Thompson Rivers University Master Plan Summary and Implementation Report

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Thompson Rivers University

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1.0 INTRODUCTION

1.1 CONTEXT

1.1.1 History – TRU Master Plan, 2014

In 2013, Thompson Rivers University (TRU) underwent a campus master plan process to create a vision and framework for future development and growth on campus for the next 60 years. This plan was adopted by the University in February 2014 with the support of the TRU community, students, invested stakeholders and the Thompson Rivers University Community Trust (TRUCT). The scope of work in the 2014 Master Plan was limited and focused primarily on creating a vision for the future of the University and to engage stakeholders and the community.

1.1.2 Implementation Plan

The next phase of work, the Implementation Plan, drills down and conducts more detailed analysis by examining how the 2014 Master Plan can be realized. The scopes of work included in the implementation plan are:

- Utilities (Deep Services: Domestic Water Supply, Storm Water, and Sanitary Sewer; Electrical; and Telecommunications),
- District Energy,
- Transportation
- Design Guidelines, and
- Campus Strategic Sustainability Plan.

1.1.3 Master Plan Summary and Implementation Report

Section 1 and 2 of this report bridges between the 2014 Master Plan and the detailed scopes listed above. It discusses the key findings from the due diligence that was conducted and summarizes proposed Master Plan refinements. Refinements to the 2014 Master Plan have been made predominantly to adapt to underground conditions on site, the Kamloops Zoning Bylaw (May 2014), transportation study results, and the Fall 2013 TRU Kamloops Campus Classroom Space Utilization report. The implementation plan follows the same guiding principles and vision established in the 2014 Master Plan.

1.2 GOALS OF THE IMPLEMENTATION PLAN

The Implementation Plan aims to:

- **Conduct due diligence** on development feasibility at the campus and parcel level
- **Test and make refinements** to the 2014 Master Plan vision based on findings
- **Provide Design Guidelines and a Design Review Process** to guide development and approvals
- **Comment on high level economic viability**, constraints and opportunities for parcels

2.0 BASIS OF DESIGN

2.1 STUDENT POPULATION AND ACADEMIC BUILDING AREA

The 2014 Master Plan is based upon the projected student full time equivalent (FTE) to grow from 10,000 to 13,000 over the next 60 years and the staff FTE population to increase from 2,000 to 3,000 over the same time period. During the 2014 Master Plan process, the design team and TRU established a target space to FTE ratio of 21 SM. To achieve this 3 million SF of total academic building area was accommodated for in the 2014 Master Plan. Currently on campus the area to FTE ratio at TRU is 9.3 SM.

Since the release of the 2014 Master Plan, a new study that analyzes classroom space utilization on campus was conducted. The TRU Kamloops Campus Classroom Space Utilization (TKCCSU) report concludes that TRU academic buildings are well underutilized and that "without any further capital expansion, the Kamloops campus could increase student FTEs by 3,466 over the fullday[1]" - a number that is well beyond the 3,000 FTE targeted increase. The TKCCSU report consequently questioned the validity for building new academic area when the existing infrastructure could potentially house future student growth. This study however did not evaluate utilization rates for laboratory or trades workshop space and therefore only provides a small slice of the overall academic picture of TRU. Factors beyond classroom utilization that would otherwise warrant new academic build out or additions would include:

- laboratory and trades workshop space demand
- buildings near end of life
- specific programs that are experiencing focused enrolment growth that must be accommodated within a specific building (such as the case with the Nursing expansion to the Science building and Trades & Technology building)
- student support space to accommodate FTE increase

The potential for 3 million SF of total academic building area is reserved for the TRU campus. The Implementation Plan analyzes the initial incremental build out.

Currently, TRU has 999,785 SF of existing student building area. The full 3 million SF of Academic development still holds true in any regard, but to get there and to bridge the gap between the reality of underutilized facilities and the vision, the implementation plan only analyzes a gross new building area of 272,050 SF (25,275 SM)[2] for the initial 15 year build out. This increases the space to FTE ratio from 9.3 to 10.8, a realistic goal. This new academic area will be focused on Parcel J,Q,B2 and L. Academic parcel 'reserves' that have capacity for the full 3 million SF of total academic space established in the plan can be tapped into at any time for academic

[1] Full day is a 13 hour day (8:30am – 9:30 pm)
[2] 272,050 SF of new build includes (67,800 Science expansion; 28,600 Trades & Technology expansion; 68,103 for Clock Tower and Library replacement; and 107,547 for general growth to complete the campus heart).

development, should enrollment see unexpected growth. Given the current funding climate with the Ministry of Higher Education, it would be unlikely for TRU to otherwise receive funding to reach a space to FTE ratio of 21 SM when they are currently at 9.3 SM and classroom utilization is under target. The costs for operating and maintaining under-utilized academic space is also a consideration.

Implementation Plan Academic Baseline = is set at 272,050 SF of gross new building area.

Table 2-1 Student Population and Building Area

	Student FTE	Gross Building Area in SF (SM)	Student Space Ratio -SM per FTE
Current (2014)	10,000	999,785 (92,883)	9.3
Implementation Plan (15 years out)	10,750	1,250,000 (116,130)	10.8
Master Plan Full Build Out (60 years out)	13,000	3,000,000 (278,710)	21.5

2.2 PARCEL REDESIGNATION

Land use designations have also been redistributed as a result of further market viability studies. A vibrant heart will only function and draw in the neighbouring community with successful commercial retail. A key principle to achieve this is for parcels to have major street frontages. Parcel B1 and B3 have been converted to Market development due to its location along McGill Road (see Figure 2-1). Parcel M has also been converted to a market parcel, residential only, to anchor the "University Village" corner. Parcel A will consist of multiple uses and house academic and/or market opportunities. This parcel, as the gateway to campus, must present a strong campus identity whether it is used for academic, market or a mixture of development. Without market development that thrives beyond the school year, the idea of a true destination campus will not be achieved.

Master Plan Refinement = Parcel M (located at the existing Clock Tower building) and Parcel B1/B3 (located at the existing Student Residences along McGill Rd.) has been converted from Academic use to Multi-family residential use. Parcel A can potentially be a market and/or academic development parcel with multiple uses.

