8.0
Mobility and University Entrances

Trent's current mobility landscape comprises transit routes, cycling and pedestrian circulation routes, regional and informal trails, and private and municipal roads. As the University continues to evolve and expand, a strengthened mobility framework will secure a "10-minute Campus Core"- a pedestrian-focused, easily navigable environment promoting safe, easy, and multi-modal access to amenities within and beyond the Symons Campus.

Trent University is one of three major anchors in the City of Peterborough (outside of the downtown core). It serves as the north-eastern entrance to the City, and is located at a strategic juncture as it shares its boundaries with the townships of Selwyn, and Douro-Dummer.

As the City and County of Peterborough continue to evolve, a number of critical transportation studies have been initiated to support their growth and address challenging issues, particularly around the University, including the:

- North End and Trent University Area Class Environmental Assessment, City of Peterborough;
- East Side Transportation Study, City of Peterborough;
- Transportation Master Plan, City of Peterborough; and
- Transportation Master Plan, Peterborough County.

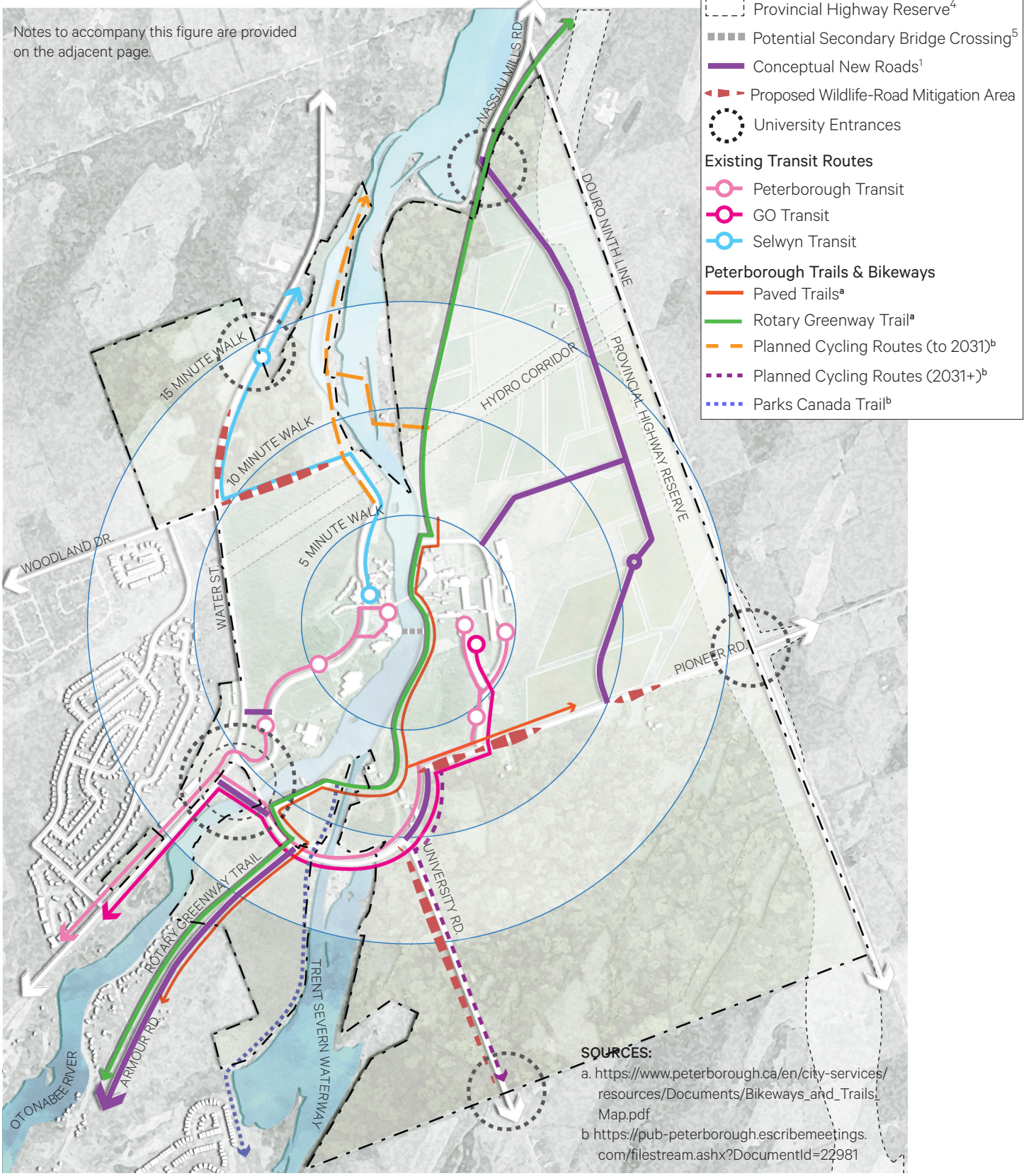
An investment in and better management of the mobility infrastructure on the Symons Campus is critical to meet the demands of a thriving campus and growing community. With a strengthened mobility framework, Trent can offer a safe, affordable, and low-carbon mobility system that strives to achieve the guiding principles and vision of this Plan.

