

# *University of Northern British Columbia*

## *Master Plan*

*2008*



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## 1.0 Purpose

The first Master Plan for the University of Northern British Columbia (UNBC) was created over ten years ago. Due to the changes (e.g., in facilities, programs, growth and vision) that have taken place, it is necessary to update or reconstruct a Master Plan for the coming years. Accordingly, the purpose of this document is to provide a broad framework of policy about the physical environment that is intended to forward the University's teaching, research and community partnership goals. This Plan is divided into seven sections.

- an Overview (Section 2.0 - the history and context);
- the Planning Process (Section 3.0);
- the Planning Principles (Section 4.0) for the Prince George and regional campuses;
- the Design Principles (Section 5.0) for the main Prince George campus;
- Sustainable Practices (Section 6.0) for the Prince George and regional campuses;
- the Visions and Development Patterns (Section 7.0) for the Prince George land-use zones - Core Campus lands; new Crown Grant lands; lands adjacent to the University Heights Neighbourhood; and the Off-Campus sites; and
- the Application (Section 8) of the planning and design principles and sustainability practices to regional campus development.

As the Master Plan is a policy framework, there should be a yearly accounting to the Board of Governors on policy issues arising from the University Master Plan. As well, because of the evolving nature of the University's academic and research plans, City, Provincial and Federal Government legislation and policy directions, and normal review practices, there should be a review of the Master Plan every three years.

## 2.0 Overview

**2.1 Historical - Master Plan and Capital Plans.** In 1991, a Facilities Master Plan<sup>1</sup> was developed by Musson Cattell Mackey Partnership for the Interim Governing Council. This Plan was “conceived as a campus based on a radial organization that plans for growth around a central core, while maintaining a sense of completeness at all stages of growth.”<sup>2</sup> The Plan was established with stages of growth as follows:

- Phase 1-Year 1993 - 2,000 FTE Students
- Phase 2 -Year 2000 - 4,000 FTE Students
- Medium Long Range - 6,000 FTE Students
- Long Range – 12,000 FTE Students

Since that Plan was developed, the University has gone through two stages of capital development. Phase 1 spanned the period from 1990 - 1996 during which time UNBC constructed its original core campus. The Net Assignable Square Meters of Space (NASM) built was 24,706 consisting of nine buildings that together comprised the core campus (Agora, Administrative Building, Conference Centre, Winter Garden, Student Services Centre, Laboratory building, Library, First Nations Centre and a student residence). The Central Power Plant, two additional buildings, a second residence and a daycare centre, brought to conclusion the University Phase 1 campus development.

Phase 2 began with the approval of the 1997 Five Year Capital Plan. The highest priority item was a Teaching Laboratory Building (with the intended by-product of converting the original Laboratory Building to a Research Laboratory building), and an athletic centre. A government imposed capital freeze delayed the implementation of the Phase 2 Plan, but subsequently, the University submitted a 2001 – 2003 Capital Plan and a 2003 – 2008 Capital Plan and completed the Teaching Laboratory Building, the Bentley Centre, the I.K. Barber Enhanced Forestry Lab, the Dr. Donald Rix Northern Health Sciences Centre, the Double the Opportunity expansion to the Teaching Laboratory Building, the first phase of renovations to the Geoffrey Weller Library, the expansion of heating and cooling capacity in the Central Power Plant, the Teaching and Learning Centre, and a number of specialized research laboratories from CFI, BCKDF and private funding. This phase of planning will be complete with the Northern Sport Centre and the second phase of the Library renovations (fall of 2007), and the conversion of the west wing of the Conference Centre to a Northern Undergraduate Student Centre. Upon completion of these capital projects, there will be significant re-allocation of

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<sup>1</sup> This Plan included: phasing and growth; land use; functional organization of the campus core; spatial ordering system; circulation systems, utilities, storm drainable system; planning principles; and design guidelines for the Prince George campus.

<sup>2</sup> 1991 Master Plan

existing space on the Prince George campus, including space vacated by the Northern Undergraduate Student Society and other students groups in the Agora.<sup>3</sup>

Phase 3 begins with the 2006 - 2011 Five Year Capital Plan; the new Academic Vision; research plans; the Accountability Plan and Report (2007/08 - 2009/10), including the strategic planning initiative entitled “Embracing Change: Promoting Excellence”; new enrollment projections; the Campus2020 Report; and five land planning projects.

**2.2 Five Year Capital Plan and Enrolment Growth Projections.** The main conclusion emerging from the 2006 – 2011 capital plan submissions was that the major drivers of space requirements were: Administrative Offices, Faculty Offices to accommodate five year projected faculty growth, research, library, classroom (including rooms outfitted for video and computer conferencing), student services and new initiatives (academic, cultural, and community oriented). Current and projected space inventories provided evidence that UNBC would continue to experience shortages of office, library, classrooms, and teaching laboratory space, notwithstanding the fact the UNBC is projected to be at the 90% range of its space requirements to 2009-2010. However, this reduces to 84.0% by 2014-15. This is based on the following enrolment growth projections.<sup>4</sup>

Year	Enrolment Target (FTE)	% Growth
2007-08	3,253	2.5%
2008-09	3,332	2.4%
2009-10	3,411	2.4%
2010-11	3,469	2
2011-12	3,538	2.0%
2012-13	3,609	2.0%
2013-14	3,681	2.0%
2014-15	3,755	2.0%

The 2006 - 2011 Report concluded that the major non-academic administrative units and the Student Services units should be able to cope over the next five years both within the space they currently occupy and within the additional space they have been assigned priority to through the planned space reallocation process. As a result the Report concluded that the highest priority for space was for academic and research space. As noted in the 2006 - 2011 Capital Report, the experience of UNBC and other research intensive universities is that

<sup>3</sup> As noted in the 2006 - 2011 Capital Plan, there have been developments at the regional campuses. In Quesnel, the University partnered with CNC in the construction of the North Cariboo Community Campus. In Terrace, the University purchased a building there to serve as a Northwest regional campus. In addition, the Bank of Montreal donated its downtown building and property in Prince George to the University, establishing the basis for the creation of a Bank of Montreal Centre for Business Excellence.

<sup>4</sup> The enrollment projections were approved by the UNBC Board of Governors.

the BC University Space Standard for research space is an inadequate measure, falling significantly short of current and projected requirements.

Since the completion of the 2006 - 2011 Five Year Capital Plan, the University has submitted to the Ministry of Advanced Education a list of potential Capital Projects for 2009/10 to 2016/17 that include converting the Power Plant to alternate fuel sources; building a “Gathering Place” to meet the increasing needs of the Aboriginal community and a Peace River-Liard Regional campus. A Forest Products and Bioenergy Innovation Centre is also a high priority.

**2.3 Academic Vision.** “Over the course of its first decade as an independent post-secondary institution, UNBC has responsively developed over sixty undergraduate, professional and graduate degree programs. In doing so, the University has become regarded as one of Canada’s leading small universities. In addition to engaging in ongoing curricular and administrative changes during this relatively short time period, the University has conducted two major strategic academic planning initiatives.<sup>5</sup>”

In early 2005, the Academic Planning and Services Committee of President’s Council felt it was “timely to review the basic philosophical and pedagogical foundation for academic programming at the University of Northern British Columbia, to examine the success of current programs in attracting and retaining students and to consider areas of potential new programming that would build upon the University’s existing academic strengths and broaden the program options available to students in areas of potential enrolment growth.”<sup>6</sup>

The outcome of the comprehensive planning exercise determined that three interrelated, yet distinct, types of themes would describe both the thematic focus of the University’s academic programs, and how these programs are delivered. The three types of themes were: Thematic Academic Clusters, Foundational Academic Themes and Pedagogical Academic Themes.

The Thematic Academic Clusters represent the University’s academic strengths and aspirations and exhibit a balance between breadth and depth. The themes are: Natural Resources and Environment; Health and Human Development; Commerce and Community Sustainability; Indigenous People’s Knowledge; Global Processes and Perspectives; and Artistic and Cultural Expression.

The second type of theme, the Foundational Academic Themes, represents more traditional groupings of discipline-based academic programs and courses. Educational and research programs and courses within foundational academic themes contribute to their individual disciplines as well as provide the foundational

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<sup>5</sup> 2006, Final Report: Phase 1 of the Academic Visioning Initiative.

<sup>6</sup> Ibid.

knowledge required for the Thematic Academic Clusters. These themes are: Science and Mathematics, Social Sciences and Arts and Humanities.

The third type of theme, the Pedagogical Academic Theme, is comprised of both expected student outcomes and how these outcomes are to be achieved through the University's approach to teaching and learning. The student outcomes include:

- Appropriate depth and breadth of knowledge and skills
- Analytical, critical and creative thinking skills
- Liberality, inclusiveness and an appreciation of diversity
- Personal growth, leadership skills and effective communication
- Life-long learning and intellectual development
- Engaged citizenship from the local to global levels

The Pedagogical Approaches include:

- Experiential, collaborative, and active learning
- Inter-disciplinary approaches to knowledge acquisition
- A diversity of approaches and perspectives toward teaching, learning, and knowing that optimizes student outcomes
- Appropriate use of technology in the classroom and at a distance
- Research enriched and enhanced instruction
- Internationalization

The University is in the implementation stage of the new Academic Vision.

**2.4 Research.** The University is a major centre of research with priority given to addressing issues of relevance to its region, such as the environmental, health, social, economic and cultural issues of northern B.C. and similar regions around the world. Initiatives such as the Western Canadian Cryospheric Network and the mountain pine beetle projects led by University researchers, and the newly funded International Polar Year projects, exemplify UNBC's research in environmental issues. As Canada's Green University™, UNBC is committed to playing a leadership role in addressing sustainability issues locally, nationally and on a global scale. As part of the research vision, the University recognizes the important role of business, industry and community partnerships with respect to its research mandate. The University has also been focusing on the greater integration of research and graduate studies and will be developing a new Strategic Research Plan.

**2.5 Accountability Plan and Report - 2007/08 - 2009/10.** As required by the Ministry of Advanced Education of the Province of British Columbia, the University has prepared a three year plan. This plan and report are to communicate to the public and to the Ministry of Advanced Education, the University's goals and objectives over the next three years, as well as the results that the University has achieved over the past year.