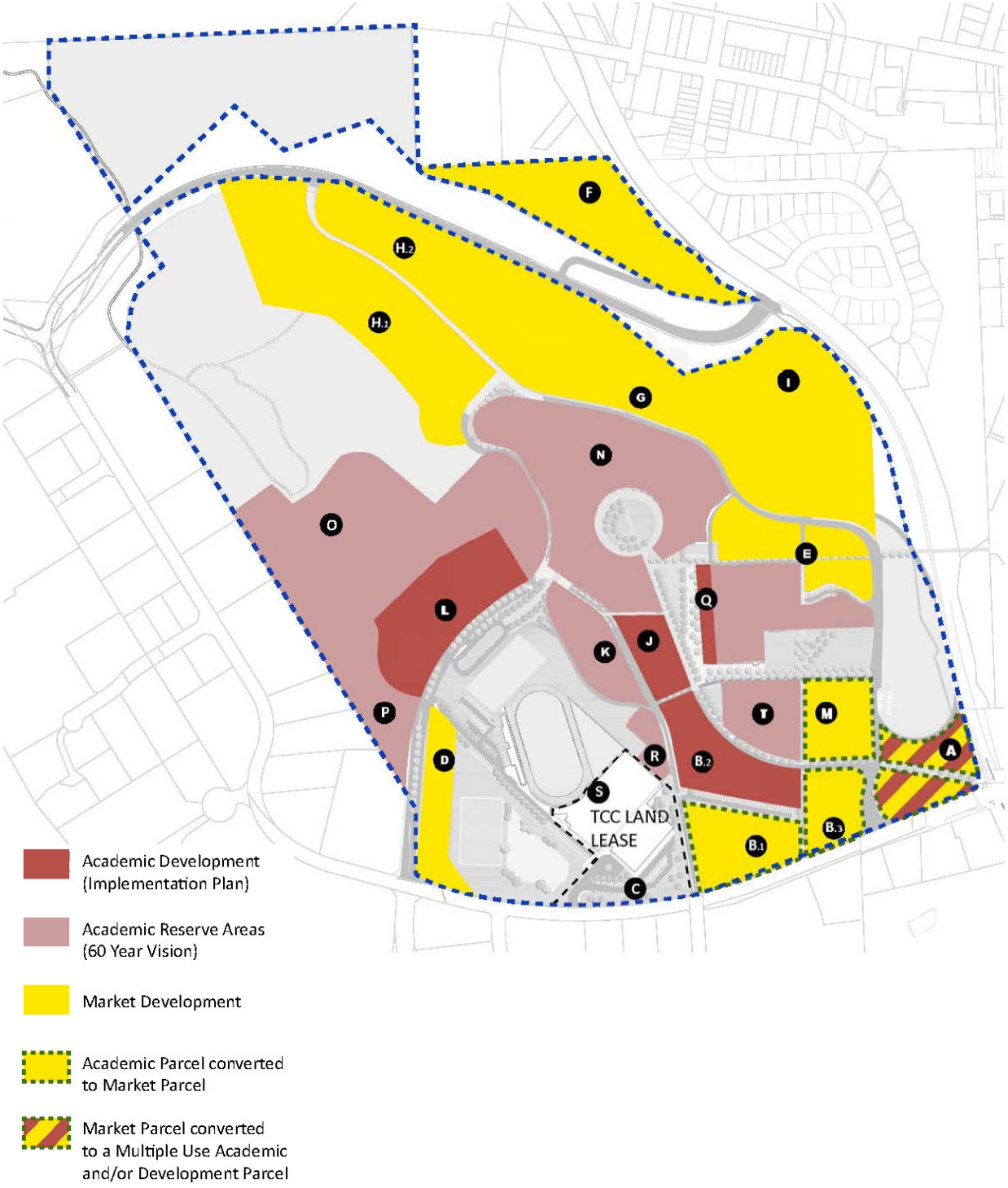


Figure 2-1 Market Parcels, Academic Parcels and Academic Reserve Area

2.3 MARKET AND ACADEMIC BUILD OUT IN RELATION TO THE IMPLEMENTATION PLAN

Generally, the studies for the Implementation Plan take into account the full 60 year build out for Market Parcels and a 15 year build out for Academic Parcels (refer to Section 2.1 for explanations on why Academic has been lowered). For market parcels, no matter how much area or the rate in which they are developed, the studies have taken in the full market 60 year build out scenario in order to test the maximum impact on the site and to show the demand and capacities required and the appropriate infrastructure to build for. Studies with physical implications such as roads, pathways and utility routing takes into account the full 60 year master plan for both Market and Academic parcels. By working within the framework of the full 60 year master plan, any utility improvements, upgrades or new construction completed within the first 15 years will not prevent any future developments from occurring in the academic reserve parcel areas.

Table 2-2 Basis of Design used in the Implementation Plan Studies

	Market	Academic
Utilities Routing Studies *considers physical parcel development areas	60 year build out	60 year build out
Utilities Capacity / Demand Load Studies	60 year projection	15 year projection
Transportation Capacity / Demand Load Studies	60 year projection	15 year projection

Table 2-3 Population and Building Area - Reference Chart

	Current	15 year	60 year
Student FTE Population	10,000	10,750	13,000
Gross Academic Building Area in SF (SM)	999,785 (92,883)	1,250,000 (116,130)	3,000,000 (278,710)
Gross Market Building Area SF (SM)	N/A	N/A	2,702,242 (251,045)

The District Energy Feasibility Report is a standalone business case that uses a 30 year forecast. A shorter development period yields a better business case for District Energy. If a positive business case can't be shown over 30 years with this development forecast, then the case would be worse with a 60 year build out.

2.4 REGULATORY OVERVIEW

The City documents listed below were consulted during the master plan process:

- City of Kamloops, Zoning Bylaw Division 29, RM-2 (Multiple Family – Medium Density), 2014
- City of Kamloops, Zoning Bylaw Division 14, P-8 (Post-Secondary Education), 2014
- City of Kamloops, McGill Corridor Development Permit Areas, 2013
- City of Kamloops, Multiple Family Development Permit Areas, 2013
- Thompson Rivers University Title Search Documents

2.4.1 Zoning Bylaw

The Implementation Plan reads in conjunction with the City of Kamloops Zoning Bylaws and although the majority of intentions are similar, the City guidelines noted below are challenged in the 2014 Master Plan. Parcels that do not conform to the existing City zoning will require rezoning.

Table 2-4 City of Kamloops Zoning Bylaw and TRU Master Plan Differences

City of Kamloops, Zoning Bylaw Division 29, RM2 (Multiple Family – Medium Density), May 2014	Thompson Rivers University Master Plan, 2014 (will require rezoning)
"Maximum building height = 4 storeys to a maximum of 15 m" and "Maximum structure height = 15 m" p.89	Maximum allowable building height is 12 storeys with District level guidelines as per 4.2.1. Refer to Design Guidelines Section 4.2 – Heights.
"Maximum density = 75 dwelling units per ha" p.89	The proposed density is well over 75 dwelling units per ha. This is to allow for vibrant, dense urban communities to be developed.
City of Kamloops, Zoning Bylaw Division 14, P8 (Post-Secondary Education), May 2014	**Thompson Rivers University Master Plan, 2014 (will require rezoning)**
A-1 (Agricultural) Zoning shown in Parcel F. City of Kamloops Zoning Map	Potential land use rezoning, as Parcel F is designated as Multi-family residential. Refer to Design Guidelines Section 2.1 – Land use.
"In the P-8 zone, hotel accommodation is permitted on the top floor of any student dormitory year. Hotel accommodation is permitted in other areas of any student dormitory outside of the fall and winter semesters and hotel accommodation is permitted in other areas of any student dormitory to a maximum 25 per cent of total room capacity, during the fall and winter semesters only" p.39	Potential hotel accommodation rezoning, as Parcel D and Parcel A have been identified as two ideal hotel sites due to close proximity to Athletics and Tournament Capital Centre. Refer to Design Guidelines Section 2.1 – Land use.
"In the P-8 zone, office commercial to be permitted within the McGill Corridor Development Permit Area to a maximum of 1,200 m2 per building to a maximum of 50 per cent of the total building's floor area" p.38	Potential office commercial rezoning should office commercial be larger than allowed by the City. Refer to Design Guidelines Section 2.1 – Land use.

Recommendation: A blanket rezoning for the TRU campus is recommended for the issues above. A blanket rezoning will ease the development process with the City and make development on TRU more attractive for market developers.

