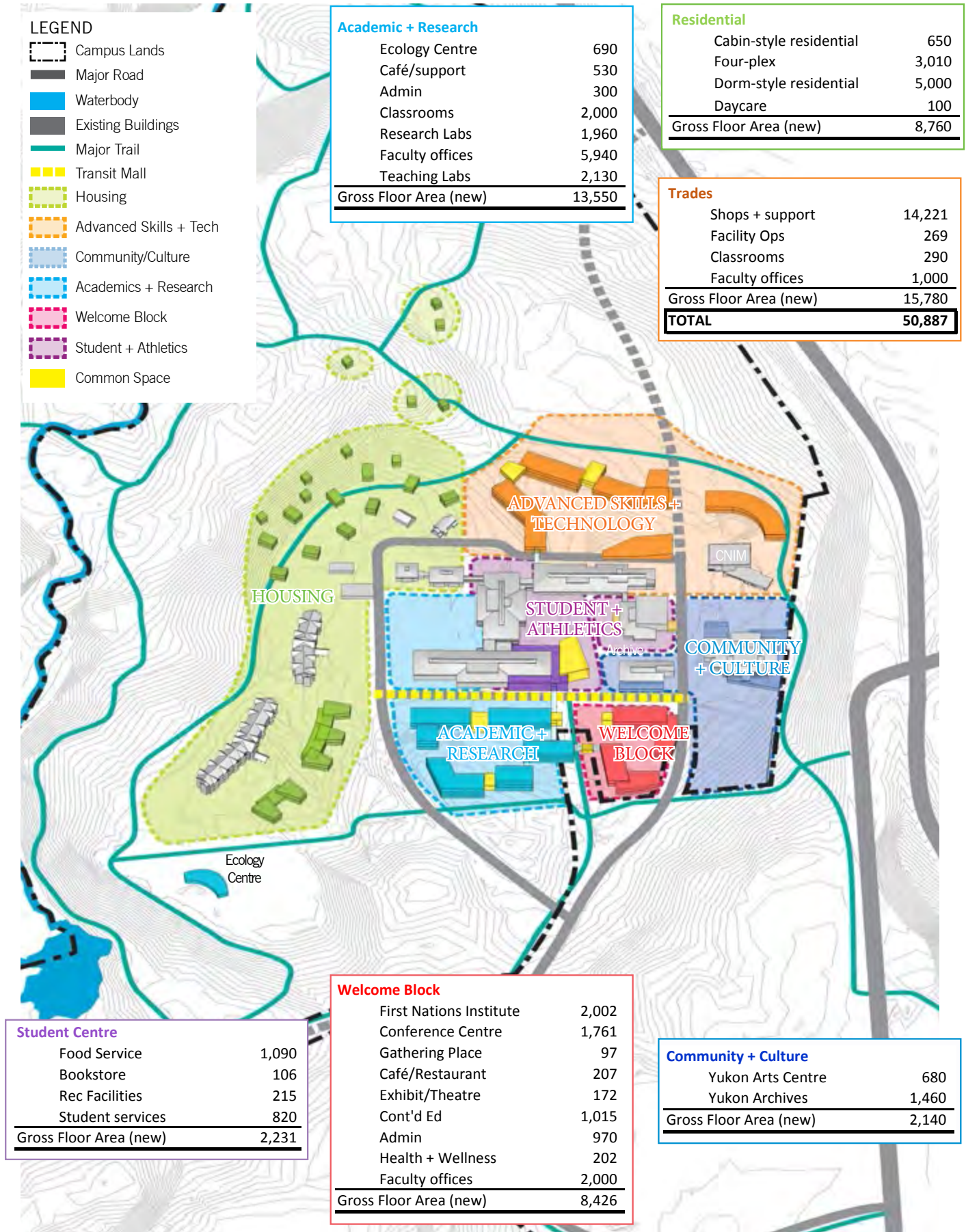
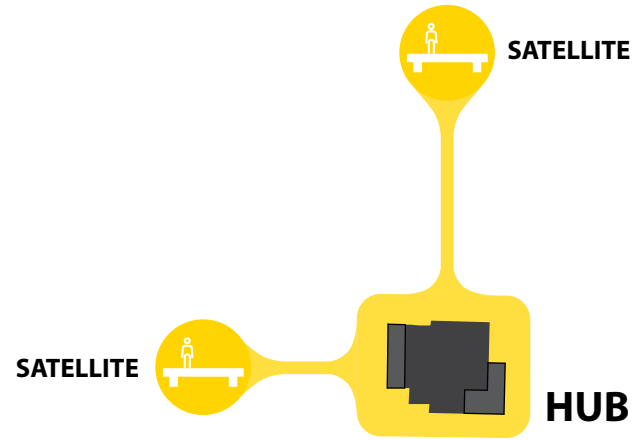


Figure 31 - Built Form + Programming Diagram

5.6 Hub and Satellite

The Hub and Satellite concept acknowledges the desire to permeate the campus and surrounding endowment lands with layers of education, art, culture, research and activities. Through a campus “kit of parts”, a precinct “hub” is able to populate the broader campus with its activities and identity. Through recognizable branding, the kit of parts extends throughout the campus using a flexible and adaptable system of common elements to inform, educate and engage. Ranging in scale from signage and bicycle storage racks to simple activity platforms and enclosed containers, the elements provide the College an opportunity to re-imagine the campus by infusing it with elements related to the emerging precincts.



Signage

Street, event, and building signage allow for effective way finding and create a sense of place, identity, and coherence for the campus and the various precincts. Interpretative signage and labelling of parts within and outside the individual campus areas allow for precincts to create a recognizable brand.



Gateway



Banners



Street Furniture

Street furniture including benches, bike racks, refuse bins and pathway and area lighting project a homogeneous identity and branding opportunity throughout campus.



Benches



Bike Rack



Art

Artwork should permeate both the landscape and built environment. Transient and permanent interventions throughout the campus and within buildings act as a sensitive response to place and provide the opportunity to include various Yukon cultural expressions. The two-dimensional and three-dimensional artwork located throughout the existing campus and in the sculpture garden at the Yukon Arts Centre already achieves this.



Installation art



Artwork in building

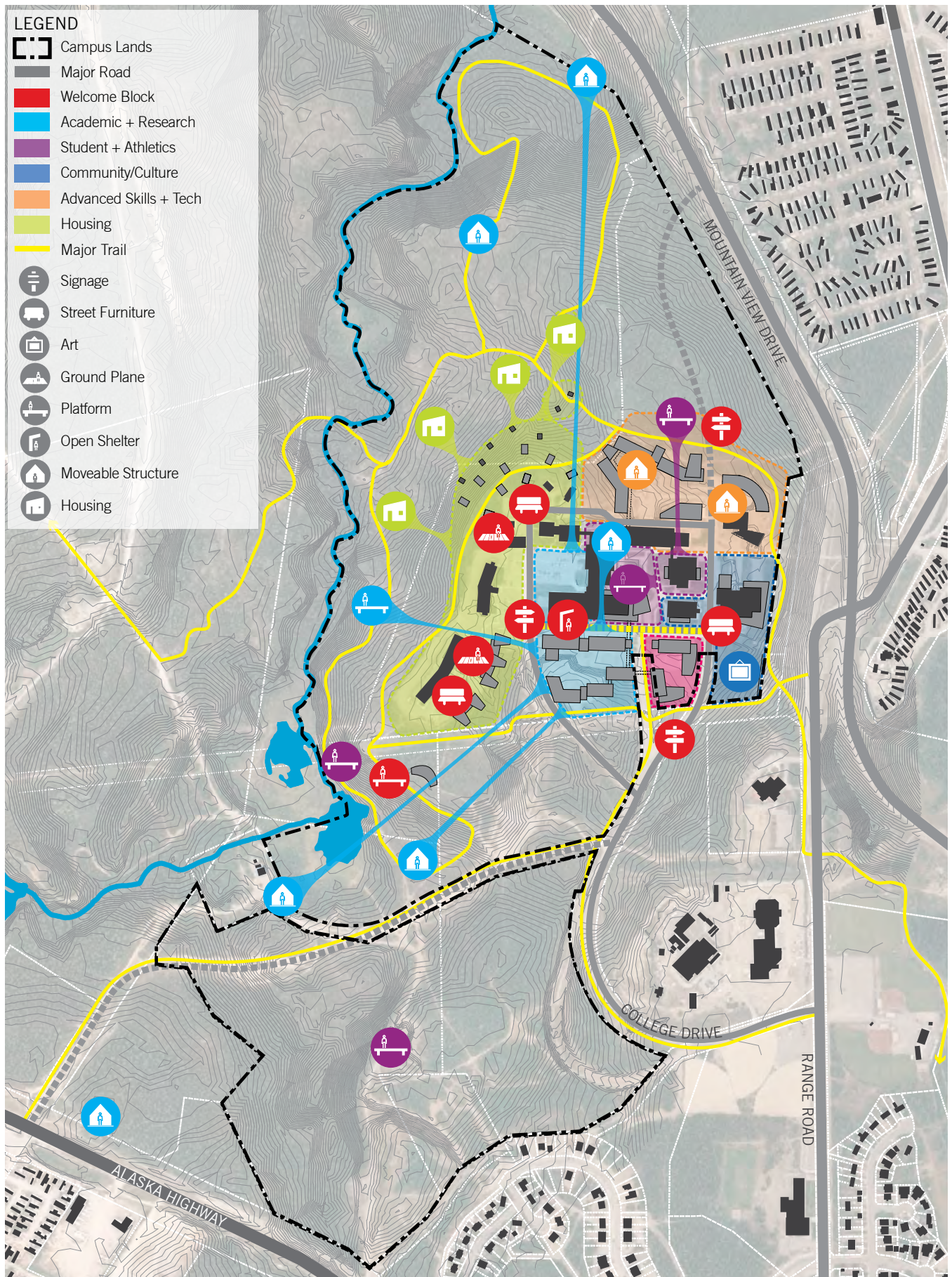


Figure 32 - Hub and Satellite Concept Map



Ground Plane

The ground plane is able to help people navigate throughout the campus and to define unique or significant outdoor spaces. Hierarchy can be created through the implementation of different surface treatments, including paving materials, patterns and imprints, and through scale and relationship to the landscape. This hierarchy can include campus wide standards as well as those specific to individual precincts.



Examples of paving patterns and imprints



Platforms

Exterior platforms act as gathering points around campus and can accommodate events, informal discussions, fitness activities, outdoor and cultural education, seasonal research and act as viewpoints for the campus. These can translate into independent structures dispersed throughout the campus landscape or can be associated with adjacent uses or structures. They can also incorporate other elements such as seating or a fire pit.



Examples of platform structures



Open Shelter

Canopies and small distinct covered structures can be used as bus and smoking shelters, bike storage areas, academic and research sites and information kiosks. The structures could incorporate designs with input from the local creative community and have the ability to embody the spirit of an individual precinct.



Bus shelter at UBC

Smoking shelter



Movable Structures

Movable structures are environmentally separated spaces that can serve as research pods, temporary education and/or information hubs, exhibition space and washrooms. Although the structures themselves could become relatively standardized through modules, they would be subtly branded by the respective precinct, and can be combined with interpretative signage to allow for the dissemination of program information throughout campus.



Washroom structure at Assiniboine Park, Winnipeg

Bike Lab at University of Winnipeg



Housing

Groupings of small-scale housing units such as cabins can be dispersed throughout the campus reserve lands allowing inhabitants to be immersed in the boreal landscape. This will provide a unique Northern living experience and opportunity for tranquil study.



Examples of small forest cabins

Implementation

In order for the campus kit of parts concept to succeed, it will require further planning to define specific elements, while other aspects can be left open for later interpretation. This planning will involve determining some of the campus wide elements such as signage, street furnishing, and ground plane finishes so that they can be incorporated as campus standards in all future projects. Individual precinct branding should also be developed so that it can be applied to associated parts.

Other aspects of the kit can be developed on a case by case basis, and designs can be developed in association with students, staff, researchers, and the creative community. These designs can be developed to reflect overarching themes of the College, individual precincts, or local culture.

Many of the elements of the kit of parts can be developed and built with significant involvement by both the Advanced Skills & Technology Program and the Yukon Research Centre as their scale is small enough to be used for research, training, and experimentation. Examples of this already exist on Campus, and include the Yukon Research Centre Greenhouse, the Yukon Research Centre Residence, and the Singles Residence. located north of the C-Wing.



Yukon Research Centre Greenhouse



Yukon Research Centre Residence (monocoque building)



Yukon Arts Centre Sculpture Garden

6. IMPLEMENTATION

Implementation is a critical element of any plan. As funding becomes available it is important to align new development with the long term vision developed during the campus master planning process. The following section outlines three key elements of the implementation plan:

- **Section 6.1 Phasing Plan:** identifies priority capital projects and sequencing of potential future development in line with the campus needs assessment;
- **Section 6.2 Building and Landscape Design Guidelines:** provides a guide to shape new development in a way that is consistent with the principles laid out in this plan; and
- **Section 6.3 Sustainability Strategy:** identifies priority sustainability initiatives to achieve the goals laid out in this plan.

6.1 Phasing Plan

The timing horizon for the Ayamdigut Campus Master Plan is 25 years. This timeline is broken down into three conceptual development phases illustrated in Figures 33-35. The proposed phasing plan is intended to deliver maximum benefit from imminent funding. It is more prescriptive over the short term and provides a strong campus framework that allows for adaptability over the longer term.

PHASE 1 (5-10 YEARS)

Development in Phase 1 focuses on creating a place on day 1. New projects will:

- Focus early development along the new Transit Mall to create a critical mass of activity and a better sense of arrival on campus
- Provide more opportunities for student housing and campus amenities
- Expand key program areas
- Continue to provide surface parking as a cost-effective way to serve the campus over the short term

PHASE 2 (10-15 YEARS)

Development in Phase 2 builds off the direction set in Phase 1 to:

- Strengthen the sense of arrival on campus
- Provide a secondary access to the campus from the Alaska Highway
- Continue to expand key program areas
- Introduce structured parking to complement surface parking
- Provide a diversity of housing options and amenities for students, staff and faculty

PHASE 3 (15-25 YEARS)

Development in Phase 3 completes the vision for the campus concept with new development at the edge of the campus core. These new buildings have a dynamic relationship with the adjacent landscape and embody the new university status in their orientation and character.