The “2007/08 – 2009/10 Report” highlights the newly appointed President’s new strategic planning initiative entitled “Embracing Change; Promoting Excellence”. This initiative identified six strategic priority areas for the University, based on the University’s mission and vision<sup>7</sup>:

- Enrolment management, with an emphasis on FTE growth;
- Implementing the Academic Visioning Initiative;
- External relations, including fundraising and alumni;
- Research, business and industry partnerships;
- Regional operations, including First Nations communities; and
- Athletics

Almost all of the goals and objectives of these initiatives align in some way with the Ministry of Advanced Education’s goals and objectives as embodied by the Performance Measures prescribed by the Ministry.

**2.6 Campus2020 Thinking Ahead: The Report.** After a comprehensive province-wide public consultation, Geoff Plant, QC tabled a report in 2007 outlining a “shape for the future of post-secondary education in the Province of British Columbia”. The report indicated that “BC cannot have a system of higher learning in which all institutions aspire equally to undertake all responsibilities with an equal measure of success.” “The goal for BC should be a range of different institutions serving different purposes working together to form an integrated and coherent system across a comprehensive learning landscape.” He noted that “Regional accessibility is critically important to the future of a learner-centered post-secondary education system.”

For the University of Northern British Columbia, there is reference to the University as both a regional University, but also a small research intensive University. The importance of an integrated system in the North was emphasized with an important role for UNBC to maintain viable access to the full range of learning opportunities across the North. The Northern Regional Learning Council (consisting of the College of New Caledonia, Northwest Community College, Northern Lights College and UNBC) will provide a coordinated and collaborative access to learning opportunities. A Higher Education Presidents’ Council and Higher Education Board were proposed.

The Report contains fifty-two recommendations focusing on an access and excellence strategy, a BC Learning Gateway, quality assessment, and funding and financial assistance is under review by the Provincial Government and the

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<sup>7</sup> Vision: The University of Northern British Columbia aspires to be Canada’s premier small research-intensive university, with internationally recognized academic and research programs that prepare its graduates in select areas of high relevance to the peoples of our region, province, and beyond.

post-secondary institutions.

**2.7 Provincial Government Legislation.** The provincial government continues to pursue its goal of energy self-sufficiency by 2016. Examples of the government initiatives include: public awareness campaigns, advancing green buildings/communities and green building codes; transportation projects, legislation (e.g., greenhouse gas reduction targets and renewable energy targets), and increasing the resources in technology.

**2.8 Land-Use Planning Project.** In March 2006, the Lheidli T'enneh applied under the Indian and Northern Affairs BC Capacity Initiative 2006 - 2007 program for \$75,000 to undertake a Lheidli T'enneh Cranbrook Hill Land Use Planning Partnership. The project involves the City, UNBC and Lheidli T'enneh and has five deliverables. The University commitment is to assist with co-preparing an environmental analysis report and conceptual land use plan for the West Cranbrook Hill lands. This project will involve graduate students conducting field research and utilizing UNBC courses in the development of the land use plan.

### **3.0 Master Planning Process**

The planning process was guided by a Master Plan Committee consisting of the Director of Capital Planning, Director of Facilities, a dean's representative, a Board of Governors representative, student representatives, faculty representatives, a representative of the Communications department, the University Architect and the Vice-President, Special Projects. Additional resources supporting the planning process include engineers, architects, developers and city staff. Throughout the planning process, there was consultation with the University community, the City, the Lheidli T'enneh and community groups.

#### **3.1 Work Plan**

The Master Plan Committee divided the Phase 1 work into seven facets: 1) Committee education – reviewing the details of the 1991 Master Plan, the capital plans and the context for the planning process; 2) the development of the planning principles via a facilitated discussion; 3) the development of the design principles via a facilitated discussion; 4) the development of sustainability practices; 5) the development of the visions for the Prince George land-use zones with a facilitated discussion and the assistance of a Consultant; 6) the commissioning of a review of residential and commercial development opportunities for the campus; 6) the development of a draft Master Plan and consultation with University and community groups; and 7) the review of consultation feedback and finalization of the Master Plan.

## 4.0 Planning Principles

Grounded in the preceding documents (Section 3 Overview) and informed by various consultations, Master Plan committee members discussed and sifted through numerous considerations with regard to the future of UNBC. Eventually, the Committee was able to synthesize four broad points of focus, identified here as planning principles for the Prince George campus and the regional campuses. These principles are intended to guide future growth by enhancing a stimulating university environment that promotes learning, academic scholarship and research and by maintaining a unique identity as a University in the north and for the north.

### 4.1 Principle 1 – Sustainability

Sustainability is an attempt to provide the best outcomes that embrace environmental, economic, and social considerations both now and for the future. In creating a sustainable community, the University wants to protect its natural environment by conserving resources, reducing pollution, protecting the ecosystem and being a leader in utilizing natural northern materials for new products and new energy. To ensure economic sustainability, the University is committed to maximizing financial value by ensuring optimal efficiency in all new buildings and assessing life cycle optimization and developing an infrastructure that promotes and embodies sustainability. To promote social sustainability involves developing a safe, livable, educated, and culturally connected and healthy community. The University is also committed to keeping the community engaged in the University's sustainability plans and our vision to be Canada's Green University™.

### 4.2 Principle 2 – Interconnectedness

The principle of interconnectedness is intended to enhance the connectedness of buildings and the connectedness of UNBC to the community and the region. Campus connectedness involves considerations such as the articulation of doorways to major walkways, adjacency of complementary knowledge disciplines, accessibility and the thematic extension of the spatial ordering system. For the community, the UNBC campus is not only a place of learning, but a meeting place for a variety of events. Within this context, buildings (e.g., Agora) have secondary uses such as conferences, retail, receptions, and fairs. Planning should take into consideration secondary uses of campus facilities. For example, an event that required several buildings would be facilitated by adjacency and accessibility. For the northern region, connectedness is best established by an emphasis upon communication technologies as an essential infrastructure in facilities.

### 4.3 Principle 3 - Nature

This principle is intended to preserve nature in campus construction projects. A balance must be sought between the natural character of the north and functional needs of the University, including dwelling units, land usage and traffic. At present, the main Prince George campus is embedded within a forest with a

northwestern view of the Rocky Mountains. Forest pathways abound for hiking in summer and cross-country skiing in winter. The preservation of the natural habitat can be enhanced by minimizing forest clearing, maintaining access to pathways, landscaping, maintaining lines of view and using building materials that reflect the north.

#### **4.4 Principle 4 – Sense of Place**

In the 1991 Master Plan, a sense of place referred to the perception of the campus, emphasized by a sequence of open spaces. However, in the present usage a sense of place is broadened to the subjective experience of the UNBC campuses. The principle is intended to ensure that UNBC is and remains a welcoming, safe, non-discriminatory, and secure place for each person and culturally diverse groups of people engaged in diverse activities. Planning considerations involve clarity in arrangement, adequate security, lighting (from parking to facility), a wide range of space to support a multitude of activities, and diverse scales of spaces for different needs (from commercial to intimate). A welcoming environment cultivates respect for the University.

## **5.0 Main Prince George Campus Design Principles**

Design principles are a policy statement about the physical environment. Included are the connector systems; building size, shape and character; and exterior and interior materials and colour.

### **5.1 Connector Systems**

#### **a. Bikeways and Storage**

Use of bicycles on campus is encouraged through provision of extra width in roads and walks, and in storage racks at designed building entries. However, a separate bikeway system is not anticipated.

#### **b. Walkways**

Walkways connect all major elements of the campus. In addition, walkways will be developed along the two arterials to connect the campus with the City. Within the campus, the major roadways will have walkways on at least one side. Because the roadways are generally under 5% in grade, adjoining roadways are steeper than 5% and require walkways. The walkways may diverge in order to stay at 5%. For security, walkways which connect buildings and parking areas are to be lit and laid out to avoid screened areas. This is especially important for buildings and parking areas that will see significant after hours use.

Another component of walkways will be a nature trail system through the site to be laid out for cross-country skiing in the winter and walking in

the summer. The system should link up with the UNBC Connector and existing and proposed trails in the Forests for the World area.

c. Interior Connector System

Complementing the exterior walkway system is the Interior Connector System, which links the buildings in the campus core. This system is totally enclosed and always accessible. Making up the system are 3 components: 1) the Central Connector/Agora Building, 2) a second level connector system where possible feeding into the Agora, and 3) various vertical transfer points containing stairs and elevators, or ramps. As the campus continues to grow, the system will be extended to maintain enclosed connectors between all primary campus core buildings.

d. Building Service and Emergency Vehicle Access System

Providing service to buildings and access for emergency vehicles involves some of the same roadways, and are, for this reason, grouped under a single category.

Most materials and supplies are delivered to the central receiving dock in the Administration Building. Here goods are unloaded, processed, and either stored as inventory in the central storage area, or sent with hand trucks through the service tunnel system to the appropriate building destination. Solid waste, which is generated in buildings will be disposed outside specified buildings for pick-up by truck.

The food service system for the campus generates the bulk of delivery and waste removal activity. Waste from the kitchen will be placed in compactors in the same area for removal by truck.

Emergency vehicle access requirements are governed largely by the requirements for providing access for fire fighting apparatus. To provide this access, the Plan provides at least one frontage for each building on an accessible roadway. Emergency access roadways are to be designed to handle the special requirements of large fire trucks as necessary and confirmed with the City of Prince George Fire Department.

e. Roadways and Parking

Roadways serve to link the individual elements of the larger campus, and to link the campus with the City. To create an efficient and attractive roadway system, a hierarchy of road types has been set up. Fifteenth Avenue extension links the campus with the City of Prince George. The primary access road on the campus is the main entry drive, which begins at the Fifteenth Avenue extension. The Ring Road encircles the Centre of the campus, creating a vehicle-free zone at the Academic core. The Campus

Connectors link ancillary facilities with the Ring Road. Tertiary access drives connect parking and service areas.

Parking represents a transition between walks and road. The Plan locates the primary parking facilities east of the campus, near the main entries to the Connective Building/Agora. Although these lots accommodate a substantial number of cars, they are visually broken up with buffer strips. These buffer strips, which also serve to store snow in the winter, are planted to interrupt otherwise long vistas across large number of cars. In addition, the lots are generally to be terraced to accommodate the sloping topography. To provide security, the lots are well lit and not so screened as to be isolated.

In addition to the large lots on the east, there will be a number of smaller lots distributed around the campus serving generally non-academic functions. These smaller lots will be sized to accommodate vehicles that would not be able to conveniently use the primary lots because of excessive walking distance or because of the facility-specific nature of the trip.

As the institution grows and the number of cars exceeds the capacity of the land surrounding the campus (in terms of reasonable walking distance), the plan anticipates that structured parking can be introduced as individual parking structures or located under new buildings.

