



# Campus Landscape

Fort Garry Campus - Winnipeg, Manitoba

**DUSTIN DAVID CLIFFORD DILTS**

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A practicum submitted to the Faculty of Graduate Studies of the  
University of Manitoba

In partial fulfilment of the requirements of the degree of

Master of Landscape Architecture

Department of Landscape Architecture  
Faculty of Architecture  
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## Abstract

This body of work began as an exploration of the University of Manitoba's Southwood Lands (a former eighteen-hole golf course), with the intention of proposing something new for the site. However, analysis and critical thinking led to the realization that there was a need to not only look at the Southwood Lands, but also the entire Fort Garry Campus.

The work evolved through a process of discovery, using a variety of methods from walking the site, documentation through photography, visits to the archives to uncover history, and mapping from afar.

One of the underlying objectives was to highlight the importance of taking additional time to understand a place prior to making decisions, revealing what makes a place unique, where the opportunities are, and what has been hidden over time. The idea of a site being a blank slate is dismissed, drawing on the importance of found conditions in decision making.

Looking deeper into a place also leads to a greater respect for what is already there. It is what we already have that is so often discarded, and seen as having no value in decision making (the natural areas in a city or the trees on a former golf course for example). It is also the ecosystems that are seen as scrubby and unkept that are the most complex systems and richest spaces for life. Once complex, biologically rich systems are erased there is no going back to them.

It is the existing conditions that are worth taking the extra time to investigate, a process that must occur prior to making design decisions that seek to remove or make new. It is only through looking, and looking carefully with un-objective eyes, and an open mind, that design can truly enhance what we already have.

This practicum works under the premise that landscape has value in its own right. The landscape is not empty space, not just a place to put buildings, not a luxury that can easily be cut from budgets, and certainly not something that can be considered an afterthought. Instead, landscape is valued as something which is working and active, an essential part of life on this planet that is becoming increasingly important with a rapidly changing climate.

The intellectual foundation for organizing ideas around approaching the site have been interpreted from Christophe Giro's 'Four Trace Concepts in Landscape Architecture'. They are in this order: landing, grounding, finding, and founding.

While Giro's four trace concepts organize ideas around approaching the site, there are three underlying principles that guide the entire body of work:

1. Landscape as infrastructure and organizing system;
2. Design as a process of discovery;
3. Investigation through multiple scales of inquiry.

A strategy for the Fort Garry Campus is where this work concludes, followed by reflections and lessons learned throughout the practicum process.



## Acknowledgements

Thank you...

***to Marcy;***

for allowing students to think for themselves, the freedom to make mistakes, providing enough guidance as to not get fully lost, but enough that the work is still my own.

for your influence on my education and life; your encouragement, dedication to the Faculty, and passion for design + landscape architecture.

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# 1

## Introduction

### Setting up the Problem at the City Scale

#### **Intention**

This practicum began as an exploration of the University of Manitoba's Southwood Lands with the intention of proposing something new for the site. However, analysis and critical thinking led to the discovery that there was a need to not only look at the Southwood Lands, but also the entire Fort Garry Campus. The main intention of this work evolved through a process of discovery from site visits and analysis that led to a deeper understanding of the importance of context to inform design decisions. The work begins at the scale of the city, setting up the larger context that the Fort Garry Campus and Southwood Lands are set within. A strategy for the Fort Garry Campus is where this work concludes, followed by reflections.

#### **Four Trace Concepts**

The intellectual foundation for organizing ideas around approaching the site have been interpreted from Christophe Giroto's 'Four Trace Concepts in Landscape Architecture'. They are in this order: landing, grounding, finding, and founding.

*"The primary focus of this highly intuitive and experiential approach to working with sites is to draw as much as possible from the potential of any given place and to assess which landscape elements might be of real significance for the design yet to come" (Giroto, 1999, p.60).*

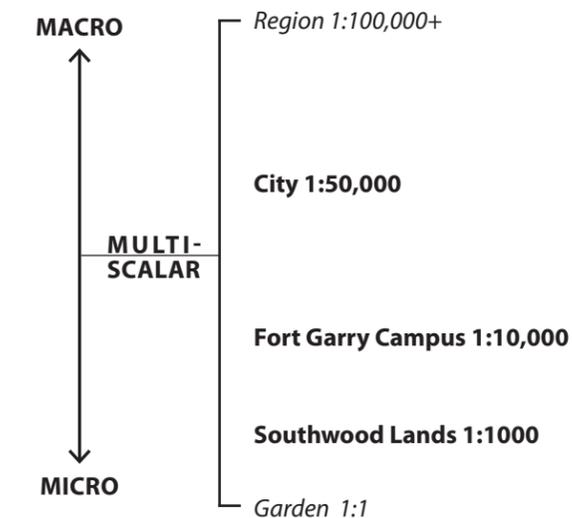
**Landing + Grounding**

Landing is the first encounter with a site at the beginning stages of a project. Christophe Girot describes this process as “touching ground and reaching for the confines of an unknown world” (1999, p.61). This is a narrowing in and moving from the entirety of the world to the confines of a site in which preconceived images are tested against the site itself. The initial experience of landing has a profound effect on ideas that can be present throughout the entire design process. “Landing also refutes the idea of a tabula-rasa approach to site design, where nothing can be learned or retained from a given site and where everything can be resolved by detached conceptual thinking” (Girot, 1999, p.62).

Grounding reoccurs indefinitely over the process of revisiting a site. “Grounding is more about reading and understanding a site through repeated visits and studies” (Girot, p.62). It is an understanding of elements that make a place unique and personal. The personality of the site comes from historic traces that are influenced by time (Girot, 1999).

**Finding**

Finding is the third trace concept that is an extension of landing and grounding. Finding is both searching for something and the discovery made. Ideas that originated upon landing on a site are strengthened, and initial intuitive assumptions about a place are often made more coherent through evidence. According to Girot, “it is rather difficult to speak of a method of finding because different activities yield different discoveries” (1999, p.63). “Few projects can control and manipulate the process of finding because of the importance of chance and indeterminacy in discovery” (Girot, 1999, p.64).



[1.0] Multiple Scales of Investigation

**Founding**

Founding is the final trace concept, what Girot calls the most significant trace act that is an accumulation of all three prior acts. It is about constructing or removing in order to bring newness to a place based on what traces already exist. “Founding may be either conservative - referring to some past event or circumstance - or innovative - importing something new to a place. Whatever the case, founding is always a reaction to something that was already there” (Girot, 1999, p.64).

**Three Guiding Principles**

While Girot’s four trace concepts organize ideas around approaching the site, there are three underlying principles that guide the entire body of work:

1. Landscape as infrastructure and organizing system;
2. Design as a process of discovery;
3. Investigation through multiple scales of inquiry.

**1. Landscape as infrastructure and organizing system**

We should seek to understand the natural processes working within a landscape as they are the foundations of life. An understanding of where these processes are occurring and what they provide (ecosystem services for example) are important in convincing others that the landscape is not just something appealing to look at, a luxury that can easily be cut from budgets, a place to put buildings, or something that can be considered as an afterthought. The landscape has value in its own right, and should be considered from the beginning of any project.

It has been well documented that exposure to nature provides many benefits to human health and wellness. But, the landscape is not just this, it is also working infrastructure that should be treated with respect and valued in decision making. For example, landscapes provide: air and water cleansing, climate regulation, habitat, food, and renewable resources (Sustainable Sites Initiative, 2009). Although we are often completely removed from nature in our everyday lives, we are completely reliant on it for our survival on this planet.

**2. Design as a process of discovery**

Design is as much about a process of discovery as it is about adding something new. This is important because we must understand the past and as well as the present if we wish to change the future.

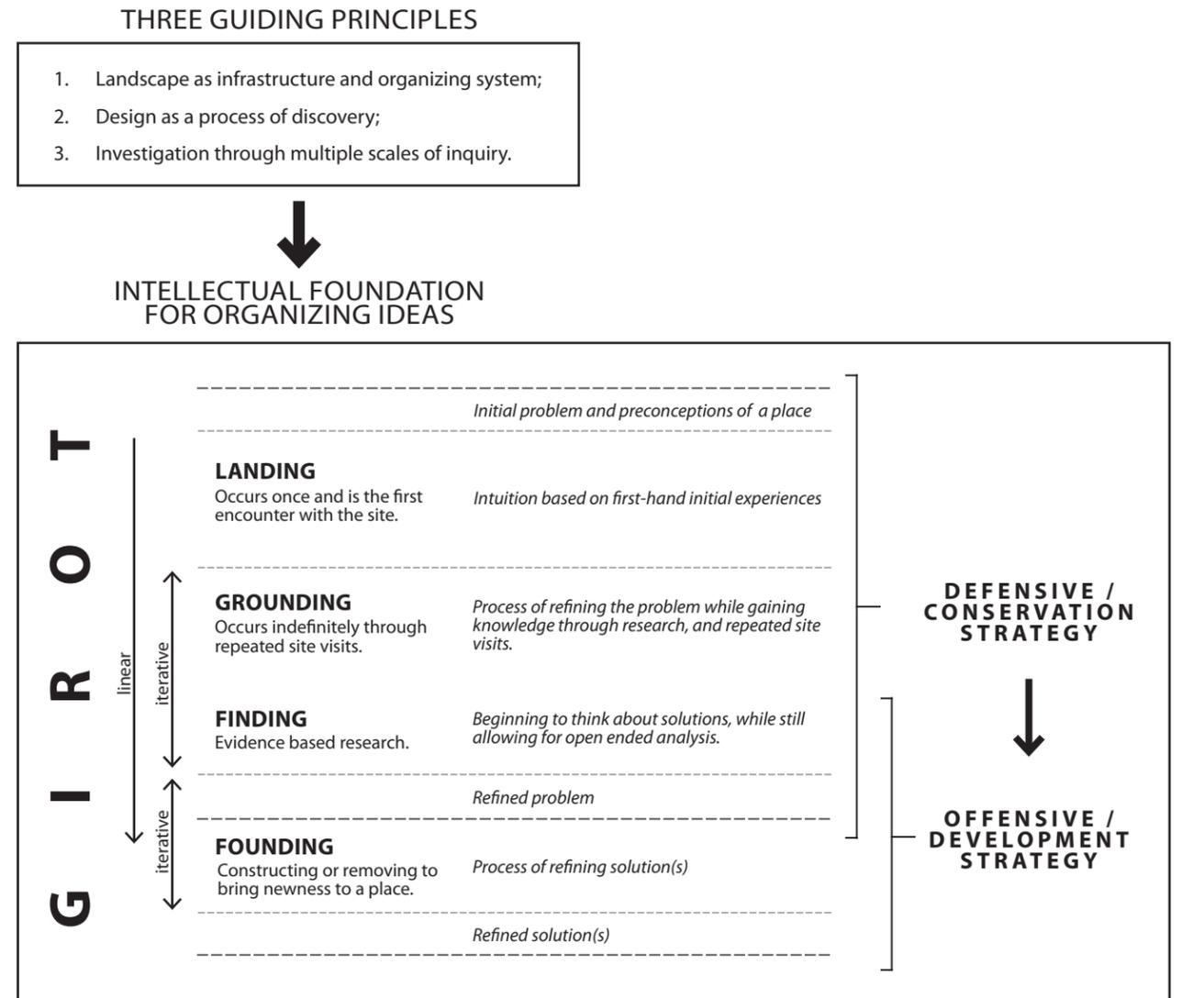
**3. Investigation through multiple scales of inquiry**

There is a relationship between a way of thinking at one scale versus another, that is to say thought processes cross scales. How we consider the macro or regional scale has implications for how we think and make decisions at the micro or garden scale. Girot’s four trace concepts are present at all scales of investigation, it is the method(s) used that change.

Looking at varied scales allows for a multiplicity of discoveries and adds richness to the work, in turn leading to more informed decision making. Shown in Figure 1.0 is a sample of the approximate range of scales that were used for this practicum. The City, Fort Garry Campus and Southwood Lands are situated somewhere between the regional and garden scale.

**Defensive / Offensive Strategy**

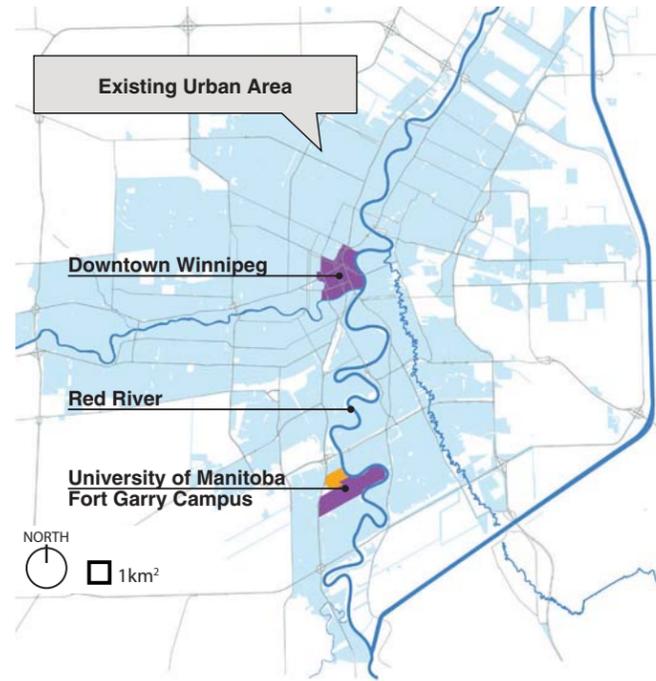
The ideas behind O2 Planning + Design’s defensive (conservation) strategy and offensive (development) strategy are intrinsically related to Girot’s Four trace concepts in the sense that both strategies are a response to existing conditions on the land. The defensive strategy treats landscape as infrastructure, and is arrived at through discovery and investigation at multiple scales. The defensive / offensive approach is described in more detail later in this chapter.



[1.1] Guiding principles and intellectual foundation for work

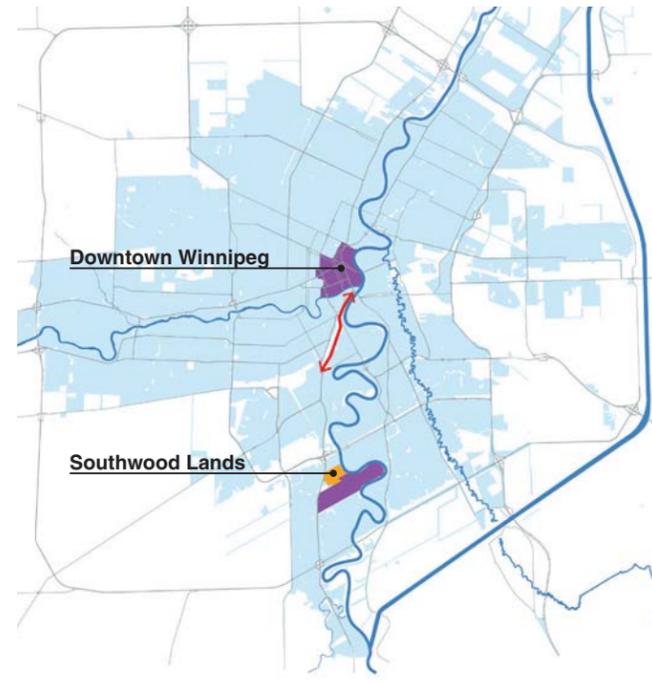
# City Scale, the Big Picture

This section sets up the larger context that the Fort Garry Campus and Southwood Lands are found within.



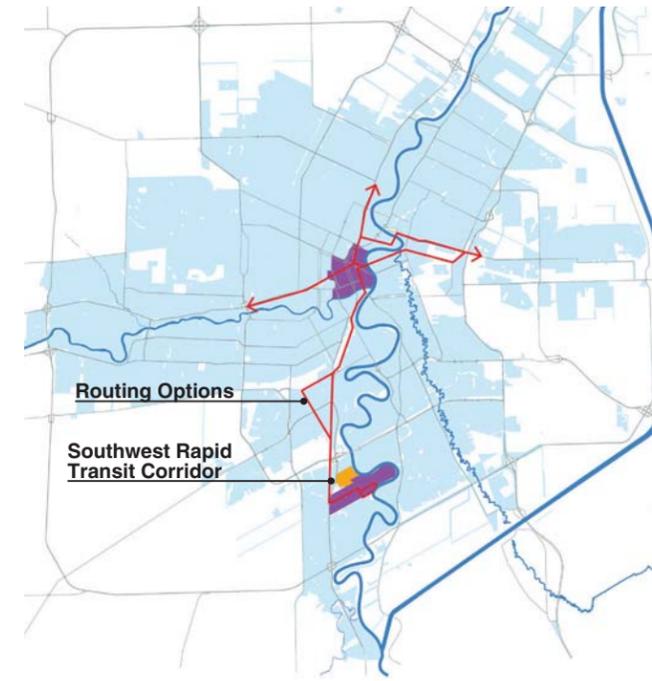
[1.2] Site Location

Located 10km from the heart of downtown Winnipeg, the site of study (Southwood Lands) is located adjacent to the University of Manitoba Fort Garry Campus along the Red River.



[1.3] Existing Rapid Transit Line and the Southwood Lands Site

Phase 1 of the Southwest Rapid Transit Corridor opened in 2012, providing a partial 3.6km link between the downtown and the university campus.



[1.4] Proposed Rapid Transit Network to 2031

The City of Winnipeg Transportation Master Plan has set 2016 as the target for completing phase 2 of Southwest Rapid Transit corridor to the University of Manitoba. Current best case scenario will not see the corridor opened until 2018.



[1.5] Where will this growth go?

Where will 180,000 new residents go? Growth will come from an increase in immigration, an increase in people coming to Winnipeg and a decrease in existing people leaving (OurWinnipeg, 2011).

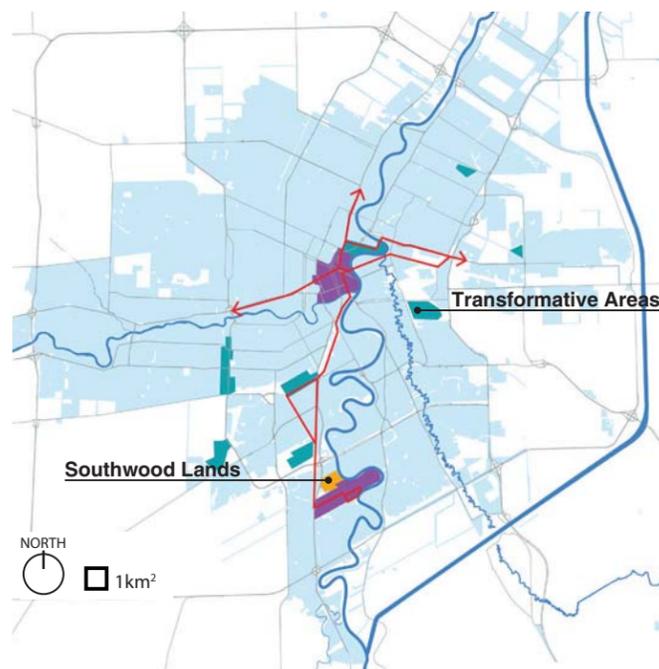
**47,934** HECTARES OF EXISTING URBAN AREA  
118,447 ACRES

**675,100** EXISTING POPULATION<sup>1</sup>

**14.1** OVERALL DENSITY OF PEOPLE PER HECTARE  
5.7 PEOPLE PER ACRE

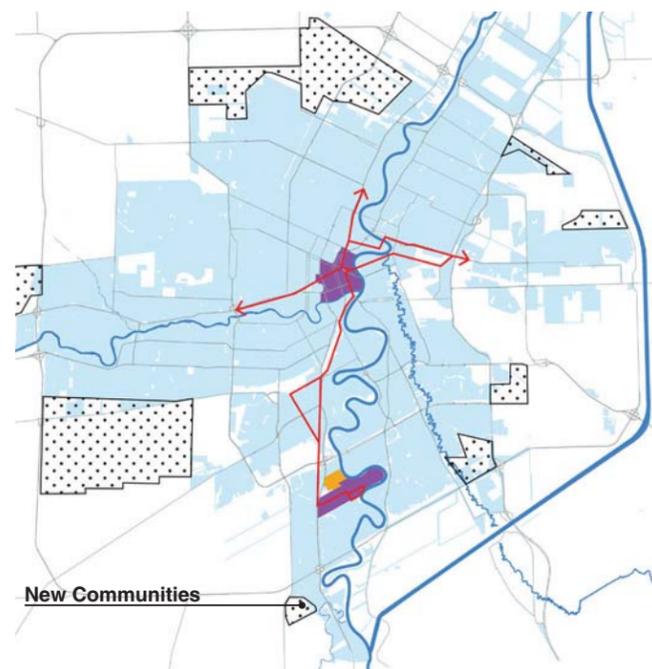
**180,000** PROJECTED NEW RESIDENTS BY 2031<sup>1</sup>

1. OurWinnipeg, 2011



[1.6] Transformative Areas (City of Winnipeg, OurWinnipeg)

The Southwood Lands has been identified as one of eleven major redevelopment or “transformative” areas which are described in OurWinnipeg as “areas where significant change is anticipated to present the best opportunity for accumulating the most sustainable manner of significant growth and change” (p.28, 2011). Transformative areas account for 650 hectares (1605 acres) of the existing urban area.



[1.7] Proposed New Communities (City of Winnipeg OurWinnipeg)

This is in contrast to areas identified as New Communities, described in OurWinnipeg as “large areas identified for future urban development and are not currently served by a full range of municipal services” (p.38, 2011). They are found at the edge of the existing city structure. New Communities will account for 5452 hectares (13,372 acres) of new (sub)urban area.

### A Discussion of OurWinnipeg

This discussion is not about dismissing the diligent and hard work that was done by the many people that helped to create OurWinnipeg. However, it should be noted that the existing planning document conceives all urban development as a superimposition upon the landscape, irrespective of its structure and underlying natural processes.

The purpose of this discussion is to provide an alternative lens through which to see the city, and in the process to start a conversation about how to make future planning documents more holistic by considering land and landscape issues. The city is a landscape; the city is also within a landscape and fully reliant on the processes that create life for its survival. We have come to ignore and forget the land which we rely upon.

### First, Some Background Information

OurWinnipeg begins by asking a number of questions:

- “How are we going to accommodate growth and change?”
- How do we capitalize on growth while making sure our city stays livable, affordable and desirable?
- How do we make sure that all Winnipeggers benefit from this growth?
- How do we maintain and enrich what we value while finding room for a growing population?

“OurWinnipeg, the City’s new municipal development plan, answers these questions and positions Winnipeg for sustainable growth, which is key to our future competitiveness” (OurWinnipeg, 2011, p.2).

The planning document continues by stating that:

*“Sustainability is part of how the City does business, and is reflected in policies and programs that respect and value the natural and built environments—protecting our city’s natural areas and heritage resources. We act as a corporate role model for social, environmental and economic sustainability, and measure and report progress in key corporate and community sustainability areas”* (OurWinnipeg, 2011, p.3).

The document furthers the discussion about growth in relation to a three pronged approach to sustainability:

*“To accomplish this, growth will be focused on areas that will best respond to city-building objectives, including social, economic and environmental sustainability”* (OurWinnipeg, 2011, p.33).