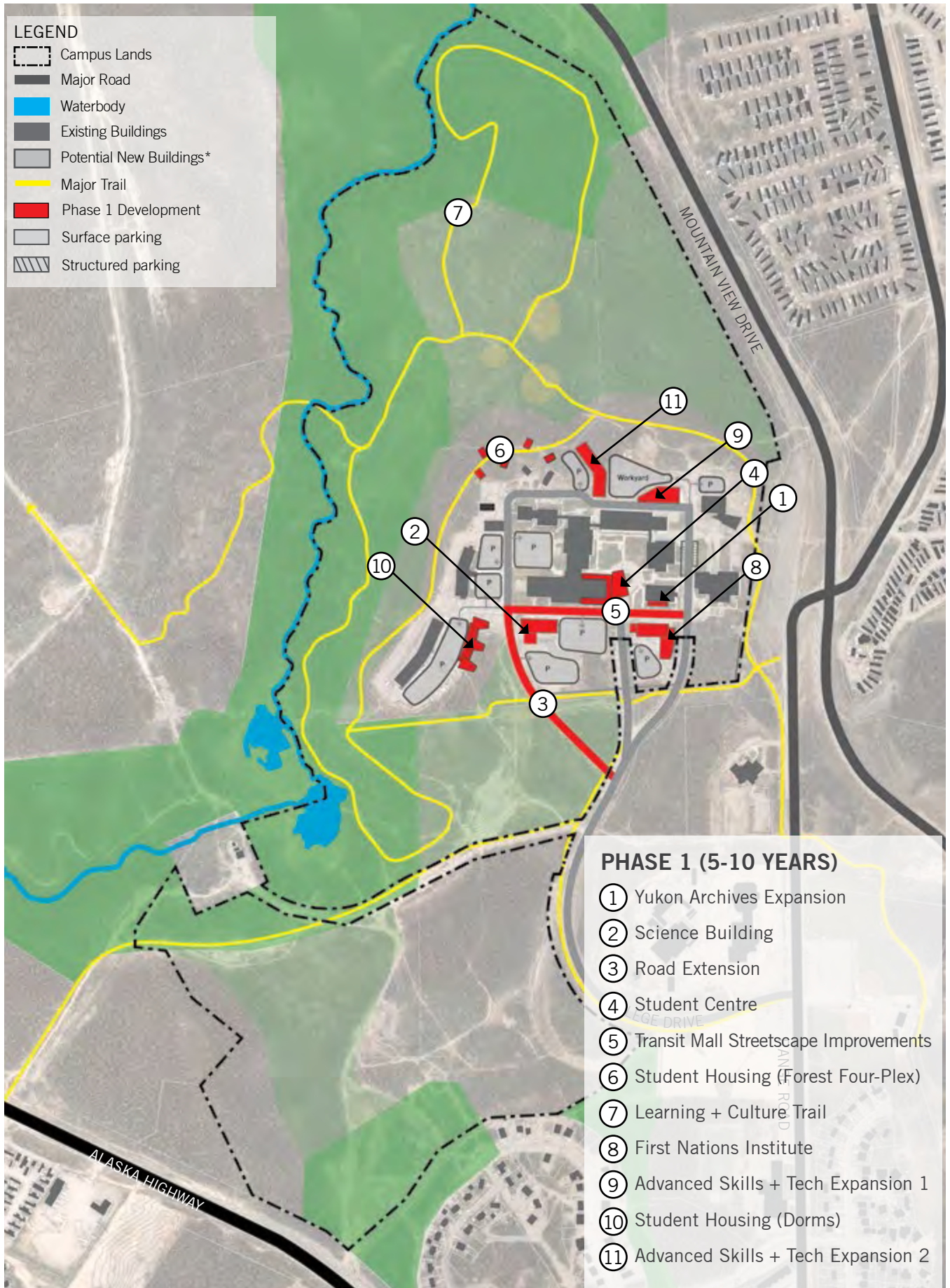


Figure 33 - Phase 1 (5-10 years)

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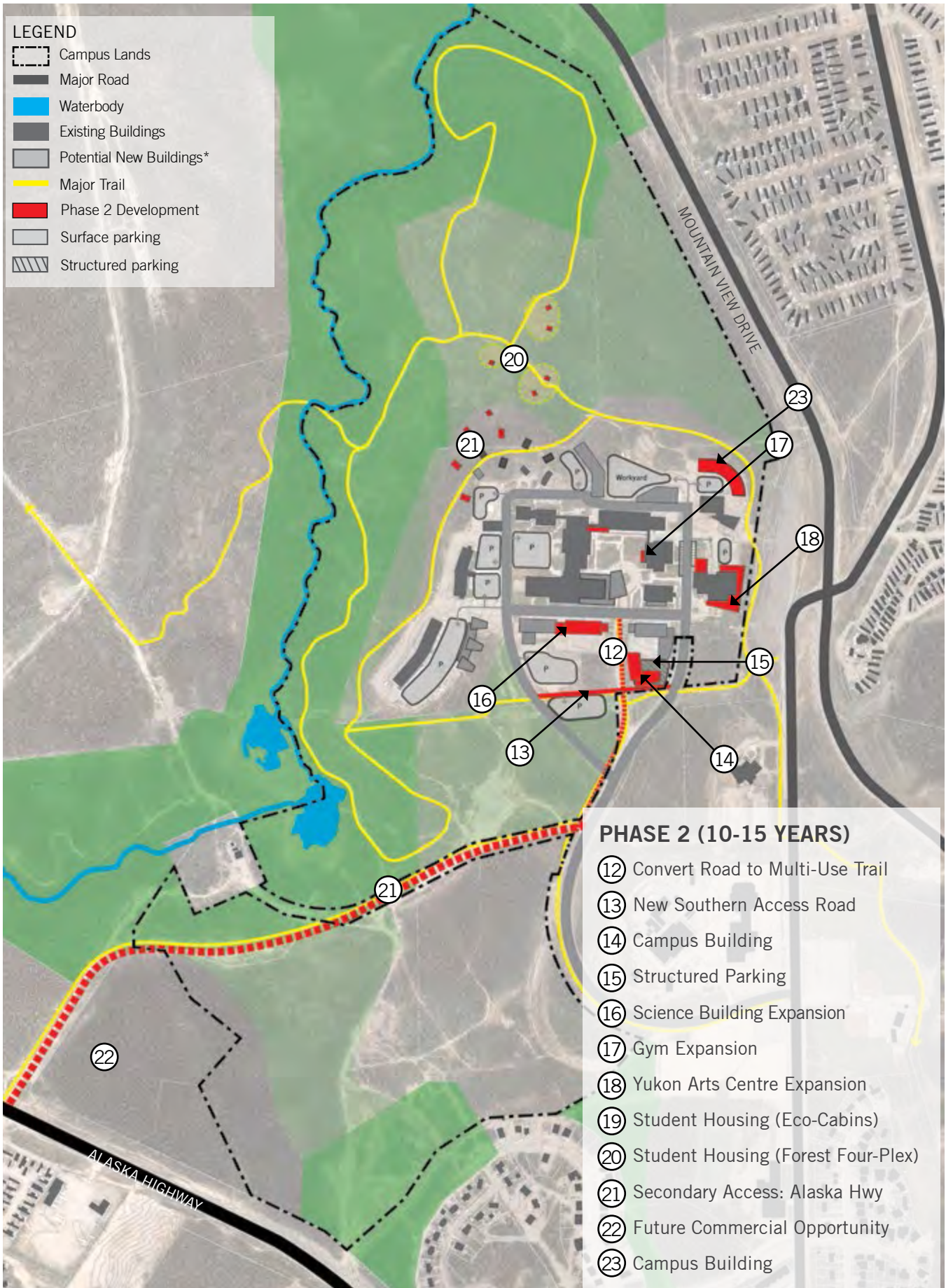


Figure 34 - Phase 2 (10-15 years)

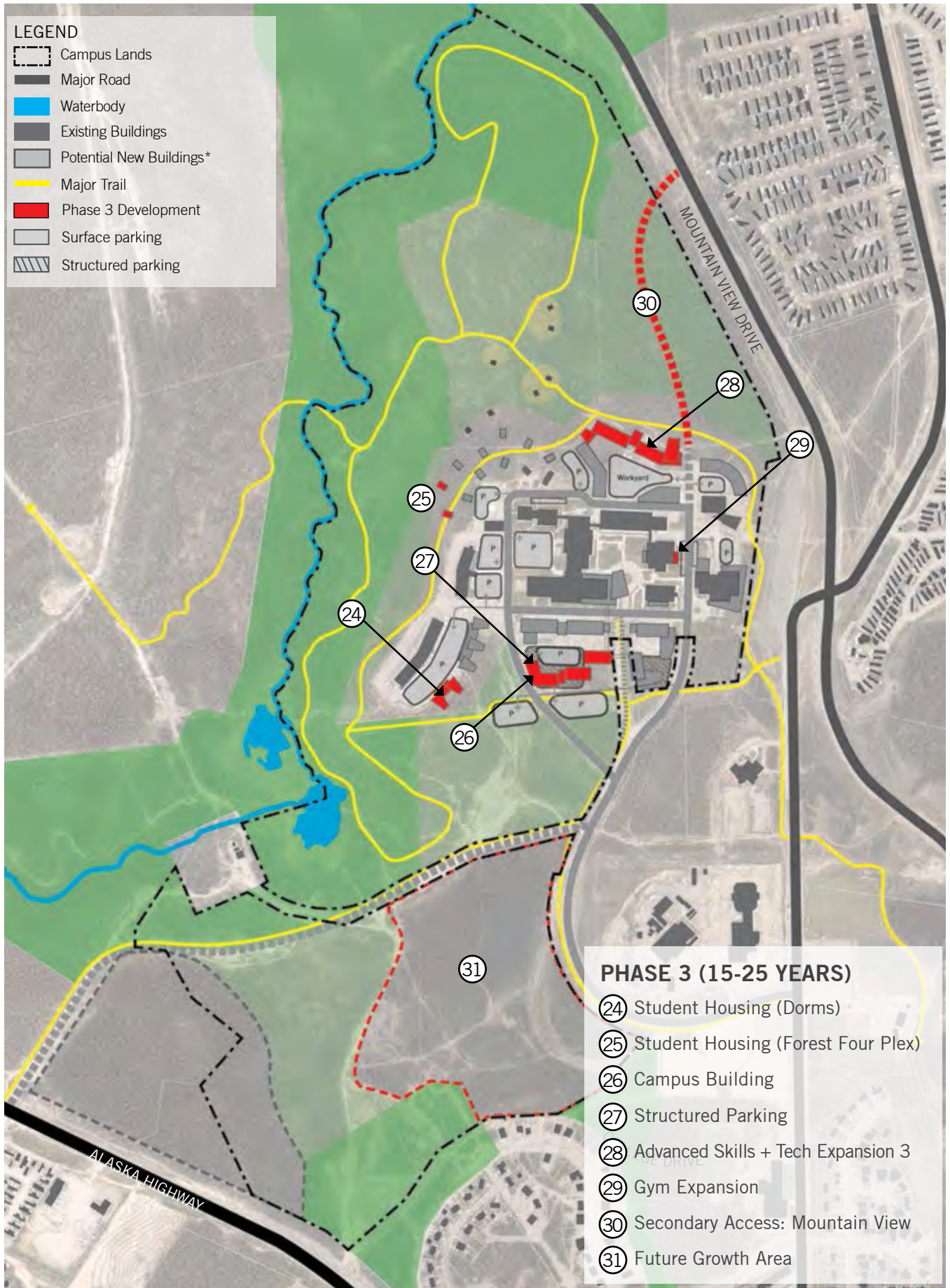


Figure 35 - Phase 3 (15-25 years)

50 150 meters ↑

6.2 Design Guidelines

6.2.1 Campus Character

In re-envisioning itself as ‘a new university of the north’, Yukon College has the opportunity with new and renovated buildings and open space to capture this spirit and make the campus unlike any other. Not only does this call for sustainable, contemporary buildings that reflect current approaches to post-secondary learning and research but also to integrate the exceptional cultural history and natural setting with the campus open space network.

As the campus grows and develops, new neighbourhood or “precinct” clusters will emerge, each with a focus on academic, research, and skills excellence, as follows:

1. Welcome Block
2. Academic & Research
3. Housing
4. Student Services
5. Community & Culture
6. Advanced Skills & Technology

As the precincts grow, overlapping programme components will be interwoven and connected through open space and pedestrian linkages. A “Hub and Satellite” concept has been developed to help permeate the existing campus and endowment lands with layers of education, art, culture, research and activities. Through a campus kit of parts, a precinct “hub” is able to populate other areas of the campus with its activities and identity. Through recognizable branding, the kit of parts extends throughout the campus using a range of common elements to inform, educate and engage. Ranging in scale from signage and bicycle storage racks to platforms and enclosed containers, the parts provide the College an opportunity to re-imagine the campus by infusing it with elements related to the evolving precincts.

The following guidelines provide a ‘road map’ for achieving an overall character that is reflective of the new vision and guiding principles.

6.2.2 Approach to Culture + Language

The Ayamdigut Campus of Yukon College is located within the traditional territory of the Kwanlin Dun First Nation and the Ta’an Kwach’an Council. The Kwanlin Dun First Nation has cultural affiliations with the Northern and Southern Tutchone, the Tagish from Marsh Lake and an amalgamation of several other Yukon First Nation culture. Traditionally, the Ta’an Kwach’an people were concentrated in the Lake Laberge area.

Both First Nations share an ancient connection to and respect for the land, the forces of nature and the animals and plants they share. With a history of subsistence living, the culture of Yukon's First Nations people evolved over thousands of years and can be seen today in the rich tradition of arts, crafts, foods and practices. It is upon this rich heritage that future campus and building development will take its lead, incorporating art, cultural references, Tlingit and Southern Tutchone language and a relationship to the land and generations that have lived on it. The approach will be to meaningfully integrate traditional and living First Nations culture to embody the northern setting and its people.

The College endeavors to host students from around the world wishing to experience post secondary education in a northern setting. The rich diversity will be celebrated through the design of common gathering spaces and a desire to connect to the northern natural setting of the campus and surrounding forested areas.

