

6.0

University Green Network

The University Green Network (UGN) introduces a robust and connected network of rich and biodiverse natural features that provide significant ecological function and invaluable land-based opportunities for teaching and discovery. The UGN recognizes the interdependencies between ecology, hydrology, and a legacy of human use (e.g. Indigenous traditional uses, agriculture) and seeks to steward these areas within the Nature Areas and across the Symons Campus.

The University Green Network:

- Meets Trent’s commitment to 60 per cent of the Symons Campus as Nature Areas and green spaces and provides opportunities to exceed this value through stewardship;
- Fosters and supports environmental stewardship across the Symons Campus to support biodiversity;
- Integrates wildlife connections across the campus and within the local and regional landscapes;
- Recognizes and supports the hydrologic system;
- Maintains and/or enhances natural areas and supports efforts to achieve net benefit; and
- Infuses naturalized spaces in the built environment to cultivate opportunities for positive interaction with our environment.

Policy +

Some components of the UGN will be defined by policy or legislation (e.g., the City’s Natural Heritage System, Species at Risk habitat); policy-based protections are recognized and will be protected for. The UGN extends beyond policy by integrating a holistic approach that recognizes interactions between natural and hydrologic systems, integrates other

green spaces that are not captured by policy (e.g., pollinator gardens, pocket forests, etc.), and provides opportunities for environmental teaching and innovation that augment Trent’s experiential learning offerings and contribute to environmental discourse and research.

A Living System

The UGN will evolve over time to ensure new elements and details can be integrated. This includes integrating the City’s Natural Heritage System (once in force and effect), updated feature mapping (e.g., as delineated through site-specific studies), stewardship actions, and other initiatives that align with the UGN.

Process

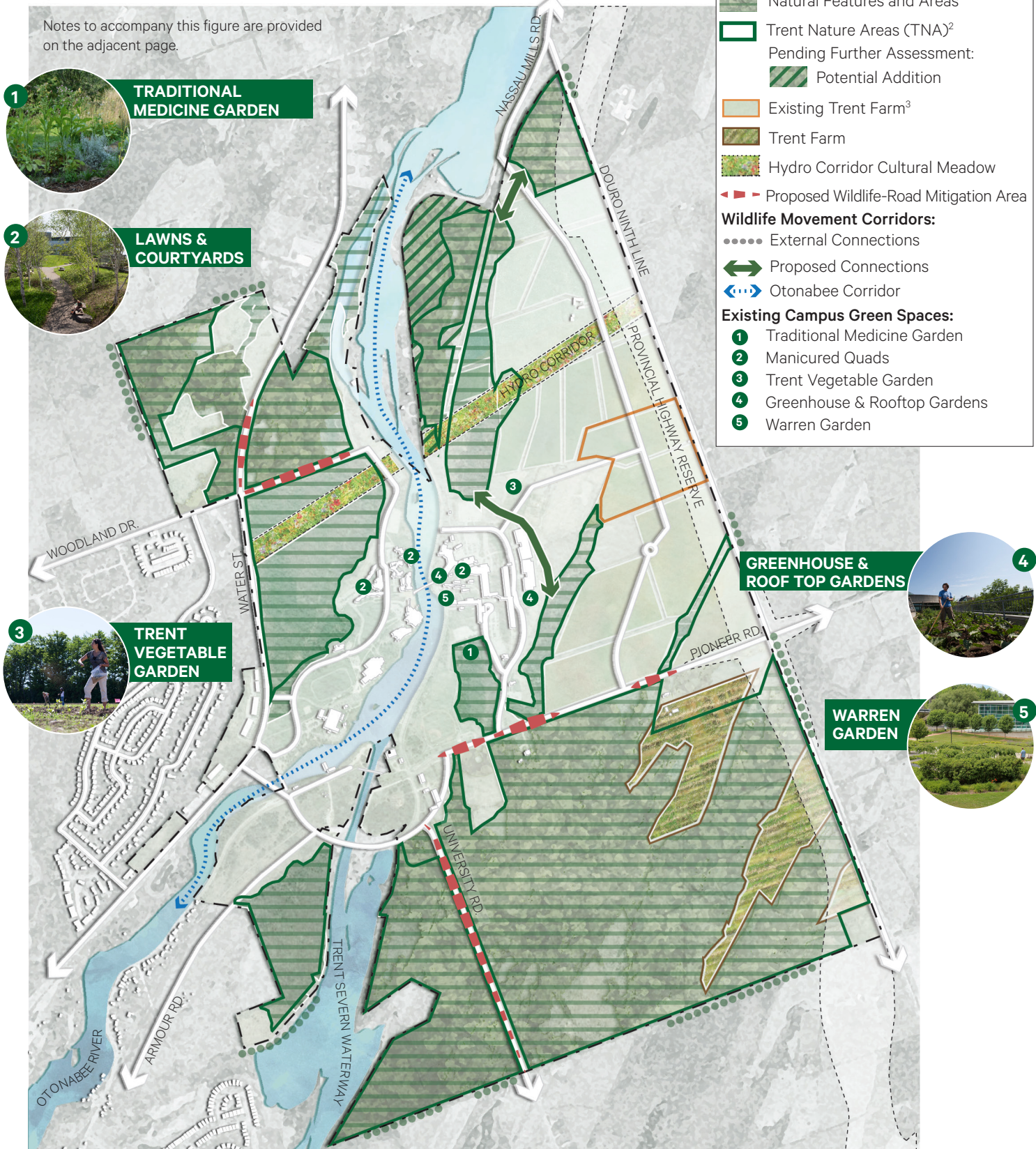
Part IV of the TLNAP, Towards Implementation, provides targeted guidance to assist in the transition from vision to action and in setting standards for studies and land use planning initiatives. The first step for implementing the UGN and active stewardship for the Nature Areas, is through the Systems-Level Plan (Section 14.1).

Notes to accompany Figure 13:

1. The UGN comprises a diverse system of spaces and includes lands protected by the Provincial Policy Statement and City of Peterborough Official Plan, the Trent Nature Areas, and areas and features that are integrated into built areas in support of the ecological and hydrological function of the larger system.
2. Management approaches for the stewardship of the Trent Nature Areas are outlined in Part III of this Plan.
3. The current Trent Farm will remain in operation in situ until the new location south of Pioneer Road is prepared and made suitable for the relocation. The transition and relocation process will be coordinated in consultation with the Trent School of the Environment
4. 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.