Notes to accompany Figure 27:

1. New roads and circulation routes are conceptual and require further detailed study. Future design related to public streets and infrastructure will be subject to approval by the City, and Site Plan Approval will be required for future private infrastructure, as applicable.
2. An Environmental Impact Study and site-specific study are required for future development to determine: natural heritage feature limits, the significance and/or sensitivity of natural heritage features, setbacks and buffers from natural heritage features, and locations of roads and/or pedestrian crossings.
3. A Campus Master Archaeological Study was undertaken with the participation of Michi Saagiig First Nations monitors. The final report must be consulted for any future developments
4. The Provincial Highway Reserve comprises land reserved by the Ministry of Transportation Ontario for the potential future extension of Hwy 115 along the 9th Line. A review of the Framework Plan will be required in the event that the corridor is released back to the University.

Figure 27: A Connected Multi-Modal Network

Notes to accompany this figure are provided on the adjacent page.



GOALS FOR MOBILITY AND ENTRANCES

LEARNING AND DISCOVERY

- Achieve a "10-minute Campus Core" through improvements to pedestrian and cycling infrastructure across the Campus Core that encourage safe, attractive, active, intermodal, and barrier-free connections throughout the year.
- Enhance mobility options that connect students and faculty to experiential and/or land-based learning opportunities across the campus (e.g. dedicated cycling routes, shuttle service).
- Retrofit and introduce new infrastructure to ensure an inclusive learning environment that is inviting to all, regardless of age or ability.
- Integrate identifiable University entrances to celebrate ones arrival to the Symons Campus.

ENVIRONMENTAL RESILIENCE AND INTEGRITY

- Prioritize walking, transit, bicycles, or carpools for travel, by enhancing routes, intermodal connections, and other associated facilities that provide attractive alternatives to car travel and thereby reduce carbon emissions.
- Coordinate transit investment and the integration of shared infrastructure and amenities (e.g., electric charging stations, drop off areas) with land use plans in support of mixed use and compact growth.
- Avoid fragmentation of significant natural areas and wildlife corridors, where possible. Where connections are unavoidable, integrate wildlife mitigation strategies to reduce potential for road mortality and provide alternate, attractive movement options for wildlife.

ECONOMIC RESILIENCE, LEADERSHIP, AND INNOVATION

- Lead a multi-modal system that supports the exchange of products, services, and knowledge throughout the campus, City, and region by making better use of road capacity, mobility networks, and sustainable technologies.
- Provide safe and accessible travel routes that connect the Campus Core to existing and future services and employment opportunities.
- Thoughtfully integrate a dedicated transit hub, which anchors the University as a major destination within the City and County transportation network (including City and GO transit services on site).