This strategy will:

- Celebrate the rich culture and heritage of the Kwanlin Dun First Nation and Ta’an Kwach’an Council in recognition of the traditional territory in which the Ayamdigut campus is located.
- Reinforce the traditional and living First Nation culture throughout the campus, incorporating art, craft, language, traditional customs, gathering spaces and a respect for the land.
- Celebrate the cultural diversity of the student population and enhance the northern education experience.
- Include building designs that represent through colour, materials, art and craft, a contemporary First Nation culture with a focus on academic excellence.
- Support signage to include traditional Southern Tutchone and Tlingit languages and celebrate the contribution and wisdom of Elders.
- Use traditional knowledge to help convey an understanding of the campus and surrounding area.

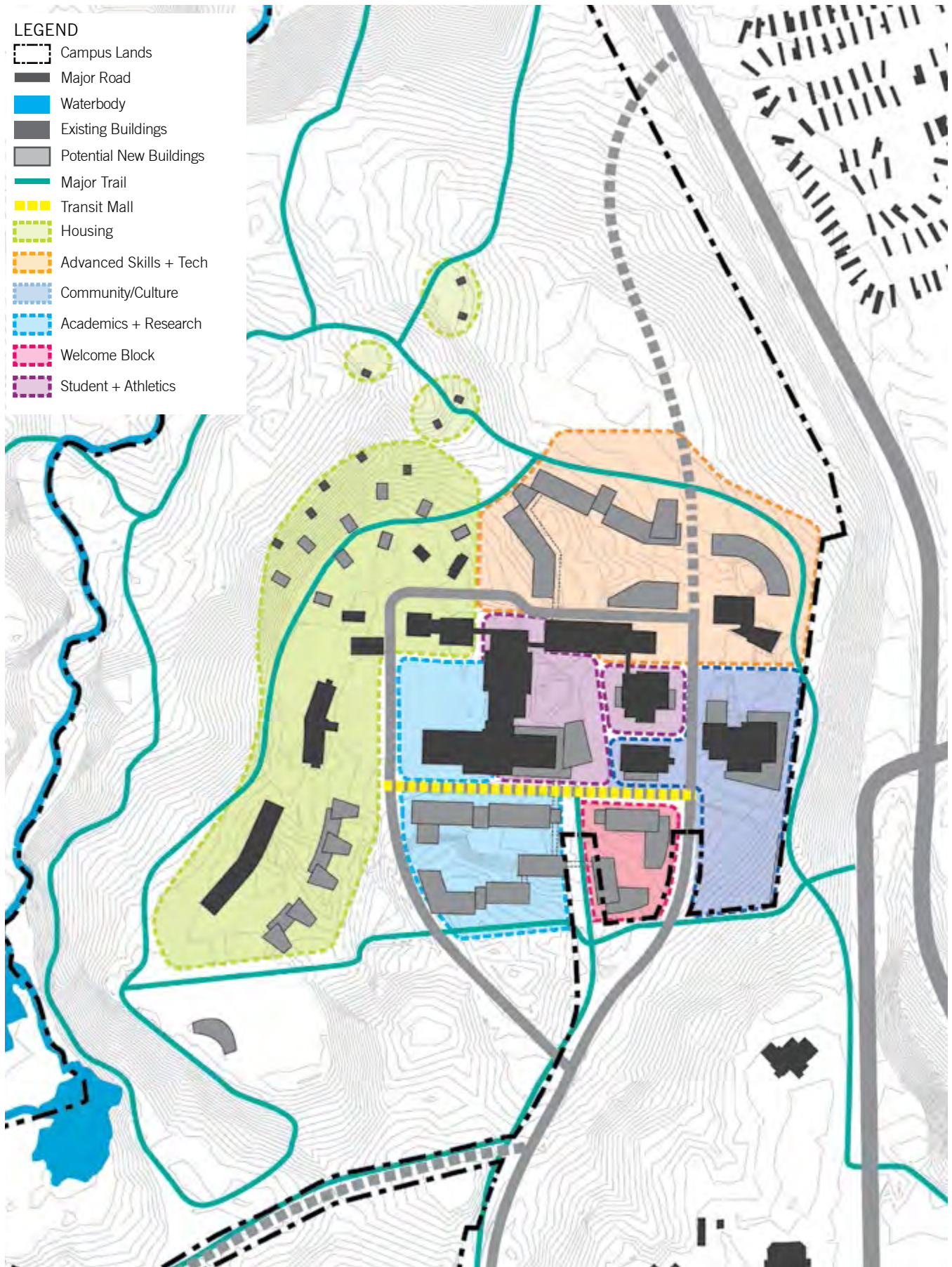


Figure 36 - Campus Precincts

6.2.4 General Building Parameters

The following building parameters have been established to ensure that new buildings benefit from more specific design guidance. The intent is to provide a framework that encourages high quality campus building design. The guidelines apply also to the renovation of, or addition to existing buildings where it is deemed practical.

A) BUILDING ORIENTATION + PLACEMENT

Buildings should be oriented to maximize the penetration of natural light, benefit from passive solar gain and screen equipment and vehicle parking from building view. All sides of new buildings are to be designed with a public face.

Maintain a tight building edge along the boreal forest, pedestrian walkways, outdoor gathering areas, and along existing or proposed streets, where possible. Limit clearing of forested areas around proposed buildings to maintain intimate relationship between the building edge and forested areas.

B) PEDESTRIAN ENVIRONMENT

Consider site and building designs that encourage and support pedestrian oriented activity where appropriate. Provide for protected areas, seating oriented to benefit from south and west solar exposure, bicycle storage and an architecturally diverse ground floor edge that provides a transparent link between interior and exterior spaces.

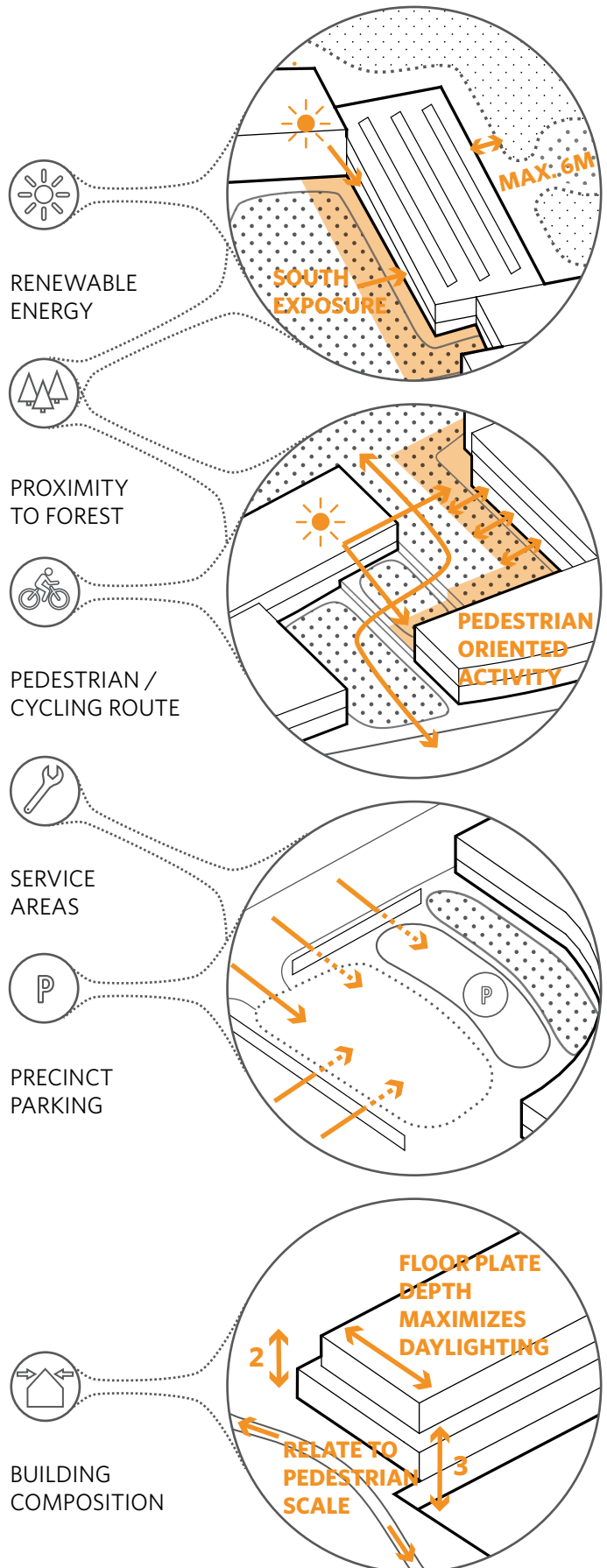
C) SERVICE AND PARKING AREAS

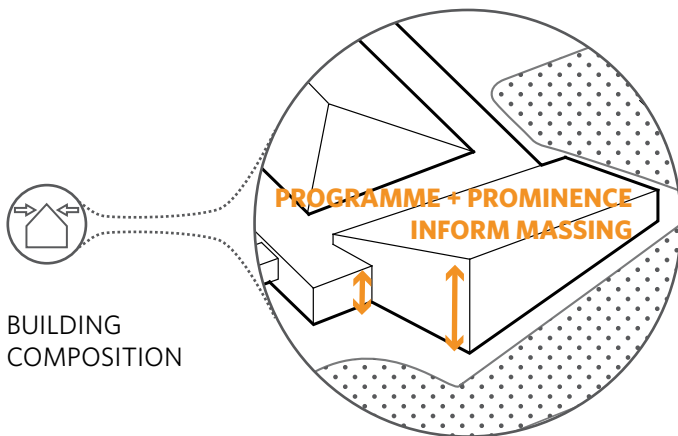
Parking, loading, garbage containers, mechanical and electrical equipment transformers and communications kiosks should be located away from prominent building entrances and gathering areas and screened by the building from campus view. Where screening through the placement of buildings is not possible, landscaping should be used to screen service and storage areas around buildings.

D) BUILDING HEIGHT AND MASSING

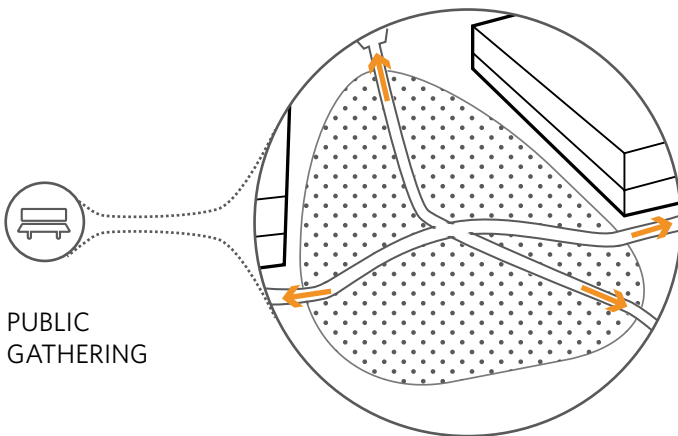
Building heights between 1 to 3 storeys are considered an appropriate scale for the density of the proposed campus buildings. A third storey is encouraged along prominent campus access points or where a view or programme function is best accommodated by the additional building height. Where appropriate, the second and/or third floor should be setback from the building edge to reduce the overall building scale along a street or pedestrian walkway.

Building massing should be articulated and proportioned (scale, height, relationship to the

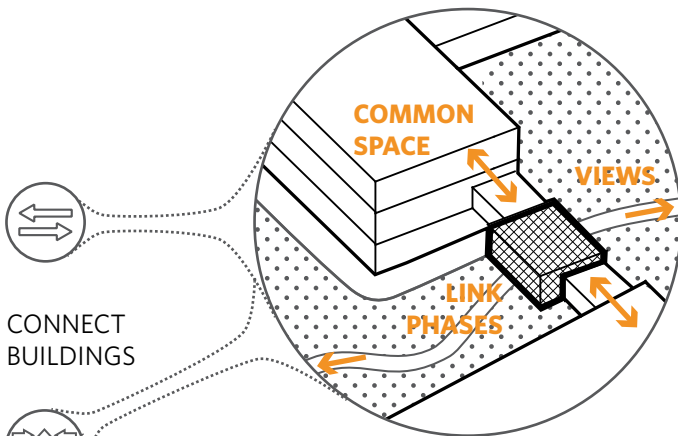




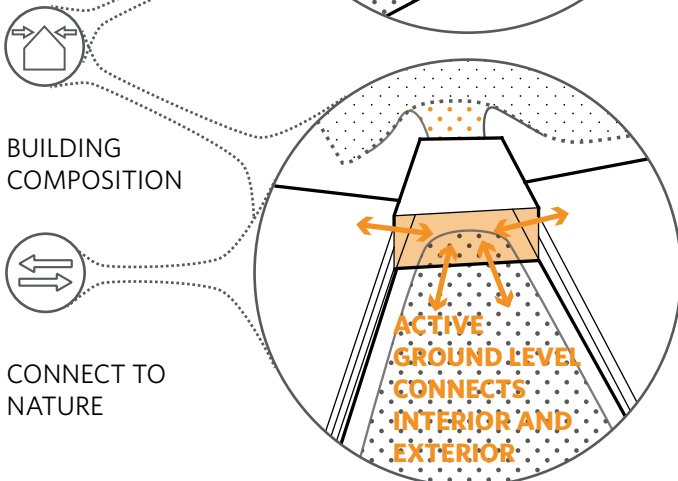
BUILDING COMPOSITION



PUBLIC GATHERING



CONNECT BUILDINGS



BUILDING COMPOSITION

CONNECT TO NATURE

ground) to define its prominence within the campus (gateway building) or within a precinct. Building form could also highlight an interior function, common and other significant academic spaces. Buildings out of scale with the fabric of the precinct or other areas of the campus are discouraged. Where buildings are large, building massing and facades should be articulated by the use of glazing, architectural elements, separate entrances, material treatments, and variation in form and/or rooflines.

E) VIEWS + ACCESS TO NATURE

Orientation to key views should be considered in building design as should a visual and physical connection to forested and landscaped areas. Of importance will be the sensitive placement of new buildings within existing forested areas to maintain an intimate connection with the natural environment. Windows, doors, and other openings should be placed to offer a connection to outdoor gathering areas, pedestrian walkways and trails, to create a permeable interface between interior and exterior spaces. On upper floors, locate gathering and other common spaces to benefit from key views.

F) MIXING USES + FLEXIBLE SPACES

A vibrant campus includes a mixture of programme functions within a single building. Assembling a variety of uses (retail, academic, recreational, residential) provides a variety and vibrancy not typically found in buildings with a single use or function. Though it will not be possible to entertain a mix of uses in all buildings, it is important that consideration be given to appropriate adjacencies where possible.