Figure 13: A Robust University Green Network

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



LEGEND:

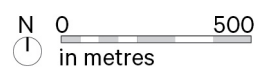
- Trent University Boundary
- Natural Features and Areas
- Trent Nature Areas (TNA)²
- Pending Further Assessment:
 - Potential Addition
- Existing Trent Farm³
- Trent Farm
- Hydro Corridor Cultural Meadow
- Proposed Wildlife-Road Mitigation Area

Wildlife Movement Corridors:

- External Connections
- Proposed Connections
- Otonabee Corridor

Existing Campus Green Spaces:

- Traditional Medicine Garden
- Manicured Quads
- Trent Vegetable Garden
- Greenhouse & Rooftop Gardens
- Warren Garden



GOALS FOR THE UNIVERSITY GREEN NETWORK



LEARNING AND DISCOVERY

- Provide opportunities for outdoor, hands-on learning and encourage a dynamic interplay of research and teaching in outdoor settings.
- ⊗ Integrate Indigenous Traditional Knowledge as a means by which to understand the world and learn from the land.



ENVIRONMENTAL RESILIENCE AND INTEGRITY

- Maintain, restore, and enhance the University's natural landscape as an ecologically resilient and connected system with a rich biodiversity of plant and animal life to sustain current and future generations.
- Strive for a net benefit to the University's natural areas and systems on the Symons Campus, e.g., by directing recreational uses to less sensitive areas and integrating environmental features into the built environment, and/or through restoration or enhancement activities.
- Apply principles of environmental stewardship and biodiversity supportive actions across all spaces on campus, and acknowledge the need for decision makers, organizations, community groups, volunteers, and students to be caretakers of the land.
- Combat climate change in ways that ensure clean air, clean water, and a resilient ecosystem, such as by providing more permeable land cover, minimizing erosion and the effects of flooding, and contributing to the urban forest canopy.
- ⊗ Integrate and apply Indigenous Traditional Knowledge values into practice to inform land use decision making and enhance understanding of the Indigenous environmental worldview.



ECONOMIC RESILIENCE, LEADERSHIP, AND INNOVATION

- Integrate inviting spaces for the community to interact with nature and with the University campus.
- ⊗ Bolster Trent University leadership and expertise in environmental and Indigenous studies with the University's stewardship practices.
- Invite tourism (including responsible eco- and agri-tourism opportunities through attractive recreational and educational offerings).



SOCIAL RESILIENCE, COMMUNITY, AND INCLUSIVITY

- Understand and promote the physical and psychological benefits and opportunities presented by green spaces.
- Provide a wide variety of programmatic opportunities throughout the campus that address different student and community needs, and ensure equitable access to these spaces. Programs may include teaching, research, and experiential learning; spaces open for celebration and congregation; quiet spaces of respite and outdoor study; and outdoor athletics, recreation, and wellness.
- ⊗ Integrate Indigenous spaces and placemaking elements, such as traditional medicine gardens, permanent or temporary public art, and interpretive and educational signage, to ensure the Symons Campus is inviting to the Michi Saagiig and Indigenous students, faculty, and visitors.

6.1 Management of the UGN

The UGN comprises a diverse network of spaces that require varying degrees of integration, protection, stewardship, and management. It extends biodiversity and ecosystem objectives beyond designated areas and the Trent Nature Areas and into the built landscapes on campus. The UGN includes three levels of protection, management and integration:

- » Conformity with and implementation of policy-based and legislated protections;
- » Stewardship and restoration of the Trent Nature Areas (Part III); and
- » Nature-inclusion and systems-based planning for development and land use (Sections 6.3 and 7.3).

POLICY AND LEGISLATION

The Provincial Policy Statement and the City of Peterborough Official Plan shall direct the identification, assessment, protection, and management of the features and areas across the Symons Campus, as appropriate. Legislation and regulations providing protections for features and functions will be complied with (e.g., Endangered Species Act).

CITY OF PETERBOROUGH NATURAL HERITAGE SYSTEM

At the time of preparing the TLNAP, the City of Peterborough released a draft Official Plan, including mapping for a Natural Heritage System. The Natural Heritage System delineates areas, features, and linkages that will be protected for the long-term as required by the Provincial Policy Statement. It has been prepared in consideration of relevant guidance documents and good natural heritage planning practice.



Draft City of Peterborough Natural Heritage System

peterborough.ca/en/doing-business/natural-heritage-system.aspx

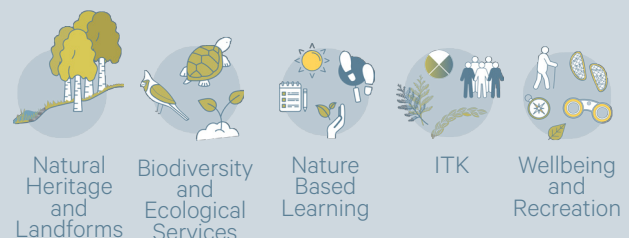
The City's draft Natural Heritage System was prepared using secondary source information and desktop analysis; mapping has been prepared through a preliminary application of criteria set out in the Official Plan. As such, feature assessments against proposed municipal policies, and feature delineation / limit confirmation are required through site-specific study.

Upon adoption of the draft Official Plan, the policies of the new Official Plan will come into force and effect, including criteria and policies associated with the Natural Heritage System. At this time, mapping of the UGN should be updated to reflect the confirmed Natural Heritage System for the City of Peterborough.

STEWARDSHIP OF THE NATURE AREAS

The Trent Nature Areas comprise the largest portion of the UGN. These areas exemplify the rich and diverse natural features and ecological services of the Symons Campus. They are a vital part of the Campus and the broader community. **More guidance on the management of these areas is provided in the Nature Areas Stewardship Plan (Part III).**

The Trent Nature Areas are guided by unifying values that embody the vision and goals of the Nature Areas:



6.2 Composition of the UGN

The UGN comprises diverse types of land cover that support natural and hydrologic systems. These include natural features and areas, peri-natural, or constructed features (e.g., vegetated swales) that have ecological benefits, and areas that support the hydrologic function of the landscape. Not all features / areas that may contribute to these classes are necessarily mapped.



Natural Features and Areas

includes provincially significant and designated natural heritage features (e.g., Provincially Significant Wetlands, Significant Wildlife Habitat, City of Peterborough in force and effect Natural Heritage System), the

wildlife corridors that connect them, and fish habitat. Other features and areas will be considered for inclusion within the UGN through site-specific studies (e.g., an Environmental Impact Study).