SOCIAL RESILIENCE, COMMUNITY, AND INCLUSIVITY

- Support safe, affordable, and inclusive mobility options that provide broader access to people of all ages and abilities, and allow for full and equitable participation across the campus.
- Promote community safety by undertaking physical measures to improve the safety for pedestrians and cyclists.
- Provide supportive infrastructure, including bicycle parking, weather protection, and benches, to accommodate intermodal travel and provide opportunities for rest.
- Support a public realm that fosters a culture of walking, cycling, and social interaction.
- Integrate elements of placemaking into University entrances that acknowledge the Symons Campus as an inclusive space for Indigenous peoples.

8.1 Mobility Framework

Trent's mobility framework takes on a multi-faceted approach to securing a 10-minute Campus Core. This approach will contribute to an efficient, connected, and accessible mobility experience for all users and can contribute to the University's complete community aspirations, when coupled with an intensified campus designed with an ideal proximity of uses.

PEDESTRIANS FIRST

The Trent campus will be designed to prioritize the pedestrian – establishing clear, accessible routes between key points on campus and emphasizing pedestrian safety for all ages and abilities.

TRANSIT

Improvements to transit routes throughout campus, increase in frequency of arrivals/departures and connections into and beyond the Trent lands.

MOBILITY-AS-A-SERVICE

An increasingly significant trend in travel modes is the concept of Mobility-as-a-Service, which signifies a shift away from privately-owned vehicles towards a system of options that are consumed on an as-needed basis.

CYCLIST ROUTES

Bicycles are one of the most economically viable and environmentally sensitive transportation choices. Enhancement of cyclist connections and facilities throughout campus will promote ease of access to key academic, natural and community amenities.

COMPLETE STREETS

Existing and new streets on campus should be designed to support multi-modality, prioritize pedestrian safety, and impose minimal impact to the natural environment.

INTERMODALITY

Intermodal networks offer seamless connections between modes of travel, and offer efficient and interchangeable integration between transit, cyclists, and pedestrians.

8.2 Mobility Objectives

The proposed University mobility framework is guided by a number of high-level mobility objectives, that may be studied further through future, detailed transportation studies.

An Attractive and Integrated Multi-Modal Hub

As an anchor within the larger City and County fabric, Trent University already offers connections to GO, City, and County transit routes that are utilized by students, staff, faculty, and visitors. As the campus evolves, the integration of a thoughtful and cohesive intermodal hub would strengthen the University's role within a larger regional transportation network, and provide convenient, safe, and effective mobility options to the campus and community.

Reduced Reliance on the Vehicle

The car is a convenient and conventional means of travel, but is not without environmental impacts. Across the world, high levels of pollution due to automobile emissions are leading to greenhouse gas effects and high levels of congestion. As the campus evolves and expands there is an opportunity to retrofit existing vehicular infrastructure where possible, and design future vehicular routes to prioritize alternate modes of transportation- transit, cycling, or walking- instead of the vehicle. In part, this requires identifying measures to reduce conflict points between modes to create seamless connections between transit, cyclists, pedestrians, and cars.

Shifting modal share away from the car and improving intermodal connections will mitigate environmental impacts, create a more attractive and convenient campus, and promote the health and wellbeing of the campus and community.

Celebrating Arrival to the Symons Campus

The main entrances to the University will indicate to students, staff, faculty, and visitors that they have arrived to the Symons Campus. The entrances will be located at key locations to clearly signal when one is crossing the threshold into the University's lands. These entrances will reflect the diverse offerings at Trent University in their material, scale, and integration - including learning and discovery at the Campus Core main entrance, environmental preservation and stewardship at the Wildlife Sanctuary Nature Area, innovation and research at Cleantech Commons and the Trent Farm, and community and inclusivity at the Seniors Village. The entrances also provide an opportunity to acknowledge the campus lands as traditional territory at a visible location through naming, public art, and placemaking elements.

A Connected Trail Network

The University Green Network invites students and visitors to observe wildlife with a combination of the lush forests, drumlins, streams, and open fields. The Symons Campus is abundant with both formal and informal nature trails, accessible from various points across campus, and owned and managed by various parties, including Trent, the City of Peterborough and Parks Canada. A key objective of the mobility framework is to improve connections to a formalized trail network, that finds opportunities to sensitively integrate trails, and interweave them throughout the Campus Core to create a truly interconnected and safe trail and pedestrian circulation network. The trail network and pedestrian connections throughout campus will become the common thread or tissue that binds the urban and the natural.