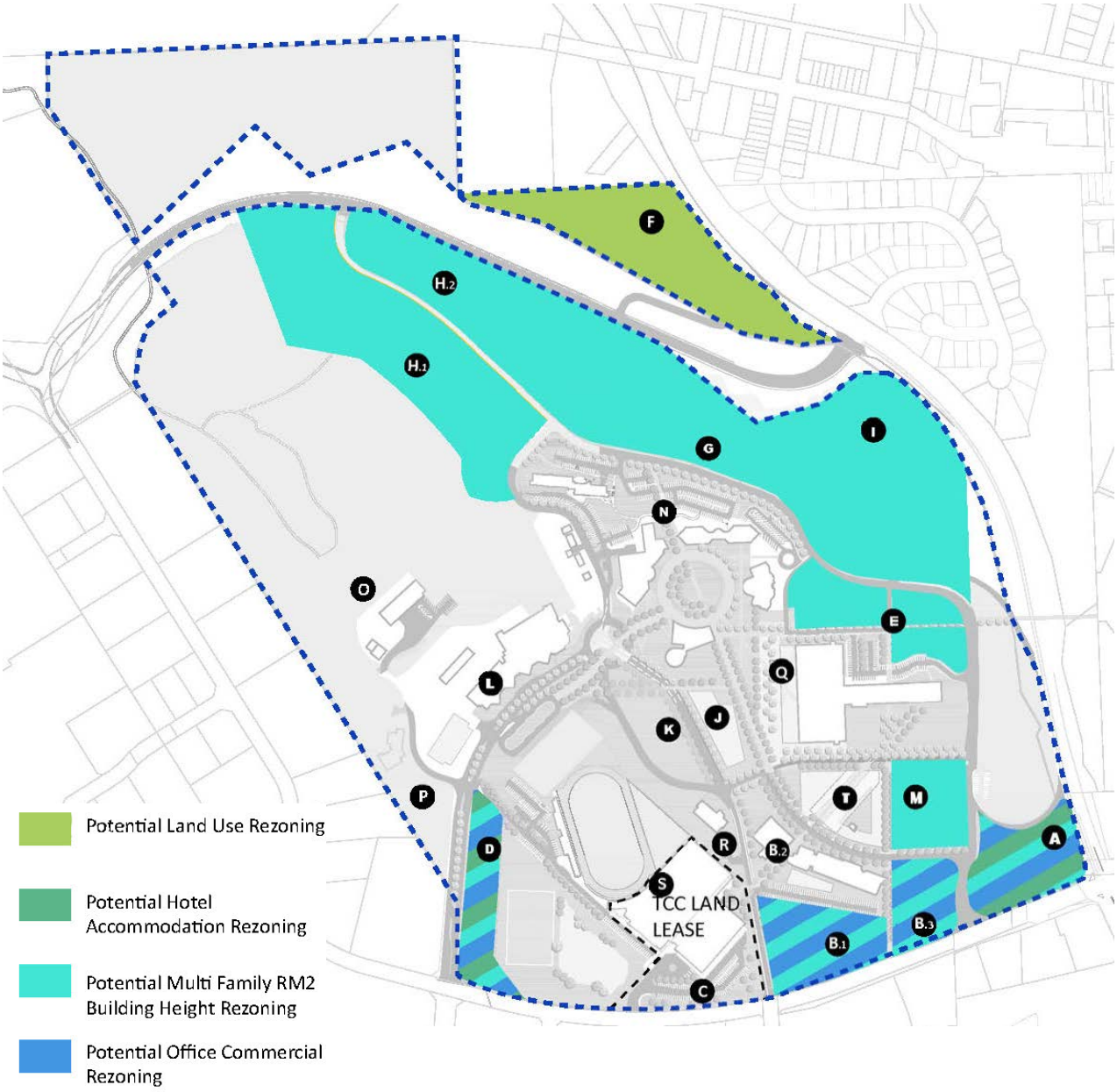


Figure 2-2 Potential Parcel Rezoning

2.4.2 Development Permit Areas

The Implementation Plan works in conjunction with both the McGill Corridor and Multiple Family Development Permit Areas requirements in creating a vision that is in line with both the City of Kamloops and the 2014 Master Plan. Multiple Family Development Permit Area Guidelines must be followed by all housing developments on the TRU campus that is aimed primarily for non-university users and therefore applicable to all market development parcels that do not contain student housing. The contents of the Multiple Family Development Permit Guidelines are aligned with those proposed by the TRU Campus Design Guidelines.

Although the majority of intentions are similar in the McGill Corridor Development Permit Area, there are some guidelines within the document, primary concerned over materiality, that the 2014 Master Plan will take precedence over:

Table 2-5 Development Permit Area and TRU Master Plan Differences

City of Kamloops, McGill Corridor Development Permit Areas, 2013	Thompson Rivers University Master Plan, 2014 (takes precedence)
"Buildings within the McGill Corridor shall…use similar exterior finish materials as found on buildings on the Thompson Rivers University campus such as the Campus Activity Centre and the Applied Trades and Technology building" p.169	New development within the McGill Corridor should use exterior finish materials that are contemporary of its time. The Campus Activity Centre and the Applied Trades and Technology buildings were built in the 1980s. Refer to Design Guidelines Section 4.9 – Architectural Materials.
"Principal facades should be finished with brick and glazing." p.169	Although brick is a preferred material of choice, building must be transparent and modern. Refer to Design Guideline 4.9.5-4.9.7 in Architectural Materials.
"buildings …should incorporate peaks, gables, turrets, clock towers, and other distinctive architectural features to emphasize that these intersections act as gateways or focal points to the university" p.170	Architectural expression that appear to mimic styles of a different place or era, and architecture that references historical styles are strongly discouraged. Refer to Design Guideline 4.9.3 in Architectural Materials.

2.4.3 Title Search

Parcels C and S are located upon land that has been allocated to the City of Kamloops and as a result any proposals within these parcels have been removed from the Implementation Plan. The Implementation Plan does however factor in the existing Tournament Capital Centre in shaping the development and public realm on parcels adjacent to it.

Master Plan Refinement = Parcels C and S is out of scope of the Master Plan as the Tournament Capital Centre is a partnership between the City of Kamloops and TRU.