Ecological buffers established as self-sustaining vegetation are considered part of the UGN upon establishment (i.e., are planted and functioning), which recognizes their contributions to natural areas and habitats across the campus. Existing and proposed wildlife corridors to connect the system are also part of the UGN. Newly proposed wildlife corridors should be established on the landscape and maintained with the primary objective of providing movement opportunities and connectivity.



Ecologically Supportive

Features and Areas includes features that are semi-natural in form or are managed to achieve a benefit to, or have a supportive aspect for biodiversity, ecological, or hydrologic functions. This can

include, but is not limited to: pollinator gardens, infiltration galleries, native plant-based landscaping, pocket forests, naturalized stormwater, regenerative agriculture, and food production areas.



Hydrologically Supportive

Features and Areas includes open, permeable spaces on campus for their contributions to the hydrologic system and ensures recognition of their supportive function in systems-based planning.

Areas such as manicured quads and natural and manicured sports fields, headwater drainage features and watercourses, and their associated riparian areas (if applicable) are considered part of the UGN.

FEATURE AND AREA TYPES

The following features and areas are organized by the UGN composition to demonstrate the various ways in which they interact with other campus wide elements including the City's Natural Heritage System, the Trent Nature Areas, and the University Districts.



Table 1: Composition of the UGN

- A** Natural Features and Areas
- B** Ecologically Supportive Features and Areas
- C** Hydrologically Supportive Features and Areas

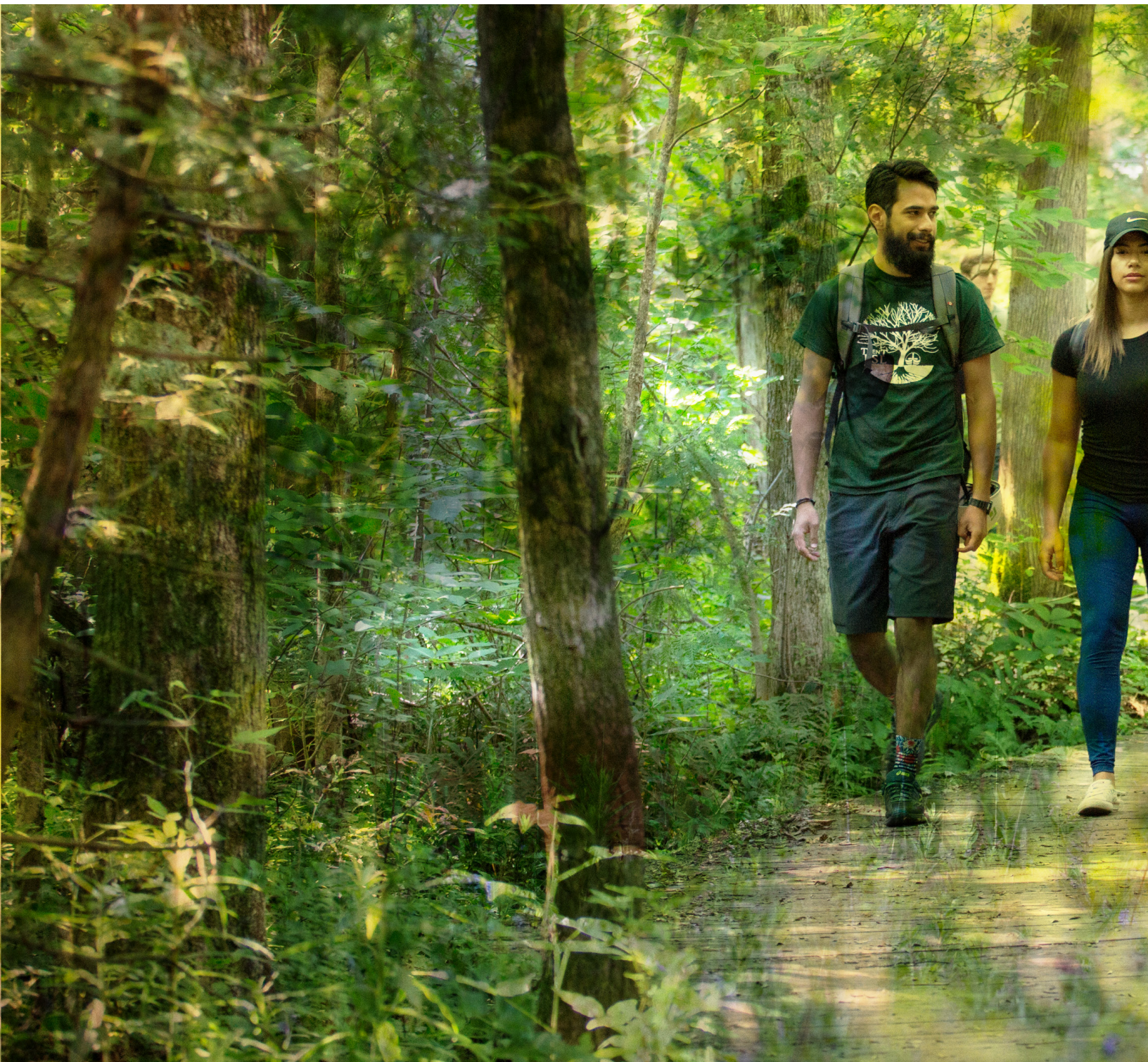
CAMPUS-WIDE UGN FEATURES AND AREAS

			City Natural Heritage System ¹	Trent Nature Areas ²	Nature Infused in Built-up Areas
A	1 WETLANDS		✓	✓	
	2 WOODLANDS		✓	✓	✓
	3 OPEN COUNTRY HABITATS		✓	✓	✓
	4 BUFFERS		✓	✓	✓
B	5 WILDLIFE CORRIDORS		✓		✓
	6 REGENERATIVE AGRICULTURE			✓	✓
	7 NATURALIZED GREEN SPACES			✓	✓
C	8 MANICURED QUADS				✓
	9 NATURAL AND MANICURED SPORTS FIELDS				✓

1 The City's Natural Heritage System delineates features and areas as required by the Provincial Policy Statement. Not all features listed will be considered significant. Only those features captured in the City's in force and effect Natural Heritage System mapping are included.

2 Features and areas listed under the Trent Nature Areas are consistent with the Nature Areas Stewardship Plan, and are not inclusive of all features and areas located across the campus for any given categories.