It is recommended that Trent University prepare a trails master plan to aid in managing trail use and safety and apply best practices in providing connections to key destinations, closing network gaps, and serving a wide range of users.

Improved Road Safety

As modes of travel on Trent's roads diversify and grow, so does the risk associated with proximity of pedestrians and vehicles. Improving road safety and designing new roads across Campus must consider these risks and work to mitigate them. The safety of cyclist, pedestrians,

and transit-users is paramount and may be reinforced by designing streets to slow down vehicular traffic across campus; provide ample lighting along primary routes during dark hours (along primary routes, where appropriate and avoids impact on adjacent natural features); integrate on-street parking and/or vegetated buffers between streets and boulevards; and introduce specialized paving treatments in special areas to signify a pedestrian-priority.

Universal Design and Accessibility

Universal design is the design and composition of an environment so that it can be accessed, understood, and used to the greatest extent possible by all people regardless of their age, size, ability, or disability. To create truly equitable campus green spaces and circulation networks, they must be designed with these users in mind. Examples of the application of universal design within the mobility network include sound signals for the visually impaired at intersections; tactile strips to mark crossings; gradual ramps to accompany staircases; and railings, among others.

Changes in Transportation Patterns

Ride hailing platforms are just one example of a recent change in transportation patterns, made available for the general public due to increased access to the digital marketplace, providing immediate access to goods and services. On-demand transport is generally characterized by technologies that match and optimize routes, provide digital mapping with real-time road conditions, and integrate dynamic pricing algorithms that reflect changes in demand and supply.

These could offer an opportunity for Trent University to reduce the need for privately-owned vehicles. Where students, faculty, staff, and the community, can look to their phones or devices to find numerous green transportation options, including car-pooling and car-sharing platforms. The University is encouraged to provide priority infrastructure to support car-sharing modes, such as priority parking for car-pooling and permanent on-campus locations for car-shares.

Calgary Central Library coordinated its public realm and building design with established standards of care in terms of public accessibility. Source: Calgary Library

University of Waterloo partnered with the TravelWise program to access its carpool matching app and to track trips (e.g., cost by car, bike, or bus, calories burned, carbon spent, etc) Source: GotravelWise.ca

500m multi-use path improves cycling and pedestrian accessibility, Genk, Belgium
Source: erwinvanamstel.com

Mitigating Impacts of Roads on Wildlife

Fragmentation of wildlife habitat by roads is a known source of impact on the landscape. It creates indirect impacts by altering wildlife movement patterns and behaviour, and direct impacts through road mortality. Collisions with wildlife are also potentially hazardous for people (e.g., collisions with deer). Opportunities to address these impacts through mitigation on the existing transportation network (roads, trails) and bringing road ecology principles and practices into the planning and design of new portions of the network will support Trent's commitment to proactive environmental management and support a net benefit to the system by addressing existing issues.

Mitigation opportunities may include signage, road markings, wildlife warning reflectors, wildlife fencing, or crossing structures. Trent will work with the appropriate agencies (e.g., the City of Peterborough) to explore mitigation options and opportunities.

Wildlife mitigation 'daylighted' crossing structure, Ontario

Wildlife mitigation 'daylighted' crossing structure, Ontario. Source: NSE

8.3 Complete Streets

> Complete streets are streets that are safe for everyone: people who walk, bicycle, take transit, or drive, and people of all ages and abilities. They are cost-effective, sustainable, and safe. Complete streets promote public health, quality of life, and liveability by animating the public realm.

