Lethbridge College

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Lethbridge College

CAMPUS MASTER PLAN

FWBA ARCHITECTS thinkspace

ACKNOWLEDGEMENT

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PURPOSE

The Campus Master Plan is a framework for the ongoing development of the college. The Plan serves as a guiding document for how to manage space allocation on campus, the implementation of capital projects and facility upgrades over both the short term and longer term.

An important goal of the Campus Master Plan is to ensure that Lethbridge College's current and future facilities are renewed and developed in alignment with its vision - *leading and transforming education in Alberta.*

The Campus Master Plan is primarily a tool to deal with ongoing space needs. High-level planning is based on current and future needs, and priorities determined through a planning review process and supported by observations, analysis, relevant data and comparative benchmarks and standards.

The Campus Master Plan delivers: a rigorous space allocation process, standards and flow diagrams illustrating the approval process.

The focus of the Campus Master Plan is on establishing direction for a comprehensive space allocation framework process to facilitate the implementation of ongoing facility renewal and capital projects.

The Campus Master Plan is effectively an adaptable document to work in concert with the most current three-year Comprehensive Institutional Plan that is renewed and published on an annual basis.

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1 PLANNING CONTEXT

1.1 Background

Lethbridge College is celebrating its 60th anniversary in 2017, and with enrolment incrementally increasing in recent years, there are continued opportunities for change and growth in a variety of program areas.

In the past fifteen years, significant capital initiatives have included: the Trades Technologies Renewal and Innovation Project involving 15,800m^2 that supports over 880 new learners across eight trade areas and four technology programs, scheduled for completion in the fall of 2017. Kodiak House, a five-storey student residence tower opened in the fall of 2010 with solar domestic water heating, passive ventilation and rainwater collection. Prior to that in 2007, the college completed a sustainable modernization of the Cousins Building, including the consolidation of science labs. Just prior to that the Instructional Building was completed in 2002.

All capital projects require funding approval. Projects are reviewed, confirmed and potentially re-positioned within the redevelopment of the overall campus and to ensure the college makes best use of available funding. By following a rigorous space allocation framework process as outlined in this Campus Master Plan, the college can be confident that each project is vetted properly and moved forward appropriately.

The 2008 Campus Development Plan informed this document. This Campus Master Plan document is the result of efforts by the Campus Master Plan Steering Committee of Lethbridge College and the consulting team of Thinkspace and FWBA Architects.

1.2 Planning Process

In 2007, the college commissioned a consultant team to review and update the Campus Development Plan. In 2016, the college engaged some of the same members of that team to evolve the document into a Campus Master Plan more clearly focused on the space allocation process. The scope of the work evolved as it proceeded, based on the following initial objectives:

- A review of planning parameters and assumptions that help to establish the space allocation framework process and context for the Campus Master Plan.
- Develop a space management process that supports future directions and initiatives.
- A review of the college and its 'components' (i.e. school, program, department) in terms of: functions, locations and functional relationships, adequacy of space, functionality of space and layout, quality of fit, capacity and ability to serve future service volumes, and the space required to accommodate change.
- Develop a robust space allocation and utilization process to deal with space requirements.
- A review and summary of projected college-wide space requirements, related to key space determinants such as enrolment, classroom, seminar room and lab utilization and occupancies, number of offices, etc.
- A review of functional relationship priorities among all college components and how they are impacted by: student and staff movement patterns, work flows, pedestrian and vehicular routes, material flows, building links, and other campus elements.
- The ability to translate all the above into an ongoing description of requirements as the basis for pending and future capital projects.
- A review of opportunities, constraints and issues regarding: on-campus land use, adjacent sites land use, vehicular circulation and parking, pedestrian circulation, transit, movement of goods, site services, green/open spaces,

functional space zoning, existing and potential future building locations, etc.

- A review of campus/site planning directions, principles and objectives, i.e. a vision of what the future Lethbridge College campus could be.
- A review of campus development concepts including alternative building locations, phasing scenarios, anticipated change, short term versus longer term growth, etc., leading to the development of overall high-level diagrams.
- A graphic presentation and description of the Campus Master Plan including possible short term and longer term concepts.

1.3 College Vision

As stated in the 2016-19 Comprehensive Institutional Plan, Lethbridge College is dedicated to providing relevant high quality education in a changing world. The vision of a college *leading and transforming education in Alberta* is aligned with the Alberta Advanced Education principles of:

- **Sustainability** – to cultivate environmental sustainability that is positive and collaborative.
- **Accessibility** – to create and maintain flexible learning environments that learners to achieve their goals.
- **Quality** – to build on strengths, and ensure that quality and appropriate space is available to address change in programs.
- **Diversity** – to focus on excellence in learner services and being student centered, providing opportunities for a diverse population.
- **Collaboration** – to develop strategic alliances with business, industry, government, agencies and other post-secondary institutions to enhance student learning, mobility and employment.

1.4 College Mission & Mandate

Lethbridge College is focused on the mission of *inspiring and facilitating learning and innovation to meet economic and social needs* as stated in the 2016-2019 Comprehensive Institutional Plan (CIP).

Furthermore the 2016-19 CIP outlines that Lethbridge College received ministerial approval for its revised mandate statement in 2011. This approval informs the planning context of the Campus Master Plan:

"Established in 1957, Lethbridge College is a board-governed public college operating as a Comprehensive Community Institution under the authority of the Post-Secondary Learning Act of Alberta. Although the main campus is located in the City of Lethbridge, the institution plays a stewardship role for adult learning within its geographic service region. As a member of Campus Alberta, the college works with other post-secondary institutions, community organizations, school districts, employers and other partners to enhance access to programs and services throughout the region. Through its commitment to a variety of educational delivery methods including face-to-face, online and blended learning, it strives to address diverse learning styles and needs in order to increase access for students. In addition, a broad range of student support services is designed to enhance learner success for both on- and off-campus learning.

Lethbridge College provides a range of educational opportunities in a variety of career-focused program areas including Business and Management, Design and Technology, Justice Studies, Health and Human Services, Agriculture, and the Environment and Trades. The college offers programming that leads to career employment or to further education through foundational learning, upgrading, university transfer, apprenticeship programs, certificates, diplomas, applied degrees and baccalaureate

degrees offered primarily in collaboration with degree-granting institutions.

Serving a diverse population of learners, predominantly residing in southern Alberta, Lethbridge College also attracts students from other regions, provinces and countries. Through formal partnership agreements with institutions both locally and internationally, the college helps students become global citizens and increases their opportunities for economic prosperity. Creating an inclusive environment for First Nations, Métis, Inuit and international students serves to enrich the educational experience of the entire student body.

The college is an important catalyst for economic, social and personal development for the population in the city and the region as it actively engages employers, community and learners. Applied research and scholarly activities are strategically aligned with business, industry, government and community needs.

An integrated applied research strategy enhances learning by providing students and faculty with opportunities to address immediate real-world problems, leading to innovative solutions that benefit our industry and business partners. This contributes to the continuing economic growth and sustainability of the Lethbridge College region and our ability to support competitive local, regional, provincial and national economies.

Lethbridge College plans and delivers programs, provides services and creates opportunities to develop skills, knowledge and attitudes that will allow its graduates to be successful both in their lives and in their careers."

Lethbridge College
Comprehensive Institutional Plan
2016-19
Pages 14-15

1.5 Strategic Framework

The Campus Master Plan considered the Framework approved by the Board of Governors on June 2013:

Academic Transformation - collaboratively create innovative and creative learning experiences that meet the diverse and integrated needs of learners, the economy and society.

Collaborative Partnerships - be model collaborators focused on achieving unprecedented levels of collaboration in education.

Resource Innovation - create entrepreneurial business models and expand revenue sources.

People Development - develop our people to realize their highest potential.

1.6 Planning Guidelines

Planning guidelines provide a framework for the Campus Master Plan. They have been developed in part from a review of facility development needs and priorities.

General Guidelines

- Enhance and optimize the use of existing facilities by planning capital projects around the needed reinvestment in the Lethbridge College buildings and infrastructure, specifically:
    - Renew or replace facilities that are outdated and/or have a high Facility Condition Index.
    - Ensure that the capital investment will result in a decrease in deferred maintenance.
    - Ensure that the capital investment will improve facility functionality and utilization, and enhance program delivery.
- Provide a balanced approach that is student centered, focused on academic program and student service needs as the foremost priority.

- Use student movement patterns throughout the campus as a basis in determining where student space components might be located.

Unit Guidelines

- Locate student-related functions in accessible and high profile locations.
- Where feasible, locate heavily used and centrally scheduled facilities in proximity to the main north-south spine, specifically to support improved utilization of these facilities.
- Take into consideration the point that for some of the college's schools/programs, identity is very important, especially for their students. Where possible, strengthen identities through measures such as functional zoning and visual cues.
- Where feasible, cluster program/faculty offices to enhance program integration, academic collegiality and student access.
- Group spaces by function (versus organizational entity) if it achieves optimal efficiencies in operation, utilization, servicing and/or building design.

Student-Centered Guidelines

- Ensure the campus provides welcoming, engaging and informative points of entry.
- Where feasible, group all services for students to provide a unified and easily accessed location.
- Recognize that study and social spaces can be interchangeable to meet the learner's needs.
- Ensure the Library effectively serves the evolving learning methods and needs of students, as well as those of the college staff and community.
- Consider the development of services and spaces for students to best reflect the demographics of the Lethbridge College student body.

Operational & Space Planning Guidelines

- Optimize instructional room sizes (primarily classrooms) to align with the learning cohorts and class sizes.
- Monitor and assess trends in program delivery, learning and instructional methods, and class sizes to effectively plan for future needs.
- Apply the principles of sustainability, process re-engineering and effective space utilization in planning.
- Plan staff offices and work spaces according to the Campus Master Plan standards. Ensure equitable distribution.
- Ensure the space allocation framework process is followed.

1.7 Academic Program Plans & Directions

The Campus Master Plan must respond to changing academic program delivery needs, priorities and future directions, and not be reliant on enrolment growth. Academic directions and change opportunities, including applied research priority initiatives, are identified in the 2016-19 Comprehensive Institutional Plan (CIP). The Campus Master Plan provides an adaptable space allocation framework to accommodate current and future opportunities. As the CIP evolves and changes so may priorities for academic program plans and directions.

1.8 Student Enrolment

The college is targeting stable enrolment numbers moving forward. It continues to be important to maintain efficient levels of enrolment to ensure the sustainability and quality of its programs. The college's enrolment management strategy must meet the needs of a diverse population including FNMI, immigrants and international learners.

1.9 Instructional Delivery Trends & Needs

Program delivery trends that may impact facility requirements include:

- Increased emphasis on active participation learning, interactive and group learning. This affects the demand for hands-on and simulated instructional environments, more small group project/ study/ seminar spaces, and flexible classroom settings.
- Expanding opportunities and focus on innovation and partnerships present pressures to access flexible project-type space appropriate to activities like applied research and incubation.
- Certain specialized training spaces, due to the nature of the program, will inherently not be able to achieve high utilization levels.
- Growth in alternative program delivery formats including off-campus and distance delivery. Program and curriculum development, integration of program delivery, and student and technical support are all affected.
- Growth and development in competency-based education.

2.1 Glossary of Space Planning Terms

The Space Allocation section outlines a space planning process and standards. Understanding space planning terminology used throughout this section is important:

TERM	REFERS TO/MEANS	DESCRIPTION
Accommodation Plan	Space planning	The suggested allocation of space consisting of: 1. An assessment of needs and a review of the fit of existing space to those needs. 2. A strategy assignment of space intended to satisfy the assessed needs.
ASM	Assignable Square Metres	An equivalent to the net area that can be assigned to a particular Unit. It is used in programming to clarify that the area (a net number) can be fully used by its occupants.
Adjacency	Space planning	Refers to the distances between and relationship among functional components of a space.
Benchmarking	Space planning	A comparison of a situation or metrics regarding space to other examples of such a situation to ascertain the correctness and viability.
Bubble Diagram	Space planning	A graphic representation of adjacencies of functional units - usually in plan.
CGSM	Component Gross Square Metres	The net measurements of space with the addition of circulation space needed to access the workstations (usually about 30% of NSM).
Enclosed	Private Office Space	An enclosed office that has one occupant.
Fit	Space Planning	An analysis and description of how well the programme for a functional group is met within a real floor area. This may consider several criteria in addition to the metrics of area alone.
FLE	Full Load Equivalent	A comparable metric used in the Alberta Education system that is measured by taking the load of the student enrolled (instructional hours + practicum hours) and dividing by the full load of that program. A student taking a full course load (maximum credit possible) in any semester would be considered as 1 FLE.
Functional programme	Space planning	A detailed programme describing all elements of each room for a functional group. These are highly detailed and are done to inform the designers of a building or renovation what must be included, what the

		performance needs to be, and details each component and room, and how they are to be outfitted.
GSM	Gross Square Metres	This is the total area of a floor including all interior walls, structure, service space, stairs, exterior thickness of the building envelope, washrooms, mechanical rooms, and electrical rooms.
NSM	Net Square Metres	The net measurement of the area of a room measured to the wall. Sometimes shown as NASM or Net Assignable Square Metres.
Open	Open Office space	Referring to a workstation that is usually in an open area on a floor and may have panels enclosing a portion of the space up to a given height. The height of the enclosure varies depending upon the work being done.
Plans	Plan view drawings	Refers to the orthogonal view of a location as seen from above.
Programme	Space planning	A description of the space required to house a function or series of functions. Usually described in metric terms as areas and functional adjacencies.
RFD	College Process	Capital Request for Decision, a procurement procedure of Lethbridge College.
Shared	Shared office space	An enclosed office that is shared by two or more individuals.
Spatial Budget	Space planning	A high-level programme depicting the amount of space required by a department, faculty, or other unit to perform their tasks.
Unit	Space planning	Refers to a Department, Program Centre, etc. Any portfolio or portion of a portfolio which identifies as a singular entity.
WSCH	Weekly Student Contact Hours	WSCH represents a total number of hours faculty contacted students weekly in a department, division, or an institution. equation below: *WSCH (Weekly Student Contact Hours) = Class Enrollment × Weekly Hours*

2.2 Glossary of Master Plan Acronyms

Acronyms associated with the Lethbridge College and its units are listed below:

ACE	**Aquaculture Centre of Excellence**
CAAS	**Centre for Applied Arts and Sciences** School of Agriculture School of Liberal Arts and Life Sciences School of Developmental Education International Education English Language Centre Mueller Applied Research Chair in Irrigation Science Citizens Society Research Lab
CTED	**Centre for Technologies, Environment and Design** School of Engineering Technologies School of Environmental Sciences School of Media and Design
CAM	**Centre for Applied Management** School of Business School of Construction Trades School of Culinary Arts School of Renewable Energy Crooks School of Transportation
CHW	**Centre for Health and Wellness** Placement Office SPHERE School of Allied Health School of Health Sciences
CJHS	**Centre for Justice and Human Services** Inclusive Post-Secondary Education School of Human Services School of Justice Studies School of Public Safety Competency Based Education
CTLI	**Centre for Teaching, Learning and Innovation** Educational Enhancement Team Buchanan Library Learning Services Regional Stewardship

CARI	**Centre for Applied Research and Innovation**
HR	**Human Resources**
IPAR	**Institutional Planning, Analysis and Risk Management**
RO	**Registrar's Office**
SS	**Student Services** Student Engagement and Retention Recruitment and FNMI Services Athletics, Residence and Recreational Services Health Centre
FM	**Facilities Management**
FS	**Financial Services** Accounting and Purchasing Services Financial Services Payroll Bookstore
CCE	**Corporate and Continuing Education** Business Training and Development Industrial and Technical Training Be Fit for Life
ITS	**Information Technology Services**
ADV	**Advancement** External Relations Development/Alumni Relations Marketing and Web Services Communications
Board	**Lethbridge College Board of Governors**
BLIMS	**Building and Land Information Management System**
CLC	**College Leadership Committee**
ELT	**Executive Leadership Team**
GoA	**Government of Alberta**
PRMC	**Physical Resources Management Committee**

2.3 Space Overview

Summary information about the existing buildings on the Main Campus is provided in the following table, including both government supported and non-supported space:

Building Name	Constr Year	Renov Year	GFA[1] (m^2)
Andrews Building	1962	2008	10,607
Animal Husbandry Building	1986		[1,115[2]]
Aquaculture Building	1997		1,531
DA Electric Barn	1950		1,109
College Centre Building	1985		8,716
Cousins Building	1966	2007	6,793
Instructional Building	2002		7,246
Maintenance Bldg & Garage	1977		1,160
Paterson Building	1969		4,702
Physical Education Building	1989		8,834
Technologies Building	1983	2000	8,282
Trades TR1800	1983		5,216
TTRIP	1970	2017	15,800
Building Links & Tunnels	Var		801
Misc, Outbuildings > 50 m^2	Var		422
Misc, Outbuildings < 50 m^2	Var		118[3]
Subtotal Gov't Supported Space on Main Campus			**81,219**
AQ Buildings (leased to Gov't)	1997-2003		674
Cullen Residences	1977		7,827[3]
30th Avenue Residences	1987		9,173[3]
Kodiak House Residence	2010		4,265[3]
Total Campus Building Area			**104,391**

Notes:
1. GFA = Gross Floor Area.
2. The Animal Husbandry Building is also government supported space that, however, is not located on the Main Campus and is not included in the above totals.
3. Not included in the subtotal of government supported space.