As the methods and tools associated with knowledge transfer continue to evolve, it is important that programme areas and other interior spaces are adequately flexible to respond to changing academic needs. This includes accommodating adaptable, classroom, gathering and administration spaces to respond to particular programme area growth, new academic initiatives or transition to entirely different uses.

G) BUILDING TRANSPARENCY

Buildings will have transparent and active ground floor levels through the extensive use of glass and operable doors. Inviting connections between the inside and outside of the building increase feelings of connection with the natural environment, security and pedestrian comfort at ground level. It is important that building interior spaces are visually interconnected and remain flexible in size/function.

H) BUILDING COMPOSITION

Buildings fronting onto pedestrian walkways, existing forested areas, open spaces or other major campus streets are to be articulated as follows:

1. Ground Floor:

Public gathering uses are encouraged at the pedestrian level. Provide for transparent glazing at ground level along public walkways to provide a strong visual link between interior and exterior spaces. Provide a protective cover over entry doors and south-facing outdoor seating areas.

2. Links:

Locate common learning and gathering areas such that they provide a transparent link between building forms and programme areas and provide a direct visual link to forested areas.

3. Servicing:

Overhead doors and other service type entries required to support service or shop areas should be located away from campus view.

4. Roof Overhangs and Parapets:

Substantial and articulated overhangs are encouraged to provide protection from the elements. Parapets and/or roof lines are to be designed to provide an attractive edge transition between building and sky.

I) BUILDING MATERIALS

Construction materials and craftsmanship must be to a standard fitting for an academic institution within a northern university setting. A variety of textures and profiles are encouraged that embody the nature of proposed buildings and precincts.

1. Exterior Cladding & Finishes:

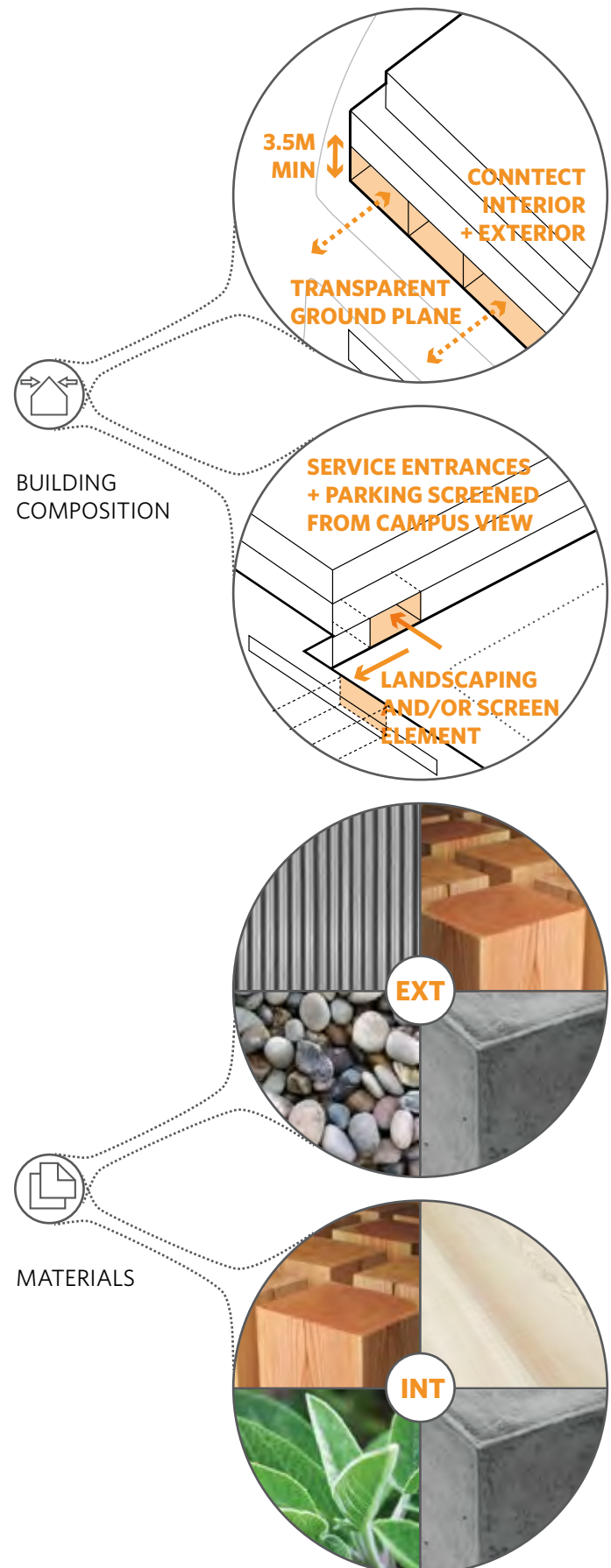
Materials should include structural steel and heavy timber elements, metal siding, factory finished composite siding panels, glass, and panelized concrete cladding.

2. Material transitions and finishes:

These are encouraged to highlight specific building functions and forms.

3. Interior Materials & Finishes:

The building's structural, mechanical and electrical systems should be considered part of the building design allowing for transparency, durability, ease of maintenance and finishes that allow for programme areas to accommodate a variety of uses.



J) COLOUR + LIGHTING

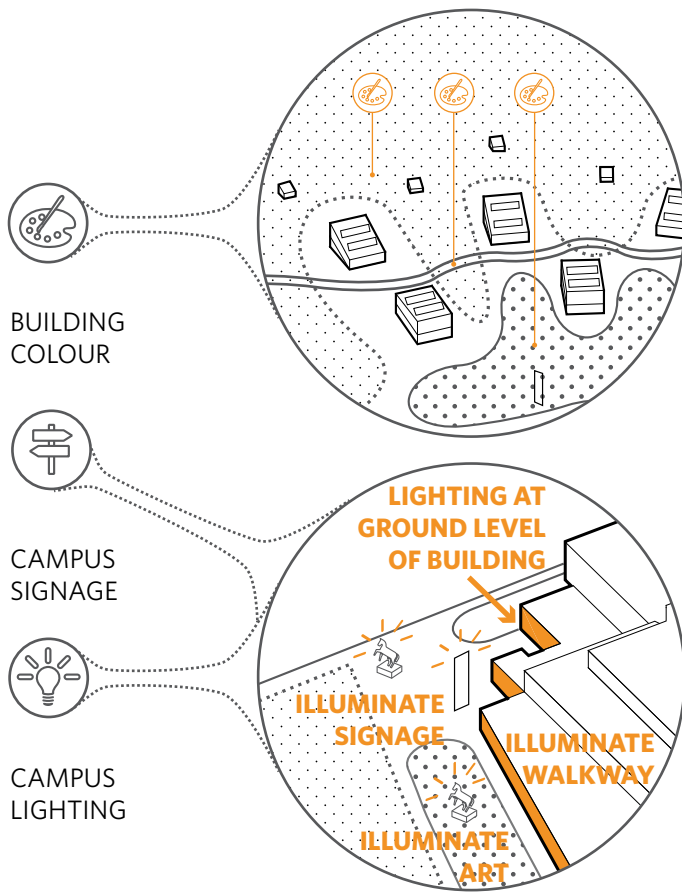
As a northern city, Whitehorse faces winters that are long and dark. To encourage visual vibrancy throughout the year, building colour and lighting should convey a dynamic and dramatic setting.

1. Building Colour:

The selective use of vibrant colours is encouraged and should, if possible, reflect those found in the Yukon natural environment. In a setting with 6 months of snow cover, colours should provide warmth, visual relief and contrast to the limited colour palette of winter and certain cladding materials.

2. Lighting:

Lighting provides significant possible visual impact. With long hours of darkness during winter months, exterior building lighting can provide visual variety and character. Lighting that highlights portions of the building (particularly at ground level), structure, or exterior siding are but a few of the options available. Hot spot and surface mounted direct flood security lighting is strongly discouraged, particularly along street facades and pedestrian walkways. Exterior building lighting should be coordinated with signage, street furniture, landscaping, and art to reflect the precinct's character.



6.2.5 Green Building Parameters

Though energy plays a significant role in northern green building design, there are other important factors that also need to be considered when guiding new development. These impact the quality of the interior environment, health of occupants, and the overall sustainability of a new building. These are defined into the following general categories:

A) SUSTAINABLE BUILDING SITES

- Provide Transit stops at key locations near key campus buildings and public gathering areas.
- Integrate trails and bus routes with the active transportation network.
- Establish walkable trails and pedestrian routes that easily connect campus buildings.
- Support occupant comfort at outdoor seating areas during both winter and summer.

B) ENERGY EFFICIENCY

- Maximize energy efficiency by establishing performance targets relative to NECB.
- Minimize operating and maintenance costs of existing building infrastructure
- Passive strategies - high insulation, natural light, displacement ventilation, building orientation, passive solar design
- Highly visible monitoring: energy, waste, GHG's, transport
- Waste heat – recover and reuse where possible
- Renewable energy - ready for PV plugin, solar wall and solar thermal
- Transition Campus District Energy fuel source to LNG, biomass and other low carbon and/or renewable energy sources.
- Infrastructure and systems to facilitate active commuting (and discourage driving)
- Energy conservation measures and education for behavior change
- A model building – public buildings – green elements & research on display
- A living building – natural lighting and living walls and ventilation systems

C) INDOOR ENVIRONMENTAL QUALITY

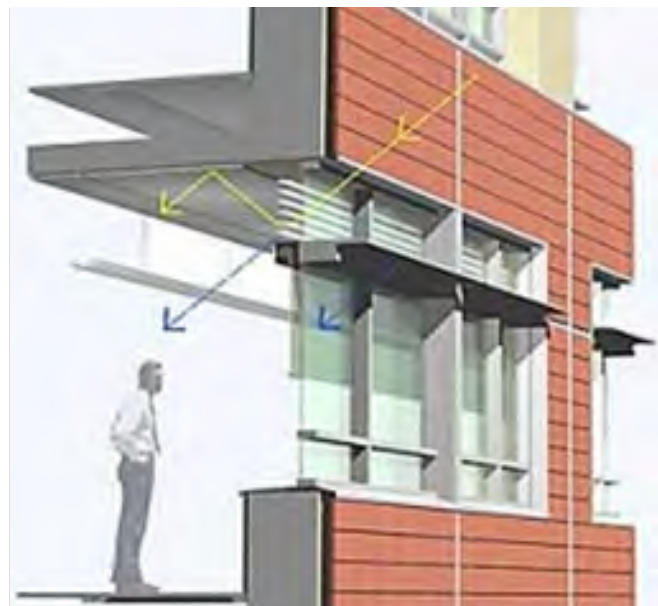
- Focus on nurturing positive occupant experiences within an interior environment
- Maximize access to natural daylight
- Use healthy materials, minimize toxicity,



Solar shading



EEEL - A high performance academic building



Daylighting and solar shading strategies

incorporate natural products, living wall.

- Address the short summer and long winter for occupant comfort and enjoyment
- Design buildings so that they are easy to use and encourage behavioral change
- Adapt work methods to meet sustainability goals (lead by example).

D) INNOVATION IN DESIGN

- Creative options for flexible workspaces, classrooms, and common gathering spaces.
- Plan building additions to accommodate future growth
- Systems are visible, accessible, and understandable by occupants.
- Easy to maintain and accessible
- Integrated design – economies of space and flow
- Efficient use of space (sliding doors, multi-purpose rooms)
- Adaptation to future technology (renewable energy, etc.)



Flexible classroom configuration



Waste management strategy during construction

E) WASTE REDUCTION

- Efficient resource use during construction
- Design space for waste management
- 75% or greater waste diverted from construction process
- Integrated infrastructure and systems for waste management and recycling

F) CARBON REDUCTION

- Reduce more GHG's than are produced (energy plant, renewable energy production, low carbon materials)
- Climate change ready (EMO, disaster)
- Establish GHG neutral target date for campus buildings



District Energy plant

G) WATER REDUCTION

- Establish low water consumption targets
- Consider on-site waste treatment
- Harvest rainwater and recycle water where possible



Bio-swale

6.2.6 Precinct Form + Character

1. WELCOME BLOCK

The Welcome Block precinct will be the gateway to the new Yukon College campus. The scale and quality of the architecture in this precinct should reflect the highest aspirations of the College by showcasing its core research and academic areas. Buildings should capture the essence of the campus at large while presenting all who approach the College with a memorable image of a progressive northern institution. The precinct should:

- Provide a key first impression of the Campus.
- Represent significant First Nations involvement.
- Highlight gathering areas, providing opportunities to capture natural light and views.
- Express natural materials, lighting and an approach that embodies a ceremonial quality relating to campus access and entry.
- Allow for easy multi-modal access (pedestrians, cyclists, car-drop off) and ample space for vehicle drop-off, clearly indicating that this is the entry point to the campus.
- Incorporate buildings along a major pedestrian promenade.
- Be transparent at the view axis to campus core.
- Provide a softer connection to the landscape and outdoor spaces at ground level and along the terraced path that encourage a relationship with interior programme areas.

2. STUDENT SERVICES + ATHLETICS

The Student Services building sits at the terminus of the welcome block promenade and orients those arriving to campus. This anchoring building should be:

- Bold, iconic, transparent, legible from a distance.
- A glowing jewel during the dark winter months, and transparent in the summer, blurring the boundary between indoor and outdoor spaces to encourage gathering.
- Embody a progressive/vibrant student community.

Proposed additions to the Fitness facilities should:

- Better integrate the existing gym into the main campus square by allowing for interior multi-use fitness spaces to open onto exterior spaces.
- Occupy outdoor gathering spaces across the entire campus.