**The word ‘density’ is mentioned *twelve times* in OurWinnipeg, yet there is no definitive definition in what this actually means. No quantitative goals are set to measure ongoing progress.**

**Based on calculations using the City of Winnipeg’s projected population and urban growth footprint, overall density will increase from 14.1 people per hectare to 16.2 people per hectare (5.7 people per acre to 6.5 people per acre); a 13% increase.**

**650**

1,605 ACRES

HECTARES OF EXISTING URBAN ARE DESIGNATED AS TRANSFORMATIVE AREAS

**5452**

13,372 ACRES

HECTARES OF NEW URBAN AREA / NEW COMMUNITIES

**52,889**

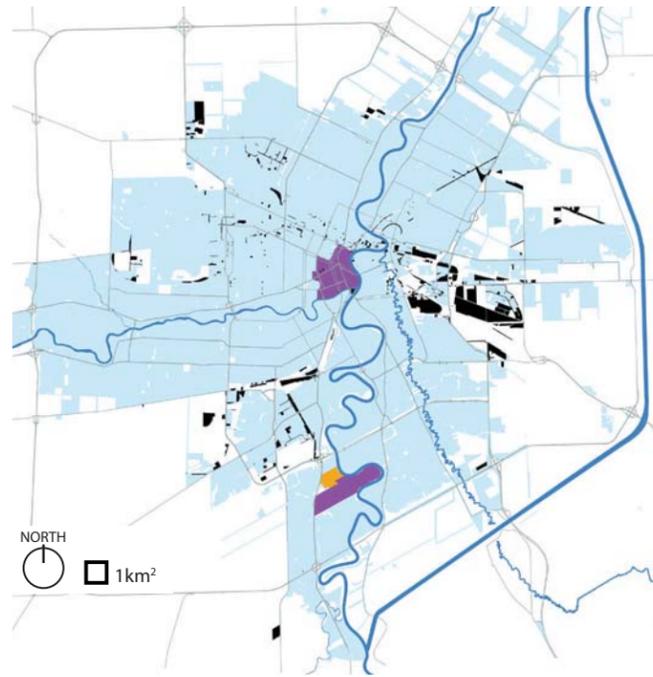
130,691 ACRES

HECTARES OF PROJECTED URBAN AREA BY 2031

**13%**

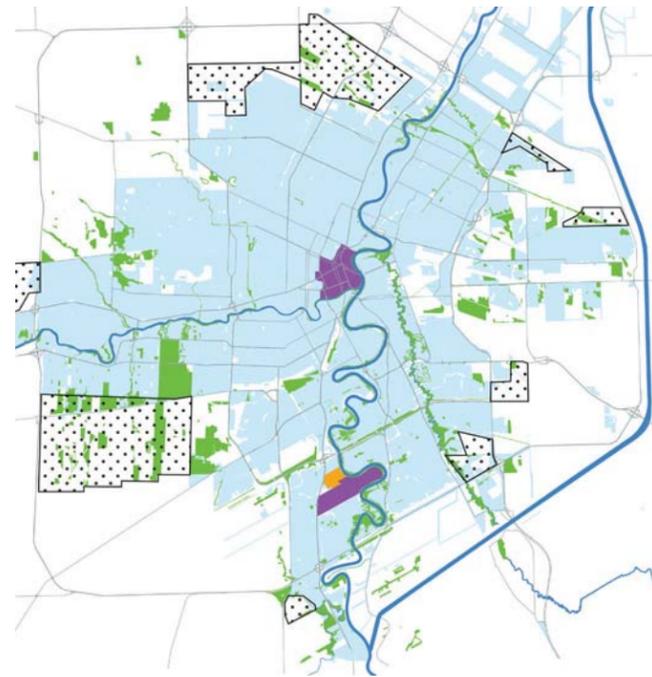
AN INCREASE FROM 14.1 TO 16.2 PEOPLE PER HECTARE

PROJECTED OVERALL DENSITY INCREASE BY 2031



[1.8] Vacant Industrial Sites

Only 14% of vacant industrial sites are captured under the category of transformative sites. This means that 86% or 745 hectares (1841 acres) of vacant industrial areas are still available for re-use.



[1.9] Natural Areas (City of Winnipeg)

“Natural” Areas account for 3397 hectares (8394 acres) of land. Of this, 16% or 543 hectares (1347 acres) occurs within areas designated as New Communities. These have been identified through environmental assessment.

### Terminology used in OurWinnipeg

OurWinnipeg uses a definition of sustainability acquired through the United Nation Brundtland Commission (1987), which defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (OurWinnipeg, 2011).

A search through the main OurWinnipeg document was done to determine the use of key words. It is interesting to note that ‘sustainability’ was used one hundred twenty seven times, ‘ecology’ was used zero times, while ‘environmental’ was used forty times but is never defined.

The purpose of this exercise was to help get a better understanding of the set of values that have gone into the OurWinnipeg planning document.

Word or Phrase	Frequency
<i>Ecology</i>	0
<i>Environmental</i>	40
<i>Ecological</i>	1
<i>Ecosystem</i>	1
<i>Beauty</i>	0
<i>Aesthetic</i>	1 in relation to: “planting pleasing vegetation such as flowers and ornamental grasses” (p.81)
<i>Nature</i>	1 time in relation to the exterior environment, and 3 other times as part of a general statement

[Table 1.0] Terminology used in Our Winnipeg (main document only)

Word or Phrase	Frequency
<i>Habitat</i>	0
<i>Tree</i>	0
<i>Fauna</i>	0
<i>Flora</i>	0
<i>Animals</i>	1
<i>Forest</i>	1
<i>Wetland</i>	1
<i>Traffic</i>	3
<i>Innovative</i>	4
<i>Density</i>	12
<i>Food</i>	15
<i>Healthy</i>	30
<i>‘Quality of life’</i>	29
<i>Land</i>	79
<i>Landscape</i>	1 time in relation to the exterior environment and 1 other time as part of a general statement
<i>Sustainability</i>	127
<i>Economic</i>	85
<i>Business</i>	34
<i>Social</i>	68
<i>Design</i>	34

**745**  
1,841 ACRES

HECTARES OF VACANT INDUSTRIAL SITES NOT CAPTURED UNDER OURWINNIPEG

**3397**  
8,394 ACRES

HECTARES OF NATURAL AREAS WITHIN THE 2031 CITY FOOTPRINT

**0**

THE NUMBER OF TIMES THE WORD ECOLOGY IS USED IN OURWINNIPEG

**127**

THE NUMBER OF TIMES THE WORD SUSTAINABILITY IS USED IN OURWINNIPEG



[1.10] An example of a natural area in the south-west portion of the city close to where I grew up (March 18, 2011)

### Natural Areas and Land Dedication by Private Developers

In the City of Winnipeg, developers are required to dedicate 10% of land within new developments as public space. The unfortunate reality of this is that there are no requirements to have the areas with the best ecological value set aside. If the City of Winnipeg is serious with its statements of protecting natural areas and sustainable growth then there ought to be standards in place that will protect areas that are most valuable from an environmental perspective.

### OurWinnipeg and Natural Areas within New Communities

Developers are required to dedicate 10% of land as public space, while 9.9% of the land identified as new community consists of “natural areas”, why not dedicate all of the lands classified as natural areas as public space?

This seems like a simple solution, with complex implications that come down to what society value and how hard we are willing to work to realize these values. Some questions come to mind:

- What are the ethical implications of decision making?
- What are the rights of current land owners versus the rights of society and future generations for basic rights such as clean air and water that these natural areas provide?
- What are the rights of the flora and fauna that do not have a voice in the process?
- Would land owners be willing to swap land for areas that are not deemed to be as important ecologically, but still have potential for profits? What should the role of government be in controlling and mediating these processes? The government has a responsibility to protect these areas. It can be the case that profit-driven businesses are more concerned with the bottom line than the ethics of decision making, meaning it is up to citizens to advocate for greater environmental overview by the government.

### Ridgewood South

A perfect example of why the areas that are defined as New Communities are of poor consideration is the Ridgewood South plan created by Landmark Planning and Stantec Consulting.

The plan proposed to put a residential subdivision within an area that is designed as a New Community in OurWinnipeg. However OurWinnipeg does not show or respond to the fact that this area consists of some of the largest patches of remnant vegetation remaining in the city. Stunning aspen forests with emergent oak trees make up large portions of the site; an area near where I grew up. These patch conditions create a strong corridor for species movement between the outside of the city and Assiniboine Forest (Winnipeg’s largest urban forest).

303 hectares (747 acres) of Ridgewood South falls under the category of New Communities. Of this, 161 hectares (398 acres) are categorized as natural areas - a staggering 53% of land. Using the existing structure of the landscape to create a regional strategy that identifies areas for conservation and areas for development would have meant this area could have been protected, while still allowing for future growth and (sub)urban development.

**53%** THE AMOUNT OF LAND WITHIN RIDGEWOOD SOUTH DESIGNATED AS NATURAL AREAS

**10%** LAND DEDICATION REQUIREMENT WITHIN NEW RESIDENTIAL DEVELOPMENTS

**9.9%** LAND THAT IS IDENTIFIED AS NATURAL AREAS WITHIN DEFINED NEW COMMUNITIES

## OurWinnipeg Summary of Areas for Future Growth

OurWinnipeg outlines three main areas for future growth:

1. Transformative Areas
2. New Communities
3. Adding density along regional mixed use corridors

### What OurWinnipeg does not do

A significant area of land that OurWinnipeg does not consider is the 745 hectares (1,841 acres) of vacant industry outlined on previous pages. These lands have become neglected as the new industrial frontier is the prime agricultural lands to the north west of the City of Winnipeg boundaries where CentrePort Canada (an inter model inland port) is in the process of developing 8093 hectares (20,000 acres) of land.

The profession of Landscape Architecture has the tools to re-image what these vacant industrial areas could be in order to unleash new potential. Landscape architecture can make a derelict space more desirable, changing the perception of a place, thus allowing for new economic life; and with that the financial argument necessary for mitigating the landscape.

The up-front costs are potentially more expensive and the projects more complex when compared to areas such as 'new communities', but the long term gains have the potential to be enormously positive by making better use of existing land that is already degraded in quality. This would not be easy, but setting up a process to change these derelict areas over time is critical to do sooner rather than later as time can be used to our advantage.

The long term costs of building new communities the way they have been built over the past fifty plus years will put a huge burden on future generations who will have to face the massive issues of climate change. It is not that we should or necessarily want to stop building suburbs, it is the question of how and where they are built that needs more attention and discussion.

OurWinnipeg outlines large areas where we *can* build, but it fails to look at the existing structure of the landscape to determine *where we should not or can not* build. It also does not give form to the ideas it proposes (ie. people are not able to see visually what the implications of a given set of decisions are on the future of the city). Both O2 Planning + Design (Calgary Metropolitan Plan) and Richard Weller (City of Perth Boomtown 2050) discuss the issue of where we should build and how we should go about doing this at the regional scale.

### Where do we build?

Both Richard Weller and O2 Planning + Design use the McHargian methodology of map overlays (sieve mapping) to show where not to build. According to Weller the landscape "forms the foundation from which the various urban-growth scenarios emerge" (Weller, 2009, p.167).

The aggregation of different landscape layers informs what Weller calls the 'Landscape Structure Plan' (LSP);

*One by-product of the mapping process is a Landscape Structure Plan (LSP) for Perth. The LSP asserts a landscape structure for the City of Perth at the regional scale. It interlinks existing reserves with new reserves to form a holistic open space system, guaranteeing the health of some of the landscape systems that are essential to the ecology of the city. In principle the green areas are set back from development and when development occurs in the white areas then that development is expected to make an investment in the LSP's reserved lands" (Weller, 2009, p.172).*

O2 Planning + Design refer to this same idea as the 'defensive' (conservation) strategy which identifies areas

*"vulnerable to development where conservation is required and development should be discouraged, or if development is unavoidable, what mitigation is required" (O2 Planning + Design, 2009, p.5).*

Weller critiques the McHargian methodology stating "while McHarg's method remains proficient at identifying where to develop, it is not necessarily good at determining how or what to develop" (Weller, 2009, p. 171). This kind of work is the science or what Weller refers to as the 'instrumentality' in landscape architecture (PennDesign, 2013).

*"For McHarg, the pure logic of landscape systems as described by scientists, provided the master narrative to which, what he perceived to be a civilisation built on hubris, should be corrected. For McHarg, the existing landscape provided guidelines by which cities should be shaped" (Weller, 2009, p.167).*

While McHarg's method is good at identifying where not to develop, it is not necessarily good at determining how or what to develop (Weller, 2009).

### How or what do we build?

The inverse of the landscape structure plan or the defensive strategy is the 'offensive' or development strategy that identifies "the type, amount, form and location of new development" (O2 Planning + Design, 2009, p.5). With this McHargian based methodology in place, it is then possible to begin developing different scenarios for future urban growth.

O2 Planning + Design and Richard Weller both use scenario planning to show the spatial and formal implications of decision making on the future of the city. This gives the public, their elected officials and other decision makers the ability to visualize a series of different futures, something that OurWinnipeg does not do. Weller advocates for scenario planning and creative solutions beyond the usual "blobs" of color used by planners in his home country of Australia (PennDesign, 2013).

## Conclusion / What OurWinnipeg Should have Considered

Creating a plan that locks-in a basic landscape structure on where to build and where not to build creates certainty for developers, with the potential that the best solutions will be realized given a set of circumstances (Richard Weller, PennDesign, 2013).

The following four points would have made for a more holistic plan and more sustainable future for the City of Winnipeg:

1. Looking beyond the immediate jurisdictional and political boundaries of the City to address the regional landscape in partnership with surrounding municipalities.
2. Create a 'defensive' strategy / landscape structure plan that determines where conservation is required and development should be discouraged. Information such as topography, hydrology, ground water, aquifer recharge zones, soils, existing flora / habitat (patches, corridors, and stepping stones), visual characteristics, and fauna species are some, but not all of the inputs that should be included.
3. Design scenarios that allows the public, their elected officials and other decision makers the ability to visualize a series of different futures based on varied solutions.
4. Considered scenarios that re-envision the cities extensive vacant industrial lands.

### Landscape First

Landscape should not be considered as an afterthought. It is integral to the air we breath and the water we drink. We all need clean air and water to exist, therefore it is worthwhile to try and make the best design decisions based on the structure of the existing landscape.

Chair of PennDesign's Landscape Architecture Department Richard Weller advocates that landscape architects should be taking a role in these decisions; "typically Landscape Architecture in the suburbs have been playing a fairly decorative role, they should play a structural role" (PennDesign, 2013, 61:50). These ideas extend out to any scale of project, including the Southwood Lands and Fort Garry Campus site.

### From the Regional to the Site Scale

There is a relationship between a way of thinking at one scale versus another - processes cross scales. How we consider the macro or regional scale has implications for how we think and make decisions at the micro or garden scale.

An example of a project that considered the structure of the existing landscape at the meso or site scale is Harlow Newtown in Essex (TheHarvardGSD, 2011). Sylvia Crowe (1901 - 1997) the female British Landscape Architect was one of the primary designers of Harlow New Town, although the Architect and Town Planner Sir Frederick Gibberd (1908-1984) is often cited as the town's creator.

Harlow New Town (1947) was one of eight New Towns created

from scratch as part of the new town act (1946) in Britain (BBC4, n.d.). An important requirement of the new towns was that they had to have a Landscape Architect on their design teams from the onset.

Four primary principles behind Harlow New Town that make it significant are:

1. Landscape and green open space were treated as the structuring elements;
2. Existing natural features (valleys, brooks, woods, clumps of trees) were kept to create identity and were used as 'pegs from which the design is hung';
3. The town was design to have its own existence as landscape, where green wedges, forests, and meadows physically and visually flow through the town providing both boundaries and connectors. Sylvia Crowe envisioned that people could be drawn to enjoy nature and green space more easily this way;
4. Different neighbourhoods were designed by different architects to create a unique identity (TheHarvardGSD, 2011). This same idea is applied to Bo01 in Malmo, Sweden and Borneo Sporenburg in Amsterdam, The Netherlands at the individual building scale.

These are all ideas that can be applied to the Southwood Lands, illustrating how looking at the existing landscape can determine how we build upon it.

## Photographic Essay

The following photographic essay illustrates a section of my daily commute from home to the University of Manitoba and the landscape changes over time due to new development around the IKEA site.

The purpose of this is to show observations with how existing site conditions are treated with no respect or consideration.

We clearly lack vision, simple intelligence and legislation that protects existing habitat in a meaningful way.

This site was first documented in September of 2009 shortly after a roadway was re-routed through an existing *Populus tremuloides* / trembling aspen tree stand creating a beautiful section through the forest. The tree stand was subsequently

knocked down by heavy machinery in only one day; photographs taken in January of 2012 illustrate the aftermath.

Finally, photographs taken in May of 2012 show the resiliency of the trembling aspen forest to rebound from a major disturbance. The trees that were knocked down to the ground plane months earlier had already re-grown to a height of over

two meters. This is due to the trees ability to draw water and nutrients from the existing root system, something that the trembling aspen has evolved to do in order to out compete other flora species after a fire.



[1.11] Aspen Forest Stand (September, 2009)



[1.12] Former Aspen Forest Stand (January 28, 2012)



[1.13] Resiliency of the Aspen Forest Stand (May 16, 2012)



**“If a man walks in the woods for love of them half of each day, he is in danger of being regarded as a loafer; but if he spends his whole day as speculator, sharing of those woods and making the earth bald before her time, he is esteemed an industrious and enterprising citizen. As if a town had no interest in its forests but to cut them down!”**

*“The anti-capitalist criticism of Henry David Thoreau (1817-1862)”  
(as cited in Blackwell, 2009, pp.188-189).*



[1.15] Aspen Forest Stand (September, 2009)



[1.16] Detail of Former Aspen Forest Stand (January 28, 2012)



[1.17] Former Aspen Forest Stand (January 28, 2012)

Remnant traces of former  
trembling aspen forest

Cabela's - Hunting Fishing and  
Outdoor Gear

The great irony of a business destroying the outdoor habitat and wilderness experiences that they are trying to sell and promote. Next time make the existing forest part of the overall retail experience in order to enhance the image of the brand.





# 2

## Landing + Grounding

### A Photographic Exploration of Found Conditions

#### **Landing + Grounding**

Landing is the first encounter with a site at the beginning stages of a project. Christophe Giroton describes this process as “touching ground and reaching for the confines of an unknown world” (1999, p.61). This is a narrowing in and moving from the entirety of the world to the confines of a site in which preconceived images are tested against the site itself. The initial experience of landing has a profound effect on ideas that can be present throughout the entire design process. “Landing also refutes the idea of a tabula-rasa approach to site design, where nothing can be learned or retained from a given site and where everything can be resolved by detached conceptual thinking” (Giroton, 1999, p.62).

Grounding reoccurs indefinitely over the process of revisiting a site. “Grounding is more about reading and understanding a site through repeated visits and studies” (Giroton, p.62). It is an understanding of elements that make the site unique and personal. The personality of the site comes from historic traces that are influenced by time (Giroton, 1999).

#### **How we see landscapes**

This chapter is about the documentation of site visits. It begins with a discussion on how perceptions of landscape change based on visiting a place for the first time (landing), collaboration / information from others, and how learning more about a design or place through research can change what is seen (a precursor to the next chapter ‘finding’).

#### **What do others find important on site? and other questions**

Reflecting on site explorations, and reviewing photographs led to a series of questions about what other people might value on site. In particular two photographs that were unintentionally taken at the same location during different times spurred further questions about being drawn to a particular location (Figures 2.0 and 2.1). What would happen if others were asked to walk around the Southwood Lands for a given period of time taking photographs of the spaces that they find beautiful or engaging? How would this relate to what I see and value as someone who is very familiar with the site and has formal training in a design school? Are the spaces that people choose the same? Are there similarities or anomalies amongst a large group of people?

How would people move around and experience the site? If people were interviewed what would the reasons for choosing a particular spot be? Would there be any hidden meaning related to an individual’s personal experiences? Are there past stories about the site that could serve as

inspiration to imbue the site with new experiences related to the past?

What would happen if one group of people were shown pictures of designed landscapes without any prior knowledge of the design intentions, challenges, meanings and site history? And another group given prior knowledge to all of the above - how would their preferences compare? How would a landscape such as the Peter Latz designed Landschaftspark Dusiburg-Nord compare to the Frederick Law Olmsted designed Central Park if both an informed group and uninformed group were asked to discuss what they saw?

Is a photograph enough? How does our idea of a particular place change based on what we know about it and how we experience it in reality?

#### From a picture to a place

The Frank Lloyd Wright designed Falling Water was one of the earliest examples of design that I was exposed to in Professor Charlie Thomsen's Introduction to Environmental Design course in Fall of 2005. The classic image of the building sitting on the edge of the falls with the balconies cantilevering outwards is something that is immediately memorable (Figure 2.4). However the experience of actually visiting a place gives a whole other perspective on the design. As part of a 2011 Field Studies course I had the opportunity to visit the site with Professor Alan Tate and fellow student Shannon Loewen.

The journey through the exterior spaces leading up to the house is something that is rarely highlighted, but is fundamental to the overall experience of the design. This was the most enjoyable aspect of the visit - the sense of enclosure, the trees, anticipation, the sounds and sights of water, and the exposed rock along the stream banks are a few of the moments along this journey (Figures 2.2 and 2.3). Of course the route was not all perfect, a mowed lawn abruptly appears and is incredibly out of place in the overall sequencing of spaces.

Although the building is the primary reason for visiting Falling Water and typically the focus of discussions, it is actually the exterior spaces that make the experience of Falling Water so significant.

Once in the building, the balcony and roof heights were incredibly low, resulting in the sensation of vertigo and claustrophobia as part of the experience. The feeling of the space being enclosed and small also had to do with the size of the group that was touring the building; many of the spaces were never designed to be navigated with a group of people. It is the connection to the landscape that makes this project what it is, and not the created spaces within it.

These are of course experiences that are only made possible through visiting a place, a photograph only captures a moment of time, and is devoid of many of our senses and the opportunity for discovery that visiting a place offers. We can have preconceptions of a place based on how we first experience it, but it is not until we physically 'land' and touch the ground that these preconceptions are tested.

#### Conclusion One

The medium and methodology used to experience and learn about spaces influences how we perceive them. We gain a set of expectations through initial exposure to a design (case studies, lectures, publications) but it is not until we actually visit a place that we can get a true sense of what it is like to be there and an opportunity to test our assumptions against actuality.

#### Authorship, surveys and landscape preference in design

The original question of what others find important on the site relates back to landscape preference, the use of surveys in design and questions of authorship.

#### Consensus

Susan Herrington discusses all three of these topics in *On Landscapes* by using Vitaly Komar and Alexander Melamid's experimental questionnaire to create America's most and least wanted paintings (2009). "They asked people about specific features, such as color, content, and theme" (Herrington, 2009, p.24). Komar and Melamid also polled people from other countries creating the most wanted and most unwanted paintings based on these answers. "Looking at the various most wanted paintings derived from this international questionnaire, the predominance of naturalistic looking landscapes with blue lakes and skies is striking" (Herrington, 2009, p.24). Philosopher Arthur Danto is cited by Herrington, who "thinks that the most wanted paintings are paintings that nobody wants" (p.25, 2009) and that according to Dewey "if we only want landscapes that fulfil what people expect they should look like, then we prevent growth" (Herrington, p.26, 2009).

She goes on to say that:

*"questionnaires have a limited field of response, and suggestions outside the statistically normal range of responses are discounted. Does design by questionnaire give us the least objectionable landscape rather than the most wanted? The application of this method in design of landscape will also produce nothing more than what we expect"* (Herrington 2009, pp.25-26).

#### Collaboration

Herrington uses the example of muf's (an architectural firm in Britain) design for a social housing project in Tilbury England as a "project that demonstrates that multiple designers can be brought together to create a landscape that is wanted, but perhaps not expected" (2009, p.28).

This was achieved through twelve months of interaction with residents. During this process it was recognized that the roaming ponies and horses of Tilbury were very present in the minds of residents. "The landscape of Tilbury had been home to nomadic gypsies who relied on horses to pull caravans. As

the gypsies modernized their means of transportation, their horses and ponies were left to roam" (Herrington, p.27, 2009). As time went on, the animals that were valued became a conflict to development and slowly disappeared.

Muf's design ended up not being a community garden as the city had first specified, but three distinct zones that "made space within the landscape for what was otherwise 'strategically suppressed'" (Herrington, p.28, 2009). One of the three zones brought back the horses and ponies through the creation of a horse arena; and as Herrington points out "their presence as part of Broadway Estate offers direct experiences with animals that are often inaccessible to those living in shared housing complexes" (2009, p.28).

#### Conclusion Two

The input of others or 'multiple designers' can be used to peel back the hidden layers of meaning buried within a landscape that could allow for experimentation and innovation. Importantly, the input of others can be used in ways that create a wanted landscape. Based on the above it is potentially true that the key difference between wanted and unwanted landscapes is design by consensus (most and least wanted paintings) versus design by collaboration as in the Tillbury example.

It is through design by collaboration that we have the potential to make places different, which is of course is the "conscious decisions to change external places for the purposes of utility and beauty" (Tate, 2005, p.57) that is also "the essence of landscape architecture" (Tate, 2005, p.76).