The college currently has approximately 81,219m^2 of gross floor area of government supported space, which excludes student residences and other non-supported space.

At current FLE levels this translates to approximately 20.7 GSM per FLE, which places Lethbridge College in the same range as comparable institutions such as Medicine Hat College and Red Deer College, whose mandates also include apprenticeship training.

2.4 Existing Space Allocation & Utilization

The college has close to 70 classrooms and lecture theatres with a total of more than 2,800 seats. Based on a benchmark of 0.65 to 0.70 classroom seats per FLE, the current space has the capacity to accommodate in the range of 4,000 to 4,500 FLE's. This will be affected by the degree of alignment between classroom sizes (i.e. # of seats) and the numbers of students enrolled in each class. Based on utilization reviews the current classroom inventory indicates a surplus of larger classrooms in the 50+ seat size.

2.5 Addressing Space Requirements

From the perspective of the Campus Master Plan, space needs tend to be driven primarily by academic program delivery needs, including enrolment trends. Accordingly, within the short-term planning horizon, it would appear to be most prudent for the college to focus more on facility renewal, upgrading and/or replacement in lieu of any significant facility/space expansion. However, it should be noted that certain targeted growth programs, new programs and/or initiatives may in fact require additional space to meet their needs.

The method for the annual audit and review of needs as the process for updating key current/future priorities for the college is carried out by Facilities Management and includes:

- Auditing validation exercise of specified spaces and programs to ensure that the campus space data is always as current as possible.
- New, required audits for expanding or contracted spaces and/or programs.
- Review and validation of BLIMS submissions in overall for key current/future priorities.
- Annual review and recommendation to CLC of key priorities for space expansion, contraction, and augmentation.

2.6 Space Management Manual

The review and approvals process identifies space needs and allows for the planning allocation of space to be made in a transparent manner. A programming tool enables Facilities Management to maintain a current database of the needs of each unit within the college and a review of how those needs fit the space that is allocated to them. Requirements are identified in the programming stage and reviewed on a regular basis with each group. Process flow diagrams in this section outline the flow of information and resulting accommodation plans of each unit. The flow diagrams address:

- The on-going spatial review process.
- Review and approvals process for non-government funded capital projects.
- Review and approvals process for government funded capital projects.
- Project implementation of approved government funded capital projects.

These flow diagrams, the accompanying spreadsheet descriptions and the space standards for the most common types of space normally encountered, constitute the Space Management Manual.

The Space Management Manual addresses space categories at a macro level including space that may not be supported under the current government funding model, i.e. ancillary operations space, commercial and cost-recovery space, space leased by the college to accommodate teaching or research, college space leased to public or private sector partners, parking and residence facilities, certain types of non-assignable space, and space located off-campus including remote sites used for practicums or research purposes.

Finally, the Campus Master Plan differentiates between the groups that might have *supplementary space needs* to accommodate specialty learning, research and community service facilities due to the nature of the activity, size of equipment, additional servicing/support needs, etc.

2.7 Space Planning

The Campus Master Plan ensures that space on campus has optimal utilization and is meeting the teaching, research and support function requirements of the college. This will most often be experienced by these groups in the process of "space planning". Space planning is:

- The development of spatial budgets, and Requests for Decision should the Accommodation Plan indicate a need for new construction and major renovation projects.
- The identification of longer range space needs.
- The general allocation of space, by Facilities Management, to faculties, administrative and service units, community services, etc.
- The general allotment of space to a unit.
- Providing evidence of current space allocation and utilization for internal project prioritization, business case development, and capital plan submissions.
- Providing guidelines for monitoring the use and adequacy of space allocated to units.

2.8 Space Management Process

The focus of the Campus Master Plan is to effect optimal use of space throughout the institution. The space management process will:

- Establish guidelines and benchmarks for the space required to meet functional needs and types of uses.
- Be a reference tool on how space is being managed at all levels of the institution.
- Be the foundation for space utilization monitoring through spatial budget information and space utilization data.
- Serve as the basis for reallocating and/or repurposing space, if warranted, to optimize its functionality, usability and utilization.
- Assign individual spaces and groups of spaces by and within a unit according to space type guidelines, e.g. office and workstation sizes.
- Manage internal space issues by a unit including the basis for the reallocation of space, if warranted, to accommodate rapid growth, change in function and other priority needs.

The standards will be applied in a flexible manner to address the wide range of frequently-changing space needs and assist in understanding special and unique space needs at a local level.

It is expected that the standards and benchmarks may evolve and be refined over time as they are applied and tested, as additional information becomes available, and in response to practical issues and exceptional cases.

2.9 The Planning Process

Planning begins with preparation of a spatial budget which is essentially a short form programme. This captures the scope and activities of a unit as they currently are and how they are envisioned to be over the planning horizon - usually about 10 years.

Facilities Management reviews these results against the standards to determine that the space requirements are reasonable and a proper utilization of available resources. It also assesses the utilization of existing space and provides an indication of the "Fit" of the budget to available space. The spatial budget spreadsheets have preliminary fit elements integrated within. They require the entry of existing space allotted and the area for example. Other metrics are adjacencies (both internal to the group and external to other units) and the presence of required technology, etc. Taken together, a picture emerges of the existing fit. The spatial budget and the assessment of fit together become the "Accommodation Plan" for the unit.

The spatial budgets are reviewed by Physical Resources Management Committee (PRMC). The accommodation plans must then be approved by the College Leadership Council (CLC) before they take effect. Once approved, they are used as the basis of space allocation and planning moving forward, including the development of a RFD for each that is proposed as a solution to a specific space issue.

The process flow of both planning and subsequent RFD implementation is presented in the following pages.

Fig.2.9.1 Spatial Review Process Flow Diagram

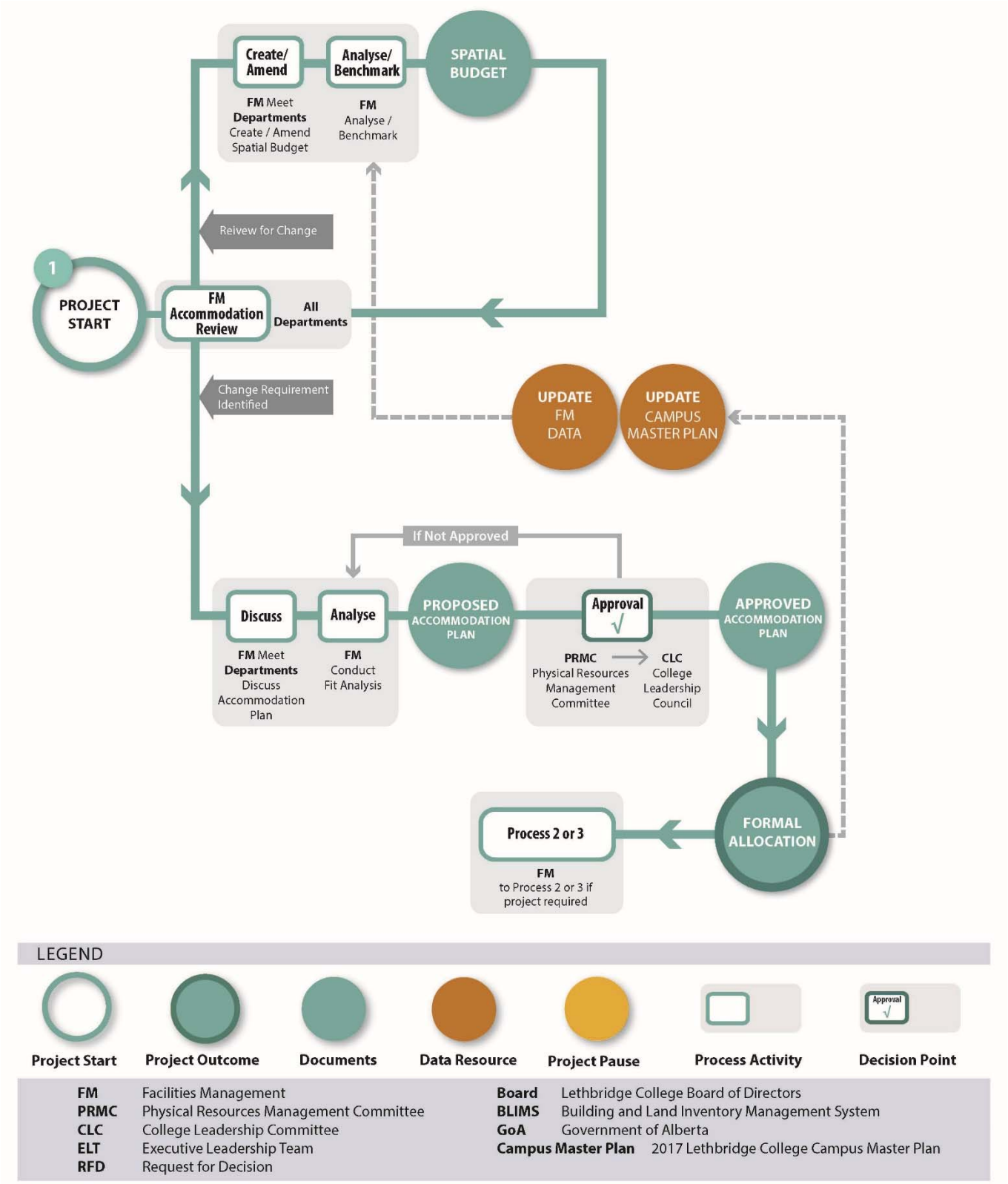
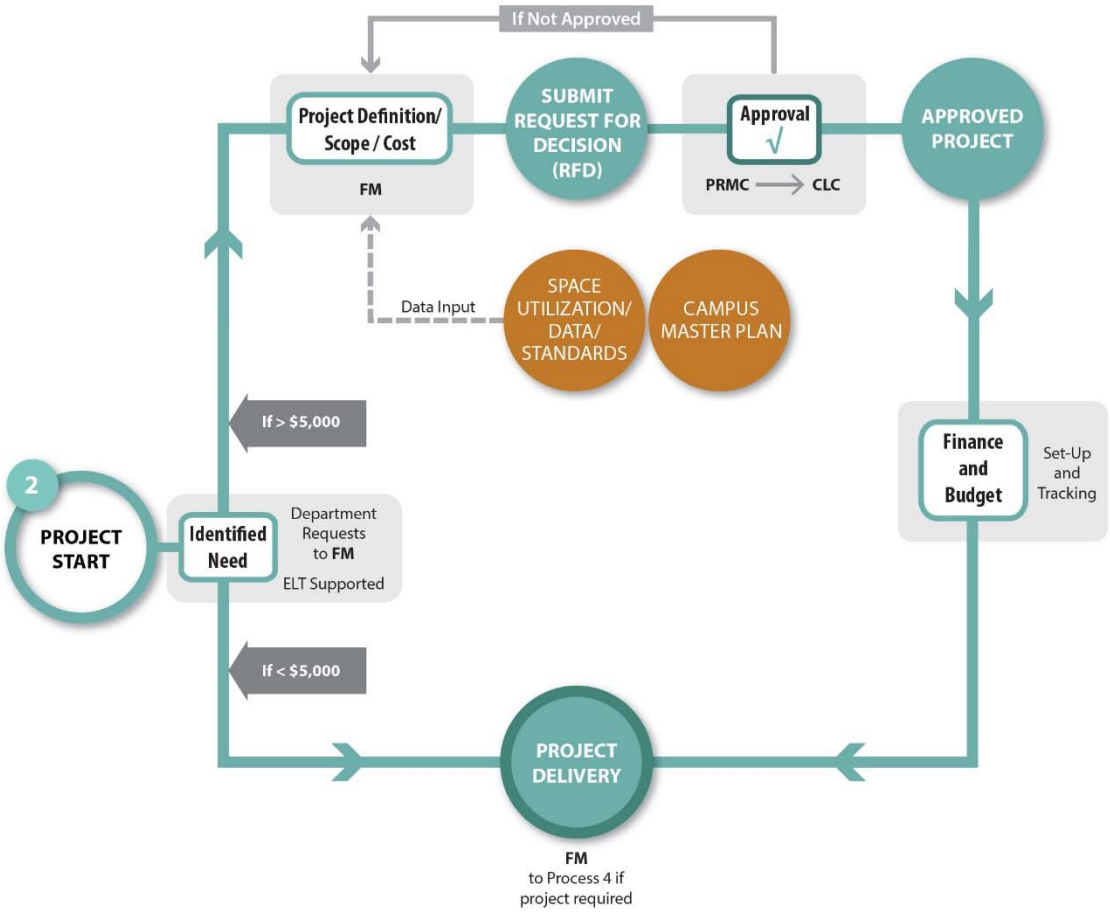


Fig. 2.9.2 Flow Diagram for Capital Projects: Non-Government Funded



LEGEND

Project Start | Project Outcome | Documents | Data Resource | Project Pause | Process Activity | Decision Point (Approval √)

FM	Facilities Management	**Board**	Lethbridge College Board of Directors
PRMC	Physical Resources Management Committee	**BLIMS**	Building and Land Inventory Management System
CLC	College Leadership Committee	**GoA**	Government of Alberta
ELT	Executive Leadership Team	**Campus Master Plan**	2017 Lethbridge College Campus Master Plan
RFD	Request for Decision		