Student Union Building, Langara College, Vancouver, BC



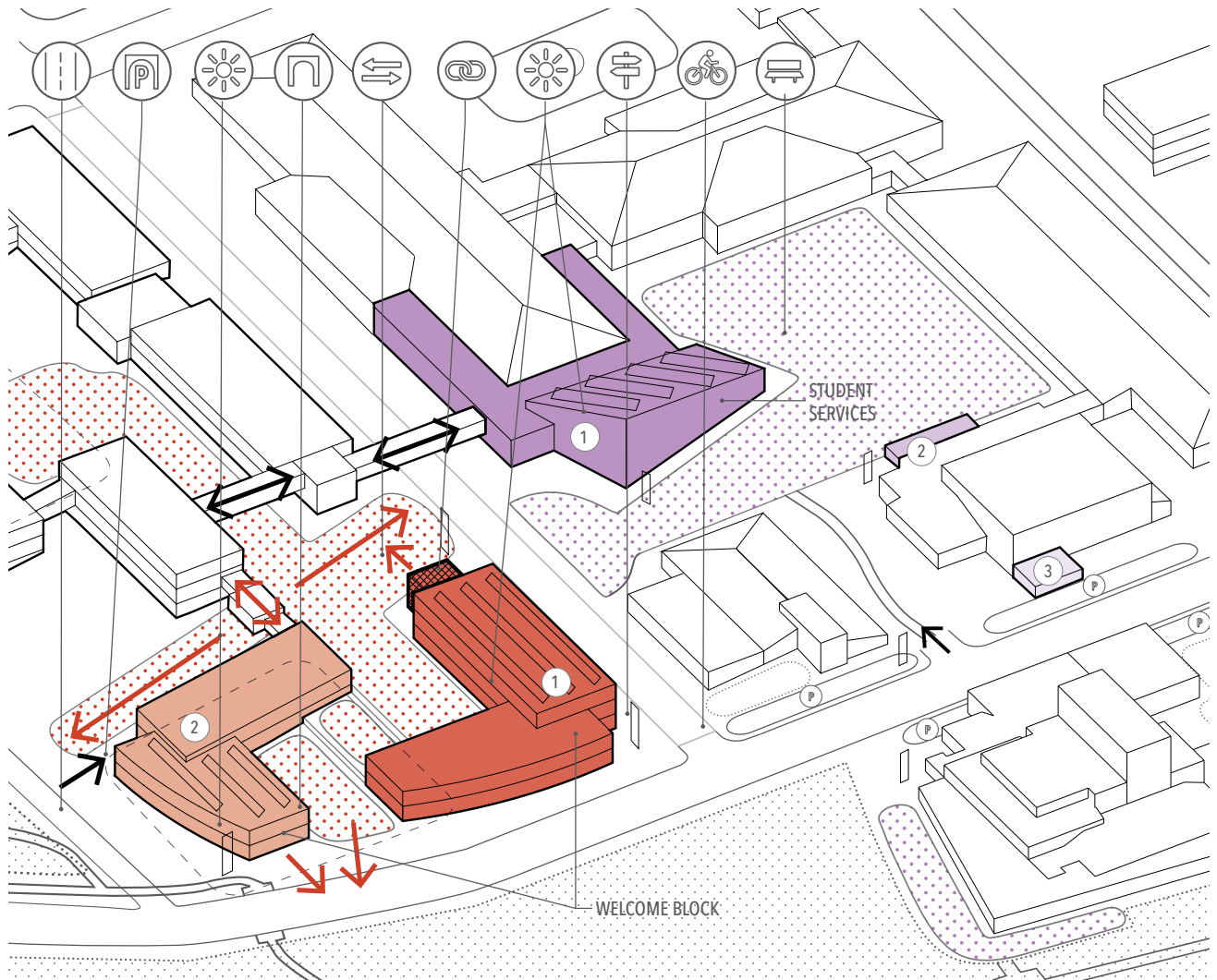
Lil'Wat Cultural Centre, Squamish, BC



Student Union Building, SUNY, New Paltz, NY, USA



UBC Pharmacy Building, Vancouver, BC



-  PUBLIC GATHERING SPACE / SEATING / LANDSCAPING
-  INTEGRATE SIGNAGE TO BETTER IDENTIFY PRECINCT
-  BUILDING PHASE LINK ELEMENT / COMMON AREA FUNCTIONS
-  CONNECT EXISTING FOREST TO PROPOSED LANDSCAPED AREAS
-  PUBLIC TRANSIT / CYCLING / PEDESTRIAN ROUTE
-  BUILDINGS AS GATEWAY COMPONENTS ALONG FUTURE ROAD ACCESS
-  RENEWABLE ENERGY PRODUCTION INTEGRATED INTO BUILDINGS

-  ACCESS TO UNDERGROUND DESIGNATED PRECINCT PARKING
-  GATEWAY ZONE / FUTURE ACCESS ROAD
-  BUILDING + PARKING ACCESS
-  TRAIL + GATHERING SPACE ACCESS
-  PROPOSED LANDSCAPED AREAS
-  EXISTING BOREAL FOREST
-  MASTERPLAN PHASE 1 DEVELOPMENT
-  MASTERPLAN PHASE 2 DEVELOPMENT
-  MASTERPLAN PHASE 3 DEVELOPMENT
- EXISTING BUILDING

3. ACADEMIC + RESEARCH PRECINCT

The Academic and Research precinct embodies Yukon College's ambition to become a top tier northern university, leading in First Nation governance and cold climate and renewable energy research. This precinct marries the desire to utilize the college as an innovation and research campus with the goal of striving for academic excellence. To this end, the architecture of the precinct should incorporate renewable energy and sustainable new construction that showcases the precinct's core programme functions. The architecture of the Academic and Research precinct should be:

- Strategically configured in order to highlight student and staff education.
- Orientated to maximize natural light and view opportunities provided by the site.
- An expression of the shift in pedagogy toward more collaborative and informal teaching reflected in gathering spaces.
- Legible and clearly show research as a visible undertaking (where appropriate) that is incorporated into the building form and manifested throughout the campus with the use of satellite pods.
- A learning tool that encourages the monitoring of building systems, particularly those related to renewable energy.



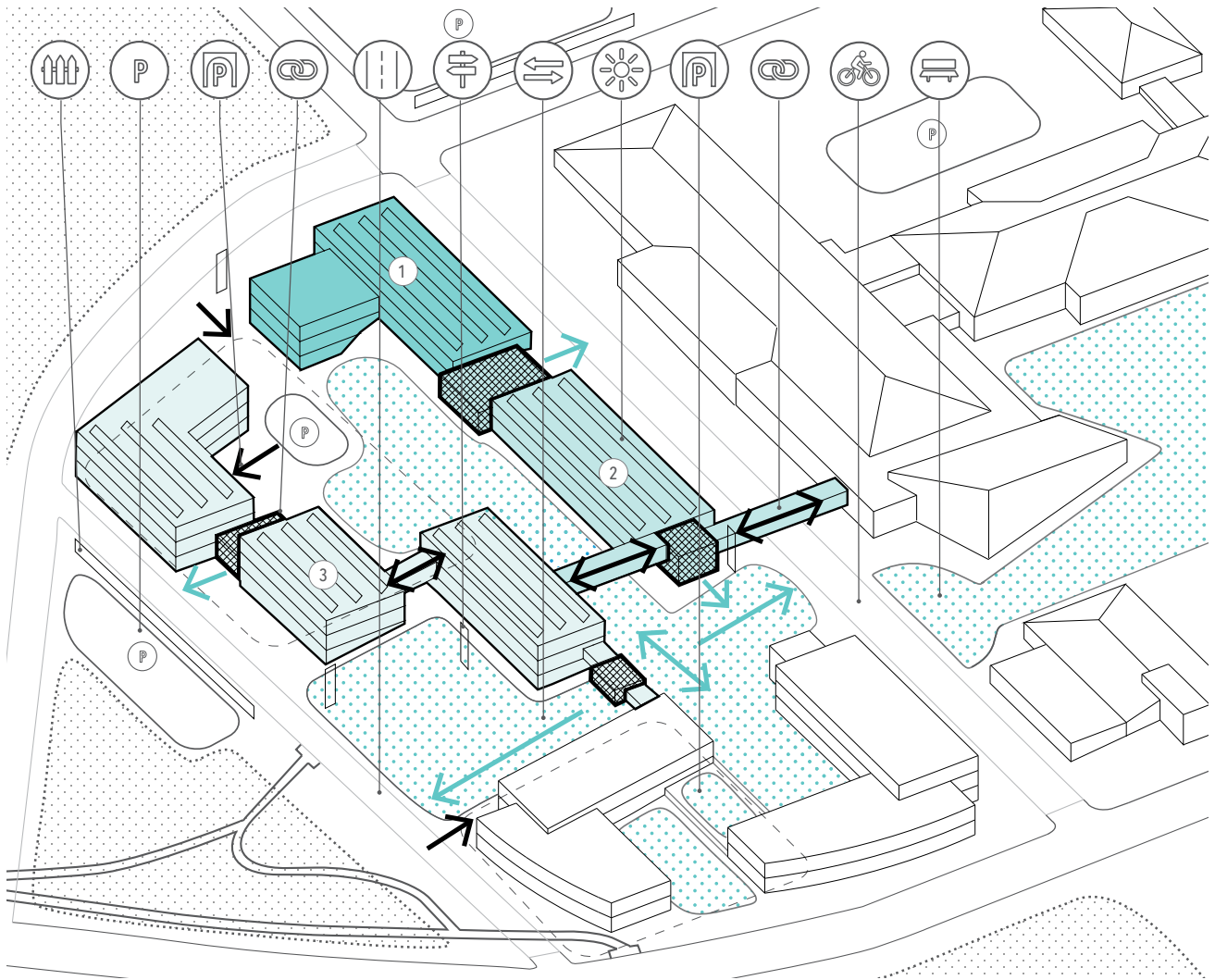
Vale Living with Lakes Centre, Laurentian University, Sudbury, ON



University College of the North, Thompson, MB



Nicola Valley Institute of Technology, Merrit, BC



-  PUBLIC GATHERING SPACE / SEATING / LANDSCAPING
-  GATEWAY ZONE / FUTURE ACCESS ROAD
-  SCREEN ELEMENT ALONG ROAD
-  INTEGRATE SIGNAGE TO BETTER IDENTIFY PRECINCT
-  BUILDING PHASE LINK ELEMENT / COMMON AREA FUNCTIONS
-  CONNECT EXISTING FOREST TO PROPOSED LANDSCAPED AREAS
-  FUTURE PUBLIC TRANSIT / CYCLING / PEDESTRIAN ROUTE

-  ACCESS TO UNDERGROUND DESIGNATED PRECINCT PARKING
-  BUILDING + PARKING ACCESS
-  TRAIL + GATHERING SPACE ACCESS
-  PROPOSED LANDSCAPED AREAS
-  EXISTING BOREAL FOREST
-  MASTERPLAN PHASE 1 DEVELOPMENT
-  MASTERPLAN PHASE 2 DEVELOPMENT
-  MASTERPLAN PHASE 3 DEVELOPMENT
-  EXISTING BUILDING

4. HOUSING PRECINCT

The residential precinct design strategy builds upon the existing residences located on campus, with the goal of establishing the critical mass necessary to support a vibrant on site student community. The housing precinct design parameters proposes two general concepts and scales of residential development.

Medium-Density Housing

- Embrace the essence of a vibrant campus life with a higher density cluster of residences.
- Connect to other precincts, transportation and amenities associated with university life.
- Blend with existing residential buildings to better utilize existing infrastructure and help populate the pedestrian level of campus.
- Should be oriented to maximize distant views, natural light and be oriented along pedestrian and street edges.
- Accessed via pedestrian paths; limited vehicle routes.
- Utilize a material palette similar to other buildings in the surrounding precinct, placing a greater focus on wood, stone, metal and pre-finished metal panel products.
- Integrate easily into the adjacent campus fabric (commercial core, recreation, and cultural).
- Connect to the surrounding campus to help support community and university life.

Single or Duplex Low-Density Satellite Housing

- Encourage sustainable housing with a strong connection to the undisturbed Boreal forest environment.
- Create a more intimate living experience due to the humble scale of the residences.
- Experience reflective of northern living
- Blend rustic and modern architectural styles and materials.
- Offer a modest and informal environment for study and reflection.
- Access to the proposed housing units is provided via pedestrian paths and limited vehicle routes.
- Materiality reflects the setting of the buildings, creating a strong relationship by using a palette that includes wood, stone, other pre-finished products