#### How knowledge changes what we see

There is a universal preference for space. What one person finds beautiful, others will inevitably enjoy as well, but, this is not always true. Over the course of my education, the preferences that I have for space and landscapes has changed as a result of further education and life experience. For example the 2011 Field Studies course through the United States revealed



[2.0] Grove of trees (April 26, 2012)



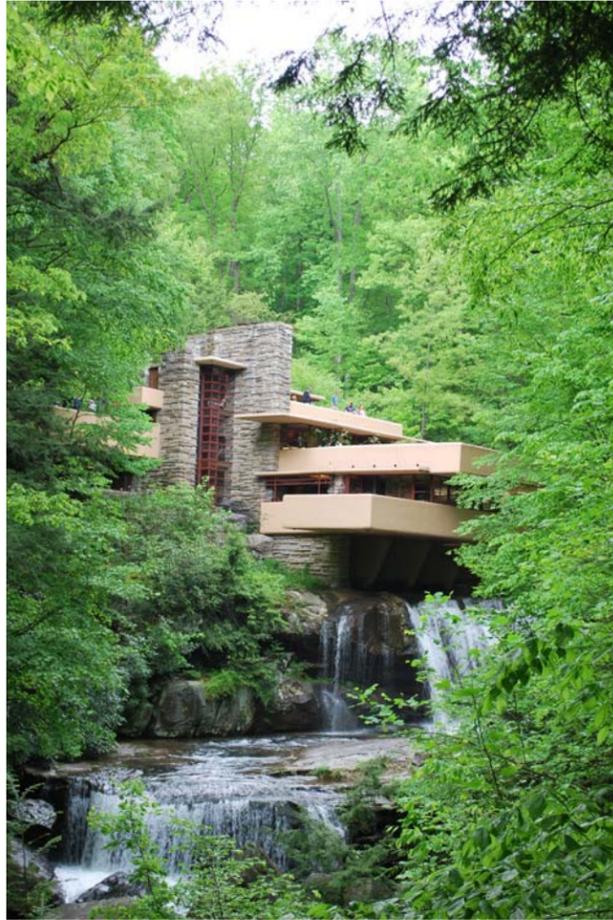
[2.1] Same grove of trees (March 10, 2012)



[2.2] Drive leading up to Falling Water (2011)



[2.3] Stone formations along the journey (2011)



[2.4] Falling Water (2011)

something about landscape preference that has to do with gaining knowledge of a site (what Girot calls 'finding').

Two projects are used as examples of how new knowledge or information can change an individual's perspective and preference for a place; the Martha Schwartz HUD Plaza in Washington, DC and the Michael Van Valkenburgh designed Mill Race Park in Columbus, Indiana. In contrast to other projects visited on the Field Studies trip, they were relatively unimpressive upon visiting them. However, after arriving back in Winnipeg, and researching these places a new appreciation for them was developed.

#### HUD Plaza

HUD Plaza was designed by Martha Schwartz Partners at the site of Marcel Breuer's 1968 building for the Department of Housing and Urban Development. As part of the design process, Schwartz and her team researched Breuer's work finding that he used geometric patterns for screens, walls and ceilings. He was also fond of circular motifs, which contrast nicely to the rectangular geometry of the Brutalist structure.

Ring-shaped canopies raised 4.3 meters (14 feet) above the ground plane were created by using standard off-the-shelf vinyl-coated plastic fabric used in commercial awnings.

The ingenious use of the canopies allows for both shade and privacy from the windows above, that would not have been possible with vegetation due to an underground parking garage, which was not designed to support the soil needed for trees (Richardson, 2004).



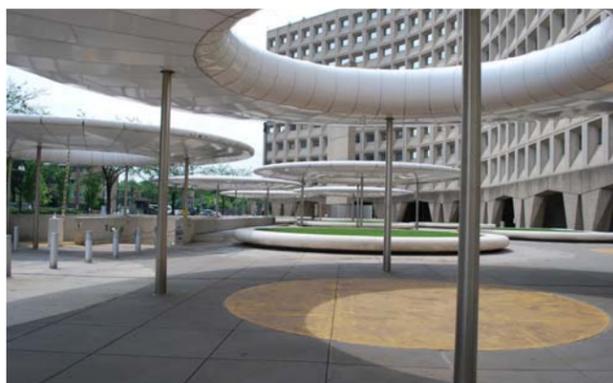
Without any of this knowledge, the plaza was interesting but certainly not one of the personally preferred landscapes that was visited. It was only through gaining knowledge of the design process and project constraints that a new appreciation for the hidden genius of the design was revealed, leading to a new set of conclusions.

The design fulfills the needs of creating shade, seating and visual protection from above while also responding to the history and context of the building. The fact that the cost of the project was equivalent to that of simply replacing the original slate pavers makes it a remarkably brilliant piece of Landscape Architecture.

#### Mill Race Park

Mill Race Park is a 34 hectare (85 acre) park designed by Michael Van Valkenburgh - his first major public commission (Amidon, 2009). The park itself was unimpressive upon initial visit. However it is the story of the past uses of the site and how it was constructed that provides a different lens through which to see the landscape; leading to a new appreciation for the aesthetic quality of the design.

The park is a reclaimed floodplain that was used for industrial purposes from the nineteenth century onwards, with a tannery, gravel pits, and brick manufacturing. The park was also an illegal dumping ground contaminated with petroleum, and a



[2.5] [2.6] HUD Plaza (2011)

place where squatters were making homes nicknamed 'Death Valley' (Amidon, 2009 and Garvin et al., 1997).

The most compelling aspect of the project is the story of how a community came together to complete an estimated 8.4 million dollar project for only nine hundred and forty thousand dollars. Five general contractors each adopted one of the Stanley Saitowitz designed red structures, donating their time and services with construction materials being provided by local vendors at cost (Garvin et al., 1997).

An estimated two million dollars worth of labour was provided by some two hundred people as part of a student Job Corps trainee program, a program that trains inner-city youth in construction trades. The inexperience of the workforce and number of people working on the installation meant designs had to be simple and adapted to the skill level of those doing the installation (Garvin et al., 1997). A hundred year flood also occurred during a critical point in construction, adding to the compelling story of this park's creation.

The ability for the park to sustain damage from flooding is a key component in the success of the design. Tree species were chosen that are resistant to flooding, drainage was carefully considered, and paths were built strong enough to resist waters while being wide enough for standardized cleaning equipment, and off-the-shelf playground equipment was chosen that could be easily replaced. The red structures designed were also designed to be flood resistant, and trees were strategically planted to help prevent damage from debris during times of flooding (Garvin et al, 1997).

History and context are ever present in the creation of this place, not as literal interpretations, but as subtle references which make use of found conditions. For example two abandoned gravel pits were transformed into small lakes. The bridges and tannery walls were also used again, not as nostalgic metaphors, but a simple and elegant response which creates place through looking at existing conditions (Amidon, 2009).



[2.7] [2.8] Mill Race Park (2011)

This landscape is not the most interesting project at first glance, however there is so much to learn by digging deeper into decision making. Gaining knowledge about the site's history, the design rationale, and construction process allows for this park to be seen in a new way; a remarkable landscape, well worth studying.

#### Conclusion Three

Knowledge and information about a site's history, the design processes and challenges that had to be overcome can alter an individual's preference for a space.

#### Summary of Conclusions

1. The medium and methodology used to experience or learn about spaces influences how we perceive them.
2. The input of others or 'multiple designers' can be used to peel back the hidden layers of meaning buried within a landscape that could allow for experimentation and innovation.
3. Knowledge and information about a site's history, the design processes and challenges that had to be overcome can alter an individual's preference for space.



# Documentation of the Site

## Overview

Photography was used as a key tool in ongoing site documentation and observations over the course of nine expeditions to the Southwood Lands. These visits were largely unplanned wanderings through the site with the primary objective being the act of discovery.

The following phenomena or conditions were observed after some reflection on the process:

- Spatial experiences (key moments within the site that should be used to enhance the quality of future designs / uses on the site).
- Views and spatial relationships within and around the site.
- Trace conditions (human and non-human uses, natural phenomena).
- An understanding of drainage (reading of subtle changes in the topography of the landscape).

The upcoming pages document these visits, while a critique of this process and the lessons learned are discussed in chapter five.

## Documentation of Each Site Visit

Select photographs have been chosen to represent discoveries within each site visit, these images have been mapped for reference (Figures 2.9 and 2.15). The date, time of day, temperature, and additional notes are made for each visit shown within Table 2.0.

## Documentation of the Site

Photographic joiners / panoramas have also been taken. These are grouped together, separately from the individual site visits. The goal in grouping images this way is to tell the story of the site, rather than each individual visit. In some cases individual images have been added to aid in this goal. Locations of these photographs have been mapped as Figure 2.22.

Visit #	Date	Time of Day	Temperature	Additional Notes
1	January 1, 2012	1.00pm to 3.00pm	-1°C	Sunny with clear skies.
2	January 15, 2012	11.45am to 12.45pm	-3°C (Feels like -11°C)	Cloudy, beautiful snowflakes later in the visit.
3	February 1, 2012	12.00pm to 1.30pm	-3°C	Hoar frost is beautiful on trees and driving range fencing. Branches have fallen from two trees due to weight of hoar frost. Too warm for winter jacket.
4	February 20, 2012	11.30am to 12.30pm	1°C	Walk along riparian zone of riverbank, looked at drainage, Charlie (dog) came too.
5	March 10, 2012	1.00pm to 3.00pm	0°C	Initial ideas for the site.
6	April 26, 2012	2.00pm to 3.30pm	10°C	Walked along drainage swales and near river.
7	May 9, 2012	4.45 to 5.00pm	21°C	Sun very warm, but the weather is perfect. Studio is not too warm yet, blue sky. Sun feels great on the face after a long winter. Quick visit to create 360 degree site image. Saw runner, biker cutting through and pedestrian (site is coming alive).
8	May 11, 2012	2.00pm to 4.30pm	16°C	Sun very warm, windy, cold wind. Shorts too cold for this day. Sun pinkens skin after site visit. Took more 360 degree site images and walked to agricultural fields along the riverbank.
9	September 9, 2012	2.00pm to 5.00pm	21°C	Sun warm, feels nice on face. Somewhat windy. Took images of the entire site, in particular the areas with a significant understory along Pembina Highway.

[Table 2.0] Documentation of Site Visits

# Site Visits One to Four



[2.9] Map of Site Visits One to Four

A.00	B.00	C.00	D.00
Site Visit One	Site Visit Two	Site Visit Three	Site Visit Four

## Found Conditions



## Atmosphere



[2.10] Site Visit One (January 1, 2012)

[2.11] Site Visit One (January 1, 2012)

# Site Observations



B.01 Grey skies



B.02 The sun peaks through



B.03 Snow folk



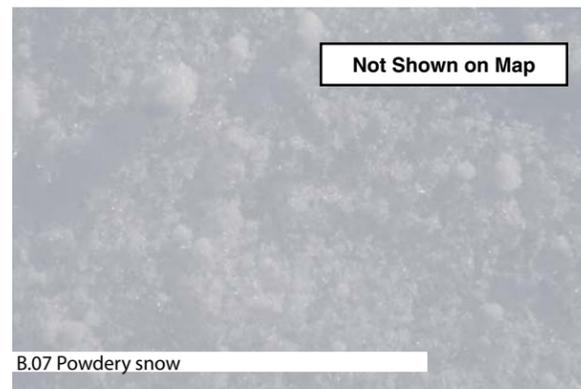
B.04 Murray Penner's bird house



B.05 Standing strong on the riverbank



B.06 Failing Riverbank



B.07 Powdery snow

[2.12] Site Visit Two (January 15, 2012)

# Site Observations



C.01 Dumping grounds



C.02 Lack of tree protection



C.03 Grove of trees



C.04 Winter wall



C.05 Blue and white



C.06 St. Paul's College



C.07 Hoar Frost

[2.13] Site Visit Three (February 1, 2012)

# Historic Drainage Swale



D.01 Looking from the Red River



D.02 Mid-point of the swale



D.03 Drainage gully



D.04 Riparian zone from the ground



D.05 Top of drainage gully



D.06 Riparian zone from tree on upper bank



D.07 Framed view of St. Paul's College

[2.14] Site Visit Four (February 20, 2012)

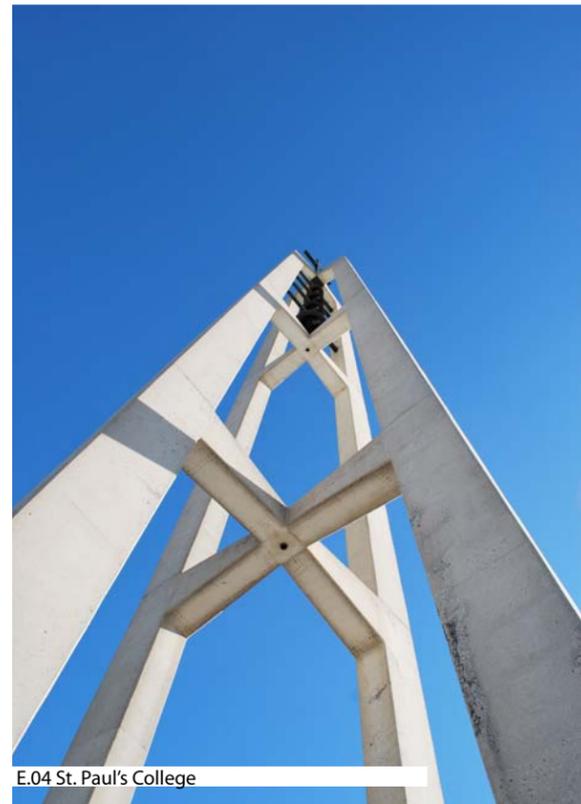
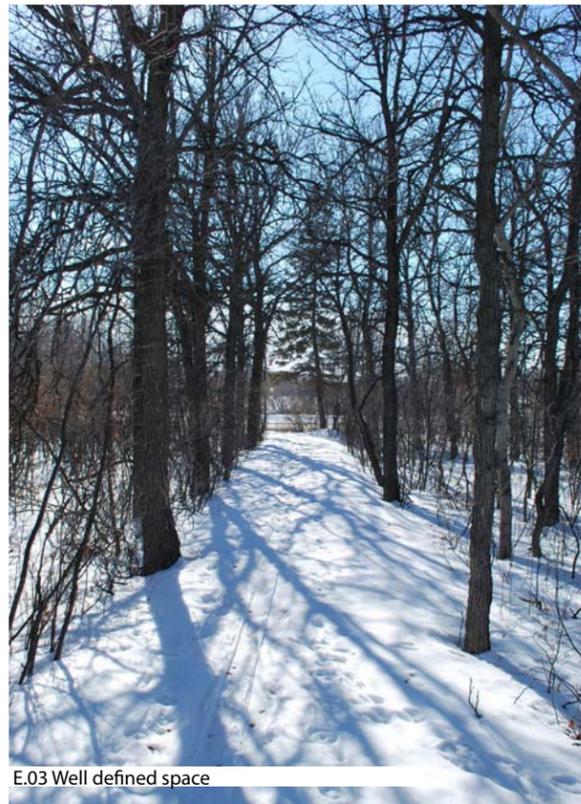
# Site Visits Five to Nine



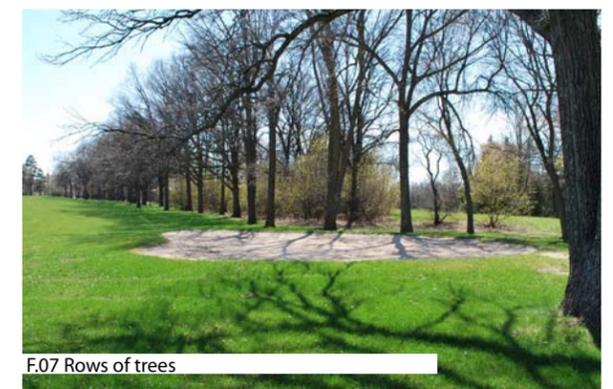
[2.15] Map of Site Visits Five to Nine

E.00	F.00	G.00	H.00	I.00
Site Visit Five	Site Visit Six	Site Visit Seven	Site Visit Eight	Site Visit Nine

## Site Observations



## Spring



[2.17] Site Visit Six (April 26, 2012)

[2.16] Site Visit Five (March 10, 2012)

Spring



G.00

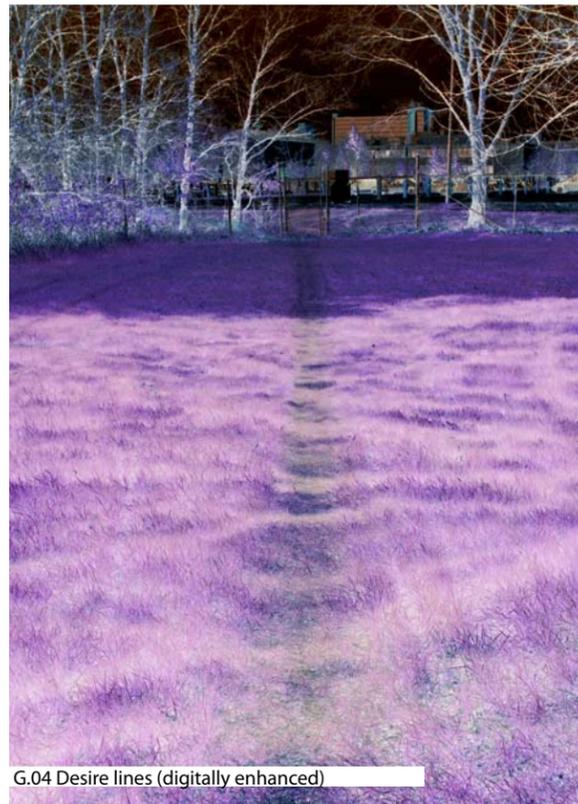
G.01 Cyclist



G.02 Deteriorating conditions



G.03 Desire lines



G.04 Desire lines (digitally enhanced)



G.05 Maintenance Crew?



G.06 Fairway along river

[2.18] Site Visit Seven (May 9, 2012)

Spring



H.00

H.01 Space near Fairway Woods Condominiums



H.02 Looking towards Fairway Woods



H.03 Open fairway



H.04 View towards St. Paul's College



H.05 Drainage swale



H.06 Stadium still rising



H.07 The Red River



H.08 Looking down Sifton Road from Wallace

[2.19] Site Visit Eight (May 11, 2012)

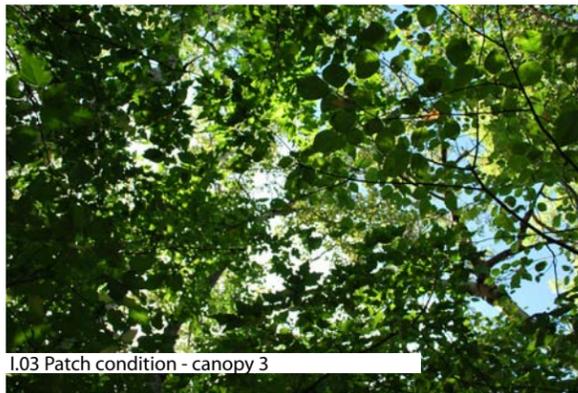
Site Observations



I.01 Patch condition - canopy 1



I.02 Patch condition - canopy 2



I.03 Patch condition - canopy 3



I.04 Patch condition - site drainage 1



I.05 Patch condition - site drainage 2



I.06 Patch condition - site drainage 3



I.07 Stadium



I.08 Scorched earth

[2.20] Site Visit Nine (September 9, 2012)

Site Observations



I.09 Physical Plant's surprise road to nowhere; wasteful spending



I.10 No respect



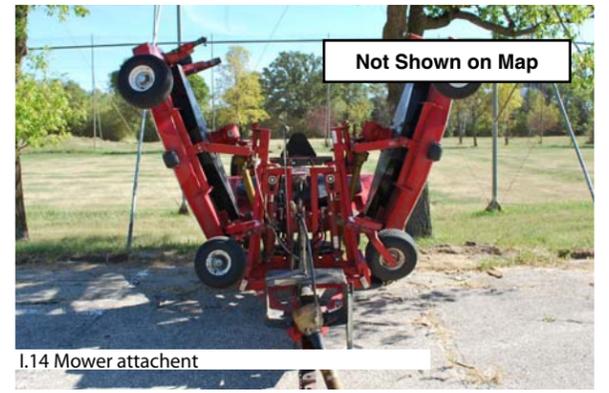
I.11 Old oak



I.12 Maintenance equipment



I.13 Trace pathway along river



I.14 Mower attachment



I.15 *Branta canadensis*

[2.21] Site Visit Nine (b) (September 9, 2012)

# The Site



[2.22] Map Showing Photographs of the Site

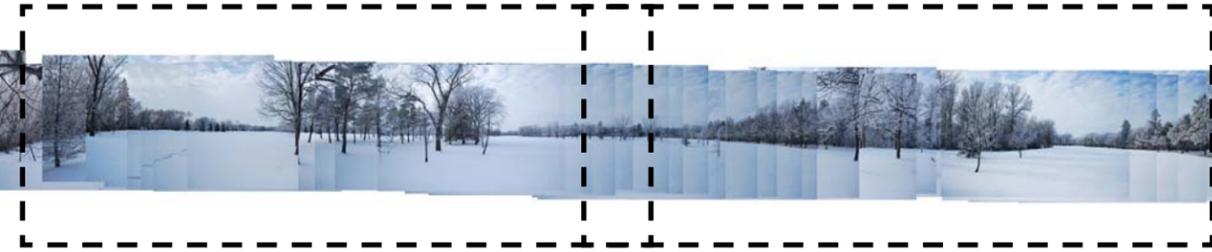
Section	360 Degree Planets	Panoramas

SOUTH

NORTH



[2.23] Photographic Section AA (February 1, 2012)



See Figure 2.24 (below) for detail 1

See Figure 2.25 (below) for detail 2



[2.24] Detail 1 of Photographic Section AA (February 1, 2012)



[2.25] Detail 2 of Photographic Section AA (February 1, 2012)





360a

[2.26] "360 Degree Planet" of open area on site (May 11, 2012)



360b

[2.27] "360 Degree Planet" of enclosed space on site (May 11, 2012)



S.01

[2.28] Space adjacent to Southwood Green and Fairway Wood Condominiums (February 1, 2012)



S.02

[2.29] Large patch of vegetation (September 9, 2012)



S.03

[2.30] Edge condition on north-western side of site (February 1, 2012)



S.04

[2.31] Edge condition on north-eastern side of site (January 5, 2012)



S.04

[2.32] Edge condition on north-eastern side of site (b) (February 1, 2012)



S.05

[2.33] Winter Pond (January 5, 2012)



[2.34] Fairway along riverbank (February 20, 2012)



[2.35] Red River (January 5, 2012)



S.08

[2.36] Majestic old Oaks on the banks of the Red River (May 11, 2012)



S.09

[2.37] Riparian zone from above (taken from tree on river bank) (February 20, 2012)



S.10

[2.38] From the banks of the Red River (March 11, 2012)



S.11

[2.39] Construction of storm sewer discharge from Investors Group Field 'Project 85' (February 20, 2012)



S.12

[2.40] Investors Group Field (January 5, 2012)



S.13

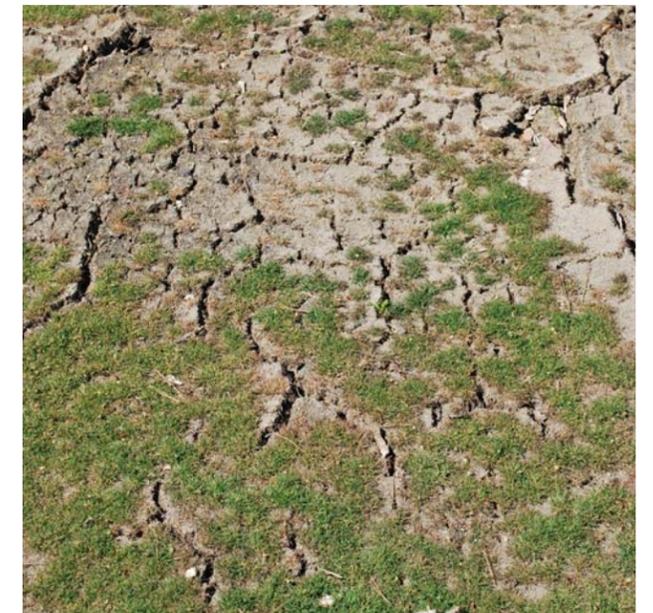
[2.41] Open area of the site (January 5, 2012)

## Site Changes 2008 + 2012

### Overview

The following sets of images document the site in 2008 (upper images) and 2012 (lower images).