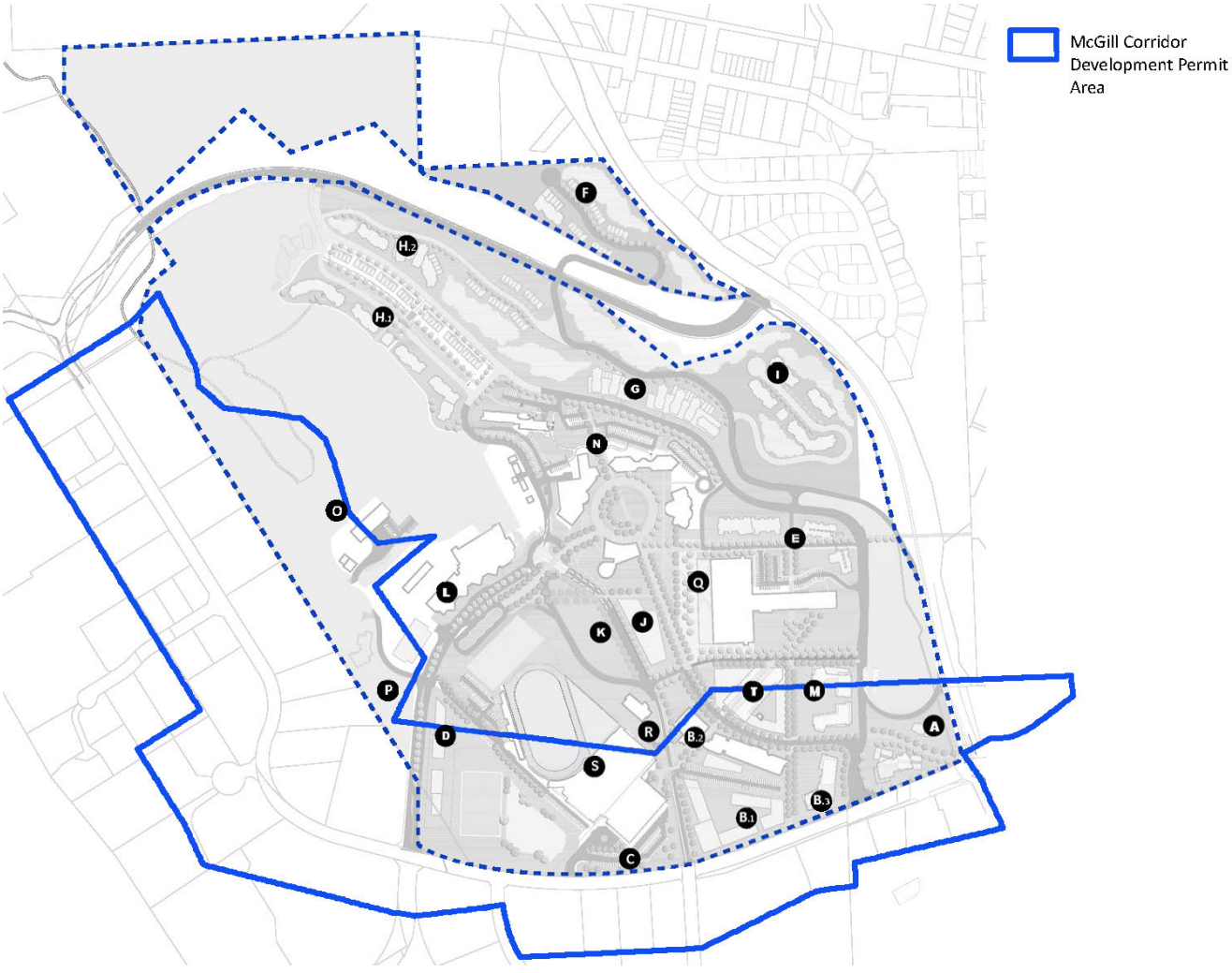


Figure 2-3 McGill Corridor Development Permit Area

2.4.4 Parcel Property Lines

Beyond the TRU campus property line and the various existing land lease boundaries, no further parcel property lines within TRU have been defined in the Implementation Plan for two primary reasons.

- Protection of sensitive environmental areas and rare and/or significant species of vegetation in naturalized areas

Parcel H1 serves as a relevant example as it is bounded to the West by Outdoor Research Space, a naturalized area protected from any development. The parcel extent to the West is flexible as this allows for detailed site analysis to ensure development does not impact environmentally sensitive areas and rare native species residing near the parcel boundary. Parcels I, G, and H2 also have flexible boundaries due to the steep slopes and existing nature of the north bench area. Further investigation must be complete before property lines are established.

Parcels that otherwise are not bound by Outdoor Research Space are defined by either new and existing road right of ways or the proposed green network.

- Flexibility within a parcel to design around unforeseen underground conditions

Flexibility is built in for sites that have Master Plan green network elements running within a particular parcel. Although the proposed green network generally acts to define individual parcels such as the divide between Parcel B1 and B3, in Parcel A, a green network traverses the site and the intention is to implement a pedestrian right of way in the general orientation shown in the Master Plan. The exact width of this route, however, is not defined in order to allow for flexibility to build around unforeseen underground conditions and to maximize site design opportunities. Despite this flexibility, the intentions and framework that have been set out in the Implementation Plan must be supported.

Refer to Section 3.5 for a map of parcel property lines.

2.5 UTILITIES

The following studies were completed for the TRU campus and provide an overview of deep service utilities, electrical and communications based on existing documentation. A brief summary of findings follow:

2.5.1 Domestic Water Supply

The existing water supply system on campus was developed on a project by project basis with many extensions and improvements since the early 1970s, so the water infrastructure is essentially all "modern" and does not require replacement. The two main campus water connections provide water from the same pressure zone but these two supply lines are not interconnected. Consideration and allowances for redundant looping and interconnections should be made.

Moving forward, the design of future water mains shall adhere to a comprehensive water master plan. It is recommended that TRU pursue this next step in the process and undertake a water supply master plan. It is also recommended that TRU keep records of meter readings to understand how water is consumed on campus.

2.5.2 Storm Water

The TRU storm water system has evolved as a result of additive projects and in general has seen little maintenance. The northern slopes discharge points have since become an issue for erosion. The effects of climate change should be considered along with the requirement by the City of Kamloops to limit post-development flow rates to pre-development flow rates.

It is recommended that TRU invest in an overall storm drainage master plan as a foundation for an asset management program.

2.5.3 Sanitary Sewer

There are two primary sanitary connections to the City of Kamloops that connect to campus. Little knowledge of the state of the existing sanitary sewer system at TRU is known. It is recommended that TRU complete an infrastructure assessment to assist in managing their system and any necessary repairs. A sanitary sewer master plan will also benefit the university and any future expansions.

2.5.4 Electrical

The electrical report provides a high level review of necessary upgrades to the electrical power at TRU as they relate to the master plan. With the opportunities identified for significant academic and market development at TRU, an upgrade of the existing BC Hydro service to the academic portions of the campus is necessary, as well as additional BC Hydro services to the campus from the north side of the campus. Additional BC Hydro services to TRU provide the

potential for redundant sources of power to the academic portions of the campus, improving the reliability of the system.

The existing electrical distribution equipment is past its life expectancy, and is in need of replacement. High voltage distribution equipment should be located strategically within the campus to maximize the potential usage of the areas to be developed. The electrical system has been added onto over the years on a project to project basis, and some information on past projects is unavailable.

2.5.5 Telecommunications

The current TRU Campus has three communication service providers, TELUS, Shaw and BCNet, and consists of fiber optic and copper cabling distributed throughout the campus. TRU staff has indicated that the current services are adequate; however a complete study of the existing network will be required to better understand the future needs of TRU. New market development parcels will require separate services from the desired utility companies. The existing campus data centre located in the BC Open Learning Building has room for expansion, and would serve additions to future academic spaces.

2.6 TRANSPORTATION

Bunt Associates provided studies on the proposed transportation network presented in the 2014 Master Plan which resulted in various Implementation Plan refinements.

Improved strategies to achieving a vibrant and pedestrian friendly campus were introduced such as the introduction of mews roads into the Academic Core. While the 2014 Master Plan protected the Academic Core from vehicular traffic, the implementation plan introduces vehicular traffic as a means to open up the campus heart and provide more exposure of the TRU campus to the surrounding neighbourhood. As the campus heart does not physically have a front face and is hidden from McGill Road, the new mews roads will allow easier permeability while also providing a comfortable slow-moving shared street environment with pedestrians.

Master Plan Refinement = Introduction of Campus Mews Roads into the campus heart.

Traveling South along Summit Drive, there is currently no direct vehicular access from the north into campus at Hillside Drive North. This lack of vehicular permeability compromises the appeal of market development in the North Bench Residential area. The increase in population and vehicular travel will also create negative traffic impacts should alternates not be provided. Currently there is a no left-in at the intersection of Hillside Drive and University Drive. It is recommended that this left-in be provided. A proposed road that links Hillside Drive to University Drive has also been introduced to improve accessibility through the residential parcels. The approximate routing of this road has been proposed by the civil consultant and will require further investigation during future feasibility studies of this area.

Master Plan Refinement = Improve accessibility to the North Bench Residential area by introducing a through road between University Drive North and Hillside Drive North. Allow left turns into campus from Hillside Drive North.