University Green Network Features and Areas



A Natural Features and Areas

B Ecologically Supportive Features and Areas

C Hydrologically Supportive Features and Areas

1, 2, 3, 4

5, 6, 7

8, 9



1 Wetlands

A Natural Features and Areas



Forested Wetlands in Nature Areas, Trent University

Wetlands have retained a prominent place on the landscape of the UGN. They are part of a circulatory watershed system made up of streams, rivers, and lakes. Everything in the watershed is connected, and our actions upstream can affect conditions downstream. Trent University is committed to making sure the watershed is a national and global model of best practice for sustainability.

Many of the wetland communities present in the UGN are forested wetlands. Marshes are another prominent wetland type occurring across the Symons Campus (e.g., Wetland Complex Nature Area) and in association with inlets and bays along the Otonabee River. One Provincially Significant Wetland has been designated within the Symons Campus: the Nassau Mills Wetland Complex, with other wetlands occurring across the local landscape.

Wetlands play an important role as nature's sponge, reducing flooding by storing water and releasing it slowly during dry periods, and managing sediment, debris and ice in order to support natural river function and flood protection. Wetland plants act as filters and help remove contaminants from water. They also contribute to a healthy watershed by providing habitats. They are major accumulators of carbon stores, making them a sink for atmospheric CO₂. These features interact with and support surface features (e.g., watercourses) and have potential for interactions with local groundwater systems.

Maintaining and improving the health of the watershed is vital to accommodate changes resulting from climate change.



Wetland Plants in Nature Areas, Trent University



Wetland Plants in Nature Areas, Trent University



Wetland Plants in Nature Areas, Trent University

2 Woodlands

A Natural Features and Areas



Large Areas of Woodlands, Trent University

The Symons Campus boasts large areas of woodlands. Some forest units show their cultural heritage strongly (e.g., cultural woodlands, plantations) others have established more natural states or represent those features that were retained on the landscape throughout its agricultural past. The Phase 1 Preliminary Significance Assessment identified a number of potentially Significant Woodlands. Significant Woodlands are defined in the Provincial Policy Statement as ecologically important in terms of features (such as species composition, age of trees, and stand history); functionally important due to contribution to the broader landscape (such as location, size, or the amount of forest cover in the planning area); or economically important due to site quality, species composition, or past management history. Preliminary findings presented in the Natural Heritage Report will be confirmed or updated through site-specific study, which may include changes to levels of significance.

Woodlands create a more comfortable microclimate, and offer habitat for birds, pollinating insects such as butterflies, and other wildlife. Woodlands of varying size offer a range of habitat opportunities on the landscape. Beyond that, woodlands offer opportunities for low impact jaunts through which, studies show strong improvements to mood and attention span, and even enhanced psychological stress recovery.

Cognizant of their significance and sensitivity, measures should be taken to integrate woodlands into proposed developments by recommending edge protection, restoration planting, invasive species management, tree preservation during construction and post construction, and grade adjustments.



Woodland Plantation near Symons Campus, Trent University



Walks through Woodland, Trent University



Autumn Colours in the Nature Areas, Trent University



3 Open Country Habitats

A Natural Features and Areas



Source: Yelantevv, Shutterstock

Ontario is home to many different types of open country habitats, including tallgrass prairies, shrublands and savannas. Open country habitats are one of the fastest declining habitat types in southern Ontario. As availability of these habitats decreases, the risk to species that rely on these habitats increases. Several Species at Risk and species of conservation concern use these habitats, and their presence on the landscape will depend on the presence of these habitats. More broadly, open country habitats provide habitat for a broad range of insects (including pollinators), birds, herpetofauna (amphibians, reptiles) and mammals.

There is a unique opportunity to enhance or introduce these habitats within the Trent lands to combat issues of habitat fragmentation and to provide continuous, suitable habitat and connections for wildlife movement. Areas of opportunity to integrate meadow landscapes include the hydro corridor, rooftops of buildings, and as features that are integrated into green spaces.

Open country habitats should be designed and implemented in a manner that respects the existing natural features of the Trent lands. An assessment to delineate appropriate locations for implementation of a meadowway will be required. Meadowway treatments provide informational signage that elaborates on their importance in sustaining biodiversity and protecting Species at Risk. They can also contribute to the outdoor teaching, research, and learning spaces accessible to Trent University students and faculty. With a regular maintenance regime required to prevent or slow the natural succession process, students have an opportunity to be actively involved in reinstatement initiatives and participate in their ongoing stewardship (every 3-5 years).



Scarborough Butterfly Trail, Toronto.
Source: Catherine Mackenzie, Twitter



Pollinator Habitat in the Meadoway, Toronto.
Source: Canadian Wildlife Federation



Grassland Stewardship at Malcomson Eco Park
Source: Claire Theijsmeijer, Friends of Malcomson Eco Park

4 Buffers

A Natural Features and Areas

Ecological buffers are an important tool in land planning that address potential impacts associated with land uses adjacent to sensitive features. The ecological value of the buffer is the primary consideration, with aesthetic value being secondary. Buffers support the mitigation hierarchy in avoiding some impacts, minimizing, or mitigate other impacts. They can also provide enhancement opportunities in addition to their mitigative functions through ecological design.

Enhancement opportunities that integrate habitat structures or other elements that enhance, support, or extend the ecological function of the natural feature into the ecological buffer may be identified through the site-specific studies (e.g., Environmental Impact Study, Nature Area Management Plan). These enhancements may contribute to achieving net benefit to the larger natural system.

Buffer widths may be set out through regulatory processes or policy, and will consider the form, function, and sensitivity of the feature. They will also consider the potential disturbance anticipated from the proposed land use (type, design, occupancy, etc.).

For more details on how to determine buffers, the mitigation hierarchy, and how to determine buffer enhancement opportunities, refer to Part IV - Towards Implementation.

Buffer Guidelines

- Employ the mitigation hierarchy in Part IV, Towards Implementation, to inform development and buffer design.
- Consider system-level values and functions (e.g., linkages) to inform buffer planning.
- Establish buffers through a site-specific study (e.g., Environmental Impact Study, Nature Area Management Plan) and set out environmental mitigation recommendations or design considerations (e.g., based on feature assessments, identify key sensitivities, and identify direction / early recommendations for consideration in the design).