The upper and lower images on page 76 are taken from approximately the same locations; while images shown on page 77 were taken at different locations, representing deterioration or decay resulting from changes in maintenance of the site.



[2.42] Top - River edge (Fall, 2008)  
[2.43] Bottom - Desire line (April 26, 2012)

[2.44] Top - Rolling Topography (Fall, 2008)  
[2.45] Bottom - Rolling Topography 2 (September 9, 2012)

[2.46] Top - raked sand bunker (Fall, 2008)  
[2.47] Bottom - deterioration of bunker conditions (April 26, 2012)

[2.48] Top - soil aeration along fairway (Fall, 2008)  
[2.49] Bottom - former golf green (April 26, 2012)





# 3

## Finding

Understanding the Past and Present to Change the Future

Finding is the third trace concept that is an extension of landing and grounding. Finding is both searching for something and the discovery made. Ideas that originated upon landing on a site are strengthened and initial intuitive assumptions about a place are often made more coherent through evidence. According to Girot, “it is rather difficult to speak of a method of finding because different activities yield different discoveries” (1999, p.63). “Few projects can control and manipulate the process of finding because of the importance of chance and indeterminacy in discovery (Girot, 1999, p.64).

# History - 1874 Parish Map

## Natural History

The adjacent map created in 1874 showing the current Fort Garry Campus and Southwood Lands indicates that these places contained “Principally Poplar wood” with areas of oak, elm and ash on what is now the core campus. This hints at the former ecology of this riverbank site when the Red River was allowed to overflow its banks, and a different set of processes occurred on the land. The survey was done by George McPhillips and is titled “Plan of River Lots in the Parishes of St. Vital & St. Norbert”. The original map is housed at the Archives of Manitoba.

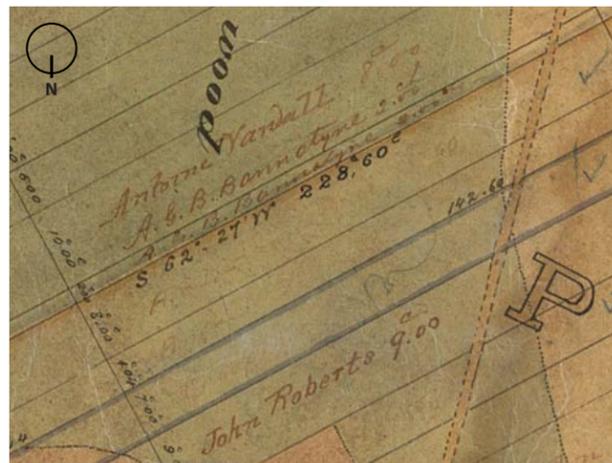
## Historical Land Owners

The following former river lot owners are legible:

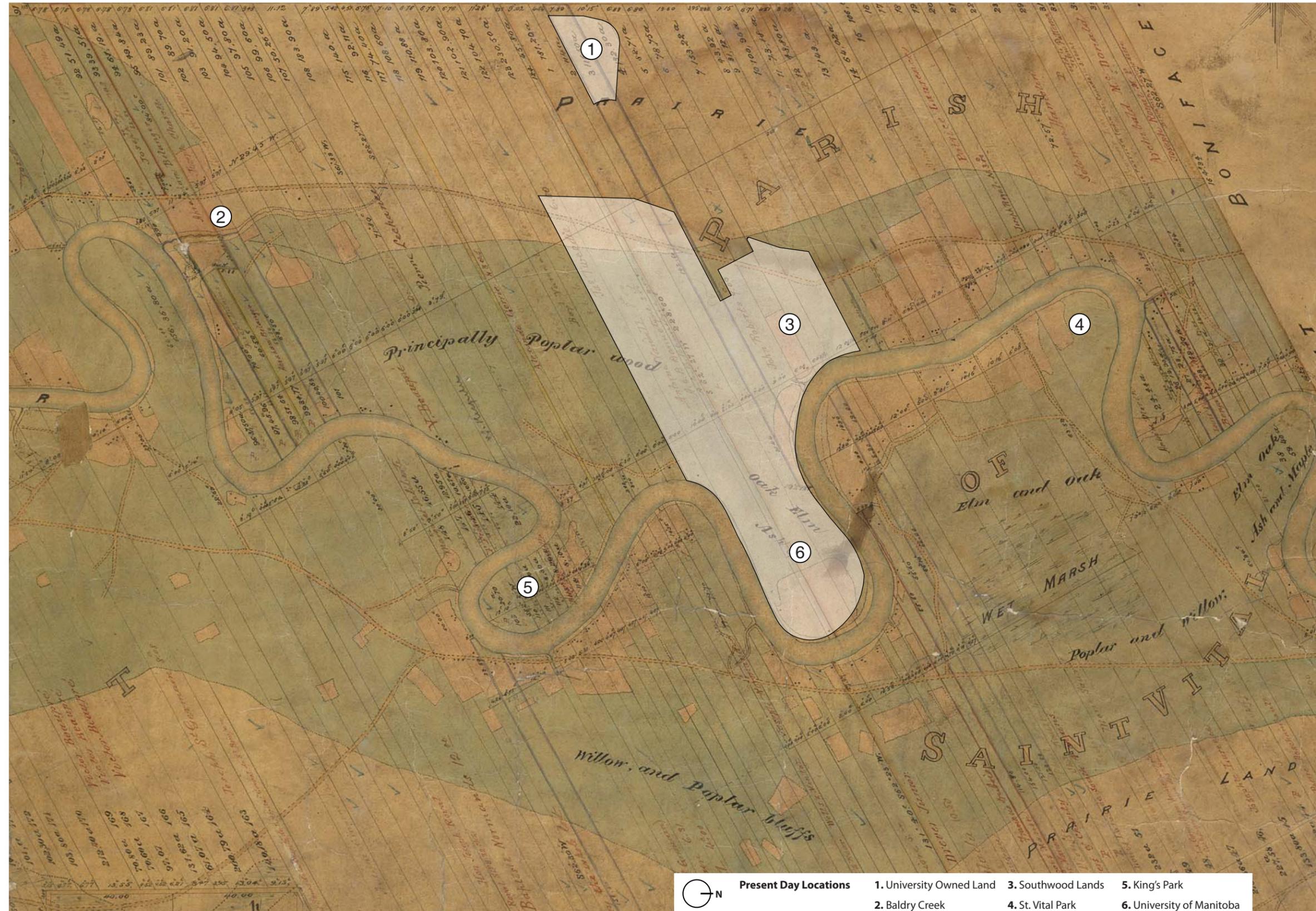
- Fort Garry Campus: A.G.B. Bannatayne and Antoine Vandell - Lot 123 (Parish of St. Norbert)
- Fort Garry Campus: A.G.B Bannatayne - Lot 124 (Parish of St. Norbert)
- Southwood Lands: John Roberts - Lot 4 (Parish of St. Vital)

## Andrew Graham Ballenden Bannatyne (1829-1889)

A.G.B. Bannatyne, born into a long lineage of Hudson’s Bay Company officials was one of Winnipeg’s leading citizens at the time that Winnipeg was founded in 1873. He was “possibly the wealthiest, probably the most influential, certainly the most highly esteemed man in the Red River Community” (Mitchell, 1965). He opposed the Hudson Bay monopoly within Rupert’s Land by opening up his own warehouse and store, successfully ran for parliament, and was an important figure in setting up the Winnipeg General Hospital (Mitchell, 1965). Not much is known about his ownership of river lots 123 and 124 or his relationship with the University of Manitoba.



[3.0] Detail showing legible names of river lot land owners on the current Fort Garry Campus



Right: [3.1] Plan of River Lots in the Parishes of St. Vital and St. Norbert (April 1874), Survey work done by George McPhillips.

	<b>Present Day Locations</b>	1. University Owned Land	3. Southwood Lands	5. King's Park
		2. Baldry Creek	4. St. Vital Park	6. University of Manitoba

## History of the Fort Garry Campus

### Beginnings (1877-1909)

The University of Manitoba was established in 1877 as a “Provincial University” to confer degrees from three denominational colleges: St. Boniface College (Roman Catholic), St. John’s College (Anglican), and the Manitoba College (Presbyterian). In 1892 the University Charter was changed to allow the institution to teach. By 1890 more space was needed, so rooms were rented in the McIntyre Block, a large building in downtown Winnipeg. A search for a new permanent site was initiated in 1893, although nothing was decided on at that time. In 1898, fire destroyed all records and equipment housed within the University’s rented space, resulting in a new search for a permanent home. In that same year, the Dominion Government of Canada transferred 2.7 hectares (6.6 acres) of land to the Provincial Government of Manitoba for educational purposes. In 1901, the University’s first building was completed on the newly acquired land along Broadway Avenue (present-day Memorial Provincial Park) (The University of Manitoba, 1971).

In 1903, the Manitoba Agricultural College was established as a “separate and distinct” institution from the University of Manitoba under direction of a Provincially appointed Royal Commission. Three years later several buildings were constructed on a 47-hectare (117-acre) property in the Tuxedo neighbourhood (this site would later become the Fort Osborne Barracks and today is home to the Asper Jewish Community Campus). The University and the Agricultural College amalgamated in 1907, and a new Medical College building was constructed on Bannatyne Avenue near the General Hospital (the forerunner of the present-day Bannatyne Campus) (The University of Manitoba, 1971; Foster, 1978).

### The Question of “Where” Continues, 1910 - 1929

In 1910, an offer put forward by the Tuxedo Park Company for a 61-hectare (150-acre) university site near the Agricultural College was accepted. However, the Agricultural College concluded that it needed more land, and relocated to the St.



[3.2] Tuxedo Park - University Section of the Suburb Beautiful (1910)



[3.3] Newly constructed Fort Garry Campus (n.d. post 1912, pre 1930)

Vital area where the Provincial Government had just purchased 231 hectares (570 acres). Construction began in St. Vital at the site of the current Fort Garry Campus – land was cleared in 1911 and the Agriculture College’s first buildings were completed by 1912. It was during this time that Professor Arthur A. Stoughton designed a plan for the campus (The Campus Planning and Design Office, 2001; The University of Manitoba, 1971).

With the University unwilling to permanently establish at the original Broadway site, and the Provincial Government unwilling to provide money for new University buildings on the Tuxedo site, the Province offered 55 hectares (137 acres) of land between the new Agricultural College and the Red River (the present-day Point Lands). This offer was accepted in 1913, however the “onset of World War I in 1914 caused all plans for immediate construction of University buildings on the St. Vital site to be abandoned” (Foster, 1978, p.7). In 1917, the University changed its governance model. Formerly, the affiliated Colleges appointed a governing council, but a Board of Governors responsible to the Provincial Government replaced this body. In 1919, this Board of Governors decided on Tuxedo as the permanent site for the University. The decision was formalized by the Provincial Premier in 1921, whom offered new grants for the construction of University buildings. As a result, the present-day Canadian Mennonite University building was constructed on the Tuxedo site (The University of Manitoba, 1971).

However, a newly elected Provincial Government in 1922 appointed a Royal Commission that recommended the University join the Agricultural College at its location on the present-day Fort Garry Campus. The eventual decision to move to Fort Garry did not sit favourably with the Tuxedo developers who sued the University for failing to honour their initial agreement (Foster, 1978).

The debate over where to locate the University continued and as lawyers argued, the students had no choice but to remain in makeshift buildings. Their dissatisfaction with “having to work in ‘cowsheds’ reached a comic note in 1929 when they took a cow up to the second floor of the Old Law Courts Building and tied it to the door of the University Library” (Foster, 1978, p. 8).

Also in 1922, the Avenue of Elms along Chancellor Matheson Road was planted as a living memorial to commemorate members of the Agricultural College who lost their lives for their country in World War I. The memorial was eventually extended to include students and staff who lost their lives in World War II and the Korean War (The University of Manitoba, 2001).

In 1924, by act of the Manitoba Legislature, the administration of the Manitoba Agricultural College was transferred to the Board of Governors at the University, and the College became the Faculty of Agriculture and Economics (The University of Manitoba, 1971); The University of Manitoba, 2001).



[3.4] The first building, University of Manitoba Broadway (1905)

#### Resolution and a New Beginning, 1930 - 1950

The 1930s were an important decade for new building construction at the Fort Garry Campus, as the Arts (Tier) and Science (Buller) buildings were constructed as unemployment relief projects during the Depression years. They were the first departure from the original buildings, which were constructed in the Georgian aesthetic of Neoclassical massing, red brick materials, and limestone details (The University of Manitoba, 2011; The University of Manitoba 1971; Foster, 1978).

With the outbreak of World War II, Taché Hall (the University's main residence) was converted into a navigation school. The Canadian Army constructed a series of temporary huts in the southern corner of the campus along with a drill hall and indoor rifle range. In 1945, the use of Taché Hall was restored to the University, and the temporary buildings were converted into classrooms and labs to address the influx of war veterans returning as students. Temporary housing was constructed for returning veterans, although it was destroyed in the flood of 1950 (The University of Manitoba, 2011, The University of Manitoba 1971).

Construction intensified around the quadrangle adjacent to the Administration building in the late 1940's when the "Engineering Building was expanded, and its early modernist architectural style broke with the architectural tradition of the campus" (The University of Manitoba, 2011, p.11)

#### Growth and Modernism 1951 - 1970

"The 1950s was a period of renewed growth, aided by a growing economy and the relocation of the major college divisions to the Fort Garry Campus" (The University of Manitoba, 2011, p.12). To accommodate the relocation of undergraduate students from downtown locations, numerous new projects were developed, notably the Elizabeth Dafoe Library, the Agricultural Research building, and further expansion of the Engineering building. The new development of this period also began to expand out from the traditional central core of the campus. Increased building construction in the 1960s generally conformed to the existing pedestrian orientation of the campus. During this time, increased enrolment necessitated the addition of academic buildings. In 1964, "the formal approach to the campus through Chancellor Matheson Road was strengthened through the addition of gates at Pembina Highway" (The University of Manitoba, 2001, p.12). The Pan-American Games of 1967 also spurred new development, particularly the construction of University Stadium, an athletic field, and new athletic facilities. Campus planning during this era called for a compact clustering of central campus buildings, with vehicular traffic restricted to the periphery.

In the 1970s, the compact nature of the campus was transformed to accommodate student and faculty service demands. The result was a more sprawling and spread out campus. University Centre was also completed in 1970, the heart of campus activity.



[3.5] Joined Images of the Fort Garry Campus Taken from CKY Radio Tower (1927 and 1935)



[3.6] University of Manitoba Campus looking north-west towards the Southwood Lands (Taken between 1945 and 1947)



[3.7] 1950's Flood, World War II Veterans Village in the near ground (1950)

Funding diminished in the early 1980s, resulting in a period of reduced construction, although the Max Bell Centre was built in 1981. Economic constraints continued into the mid-1990s, punctuated by the development of the Investors Group Athletic Centre in 1998, built to accommodate the Pan-American Games of 1999. Also in 1998, Phase I of the University's technology and research park 'Smartpark' was announced with the first building being opened in 2002. (The University of Manitoba, 1978; The University of Manitoba 2001; Foster, 1978; Smartpark History, n.d.).

**The Current Contemporary 2000 - 2012**

Within approximately the last decade the University has experienced a period of growth and change with several new projects underway: Investors Group Field – an outdoor sports stadium that has capacity for over 33,500 people, ARTLab - housing the University's School of Art, Taché Hall - which is being renovated and expanded to provide a new and centralized location for the Faculty of Music (including a large new auditorium), and the Active Living Centre - a new gym facility.



[3.8] University of Manitoba Broadway Site (August, 1960)



[3.9] Gates partially completed at Chancellor Matheson (1963)



[3.10] University of Manitoba, looking north-east (October 14, 1964)

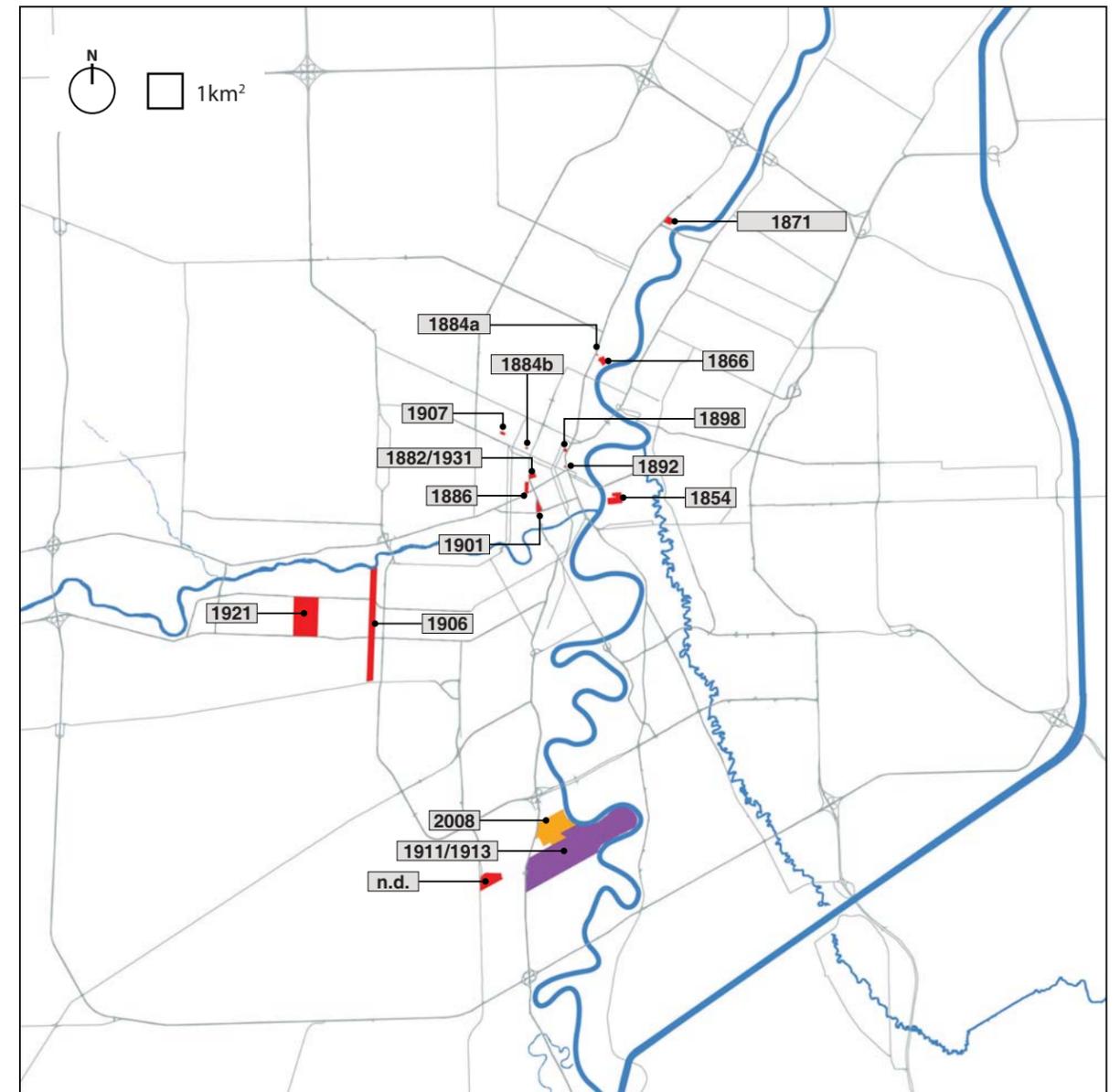
# Historical University of Manitoba Sites

## Locations within Winnipeg

The locations of current and historical University of Manitoba sites within the City of Winnipeg have been mapped.

Year	Description
1854	St. Boniface College founded (Catholic).
1866	St. Johns College founded (Anglican).
1871	Manitoba College founded (Presbyterian).
1877	University of Manitoba was established to confer degrees from three religious colleges.
1882	Manitoba College moves to Ellice Avenue.
1884a	St. Johns College moves to a "three-story Gothic Revival building in brick and stone" (Foster, 1978, p.1).
1884b	Manitoba College of Medicine was founded in 1883. Its first building located at Kate Street and McDermot Avenue was completed in 1884.
1886	Wesley College building completed.
1888	Wesley College becomes affiliated with the University of Manitoba (originally established in 1873).
1892	The University of Manitoba would be allowed to teach outside of the three founding colleges for the first time because they did not have the resources for courses related to the natural sciences. Space was rented on the top floor of the McIntyre Block to allow for this teaching to occur. A fire in 1898 would destroy the building.
1898	Classes moved to nearby Davis Block on the north side of Market Street between King Street and Main Street (more or less the location of current day City Hall) until a permanent location could be found.
1901	First university building constructed at site of current day Memorial Park.
1902	Manitoba College of Pharmacy becomes affiliated with the University of Manitoba (originally established in 1899).
1903	Manitoba Agricultural College founded as a "separate and distinct" institution.
1906	Manitoba Agricultural College constructs buildings at its Tuxedo site.
1907	New Medical College building constructed on Bannatyne Avenue near the General Hospital.
1911	Agricultural College relocate to St. Vital - Fort Garry Campus.
1913	University of Manitoba moves from Tuxedo to Fort Garry Campus.
1913	School of Architecture established (housed in the Old Law Court Buildings on Kennedy Street), the School of Art was housed in the Industrial Bureau's Exposition Building.
1914	School of Law established (housed in the YMCA on Smith Street).
1914	The onset of World War I causes all new construction at the St. Vital site to cease.
1921	University of Manitoba building constructed in Tuxedo (present day Canadian Mennonite University).
1931	St. Paul's College moves into Ellice Avenue Manitoba College building.
1938	Manitoba College merges with Wesley College to form United College (precursor of the University of Winnipeg in 1967).
n.d.	The University of Manitoba currently owns ~17 hectares (42 acres) on the corner of Waverly Street and Bison Drive. The history of this land is unknown, however it is likely a result of land extending outwards from the river lot system.

[Table 3.0] Historical University of Manitoba Sites



[3.11] Location of key historical University of Manitoba sites within Winnipeg

## History of the Southwood Lands

### Winnipeg Riding Club

The Southwood Lands were first used as a riding club near the end of the nineteenth century. In 1895, the Winnipeg Riding Club, later known as the Winnipeg Hunt Club (1908) was formed at a time when riding was becoming more of a recreational pursuit than a regular occupation.

The club was founded by Sam Abbott from County Meath, Ireland and had its beginnings in Charleswood, before moving to Fort Garry in 1912 (UoM Archives & Special Collections, N.D., Norgrove). In April of 1912, two-hundred men and one-hundred women were members of the club, and plans were laid out to build a clubhouse on the newly purchased property. On May 24<sup>th</sup> of the following year, the clubhouse was officially opened (Hackett, 1998).

With the advent of World War I in 1914, men who could ride left to fight as cavalry officers. A loss of members, along with a shortage of game to hunt and an increase in automobile usage, led to the slow decline and transformation of the Winnipeg Hunt Club (Hackett, 1998).

### Winnipeg Hunt Club

A seven-hole golf course was most likely completed on the site in 1918, with an expansion to nine holes by 1923. Soon after, the Winnipeg Hunt Club changed its name to the Hunt Golf Club. The Agricultural College's streetcar line ran through the golf course, making it easily accessible to other areas of the city.

### Southwood Golf Club

In 1919, additional land was acquired from the Agricultural College. The Norwood Golf Club (est. 1894) joined the Winnipeg Hunt Golf Club to form the Southwood Golf Club (Southwood Golf and Country Club, 2012).

### Willie Park Jr.

Notably, Willie Park Jr. (1864-1925) of Musselburgh Scotland was engaged in the design of the original course. He was twice the winner of the British Open, winning in 1887 and again in 1889 (Hackett, 1998).

### Stanley Thompson

In 1925, Southwood was redesigned by famed Canadian Landscape Architect Stanley Thompson (1893-1953). It was his first eighteen-hole design in Canada. It is not clear how Willie Park Jr.'s original design may have been incorporated into the new plan (Southwood Golf and Country Club, 2012).