The parking criteria<sup>8</sup> for the campus were derived from reviewing other universities and shall be as follows:

Student FTE	Ratio/Students	No. of Spaces
2,000	1:2	1000
4,000	1:2.5	1600
6,000	1:2.7	2200
12,000	1:3	4000

The plan also encourages and supports the continued expansion and access of transit operations on campus via expanded locations for public transit that are close to key University facilities.

## 5.2 Building Size, Shape and Character

The following is a list of Design Guidelines related to size, shape and character.

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<sup>8</sup> A review of the parking criteria should be included in the next Master Plan review.

#### a. Site Responses

Objective: Siting of buildings can contribute significantly to the University's ability to grow through efficient land use, to create desirable open space, to have year round access to sunlight for campus users and to avoid negative impacts of the northern winter climate.

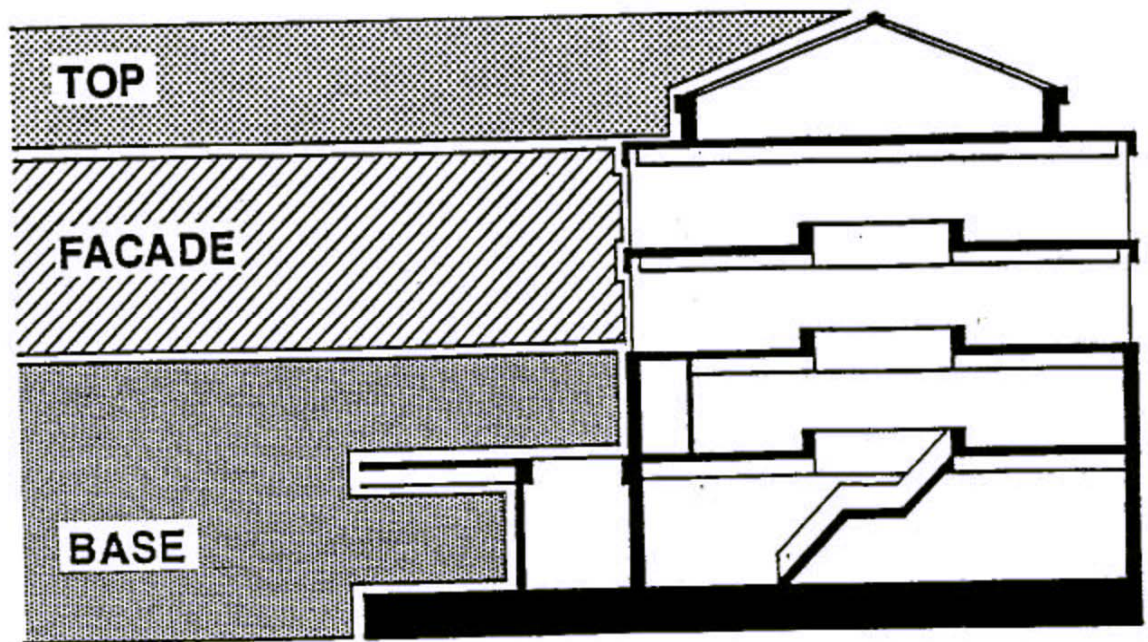
- Buildings must be designed to permit future expansion.
- Building massing must consider solar orientation, and important indoor and outdoor public space to maximize solar exposure and view sightlines.
- Building massing must consider low winter sun angles, prevailing winter winds and snowdrift accumulation.
- Buildings should provide south facing main entries where possible and minimize extensive north-facing walls.
- Building and planting materials suited to Prince George climatic conditions should be used.
- Indoor activity spaces should be supported by adjacent outdoor spaces and allow for immediate connection and accessibility.
- Some buildings should act as landmarks to emphasize their relative importance and to provide points of orientation. Their architectural expression should reinforce this role. This includes the Library Building and the main entry pavilion to the Agora.

#### b. Massing: Form, Proportion and Scale

Objective: The architecture of the main campus is unique and special. Through design initiatives incorporating interesting visual elements and use of varied massing, the campus will maintain its family of buildings, while creating identity for each building. Emphasis on a vertical module expression conveys a collegial character on the campus.

- The three-dimensionality of buildings should be emphasized through articulation of exterior elements.
- Architectural massing should not only reflect the functional requirements of the building, but also symbolize its intended use where appropriate and contribute to the shaping and enclosure of campus open space.

- A human architectural scale should be established by use of window patterns, recessed windows, changing materials and textures, use of coursing, cornices, copings, sills, and lintels.
- Building forms in the Academic Core should reflect the organizing principle expressed in the adjacent diagram: that there should be a heavy strongly articulated base where buildings intersect the Agora; that above the base should be a middle façade of lighter materials; and that the top of each building should form a defined cap. Buildings should have a very similar expression at the base level, more diversity in the middle facades, and may be very different at the top. In addition, buildings that are more integrated with the Agora will have more expression of the base. Buildings that are located further up the hill may have no base expression.



*Building Expression in the Campus Core*

c. Circulation

Objective: An essential component on the campus is its interconnectedness through the circulation system. Pathways should bring people together and promote interaction. Where possible, weather protection should be provided.

- Building design should reinforce pedestrian routes, both through the building or adjacent buildings, and should provide protection from the weather wherever possible through the use of canopies, colonnades, or pergolas.
- All major buildings in the campus core should be interconnected through the Agora or via an overhead walkway system when access over a roadway is required. Connections to buildings should present a direct, “front door” entry experience.
- Interior connections between individual buildings and the Agora should be integrated with the Agora circulation system.

#### d. Universal Accessibility

Objective: Universal access on the main campus is a fundamental requirement to achieve equality for all users.

- All buildings and associated public spaces should provide universal and non-segregated access to the disabled including the physically challenged, and those with audio, visual or mental disabilities.

#### e. Entrances

Objective: Well designed entrances provide orientation and enhance way finding for users. Entrances should also establish an indoor-outdoor relationship engaging the building with its surroundings and providing identity for each building.

- Building entrances should be transparent and multi-storied where possible, encouraging entry and creating an inviting entry experience.
- All major building entrances should be well defined, prominent, and should relate directly to major open spaces and circulation routes.
- Entrances should establish identity for each building.
- Building entrances should celebrate the transition from exterior space to interior space or from the Agora to building, both spatially and symbolically.

#### f. Signage

Objective: Buildings and entrances should have well positioned and lit signs that provide orientation for users.

- Signage should use local and natural materials and University colours.

g. Roof Forms

Objective: Roof forms can establish identity for a building, provide visual interest and afford weather protection. Roof forms and lines should visually and physically relate to existing campus buildings.

- Roof forms should be considered an important element in the composition of a building form. Roof elements such as vertical roof shafts, skylights, elevators, stairwells and mechanical penthouses figure as important elements in the rhythmic composition of the roof surfaces.
- Eave and cornice lines should relate to those of adjacent buildings.
- Roof forms and shapes should be expressive, but also responsive to climatic conditions of snow accumulation, and ice build-up, freezing and thawing cycles. Overhanging pitched roofs should be avoided.

h. Windows/Transparency

Objective: Windows provide the opportunity to capture views from inside but also should establish visual transparency to not only have sightlines to the outside, but also to engage those looking in with the activities and people in the buildings.

- The use of glass should optimize views, natural light, comfort, energy efficiency and cost.
- Windows and openings should relate directly to outdoor open space and maximize short, middle and long-range views and vistas.
- At the base level, windows and doors should be recessed to express the depth of the wall material as well as for a climatic response.
- At the base level, glass should be clear to create transparency for building occupants viewing to the outside and for those viewing from outside to inside, but should be sensitive to solar heat gain concerns. Glass above the base may be clear or tinted.

i. Nighttime Illumination

Objective: Careful use of lighting can enhance the perception of the main campus at night by highlighting special elements and providing visual access to interior public areas. Illumination for safety indoors and outdoors

should be a high priority. Energy conservation and excessive spill should be avoided.

- Night Aspect-general illumination should be planned for esthetic effect as well as to facilitate nighttime way finding and security. Pools of light at entries can be created using down lights under overhangs. In addition, interiors can be lit at night expressing transparency, and spilling light to illuminate walkways and entries.
- General nighttime illumination should also contribute to the definition of open spaces and complement both the architectural and landscaping concept of the campus.
- Avoid creating glare or spillage of light to surrounding areas and the night sky.

### **5.3 Exterior and Interior Materials and Colour**

#### **a. Materials**

Objective: Materials and colours are key elements that distinguish UNBC and reinforce it as a University of the North. Emphasis on local and natural materials contribute to the UNBC image and references to local colour further unify the campus with its context. Consistency of materials and how they are used in buildings contribute to the continuity and unique feel of the University.

- Building materials should reflect a sense of permanence and quality. They should reinforce the desired cohesive nature of the campus.
- The use of indigenous materials such as wood is encouraged..
- The expression of wood is appropriate both structurally, and in heavy timber post and beam, and through the use of interior finishes and components. Wood use in an exterior exposure should be sensitive to long term maintenance and durability concerns. Preferred exterior applications should be in protected and covered areas.
- The use of stone such as tyndall stone, sandstone, slate, and bluestone should be investigated both as a surface finish material and in the landscaping concept. All buildings should include a significant use of the original UNBC split face masonry material.

- The use of industrial materials such as metal panels, glass, steel and aluminum are encouraged to reflect the nature of industry in the region and complement the use of wood and stone in the design vocabulary.

b. Colour

Colour plays an important role in architectural expression and can be used symbolically to suggest a building’s function as well as for community image.

- Incorporate the University’s official colours (green and gold) where appropriate to reinforce the UNBC identity.
- The choice of colour should be expressive of the saturated colour found in the flora of the region and in the quality of the sky and forest during different times of the day and different times of the year (The brilliant blue sky and snow-white landscape of winter should be considered in colour selection). Examples from flora include the Indian paintbrush, yellow daisy, purple lupus.
- Colours that create a warm ambiance should be considered for use as accents (yellow, gold, red, sea green).
- Colour should be used to accent windows and door entries, skylights and glass wall framing systems, spandrel panels, metal columns, building fixtures such as railings, roof top equipment, or any other special equipment.
- A green colour should be considered for tinted glass, consistent with existing buildings.

The material palette for the main campus was established in the original master plan document and served to guide the material selections for buildings to date. The palette is outlined below.