Dalhousie Road will be kept in the master plan as it will reduce traffic impacts along McGill Road. Refer to the Transportation Study for a detailed look at the proposed street section, which is in keeping with the vision of a pedestrian friendly campus, has been designed as a shared vehicular, cyclist and pedestrian right of way.

Master Plan Refinement = Keep South portion of Dalhousie Road, up to the intersection with Westgate Road. Keep Westgate Road. Remove Dalhousie Road north of the Westgate Road intersection in phases beyond the Implementation Plan to create better linkages between the Lower Athletics District and the University Village District.

In an effort to increase walkability between the Bus Loop and the Academic Core, the area around the turnabout located just northeast of the Bus Loop has been modified.

Master Plan Refinement = Improve walkability between the Bus Loop and the Academic Core by modifying roads near the turnabout.

2.7 DISTRICT ENERGY

The objective of the District Energy report is to determine whether a district energy system provides a technically feasible and financially viable option to support environmentally sustainable growth of the TRU campus. A key outcome tested is whether there are specific opportunities, energy resources or configurations available at TRU that can reduce financial costs or environmental impacts of energy services. The results of the study show that a geo-exchange concept for the market development parcels will be financially viable and this is recommended for further studies. Other studies for the academic parcels showed negative cash flow.

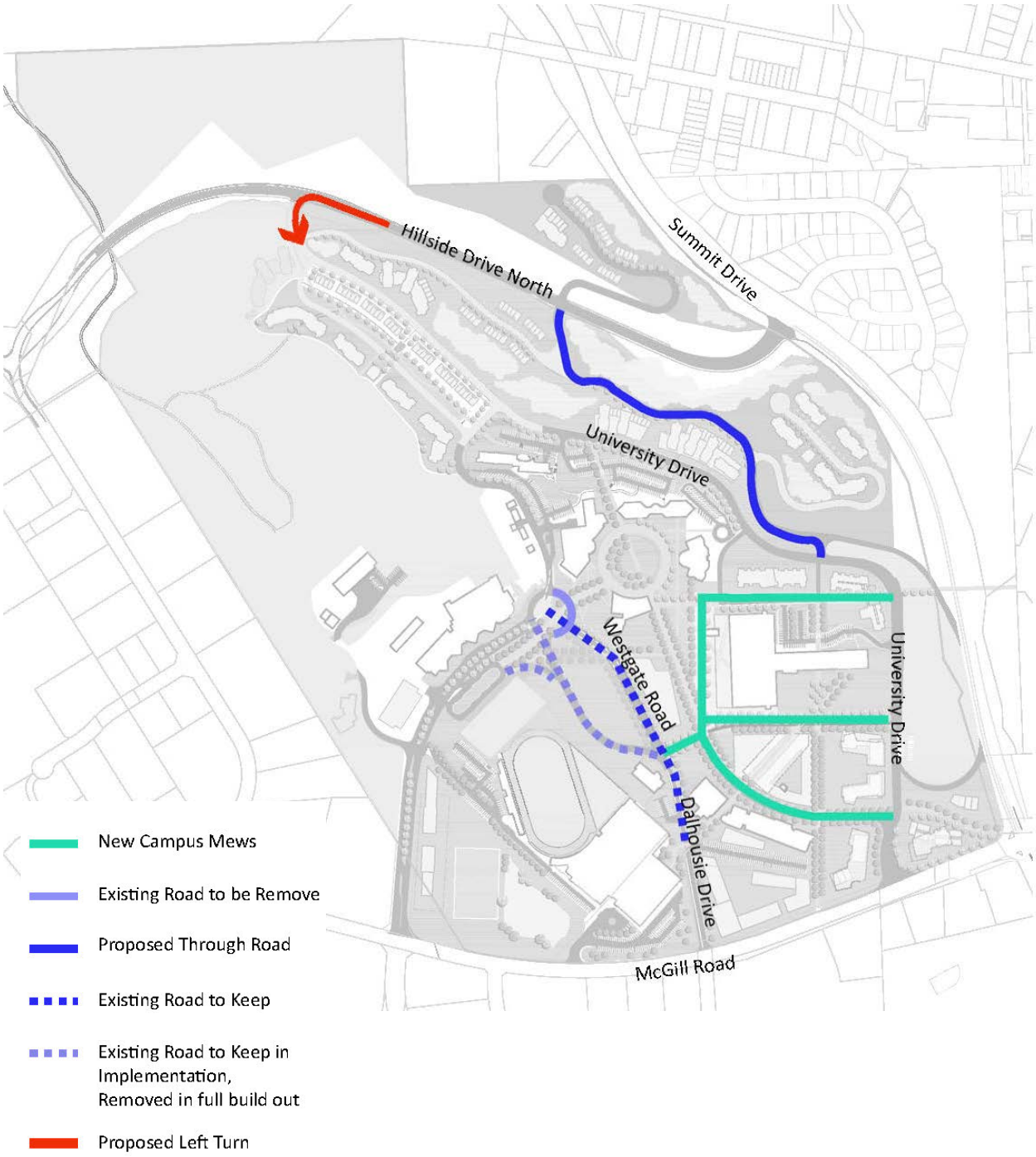


Figure 2-4 Key Transportation Refinements

3.0 IMPLEMENTATION MASTER PLAN

3.1 REFINED IMPLEMENTATION MASTER PLAN

This map shows a 15 year academic development built out and the full 60 year projected market development build out.