TYPICAL ECOLOGICAL BUFFER

Basic buffering for root protection, hydrologic support, debris, and access

Offer supportive habitat opportunities such as pollinators, and foraging

Self sustaining native vegetation appropriate to the adjacent natural features



Width will vary based on feature being buffered, and will at a minimum follow regulatory requirements

POTENTIAL ENHANCEMENTS TO ECOLOGICAL BUFFERS

Contain design elements that provide enhancements to the form and/or function of the adjacent natural feature

Diverse native vegetation appropriate to adjacent natural features and complex topography

Incorporate habitat structures:

- Log / debris piles
- Rock piles
- Pit / mound design (topography),
- Snake hibernacula
- Raptor platforms or perching structure
- Bee hives



Figure 14: Examples of Treatments of Ecological Buffers

5 Wildlife Corridors

A Ecologically Supportive Features and Areas

The primary function of corridors is to maintain landscape permeability for movement of species to establish a connected system of natural areas. Corridors will vary in width depending on their length, function in the landscape, and the target species. Target species are identified based on the habitats being connected and anticipated species moving across the landscape in the location of the corridor.

Corridor design will focus on natural habitat conditions using native species. Habitat features may be added to provide suitable conditions for movement (e.g., cover objects) or provide stop-over nodes. Opportunities may exist to plan trails or buried infrastructure parallel or adjacent to a corridor as a means of effectively increasing the functional width; these areas are not to be coincident with (i.e., overlap) the corridor, but can provide supplementary buffering function(s).

Where corridors are identified, they will be designed through site-specific Environmental Impact Studies or Nature Area Management Plans and implemented through land development as landscape permeability in the area being altered. Where corridors are identified within existing built-up areas, they may be designed and implemented as independent projects (e.g., restoration opportunities) or through other project works, as appropriate (e.g., road improvements). Responsibility for improvements to roads to maintain connectivity will be based on road ownership; discussion and engagement with the infrastructure owner (e.g., the City of Peterborough) should be undertaken to determine needs and an appropriate approach.

Corridor Guidelines

- Primary function is to provide connections between features and habitats. This may include features and refuge for wildlife as it moves through the corridor.
- Corridor widths may be influenced by adjacent uses. Where compatible uses are positioned adjacent to a corridor, the overall corridor width may be narrower (e.g., stormwater, park spaces with naturalized areas).
- Some uses may be supported or encouraged adjacent to or within a corridor with appropriate design (e.g., trails, infiltration swales, buried linear infrastructure).
- Crossings of corridors by infrastructure should be avoided or minimized, where feasible. Where crossings are required, design should accommodate wildlife movement to avoid impacting the corridor function.
- Minor connections may be maintained or introduced through land use planning. This may include integration of hedgerows where possible, or along active transportation routes (e.g., trails) through design.

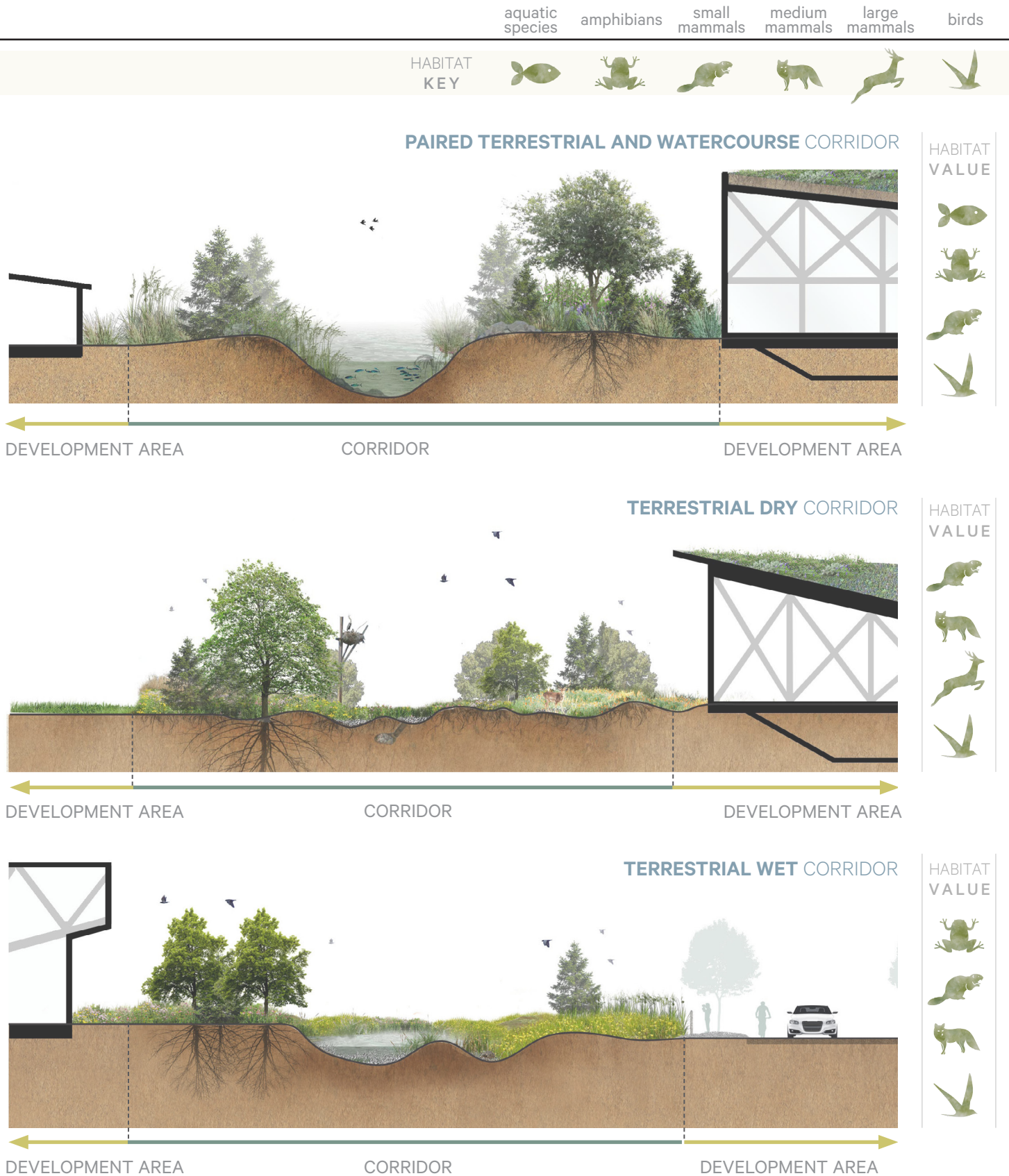


Figure 15: Examples of Wildlife Corridors

NOTE: Wider corridors are more conducive to facilitating movement by larger mammals and species.