Tietgen Dormitory, Copenhagen, Denmark



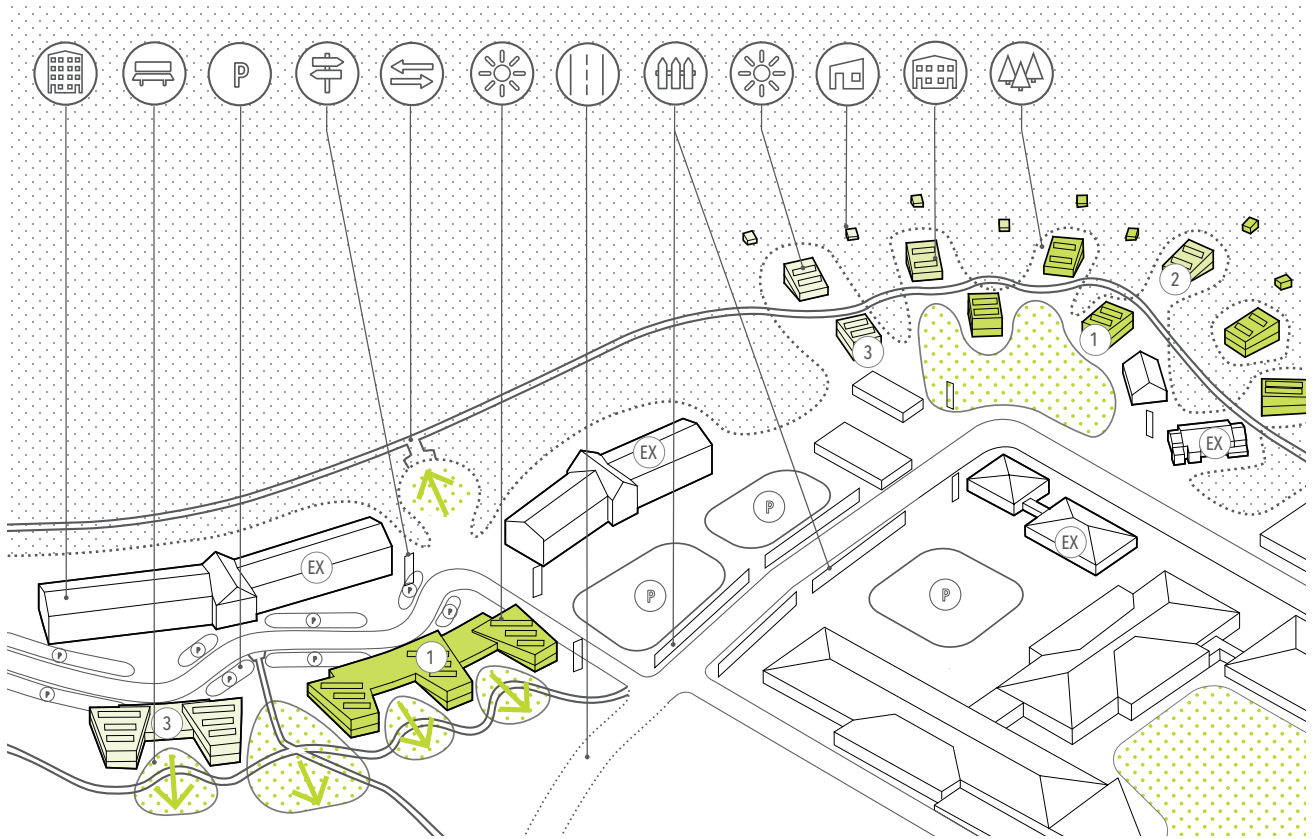
Stealth Cabin, Ontario






















Collective Eco-Housing La Canopee, France



Bastyr University Student Village, Kenmore, Washington



- | | | | |
|---|--|---|--|
|  | PUBLIC GATHERING SPACE / SEATING / LANDSCAPING |  | SINGLE DWELLING UNIT / CABIN IN THE FOREST |
|  | CONNECT EXISTING FOREST WITH PROPOSED LANDSCAPED AREAS |  | FOURPLEX UNIT / LOW DENSITY HOUSING COMMUNITY |
|  | DESIGNATED PRECINCT PARKING |  | MULTIPLE HOUSING UNIT / MEDIUM DENSITY HOUSING COMMUNITY |
|  | SCREEN ELEMENT OR LANDSCAPING ALONG ROAD |  | BUILDING + PARKING ACCESS |
|  | MINIMIZE CLEARING AROUND BUILDINGS TO RETAIN EXISTING FOREST |  | TRAIL + GATHERING SPACE ACCESS |
|  | GATEWAY ZONE / FUTURE ACCESS ROAD |  | PROPOSED LANDSCAPED AREAS |
|  | INTEGRATE SIGNAGE TO BETTER IDENTIFY PRECINCT |  | EXISTING BOREAL FOREST |
|  | RENEWABLE ENERGY PRODUCTION INTEGRATED INTO BUILDINGS |  | MASTERPLAN PHASE 1 DEVELOPMENT |
| | |  | MASTERPLAN PHASE 2 DEVELOPMENT |
| | |  | MASTERPLAN PHASE 3 DEVELOPMENT |
| | |  | EXISTING BUILDING |

5. COMMUNITY + CULTURE

The Community and Culture precinct include facilities owned and operated by the Yukon Government and the Yukon Arts Centre Corporation. As the Yukon Territory’s premier arts venue, the Yukon Arts Centre provides a cultural anchor to the Yukon College campus and City of Whitehorse. The facility includes a performing arts centre, art gallery, rehearsal spaces, collections storage and an outdoor sculpture garden. Also located within the precinct is the Yukon Archives, a high level repository for the Yukon’s archival material and heritage resources.

With a focus on the creative arts and preservation of heritage resources, the community and culture precinct provides a venue and opportunity to interface with the greater Whitehorse community. Both facilities are in the planning stages of major future expansions. It will be important for both facilities to link their plans with Yukon College’s master planning process. It will also be important for Yukon College to explore mutual development opportunities that further promote the arts on campus and in Whitehorse. The precinct provides opportunities to:

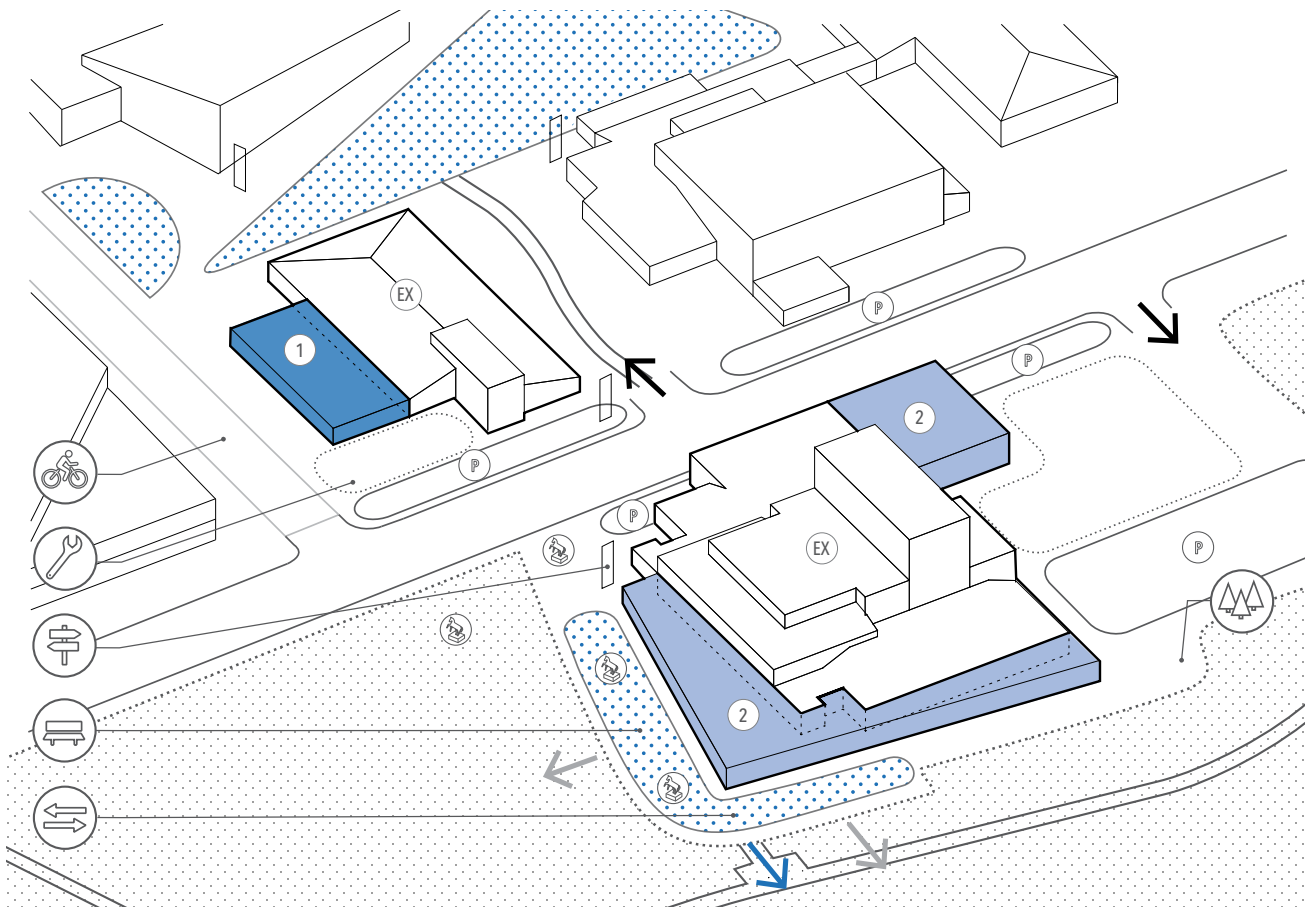
- Better integrate, art, culture and academic excellence on campus
- Support a campus-wide arts and culture strategy integrating First Nation and other Yukon-based visual, literary, and performing artists.
- Further build upon the existing sculpture garden by expanding and supporting the placement and production of art elsewhere on campus.
- Utilize the Art Centre venue to accommodate Yukon College activities and events.
- Explore mutual educational, cultural and artistic opportunities that may include such programmes as an artist-in-residence programme, training opportunities, site installations and other visual, literary and performing arts connected to Yukon College’s academic pursuits.







Sajos Sami Cultural Centre, Inari, Finland



Katuaq Cultural Centre, Nuuk, Greenland



-  PUBLIC GATHERING SPACE / SEATING / LANDSCAPING
-  CONNECT EXISTING FOREST WITH PROPOSED LANDSCAPED AREAS
-  DESIGNATED PRECINCT PARKING
-  LOCATE PUBLIC CAMPUS ART ALONG TRAILS, PEDESTRIAN ROUTES + PUBLIC GATHERING SPACES
-  MINIMIZE CLEARING AROUND BUILDINGS TO RETAIN EXISTING FOREST
-  INTEGRATE SIGNAGE TO BETTER IDENTIFY PRECINCT
-  PUBLIC TRANSIT / CYCLING / PEDESTRIAN ROUTE

-  BUILDING + PARKING ACCESS
-  TRAIL + GATHERING SPACE ACCESS
-  VIEWS
-  PROPOSED LANDSCAPED AREAS
-  EXISTING BOREAL FOREST
-  MASTERPLAN PHASE 1 DEVELOPMENT
-  MASTERPLAN PHASE 2 DEVELOPMENT
-  MASTERPLAN PHASE 3 DEVELOPMENT
-  EXISTING BUILDING

6. ADVANCED SKILLS + TECHNOLOGY

The Advanced Skills and Technology precinct's identity is linked to its function as a hands-on education hub. The architectural strategy for this precinct celebrates learning and training while showcasing sustainability goals in emerging trades opportunities. The architecture of this precinct should:

- Be sensitive to their proximity to a mature boreal forest, existing recreational trails and views of the Yukon River valley.
- Screen training equipment from the rest of the campus.
- Convey an honest expression of program functions, building structure and mechanical systems in order to serve as a legible learning environment.
- Use durable and robust building materials.
- Embody a sense of openness and transparency within the building itself and between the building and surrounding campus.
- Use common gathering components in order to help articulate building programme and form.
- Visually connect programme areas within buildings in order to create relationships between them, and encourage shared learning with this interplay.
- Focus on the application of technology, sustainability, and an innovative approach to the built environment and its transformation.
- Showcase education relating to sustainability and innovation in the trades (reclaimed landscaping approaches).
- Integrate a strategy for post-industrial reclamation of the landscape and connecting to the land in a more sustainable way.



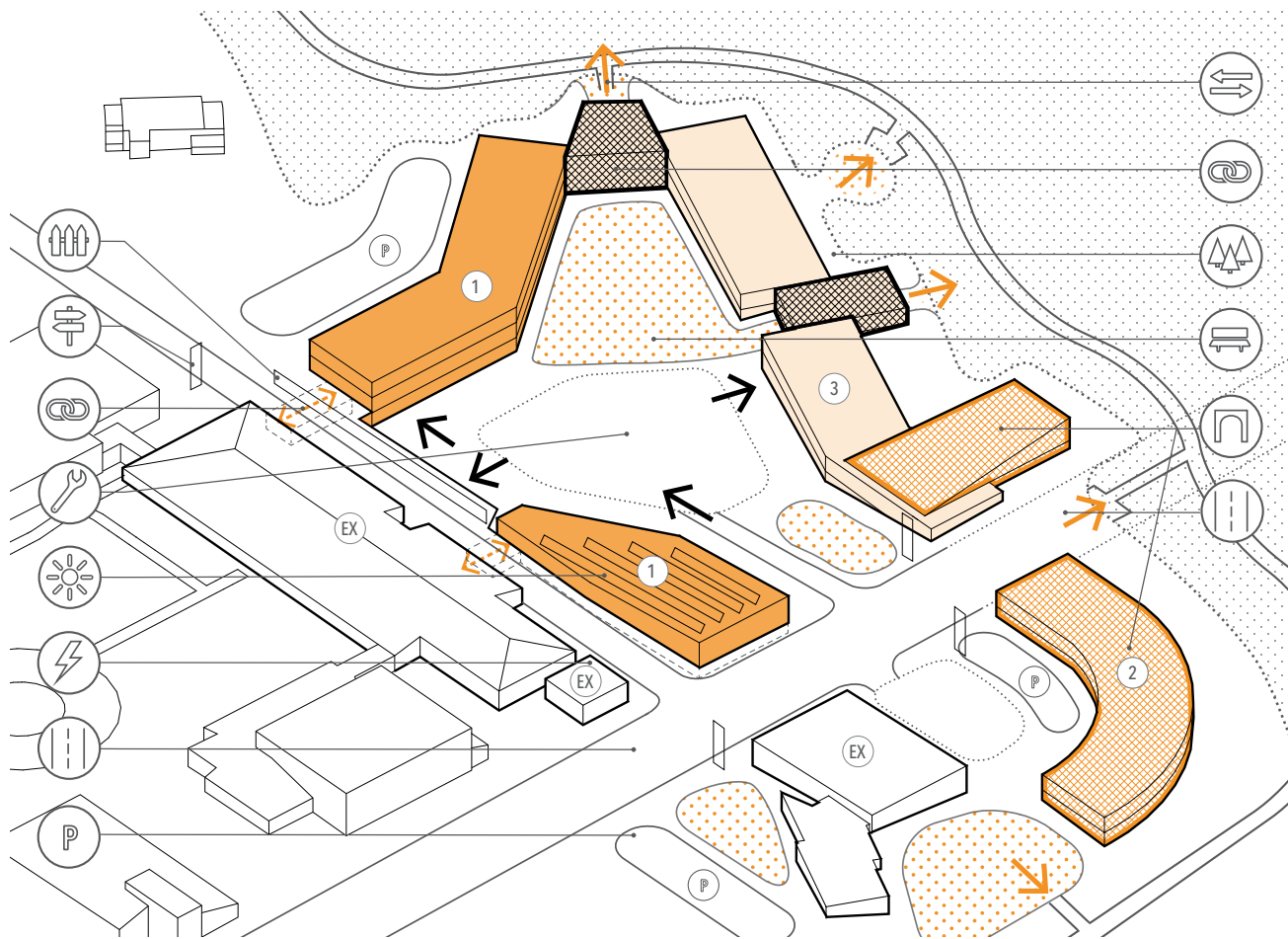
College of New Caledonia Technical Education Centre, Quesnel, BC



Len Evans Centre for Trades & Technology, Assiniboine Community College, Brandon, MB



College of New Caledonia Technical Education Centre, Prince George, BC



- | | | | |
|--|---|--|--|
| | PUBLIC GATHERING SPACE / SEATING / LANDSCAPING | | BUILDING PHASE LINK ELEMENT / COMMON AREA FUNCTIONS |
| | NEW BUILDINGS TO SCREEN EQUIPMENT + VEHICLE STORAGE AREA FROM VIEW | | CONNECT EXISTING FOREST TO PROPOSED LANDSCAPED AREAS |
| | PROPOSED CAMPUS CENTRAL ENERGY PLANT | | BUILDINGS AS GATEWAY COMPONENTS ALONG FUTURE ROAD ACCESS |
| | SCREEN ELEMENT ALONG ROAD | | BUILDING + PARKING ACCESS |
| | INTEGRATE SIGNAGE TO BETTER IDENTIFY PRECINCT | | TRAIL + GATHERING SPACE ACCESS |
| | RENEWABLE ENERGY PRODUCTION INTEGRATED INTO BUILDINGS | | PROPOSED LANDSCAPED AREAS |
| | MINIMIZE CLEARING AROUND BUILDINGS TO RETAIN INTIMATE CONNECTION TO EXISTING FOREST | | EXISTING BOREAL FOREST |
| | GATEWAY ZONE / FUTURE ACCESS ROAD | | MASTERPLAN PHASE 1 DEVELOPMENT |
| | | | MASTERPLAN PHASE 2 DEVELOPMENT |
| | | | MASTERPLAN PHASE 3 DEVELOPMENT |
| | | | EXISTING BUILDING |

6.2.7 Parks + Open Space Design Guidelines

Approach to Open Space

The primary goal for the open space is to tie the surrounding exceptional natural landscape into the campus creating an open space system with a strong sense of place, community and culture. This strategy would:

- Enhance existing open spaces and make strong connections to surrounding forest by extending 'green fingers' of landscape through the campus.
- Provide a variety of spaces and experiences to allow for a wide range of uses in all seasons enhancing student life.
- Use open space to reinforce interior building uses. Take advantage of favorable microclimates when siting outdoor uses.
- Celebrate First Nations culture throughout the open space network.
- Integrate best practices in sustainability.
- Engage the surrounding forest by supporting programs that allow for teaching, learning and celebration of northern culture.
- Reinforce the network of paths surrounding the campus by linking internal circulation to offsite trails, including the Trans Canada Trail.
- Provide safe and comfortable routes to the Ayamdigut campus for pedestrians, cyclists, skiers and snowshoers.
- Minimize disturbance of adjacent natural areas. Protect environmentally sensitive areas.
- Maximize visual connections to the greater region by locating key public spaces where there are superb views offsite.