Fig. 2.9.3 Flow Diagram for Capital Projects: Government Funded

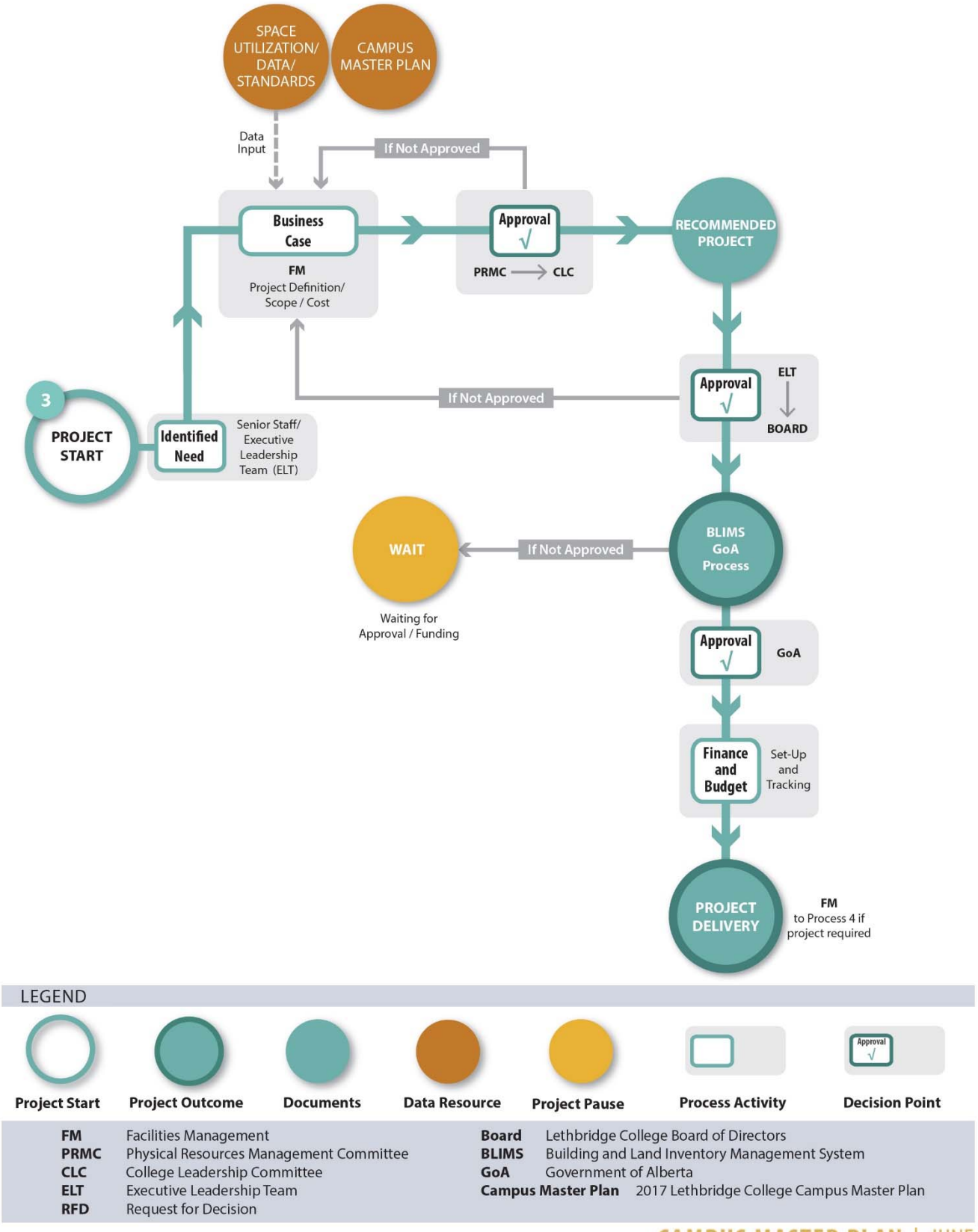
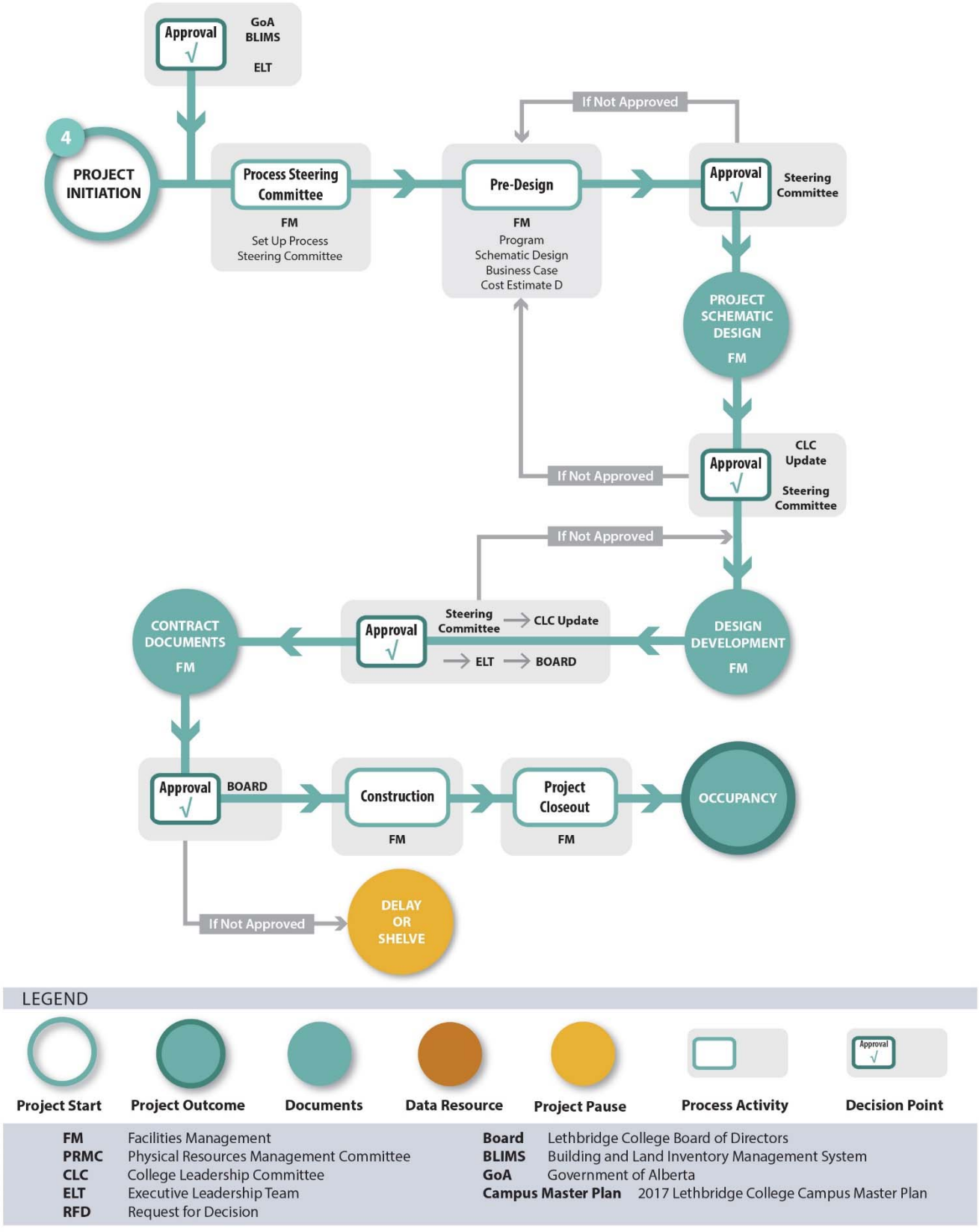


Fig. 2.9.4 Flow Diagram for Capital Projects: Government Approved



2.10 Space Standards: High-Level

The Campus Master Plan establishes space standards consistently applied across all departments, centres, and units. They are used as a starting point and will be refined by Facilities Management as space is managed and changes over time. They are not static standards. The standards are derived from several sources. Principal among them are: the Council of Ontario Universities Building Blocks, University of Alberta Space Management Manual, Space Standards Advanced Education Province of British Columbia. Although these resources were part of the development, they have been adjusted and edited by Thinkspace based on experience in master planning of several campuses in recent years.

ASSIGNABLE SPACE CATEGORIES	COLLEGE WIDE GUIDELINE/BENCHMARK	COMMENTS
Classroom, Lecture and Seminar Space	1.2 - 1.3 ASM / FLE Base Faculty-specific requirements on ASM / WSCH (Weekly Student Contact Hours)	Both classrooms and labs are driven by their scheduled use and the number of student stations in them.
Laboratory, Shop and Studio Space	Overall: 1.25 - 1.4 ASM / FLE Shops: 0.90 - 1.75 ASM / WSCH Science Labs: 0.50 - 0.65 ASM / WSCH Non-Wet Labs: 0.30 - 0.40 ASM / WSCH Computer Labs: 0.25 - 0.30 ASM / WSCH	
Academic Offices and Related Space	President/VP 15.8 ASM AVP, ED 13.9 -15.8 ASM Deans, Directors 13.9 ASM Chairs 13.0 ASM Faculty/Instructors Shared 13.0 ASM Faculty/Instructors Single 10.0 ASM "Hoteling"/Docking Space 3.4 - 4.3 ASM	Shared offices should have a small meeting room(s) in close proximity, for private conversation.
Admin Offices and Related Space	0.9 - 1.0 ASM / FLE	
Library and Study Services Space	1.3 - 1.4 ASM / FLE	
Athletics and Recreational Space	1.1 - 1.3 ASM / FLE	Varies depending upon programs/ recreational opportunities
Student Community/Social Space	0.5ASM/FLE on trial	Unassigned space without specific function meant for the use of students in an unstructured manner

2.11 Space Standards: Commonly Planned Spaces

SPACE TYPE	COLLEGE WIDE GUIDELINE/ BENCHMARK	COMMENTS
Lecture theatres (>75 seats)	1.5 NSM/seat	1.2-1.4 NSM per seat fixed tablet-arm chairs 1.5-1.7 NSM per seat fixed or movable table and chair *(Lecture theatres larger than 75 seats should be tiered)*
General Classrooms (25 to ~ 75 seats)	2.0 NSM/seat	1.7-2.2 NSM per seat *Assumes movable tables and chairs (not tablet arm chairs).*
Seminar / Problem-Based Learning Rooms (<25 seats)	2.25 NSM/seat	2.0-2.5 NSM per seat. *Assumes movable tables and chairs.*
Lecture theatres (>75 seats)	2.5 NSM/seat	2.3-2.7 NSM per seat. *Assumes movable tables and chairs.*
Shops	9.75 NSM/seat	7.5-12.0 NSM per station. *Add 25-40% for service support space.*
Science Labs	6.0 NSM/seat	4.7-7.2 NSM per station. *Add 25-40% for service support space.*
"Computational" Type Labs	3.75 NSM/seat	3.0-5.5 NSM per station. *Add 20% for service support space.*
Ganged Computer Labs	3.5 NSM/seat	3.0-4.5 NSM per station. *Add 10% for service support space.*
Group Study Rooms	2.5 NSM/seat	2.3-2.7 NSM per seat.
Study Carrels	3.5 NSM/seat	3.2-3.7 NSM per carrel.
Meeting/Conference Rooms	2.0 NSM/seat	1.5-2.5 NSM per seat, *e.g. Video conference rooms are at the upper end of the range.*
Collaboration/Gathering/ Socialization Space (informal)	1.75 NSM/seat	1.5-2.0 NSM per person.
Library/Learning Commons	Varies	3.0-4.5 NSM per station for computer stations Add 10% for service support space 2.3 to 2.7 NSM for Group Study 2.0 NSM for collaboration space

2.12 Spatial Budget Data Sheets

Spatial budgets are developed and maintained by Facilities Management. The development of the spatial budget template was the result of work done by outside consultants reporting to the Steering Committee assembled for the purpose. The template was then tested by entering the information experimentally in a pilot study of two centres on campus. Further refinements resulted in the current spreadsheets. This is a high-level data tool to assist in quantifying and characterizing the space needed and ascertaining the fit to campus space. This tool, the process diagrams, as well as the standards, forms the Space Management Manual which is part of the Campus Master Plan.

These spatial budget sheets capture the current ***requirements*** of the unit. There may be space required that is not presently available or provided. The Spatial Budget Data Sheet captures a budget and is not a statement of existing space, but of existing requirements.

Terminology

Specific terminology is used in the spatial budget chart. This is referenced on the blue banner, as shown on Fig 2.12.1. It is located at the top of the chart and read left to right:

REFERENCE NUMBER

Individual space requirements listed numerically.

ROOM NAME

Space requirements identified according to title.

CURRENT REQUIREMENTS 2017

The spatial budgets are to be updated by Facilities Management on an annual basis. To that end, the category outlining required areas will be validated on an annual basis with the year updated and changes in programming and academic direction. This section is divided into three subsections:

- *NO. OF STAFF*: the number of each space
- *ALLOW (sm):* the specific net area allowance per space, the value of which can be found in the space standards
- *AREA (sm):* the product of *STAFF* x *ALLOW*

ROOM NUMBER

Each space is currently allocated to a room on campus and this room has a designation relatable back to a plan of the campus. In some cases, the room is shared, in others it may not exist yet or it is a space that is not attributable and is shared.

AS FOUND AREA

Each room listed for the allocated space has an area calculated as net square metres.

AS FOUND RATIO

Each room's existing area is expressed as ratio where *ALLOW* Area/*AS FOUND* Area. A perfect ratio of area is 1.0. Variations above or below 1.0 are identified.

Fig.2.12.1

FIT ATTRIBUTES									
			Quality of Fit						
AREA FIT	INTER-DEPT ADJACENCY	INTERNAL DEPT ADJACENCY	APPROPRIATE TECHNOLOGY	NOISE	LIGHTING	INFRASTRUCTURE	FLEXIBILITY	DEDICATED/ SHARED	WEIGHTED SCORE
1	0.3	0.6	0.2	0.2	0.2	0.2	0.4	0.5	WEIGHT

Fig.2.12.2 Detail of Fit Attributes

FIT ATTRIBUTES

Each *ROOM NUMBER* on campus as it is assigned to the current *ROOM NAME* has a series of physical attributes as shown on Fig. 2.12.2 that can be graded in different areas accordingly:

- *AREA FIT*: the *AS FOUND RATIO* numerically graded as good, fair or poor.
- *INTER-DEPT ADJACENCY:* each space has a unique relationship relative to any required or beneficial adjacency to other external departments or factors for optimization. This adjacency is graded using a walkability scale numerically graded as good, fair or poor.
- *INTERNAL DEPT ADJACENCY*: each space has a unique relationship relative to any required or beneficial adjacency to other entities within its own department. This adjacency is graded using a walkability scale numerically graded as good, fair or poor.
- *QUALITY OF FIT*: (may be augmented by future learning space needs) each space has its own unique ideal attributes that can be judged against those found in the specific assigned *ROOM NUMBER.* These can be assessed in conversation with the departmental leaders and Facilities Management. This can be numerically graded as good, fair or poor with the following attributes:
    - *APPROPRIATE TECHNOLOGY:* suitability of the equipment and technology provided in the room.
    - *NOISE:* acoustics within the workspace and between workspaces and other spaces
    - *LIGHTING:* general and task lighting and its suitability to the specialized use of the room.
    - *INFRASTRUCTURE:* infrastructure in the room other than the technology required. This includes plumbed water, air, electrical, mechanical or other requirements specifically needed for the use proposed for the room.
    - *FLEXIBILITY*: This is a measure of whether the space can be easily transformed for collaboration/teaching.