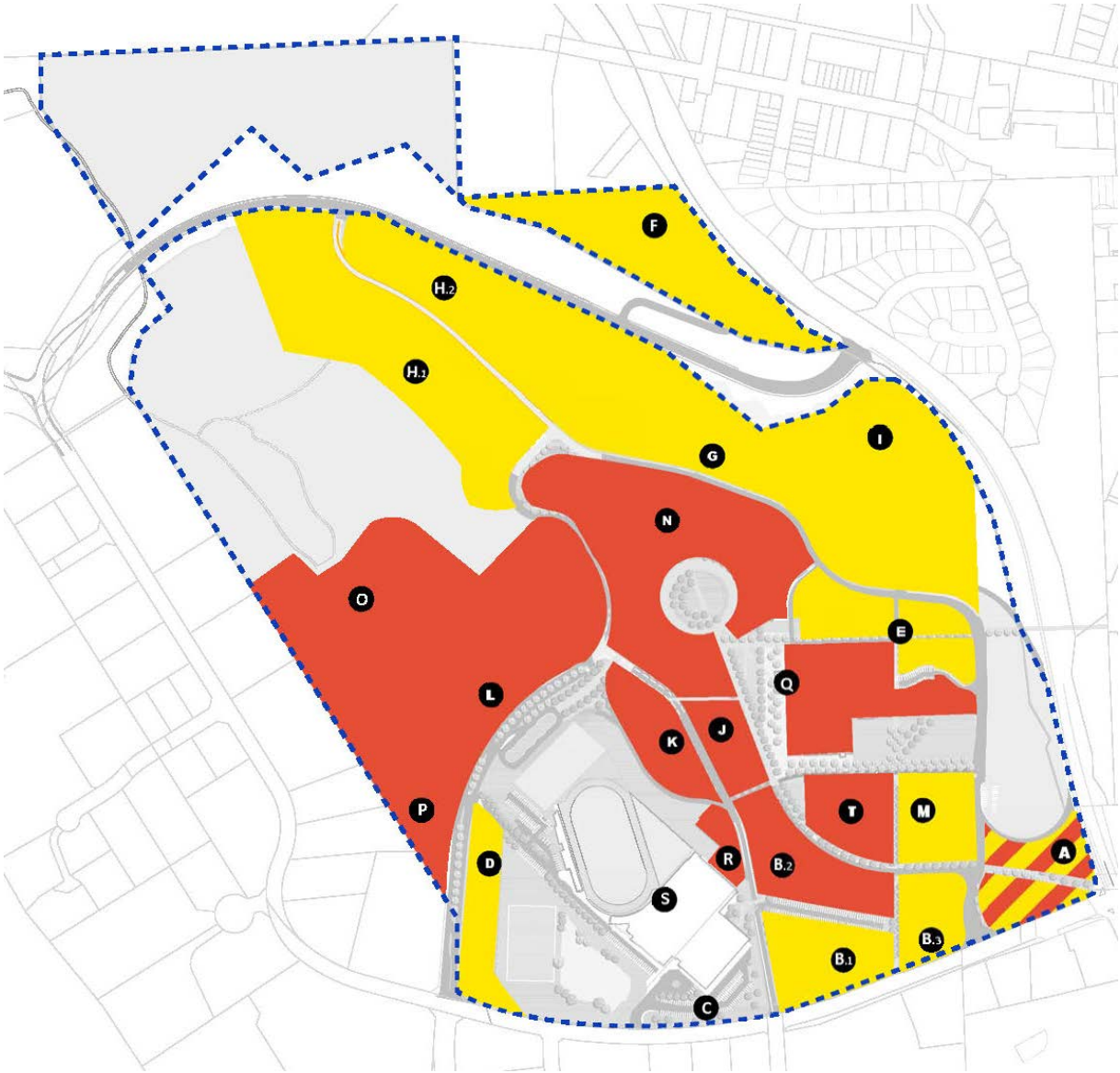
Stantec

3.2 DISTRICTS

TRU campus districts have been identified on the map below. Buildings and spaces within these districts share common themes beyond land use and have a unified vision.

3.3 MARKET / ACADEMIC PARCELS

The map below indicates the areas for future development for both academic and market parcels.

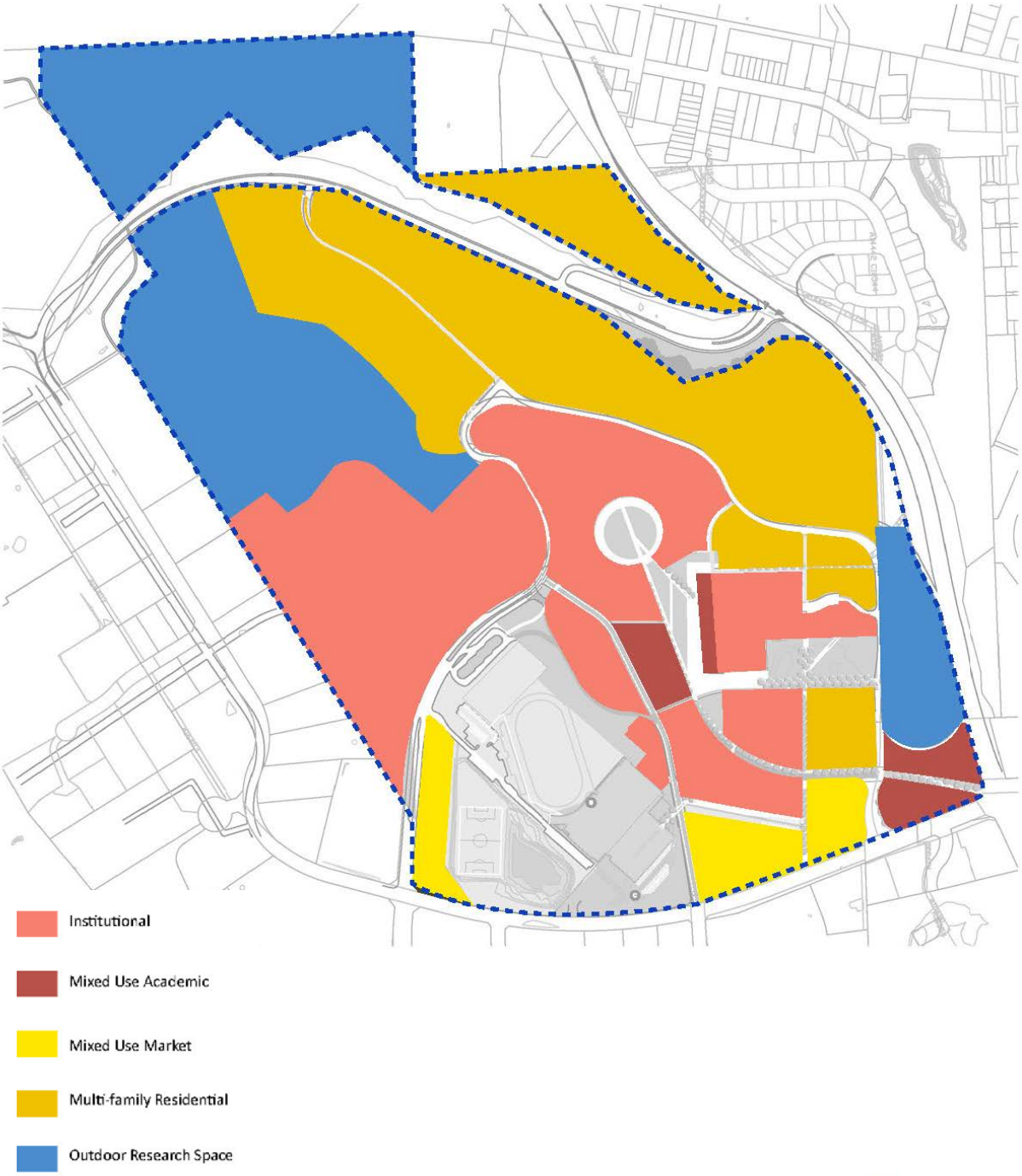


Academic Parcels

Market Parcels

3.4 LAND USE

There are five primary land use designations in the Thompson Rivers University Master Plan: Insitutional, Mixed Use Academic, Mixed Use Market, Multi-family Residential and Outdoor Research Space.