<b>Building</b>	<b>Exterior Wall Surface</b>	<b>Window &amp; Door Frames</b>	<b>Roofing</b>
Administration/	Concrete Block or	Painted Aluminum	Skylight w/Metal

Academic Offices Building	Stone base or enameled metal panel midsection.		Frames Flat – IRMA (Modified) Sloped – SS Metal Glazed
General Classrooms	Concrete Block or Stone base or enameled metal panel midsection.	Painted Aluminum	Flat – IRMA (Modified) Sloped – SS Metal Glazed
Library	Concrete Block or Stone	Painted Aluminum	Flat – IRMA (Modified) Sloped – Metal Glazed
Laboratories	Concrete Block or Stone base/enameled metal panel midsection.	Painted Aluminum	Flat – IRMA (Modified) Sloped – Metal Glazed
Conferencing Facility/Fitness Centre	Concrete Block or Stone base enameled metal panel midsection.	Painted Aluminum	Flat – IRMA (Modified) Sloped – Metal Glazed
Connective Building/Agora	Concrete Block or Stone	Painted Aluminum	Concrete Pavers, IRMA (Modified) Metal Frame Skylights
Physical Plant	Concrete Block enameled metal panel.	Painted Aluminum	Flat – IRMA (Modified)
Apartment Housing	Brick/Stucco/Wood	Painted Aluminum	Flat – IRMA (Modified) Sloped – Shingle
Town Housing	Brick/Stucco/Wood	Painted Aluminum	Flat – IRMA (Modified) Sloped – Shingle
Day Care Centre	Brick/Stucco/Wood	Painted Aluminum	Flat – IRMA (Modified) Sloped – Shingle Skylight s/Metal Frame

Generally, the University has utilized the “exterior and interior materials and colour” on the downtown Bank of Montreal Centre and the regional campuses.

## **6.0 Sustainable Practices**

The University is committed to sustainable practices in the development and operation of its campuses through environmental, economic and social best practices. Although specific guidelines are provided, it is expected that creative and practical approaches reflecting the current “state of the art” and the circumstances of a particular project will be considered. Individual projects will present special opportunities that should be explored.

All design and development proposals require a sustainability report to be submitted outlining proposed sustainable measures.

### **6.1 Environmental**

Objective: Minimize the impact of campus facilities on the environment through creative solutions that do not compromise the functionality of those facilities.

#### **a. Site**

- Buildings and structures should be sited to provide optimum orientation for solar control and gaining benefit from solar energy where possible.
- Site locations and building designs must strive for efficient and mixed land use through efficient planning and minimizing the building footprint.
- Erosion and sediment control must be implemented to avoid siltation of storm sewers and to reduce disturbance to the campus.
- Minimize “heat island” surfaces on grade and on roofs of structures.
- Landscape material must be adapted without being invasive and requiring high maintenance..

#### **b. Water**

- Implement design solutions that conserve water in landscaped areas, through plumbing fixture selection and in providing for process requirements.

- Explore opportunities for water reuse (e.g. rainwater, research programs that use large quantities of water and other grey water options).
- Incorporate storm water management strategies that complement the UNBC Storm Water Management Plan.

#### c. Energy and Atmosphere

- Concepts and systems should strive to achieve carbon neutrality and must achieve a high level of energy efficiency and performance through choices in heating, cooling and lighting equipment. Heat recovery systems must be considered for all projects.
- Incorporate opportunities for implementation of passive approaches to energy efficient design.
- Incorporate renewable energy opportunities that minimize greenhouse gas emissions.
- Select equipment and processes that minimize emissions harmful to the atmosphere.
- Provide covered bicycle parking and shower/change facilities for all new buildings and consider retrofitting current buildings.
- Exterior exposed building perimeters must be carefully considered to minimize energy impacts.
- An integrated approach with all disciplines should be used to achieve holistic design solutions.
- Implement a less is more approach to buildings and their systems where consideration is given to exploring options for reducing what is required to provide a quality, functional building.
- Design solutions must consider long term operating impact on energy and atmosphere and regular operational reporting provided.

#### d. Materials and Resources

- All construction projects must employ a construction waste management program including waste separation and recycling.

- Incorporate opportunities for recycled materials and recycled content in construction projects.
- Select materials and products from within the region where practical.
- Incorporate natural materials such as wood, stone and masonry where appropriate.
- Durability and maintenance considerations of products and materials must be a high priority in the manner they are used and the actual products.

#### e. Indoor Environment

- Incorporate low emitting materials for adhesives, sealants, paints, flooring and manufactured wood products.
- Provide monitoring of carbon dioxide and indoor air flow.
- Strive to achieve an even distribution of temperature within rooms and hallways.
- Make provision for maximizing access to natural light for users and depth of light penetration into the interior spaces.
- Design space for comfort and spatial quality that avoids trendy materials and colours. Enduring solutions will result in space that is suitable for long life usability.
- Space planning and building design must strive to achieve maximum flexibility over the life of a building, thus minimizing cost, disruption and potential for waste and extensive construction change.

## 6.2 Social

### a. Interaction and Public Space

- Spaces should be provided that promote interaction among faculty, staff, and students, such as alcoves to create circulation and pathways that facilitate interaction.

- Provide desirable gathering spaces to attract people to where they can interact.

b. Quality of Experience

- A focus should be placed on creating a campus that achieves a quality, memorable experience that makes the University a place where people want to be and creates a sense of place.
- Create campus gathering places that showcase community artists' work and captures the natural environment.

c. Learning and Teaching Environment

- Through design, the learning experience can be enhanced. Natural light, provision of good sightlines in classrooms, good acoustics, appropriate lighting and friendly spaces can contribute to a positive learning and teaching experience, which will be an attraction for students and faculty to be a part of UNBC.

d. Safety

- "Crime Prevention Through Environmental Design" principles must be implemented as a key design consideration.

### 6.3 Economic

a. Value for Cost

- Selection of systems, products and equipment options must be evaluated for initial cost and long term operating cost to provide best value for money.
- Life cycle benefits, durability, and potential replacement availability must be considered in selection of building systems and components.

b. Affordability

- Design to achieve a balance between affordability and design excellence.

c. In Kind Contributions

- Consideration should be given to sourcing in kind contributions, which can assist in achieving higher value for money spent, and encouraging use of local materials and products.

## 7.0 Prince George Land-Use Visions and Development Patterns

There are four land-use zones (Appendix A): Core Campus lands (land-use zone 1); new Crown Grant lands (land-use zone 2); lands adjacent to the University Heights Neighbourhood Plan (land-use zone 3); and the Off-Campus sites (land-use zone 4).

**7.1 Core Campus Lands (land-use zone 1).** The vision for the Core Campus lands (297 hectares) is a place where collaboration and an intimate learning environment can flourish. The campus is based on a spatial ordering system that plans for growth around a central core, with various academic (teaching and research, including a Research Park), administrative, small scale commercial/retail, and student service land uses (quadrants). These quadrants are serviced by a ring road and will be connected by established roadways and the UNBC Connector Trail to the City.

**7.1.1 Spatial Ordering System.** The spatial ordering system describes the visual relationships of the elements of the Plan. Most significant as a shaper of the relationships is the intersecting axial system. There are three axes (Appendix B) intersecting at an angle. Rather than being lined up in a static orthogonal grid, the three axes create forms and relationships, which express movement and progression.

A second aspect of the Spatial Ordering System is the framing of long views from the core campus and of short views (Appendix C) within the campus. Of particular importance to the visual experience of the campus is the northeast view to the City of Prince George in the middle distance, and to the Rocky Mountains in the far distance. The view is expressed in the long axis of the landscaped mall which extends to the northeast from the centre of the campus.

A visitor's first impression of the campus is formed by the entry sequences. The entry sequence comes up 15<sup>th</sup> Avenue to the main entry east of University Way and Tyner Boulevard. From this entry a visitor descends slightly while following a sweeping curve to the main ceremonial entry where buildings are illuminated by the sun for most of the day.

Critical to perception of the campus, is the sense of place that is established. To emphasize sense of place, a system of exterior open spaces is developed. Most significant of these spaces is a sequence of courtyards which begin at the termination of the Commons in the relatively formal space at the ceremonial entry. A counterpoint to this formal space is the informal academic court on the plaza above the Agora. The court surrounds the geographic centre of the campus. From the geographic centre extend two other linked courtyards into the northern portion of the campus connected at the upper plaza level and the landscaped mall with a stormwater management pond which aligns with the view of the City (Appendix D).

### **7.1.2 Character Zones and Quadrants.**

**Character Zones.** The UNBC lands are diverse in their topography, site features and use designations. The original 1992 Master Plan identified character zones which highlight these special elements of the UNBC campus. To reflect the campus as it has evolved and the current vision resulting from the master planning process, an update of the character zones is illustrated in Appendix E.

**Quadrants.** There are three quadrants. The northeast quadrant provides the best location for the Academic core, and hence is where the primary campus facilities are located. Reasons for this location's preference include more direct access to the City, greater amount of land suitable for construction, lower infrastructure costs, and the potential for a strong visual connection between the Campus core and Prince George.

Because of its topography and strategic location, the area southeast of the ring road is dedicated to sport related activities. This will provide a transition to the City of Prince George, and its residential neighbourhoods planned east of Cranbrook Boulevard Extension and dedicate space for the sports centre.

The area of the campus northwest of the Ring Road is designated for research with potential for collaboration with the private sector in a research park concept. This close relationship with the core campus could result in synergies between university and private research leading to commercialization and technology transfer.

**7.1.3 Existing and Future Development Patterns.** Since the initial phase of construction, the UNBC campus has experienced significant growth (Sections 2.1 and 2.2 of the Master Plan). Appendix F illustrates the 2007 built campus. Appendix G highlights the areas

intended for future building projects that have been identified during the master planning process. Within these areas, Appendix H shows recommended placement and orientation of future building footprints. As the University needs for new facilities increase, this diagram provides a reference for guidance in locating new buildings. The placement of footprints takes into consideration the following key objectives:

- planning axes;
- view corridors;
- reinforcement and extension of the Agora/Circulation concept;
- strengthening of the formal entry and the personal experience of the campus; and
- maintaining the spirit of the overall original Master Plan.

**7.2 New Crown Grant Lands (land-use zone 2).** The vision is that the lands (248 hectares) will continue as teaching<sup>9</sup> and research<sup>10</sup> lands and that the Greenway trails will be used for the purpose of becoming a major provincial and national centre for Nordic sports. There is an element of sustainability and responsible stewardship of our natural heritage that is part of the vision.