DEDICATED/SHARED

All space is either dedicated solely to the allocated use or has the capacity to be flexible and shared.

WEIGHTED SCORE

All the fit attributes are aggregated and numerically graded as good, fair or poor. Each fit attribute is multiplied by a specific factor.

COMMENTS

Each space may require additional comments important to record for Facilities Management to understand the full picture. They may help describe specific attributes, frequency of use, or other relevant information that may help inform the weighted score.

2.13 Guide to Spatial Budget Data Sheets

The spreadsheets serve as the programming template for capturing the needs of any unit on campus. These are the result of a test pilot period.

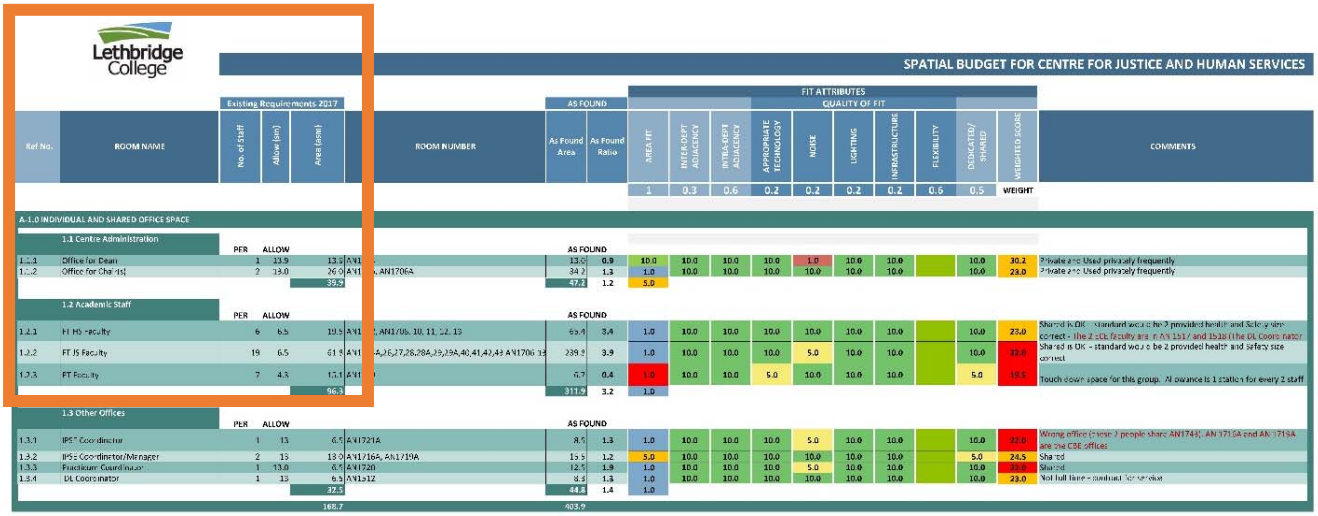


Fig.2.13.1 Overall view of sheet

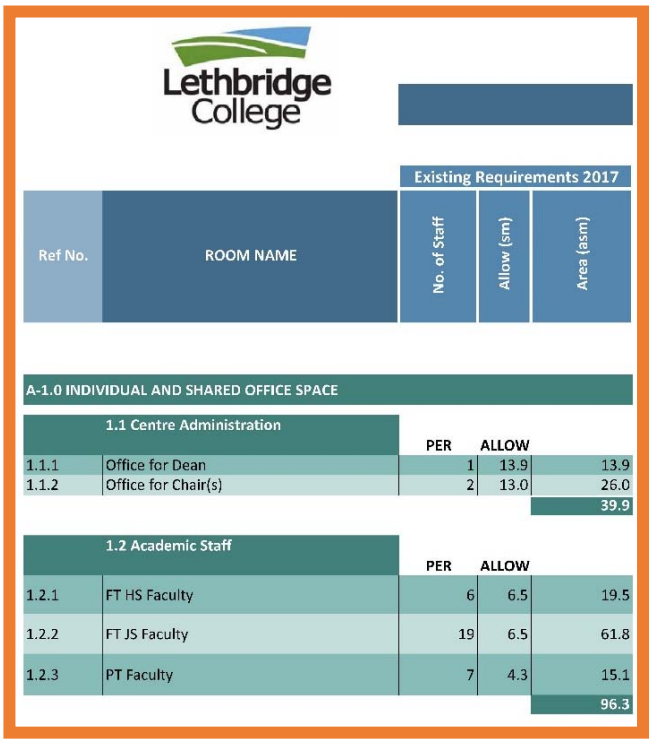


Fig.2.13.2 Detail from Fig.2.13.1

Overview

As shown in Fig 2.13.2 personnel positions and specialized spaces such as labs, trades shops, and other specialty spaces are identified on the sheet.

Columns consist of a reference number, office room name, persons occupying the room, and *ALLOW*ance per person. The *ALLOW*ance is derived from the space standards that are part of the Campus Master Plan document. Totals in the final column are calculated automatically.

The next section deals with the *AS FOUND* condition which is the space currently occupied by the unit being audited.

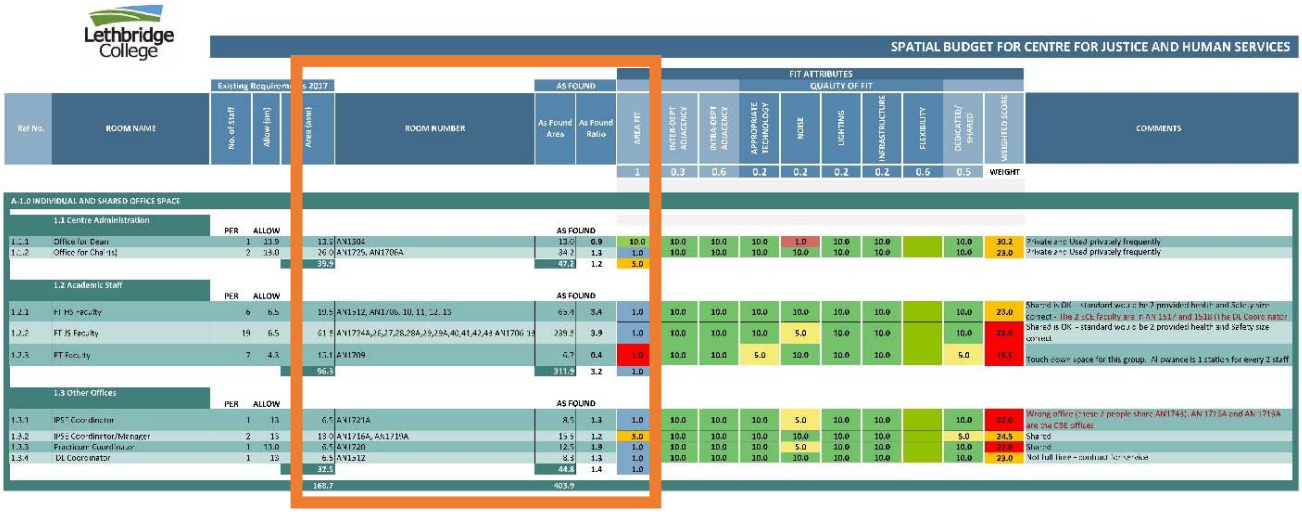


Fig.2.13.3 Overall view of sheet

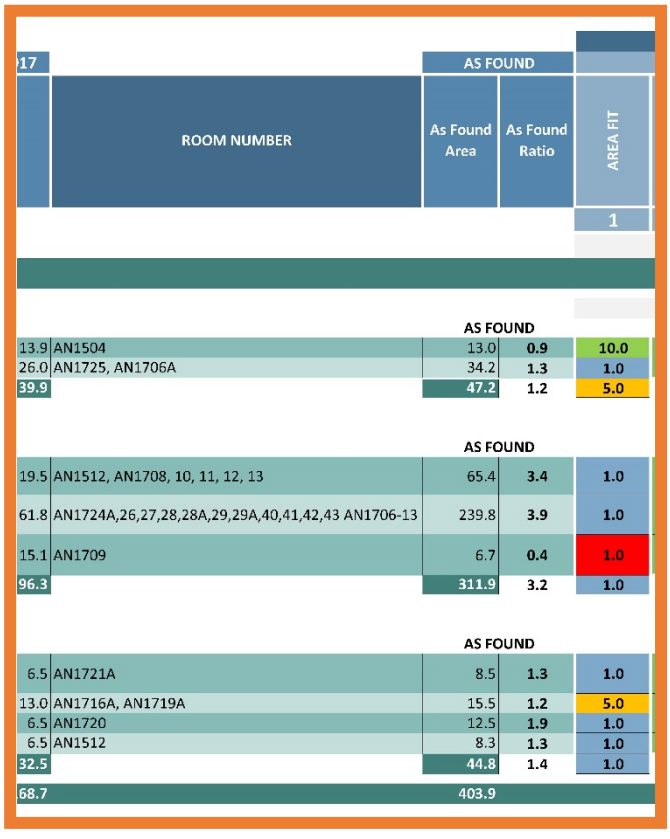


Fig.2.13.4 Detail from Fig2.12.3

AS FOUND

As shown in Fig.2.13.3 the next section of the sheet identifies the existing location of the group. Specific offices as well as specialized rooms are entered as a room number. The *AS FOUND* area is in the adjacent column. This must be a **NET** area, because all programming is calculated in NET square meters without circulation or any other aspect of the space affecting the values.

The next column is the *AS FOUND RATIO,* automatically calculated as a ratio of *AS FOUND AREA* to *ALLOW*ance. The *AREA FIT* is also automatically calculated with both a "score" and a colour automatically assigned. The "Score" is one of three numbers: "1", "5", or "10". Colours serve to augment and help clarify the numeric ascribed scoring:

- **Red = 1** (>20% below the required space)
- **Yellow = 5** (>10% below or >10% above the required space)
- **Green = 10** (between 10% below & 10% above the required space)
- **Blue = 1** (>20% above the required space)

Fit Attributes

The *FIT ATTRIBUTES* section of the sheet begins with the *AREA FIT* as noted previously. Other measures of fit need to be considered and are represented as *FIT ATTRIBUTES* in the spreadsheet

There are eight additional attributes that are evaluated. Seven of these attributes are scored as “1”, “5”, or “10” against criteria that are described specifically and integrated within the spreadsheet, accessible to the FM staff undertaking the evaluation.

Fig.2.13.6 Overall view of sheet

Fig.2.13.7 Detail from Fig. 2.13.6

The exception to the 1, 5, and 10 scoring, is the final fit attribute of *SHARED/DEDICATED* which is only scored as either a 5 for dedicated or 10 for shared.

Furthermore, five of the fit attributes are identified as *QUALITY OF FIT* referring the appropriateness of space for its intended function.

General

Conditional formatting is applied to all areas. As shown in Fig.2.13.7, the first column, *AREA FIT*, is automatically calculated and scored. The next eight attributes are scored by first testing the Fit to the criteria, and then entering a value as prompted by each cell. A down arrow will appear to the right of the cell allowing you to access the menu of values - in all the columns from *INTER-DEPT ADJACENCY* through to *FLEXIBILITY* the values are 1, 5, and 10 as described earlier. For *DEDICATED/SHARED* column, it is 5 and 10. The *WEIGHTED SCORE* column is the overall score.

Fit Attribute Criteria

INTER-DEPARTMENTAL ADJACENCIES: What is the adjacency measured in pedestrian travel time between Departments?

- 1 = Over 2.5 min
- 5 = >1.5 min < 2.5
- 10 = < 1.5 min

INTERNAL DEPARTMENTAL ADJACENCIES: What is the adjacency measured in pedestrian travel time between people within the department?

- 1 = Over 2.5 min
- 5 = >1.5 min < 2.5
- 10 = < 1.5 min

APPROPRIATE TECHNOLOGY: What is the suitability and extent of equipment and technology provided?

- 1 = Not Equipped
- 5 = Moderately Equipped
- 10 = Well Equipped

NOISE: What are the acoustics within the workspace like? What are the acoustics like between workspaces and other spaces?

- 1 = Poor Acoustics
- 5 = Fair Acoustics
- 10 = Good Acoustics

LIGHTING: What is the quality and appropriateness of the general and task lighting?

- 1 = Poor Lighting
- 5 = Fair Lighting
- 10 = Good Lighting

INFRASTRUCTURE: What is the suitability of the infrastructure required (ie. Water, Air, Electrical, etc.) other than technology?

- 1 = Needed Infrastructure Not Present
- 5 = Some Needed Infrastructure Present
- 10 = All Needed Infrastructure Present

FLEXIBILITY: Can the space be easily transformed for collaboration/teaching? This is scored based on time to transform.

- 1 = Over 15 min
- 5 = >5 min <15 min
- 10 = < 5 min

Dedicated Lab/Shop Space requiring **Fixed** Components Score 10 due to the nature of the equipment and use of space. Examples would be welding stations or nursing mannequin stations

DEDICATED/SHARED: Is the space flexible enough to be shared with other purposes or is it solely set up for one use?

- 5= Dedicated
- 10= Shared

These criteria can be quantified if required. These would include inventories of fixed and movable

Total Space for the Centre for Teaching, Learning, and Innovation		
A-1.0 Individual and Shared Office Space	486.3	575.2
A-2.0 General Office and Support Space	52.0	15.7
B-1.0 Learning Commons and Library	1324.0	2110.8
B-2.0 Learning Services	368.2	847.5
B-3.0 Institutional Support	50.0	61.3
TOTAL SPACE NEEDED	2,280.45	3,610.47

Fig.2.13.9

elements, inventories of infrastructure, STC ratings for noise transfer and decibels for in room noise, time for the distance measurement between people and departments, as well as for flexibility, and lumens for lighting.

Overall Score

As shown on Fig.2.13.7, under each *FIT ATTRIBUTE* headings there are values ranging from 0.2 to 1. When values are multiplied with specific weighted value factors in its column, it is then aggregated as a unified fit attribute result, expressed as a combined *WEIGHTED SCORE*. This allows the attributes being scored to be flexible and nuanced. Ultimately, these values are a matter of internal discussion at Lethbridge College to determine the relative weighting of each attribute.

The final vertical column of *WEIGHTED SCORE* is a calculated number that results in a red, yellow, or green colour. The range of possible numbers are a low of 1.3 to a high of 90 and depend on the values allotted to the weighting. These values can be anticipated to change, but not frequently. Their value is a matter of policy that resolved between FM, PRMC, and CLC.

The categorization of the resulting values into red, yellow, and green is accomplished in the conditional formatting formulae.

Total Space

The box at the bottom of the spreadsheet summarises the totals. In this specific example shown in Fig.2.13.9. the totals for the Centre for Teaching, Learning, and Innovation pilot trial show the first set of numbers to be those calculated by application of the Space Standards. The second set of numbers are the total *AS FOUND* areas. In this example, the total area by application of the Space Standards shows a requirement of 2,280.45m^2. The *AS FOUND* area is 3,610.47m^2. The result here shows the found condition 1,330.02 m^2 in excess of the standard. The result is graphically represented by the coloured bar to the right of the *AS FOUND* total area.