6.2.8 General Landscape Parameters

ACCESSIBILITY

Universal accessibility must be provided throughout the campus public realm and the surrounding forest and environmental areas. Within the main campus precinct, the detailed design of walkways and public realm should be inclusive of people with all mobility and accessibility challenges. Accessibility should be integrated in a direct manner and respect all key routing. Where possible all ramp grades should be less than 5% in the campus precinct.

Within the forest and environmental areas, universal accessibility will be more challenging to achieve however all initiatives should be taken to ensure there is good access to the environmental and forest areas for people with mobility challenges. Where possible all slope and ramp grades should be less than 5%, however the natural grades should not be significantly changed to achieve a 5% grade.

SIGNAGE AND WAYFINDING

Signage and Wayfinding will occur throughout the campus precinct and the surrounding forest and environmental areas. Signage and Wayfinding should be reflective of the Campus Vision and well integrated into the public realm in a seamless manner. A Signage and Wayfinding Plan and Strategy Document should be prepared and follow the Campus Master Plan and Design Guidelines.

The Signage and Wayfinding should incorporate First Nations, Educational, Sustainability, and Environmental content wherever possible. Signage should be proportional with the public space and building architecture. Signage and Wayfinding should incorporate the First Nations Language where appropriate and when applicable.

LIGHTING

As with the other public realm elements, the lighting fixtures will seek to create a unity through the campus. As there are a mixture of existing fixtures, the proposed fixture has been selected to meet environmental criteria and has an aesthetic that works with the existing fixtures. There shall be a distinct hierarchy of lighting ranging from street/vehicle lighting to gathering / plaza scale pedestrian lighting and lower level pedestrian lighting in smaller scale spaces, such as around the residential buildings. Lighting will be provided for all key pedestrian routes excluding the forest trails. Lighting requirements are:

- LED high efficiency lights
- High cut off rates to reduce light trespass
- Dark sky compliant

Other lighting should occur in selected areas such as within landscape walls, landscape elements, and under benches. Lighting should be utilized in a manner that it provides safety through all seasons, yet is subtle and respectful of the dark sky and aurora borealis night skies.



Philips Oval Series - Atria / ATR1

SITE FURNISHINGS

A kit of site furnishings approach that is in keeping with the overall design theme will be applied throughout the campus precinct and public realm. Preference will be given to products that are manufactured from sustainably sourced and/or with recycled content, are recyclable/ upcyclable at the end of their functional lifecycle, and are durable in the northern environment.

This kit of site furniture shall include:

- A variety of Seating Options including formal and informal elements
- Bike racks (single and multiple)
- Heavy Timber Bollards
- Recycling and waste containers
- Picnic Tables

SEATING

Seating elements should be integrated within the landscape with custom benches that are incorporated into walls, grade changes, and other landscape elements. A consistent and typical look and style of bench is not proposed throughout the campus, however, a more unique custom look is proposed based on the character of the space and area within the campus.

The benches should have heavy timber members with a concrete and / or metal structural frame. Detailing of the custom benches should ensure they are durable, long lasting, and require minimal maintenance. Arm rests should be utilized when necessary to deter skateboarders and to assist in mobility issues.



Custom built in seating



Custom built in seating

HEAVY TIMBER BOLLARDS

When bollards are required to protect pedestrians from vehicle areas and / or to protect vehicles from accessing special areas, custom heavy timber bollards should be utilized. A standard bollard design can be established, however various custom designs can be incorporated into the design based on the character area.



Heavy timber bollards

PICNIC TABLES

Picnic tables should be utilized throughout the campus precinct especially in the residential areas.

The tables should be custom designed and made locally with local wood and heavy metal frame. Structures should be durable and made with heavy timber.



Locally made custom wood and metal picnic tables

RECYCLING AND WASTE CONTAINERS

A standard waste and recycling container is proposed for the campus precinct and should be utilized throughout the campus.



Corida Litter & Recycling Receptacle

BIKE RACKS

Bike Racks, Bike Shelters and Bike Storage elements should be utilized throughout the campus. Bike racks should be conveniently located close to entryways and in gather spaces, while bike storage and lockers should be located within close proximity and not blocking entrances and / or features areas.



Urban Racks Bike Shelter



Urban Racks Staple Rack



Urban Racks Bike Locker

PLANTING AND TREE PRESERVATION

Where ever possible existing trees and forested areas within the campus lands should be preserved and protected as the campus expands.

The planting in the public realm will be a critical element in achieving the design intent of a native Boreal Forest landscape. The soft landscape areas will predominantly be large informal groups with naturalistic arrangements. Flowering plants will be used to compliment the typically evergreen native plant palette.

The use of native trees, shrubs, ground covers, and perennials shall be maximized and utilized in all planting areas so there is a rich character of plant materials. The tree plantings will be focused on the use of evergreens and some deciduous, to be in character with the surrounding forested areas; however, native like deciduous trees will also be used in the streetscape and other areas of the site where appropriate. Plantings shall be appropriate to the micro-climatic conditions such as forest understory, forest edge condition, and river foreshore. The tree plantings shall also be indigenous to the area and reflective of the plant material important to local First Nations.



Use of local planting referencing surrounding site

PAVING MATERIALS

Paving should serve as a one of the unifying elements throughout the campus landscape. Paving materials should be robust, durable, and easy to maintain during the winter months of snow plowing. A hierarchy of paths will be reinforced with the use of more detailed paving for the major and main paths, while a simpler and / or no pattern should be utilized on minor pathways. Paving materials should be a limited pallet including heavy broom finish concrete, heavy exposed aggregate paving, and in special and feature areas, local stone paving mortared in place on a concrete base, and crushed granular stone material for minor pathways and informal spaces.

MAIN PATHWAYS AND FEATURE SPACES

The paving material for the main pathways should be a combination of heavy broom finish concrete and heavy exposed aggregate. The heavy exposed aggregate should be utilized as accent and patterns that reflect First Nations Art, Language, and / or contextual landscape images. The main pathway systems within the campus core should be a minimum of 150mm in depth to allow for trucks, vehicles, and freeze through. Special and / or feature areas, such as plazas and paved gathering spaces could also include local stone paving mortared in place on a cip concrete base along with the combination of heavy exposed aggregate and



First nations art - inspired patterns incorporated into paving

SECONDARY PATHWAYS

The paving material for secondary pathways should be heavy broom finish concrete. The secondary system within the campus core should be a min. of 150mm in depth to allow for trucks, vehicles, and freeze though, where appropriate, and / or 100mm in depth if heavy machines and vehicles will not be present.

MINOR PATHWAYS AND INFORMAL SPACES

The paving material for minor pathways and informal areas should be crushed granular stone with a heavy metal edger. This paving material should be utilized where permeable paving is desired and / or in informal character areas.

6.2.9 Parks + Open Space: Character Areas

There are a number of character areas envisioned for the campus. They include:

1. Terraced Front Door
2. Central Courtyard
3. Transit Mall
4. Academic Courtyard
5. Trades Public Realm
6. Community Gathering Spaces
7. Surrounding Forest
8. Environmentally Sensitive Area
9. Trail Network
10. Streets and Parking





Terraced Forecourt



Informal Seating Stair

1. TERRACED FRONT DOOR

Design considerations:

- Focused around important views
- Strong visual connection to the heart of campus from arrival point on College Drive
- Open spaces take advantage of solar exposure
- Terraced to respond to slope
- Strongly connected to indoor common areas
- Celebrate First Nations culture
- Retain existing mature trees at north of forecourt

Programing ideas:

- Lookout at highest point with views to Golden Horn and Mount McIntyre
- Landscaped areas to feature local plants
- Informal seating on stairs and at retail locations
- Research Gallery to showcase work of students and faculty
- First Nations Art as campus landmark
- Drop-Off Area
- Connection to trail network and Sculpture Park
- New campus gateway and plaza to connect across College drive to trail network and sculpture park



Front Door Plaza with Connections to Indoor Areas





2. CENTRAL COURTYARD

Design Considerations:

- Sheltered from strong southerly winds by adjacent buildings
- Strongly connected to indoor common areas and pedestrian network
- Create a vibrant, social heart for the Ayamdigut Campus
- Retain existing mature trees
- Appropriately scaled and designed for use year round
- Open space to accommodate large special events as well as every day use

Programing ideas:

- Teaching greenhouse
- Event lawn / ice rink
- Location of public art, platform for outdoor carving
- Landscaped areas to feature local plants
- Outdoor social space associated with Commons Wing, Student Union, Native Language Centre
- Plaza at Archives building to display historical information
- Convocation procession held in Courtyard
- Location for student and event photos



Strong Connection to Indoor Uses + Pedestrian Network



Ice Rink



Special Paving on Transit Mall



Transit Hub

3. TRANSIT MALL

Design Considerations:

- Provide location for buses to safely drop students, staff, faculty and residents
- Emphasis on pedestrian and cyclist experience, buses and cars secondary
- Integrate natural forest character into mall
- Create a strong connection between mall and rest of campus and extended trail system
- Take advantage of views
- Design to be informal and eclectic

Programing ideas:

- Bus stop / shelter at either end of mall
- Informal seating on benches
- Generous planting areas in alternating bands to allow for groupings of local trees
- Special paving at major pedestrian crossing
- Opportunity for bike lockers for cyclists
- Landscaped areas to feature local plants
- Plaza at south end of mall with views to Golden Horn



Encourage Alternative Modes of Transportation



Generous Plantings featuring Local Plants



Terraced Landscape with Social Spaces and Local Plants

4. ACADEMIC COURTYARD

Design Considerations:

- Reflect research and learning happening in the buildings in the adjacent landscape by showcasing best practices in environmental sustainability
- Provide direct pedestrian connections to the rest of campus, in particular the Terraced Front Door
- Create a variety of social spaces that allow for small group work and large gatherings out of doors in all seasons
- Landscape to include opportunities for environmental research
- Social spaces to be located where buildings create comfortable micro-climates relating to interior common space



Landscape Feature and Social Spaces

Programing ideas:

- Stormwater feature with water quality research station
- Plantings featuring local plants which have high habitat values, low water use and are disease resistant
- Location of public art with a focus on learning and innovation
- Generously planted surface parking lot with covered parking below



Sculpture with Focus on Innovation



Access for Trucks and Machinery



Outdoor Space Nodes

5. WORKYARD

Design Considerations:

- Provide circulation and access for trucks and machinery
- Maintain a safe and engaging pedestrian experience in works yard
- Integrate forest character in plantings at social spaces
- Create a strong connection between trades public realm and surrounding forest
- Take advantage of views to surrounding landscape and campus features
- Potential new road to connect College Drive to Mountain View Drive to the north

Programing ideas:

- Bring forest to northern building edge
- Create connection with Trans Canada Trail
- Locate outdoor social spaces at community nodes in building
- Allow for viewing of interesting activities / student research at outdoor social spaces
- Increase northern greenhouse experimentation opportunities



Forest to Building Edge



Feature Local Plants and Views to Nearby Mountains



Community Garden

6. COMMUNITY GATHERING SPACES

Design Considerations:

- Landscape adjacent to buildings to provide high degree of amenity to residents
- Buildings to be placed carefully and with minimal disturbance to existing forest
- Highlight views to surrounding forests and mountains whenever possible

Programing ideas:

- Add social space between buildings to provide residents and their visitors space for outdoor enjoyment
- Surround buildings with local trees and plants
- Provide informal social spaces in keeping with the character of the residences
- Provide connection to trail system and additional community garden space
- Create a strong pedestrian access across parking lots.
- Add meadow planting to west side of buildings for recreational uses
- Add meadow planting to west side of buildings for recreational uses
- Ecological Centre to be located at south end of parking lot to take advantage of connection to trail network and views to lakes.