General Guidelines

- Incorporate pedestrian and cyclist infrastructure, safely buffered from vehicular traffic (for example, by integrating on-street parking).
- Provide pleasant boulevard treatments that include planters, native tree species, and integrated seating to animate the street; offset carbon; and provide bird and pollinator habitat.
- Introduce ample street lighting for maximum pedestrian visibility and safety. Lighting may include a combination of standard and pedestrian-scale lights, and should be downcast to avoid impact on adjacent natural features and areas.
- Introduce Low Impact Development strategies to manage rainwater and stormwater runoff. Complete street Low Impact Development strategies include rainwater infiltration gardens, bioswales, and permeable pavers. Filter systems can be integrated and designed to remove pollutants of concern from runoff where filtration is otherwise not possible.
- Promote safe movement of wildlife across streetscapes through the provision of speed-control measures in known wildlife habitation zones and signage to warn oncoming traffic of wildlife crossings.
- Provide on-street parking to promote walkability and animate the street, provide convenient access to campus amenities, and alleviate pressure to develop surface or structured parking.
- Incorporate Trent-branded signage to instill a sense of place along key streets.

Rendering of Complete Streets at Six Points Interchange, Toronto. Source: SvN

8.4 University Entrances

> For Anishinaabe people, directionality is a basic concept that underlies both physical place and spiritual perspective.

In the Creation Story, Anishinaabeg believe that the Creator's thought emanated from a central place and moved outwardly. On the physical earth, this directionality can be seen as the Four Directions. From a spiritual point of view, directionality also moves upward through the eight levels of universe, as well as below to the terrestrial levels of Mother Earth.

The Four Directions and the make-up of Creation is often celebrated and acknowledged in ceremony. When an Elder provides an invocation, or lifts the sacred pipe, words are shared to recognize the significance of each direction. It is said that spiritual caretakers, in the form of animals, sit in each of the four directions.

Indigenous Traditional Knowledge (ITK) is often organized according to the four directions as represented in Medicine Wheel teachings. For example: the medicine wheel illustrates the Indigenous understanding of the four parts of the self that encompass each individual human being:

- **East – Waabnoong – Body**
- **South – Zhaawanoong – Mind**
- **West – Epingishmog – Heart**
- **North – Giiwedinoong – Spirit**

Physical space is also referenced according to the four directions. For example: when an Anishinaabe builds a dwelling structure, like a teaching lodge, the main doorway is always facing east. Other doorways corresponding to each direction may exist, but usually only the eastern doorway is used.

The Trent University Symons Campus can be seen as being oriented according the four directions. The Otonabee River is that defining feature that runs north to south, giving the campus its distinctive east bank and west bank areas. If the core academic area is another central defining feature of the campus, it naturally creates north and south facing directions.