Expanded Guide

An expanded guide can be found in the Appendix as section 4.1. It is organized similar to this section, provides greater detail on the formulae and values in the spatial budget data sheets.

3 CAMPUS OVERVIEW

3.1 Main Campus Overview

This section provides an overview of the existing main campus and the context for future planning. It includes the following plans:

1. **Context Map**
   This information is provided as a high-level context map to assist in ongoing annual space allocation considerations. The context map locates the Lethbridge College's Main Campus and Animal Husbandry site within the City of Lethbridge and indicates their geographic relationship with respect to major transportation routes, significant civic, government, commercial and institutional entities as well as prominent infrastructure.

2. **Main Campus Context**
   This site plan identifies and describes the Main Campus site within the context of the surrounding neighbourhoods, adjacent property uses and significant public buildings, the coulee views and west winds, and the main access roads to the campus, i.e. College Drive and 28th Street from the north, and Tudor Boulevard and ultimately 34th Avenue from the east at Mayor Magrath Drive. The internal college ring road is highlighted to draw attention to its role as important organizing infrastructure.

3. **Major Pedestrian Corridors and Nodes**
   This plan depicts the current network of major pedestrian pathways and corridors on campus and the key destination nodes. Of note is the strong north-south axis creating a spine through the main campus building and the principal axis through buildings that creates a general hierarchy and complexity of routes.

4. **Existing Un-Built Land Context**
   This context plan graphically contrasts the current unbuilt land use - primarily parking, green space and the sports fields, with buildings on campus. Of note are the large areas of undeveloped 'available' green space on the north and east quadrants of the main campus. A considerable amount of land is dedicated to surface parking throughout the campus. Currently, the parking spaces occupy close to 6.7 hectares of land (the roadways occupy an additional 3.8 hectares).

5. **Existing Context Summary**
   This context summary is an aggregate of the previous three plans depicting relationships between existing infrastructure, pedestrian corridors, nodes and unbuilt land usage.

6. **Opportunities**
   This information depicts opportunities for enhancement on the current campus. Many of these opportunities are existing conditions that could involve refinement to help enhance the pedestrian realm and wayfinding through the campus.

7. **Concept Access, Wayfinding & Vehicular Routes**
   This concept plan highlights the two existing vehicular access points to the campus and the campus ring road. The conceptual new vehicular access route to the campus aligns with 34 Avenue South and provides more opportunities for access onto the campus. Campus directory pylons help with wayfinding for vehicular traffic through campus, and with a new access point one would be necessary.

8. **Concept Pedestrian Corridors & Nodes**
   This concept plan illustrates the current layout of the major pedestrian paths with the potential to place a stronger emphasis on the key north-south and east-west axis and their intersection at major nodes. Changes to the pedestrian corridor network can help reinforce the grid and thus improve pedestrian access and wayfinding through campus.

9. **Concept Land Development**
   This concept plan illustrates suggested development of the campus at a high-level with an objective of creating a variety of built form integrated with the existing campus. An additional concept is to develop campus 'quad' areas between buildings. Also of note is the focus on developing future academic buildings within the ring road. The existing large east parking lot may be relocated as a one level underground parkade to help establish a larger campus quad for outdoor gathering opportunities. The quad also provides a structure around which new mixed use academic and commercial entrepreneur opportunities might be developed.

10. **Concept Structure Summary**
    This information brings together the three previous concept plans to depict how the various elements might come together as an integrated site development strategy.

3.2 Animal Husbandry Site

Located on the eastern edge of the city in proximity to the Lethbridge Research Centre, the Animal Husbandry site totals approximately 23 hectares. Its current use is for the Powerline Technician Program and is leased by Farming Smarter, a potential research partner.

Within the framework of the main Campus Master Plan, the Animal Husbandry site provides the opportunity for a more effective utilization of its land and buildings in support of the Main Campus redevelopment. For example, considerations may be to utilize the existing buildings as decant space and/or to eventually divest of the asset, which would reduce the college's overall inventory of government supported space.

4.1 Expanded Guide

Following the same format as section 2.12, this appendix provides greater detail on the formulae and values in the Spatial Budget Data Sheets.

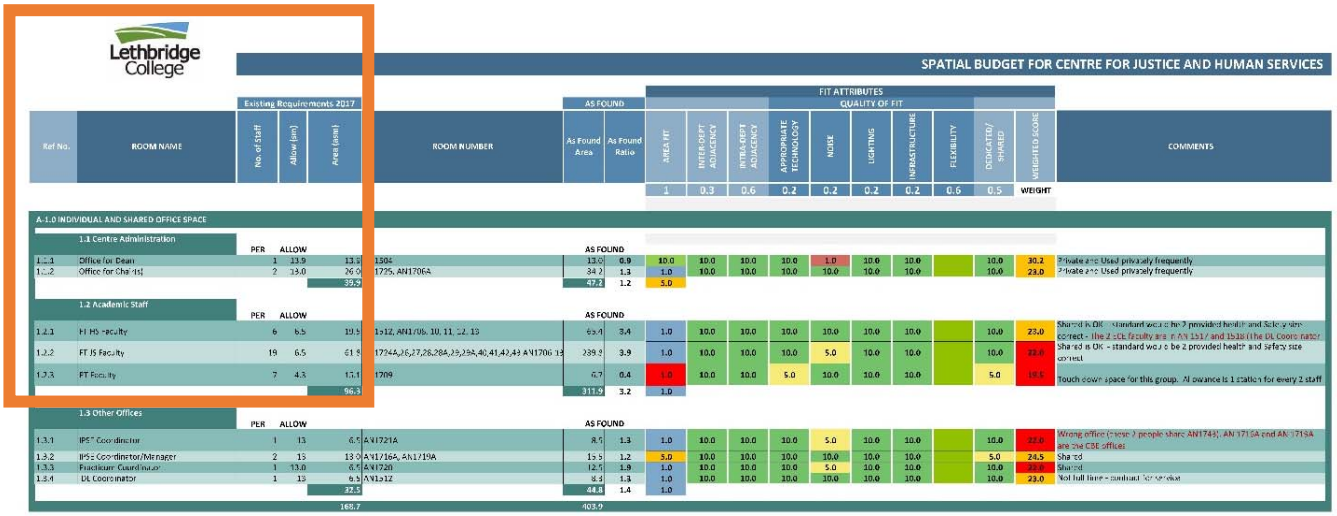


Fig.4.1.1 Overall view of upper sheet

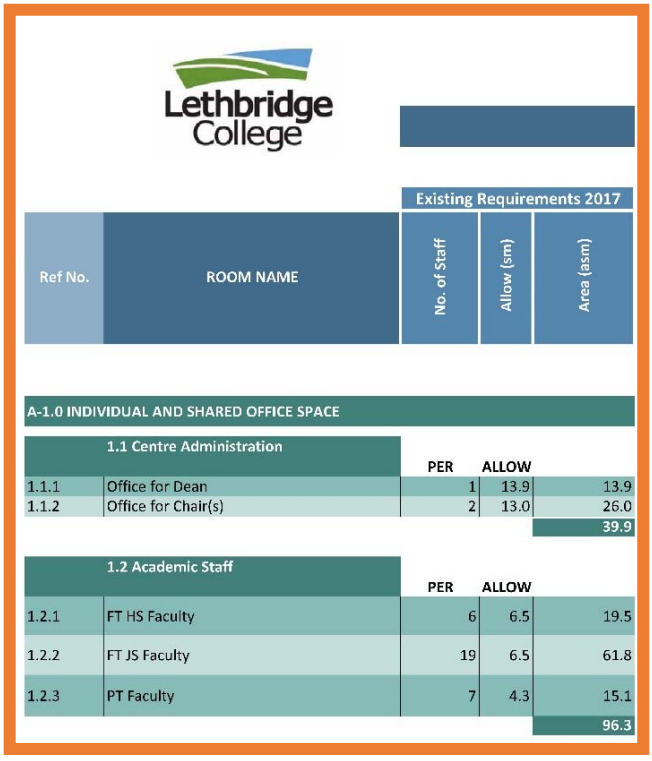


Fig.4.1.2 Detail from Fig.2.13.1

Overview

The first part of the sheet as shown in Fig 4.1.2 identifies the personnel positions and the specialized space in the case of labs, trades shops, and other specialty spaces.

The columns consist of a reference number, office room name, persons occupying the room, and the allowance per person. The allowance comes directly from the Space Standards that are part of the Campus Master Plan document.

The totals in the final column are calculated automatically.

The next section deals with the *AS FOUND* condition which is the space currently occupied by the unit being audited.

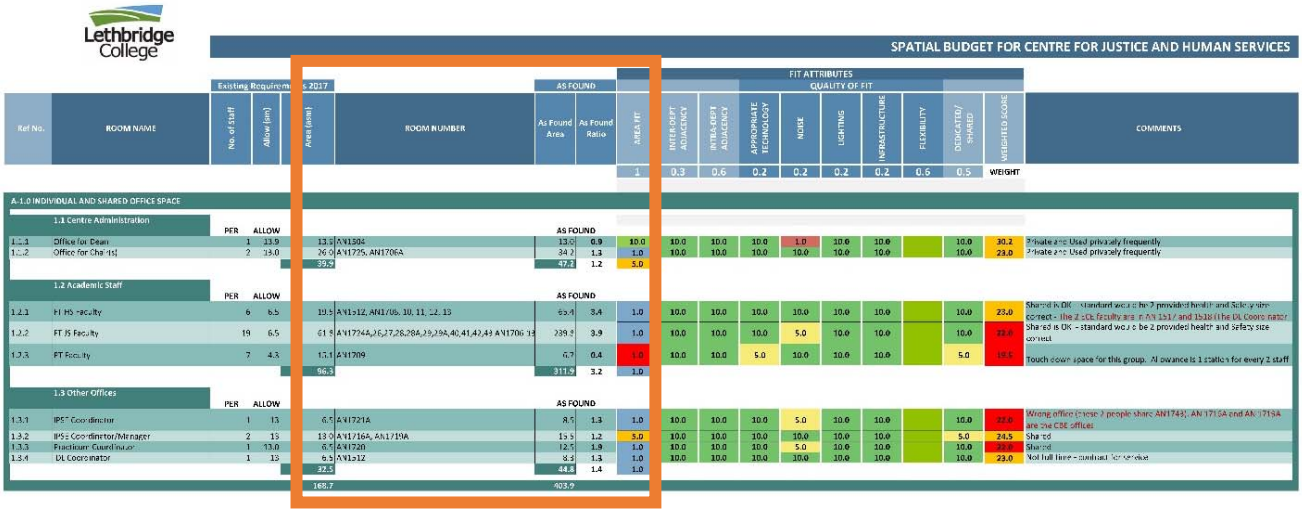


Fig.4.1.3 Overall view of upper sheet

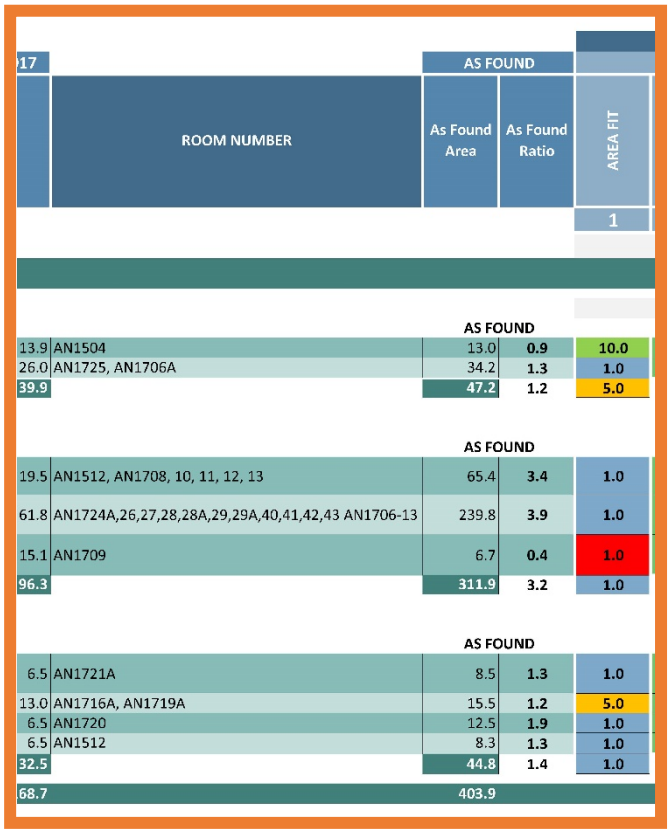


Fig.4.1.4 Detail from Fig.4.1.3

AS FOUND

The area of the spreadsheet shown in Fig.4.1.3 identifies the existing location of the group. Specific offices as well as specialized rooms (in the cases of labs or shops) are entered as a room number. The *AS FOUND* area is in the adjacent column. This must be a **NET** area, because all programming is calculated in NET square meters without circulation or any other aspect of the space affecting the values.

The column to the right of the *AS FOUND* area is the ratio of found area to the required area based on the Space Standard. This is automatically calculated. The next column is also automatically calculated and both a "score" and a colour is automatically assigned. The "Score" is one of three numbers: "1", "5", or "10". The scores are calculated by the following "IF" Statements in the cell (note that the red reference is to the cell immediately preceding the scoring cell) =IF(I120<0.8,1,IF(AND(I120>0.8,I120<=0.9),5,IF(AND(I120>0.9,I120<=1.1),10,IF(AND(I120>1.1,I120<1.2),5,IF(I120>1.2,1))))) This "if" statement links the values of the ratio of found space to the space requirement into categories as follows (the coloured references here are to the cell preceding the scoring cell):

- Greater than 20% **BELOW** the requirement: Score “1” and Colour “red”

2. Enter the net room size and have the spreadsheet calculate an assigned workstation value.

	1.3 Open Office Neighbourhood 1	PER	ALLOW			AS FOUND		
	(Name Department Here)				TE3215	45.1		
1.3.1	Formatter	1	6.5	6.5	TE3215	4.5	0.7	1.0
1.3.2	LMS Administrator	1	6.5	6.5	TE3215	4.5	0.7	1.0
1.3.3	Flexible learning coordinator	1	6.5	6.5	TE3215	4.5	0.7	1.0
1.3.4	Media Specialist	3	6.5	19.5	TE3215	13.5	0.7	1.0
1.3.5	Media Innovative Project Lead	1	6.5	6.5	TE3215	4.5	0.7	1.0
				45.5		31.6	0.7	1.0

Fig.4.1.5 Detail

- Between 20% **BELOW** and 10% **BELOW** the requirement: Score “5” and Colour “Yellow”
- Between 10% **BELOW** and 10% **ABOVE** the requirement: Score “10” and Colour “Green”
- Between 10% **ABOVE** and 20% **ABOVE** the requirement: Score “5”, and Colour “Yellow”
- Greater than 20% ABOVE the requirement: Score “1” and Colour “Blue”

Conditional formatting for the cells are controlled separately with simple “equal to” as follows:

- = 1 - colour Red
- = 5 - colour Yellow
- = 10 - colour Green

To achieve the colour for a value of “1” on the HIGH side, a rule that references the ratio cell is:

Cell value > 1.2 - colour Blue

This value is the *AREA FIT* for the *AS FOUND* condition for that room.