**7.2.1 Future Development Patterns.** Proposed plans for a new water main through this parcel to service the new University Heights Neighbourhood should strive to minimize the impact on the natural state of this land. A new Right of Way will be required for service access to the water main. This alignment must ensure that the impact on the land and the University's research activities is minimized and does not prejudice the best use of the land. The area when designated as a "Right of Way" should be finished as a gravel path dedicated to walking and bicycles.

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<sup>9</sup> The University offers a large number of credit courses and Continuing Studies courses that use the lands for field labs and project work.

<sup>10</sup> The University will continue with this research focus, including major research on: root rot and pine beetle damage; monitoring and detection of entomological and pathological outbreaks; sampling sites for lichenological studies; taxonomic plant collections; plant response mechanisms; cartographic design techniques; remote sensing reflectance principles and change detection; and micrometeorological measurements of temperature and relative humidity.

**7.3 Lands adjacent to the University Heights Neighbourhood (land-use zone 3).** The long-term vision for the 12 hectares of land adjacent to the University Heights Neighbourhood lands<sup>11</sup> is:

- There will be the creation of a community that complements the main Prince George campus through the inclusion of a variety of retail, personal services, health care and entertainment;
- There will be a range of housing choices, including rental housing and condominium ownership to appeal both to University related and non-University households;
- There will be developed a range of transportation options, which encourage transit and an emphasis on bicycle and pedestrian networks.
- The architectural integrity of the University of Northern British Columbia will be respected, ensuring the University's planning and design principles are followed.
- There will be proceeds that can be invested to the benefit of the University's teaching, research and community mission.

**7.3.1 Future Development Patterns.** The land between University Way and the University Heights Neighbourhood provides a long term potential for future uses that will benefit the University in accommodating potential future University needs, such as a small commercial enclave, research park, parking, and residential/hotel facilities. A market study was conducted during the master planning process to explore potential uses for this land and the opportunity for the University to benefit financially from the development of the land. The findings of the report indicated the potential for successful commercial development was limited in the foreseeable future as a result of land prices, the limited number of people to support an immediate development, and future development of a large commercial development in the University Heights Neighbourhood.

With this knowledge that the immediate opportunities are limited, a concept development plan (Appendix I) was prepared to establish a future pattern of development that could be implemented when justified by the market. Access to the site and internal circulation was established and parcels for potential future development were defined with areas designated for suggested uses arising from the market study and using the following criteria:

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<sup>11</sup> In the spring of 2006, a planning exercise commenced that involved the development of 675 hectares, some of which lie directly adjacent to the southern boundary of the University, owned by 14 different property owners.

- The land is comprised of two distinct parcels which have different use designations and potential for development. The west parcel must be used for “university purposes” specific to uses that support university related activities. The east parcel may be developed for a range of uses not constrained by the university purposes definition.
- Commercial uses such as a research park and retail are ideally located where the businesses have good visual exposure to major streets and have easy access.
- Residential is preferably located away from bush streets.
- A residential hotel is appropriately placed with exposure to a major street.
- Appropriate access to the parcels and anticipated lot size options that can facilitate missed use development.

#### **7.4 Off- Campus Sites (land-use zone 4)**

The Bank of Montreal donated a building to the University. This building is located in downtown Prince George and is envisioned to be a bridge between our business community and the University. The School of Business and Continuing Studies will work collaboratively with business community to enable learning and educational opportunities through courses, workshops, speakers, consulting, mentorship and other forms of engagement.

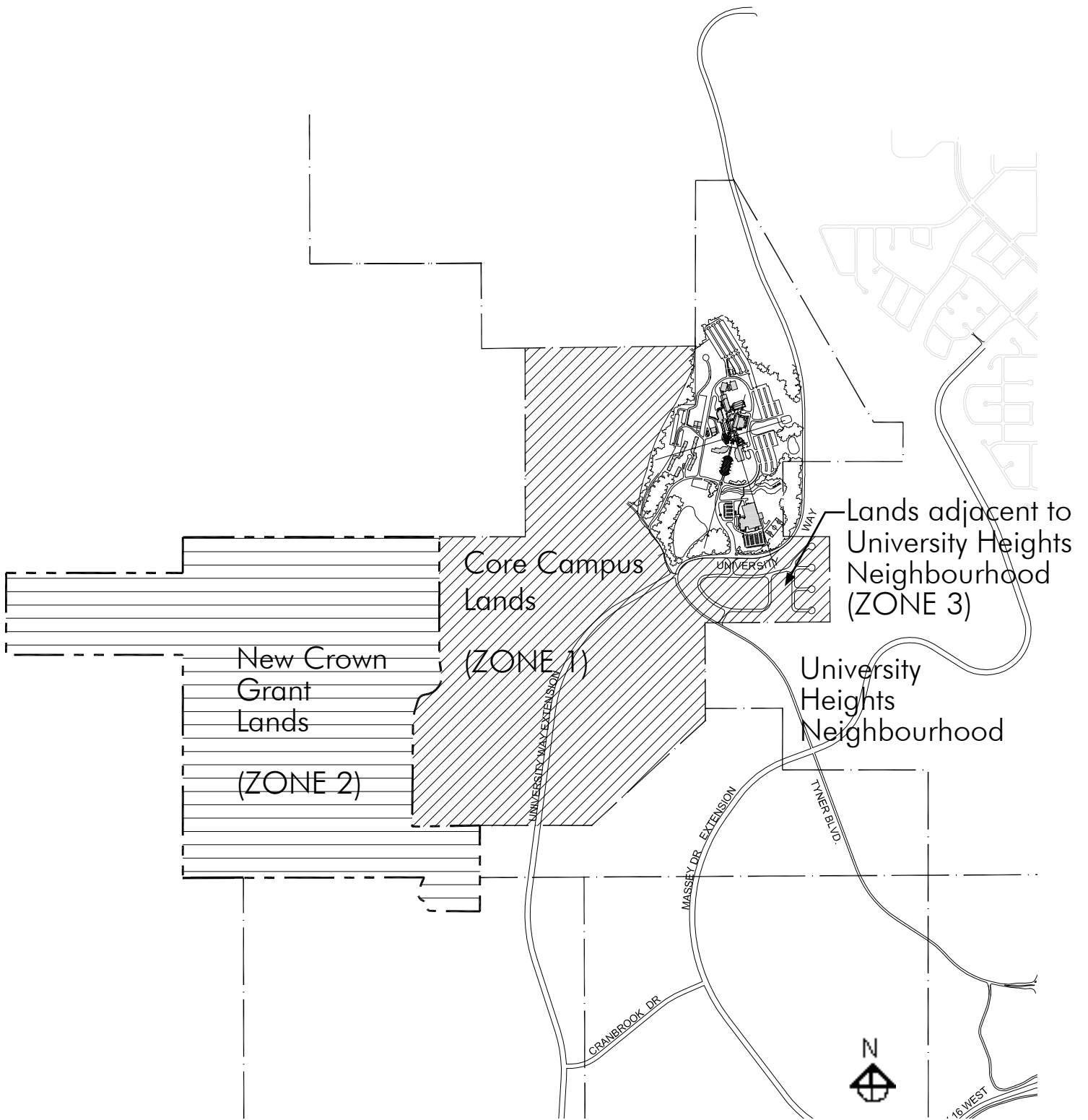
The University and the Prince George community are also engaged in a feasibility study to examine aspects of the design, construction, and operation of a downtown regional Performing Arts Centre. This Centre will enable the University to pursue an element of the new Academic Vision, “Artistic Cultural Expression”. The University will be able to consider the further development of courses and concentrations that would be offered in the Centre in such diverse areas as Art History, Dance, Music and Theatre. The Centre will promote further interaction between the region, the city and performing arts groups.

The University also conducts research at various off-campus sites and the type of site depends on the nature of the research activity.

## **8.0 Regional Campuses**

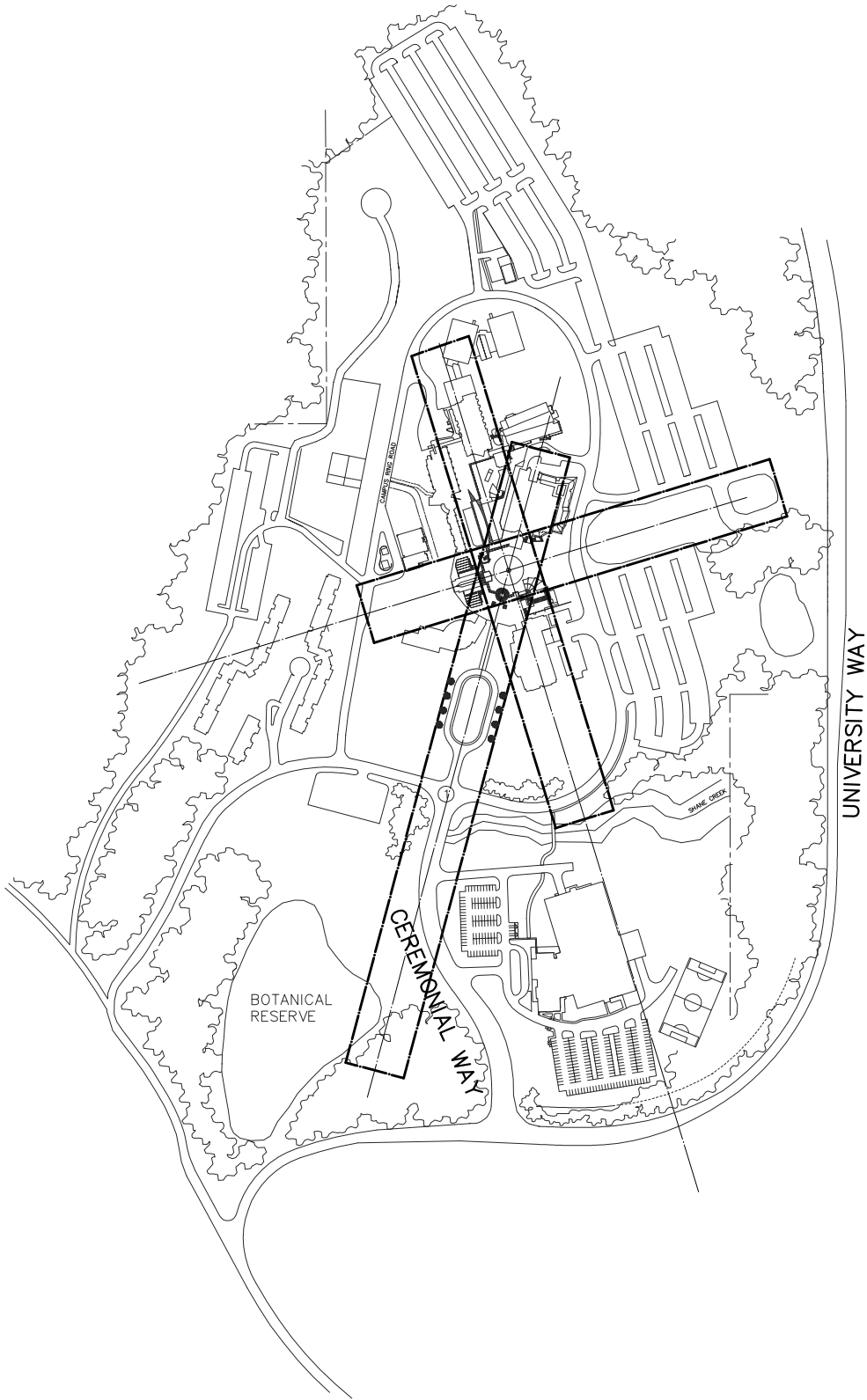
The design and planning principles and sustainability practices of the Master Plan involve a broad framework of policy that is intended to forward teaching, research and community partnership goals of UNBC. For this reason, it is important for regional campuses to adopt these principles and practices. However, since regional campuses are distinctive, it must be recognized that the principles

and practices are broad guides under which each campus can be expected to develop unique versions of a common framework.