Defining Campus Entrances

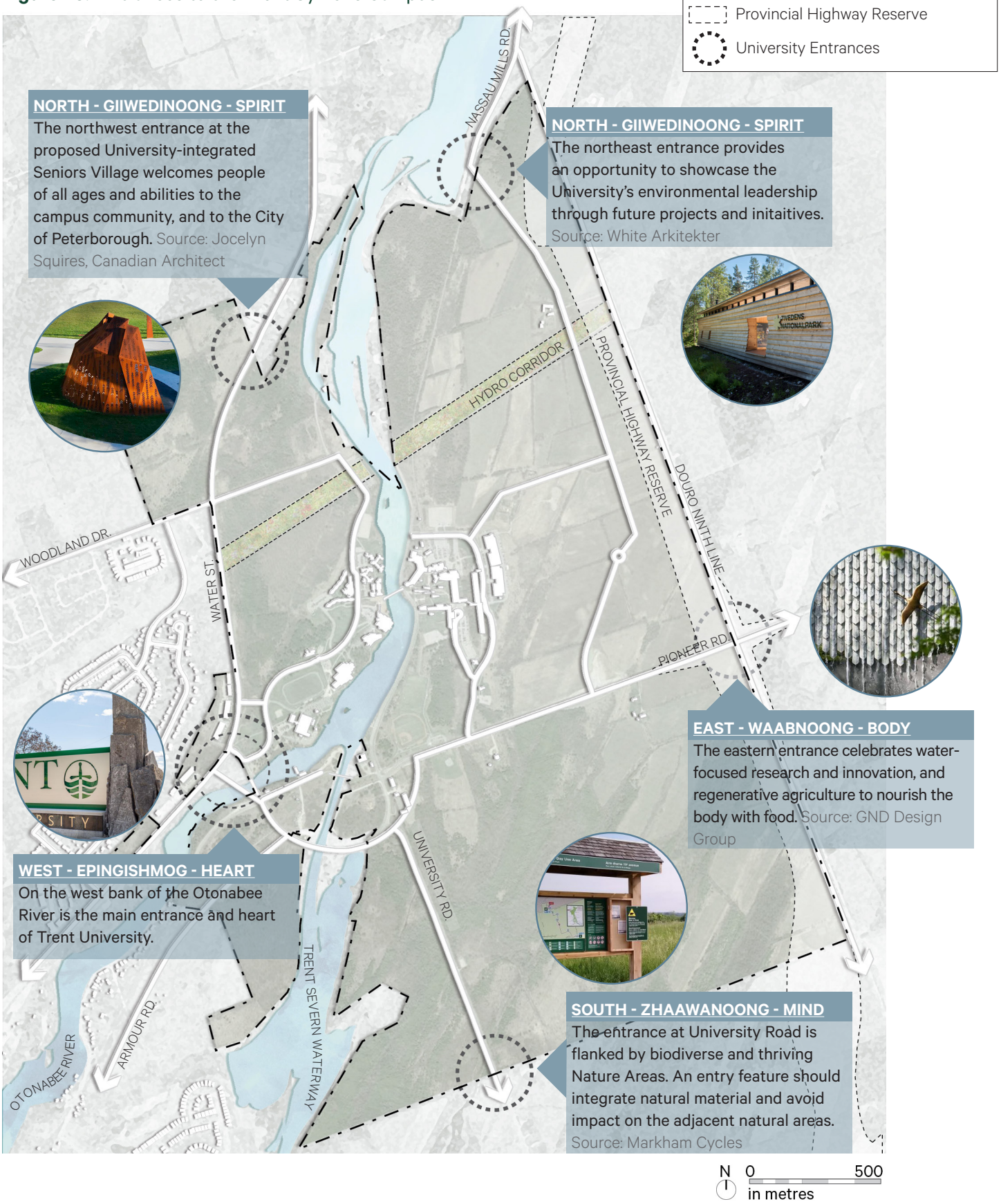
Five entrances are proposed for the Symons Campus, each a symbolic representation of an area of excellence for the University and the Four Directions.

In an effort to introduce Indigenous language into campus spaces, Trent University is considering the identification of the four entrances in Anishinaabemowin as well as English.

When used in this manner, these Anishinaabemowin terms are referred to as "doorways" and are often seen as spiritual doorways that the spirits travel in throughout the space.

The main entrance of the Symons Campus will be referred to as Epingishmog, the Western Entrance. It will include the beautiful and iconic Entrance Rock.