Special Case of the *AS FOUND* Condition

There is a special case in capturing the *AS FOUND* condition for a room occupied by several people, where isolating the workstation in the room is required. There are two ways to do this:

1. Measure the workstation itself and record the data in the “As found” column, or

Both approaches can be used. The one that automatically calculates is shown below:

In the example shown in Fig. 4.1.5, the workstations that are open and in one room are represented in room TE3215. The net area is entered in the yellow rectangle (as shown) and the values for the workstations are automatically calculated. The calculation has the following formula:

=($H$47/SUM($D$48:$D$52))*0.7*D48*IF(E48=6.5, 1,E48/6.5)

This formula has four components for each calculation of the workstation net area:

1. The value entered in the yellow rectangle divided by the sum of the persons in the room
2. The value of No. 1 above is then multiplied by 0.7 which is the estimate of additional area such as circulation that must be added to net area.
3. The result is multiplied by the value per person from the Space Standards - in this example it is 6.5 m^2
4. The final portion is an “IF” statement that adjusts for differing Space Standard sizes. It simply tests the value in the *ALLOW* column such that if it equals 6.5 m^2, the multiplier value is “1” - in other words no change in the computed value to that point. If the value is <u>not</u> 6.5 m^2, the expression substitutes the ratio of 6.5 to the actual value of the Space Standard and factors up the result to the net area.

The calculation of the *AS FOUND* area to the Standard is then evaluated and scored as outlined previously.

Fig.4.1.6 Detail

FIT ATTRIBUTES

Quality of Fit

AREA FIT	INTER-DEPT ADJACENCY	INTERNAL DEPT ADJACENCY	APPROPRIATE TECHNOLOGY	NOISE	LIGHTING	INFRASTRUCTURE	FLEXIBILITY	DEDICATED/ SHARED	WEIGHTED SCORE
1	0.3	0.6	0.2	0.2	0.2	0.2	0.4	0.5	WEIGHT
5.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0	5.0	26.5
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	5.0	5.6
1.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	27.0
10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	36.0
1.0									1.0
1.0									1.0
1.0									

Fig.4.1.7 Detail from Fig. 4.1.6

Fit Attributes

The *FIT ATTRIBUTES* start with the *AS FOUND* areas compared to the Space Standard being applied, as noted in the previous two sections. However, other measures of fit need to be considered and are represented as *FIT ATTRIBUTES* in the spreadsheet.

There are eight additional attributes that are evaluated. Seven of these attributes are scored as "1", "5", or "10" against criteria that are described specifically. In the spreadsheet, this criterion can be seen by hovering the mouse over the particular *FIT ATTRIBUTES* heading and the explicit criteria will pop-up. The exception to the 1, 5, and 10, is the final fit attribute of *SHARED/DEDICATED.* This can only be scored as "5" for dedicated and "10" for shared. Note that five of the fit attributes are identified as *QUALITY OF FIT* - referring to attributes considered key to the appropriateness of space for its intended function.

General

Conditional formatting is applied to all areas. The first column in Fig.4.1.7 is *AREA FIT* which is automatically calculated and scored. The next eight attributes are scored manually by first testing the Fit to the criteria and then using the mouse to hover over the cell being evaluated. A down arrow will appear to the right of the cell allowing you to access the menu of values - in all the columns from *INTER-DEPT ADJACENCY* through to *FLEXIBILITY* the values are 1, 5, and 10 as described earlier. For *DEDICATED/SHARED* column, it is 5 and 10. The *WEIGHTED SCORE* column is the overall score.

Fit Attribute Criteria

INTER-DEPARTMENTAL ADJACENCIES: What is the adjacency measured in pedestrian travel time between Departments?

- 1 = Over 2.5 min
- 5 = >1.5 min < 2.5
- 10 = < 1.5 min

INTERNAL DEPARTMENTAL ADJACENCIES: What is the adjacency measured in pedestrian travel time between people within the department?

- 1 = Over 2.5 min
- 5 = >1.5 min < 2.5
- 10 = < 1.5 min

APPROPRIATE TECHNOLOGY: What is the suitability and extent of equipment and technology provided?

- 1 = Not Equipped
- 5 = Moderately Equipped
- 10 = Well Equipped

NOISE: What are the acoustics within the workspace like? What are the acoustics like between workspaces and other spaces?

- 1 = Poor Acoustics
- 5 = Fair Acoustics
- 10 = Good Acoustics

LIGHTING: What is the quality and appropriateness of the general and task lighting?

- 1 = Poor Lighting
- 5 = Fair Lighting
- 10 = Good Lighting

INFRASTRUCTURE: What is the suitability of the infrastructure required (ie. Water, Air, Electrical, etc.) other than technology?

- 1 = Needed Infrastructure Not Present
- 5 = Some Needed Infrastructure Present
- 10 = All Needed Infrastructure Present

FLEXIBILITY: Can the space be easily transformed for collaboration/teaching? This is scored based on time to transform.

- 1 = Over 15 min
- 5 = >5 min <15 min
- 10 = < 5 min

Dedicated Lab/Shop Space requiring **Fixed** Components Score 10 due to the nature of the equipment and use of space. Examples would be welding stations or nursing mannequin stations.

DEDICATED/SHARED: Is the space flexible enough to be shared with other purposes or is it solely set up for one use?

- 5= Dedicated
- 10= Shared

Overall Score

As shown on Fig. 4.1.8, under each of the listed *FIT ATTRIBUTES* headings there are values that range from 0.2 to 1. When values are multiplied with the specific weighted value factor in its column, each attribute then is aggregated as a unified fit attribute result expressed as a combined *WEIGHTED SCORE*. This allows the attributes being scored to be flexible and nuanced. The multiplier must be between 0.1 to 1. Ultimately, these values are a matter of internal discussion at Lethbridge College to determine the relative weighting of each attribute.

The final vertical column of *WEIGHTED SCORE* is a calculated number with conditional formatting that results in a red, yellow, or green colour. The formula

FIT ATTRIBUTES									
			Quality of Fit						
AREA FIT	INTER-DEPT ADJACENCY	INTERNAL DEPT ADJACENCY	APPROPRIATE TECHNOLOGY	NOISE	LIGHTING	INFRASTRUCTURE	FLEXIBILITY	DEDICATED/ SHARED	WEIGHTED SCORE
1	0.3	0.6	0.2	0.2	0.2	0.2	0.4	0.5	WEIGHT
5.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0	5.0	26.5

Fig.4.1.8 Detail of Fit Attributes

Note that these criteria can be quantified if required. These would include inventories of fixed and movable elements, inventories of infrastructure, STC ratings for noise transfer and decibels for in room noise, time for the distance measurement between people and departments, as well as for flexibility, and lumens for lighting.

for the cells allows the weightings to change and the calculations will occur without needing any alterations to the formula. The cell formula is:

=SUMPRODUCT(J$10:R$10*J16:R16)

The J$10:R$10 reference is to the cells containing the weighting. These are fixed and applicable to all cells in the column. This is multiplied by the cell array horizontally containing all the scores. The result is displayed in the *WEIGHTED SCORE* column. The range of possible numbers are a low of 1.3 to a high

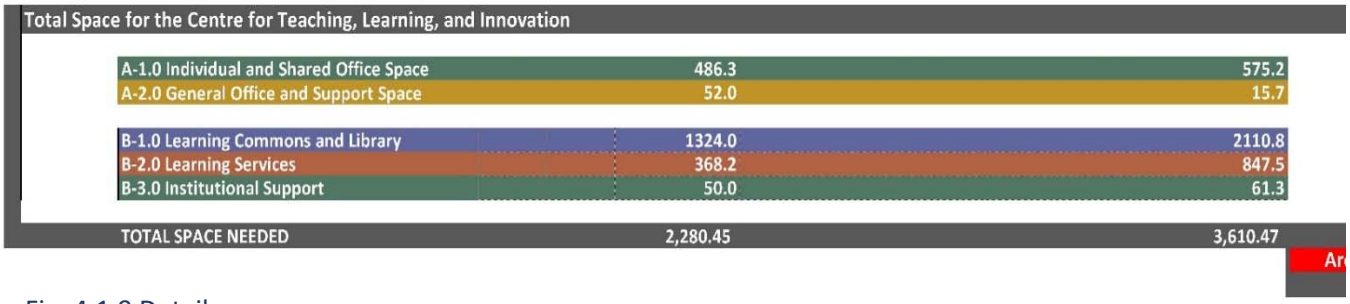


Fig. 4.1.9 Detail

of 90. However, the range will depend on the values allotted to the weighting. These values can be anticipated to change, but not frequently. Their value is a matter of policy that has to be resolved between FM, PRMC, and CLC.

The categorization of the resulting values into red, yellow, and green is accomplished in the conditional formatting formulae. The formatting is accomplished with a simple "IF" statement in the "Manage Rules" dialogue box under conditional formatting. To calculate these values and make a comparison, the value of the maximum number is required. This is calculated as a SUMPRODUCT calculation of two series of numbers that are hidden in the two gray bars immediately below the *FIT ATTRIBUTES* titles. The hidden numbers can be seen by placing the cursor over the cell. The number in that particular cell is visible in the formula bar. The values in the upper bar are all 1's being the maximum number allowed in the weightings. The numbers in the second bar are all 10's representing the highest number possible in all the attributes.

The following formatting rules apply:

=IF(SUMPRODUCT(J$10:R$10*J16:R16)<(SUMPRODUCT($J$11:$R$11,$J$14:$R$14)*$S$15)*0.3,1,0)

This formula tests the calculated value of the cell (the expression to the left of the <= signs) against the value calculated in the two gray hidden bars multiplied by .25. In other words, if the value in the weighted score cell is less than or equal to 25% of the total score possible, the cell is **red**. If this statement is false, the program checks the next rule.

=IF(AND(SUMPRODUCT(J$10:R$10*J16:R16)>=(SUMPRODUCT($J$11:$R$11,$J$14:$R$14)*$S$15)*0.3,SUMPRODUCT(J$10:R$10*J16:R16)<=(SUMPRODUCT($J$11:$R$11,$J$14:$R$14)*$S$15)*0.7),1,0)

This formula is a bit more complicated. It is testing for values greater than 25% of the maximum value up to 75% of the maximum value. This will paint the cell **yellow**. This is admittedly a wide range. However, the result should not be green unless it is close to highest possible value otherwise the green designation becomes meaningless.

=IF(SUMPRODUCT(J$10:R$10*J16:R16)>(SUMPRODUCT($J$11:$R$11,$J$14:$R$14)*$S$15)*0.7,1,0)

If the conditions of this formula are met, the cell will be **green**. The condition here is that the score is greater than or equal to 75% of the maximum value.

Total Space

The bottom of the spreadsheet has a box that summarises the totals from the constituent groupings. In this specific example shown in Fig.4.1.9. the totals for the Centre for Teaching, Learning and Innovation show the first set of numbers to be those calculated by application of the Space Standards. The second set of numbers are the total *AS FOUND* areas. In this example, the total area by application of the Space Standards shows a requirement of 2,280.45m^2. The *AS FOUND* area is

3,610.47m^2. The result here shows the found condition 1,330.02 m^2 in excess of the standard.

The result is graphically represented by the coloured bar to the right of the *AS FOUND* total area.

The calculation in the cell is:

=IF(G127<0.8,"Area Inadequate for Need", IF(AND(G127>0.8,G127<=0.9), "Area Lower than Required", IF(AND(G127>0.9,G127<=1.1), "Area Within Acceptable Values", IF(AND(G127>1.1, G127<1.2),"Area Above Required", IF(G127>1.2, "Area Significantly Above Required")))))

These "IF" and "AND" statements are identical to those in the area calculation cells, but instead of assigning a 1, 5 or 10, it is displaying a text message describing where the value is related to the brackets we have identified. They are area of *AS FOUND* space:

- Greater than 20% **BELOW** the Space Standard value: "Area Inadequate for Need" is displayed.
- Less than 20% but greater than 10% **BELOW** the Space Standard value: "Area Lower than Required",

The conditional formatting rules for this cell are:

- =IF(G155>1.2,1,0)
  If the value in the cell is greater than 20% **ABOVE** the Space Standard amount, the cell is **red with white lettering**.
- =IF(AND(G155>1.1,G155<1.2),1,0)

If the value in the cell is greater than 10% and less than 20% ABOVE the Space Standard amount, the cell is **yellow with black lettering**

- =IF(AND(G155>0.9,G155<=1.1),1,0)

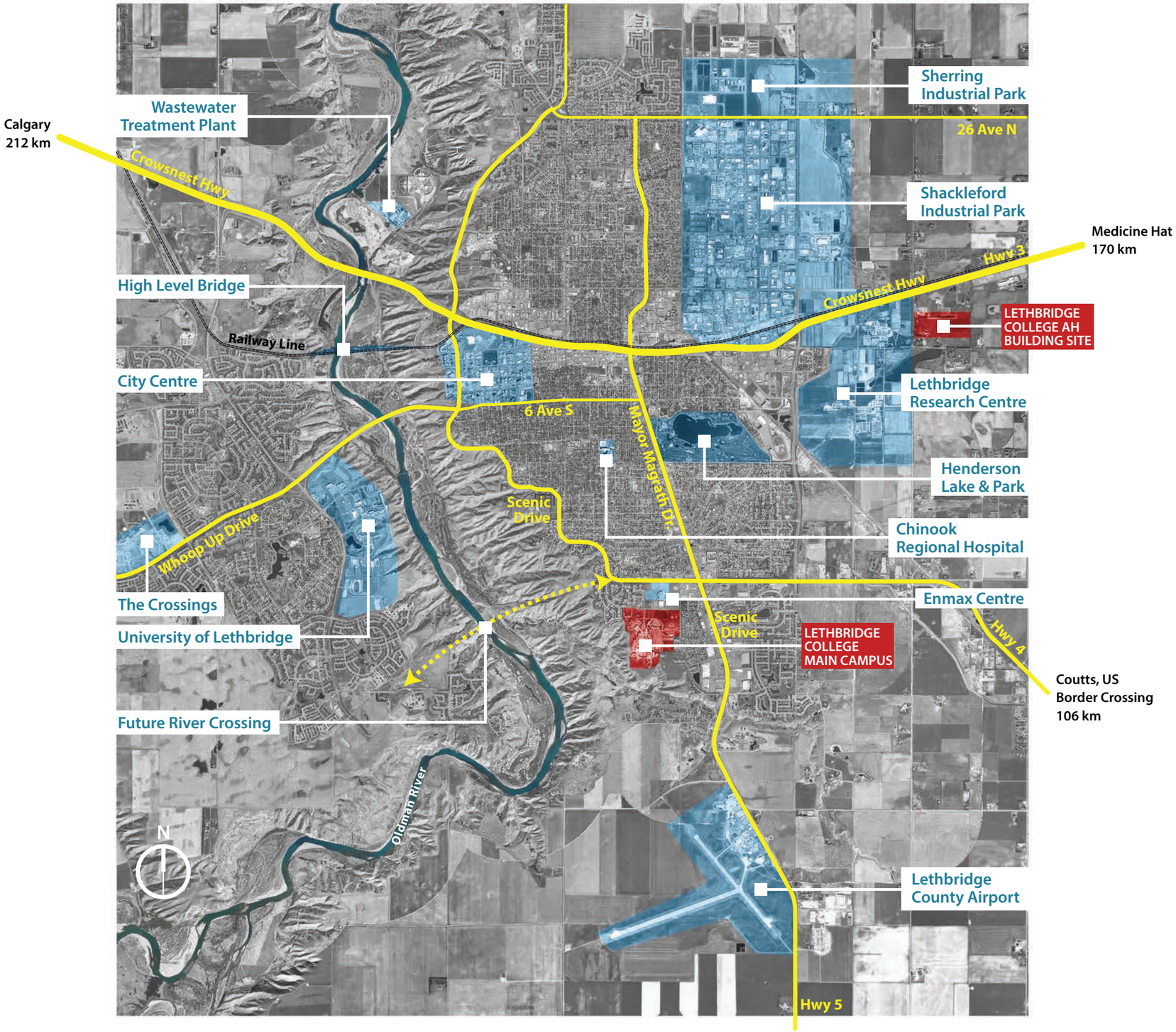
If the value in the cell is greater than or equal to 10% **BELOW** to less than or equal to 10% **ABOVE** the Space Standard amount, the cell is **green with black lettering**.