[3.13] The Winnipeg Hunt Club (May 24, 1914)



[3.14] The Winnipeg Hunt Club (May 24, 1914)



[3.12] Opening of the Winnipeg Hunt Club (May 24, 1914)



[3.15] Members of the Winnipeg Hunt Club in Front of Aspen forest (May 24, 1914)



[3.16] Southwood clubhouse (January 5, 2012)

#### Clubhouse

In May of 1935 the original clubhouse was destroyed by fire. Rather than rebuilding, it was decided that the former living quarters for the Hunt Club staff would be used (Hacket, 1998). The most recent clubhouse building was opened in 1957, it was designed by Architect George A. Stewart (1922-1994) (The Canadian Architect, 1956). He was awarded his BA (Arch.) from the University of Manitoba in 1948 and served as the Director of the University of Manitoba Planning Office from 1970 to 1982 and would serve as the University Architect in charge of major projects on a part time basis until 1987 (Keshavjee, 2006).

#### Golf Course Renovations

In more recent years, renovations were done by Landscape Architects Chris C. Nelson, David Wagner and Bob Moote.

#### Relocation

Discussions to move the course began in the 1960s, with the club acquiring 97 hectares (240 acres) of riverfront property south of Winnipeg in La Salle, Manitoba in 1966. A plan for a new twenty-seven-hole course was proposed, but by 1976 it was clear that re-zoning would not occur, and the property was sold by 1982. By the mid-2000s, riverbank erosion, encroaching residential development, and increased traffic were cited as reasons for relocation. Club membership ultimately approved the decision to relocate and build a 120-hectare (297-acre) golf course just south of Winnipeg's St. Norbert neighbourhood.

#### Purchase Agreement

In January of 2008, a purchase agreement between the Southwood Golf and Country Club and the University of Manitoba was in place that would see the land transferred to University ownership. A 1970s trust fund, established for land acquisitions, gave the University the financial means to make this purchase. The University of Manitoba took possession of the land in 2011 (The Manitoban, 2011; The University of Manitoba, 2012).

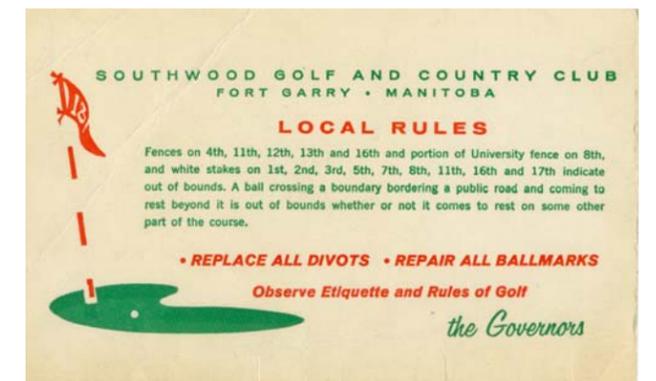
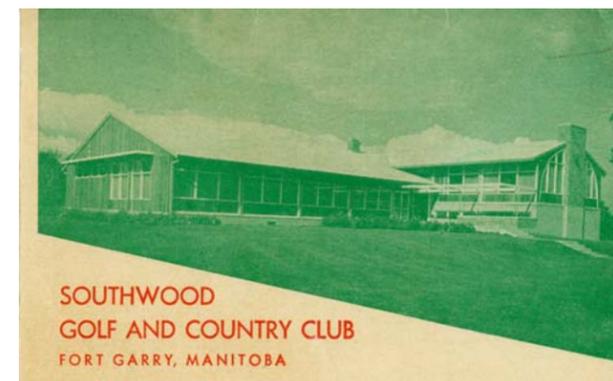
#### University Ownership

Since the Fall of 2012, the University of Manitoba has opened the Southwood Lands to the public for passive recreational use. This involved the installation of gates, the unfortunate removal of sand bunkers and the addition of signage.

The University also launched a design competition called Visionary (re)Generation in December of 2012 to create a vision for the future of the campus and the former golfcourse.



[3.17] Southwood clubhouse designed by Architect George A. Stewart (November 26, 1972)



[3.18] Score Card (July 27, 1965)

## Movement and Circulation - Rapid Transit

### Southwest Rapid Transitway Phase 2

In early 2013, the City of Winnipeg publicly released its report for Phase 2 of the Southwest Rapid Transitway created by Dillon Consulting (City of Winnipeg, 2012). A short critique of the decision to exclude Pembina Highway from the overall routing analysis will be made, as well as a discussion on the four potential access points for rapid transit into the University.

### Overall Routing

The report discusses four alignment options: two variations of Concept 1 (variations not shown), Concept 2, and Concept 3. Only 'Concept 3 - Pembina Highway Centre Median' will be discussed based on its dismissal as a viable option.

The report states that "the Pembina Highway median alignment is not viable and did not need to be included in the evaluation process" (City of Winnipeg, 2012, p.i). The given reasoning is that Pembina Highway would need to be widened as the "traffic study Synchro models determined that removing one lane in both directions along Pembina Highway was not feasible" (City of Winnipeg, 2012, p.16). Under this logic, there would need to be a significant expropriation of properties and reconstruction of the roadway (City of Winnipeg, 2012). The assumption within the study is that "traffic is expected to increase as development grows in southwest Winnipeg" (City of Winnipeg, 2012, p.16). The assumptions that Pembina Highway should not be studied as an option for transit are questionable at best and counter intuitive to experiences in other cities.

An alternative solution to property expropriation and roadway expansion is allocating existing road space to public transportation. Dedicated road space for public transit in each direction along Pembina Highway will lead to two fewer lanes for vehicular traffic, however it has been proven in many studies that vehicle traffic is based on supply and demand principles where "consumption of goods increases as its price declines" (Litman, 2010, p.2). This simply means that Dillon's assumption that traffic will increase is right in the sense that it is based on current trends, but ultimately wrong because it does not consider basic supply and demand principles related to road infrastructure (and the possibility of mode shift).

They make a prediction and are planning for that prediction to come true based on the recommendations they are making. "Decades of research have demonstrated that demand for traffic lanes tend to increase to fill the available supply" and that the reverse is also true, removing lanes leads to a reduction in traffic that is truly "reduced rather than just shifted" (McGreal, 2012). As McGreal simply states, "if you reduce lane capacity, some of the generated traffic simply disappears" (2012).

The notion that increasing road capacity increases traffic is supported by Litman:

*"Urban traffic congestion tends to maintain equilibrium. Congestion*

*reaches a point at which it discourages additional peak-period trips. Increasing road capacity allows more vehicle traffic to occur. In the short term this consists primarily of generated traffic: vehicle traffic diverted from other times, modes, routes and destinations. Over the long run an increasing portion consists of induced vehicle travel, resulting in a total increase in regional VMT" - vehicle miles travelled (2010, p.26).*

*"There is now practical experience that many cities have implemented policies to reallocate road space successfully" (Cairns et al., 1998) and that "when urban roadway traffic is reduced a significant portion of previous vehicle traffic may disappear altogether" (as cited in Litmann, 2010). Cairns et al. summarize a study published in 1998 commissioned by the London Transport and Department of the Environment, Transport and Regions (DETR) called Evidence of the Effects of Road Capacity Reduction on Traffic Levels. Examples from over one hundred cities, including sixty primary case studies on the successful reallocation of road space concluding that "the balance of evidence is that measures which reduce or reallocate road capacity, when well-designed and favoured by strong reasons of policy, need not automatically be rejected for fear they will inevitably cause unacceptable congestion" (Cairns et al., 1998).*

Dillon was also the consultant that created the Synchro models for the City of Winnipeg in 2009 that were a key part of their argument that "lane removal would significantly impact the level of service, increase delay times, decrease average speeds, increase greenhouse gases including CO<sub>2</sub>, NO<sub>x</sub> and VOC emissions, as well as increase fuel consumption" (City of Winnipeg, 2012, p.16). They made no mention of their assumptions or methodology. It is reasonable to assume that they are working under the same premise in 2009 as they are in 2012; the premise that traffic levels would continue to increase (City of Winnipeg, 2012). Dillon is focusing on the movement of vehicular traffic rather than the movement of people.

Missing from their analysis is the fact that more people would be able to move from point A to B along Pembina Highway by dedicating two lanes to public transit because buses simply make more efficient use of existing space when compared to private automobiles. Work conducted by the transportation engineering firm Steer Davis Gleave for the City of Hamilton worked under the logic that there would be a twenty percent decrease in auto traffic due to modal shift (McGreal, 2012). It was the City of Hamilton that set this goal, which leads to the question:

- Why is the City of Winnipeg not setting goals for reducing overall vehicle mileage in order to work towards changing current trends?
- Could we not expect similar modal shift results with lanes dedicated for bus transit down Pembina Highway?

The document created by Dillon does not include any numbers related to how many people currently use the system and what the expected boardings are for each of the routes that were studied (City of Winnipeg, 2012). The number of current and expected



[3.19] Rapid Transit Phase 2

boardings for each route should have been a key part of decision making. This is something that other organizations consider; for example this is a key piece of information in the UBC Line Rapid Transit Alternatives Analysis (Translink, 2013). It would be reasonable to expect higher boarding rates and usage along Pembina Highway because there would be strong incentive for people to take the bus and shift their mode of transport given reduced lane capacity for private vehicles. These are all justifiable counter arguments to the findings from the Synchro models.

### Synchro Modelling

McGreal cites a number of sources when he critiques the use of Synchro models, stating that “these tools were not designed to model the significant effects to street design. They can only model how a given volume of traffic will move through a given traffic network” (2012). He goes on to state that “the standard tools for modelling traffic are generally based on the assumption that traffic flows will remain constant if lane capacity is changed” (2012).

The company that produces Synchro is called Trafficware. According to Trafficware, Synchro allows users to “design, model and optimize traffic signal infrastructure” (Trafficware, 2013). A tutorial for the software was reviewed, showing the basic ideas behind it. The program allows inputs for the number of lanes, lane width, speed, traffic volumes, and the ability to test traffic signal timing in addition to a number of other factors. The number of ‘conflicting’ pedestrians or bicyclists per hour can also be added in. This could be one of the reasons that pedestrian crossing times are so short on many major roadways - vehicle traffic is being valued over the experience of pedestrians and cyclists. The software obviously is designed to move vehicles as efficiently as possible, but only represents a very narrow way of looking at the city. Another way to make decisions around the potential routing of a rapid transit line is its ability to enhance the quality of life for non-car users; “road space reallocation is not about making life difficult for car drivers, it is about improving the mobility options and quality of urban life for all” (European Commission, n.d.).

### Catalyst for Public Space

Placing the rapid transit line down Pembina Highway has greater potential to create places that are lively for people and not just roads for cars. Danish town planner Jan Gehl makes a convincing argument in his film ‘Livet mellem husene / Cities for people’. He discusses the modernist era and fascination with the automobile, showing contrasting images of the old city spaces designed for the 5km/h scale versus the 50km/h scale of the new city spaces. From this, it is clear that people prefer the 5km/h scale) due to the positive effect that it has on quality of life (Heide, 2010). An enormous portion of a cities’ public spaces are roads, they have traditionally had two roles movement or transportation, and social interaction, we have lost the latter. Using the existing road space more efficiently by allocating two lanes of traffic to buses would potentially mean a huge cost savings for the city. This money could be invested in the public realm of Pembina Highway, the 5km/h spaces that no one currently wants to be in because they are so terribly designed. The enhancement of public space and the dedicated bus lanes could also become a catalyst

to enable new mixed use development along Pembina Highway, something that is a goal within Winnipeg’s planning document OurWinnipeg (City of Winnipeg, 2011).

### Conclusion

The assumption that vehicular traffic will increase along Pembina Highway is not supported by extensive experiences in other cities and traffic supply / demand principles. The consultant does not take into the account the possibility of mode shift, and that the incentive for people to take public transit would be greater by reallocating lane space away from private cars.

The number of projected transit boardings and the effects of transit journey times on existing users were also not explored within the study. Although the operating speed would be lower on Pembina Highway, this does not mean the overall journey time would take longer. If people are forced to walk further distances to get to transit, the faster operating speeds of Concepts 1 and 2 do not matter to the overall journey time. Further analysis is needed to determine where existing transit users are coming from and how proposed changes will impact their overall journey time.

Due to their restrictive assumptions, there is failure to examine the potential cost savings of routing the project down Pembina Highway. Potential cost savings could be allocated towards public space, which could become a further catalyst for new mixed use development that would help to meet the mandate set out within Winnipeg’s planning document OurWinnipeg.

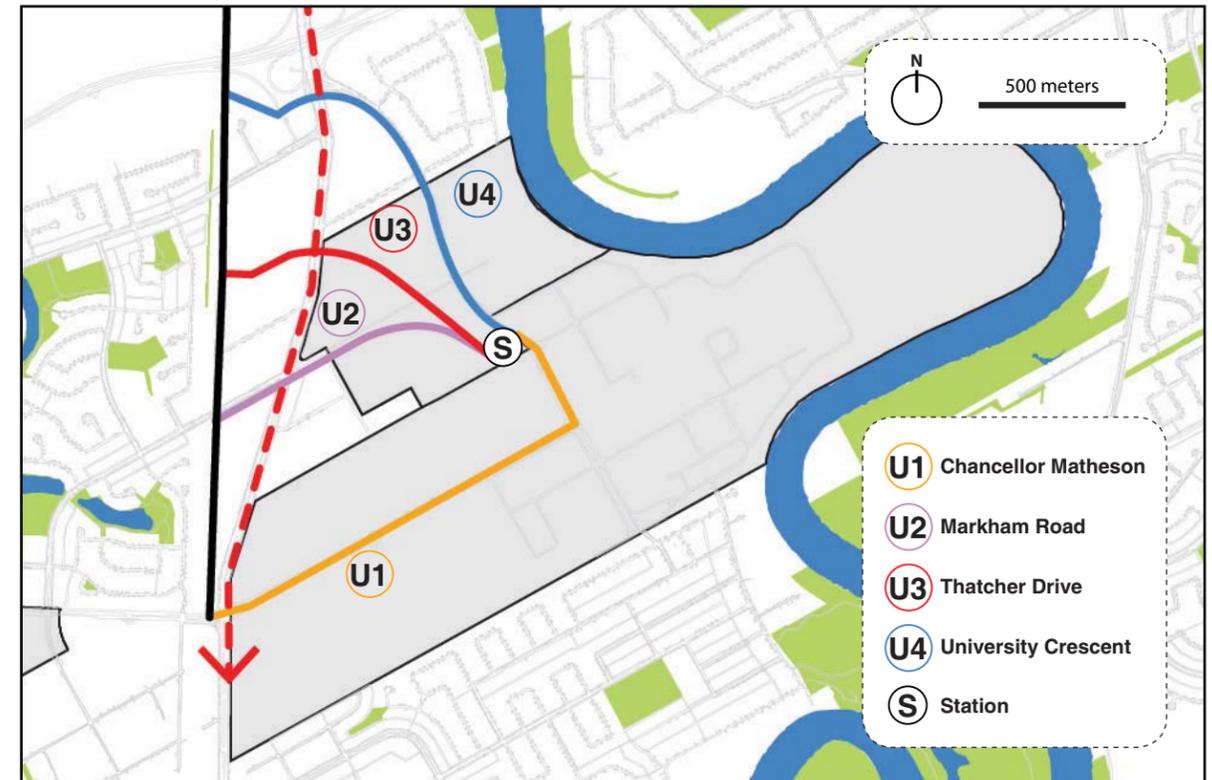
Not routing rapid transit down Pembina Highway is to my understanding an easier choice politically, but it is not the best choice or the right decision for the city. After construction is finished on alternative routing and incredibly large sums of public money are spent, we will still be left with the neglected spaces that no one wants to invest time or money in. Worst of all, there will be nothing left in the public purse to improve them.

### Access into the University

Four potential routes were identified for access into the University of Manitoba Fort Garry Campus. U3 was dismissed as an option for various logistical reasons. U2 was seen as the most feasible (least costly) and has been stated as a preferred route by the University of Manitoba.

Routes U1 and U4 were both more expensive than U2. The reason for the additional expenses is that the engineers are again making the assumption that we should add additional lanes, rather than reallocating lanes to public transportation. Under the engineer’s assumptions this would mean destruction to the historic avenue of elms along Chancellor Matheson (U4) and the expropriation of properties along University Crescent (U1).

Based on the research discussed above, it is reasonable that dedicating existing lanes to public transportation on both the U1 and U4 options is feasible. Therefore, for the purposes of this practicum U1, U2 and U4 will be considered as potential routes.



[3.20] University of Manitoba Bus Rapid Transit Alignments



[3.21] Existing Bus Routes

# Pembina Highway Corridor

## The Face of the University

Pembina Highway is where the University presents itself to the city. The land along this major roadway is the physical face of the University and needs to be treated with a great deal of respect and sensitivity when making design decisions.

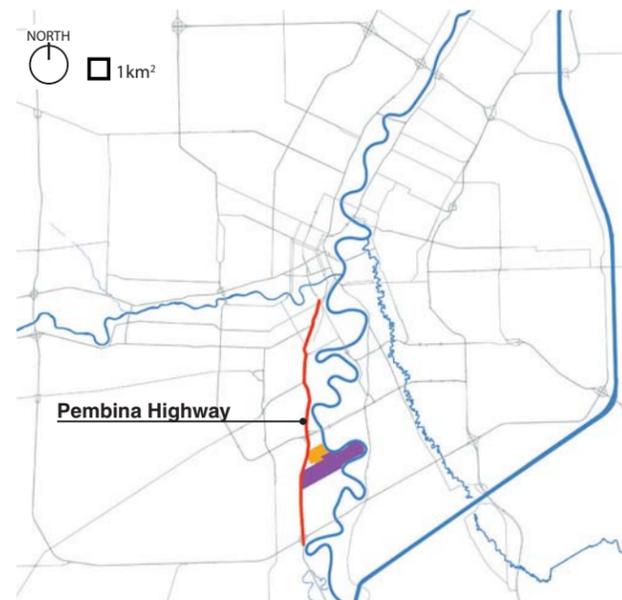
Pembina Highway is a six lane arterial roadway that extends from Confusion Corner to the north, and beyond the Perimeter Highway to the south. A total of 11.5km was analysed to gain insight into the relationship between the site and the context of this corridor.

## Process

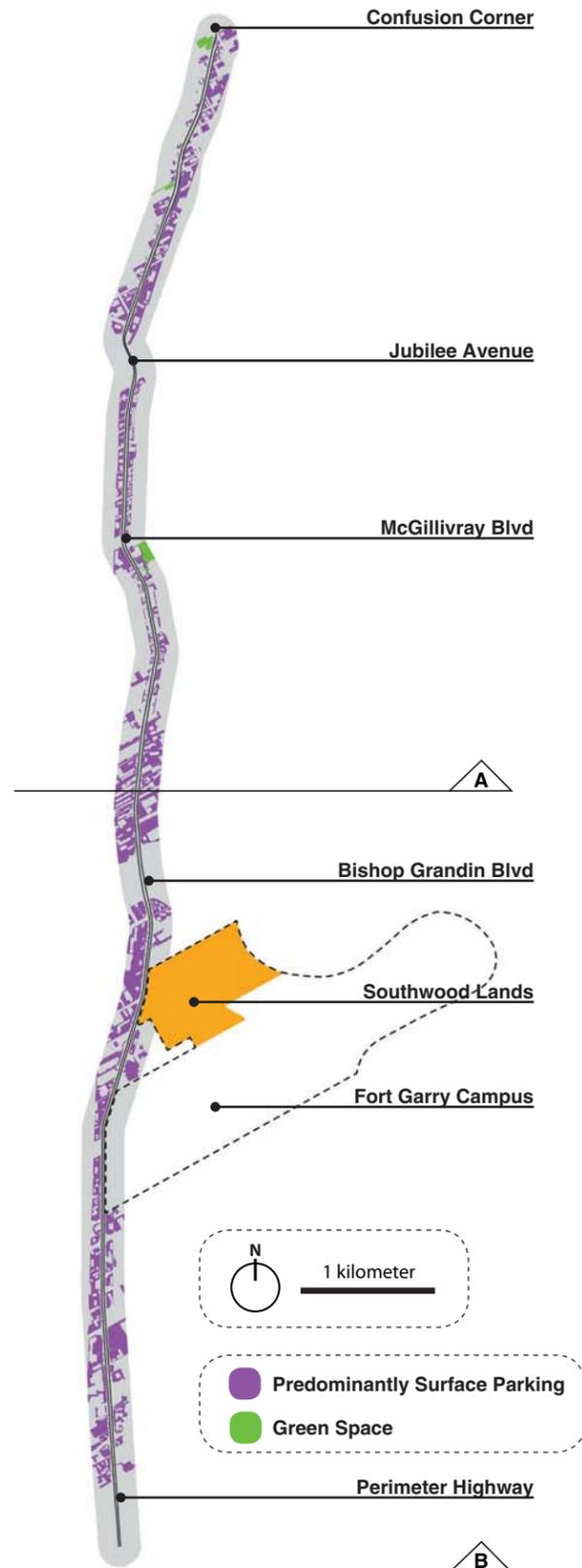
A 150m buffer along either side of the roadway defines the area of analysis. Parks within 20m of Pembina Highway, and any natural areas within the buffered area are shown. Surface parking and other hard surfaces were traced from aerial imagery taken between 2008-2010.

## Findings

In a landscape of roads, parking lots, and buildings there are very few areas of refuge, and nature that provide breaks in the urban fabric. River Osborne Community Club, the Grant Avenue Buffer and Gary Hobson Memorial Park are three of these areas, however they are small or set back from the roadway making them not directly visible. The University's frontage is the only place where there is a visible and significant break in the hard fabric of the city. It should be treated as somewhere that is unique, signifying the University as a place that has special importance.



[3.22] Pembina Highway in Relation to the Site

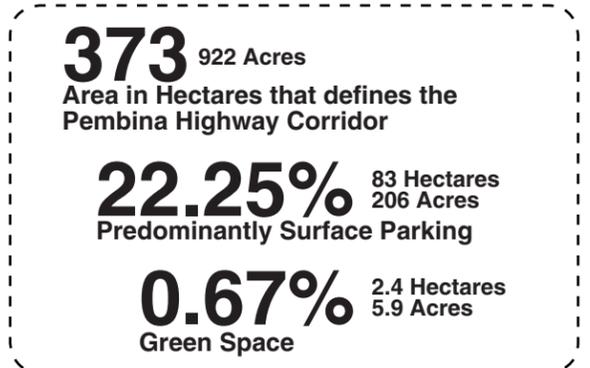


[3.23] Pembina Highway Corridor in Relation to the site

## Personal Experiences at the Campus Planning Office

From experience working at the University's Campus Planning Office, it has been observed that there is a desire to capitalize on the economic opportunity created by developing the University's frontage on both Southwood and the traditional Fort Garry Campus. The implications of such a decision on the quality of the built environment, the presence of the University along Pembina Highway, historic tradition, and the overall image of the University need to be strongly considered with long-term thinking in mind, not only short-term economic gain. A design decision on how to treat these areas is part of an overall strategy for the Fort Garry Campus found in the next chapter.

Additionally, putting buildings along the frontage of Pembina Highway may be a poor economic decision given that parks add value and economic potential to residential development, and can act as a buffer to a busy arterial roadway, which would be desirable if people are to live on Southwood. The economics of parks is discussed in an upcoming section, and is followed by a discussion on the non-monetary value of landscapes under the heading of ecosystem services later in the chapter.



[3.24] Looking South with Pembina Highway to the right (October 9, 2012)



[3.25] Looking West Towards Pembina Highway (January 5, 2012)



[3.26] Pembina Highway Detail A

[3.27] Pembina Highway Detail B



01 Looking north towards Confusion Corner



02 Views of the Human Rights Museum



03 Near Taylor Avenue (looking south)



04 Pembina Highway (looking north)



05 Bike lane (looking north)



06 At University Crescent (looking south)



07 University of Manitoba on left (looking south)



08 Near the Perimeter Highway (looking north)

[3.28] Pembina Highway Photographs (June 6, 2013)

## Parks and Their Amenities

### Relation to the Site

The University of Manitoba and Southwood Lands are situated within a rich context of existing park spaces along the Red River.