Figure 28: Entrances to the Trent Symons Campus



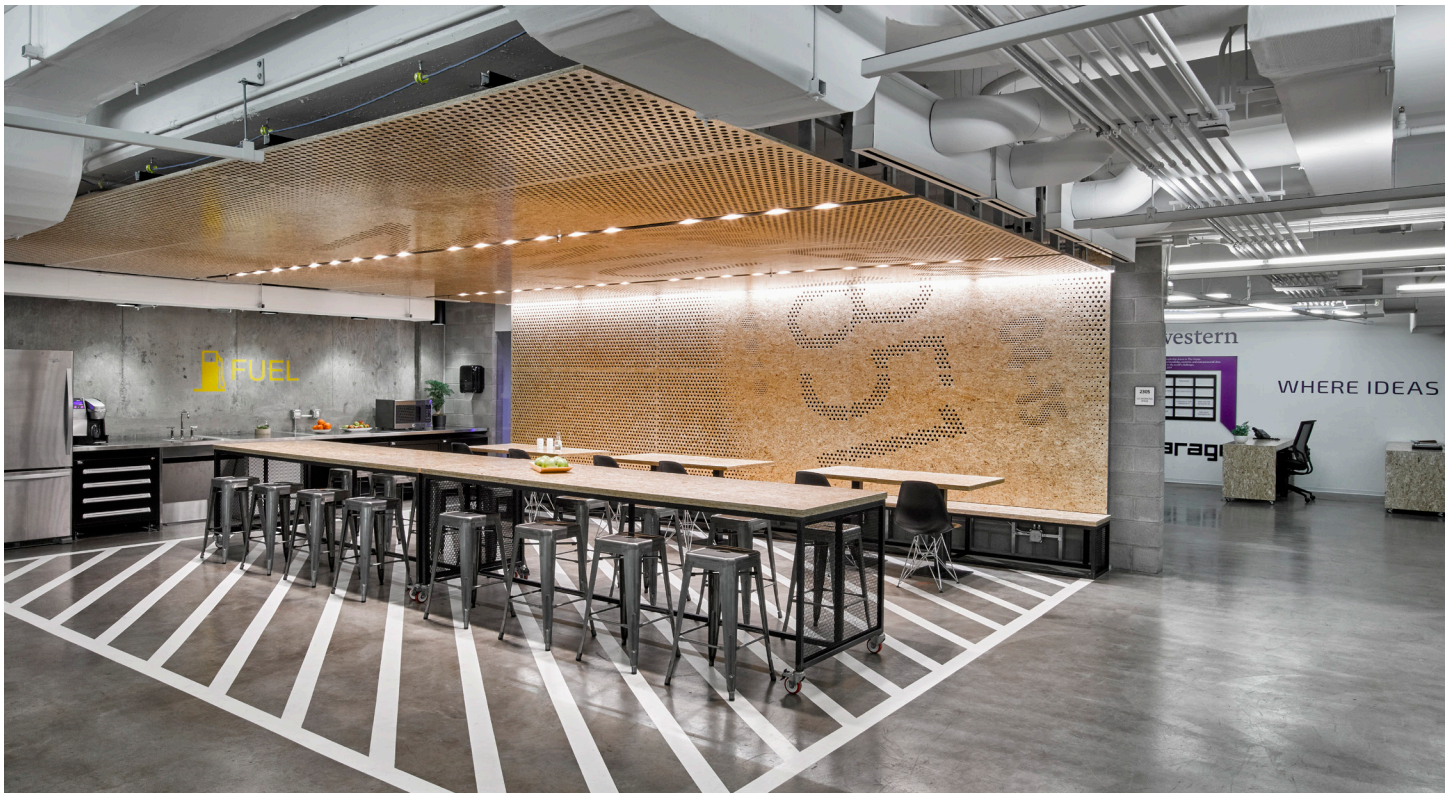
Bioretention area integrated into a parking lot at the University of Wisconsin.

8.5 Parking Areas

Given the location of the campus, the regional population it serves, and the modest number of regional transit routes, vehicular parking is a necessity and will continue to be in the foreseeable future as the campus evolves. There is an opportunity to retrofit and introduce new parking facilities that re-imagine standard parking into amenity areas that serve as a future opportunity for infill or conversion, and contribute to the environmental sustainability of the campus. Satellite parking locations, connected by shuttles or trail networks, would also serve to reduce the impact of cars on the campus.

General Guidelines

- Encourage structured or underground parking as an alternative to surface parking lots, where feasible. Structured parking presents an opportunity for future flexibility of use (i.e. conversion to residential, retail, or other use).
- Introduce Low Impact Development strategies to manage rainwater and stormwater runoff, which may include rainwater infiltration gardens, bioswales, and permeable pavers.
- Expand permeable grid paving systems that eliminate the use of asphalt across the campus and offer a host of benefits including flood risk mitigation and stormwater management. Trent University has introduced this system at the north edge of the west bank, and seeks to expand this initiative.
- Reduce the urban heat island effect through the selection of high-albedo (lighter-coloured) alternatives to traditional asphalt surface treatment.
- Expand priority parking spaces for car-pooling spots and electric vehicles, and install charging stations, where feasible.
- Provide safe and clearly marked pedestrian pathways throughout surface parking lots.
- Incorporate ample salt-tolerant tree and vegetative planting to maximize shade cover, visual interest, bird and insect habitat, and maximize drainage.
- In parking lot plantings, incorporate species that are common to the area, as well as other plant species that support environmental restoration.