6 Regenerative Agriculture

B Ecologically Supportive Features and Areas

The Trent University Symons Campus boasts a range of spaces and programs that promote sustainable agriculture and tackle food issues. The University manages approximately 35 acres (14 ha) of farmland that supports the Trent School of Environment and the Sustainable Agriculture and Food Systems program. Additional farm assets include the Trent Vegetable and Market Gardens that are student-run, and other spaces, including the Trent Apiary and a Traditional Medicine Garden. Staff, students and alumni stress the importance of developing the overall campus as a “land-based learning experience” or a “living laboratory” of which Trent’s farm assets play a vital role.

History of the Trent Farm Assets

The Field Gardens and Rooftop Gardens were the first of the current Trent Farm assets established in 2005 and 2006, respectively. Nearly two decades later, they have expanded in size and scope to offer growing spaces to faculty, students, and the Peterborough Community Garden Network.

Established in 2014, the Trent Farm aimed to provide interactive learning opportunities for students; provide research opportunities for advancing knowledge and understanding of sustainable agricultural practices; increase on-campus food production; develop partnerships with

sustainable food groups; and become a demonstration site for growers. Since its inception, the Trent Farm has become an important component of the Sustainable Agriculture and Food Systems program, and its long term security and prosperity is vital to the success of the program.

Together, the Trent farm assets present the University with expanded roles and academic resources; an interface with related disciplines (e.g., Indigenous studies); and an opportunity for wider sources of funding and research. The farm assets also respond to the **UN Sustainable Development Goal - #2 Food Security**, which underscores the need to advance sustainable agricultural practices and food systems under a holistic perspective with zero loss or waste of food.

Today, the campus is host to a number of faculty and student-run farm assets:

- Trent Farm
- Traditional Medicine Garden
- Rooftop Gardens
- Trent Vegetable Garden
- Trent Market Garden
- Trent Apiary



Rooftop Garden at Trent University



The Existing Trent Farm

The Trent Farm Vision

The future of the Trent farm is regenerative. Regenerative agriculture is designed to restore soil health and biological diversity from beneficial insects to micro-organisms and fungi. It presents an opportunity to integrate Indigenous Traditional Knowledge and engage with local communities.

The key is that it extends beyond the principle of “do no harm”, to generously give back to the living systems of which we are a part. It is a way of being that embraces circularity and nutrient recycling, stewardship and recognizes our responsibility to future generations that will inhabit the living world. Such a system combines optimization of food production with nature and biodiversity protection. By doing so, it also provides net benefits to the natural environment.

To foster this opportunity, the TLNAP relocates the Trent Farm from its current location on sloped, seasonally saturated land that is unsuitable for growing and threatened by the provincial highway reserve (Ministry of Transportation Ontario), to underutilized Trent farmland, which offer additional carrying capacities, diversified production, water regulation, rich soil and nutrient cycles, and habitat and wildlife

function. In its new location, the Trent Farm is accessible from the Campus Core and has servicing potential. It also provides the Trent School of Environment and the Sustainable Agriculture and Food Systems program with a demonstration site, which could be used to explore and advance practices and technologies that can contribute to the growing body of research related to the potential benefits of regenerative agriculture on the environment, and can therefore have a wider positive impact on agricultural practices in Ontario and beyond.


Trent also encourages the integration of productive spaces in, and within proximity to the Campus Core and University Districts. This may include the integration of new productive spaces such as an allotment garden at the University Integrated Seniors Village, an orchard within proximity to the Campus Core, among others.

The potential for, and location of, a smaller farm within the campus core will be explored, concurrent with the planning for the Trent Farm to relocate. Through further discussions, it is the University’s intent to facilitate a seamless transition to new space, where relevant, and to provide a platform for continued growth and prosperity of sustainable agricultural practices on Trent.



Current Conditions at the Proposed Trent Farm Location

Regenerative Agriculture Guidelines

- Provide opportunities for teaching, research, and learning. The Trent Farm and its network of food producing spaces will act as a resource to researchers, students and the community, and foster cross-disciplinary engagements with other departments on campus.
-  Incorporate ITK approaches and Indigenous engagement through collaboration with the Michi Saagiig and the Indigenous Studies program, as appropriate.
- Thoughtfully establish the Trent Farm to offer a hub that recycles biological nutrients to regenerate and capture the value of organic materials at each stage of decomposition, and similarly restores, repairs, reuses, refurbishes, and recycles nutrients that do not decompose.
- Incorporate regenerative and organic farming practices, including conservation tillage, cover crops, crop rotation, among other sustainable practices.
- Enhance visibility and accessibility to the Trent Farm from the Campus Core through wayfinding, and accessible and active mobility connections.
- Avoid changes in hydrology that may impact the amount and quality of water reaching the adjacent Provincially Significant Wetlands.
- Identify, restore, protect, and steward natural and cultural heritage features, where feasible and appropriate, by integrating the existing topography, hedgerows, historic stone walls, and other culturally-significant structures as identified by the University.
- Incorporate value-added infrastructure including a green house, outdoor pavilion, kitchen facility, shed, and storage facilities to support farm uses, and expand teaching and community integration opportunities. Infrastructure and buildings must be located outside of the Trent Nature Areas.



Trent University Campus Rooftop Garden



The Three Sisters Garden at Crawford Lake Conservation Area, a Collaborative Project between Ojibiikaan and Conservation Halton. Source: Ojibiikaan



Trent Science Complex Greenhouse

DEMONSTRATION

PRODUCTIVE LANDSCAPES

The productive landscape demonstrates how resilience, food security, and biodiversity can be linked through innovative landscapes to produce food in an urban setting. The Symons Campus has a long history of community-based farming, and this concept envisions agriculture integrated in central locations close to campus buildings. Students, staff, and visitors are encouraged to learn, volunteer, and explore the various flavours of local foods. In addition to benefiting from a convenient source of quality local food production and engaging with life sustaining natural processes, productive growing will help reduce the University's ecological footprint made by transporting and storing foods from distant places. Rather, the Symons Campus can become a centre of production, to help reduce food miles and as a consequence, reduce CO2 emissions. Value-add programming, including cafés (such as the Seasoned Spoon) and restaurants that utilize campus-grown foods, offer cooking lessons / workshops, and explore exciting combinations of seasonal flavours and organic produce in farm-to-table style settings.

The productive landscape offers opportunities for exchanging intergenerational, Indigenous and/or settler knowledge, and provides spaces for socializing and gathering. This could occur from simply passing through the site or engaging in conversations that are inspired through curiosity, to cooperation in maintaining the plants or through attending events like a weekly harvest or farmers markets. Members of the community who have an interest in farming may be encouraged to volunteer to tend to the gardens, strengthening the University's relationships with the local community.