3.5 PARCEL PROPERTY BOUNDARIES

Defined Parcel Property Line

Malleable Parcel Property Line

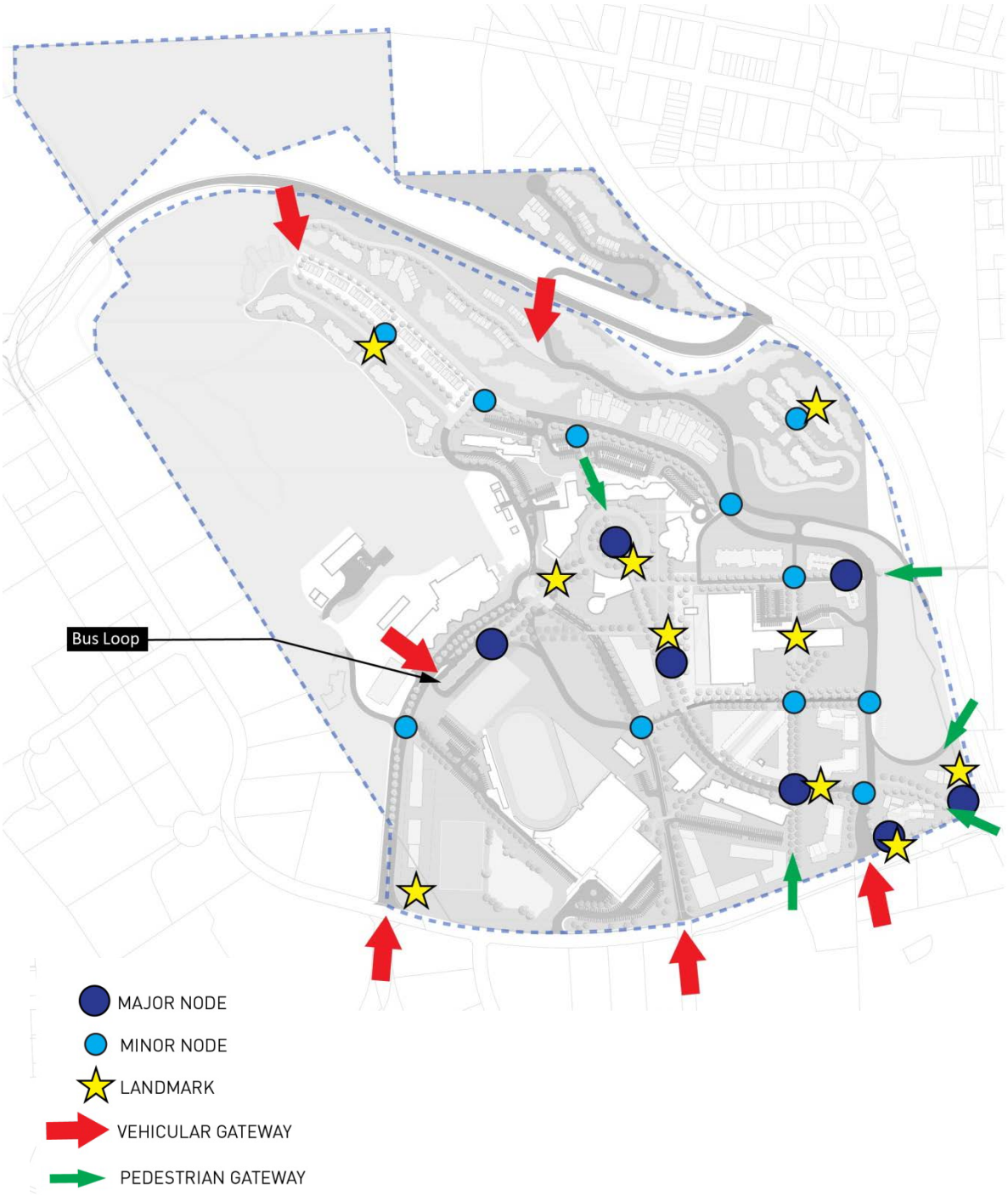
Tourament Capital Centre

3.6 CITY OF KAMLOOPS EXISTING ZONING

A-1 = Agricultural
CD-2 =McGill Road / Summit Drive Comprehensive Residential
I-1S = Industrial Park
RS-1 = Single Family Residential
OS = Open Space
P-1 = Parks and Recreation
P-8 = Post-Secondary Institution

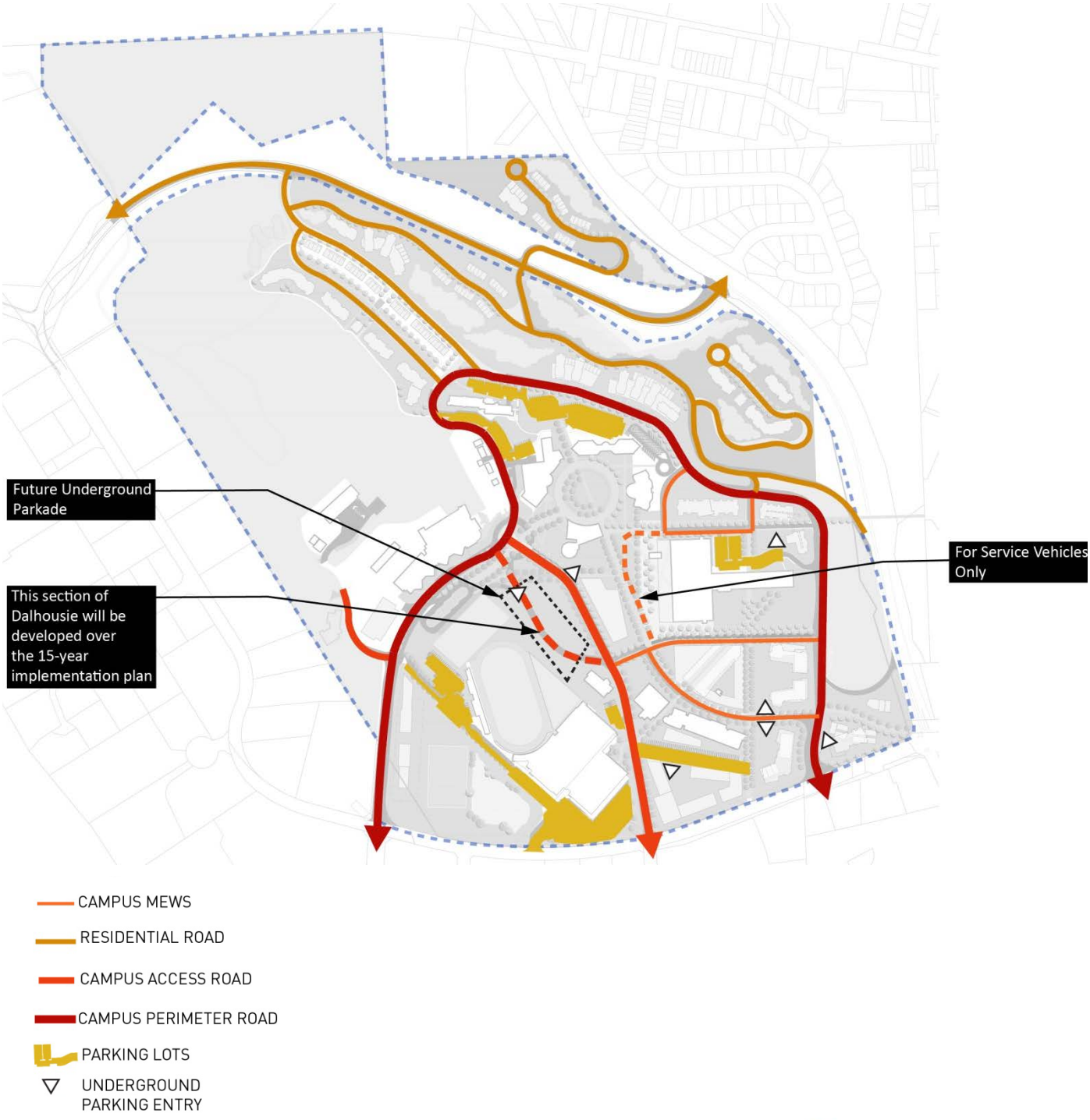
3.7 CAMPUS GATEWAYS, NODES AND LANDMARKS

The map below identifies in relation to campus parcels the location of proposed campus pedestrian and vehicular gateways, landmarks and nodes.