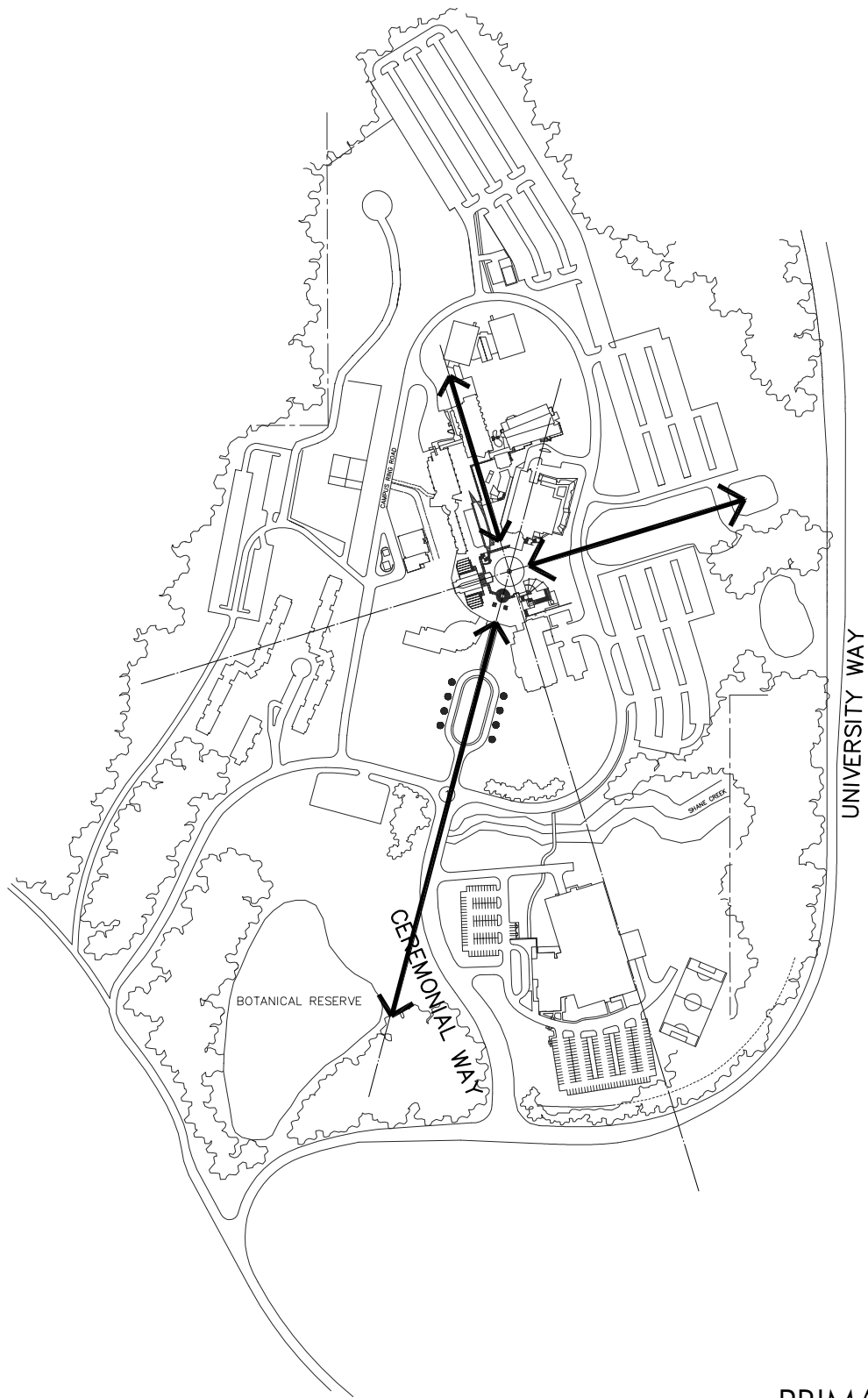
ZONES

# APPENDIX A



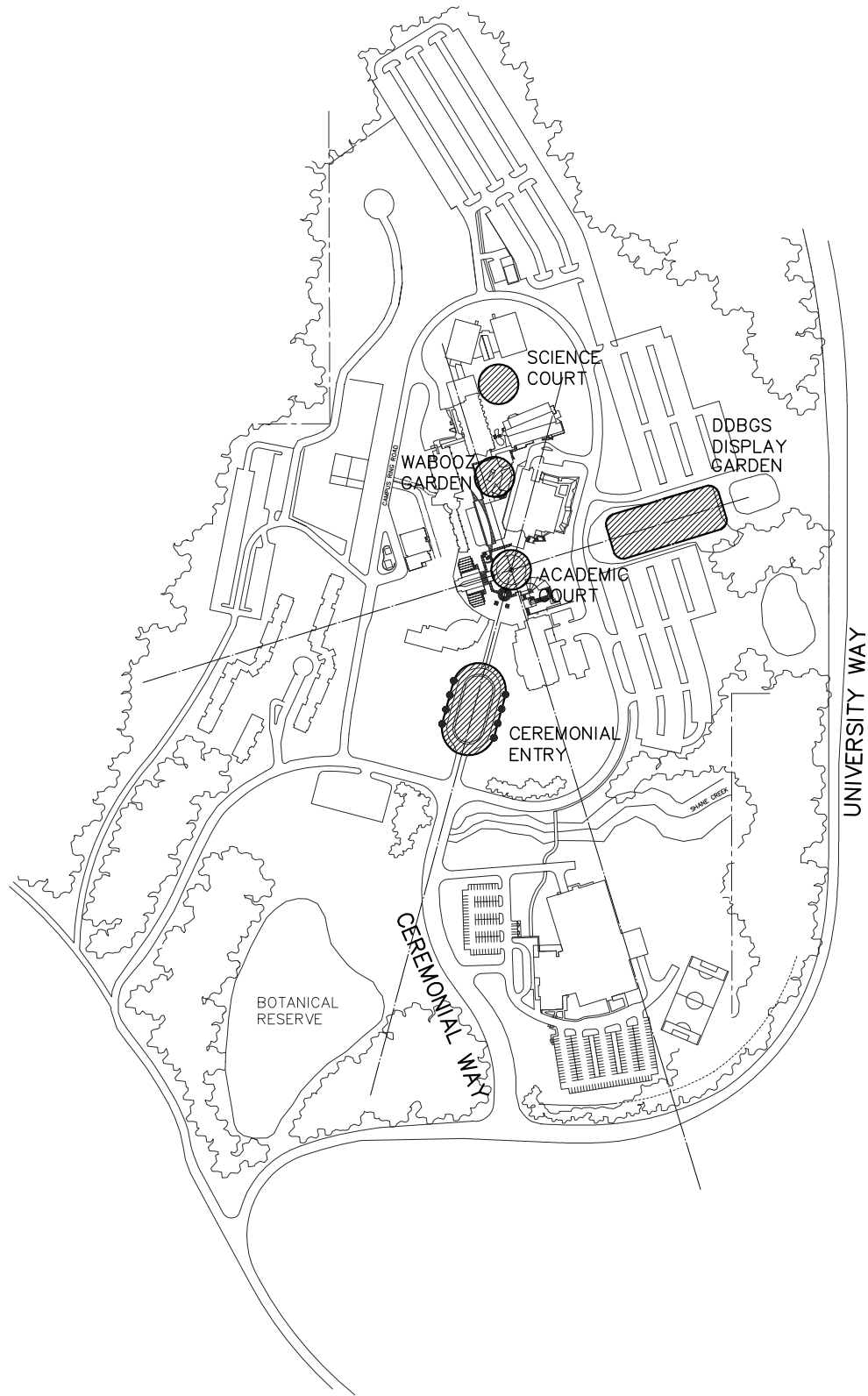
SITE AXIS

# APPENDIX B



PRIMARY VIEWS

# APPENDIX C

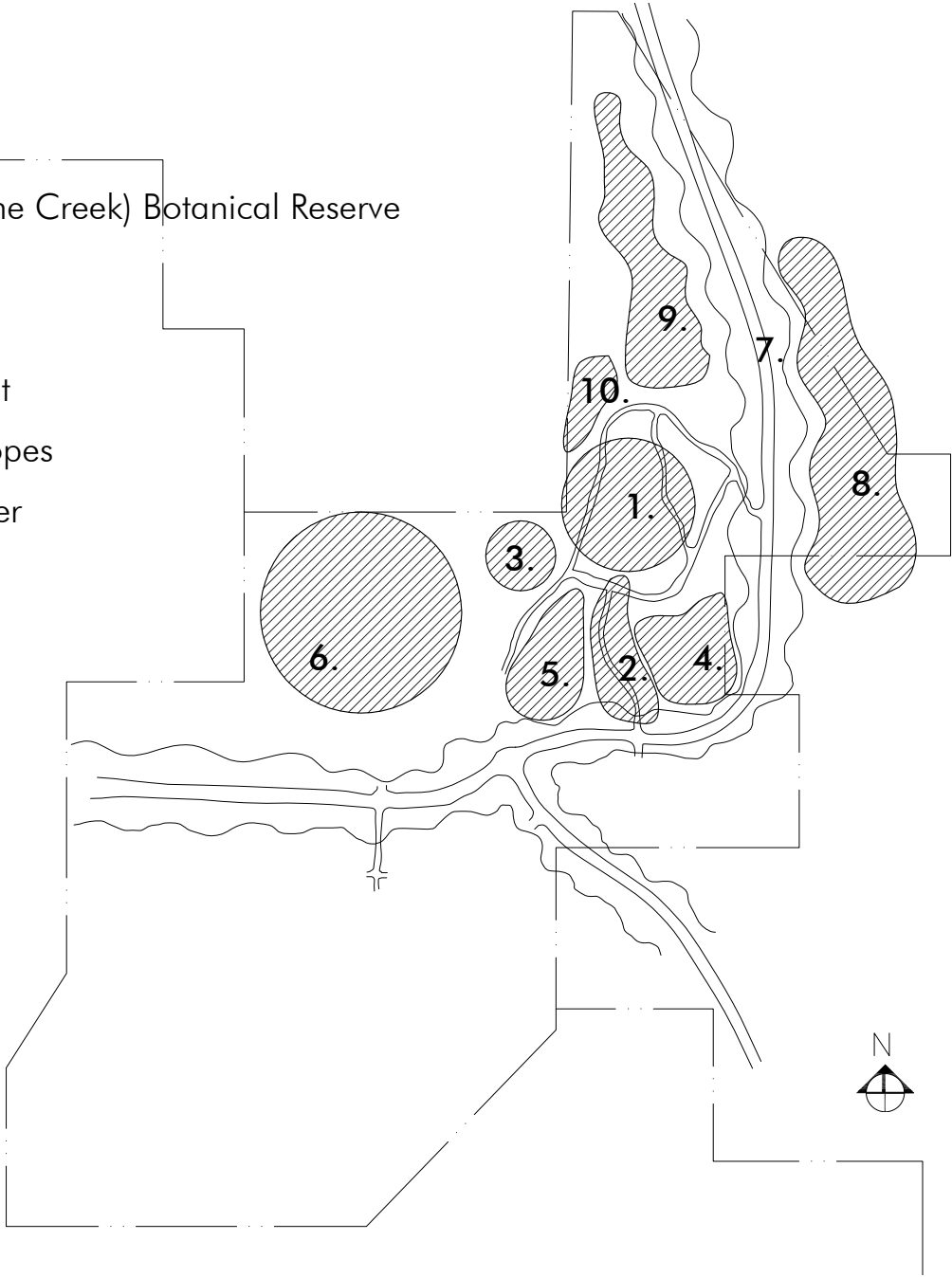


COURTYARDS

# APPENDIX D

# CHARACTER ZONES

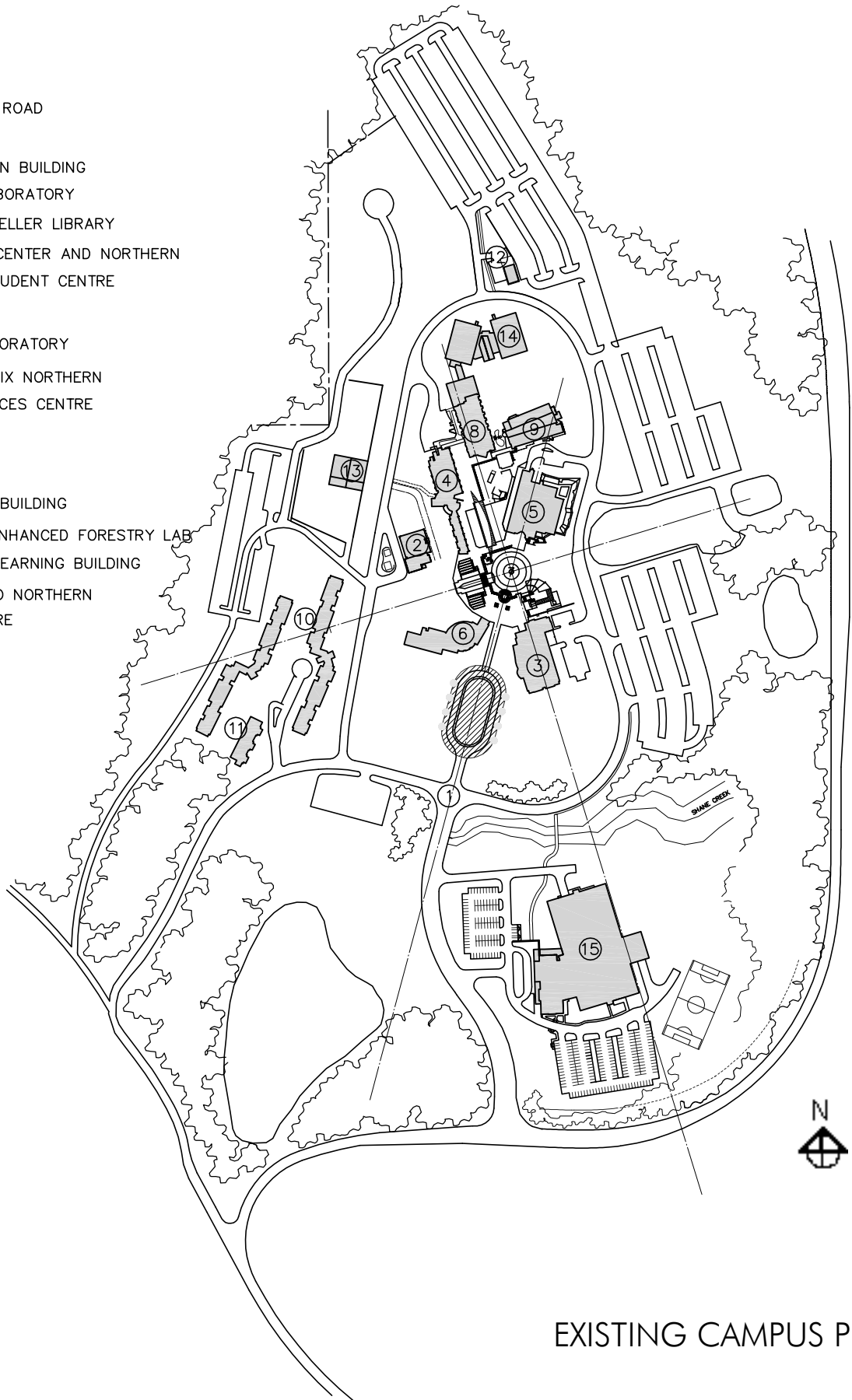
- 1. The Academic Core
- 2. The Commons
- 3. The Hillside
- 4. Athletic Centre
- 5. The Pond (Shane Creek) Botanical Reserve
- 6. The Forest
- 7. Greenbelt
- 8. The Escarpment
- 9. The Eastern Slopes
- 10. Research Cluster



CHARACTER ZONES  
QUADRANTS

## APPENDIX E

- ① CAMPUS RING ROAD
- ② POWER PLANT
- ③ ADMINISTRATION BUILDING
- ④ RESEARCH LABORATORY
- ⑤ GEOFFRY R. WELLER LIBRARY
- ⑥ CONFERENCE CENTER AND NORTHERN UNIVERSITY STUDENT CENTRE
- ⑦ AGORA
- ⑧ TEACHING LABORATORY
- ⑨ DR. DONALD RIX NORTHERN HEALTH SCIENCES CENTRE
- ⑩ RESIDENCES
- ⑪ DAYCARE
- ⑫ MAINTENANCE BUILDING
- ⑬ I.K. BARBER ENHANCED FORESTRY LAB
- ⑭ TEACHING & LEARNING BUILDING
- ⑮ CHARLES JAGO NORTHERN SPORTS CENTRE