Parking garage at Northwestern University designed to convert into classroom space, Evanston, Illinois.
Source: Garrett Rowland, Gensler

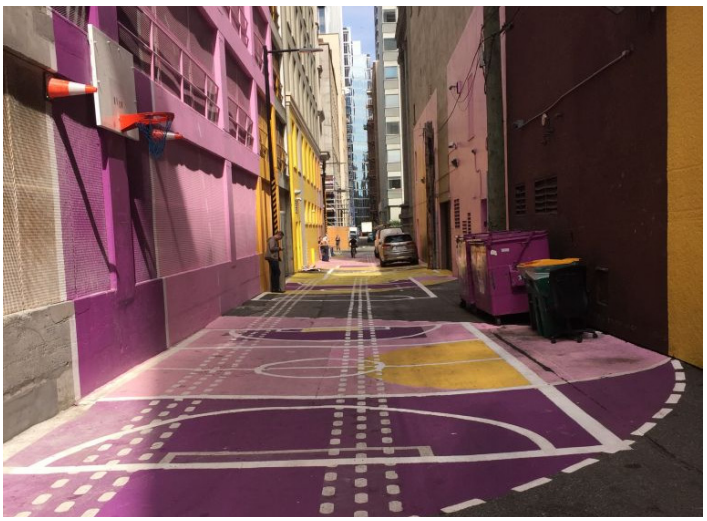
Three floors of discreet parking nestled between the ground floor and the upper office floors, Cincinnati
Source: Garrett Rowland, Gensler

8.6 Access and Servicing

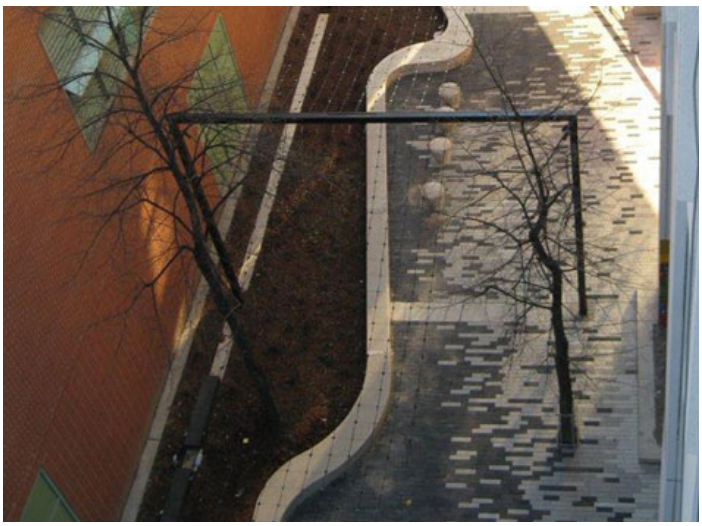
The University Districts will ensure buildings are designed to accommodate internal servicing and loading functions with organized servicing points that minimize impacts on the pedestrian realm.

General Guidelines

- Consolidate access to parking and servicing at the rear of the building to avoid interrupting the frontage. Access to parking and servicing and other vehicular related functions should not detract from the use or attractiveness of the pedestrian realm.
- Where the site backs onto a natural feature or area, integrate servicing and loading architecturally or screen from sensitive features using vegetative berms or screens to reduce impact.
- Organize site access and servicing internally and centrally to reserve space for green space.
- Below grade facilities are encouraged for higher density, larger format sites (where bedrock conditions permit). Waste bin storage rooms, in all cases, are best placed in centralized locations indoors, and at the rear of buildings fronting onto a service lane.
- Seek opportunities to activate service lanes with lighting, murals, furniture, planting, and permeable paving for when they are not in use by servicing vehicles.



Maximized Space in Alley Oop Service Lane, Vancouver Source: Aditya Chinchure, Wander Vancouver



Street Furniture and Lighting in Market Lane, London Source: Damian Holmes, World Landscape Architecture