A Green Thumb on Campus

- 1 Seasonal gardens and apiary
- 2 Indigenous plantings
- 3 Year-round greenhouse
- 4 Arboretum and orchards
- 5 Comprehensive educational signage
- 6 Seasonal programming and markets



1 Seasonal gardens and apiary



Source: Getty Museum



Source: David Sundberg, Archdaily

4 Arboretum and orchards



Source: Daniela Coray Landscapes



Source: Rachel Neilson

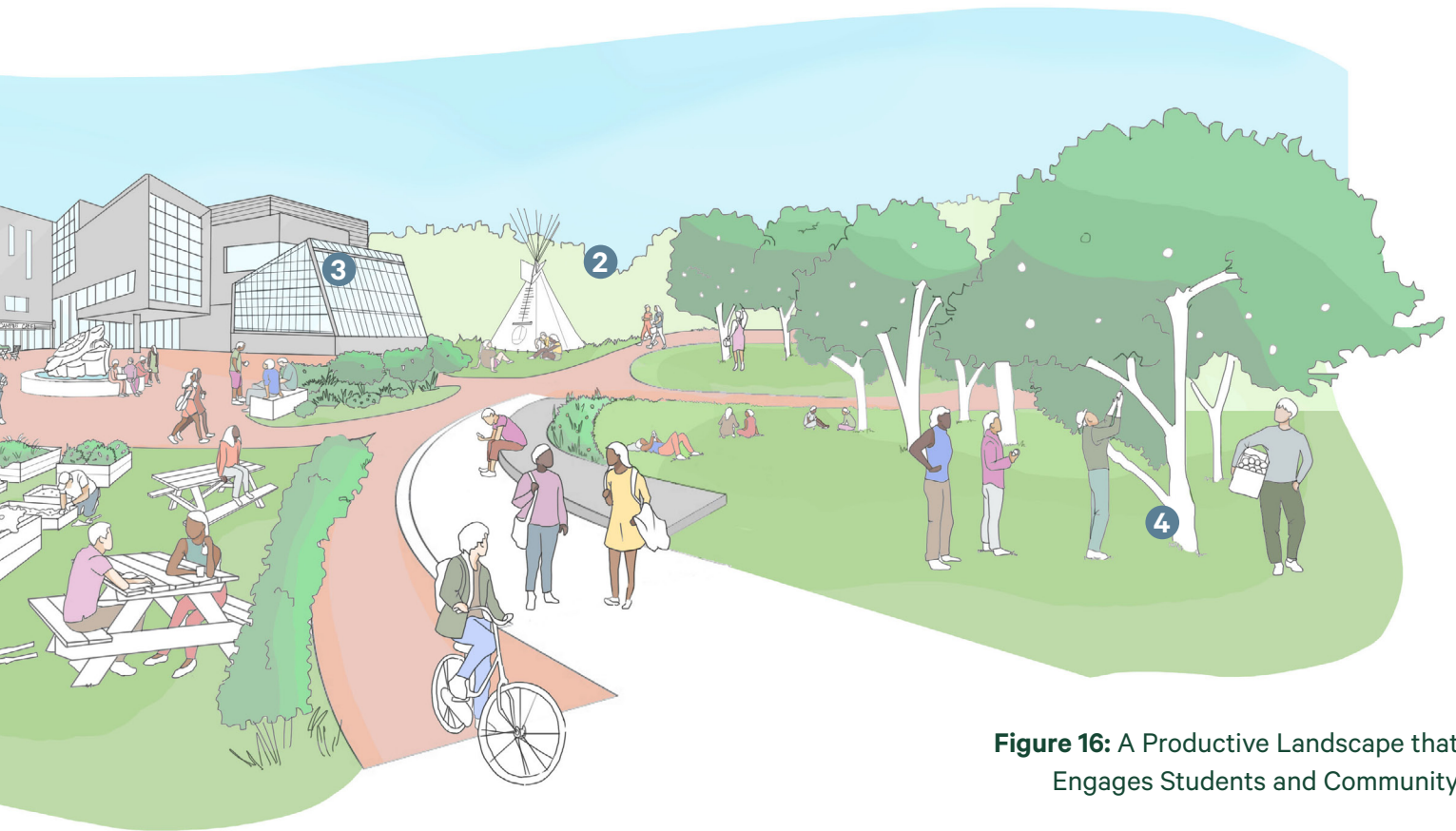


Figure 16: A Productive Landscape that Engages Students and Community

2 Indigenous plantings



Source: Mount Allison University



Source: Suzie's Farm, Flickr

3 Year-round greenhouse



5 Comprehensive educational signage



Source: Nuttshell Stonnington

6 Seasonal programming and markets



Source: Trent Market Garden



Source: Rosendal Stradgard



7 Naturalized Green Space

B Ecologically Supportive Features and Areas



Source: Ricardo Cardim

Naturalized green spaces may contribute to the Symons Campus by maintaining or improving air quality, stormwater management, and biodiversity.

As the campus evolves and new spaces are introduced, naturalized green spaces offer enhanced health and resilience of the Symons Campus, as well as the promotion of biodiversity and habitat integration in urban settings. These naturalized green spaces can take on a variety of forms. Naturalized landscapes may be introduced in more "wild" forms in new green spaces - for example, recreating a marsh landscape at the edge of existing and new buildings, or through the introduction of pocket forests, pollinator gardens or productive landscapes. These can also be introduced in more articulated forms, such as integrating pockets of tall, sweeping grasses, or meadowscapes within a manicured lawn setting.

In the case of existing spaces, the University will seek opportunities to integrate naturalized green spaces and shift landscaping towards native species dominant compositions, where possible.

New green spaces and buildings will work in tandem with existing natural features - utilizing their unique existing character as opportunity rather than constraint, working with the land in its natural state to promote a stable equilibrium between the built and natural components of the campus.



Productive Urban Landscape. Source: Google Sustainability



Built and Naturalized Interface, Trent Chemical Sciences Building



Rooftop Garden, Trent University

8 Manicured Quads

C Hydrologically Supportive Features and Areas



Lady Eaton College, Trent University



Trent Annual Elders and Traditional Peoples Gathering.
Source: Clifford Skarstedt/Examiner



Lady Eaton Lawn, Trent University



Integrated green space at Champlain College, Trent University

The University has a network of managed green spaces across the campus that include manicured quads such as the Lady Eaton Lawn, the Margery J. Warren Garden, and various sports fields. These spaces provide amenity, formal and informal gathering, and are often framed by the buildings around them.