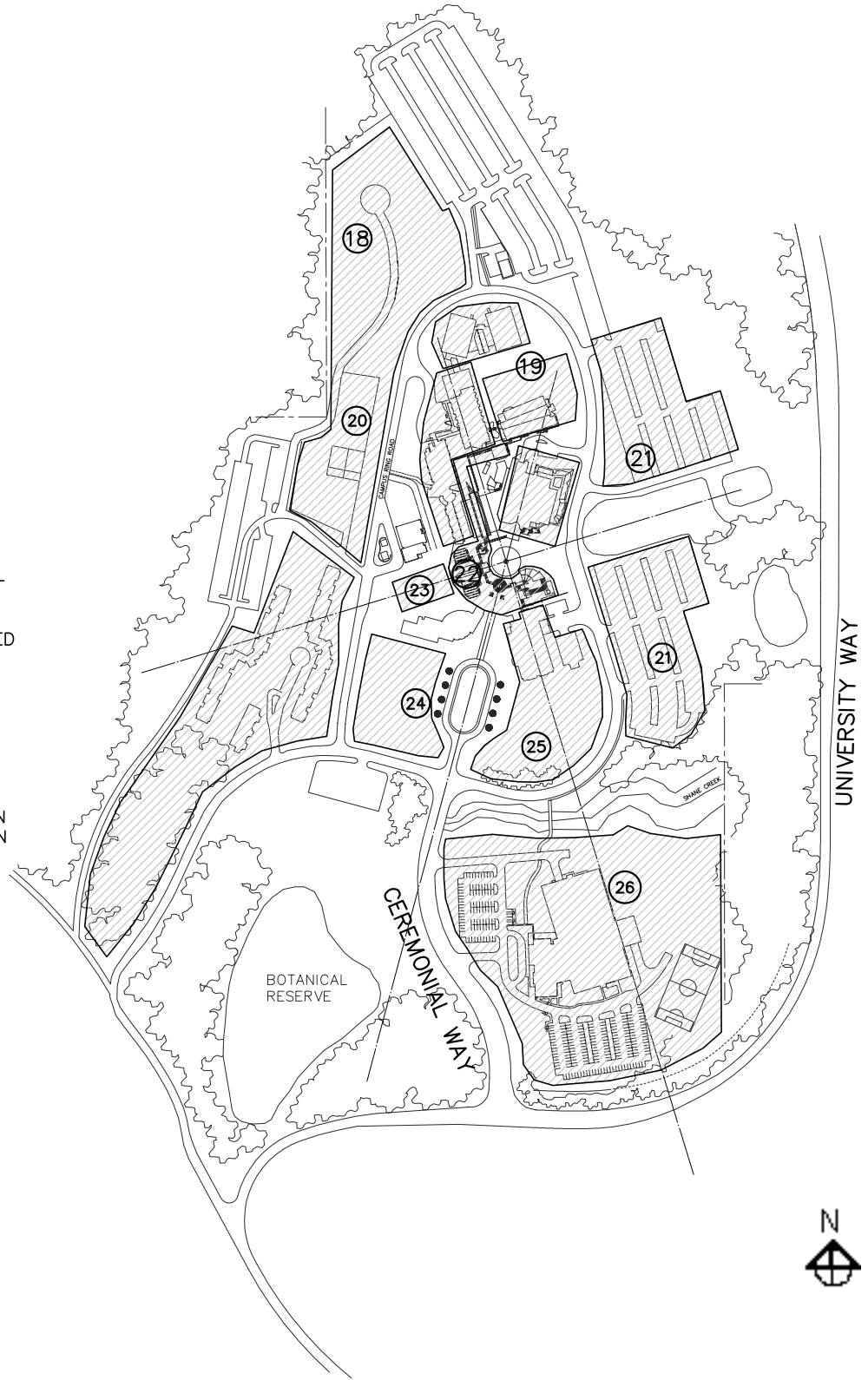


EXISTING CAMPUS PLAN

# APPENDIX F

KEY PLAN

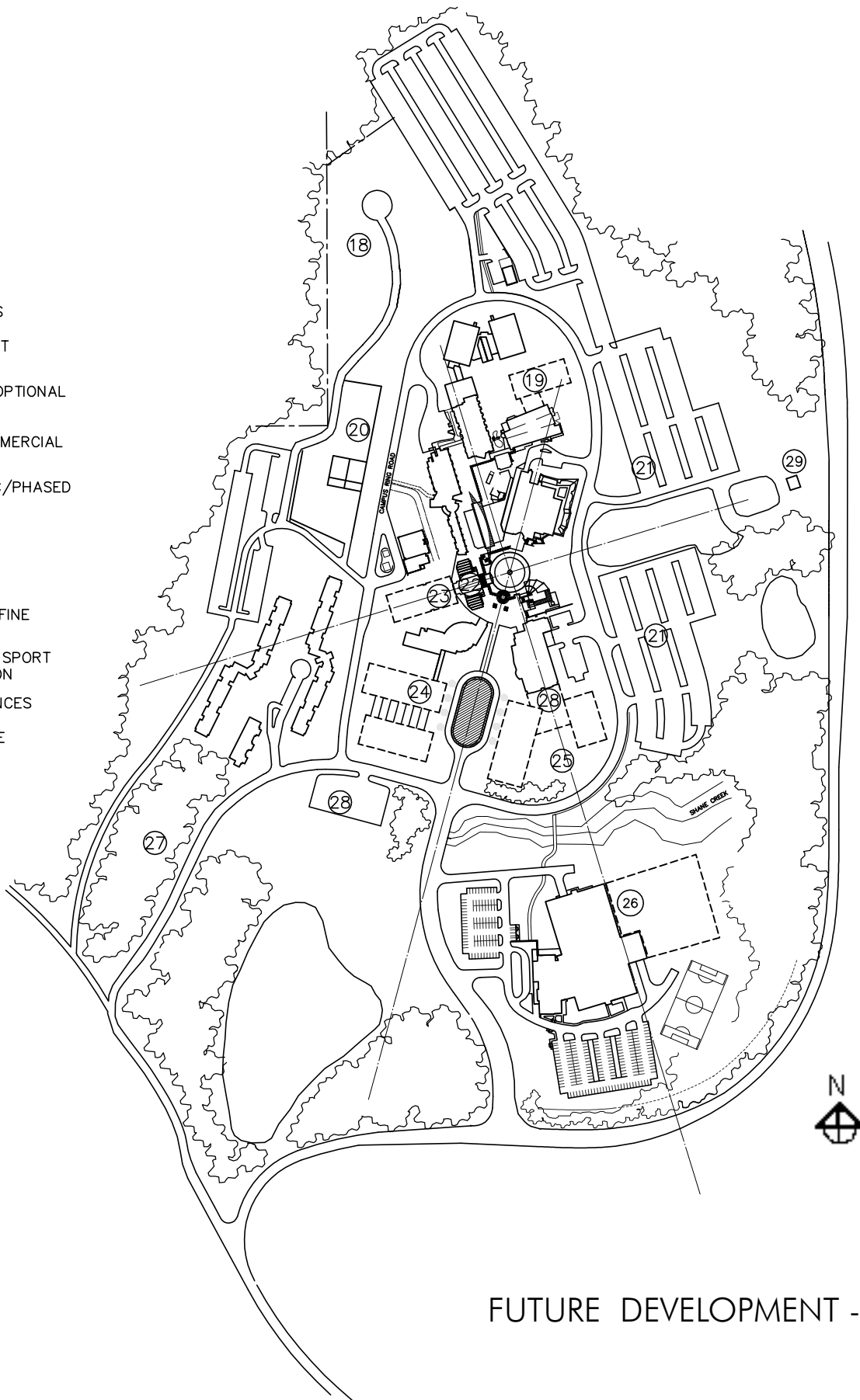
- ⑱ RESEARCH PARK
- ⑲ HEALTH SCIENCES
- ⑳ SCIENCE CLUSTER  
EFL EXPANSION
- ㉑ ACADEMIC WITH  
OPTIONAL  
PARKING UNDER
- ㉒ GATHERING/ COMMERCIAL
- ㉓ COMMERCIAL  
RETAIL/ACADEMIC/PHASED  
UNDERGRADUATE  
STUDENT CENTRE
- ㉔ ACADEMIC
- ㉕ ACADEMIC  
ADMINISTRATION/FINE  
ARTS
- ㉖ CHARLES JAGO NORTHERN  
SPORT CENTRE EXTENSION



DEVELOPMENT ZONES

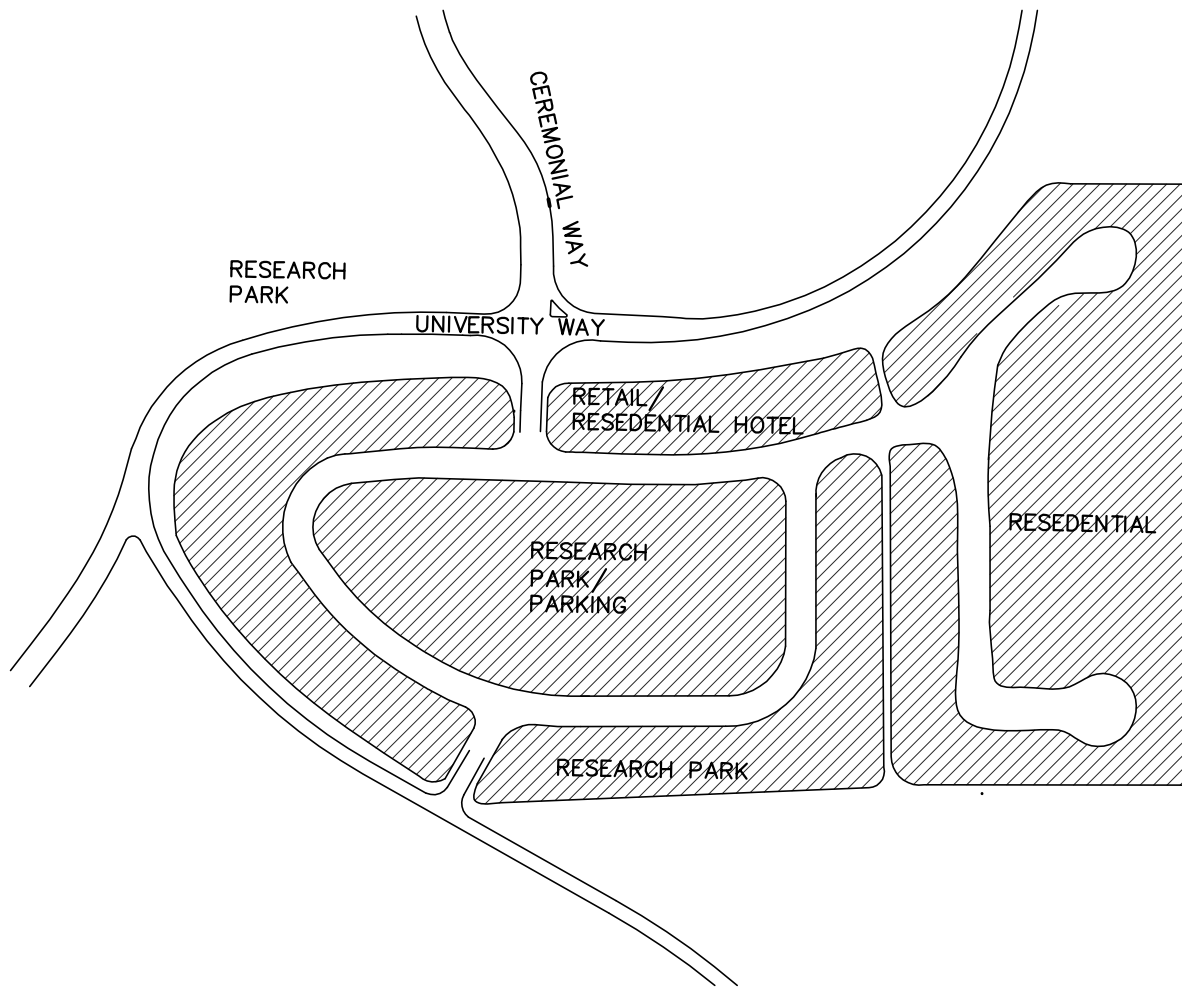
APPENDIX G

- ⑱ RESEARCH PARK
- ⑲ HEALTH SCIENCES
- ⑳ SCIENCE PRECINCT  
EFL EXPANSION
- ㉑ ACADEMIC WITH OPTIONAL  
PARKING UNDER
- ㉒ GATHERING/ COMMERCIAL
- ㉓ COMMERCIAL  
RETAIL/ACADEMIC/PHASED  
UNDERGRADUATE  
STUDENT CENTRE
- ㉔ ACADEMIC
- ㉕ ACADEMIC  
ADMINISTRATION/FINE  
ARTS
- ㉖ JAGO NORTHERN SPORT  
CENTRE EXTENSION
- ㉗ STUDENT RESIDENCES
- ㉘ GATHERING PLACE
- ㉙ ROTARY PAVILION



FUTURE DEVELOPMENT - USES

# APPENDIX H



LANDS ADJACENT TO UNIVERSITY  
HEIGHTS NEIGHBOURHOOD

**APPENDIX I**