- =IF(AND(G155>0.8,G155<=0.9),1,0)

If the value in the cell is greater than 10% **BELOW** but less than 20% **BELOW** the Space Standard amount, the cell is **yellow with black lettering**

- =IF(G155<0.8,1,0)

If the value of the cell is greater than 20% **BELOW** the Space Standard amount, the cell is **red with black lettering**



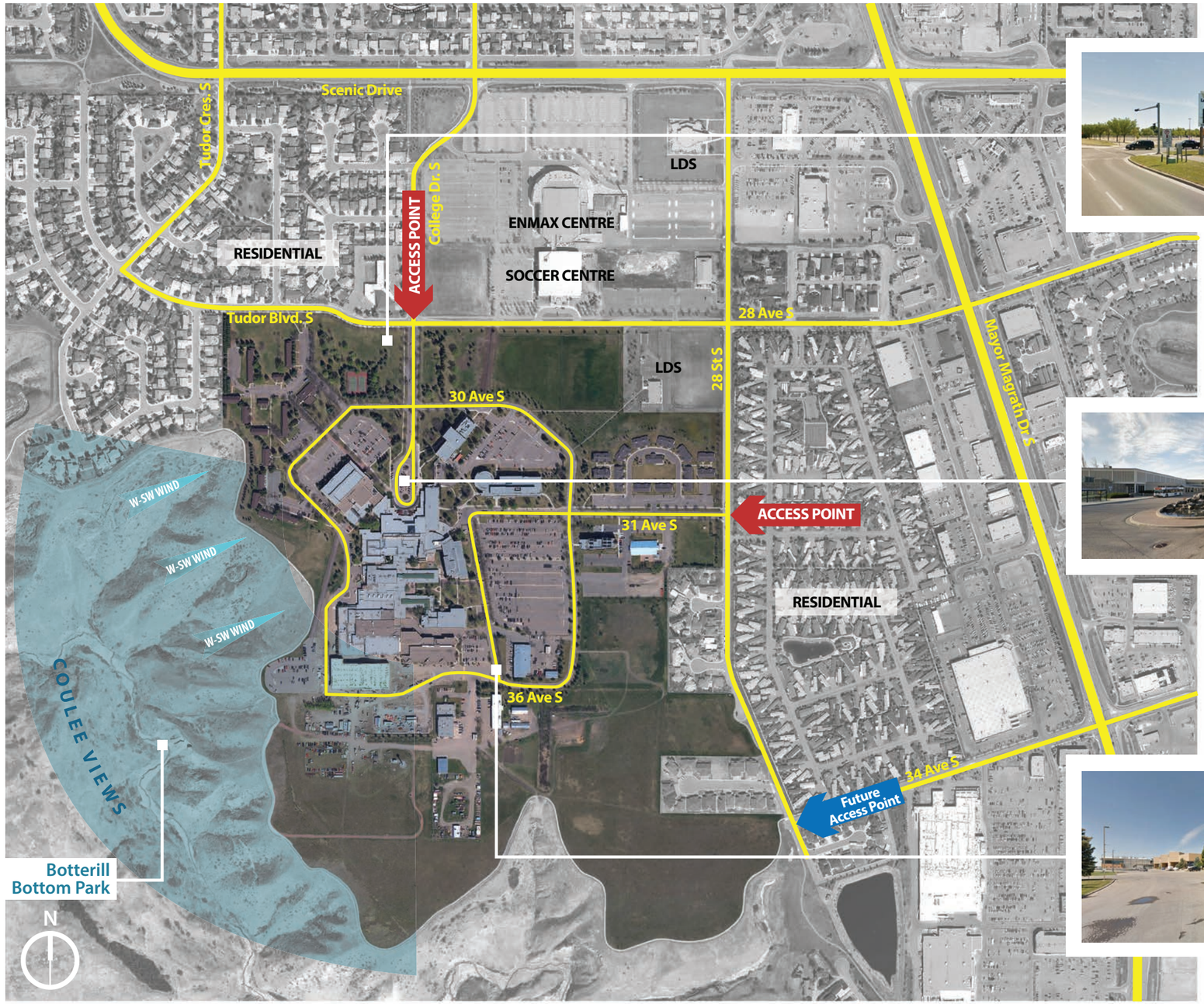
1 CONTEXT MAP

CAMPUS REVIEW

This information is provided as a high-level context map to assist in ongoing annual space allocation considerations. The context map locates the Lethbridge College's Main Campus and Animal Husbandry site within the City of Lethbridge and indicates their geographic relationship with respect to major transportation routes, significant government, civic, commercial and other institutional entities as well as other prominent infrastructure.

2 MAIN CAMPUS CONTEXT

This site plan identifies and describes the Main Campus site within the context of the surrounding neighbourhoods, adjacent property uses and significant public buildings, the coulee views and west winds, and the main access roads to the campus, i.e. College Drive and 28th Street from the north, and Tudor Boulevard and ultimately 34th Avenue from the east at Mayor Magrath Drive. The internal college ring road is highlighted as it is important organizing infrastructure.



3 MAJOR PEDESTRIAN CORRIDORS AND NODES

This plan depicts the current network of major pedestrian pathways and corridors on campus and the key destination nodes. Of note is the strong north-south axis creating a spine through the main campus building and the principal axis through buildings that creates a general hierarchy and complexity of routes.

PRIMARY PEDESTRIAN NODE

SECONDARY PEDESTRIAN NODE

PRIMARY PEDESTRIAN CORRIDOR

SECONDARY PEDESTRIAN CORRIDOR

4 EXISTING UNBUILT LAND CONTEXT

This context plan graphically contrasts the current unbuilt land use - primarily parking, green space and the sports fields, with buildings on campus. Of note are the large areas of undeveloped 'available' green space on the north and east quadrants of the main campus. A considerable amount of land is dedicated to surface parking throughout the campus. Currently, the parking spaces occupy close to 6.7 hectares of land (the roadways occupy an additional 3.8 hectares).

GREEN / PUBLIC SPACE

SPORTS FIELD / COURT

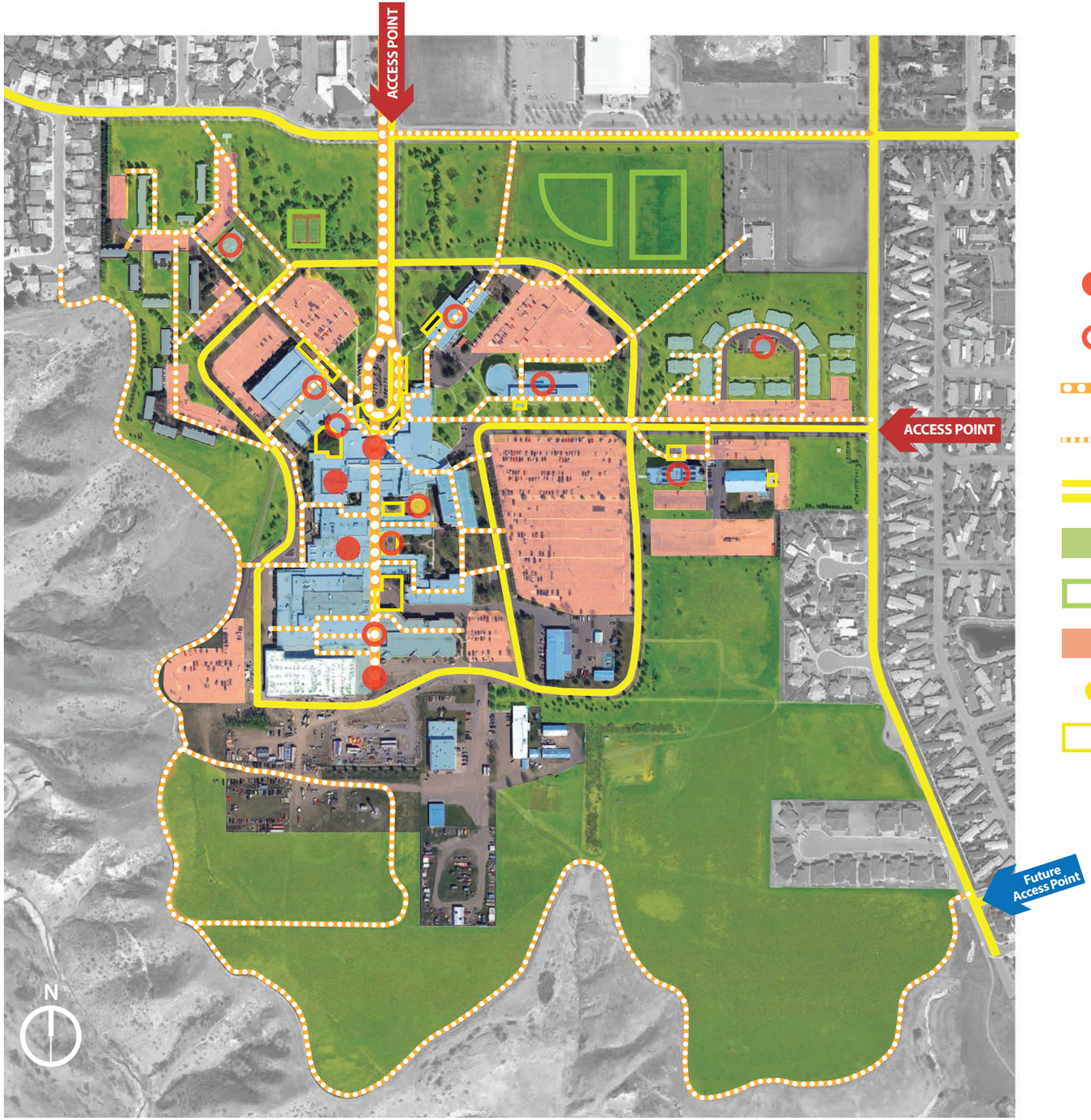
PARKING

PLAYGROUND

PEDESTRIAN PLAZA

5 EXISTING CONTEXT SUMMARY

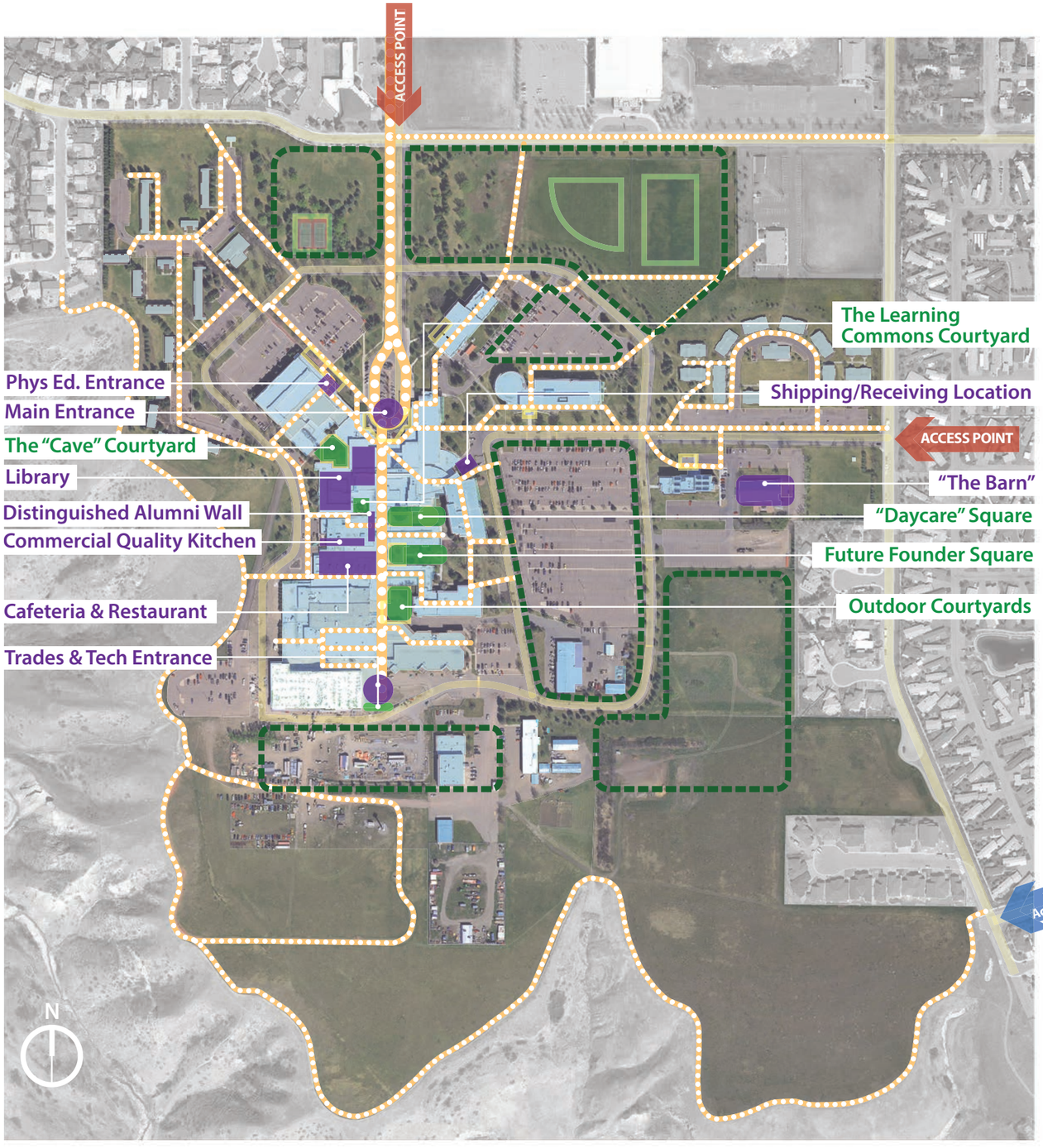
This context summary is an aggregate of the previous three plans depicting relationships between existing infrastructure, pedestrian corridors, nodes and unbuilt land usage.