### Opportunities

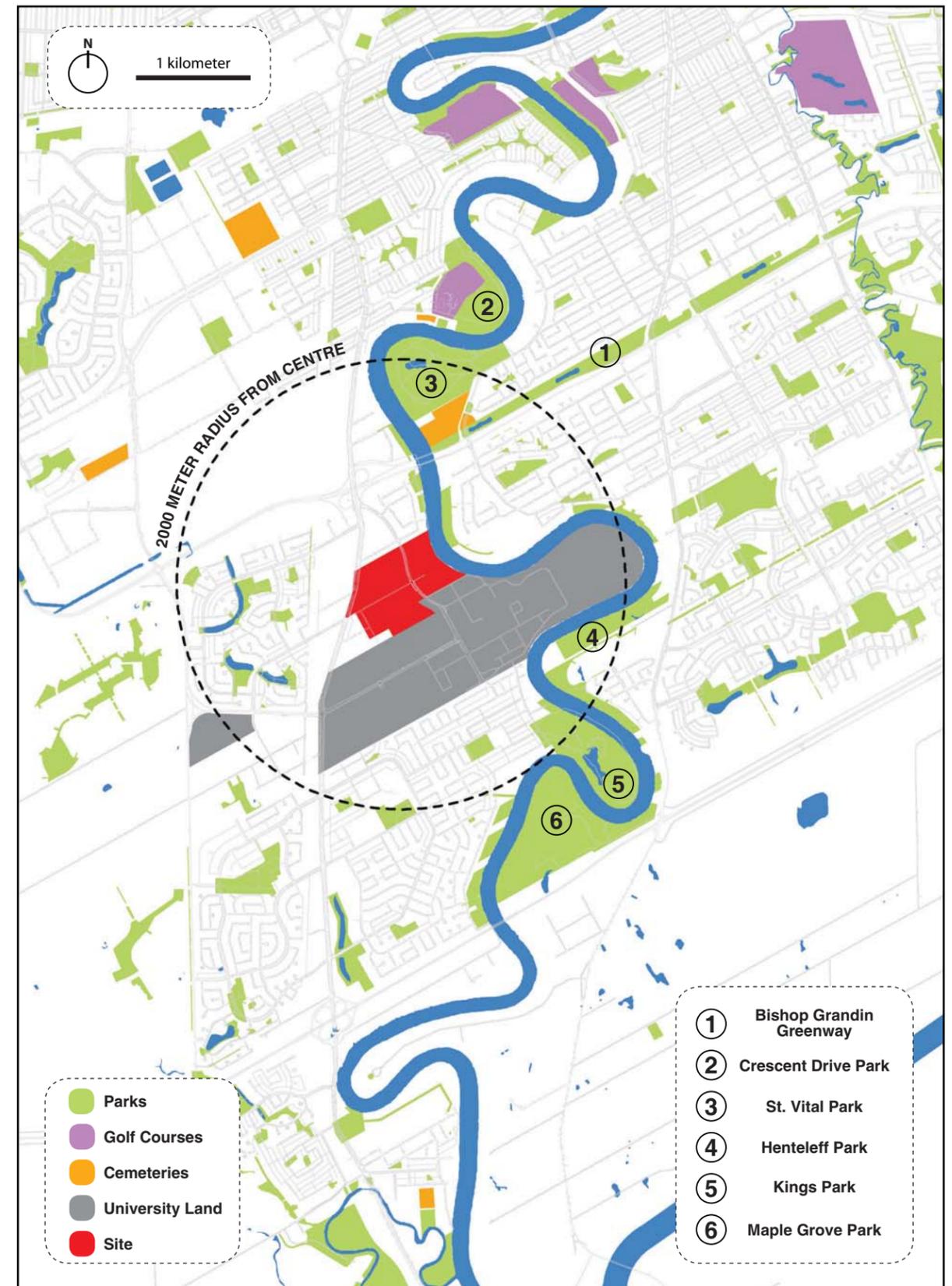
1. Strengthen the overall park network through the design of an active transportation system between major parks and through the University of Manitoba. This is supported in the University of Manitoba document "Sustainability at the University of Manitoba" (p.28).
2. Provide public access and enhance the ecological quality of spaces around the Red River, both within the Southwood Site and the University of Manitoba Campus. The University of Manitoba document "Sustainability at the University of Manitoba" supports this goal, by stating that we should "extend the natural landscape throughout the campus to create ecological links with the river, forest, remnant parkland, and reconstituted grassland areas" (University of Manitoba, n.d., p.28).
3. Provide additional pedestrian / cyclist access across the Red River to both to the University and park amenities.
4. Enhance the riparian edge and create a conservation zone along the red river that would extend into the campus (University of Manitoba, n.d.).

### Constraints

1. No immediate constraints.
2. No immediate constraints.
3. The City of Winnipeg hired MMM Group to produce a feasibility study that would select a site for a pedestrian bridge crossing the Red River. This report has been shelved and no action has been taken to date. From experience with the University of Manitoba, it is clear that there are many who would benefit from having a pedestrian bridge to cross the river, however some vocal citizens are against the proposal.
4. No immediate constraints.

Park Name	Size (hectares)	Size (acres)	Amenities
Kings Park	38	94	2 Baseball Diamonds, 1 Soccer Field, Labrynth, Picnic Tables, Informal Gardens, Off Leash Dog Park;
St. Vital Park	49	121	2 Sand Volleyball Courts, 1 Soccer Field, Fitness Trails, 2 Toboggan Slides, Winter Skating on Pond, Duck Pond, Picnic Shelter (50 people, BBQ pits, Picnic Sites, Boat Launch (ramp/docks), Flower Garden;
Henteleff Park	16	40	Trails, future plans for: tall grass prairie meadow, market/community gardens, arboretum;
Maple Grove Park	64	158	Manitoba organization of disc sports fields, Rugby Fields, Off Leash Dog Park.

[Table 3.1] Major Parks and Their Amenities



[3.29] Parks, Golfcourses, and Cemeteries

# Economics of Parks - The Proximity Principle

## Proximity Principle

“The proximity principle states that the market value of properties located proximate to a park or open space (POS) are frequently higher than comparable properties located elsewhere” (Crompton, 2007).

*“The proximate principle was first promulgated and empirically verified in the parks field by Frederick Law Olmsted in the context of Central Park in New York City. The documented evidence from Central Park established the proximate principle as conventional wisdom among elected officials and planners as well as park advocates in the late nineteenth and early twentieth centuries. As a result, it was used to justify major early park investments in many U.S. cities. Other early empirical studies undertaken in two New Jersey County Park Systems also endorsed the legitimacy of the proximate principle”* (Crompton, 2000, pp.1-2).

## Making the Economic Case for Parks

The challenge for park advocates is making the economic case, as parks and open space are often perceived to offer no financial return (Crompton, 2000). This myth is tied to the three types of costs associated with providing parks:

1. Acquisition and development costs;
2. Operation and maintenance costs;
3. The opportunity cost of loss of property tax income that jurisdictions would have received if the land had been developed for other purposes” (Crompton, 2000, p.8).

*“Advocates of park and open space provision view this economic conceptualization of parks as flawed. They exhort the adage that much of the value of properties on the tax roll is acquired from amenities that are off the tax roll, and that the contributions of these amenities to the tax base are likely to be at least as substantial as those forthcoming from residential real estate developments”* (Crompton, 2000, pp.8-9).

This is supported by a large body of evidence that dates back one-hundred and fifty years to the work of Frederick Law Olmsted, “which suggests the conventional wisdom that park amenities offer no economic return is wrong” (Crompton, 2000, pp.8-9).

## Six Key Findings

Six key findings related to the economic value that parks add to real estate are outlined below:

### 1. There are differences in the magnitude of property value increases based on the size and use of park space.

There is no generalized answer to determine how much a park space will positively impact the property values of adjacent properties, but twenty percent (20%) is a reasonable starting point provided the spaces are primarily of passive use (Crompton, 2000).

The increase in property value will be greater than twenty percent (20%) if the park is large (greater than 10 hectares or 25 acres), “well maintained, attractive and its use is mainly passive” (Crompton, 2000, p.3).

However, the positive impact on property values could be less than twenty percent (20%) “if it is small and embraces some active uses” (Crompton, 2000, p.3).

### 2. As the distance from a park increases the effect the proximity value has on property value decreases.

The distance or proximity to a park/open space determines the effectiveness of the proximity principle (Figure 3.30). Large parks have a larger catchment area and therefore are able to influence the value of properties that are further away when compared to smaller parks.

Effects of the proximity principle have been observed to distances of 152m (500’) to 610m (2000’), however beyond this it is difficult to determine to what extent a park has on increasing property values due to all of the other factors that need to be considered. (Crompton, 2000).

### 3. Increasing the edge condition / the lot frontage along a park can positively affect property values.

*“The increased amount of edge means that more properties can be sited adjacent to the park and the aggregate enhancement value of the property tax base is likely to be larger. The edge principle has been widely embraced in the design of golf courses which are incorporated into residential real estate developments”* (Crompton, 2000, p.12).

*“Traditional, almost rectangular shaped courses similar to the shape of traditional parks, have been discarded in favor of more real estate frontage”* (Crompton, 2000, p.4).

The United States has over sixteen thousand golf courses, two-thousand that are part of residential developments. An astounding one thousand golf courses were created in the 1990s as part of residential developments. Developers used golf courses for two primary reasons:

- i. To increase property values
- ii. To sell lots more quickly (20-30% quicker) (Crompton, 2000, p.101)

*“The developers’ strategy mirrors that which has been advocated by supporters of public parks and open space for over a century, i.e. parks and selected recreation features are an investment not a cost because they generate more property taxes for a city than it costs to service the annual debt charges incurred in creating the amenities. The high visibility, large number, and success of these golf course developments demonstrates by analogy to governmental stakeholders and decision-makers that commercial developers implicitly recognize that recreation amenities and park-like open spaces enhance the surrounding land values*

*sufficiently to offset their costs of acquisition and development”* (Crompton, 2000, p.102).

### 4. “Preserving open space is likely to be a less expensive alternative for communities than residential development”

(Crompton, 2000, p.3). Park land is exempt from taxes because it is publicly owned. There is a misconception about the opportunity cost associated with dedicating land towards park space;

*“...the opportunity cost is the loss of property tax income that jurisdictions would have received if the land had been developed for other purposes. The conventional wisdom which prevails among many decision-makers and taxpayers is that development is the ‘highest and best use’ of vacant land for increasing municipal revenues. This conventional wisdom is reinforced by developers who claim their projects ‘pay for themselves and then some.’ They exhort that their developments will increase a community’s tax base and thereby lower each existing resident’s property tax payments”* (Crompton, 2000, p.3).

Studies have challenged this notion. “They have consistently shown that the public costs associated with new residential development exceed the public revenues that accrue from it” (Crompton, 2000, p.3). Based on sixty fiscal impact studies it has been consistently shown that preserving open space is less expensive than residential development.

*“For every one million received in public revenues the community had to expend \$1.15 million to service them. This suggests that if the area of land on which a development generating one million in revenues is located was used as park instead, then the park’s operating and maintenance costs did not exceed \$150,000 the community would financially benefit”* (Crompton, 2000, p.3).

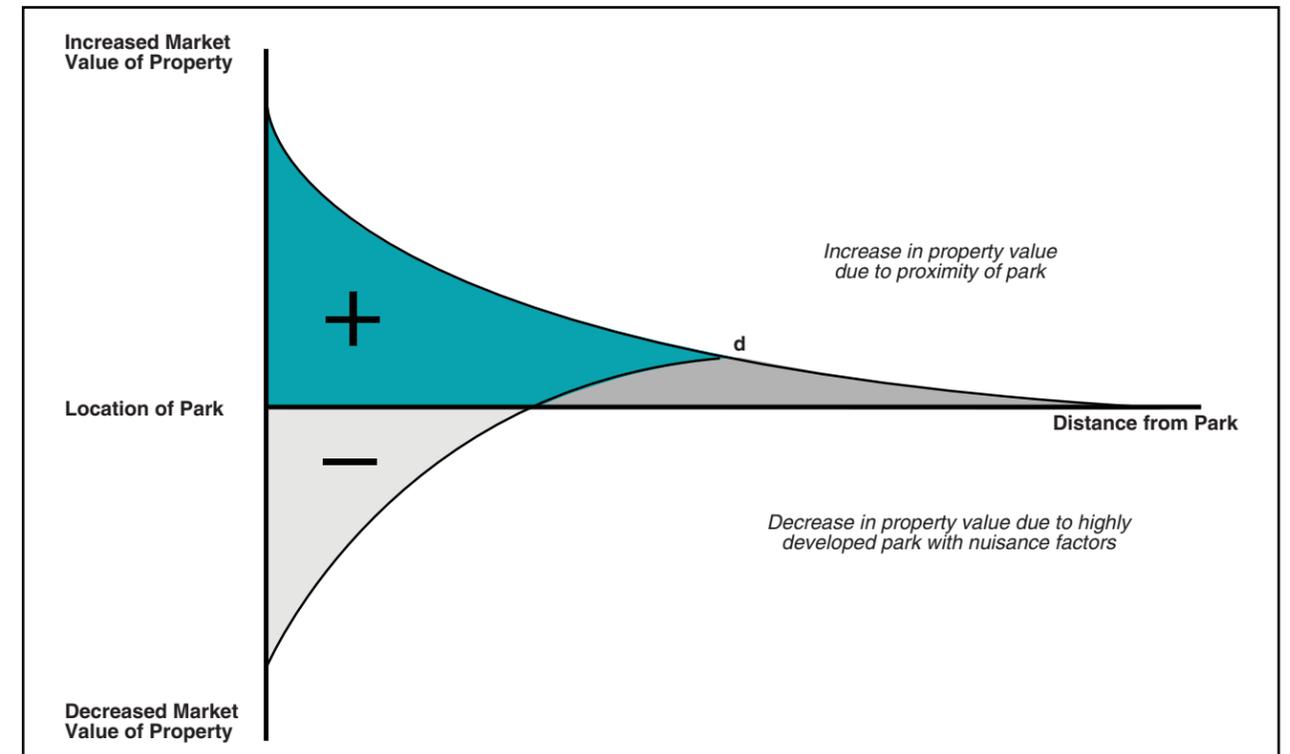
## 5. The importance of Maintenance and design.

The market value of a property adjacent to a park can decrease when the following conditions are present:

- i. “a park is not well maintained
- ii. a park was not easily visible from nearby streets and, thus, provided opportunities for anti-social behaviour
- iii. the privacy of properties backing on to a linear park was compromised by park-users” (Crompton, 2000, p.2)

## 6. Parks help a community to attract businesses.

Crompton suggests that there is evidence that “investments in parks affects the comparative advantage of a community in attracting future businesses” (2000, p.11). Secondary economic benefits such as this, are not accounted for in the proximity principle, but are important considerations for decision makers.



[3.30] The Impacts of Parks on Residential Property Values (Adapted from Crompton, 2000)

# Light Pollution - Winnipeg, Manitoba

## Winnipeg at Night

The aerial imagery shown on this page highlights the City of Winnipeg and Selkirk area at night and the associated light pollution. This image was taken as part of the International Space Station program Mission ISS034 launched on November 19<sup>th</sup>, 2012.

The purpose of this short discussion is to ensure that the experience of the site after dark is elevated from something that receives little attention or is often an afterthought to a critical design issue that is imperative to sustainability and the spatial experience of our lived environments.

## Light Pollution

Falchi et al. describes light pollution as “the alteration of natural light levels in the night environment produced by artificial lighting” (2011, p.714). Accordingly, Cizano states that the alteration of ambient light levels in the night environment as “one of the most rapidly increasing alterations of the natural environment” (2011, p.689).

Alteration of light levels in the night time environment has profound implications for not only human health, but also the

health of non-human species. “Light pollution does substantial damage to wildlife, aesthetics, and even to human health. Mammals, birds, amphibians, insects, fish and even plants are all affected by light pollution. Light pollution disrupts feeding, reproduction, sleeping and migration.” (Galloway et al., 2011 p.658).

Hölker et. al. point out that “a substantial portion of global biodiversity is nocturnal (30% of all vertebrates and >60% of all invertebrates)” (Hölker et al., 2010, p.681). For most organisms this is controlled by circadian clocks that “play key roles in metabolism, growth, and behaviour (Hölker et al., 2010, p.681).

## Winnipeg, Manitoba + Manitoba Hydro

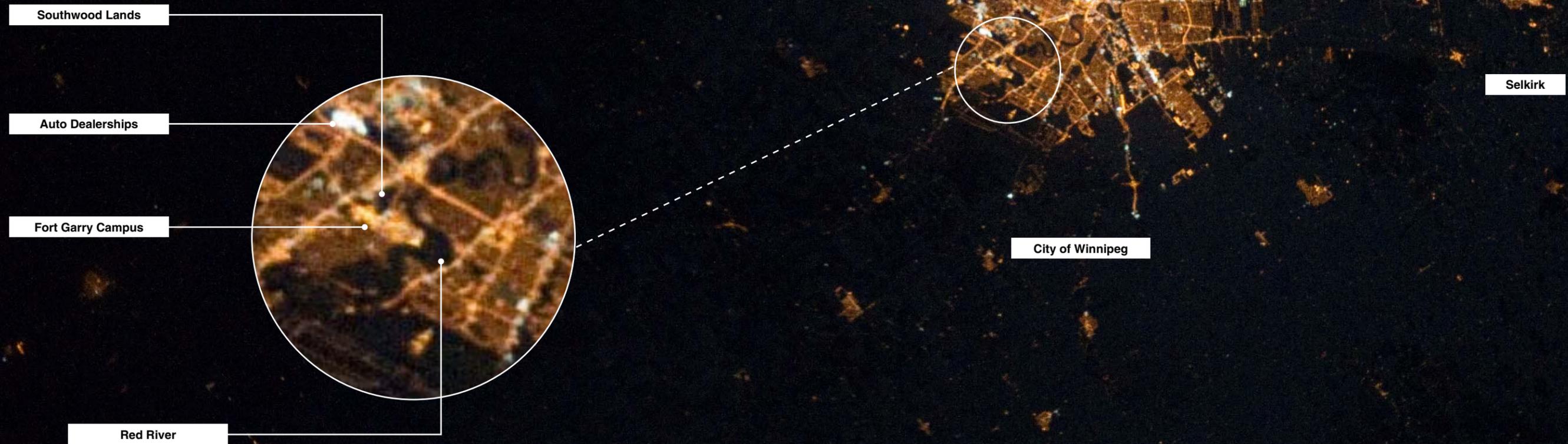
In Winnipeg, it is Manitoba Hydro that designs the street lighting layouts, installs the lighting and performs street lighting maintenance in partnership with the City of Winnipeg which sets the lighting levels based on the “Transportation Association of Canada’s Lighting Design Guide (2005 Edition)” (City of Winnipeg, 2013). It is outside the scope of this document to examine in detail, but site observations on the following pages and the fact that light pollution continues to grow at a rate

of six percent per year proves that there is a critical need for further discussion around the issue of lighting design (Bogard, 2013).

Cities such as Paris, France have realized the importance of reduced lighting levels, as it is something that they are undertaking as of July, 2013. It is estimated that the carbon and energy savings will amount to the equivalent of seven hundred and fifty thousand households worth (Bogard, 2013). This can amount to great monetary savings as well, for example the City of Nanaimo found that street lighting accounts for “thirty-eight percent of energy costs and six percent” of green house gas emissions (Kevin Connery in CSLA, 2013, pp.14-15).

## Sensitivity of human vision at night

Our eyes are very well adapted to minimal amounts of night light. They consist of cones that give us color (photopic vision), and rods that give grey and white (scotopic vision). “During twilight, and under moonlight and good street lighting, we use both rods and cones, or a mixture of photopic and scotopic vision; this is called mesopic vision” (RASC Calgary, n.d.). Robert Dick discusses the sensitivity that our eyes have stating “once our eyes have adjusted, it is even possible to read a newspaper by the light of a full moon, which is a bit less than 0.3-Lux (in CSLA, 2013, p.15). Further to this, starlight at 0.1-Lux provides enough light to walk across an open field (Robert Dick in CSLA, 2013).



[3.31] Winnipeg-Selkirk Area at Night (February 10, 2012; GMT Time: 053551 (HHMMSS))

# Lighting Study

## Photographic Documentation

Photography was used to observe and document differences in light pollution and the existing experience of the site at night. This was done on both on and off site in order to make a comparison between different places. The camera was set to full manual on a tri-pod with the following settings: Shutter Speed of 30" (seconds) and F-number/aperture = 5; these settings were used on all photographs to allow for consistency and a comparison between lighting levels. Images were taken between 3.20 and 4:00am; image 01 was taken at 3.20am and image 12 at 4.00am.

## Smartpark (Images 01 to 03)

Three images were taken within the University of Manitoba Smartpark area; 01- is taken directly outside of the Event Centre where the Universities Campus Planning Office is housed. Spotlights are directed at the building to illuminate it. Leaving the building while these lights are on causes a huge amount of glare to enter ones eyes, leading to poor visibility and pain. The spotlights and the additional lighting fixtures installed around the Event Centre are incredibly wasteful both in ongoing energy costs and the up front cost of installation. The vertical light fixtures on the south side of the entryway are not needed because of the amount of light already coming

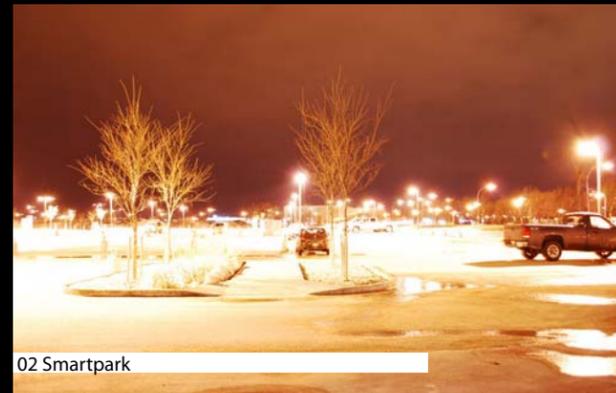
from the parking area. The money would have been better spent providing site furnishings to allow occupants to enjoy a lunch or break in the outdoors during the warmer months. Additionally, planting should have been installed on the northern side of the entryway to block cold winter winds - something that is of considerable concern in the creation of spaces that are habitable in winter months. The designers seem to be more concerned with the composition of the landscape and the illumination of the building as an object instead of the use of the place by people. It is easy to conclude based on observation that very little thought about the human senses, and how people use or experience space was part of this design.

Image 02 was taken a couple of meters directly in front of image 01 showing the light levels in one of the Smartpark parking areas. Parking lots remain illuminated all night and appear to turn on at the same time everyday regardless of the length of day and the cycles of the moon.

Image 03 was also taken in the empty field between the two retention ponds of Smartpark. The area was considerably darker when compared to image 01 and 02, but still remained illuminated due to light from other areas.



01 Leaving the Event Centre



02 Smartpark



07 Pembina Highway Looking towards the site



08 Pembina Highway Looking towards the site



03 Smartpark open area



04 Looking towards Pembina Highway



09 Pembina Highway Looking North



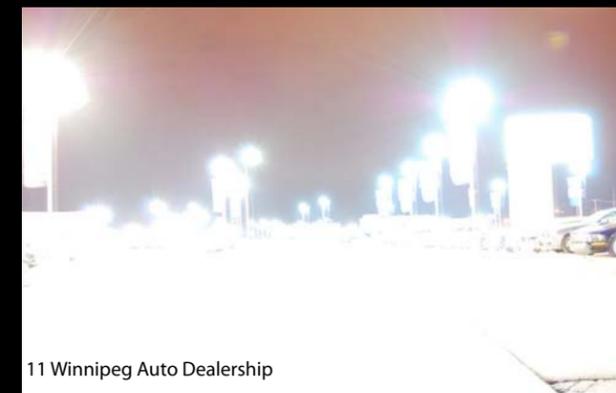
10 Shoppers Drug Mart



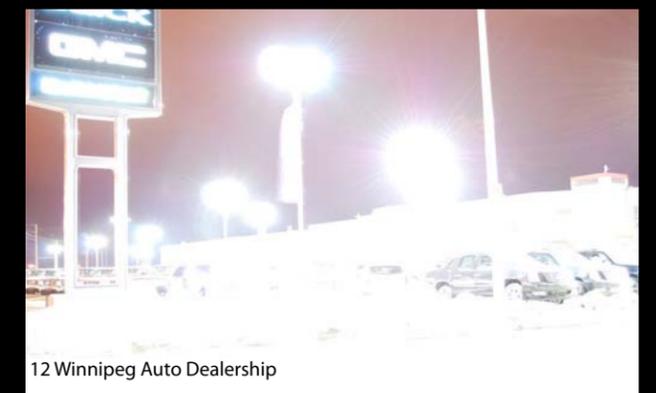
05 Looking towards Pembina Highway



06 Looking across from the site



11 Winnipeg Auto Dealership



12 Winnipeg Auto Dealership

[3.32] Light Pollution Study (April 7, 2013); Taken between 3:20am and 4:00am

### Southwood Site (Images 04 to 10)

Seven photographs were taken on the western edge of the Southwood Lands near Pembina Highway. Image 04 (also shown in Figure 3.35) is taken around 70m from the major roadway. Image 05 (also shown in Figure 3.36) was taken around 200m from Pembina and illustrate how existing vegetation patches block unwanted light. Sound was also an important part of the experience. Road noises from Pembina Highway were quite loud at 70m, whereas noise from nearby Bishop Grandin Boulevard was more audible 200m away as Pembina become significantly quieter.