High Quality Forest



Incorporate Forest into Campus

7. SURROUNDING FOREST

Design Considerations:

- Adjacent land is northern boreal forest with views to surrounding mountains
- The forest is home to diverse species of wildlife
- The active McIntyre Creek fish hatchery is located in forest
- Sections of the site in the forest are designated for use as park and greenbelt
- The site is home to an extensive well used trail system which includes the Trans Canada Trail



Forest is Valued and Well Used

Programing Ideas

- Sensitively place small structures in forest for use as research huts / artist retreats
- Site an Ecological Centre above the ponds to engage community and College with this rich northern landscape
- Expand an existing open space in the forest to create a multi-use meadow for special events, informal sports or community events
- Site housing, moveable structures and platforms as part of Hub + Satellite strategy





Mature Riparian Forest at McIntyre Creek

8. ENVIRONMENTALLY SENSITIVE AREA

Design Considerations:

- The area consists of mature high quality boreal forest with some residual forest patches not damaged in the fire in 1920's
- McIntyre Creek, wetlands, open water, marsh and lakes provide valuable habitat
- Some of the best examples of riparian spruce ecosystems in Whitehorse can be found where the forest meets the creek and wetlands
- The forest has a range of tree sizes and complex vertical structure providing a number of different habitats for forest birds

Programing ideas:

- Preservation of environmentally sensitive area is a key priority, any modifications to this area are to be done with minimal disturbance to existing conditions
- Site platform as part of Hub + Satellite strategy



Meadow with Forest and Views to Mountains Beyond



Open Water at Lakes



Forest Trail Character



Commuter Trail Character

9. TRAIL NETWORK

Design Considerations:

- The existing trail network is extensive and well used.
- Trail types include:
 - Trans Canada Trail
 - shoulders at edges of College Drive
 - sections of gravel road at pump station
 - cleared Hydro right of way
 - sidewalks on campus
 - informal forest trails
- Trails are used by commuters, hikers, bikers and ATV's.

Programing ideas:

- Preserve existing trails and connect campus circulation routes to them to create an expanded recreational trail network
- Introduce a Learning and Culture Trail which builds on the existing trail network; trail to pass through various habitat types, archaeological sites and view points showcasing the environmental and cultural richness of the site
- Create recreational / physical fitness loop in forest



Trans Canada Trail



Trails used in all Seasons



10. STREETS AND PARKING

Design Considerations:

- Streets to provide safe, attractive circulation network for vehicles and pedestrians
- Bring forest character into streetscapes and parking areas with generously scaled planting areas featuring local plants.
- Street furnishing to be robust to withstand local climate
- Provide benches, lighting and planting areas to create nodes for social interaction
- Parking lots to be informal in design and integrate vegetated areas

Programing ideas:

- Create a family of custom benches that reflect unique character of Ayamdigut campus.
- Include public art in the streetscape
- Landscaped areas to feature local plants
- Use local trees in large, informal groupings to shade parking lots and soften their appearance.



Use Local Vegetation to Screen Parking



Custom Bench at Street

6.3 Sustainability Strategy

Throughout the Ayamdigut Campus Master Planning Process there was a strong consensus from faculty, students, staff, stakeholders and the public that Yukon College should continue to strengthen its leadership in sustainability. This desire is reflected in the overarching principles and is embedded deeply in several of the planning and design principles. This section looks at sustainability more deeply and provides a roadmap for strengthening overall sustainability performance.

The Cold Climate Innovation (CCI) program at the Yukon Research Centre is focused on the development, commercialization and export of sustainable cold climate technologies and related solutions for subarctic regions around the world. CCI project areas include alternative energy, building construction, climate-related research, environmental remediation, food security and mechanical innovation. This program can and should be linked to the sustainability strategies listed below.

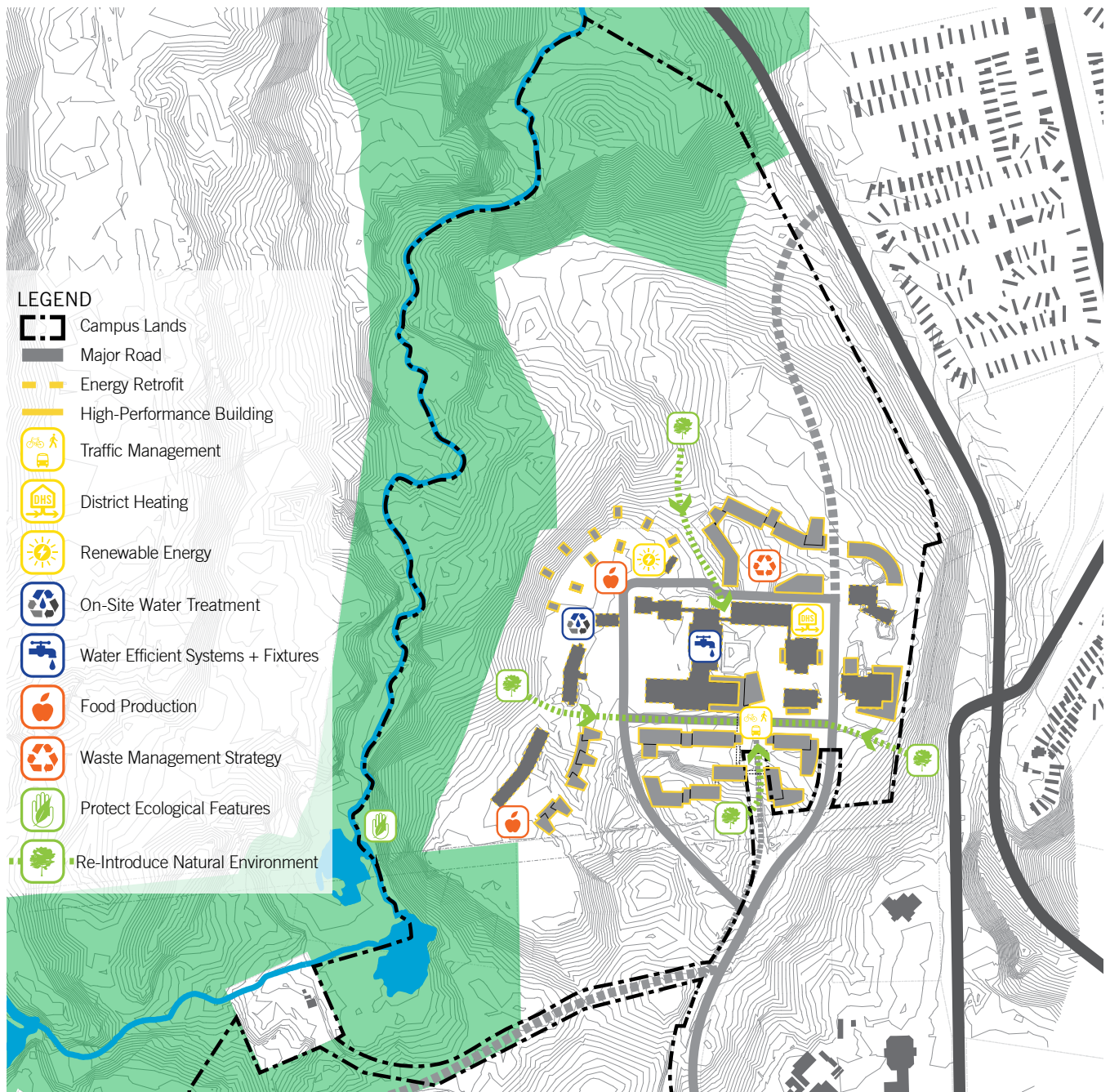


Figure 37 - Sustainability Strategy Diagram



GOAL: IMPROVE PERFORMANCE IN OPERATIONAL AND EMBODIED ENERGY/CARBON

STRATEGY E.1 TRAFFIC DEMAND MANAGEMENT

The way people move around can contribute significantly to greenhouse gas emissions. Transportation approaches should aim at reducing automobile use by improving pedestrian, cyclist, and transit infrastructure and minimizing the negative impact of vehicles on campus. Programs that encourage car-sharing and alternative transportation should be implemented on campus.

STRATEGY E.2 DISTRICT HEATING PLANT UPGRADES

Yukon College currently uses a diesel district heating system that is inefficient and relies on a non-renewable fuel source. The College should transition away from diesel to a more sustainable fuel source such as gas (which is coming to the region and has fewer particulate emissions). Over the short term this could mean a transition to natural gas with a longer term outlook to a renewable energy source such as biomass. Important considerations include:

- Government incentives to help fund upgrades;
- Changing the jurisdiction of the district heating system to allow the College to make decisions relating to operation and maintenance;
- Condensing gas boilers: existing buildings will be high temperature supply and return but new and upgraded buildings could make use of lower temperature heating water
- Synergies with the Yukon Research Centre and existing renewable energy generation on campus;
- The adjacent Correctional Facility is currently using pellets that could be incorporated into a campus-wide system;
- A biomass plant would require good emission controls to clean up the flue gas;

STRATEGY E.3 INCREASE GENERATION AND USE OF RENEWABLE ENERGY ON-SITE

There are significant opportunities to incorporate research undertaken at the Yukon Research Centre (YRC) into the campus master plan. Projects that could contribute to energy generation, optimization and education on the Ayamdigut campus include:

- A closed loop biomass energy control system;
- A remote solar/diesel hybrid power generation station;
- Wind turbines; and
- Plastics-to-fuel optimization

STRATEGY E.4 IMPROVE ENERGY PERFORMANCE OF EXISTING BUILDINGS

Many of the original YC buildings have a poor energy performance and significant opportunities exist for reductions in existing facilities. The following energy targets for Existing Building Retrofit are proposed:

- 50% better than NECB Equivalent (ASHRAE 90.1-2010 50% - LEED 2014);
- 5% of total building energy from renewable energy sources

Existing Buildings should target LEED EB:O&M Silver for existing renovated buildings.

Vacuum panels could be used for retrofitting existing buildings without creating overly thick exterior walls. Building envelope upgrades should include updating the systems (low return temperature with reduced heating loads), updated lighting to LED, and updated plumbing with purple pipe, reused water line.

STRATEGY E.5 ENSURE HIGH PERFORMANCE OF NEW BUILDINGS

Using NECB 2011, the following preliminary energy targets are proposed for new building construction:

- 80% better than NECB 2011 (Assumes renewable energy component);
- 10% of total building energy from renewable energy sources

New buildings should target LEED NC Gold.



GOAL: REDUCE POTABLE WATER USE

STRATEGY WATER.1 PROVIDE ON-SITE WATER TREATMENT

The City of Whitehorse is the driest city in Canada, therefore opportunities to capture and re-use rainwater as a strategy to reduce potable water use are limited. Treating greywater and/or blackwater represent an effective means of reducing potable water use on campus.

Sanitary infrastructure on the campus is under-sized and new development will likely require upgrades to the existing infrastructure. An added benefit of on-site water treatment is to reduce pressure on the sanitary system and provide opportunities for education and innovation in water treatment in a northern context. Key considerations include:

- Water reuse system or purple pipe system for flushing toilets and irrigation;
- Fit new buildings with reuse piping
- Renovate existing buildings to include a purple pipe system
- Reusing water reduces the need for water efficient fixtures. Moderately efficient fixtures are more reliable and rarely require a second flush.

STRATEGY WATER.2 IMPLEMENT WATER EFFICIENT FIXTURES AND SYSTEMS

Strategies to improve water efficiency in new and existing buildings and irrigation systems include:

- Reduce the flow rate by adjusting building pressure reducing valves (PRVs) to operate at 40 psi for academic buildings and 60 psi for residential buildings
- Install high efficiency/dual flush toilets (0.92 gpf), waterless and/or high efficiency urinals, faucets (1.5 gpm) and showers (gpm)
- Switch to drip irrigation systems and/or use nonpotable water (ie. greywater)



Figure 38 - Blackwater treatment at the Centre for Interactive Research on Sustainability at UBC

WASTE

GOAL: REDUCE MATERIAL INPUTS AND OUTPUTS ON CAMPUS

STRATEGY WASTE.1 PRODUCE FOOD ON-SITE

On-site food production helps to demonstrate northern self-sufficiency, reduces transportation costs associated with importing food, provides a source of fresh, healthy food, and creates opportunities for students and residents of Whitehorse to enjoy the experience of a year-round greenhouse during long winter months.

A number of on-site food production initiatives are already underway on the Ayamdigut campus. These include:

- A small greenhouse and community garden for the Seniors Residence: this greenhouse is only operated during the warmer months to avoid the additional costs associated with heat and light during the colder months.
- YRC demonstration greenhouse: experimenting with northern greenhouse technology and an expanded local food production system on the campus

These initiatives should be expanded and linked with College programming (such as the culinary institute) to provide healthy, local food options for students, faculty and staff. Key considerations include:

- Expanded greenhouse system could tie into low temperature heating/flue gas condensation; and
- Intensive, hydroponic farming has significant potential in the North for year-round food production: with high food cost this could be healthy, profitable, and provide local jobs.

STRATEGY WASTE.2 TARGET ZERO WASTE TO LANDFILL

Strengthen the existing recycling/reuse program on campus and expand it to include composting or biogas from organic food waste. This strategy could be linked to on-site food production and on-site energy generation.

Energy Generation:

- Waste generated on campus could be converted to energy through:
 - Gasification for power or heat generation; and
 - Anaerobic Digestion.



Figure 39 - Yukon College's Greenhouse uses new technology and green energy to extend the growing season.



Figure 40 - Closed cycle aquaponics system in Prince George, British Columbia operating 12 months a year.



BIODIVERSITY

GOAL: ENHANCE + RESTORE ECOLOGICALLY PRODUCTIVE AREAS

STRATEGY B.1 PROTECT EXISTING ECOLOGICAL FEATURES

The Ayamdigut campus is located within a rich natural setting in close proximity to adjacent environmentally sensitive areas. Future development will minimize disruption to the natural environment by concentrating future development within the existing campus core, implementing a tree retention strategy and using best practices in low impact northern development.

STRATEGY B.2 REINTRODUCE THE NATURAL ENVIRONMENT

Reintegrate the natural environment into the campus landscape and thereby restore and enhance the ecological function of the core campus.

STRATEGY B.3 STORMWATER MANAGEMENT:

Permeable soil conditions and limited precipitation on the Ayamdigut campus mean that stormwater management is not of major concern. However, landscape design should continue to focus on on-site rainwater infiltration and avoid reliance on collection and conveyance stormwater systems.



ON-GOING MONITORING

In addition to certification tools, it is recommended that actual building and campus performance metrics be monitored. These include:

- Campus GHG emissions – total and per unit area
- Energy Use Index – EUI for buildings and campus
- Water Use Index - WUI for buildings and campus
- Waste generated, recycled, biogas/composted, sent to landfill – tonnes/year of each and per FTE
- Transit or commuting data

This data requires building metering. There is an existing operating model and with historic data, the move toward better performance can be documented to demonstrate the campus commitment to improvement. These metrics are how campuses are compared.

A major concern for educational institutions is the electrical energy use at night/weekends and other non-occupied times. Wasted energy in a region with high energy costs significantly increases operating costs. Energy retrofits that save money can fund other energy upgrades. These savings can be tracked using the monitoring system described above.