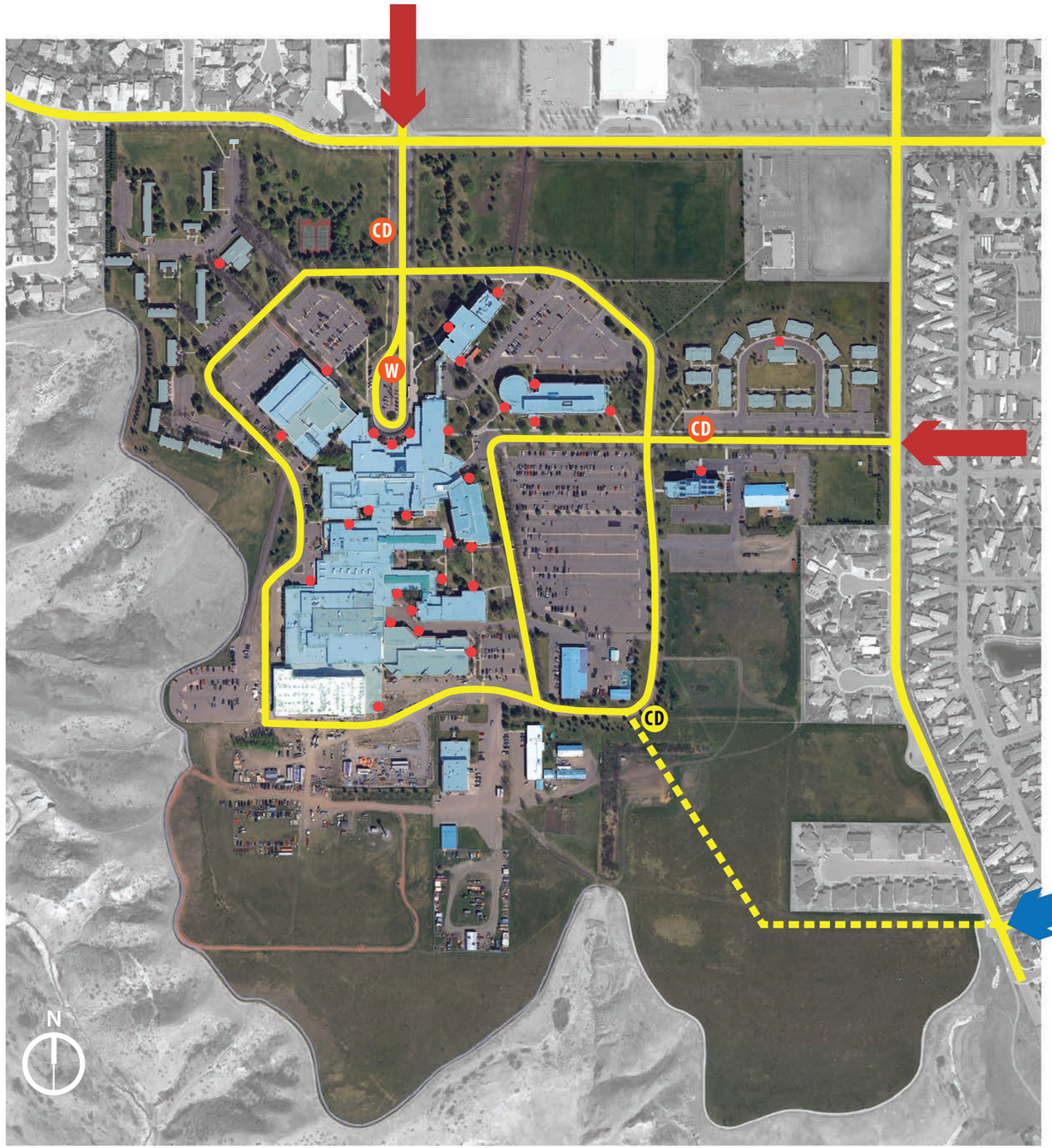
- PRIMARY PEDESTRIAN NODE
- SECONDARY PEDESTRIAN NODE
- PRIMARY PEDESTRIAN CORRIDOR
- SECONDARY PEDESTRIAN CORRIDOR
- VEHICULAR ROUTES
- GREEN / PUBLIC SPACE
- SPORTS FIELD / COURT
- PARKING
- PLAYGROUND
- PEDESTRIAN PLAZA

6 OPPORTUNITIES

This information depicts opportunities for enhancement on the current campus. Many of these opportunities are existing conditions that could involve refinement to help enhance the pedestrian realm and wayfinding through the campus.



7 CONCEPT ACCESS, WAYFINDING & VEHICULAR ROUTES



- ACCESS POINT
- FUTURE ACCESS POINT
- VEHICULAR ROUTES
- FUTURE ROUTE REQUIRING FURTHER STUDY
- MAJOR BUILDING ENTRANCES
- CD — CAMPUS DIRECTORY PYLON
- CD — FUTURE CAMPUS DIRECTORY PYLON
- W — LANDMARK WATERFALL FEATURE

This concept plan highlights the two existing vehicular access points to the campus and the campus ring road. The conceptual new vehicular access route to the campus aligns with 34 Avenue South and provides more opportunities for access onto the campus. Campus directory pylons help with wayfinding for vehicular traffic through campus, and with a new access point one would be necessary.

8 CONCEPT PEDESTRIAN CORRIDORS & NODES

This concept plan illustrates the current layout of the major pedestrian paths with the potential to place a stronger emphasis on the key north-south and east-west axis and their intersection at major nodes. Changes to the pedestrian corridor network can help reinforce the grid and thus help improve pedestrian access and wayfinding through campus.

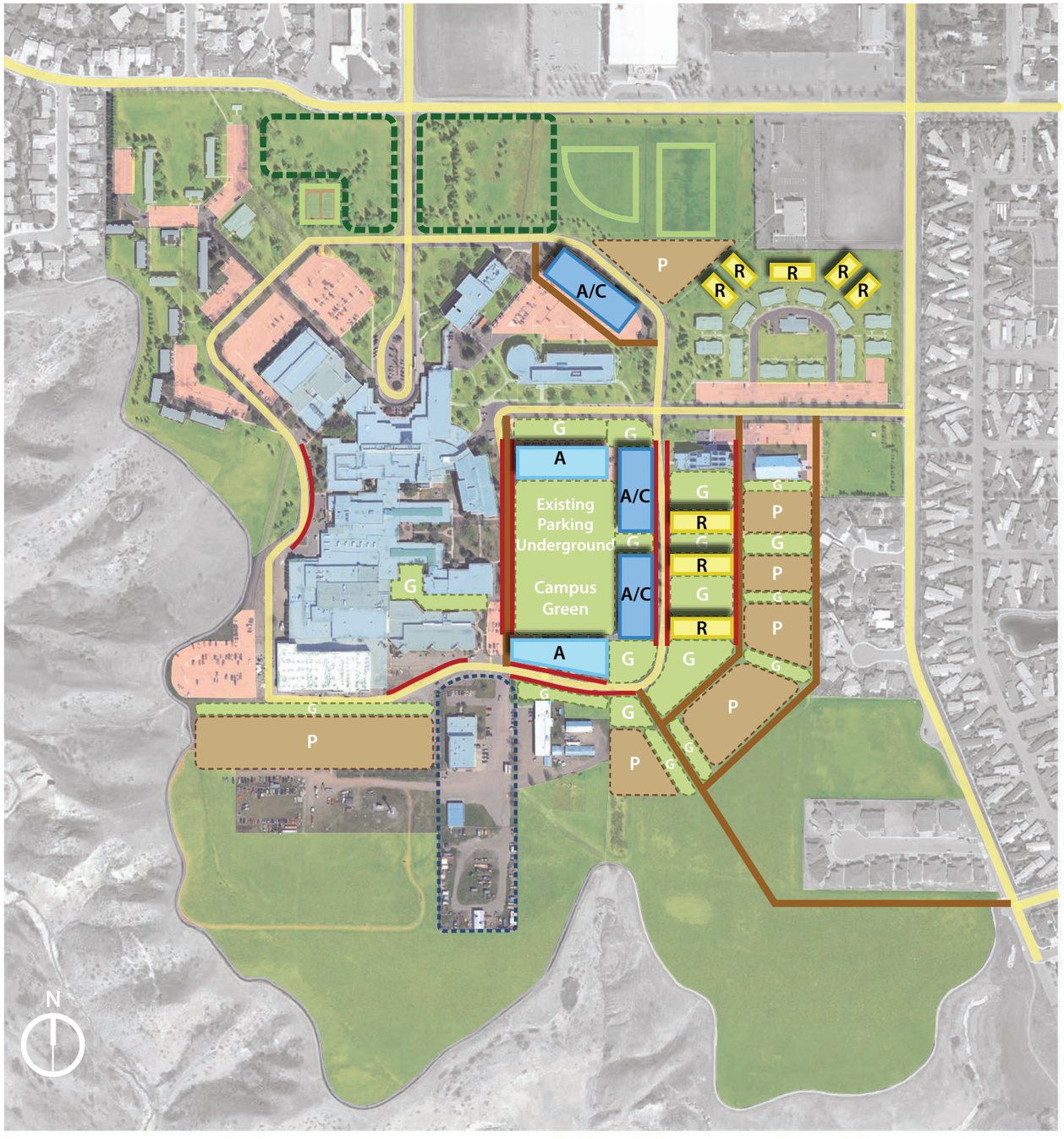
PRIMARY PEDESTRIAN NODE

SECONDARY PEDESTRIAN NODE

PRIMARY PEDESTRIAN CORRIDOR

SECONDARY PEDESTRIAN CORRIDOR

9 CONCEPT LAND DEVELOPMENT



EXISTING GREEN / PUBLIC SPACE

G — NEW GREEN / PUBLIC SPACE

SPORTS FIELD / COURT

AVAILABLE LAND FOR DEVELOPMENT - REQUIRING FURTHER STUDY

A/C — NEW MIXED USED ACADEMIC / COMMERTIAL / ENTREPRENEUR/ SERVICE OPPORTUNITY

A — NEW ACADEMIC BUILDINGS

R — NEW RESIDENCE

EXISTING PARKING

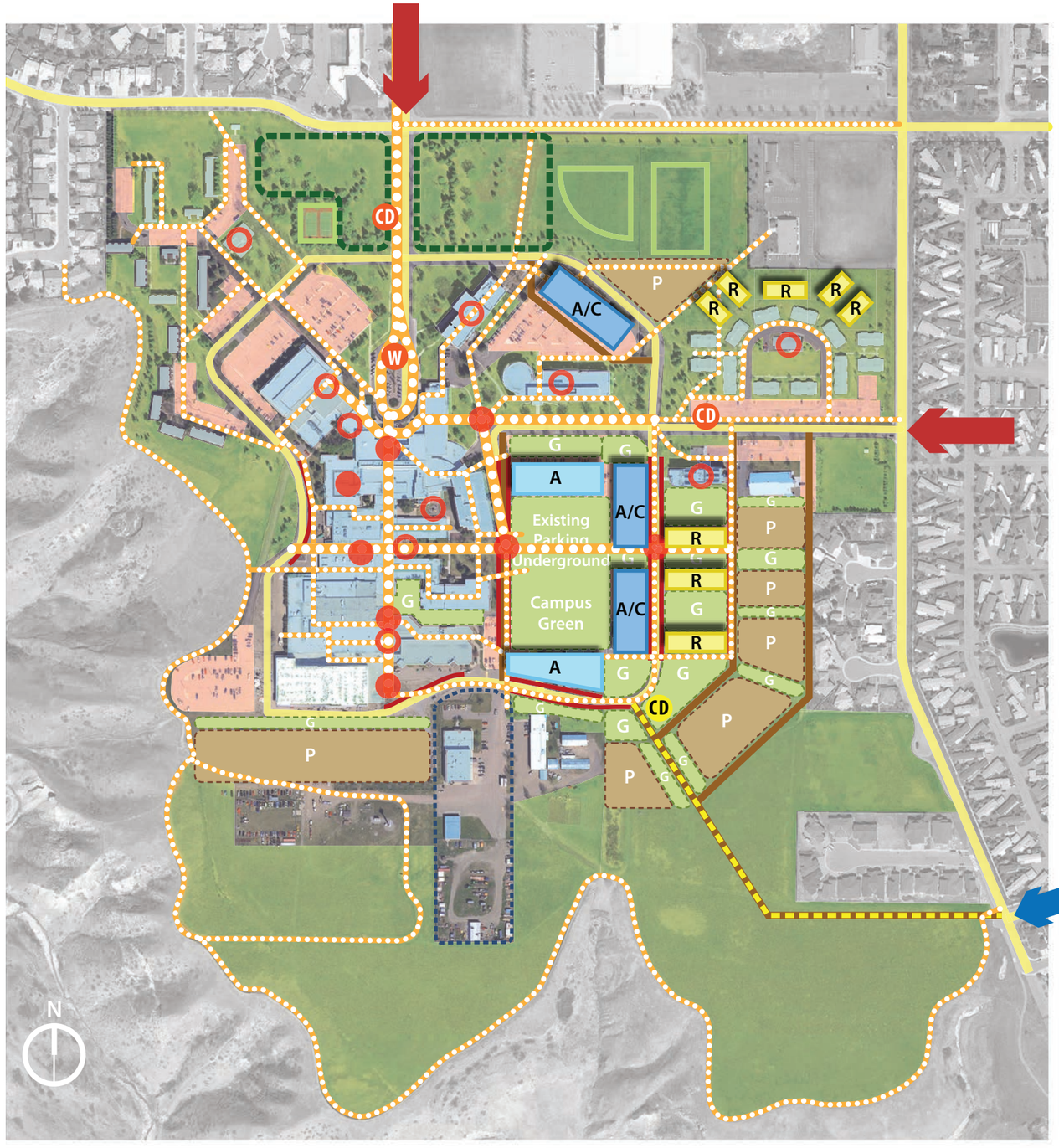
P — NEW LONG TERM PARKING

NEW SHORT TERM METERED PARKING

COLLEGE SERVICE

NEW OR REALIGNED ROAD

This concept plan illustrates suggested development of the campus at a high-level with an objective of creating a variety of built form integrated and 'connected' to the existing campus. An additional concept is to develop campus 'quad' areas between buildings. Also of note, is the focus on developing future academic buildings within the ring road. The existing large east parking lot may be relocated as a one level underground parkade to help establish a larger campus quad for outdoor gathering opportunities. The quad also provides a structure around which new mixed use academic and commercial entrepreneur opportunities might be developed.



ACCESS POINT

FUTURE ACCESS POINT

VEHICULAR ROUTES

FUTURE ROUTE REQUIRING FURTHER STUDY

CD CD EXISTING AND FUTURE CAMPUS DIRECTORY PYLON

W LANDMARK WATERFALL FEATURE

PEDESTRIAN NODES

PEDESTRIAN CORRIDOR

EXISTING GREEN / PUBLIC SPACE

G NEW GREEN / PUBLIC SPACE

SPORTS FIELD / COURT

AVAILABLE LAND FOR DEVELOPMENT - REQUIRING FURTHER STUDY

A/C NEW MIXED USED ACADEMIC / COMMERTIAL / ENTREPRENEUR/ SERVICE OPPORTUNITY

A NEW ACADEMIC BUILDINGS

R NEW RESIDENCE

EXISTING PARKING

P NEW LONG TERM PARKING

NEW SHORT TERM METERED PARKING

COLLEGE SERVICE

NEW OR REALIGNED ROAD

Lethbridge College

10 CAMPUS REVIEW
CONCEPT STRUCTURE SUMMARY

This information brings together the three previous concept plans to depict how the various elements might come together as an integrated site development strategy.