Image 06 is from the sidewalk on Pembina Highway, looking away from the site; 07 (also shown in Figure 3.33) and 08 are looking towards the site from across the street, and show traces of vehicular movement due to the long exposure times. Image 09 (also shown in Figure 3.54) looks north along Pembina Highway, and image 10 is facing one of the retail establishments across from the site of study.

### Auto Dealerships (Images 11 to 12)

Image 11 and 12 represent an extreme example of how we over-light the built environment. The experience of being in this area physically hurts ones eyes because the light levels are so high and intense. Do we really need to light an empty car dealership to the point where it is just as bright as daytime?

It is interesting that our parking lots, car-oriented roadways, auto dealerships and gas-stations are some areas where the worst offenses of light pollution occur. In our obsession with considering the auto-mobile we have forgotten to design for people and forgotten our relationship to the natural world. According to Bogard, the lighting levels in parking lots and gas stations are ten times brighter than just twenty years ago (2013).



[3.33] Looking towards the site from Pembina Highway (April 7, 2013); Between 3:20am and 4:00am



[3.34] Looking north down Pembina Highway (April 7, 2013); Between 3:20am and 4:00am



[3.35] Looking towards Pembina Highway from site (April 7, 2013); Between 3:20am and 4:00am



[3.36] Looking towards Pembina Highway from behind vegetation patch (April 7, 2013); Between 3:20am and 4:00am

## Ecosystem Services

### Ecosystem Services

The American Association of Landscape Architect's Sustainable Sites Initiative defines ecosystem services as "goods and services of direct or indirect benefit to humans that are produced by ecosystem processes involving the interaction of living elements, such as vegetation and soil organisms, and non-living elements, such as bedrock, water, and air" (Sustainable Sites Initiative, 2009a, p.6). It outlines twelve ecosystem services that a sustainable site can strive to protect or regenerate:

#### *Ecosystem Services outlined in the Sustainable Sites Initiative*

1. Global climate regulation
2. Local climate regulation
3. Air and water cleansing
4. Water supply regulation
5. Erosion and sediment control
6. Hazard mitigation
7. Pollination
8. Habitat functions
9. Waste decomposition and treatment
10. Human health and well-being benefits
11. Food and renewable non-food products
12. Cultural benefits

Ecosystem services are "essential to the health and well-being of humans and all other life on the planet" (Sustainable Sites Initiative, 2009b, p.12). However, it is typical that the services provided by landscapes are not valued in decision making. The land that fronts Pembina Highway within Southwood are used as an example.

#### **Pembina Highway Frontage - Southwood Lands**

The land along Pembina Highway is economically valuable, and there are those at the University of Manitoba wishing to capitalize on this opportunity. However, it is not just the potential to make money that should be evaluated in decision making, it is also the other non-monetary values that this landscape provides that need consideration.

At least eight of these twelve criteria are present in the existing site conditions along Pembina Highway; these include numbers: 1, 2, 3, 7, 8, 10, and 12. Local climate regulation (2), human health and well-being (10) and the cultural benefits (12) are elaborated upon below.

#### *Local Climate Regulation (2)*

"Regulating local temperature, precipitation, and humidity through shading, evapo-transpiration and windbreaks" (Sustainable Sites Initiative, 2009, p.6). As illustrated on the opposite page, the predominant winds on site come from the south and north westerly directions. The three existing stands of mature vegetation create an important wind break that provides shelter from the north westerly winds. This windbreak

is a key resource to aid in the creation of comfortable outdoor spaces on site, particularly during the winter months.

#### *Human Health and Well-being benefits (10)*

"Enhancing physical, mental, and social well-being as a result of interacting with nature" (Sustainable Sites Initiative, 2009, p.6). The existing mature vegetation stands also provide a significant buffer from Pembina Highway. It is more beneficial from a human health and well-being perspective to be living with views towards mature trees and open space versus a major roadway and suburban strip mall devoid of nature.

Ulrich et al. (1991), found that exposure to nature leads to increased stress recovery when compared to exposure to urban environments. Ulrich's 1984 study that found views to unthreatening nature reduces hospital recover times. Additionally Moore (1982) and West (1985) found that prisoners with views to nature have lower frequencies of prisoner stress leading to less sick calls for symptoms such as digestive illness and headaches, thinking that extends to non-prison environments as well.

Figures 3.24 and 3.25 show the beautiful existing conditions of being on the ground in a space directly adjacent to Pembina Highway. Mature trees provide enough of an enclosure to create a well defined and comfortable space. Whereas the larger patches of trees further from Pembina Highway provide the benefit of helping to block light pollution, filtering it from the rest of the site.

#### *Cultural Benefits (12)*

"Enhancing cultural, educational, aesthetic and spiritual experiences as a result of interaction with nature" (Sustainable Sites Initiative, 2009, p.6). Keeping the existing green space and associated trees and tree patches is incredibly important as a teachable moment for the University. By choosing to value the existing features of the landscape, rather than superimposing development onto the land, the University has the opportunity to set a precedent for design that values existing features as much as new possibilities.

#### **Conclusion**

The existing landscape along Pembina Highway acts to block cold winter winds, filter light, and provides a visual buffer that is beneficial to human well-being in addition to a number of other benefits. Decision making needs to consider the non-monetary benefits that the landscape, individual landscape features, and associated systems provide.

## Climate - Prevailing Winds

### Prevailing Wind Directions

Winnipeg has two predominant wind directions, from the south and from the north-west.

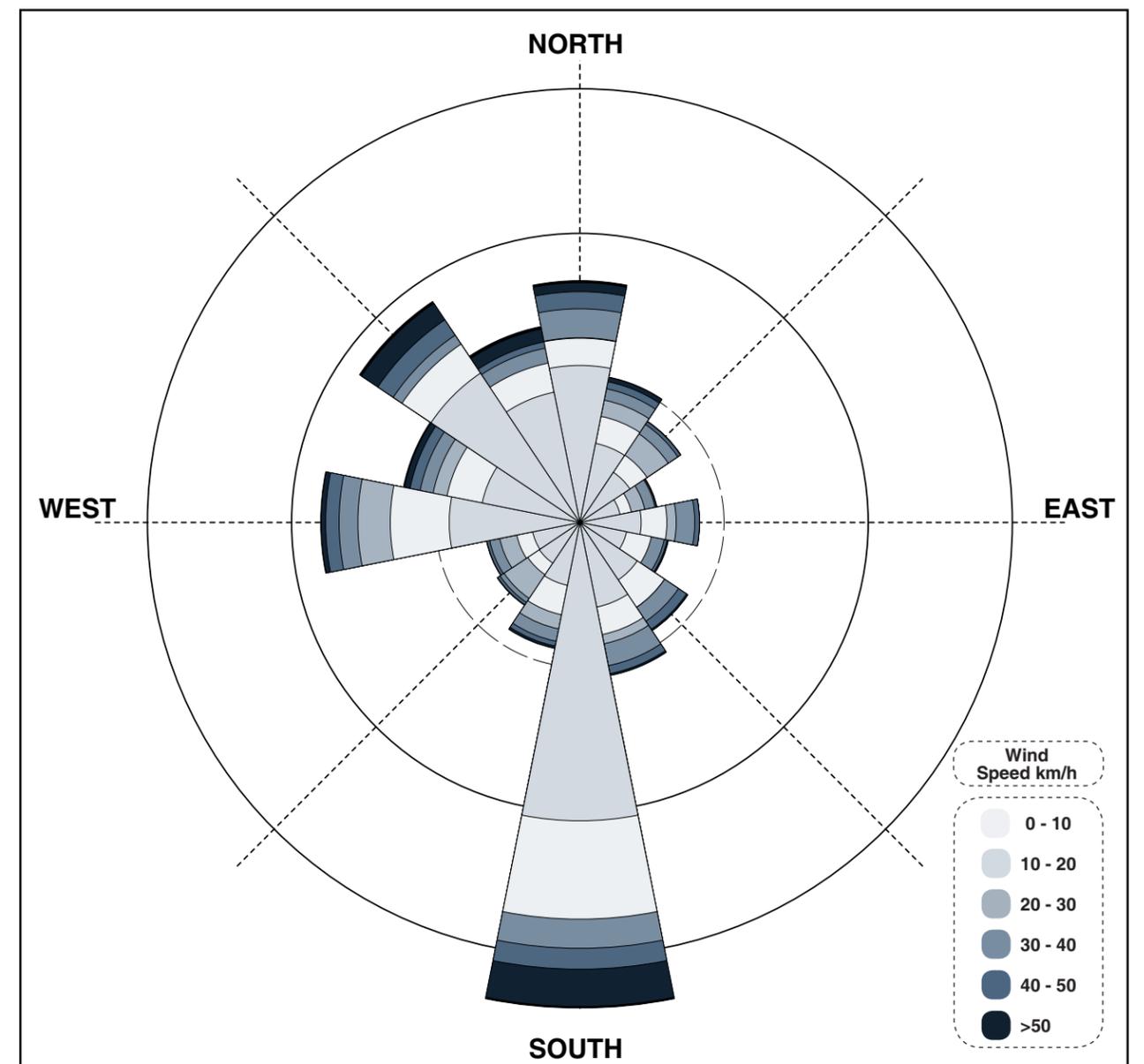
Wind from the south tends to be channelled through the Red River Valley (NavCanada, 2001); while, winds from the northwesterly direction bring frigid Arctic air that usually accompanies wind chills and restricted visibilities in the winter (University of Manitoba, [Phase Eins], 2012).

### Process

To illustrate this, a wind rose was created using Environment

Canada climate data taken between 2010-2012 (Environment Canada, 2010-2012). This data was recorded at the Winnipeg International Airport and includes over 36,000 observations. Data was downloaded, combined into a single file and then loaded into WindRose Pro (Envrioware srl., 2013).

The original intention was to create a Wind Rose for each month of the year to see if there were any significant variations between seasons. This proved to be too time consuming, and there were issues with creating Wind Roses that were at the same scale in order to allow for one-to-one comparison.



[3.37] Winnipeg Wind Rose (2010 - 2012)

# Historic Flood Levels

## Glacial Lake Agassiz

Winnipeg, and the University of Manitoba are located within the context of a former lake bed, and river-valley condition. Lake Agassize was formed over 11,500 years ago, becoming the largest glacial lake in North America extending 1500km long, 1100km wide, and up to 210m deep (Rutter, n.d.). Regional landforms and geological deposits exist as a result of this former condition.

## Red River Valley

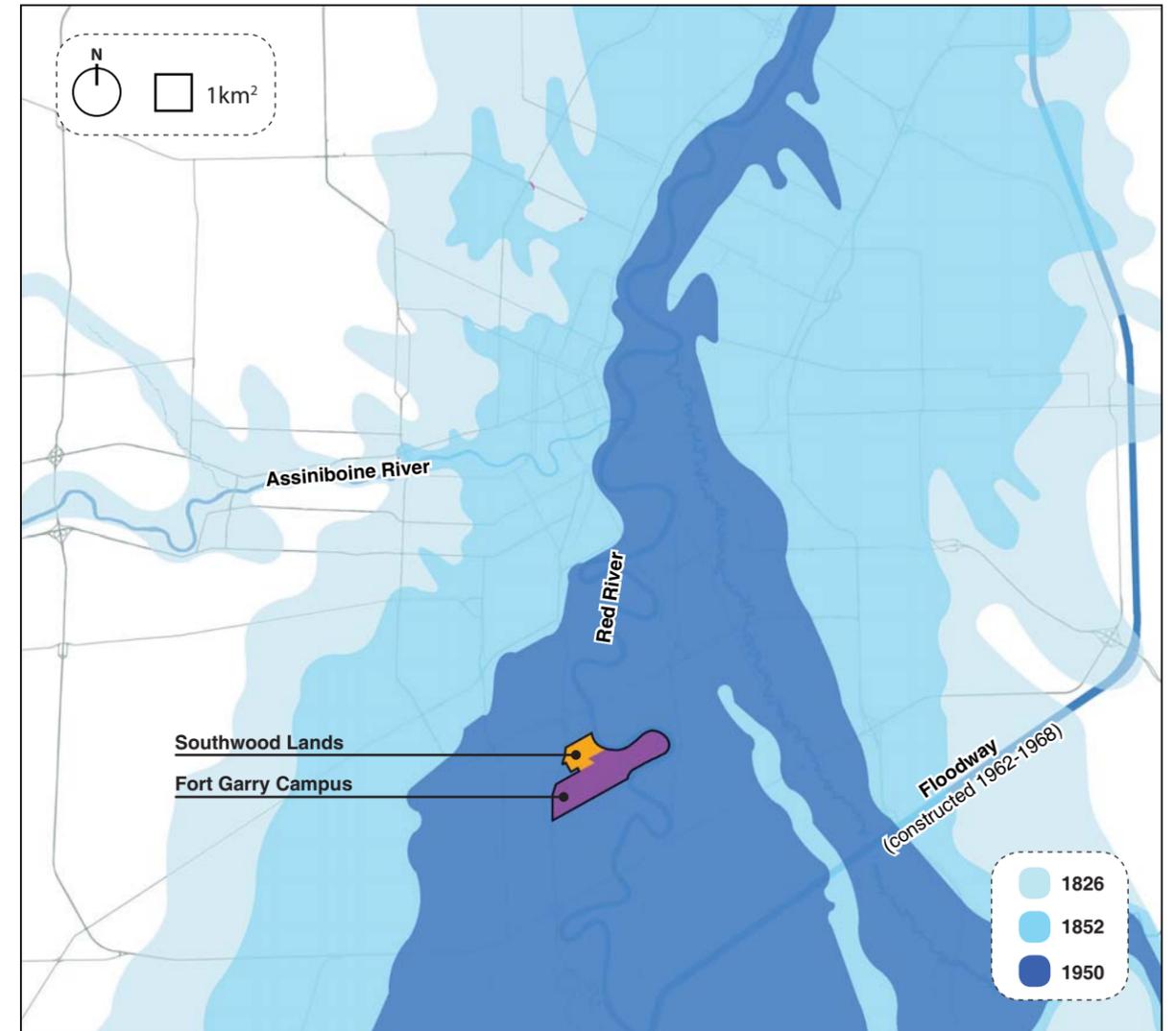
Fed by the Red River watershed, the Red River has traditionally been allowed to overflow its banks providing moisture and alluvial deposits within a much larger riparian zone than we see today. Early settlement benefited from the adjacency of both the Assiniboine and Red Rivers, but has always been susceptible to the forces of nature.

Documented flood events over the past two hundred years inundated the land, allowing for unique ecological conditions,

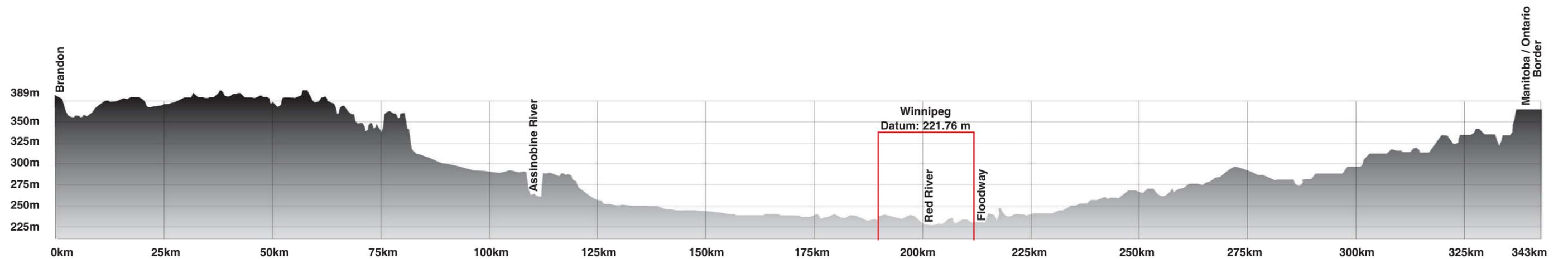
but also causing destruction for early settlement and subsequent urbanization. The flood of 1950 is notable as it occurred well after Winnipeg's founding in 1874. The Red River Floodway, nicknamed 'Duff's Ditch' was built partially in response to the 1950's flood, providing protection from major flood events since its completion in 1968 (Red River Floodway, n.d.).

Year	James Avenue Datum (feet)	Geodetic Elevation (meters)
1826	36.5	232.89
1852	34.5	232.28
1997	34.4	232.25
2009	32.5	231.67
1861	32.2	231.58
1950	30.3	231.00
1979	30.3	231.00
1996	30.3	231.00
2006	28.5	230.46
1974	28.0	230.30
2011	31.2	231.28

[Table 3.2] Historical Flood Events



[3.39] Historic Flood Events; pre-floodway construction (1826, 1852, 1950)



[3.38] East-west section of Red River Valley (384km length)

## Surficial Geology

### Soils

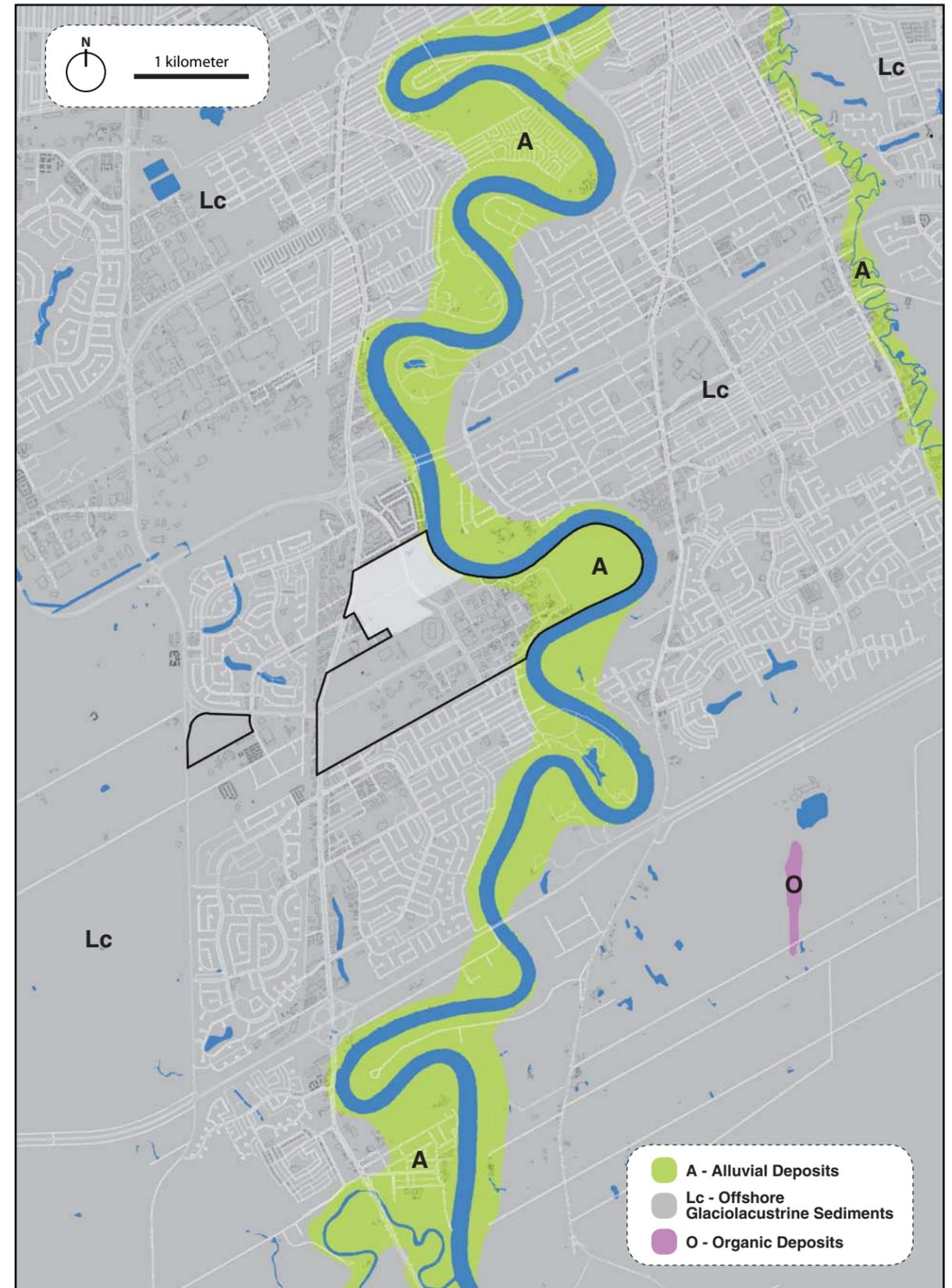
Three types of soil conditions are found within the area, alluvial - deposited by moving water such as rivers and streams, glaciolacustrine - formed by a lake where water is derived from a glacier (materials form layers), and organic deposits (not located within the site boundary) - formed by an accumulation of plant residues (Krizic et. al., 2010).

*“A - Alluvial Sediments: sand and gravel, sand, silt clay, organic detrius; 1-20 m thick; channel and overbank sediments; reworked by existing rivers and deposited primarily as bars.*

*Lc - Offshore Glaciolacustrine Sediments: clay and gravel; 1-20m thick; low relief massive and laminated deposits; deposited from suspension in offshore, deep water of glacial lakes, primarily Lake Agassiz; commonly scoured and homogenized by icebergs.*

*O - Organic Deposits: peat, muck; 1-5m thick; very low relief wetland deposits; commonly in low-lying areas; accumulated in fen, bog, swamp, and marsh settings; in permafrost areas commonly includes permafrost features such as patterned ground and peat palsas” (Province of Manitoba, 2004).*

The location of soil type ‘O’ is also evident on the 1874 Parish map as ‘low marsh’.



[3.40] Surficial Geology

## Bedrock Geology + Depth

### Winnipeg

Winnipeg is located within a band of bedrock formed during the Phanerozoic eon (current to approximately 550 million years ago) that makes up a large portion of the westerly and southerly areas of Manitoba.

Bedrock within the Winnipeg area was formed during the Paleozoic Era (250 to 450 million years ago) and more specifically the Ordovician period (445 to 490 million years ago) (geology.com, 2010 and Province of Manitoba, n.d.).