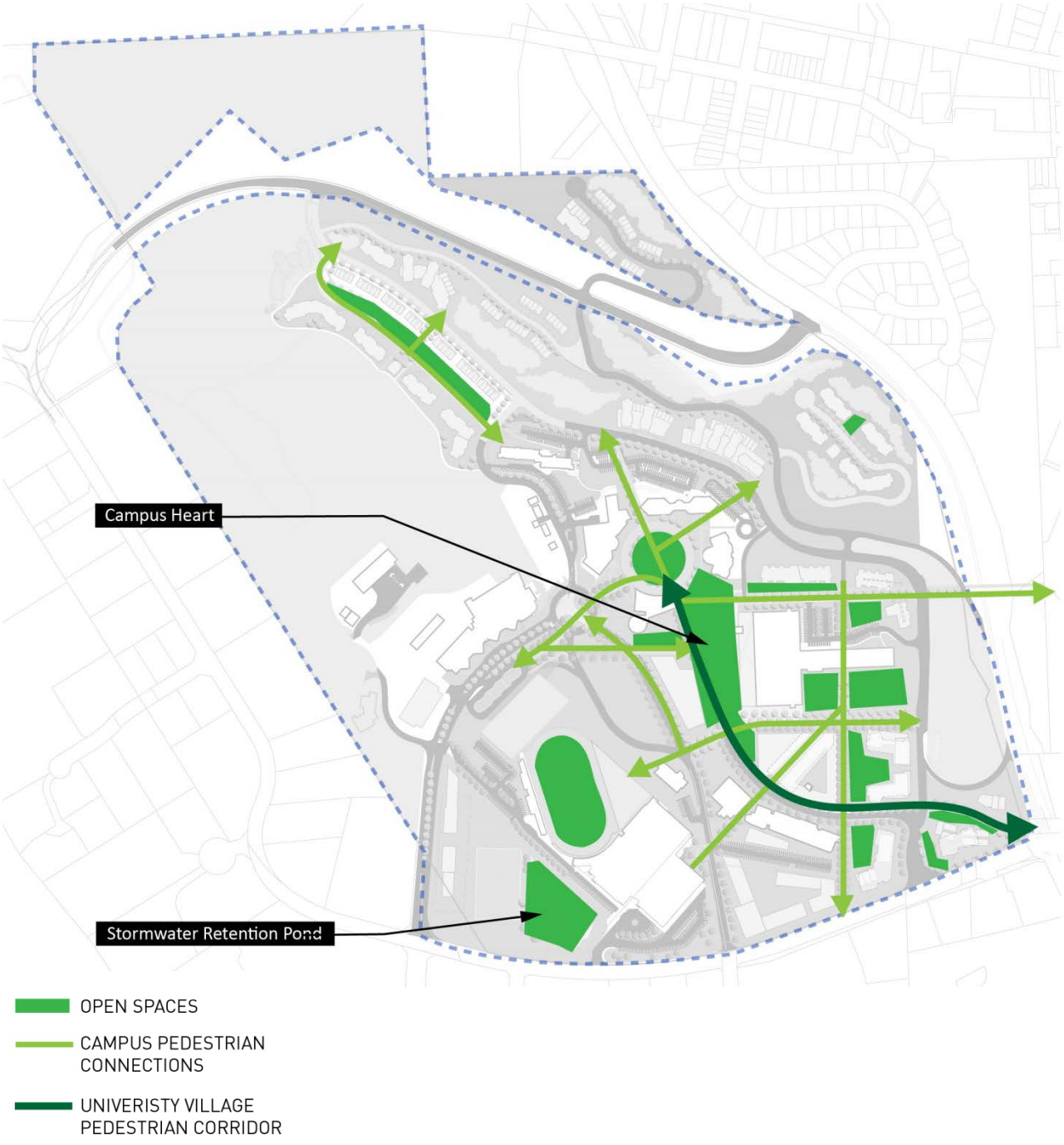
3.8 VEHICULAR NETWORKS AND PARKING

The map below describes the proposed vehicular network on campus and the location of both academic surface and underground parking.



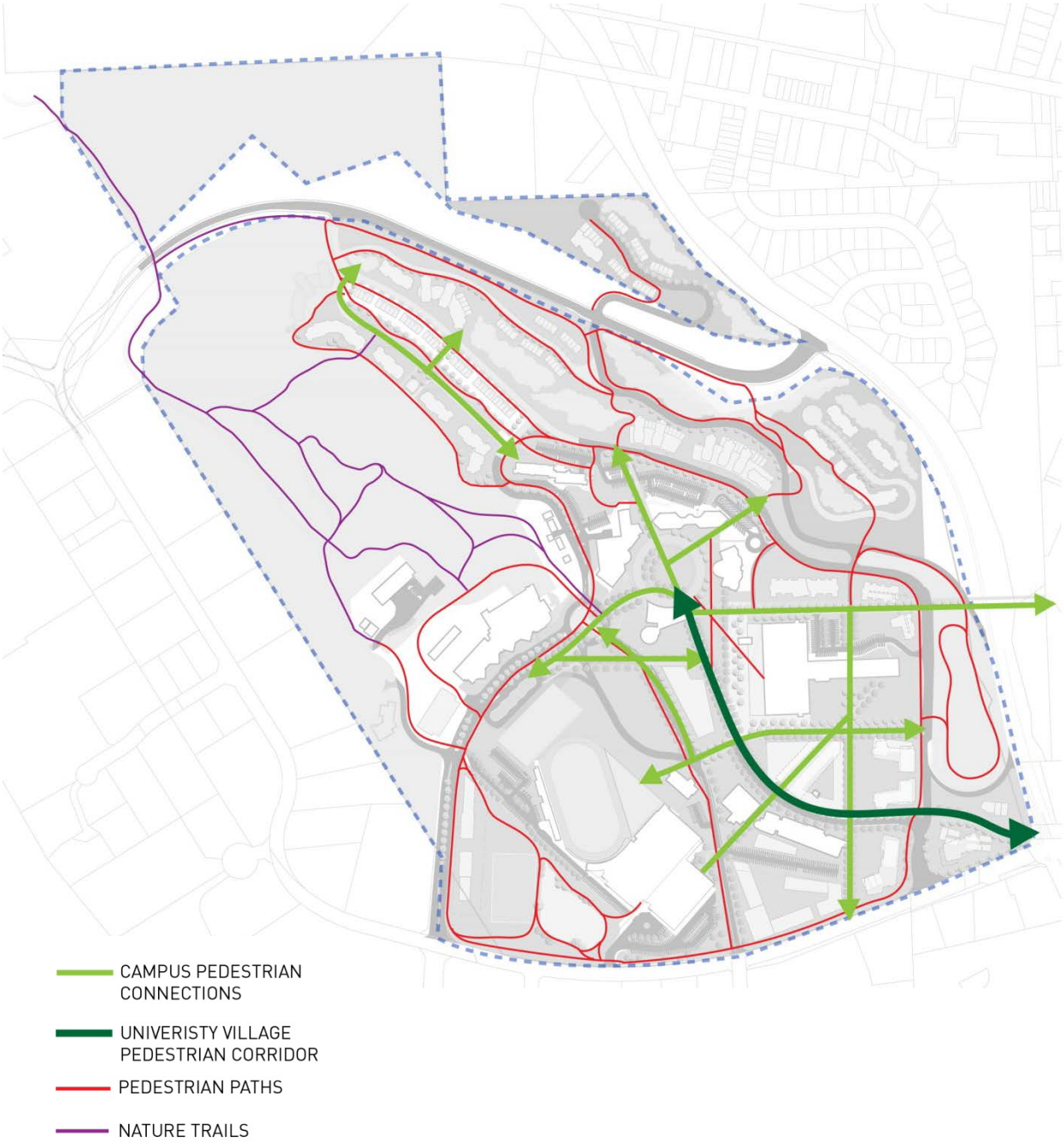
3.9 OPEN SPACE AND MAJOR PEDESTRIAN NETWORKS

The map below describes the proposed open space on campus.



3.10 PEDESTRIAN NETWORKS

This map describes the pedestrian network proposed for campus and their character.



3.11 60 YEAR FULL BUILD OUT PLAN

This map shows the full 60 year academic and market build out.

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