While grassed areas provide limited ecological benefit, they serve to support hydrologic functions. They provide permeable surfaces that allow for infiltration of water, which supports groundwater systems and in turn support ecological features, they reducing runoff which helps avoid erosion, and supports management of water quantity and quality to receiving streams and wetlands.

These grassed areas also respond and interface with adjacent buildings, and provide ample space for regular activity, gatherings and celebrations. They accommodate arrival, create views, and facilitate movement and connections throughout the campus. Strategic plantings and environmental stewardship initiatives support biodiversity creation and stormwater management. To encourage comfortable usage, it's important that these spaces provide flexible seating and weather protection throughout the year.

New spaces for outdoor recreation may be introduced throughout the campus to provide restorative, passive, and active forms of sports and recreation, keeping the campus population active and healthy in body and mind.

9 Natural and Manicured Sports Fields

C Hydrologically Supportive Features and Areas



Peterborough City Baseball Field at Trent University

Trent University offers diverse athletic and recreational opportunities to its students and campus athletes. Varsity sports include curling, lacrosse, rowing, rugby, soccer, volleyball, cross country, golf, and fencing. The Trent Athletics Centre has state-of-the-art indoor and outdoor facilities that provide access to the Otonabee River, nature areas and associated trails.

While the outdoor spaces provide limited ecological benefit, they serve to support hydrologic functions. Natural lawns provide permeable surfaces that allow for infiltration of water, supporting groundwater systems

and in turn ecological features. They reduce runoff, which assists in combating erosion and supports in the management of water quantity and quality to receiving streams and wetlands.

New spaces outdoor recreation may be introduced throughout campus, and along with their hydrologic supportive functions, they support restorative, passive, and active forms of sports and recreation, contributing to an active and healthy campus population, in body and in mind.

6.3 Infusing Nature in Built-up Areas

The natural elements of the Symons Campus exist both within and outside of the Trent Nature Areas. The UGN presents an opportunity to bolster the natural system by infusing nature into built-up areas during the land use planning and development process, or through retrofits of existing areas. The UGN recognizes that the quality of land use across the campus should support the form and function of the Trent Nature Areas, and seeks to preserve and integrate natural features and functions into the University Districts, as appropriate.

The Symons Campus is envisioned to embed environmental stewardship through nature-inclusive, low-impact and low-carbon development. This may include the application of low impact design solutions such as permeable surfaces, and mitigative design approaches such as dark sky or bird friendly guidelines. It also fosters the integration of new natural open spaces such as learning gardens, arboretums, pollinator gardens, living walls, green roofs and so much more. These indoor and outdoor spaces can be used to demonstrate and test regenerative systems, showcasing Trent as a global leader. This approach reflects principles of regenerative design, and fosters a campus where students, the community and diverse ecosystems can thrive (refer to Section 7.3).

Supportive features and areas that serve to benefit larger network functions in the UGN include:

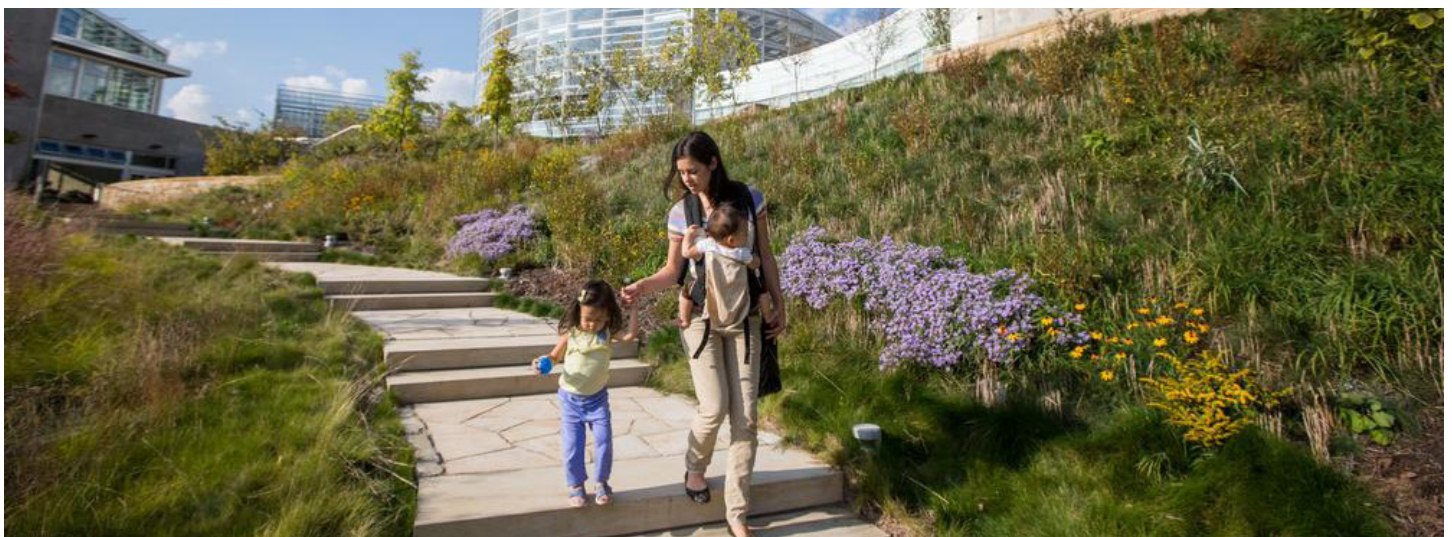
- **Wildlife corridors (Section 6.2, Feature Type 5)** – these valuable connections should be prioritized and established on the landscape to positively contribute to the larger system (refer to the Implementation Plan in Part IV for direction on corridor design);
- **Nature-inclusive design (Section 7.3)** – integrating diverse green spaces that support the ecological and hydrological functions of the UGN; and
- **Mitigating conflict between vehicles and wildlife (Section 8.2)** – exploring opportunities to improve conditions at wildlife crossing areas to mitigate existing and future conflicts.



Contemplative courtyard with integrated rainwater garden. Massey College. Source: The Cultural Landscape Foundation



Nature-inclusive design with preserved mature trees and integrated green roof. Centre for Global Conservation. Source: Architectural Record



Phipps Conservatory and Botanical Gardens, Pittsburgh
Source: Annie O'Neill