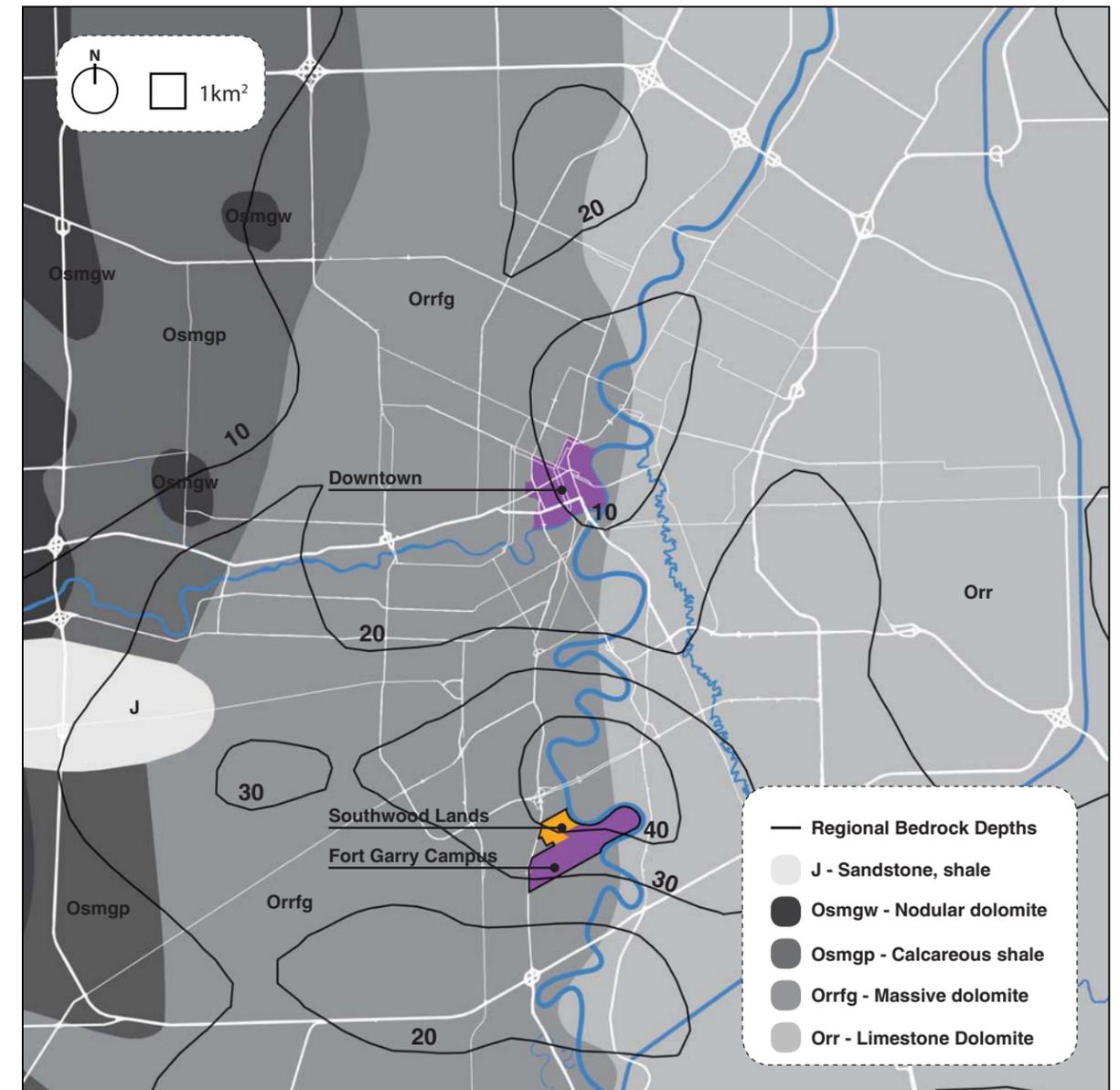
The one exception is 'J' which was formed during the Mesozoic era (approximately 65 to 250 million years ago), and more specifically during the Jurassic period (200 to 250 million years ago) (geology.com, 2010 and Province of Manitoba, n.d.).

### The Site

The site straddles bedrock predominantly consisting of Orrfg and Orr, both part of the 'Red River Formation'. Orrfg is described as a Fort Garry Member, consisting of "massive to laminated dolomite; minor argillaceous dolomite" (Province of Manitoba, n.d.). While Orr is described as "Limestone dolomitic limestone, dolomite" (Province of Manitoba, n.d.).

### Depth to Bedrock

Based on regional bedrock depth maps, the site is situated on some of the deepest bedrock in the city at 30-40 meters. This information is from regional scale data, and local conditions can vary. For example, site specific geotechnical investigations conducted in 1984 for the 'Admin. Transportation Building' (now Drake Centre - located in the centre of the Fort Garry Campus) met auger refusal due to 'suspected bedrock' or 'boulders (till)' at a depth between 16.8 to 17.7 metres (Phase Eins, 2012).



[3.41] Bedrock depth and type

## Flora Species

### Species Information

Plant information from three sources has been combined within Tables 3.2 to 3.10. Species found on both the Southwood and Point Lands (The University of Manitoba agricultural research fields) were documented by Dillon Consulting in 2012. An error in the work was found and *Pinus resinosa* / Red Pine was changed to *Pinus sylvestris* / Scots Pine. Additional information was gathered from the City of Winnipeg's natural areas assessment for sites 861 and 642, and from a riparian forest inventory the University of Manitoba commissioned in 2000.

### Riparian Zone - Site 861

This area consists of the riparian zone around the University of Manitoba's Fort Garry Campus. The City of Winnipeg describes the riverbottom forest as being "fairly narrow," with "a number of weed species present" (2003b). The site is graded as B/C. Sites that are "B/C reflect areas that have some good characteristics and should be considered for preservation" (City of Winnipeg, 2007). A more recent assessment divided this area up into four zones, giving an A-quality rating for two sections, while the other two are of B and C-quality. The two A-quality habitats are located on the northern and south-eastern riverbank sections of the Point Lands (Dillon, 2012). Habitat quality is shown on Figure 3.42.

Three tree species dominate this area: *Fraxinus pennsylvanica* (83%), *Acer negundo* (12%) and *Ulmus americana* (5%). When the study was conducted, mature stands were around eighty-five years old with young trees ranging from twenty-five to sixty years (Mumby's Tree Service and Heartwood Gardens, 2000).

### Site 861 - South Bank

The southern bank of Site 861 has only minimal shrub cover for bird feeding and roosting. Cover ranges from fifteen to forty-seven percent and consist of the following dominant understory species: *Cornus stolonifera*, *Amelanchier alnifolia*, *Vitis repens* and *Celastrus scandens*. According to Mumby's Tree Service: "nesting sites and a high proportion of food plants are lacking in this area therefore wider variety of shrub species would allow for better habitat" (2000, p.2).

Erosion along this area is "undermined by the river, rather than being washed away from the surface" (2000, p.2).

### Site 861 - North Bank

The northern bank of the site has "excellent cover for feeding, roosting, and nesting" (Mumby's Tree Service and Heartwood Gardens, 2000, p2). Due to the currents of the river, erosion is "controlled by the presence of shrubs on the north side" (Mumby's Tree Service and Heartwood Gardens, 2000, p2). The dominant species consist of: *Cornus stolonifera*, *Amelanchier alnifolia*, *Vitis repens*, *Ribes spp.*, *Viburnum lentago*, *Crataegus crysocarpa*, *Celastrus scandens*, and *Lonicera spp.*

Riparian areas in Site 861 are in decent condition, but two invasive species threaten the future health and biodiversity of the area.

### Riparian Zone - Site 642

The City of Winnipeg provides the following description of this site:

"This is a narrow strip of riverbottom forest along the Red River. Many parts of it have significant disturbance and some areas have been yard sites in the past. There is still a number of native species but the forest is generally too thin to have a good integrity" (2003a).

Although this area falls outside of the University's boundaries, it would be worthwhile for the University to work with the City of Winnipeg to ensure that management and regeneration of this riparian area be considered as part of an overall landscape strategy.

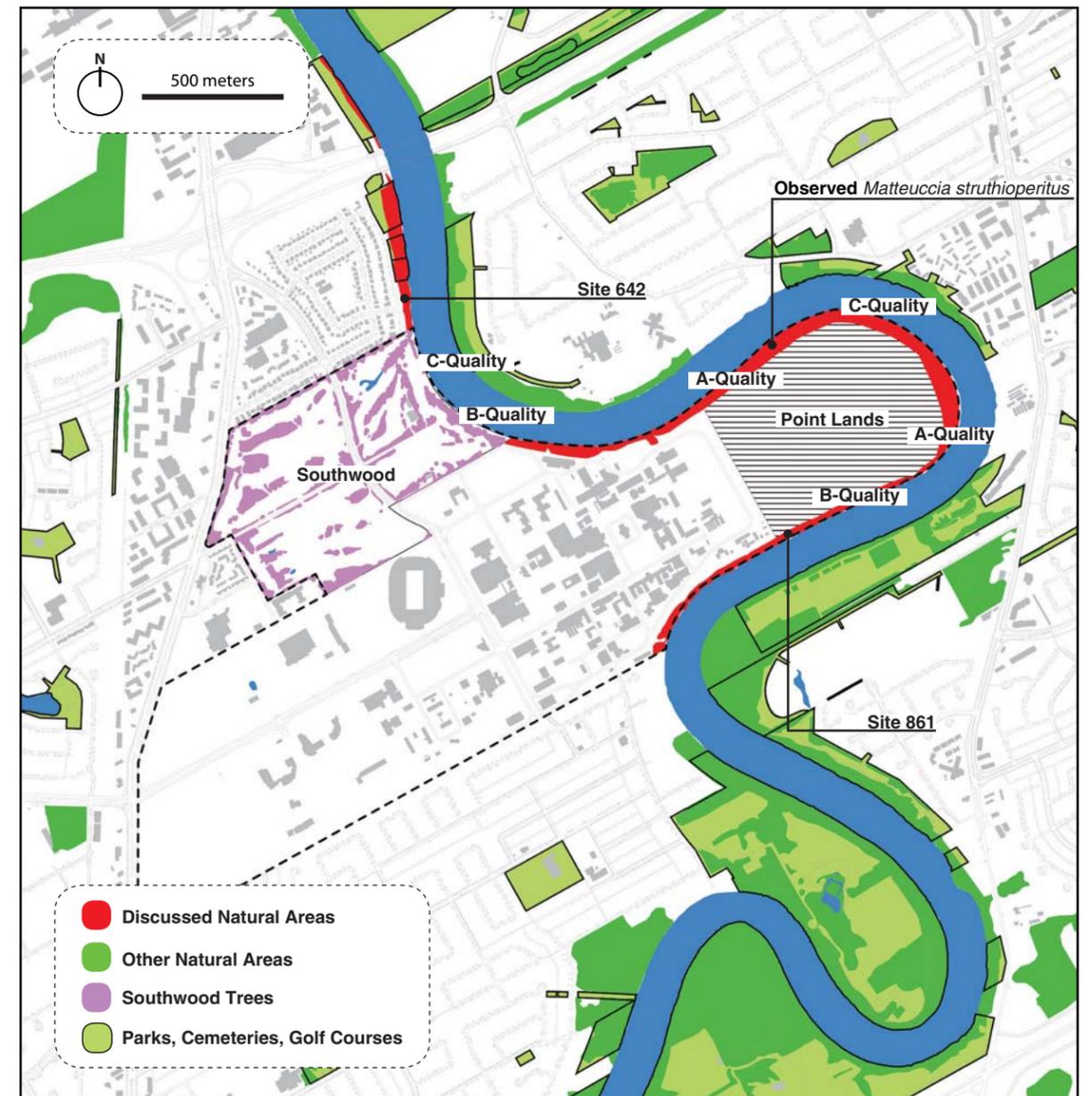
### Invasive Species

As identified by Dillon, two invasive species of significant concern were found; European Buckthorn and Leafy Spurge - both listed by the Invasive Species Council of Manitoba as species that require early detection and a rapid response (Invasive Species Council of Manitoba, 2013).

If *Rhamnus cathartica* / European Buckthorn is "left unchecked it can spread and destroy a forest's ability to regenerate as the Buckthorn crowds out native tree and herbaceous species" (Dillon, 2012, p.14). This species was found "scattered in the Southwood Lands and in the southeast corner of the riverbank on the Point Lands" (Dillon, 2012, p.21).

*Euphorbia esula* / Leafy Spurge is "capable of dominating habitats. All parts of the plant contain poisonous latex sap capable of killing cattle and causing dermatitis in humans and livestock" (Invasive Species Council of Manitoba, 2013). "Left uncontrolled, leafy spurge will dominate an area becoming a monoculture excluding all other plant species," doubling in size every five years (Parks, 2010, p.3). Leafy Spurge can be found in "pastures, rangelands, fields, ditches, and in wooded and riparian areas. It also quickly infests construction sites and along roadsides and rail lines" (Parks, 2010, p.3). It is a tough plant to eliminate as there is no one management practice that can control it, meaning multiple techniques need to be employed.

Both species have massive implications for biodiversity, and management strategies must be adopted to ensure a healthy riparian forest zone, and in the case of Leafy Spurge, a healthy overall campus ecosystem.



[3.42] Flora Species

species name	common name	Southwood	Point Lands	Site 861	Site 642
<i>Acer negundo</i>	Manitoba maple	x	x	x	x
<i>Acer ginnala</i>	Amur Maple	x	x	x	
<i>Acer saccharum</i>	Sugar Maple	x	x		
<i>Aesculus glabra</i>	Ohio Buckeye	x			
<i>Betula papyrifera</i>	Paper Birch	x	x		
<i>Elaeagnus angustifolia</i>	Russian olive				x
<i>Fraxinus pennsylvanica</i>	Green Ash	x		x	x
<i>Fraxinus nigra</i>	Black Ash		x		
<i>Larix laricina</i>	Tamarach/Larch	x			
<i>Malus spp.</i>	Crab Apple	x	x		
<i>Picea Glauca</i>	White Spruce	x	x		
<i>Pinus sylvestris</i>	Scots Pine	x	x		
<i>Populus balsamifera</i>	Balsam Poplar		x		
<i>Populus deltoides</i>	Cottonwood	x	x		
<i>Populus tremuloides</i>	Trembling Aspen	x	x		
<i>Prunus virginiana</i>	Choke Cherry	x	x	x	x
<i>Quercus macrocarpa</i>	Bur Oak	x	x		
<i>Salix amygaloides</i>	Peachleaf Willow	x	x	x	
<i>Sorbus spp.</i>	Mountain Ash	x	x		
<i>Tilia americana</i>	Basswood	x	x		
<i>Ulmus americana</i>	American Elm	x	x	x	x

[Table 3.3] Trees

species name	common name	Southwood	Points Lands	Site 861	Site 642
<i>Amelanchier alnifolia</i>	Saskatoon	x		x	x
<i>Amorpha fruticosa</i>	False Indigo		x		x
<i>Caragana arborescens</i>	Caragana	x			x
<i>Cornus stolonifera</i>	Red Osier Dogwood	x	x	x	x
<i>Corylus cornuta</i>	Beaked Hazelnut		x	x	
<i>Crataegus spp.</i>	Hawthorn	x	x		
<i>Elaeagnus commutata</i>	Silverberry, Wolf-willow		x		
<i>Juniper spp.</i>	Juniper cultivars	x	x		
<i>Lonicera spp.</i>	Honeysuckle	x	x		
<i>Lonicera tatarica</i>	Tartarian honeysuckle		x	x	
<i>Prunus spp.</i>	Wild Plum	x	x		
<i>Ribes americanum</i>	Wild Black Currant	x			x
<i>Rosa spp.</i>	Rose	x		x	x
<i>Salix spp.</i>	Willow cultivars	x	x		x
<i>Salix exigua</i>	Sandbar Willow	x		x	x
<i>Salix lucida</i>	Shining Willow				x
<i>Symphoricarpos occidentalis</i>	Western Snowberry	x		x	x
<i>Syringia vulgaris</i>	Lilac	x	x		
<i>Thuja spp.</i>	Cedar cultivars	x	x		
<i>Viburnum opulus</i>	High-Bush Cranberry	x			
<i>Viburnum rafinesquianum</i>	Downy arrow-wood		x		

[Table 3.4] Shrubs



[3.43] Looking east from the bank of the Southwood Lands (April 26, 2012)



[3.44] Riparian section of Southwood Lands (April 26, 2012)

species name	common name	Southwood	Point Lands	Site 861	Site 642
* <i>Ambrosia</i> spp.	Ragweed	x			x
<i>Ambrosia trifida</i>	Great ragweed			x	
<i>Anemone canadensis</i>	Canada Anemone		x		
<i>Apocynum androsaemifolium</i>	Spreading Dogbane	x	x	x	x
<i>Apocynum cannabinum</i>	Indian-hemp		x		x
<i>Aralia nudicaulis</i>	Wild sarsparilla		x		
* <i>Arcticum</i> spp.	Burdock	x	x	x	x
? <i>Artemisia</i> spp.	Sage			x	
* <i>Artemisia absinthium</i>	Absinthe	x			
? <i>Artemisia biennis</i>	Biennial Wormwood			x	
<i>Asclepias</i> spp.	Milkweed		x		x
<i>Aster</i> spp.	Aster	x	x		
<i>Aster simplex</i>	Small Blue Aster			x	
<i>Brassica</i> spp.	Mustard				x
<i>Campanula rapunculoides</i>	Creeping bluebell				x
<i>Capsella bursa-pastoris</i>	Shepherd's-purse				x
* <i>Chenopodium album</i>	Lambs-quarters	x		x	x
? <i>Chenopodium berlandieri</i>	Goosefoot			x	
* <i>Cirsium arvense</i>	Canada Thistle		x	x	x
<i>Convolvulus</i> spp.	Morning Glory				x
<i>Convolvulus sepium</i>	Hedge bindweed, Wild morning-glory			x	
<i>Cuscuta gronovii</i>	Common Dodder		x		
<i>Echinocystis lobata</i>	Wild Cucumber	x	x	x	
<i>Erigeron</i> spp.	Fleabane	x			
<i>Erysimum</i> spp.	Rocket				x
<i>Galium triflorum</i>	Sweet Scented Bedstraw		x		
<i>Geum alleppicum</i>	Yellow avens	x			
<i>Glycyrrhiza lepidota</i>	Wild licorice	x			x
<i>Hesperis matronalis</i>	Dame's rocket, Dame's-violet				x
<i>Humulus lupulus</i>	Common Hop		x		
<i>Lactuca biennis</i>	Tall blue lettuce				x
<i>Lactuca serriola</i>	Lobed prickly lettuce			x	
<i>Laportea canadensis</i>	Wood nettle			x	
<i>Lappula</i> spp.	Stick tight buirs	x	x		
<i>Leonurus</i> spp.	Motherwort				x
<i>Mainantherum canadense</i>	Two-leaved Solomon's Seal		x		x
* <i>Medicago lupulina</i>	Black medick	x	x		x
? <i>Medicago sativa</i>	Alfalfa			x	
* <i>Melilotus</i> spp.	Sweet-clover	x	x		
* <i>Melilotus alba</i>	White sweet-clover				x
* <i>Melilotus officinalis</i>	Yellow sweet-clover				x
<i>Mentha arvensis</i>	Field mint		x		

species name	common name	Southwood	Point Lands	Site 861	Site 642
<i>Osmorhiza</i> spp.	Sweet cicely		x		
* <i>Plantago major</i>	Common plantain	x	x	x	
<i>Polygonatum canaliculatum</i>	Common Solomon's Seal	x			
<i>Polygonum</i> spp.	Smartweed			x	x
<i>Polygonum convolvulus</i>	Wild buckwheat				x
<i>Potentilla anserina</i>	Silverweed				
<i>Rhus radicans</i>	Poison Ivy	x		x	
<i>Rubus idaeus</i>	Wild Red Raspberry	x	x		
<i>Sanicularia marilandica</i>	Snakeroot		x		
<i>Smilacina stellata</i>	Star-flowered Solomon's seal	x		x	
<i>Smilax herbacea</i>	Carrionflower	x	x	x	
<i>Solidago canadensis</i>	Canada Goldenrod	x			
* <i>Sonchus arvensis</i>	Sow Thistle	x	x	x	x
<i>Stachys palustris</i>	Marsh hedge-nettle				x
* <i>Taraxacum officinale</i>	Dandelion	x	x		x
<i>Thalictrum</i> spp.	Meadow-rue	x	x		
<i>Thalictrum venulosum</i>	Veiny meadow-rue			x	
* <i>Trifolium</i> spp.	Clover			x	
* <i>Trifolium hybridum</i>	Alsike Clover	x	x		
* <i>Trifolium repens</i>	White Clover	x	x		
<i>Thlaspi arvense</i>	Stinkweed, Field pennycress				x
<i>Urtica dioica</i>	Stinging Nettle	x	x		x
<i>Xanthium strumarium</i>	Cocklebur			x	

[Table 3.5] Wildflowers and Related Plants  
 \* denotes a weed species  
 ? denotes a possible weed species

species name	common name	Southwood	Point Lands	Site 861	Site 642
<i>Agropyron repens</i>	Quack Grass, Couch-Grass	x	x	x	
<i>Beckmannia syzigachne</i>	Slough grass			x	
<i>Bidens frondosa</i>	Common beggarticks			x	
<i>Carex</i> spp.	Sedge		x	x	x
<i>Deschampsia caespitosa</i>	Tufted hairgrass			x	
<i>Elymus</i> spp.	Wild Rye Grass	x		x	
<i>Elymus junceus</i>	Russian Wild Rye				x
<i>Juncus</i> spp.	Rush	x			
<i>Phalaris arundinacea</i>	Reed Canary Grass		x	x	x
* <i>Phleum pratense</i>	Timothy Grass	x	x	x	
* <i>Poa pratensis</i>	Kentucky Blue Grass	x	x	x	x
<i>Setaria</i> spp.	Foxtail				x

[Table 3.6] Grasses, Sedges and Rushes

species name	common name	Southwood	Point Lands	Site 861	Site 642
<i>Typha</i> spp.	Cattail	x	x		

[Table 3.7] Aquatics



[3.45] Riparian Zone along the Northern Riverbank of Site 861 (May 11, 2012)

species name	common name	Southwood	Point Lands	Site 861	Site 642
<i>Celastrus scandens</i>	Climbing Bittersweet	x	x		
<i>Menispermum canadense</i>	Moonseed		x	x	
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	x	x	x	x
<i>Vitis repens</i>	Grape			x <sup>1</sup>	
<i>Vitis riparia</i>	Riverbank Grape		x	x	

[Table 3.8] Woody Vines  
1. Observation made in 2000 by Mumby Tree Service

species name	common name	Southwood	Point Lands	Site 861	Site 642
<i>Equisetum arvense</i>	Common horsetail		x		x
<i>Matteuccia struthioferis</i>	Ostrich Fern		x		

[Table 3.9] Ferns + Allies

species name	common name	Southwood	Points Lands	Site 861	Site 642
<i>Bromus inermis</i>	Smooth brome	x	x	x	x
<i>Euphorbia esula</i>	Leafy Spurge		x		
<i>Rhamnus cathartica</i>	Buckthorn	x	x		
<i>Rumex crispus</i>	Curled Dock	x	x	x	x
<i>Vicia cracca</i>	Tufted vetch		x	x	x

[Table 3.10] Invasive's

species name	common name	Southwood	Points Lands	Site 861	Site 642
<i>A Armoracia rusticana</i>	Horse-radish				x
<i>Asparagus officinalis</i>	Garden asparagus				x

[Table 3.11] Others



[3.46] *Matteuccia struthioferis* - Ostrich Fern along the Northern Riverbank of Site 861 (May 11, 2012)



[3.47] Opening in Canopy Above Ferns (May 11, 2012)

# Red River Fish and Benthic Species

## Species Information

Within the Red Water Watershed, there are over seventy native and non-native species of freshwater fish (Stewart and Watkinson, 2007). A total of fifty-one have been documented within the Red River itself, while thirty one have been found within Winnipeg (Remnant et al., as cited in Manitoba Conservation, 2010). There are also twenty-three known species of freshwater clams and mussels in the Red River (Manitoba Conservation, 2010).

## COSWIC and SARA

Five species of fish and one mussel species have been identified under the Committee on the Status of Endangered Wildlife in Canada (COSWIC) and/or Species at Risk Act (SARA) as either endangered or of special concern; the fish species have been identified within Table 3.11.

*Macrhybopsis storeriana* / Silver Chub are found within the Winnipeg area of the Red River and are listed under COSWIC as a species of special concern and under SARA schedule one. *Ictiobus cyprinellus* / Bigmouth Buffalo is also found within the Winnipeg Red River area and is listed as a species of special concern under COSEWIC.

The benthic species *Quadrula quadrula* / Mapleleaf Mussel has been known to reside in the Red River, and is listed as endangered by COSWIC.

## Historic Riverflow

According to Toews and Davis “historically, fish habitat in the Red River was much more diverse than what currently exists” (as cited in Manitoba Conservation, 2010, p.99). This is due to changes in the flow velocities of the Red River.

The St. Andrews Lock + Dam and the Red River Floodway have caused reductions in river flow volumes, which in turn has led to build up of silt and clay over historic fish habitats and a reduction in habitat diversity. Further to this, L.A.B. Consulting states that the Floodway reduces “natural flood events to such an extent that accumulation of silt and clay sediment is no longer scoured from the original glacial till substrate” (as cited in Manitoba Conservation, 2010, p.99). As a result, the riverbed area of the Disraeli Bridge (for example) has risen between 0.6 and 1.5m between 1959 and 2010.

According to Manitoba Conservation, the Red River in Winnipeg was historically “narrower and shallower with higher flow velocities and subject to periodic scouring that cleared silt and clay from coarser substrates and thus maintained much higher proportions of boulder, cobble, gravel, and sand” (2010, p.99).

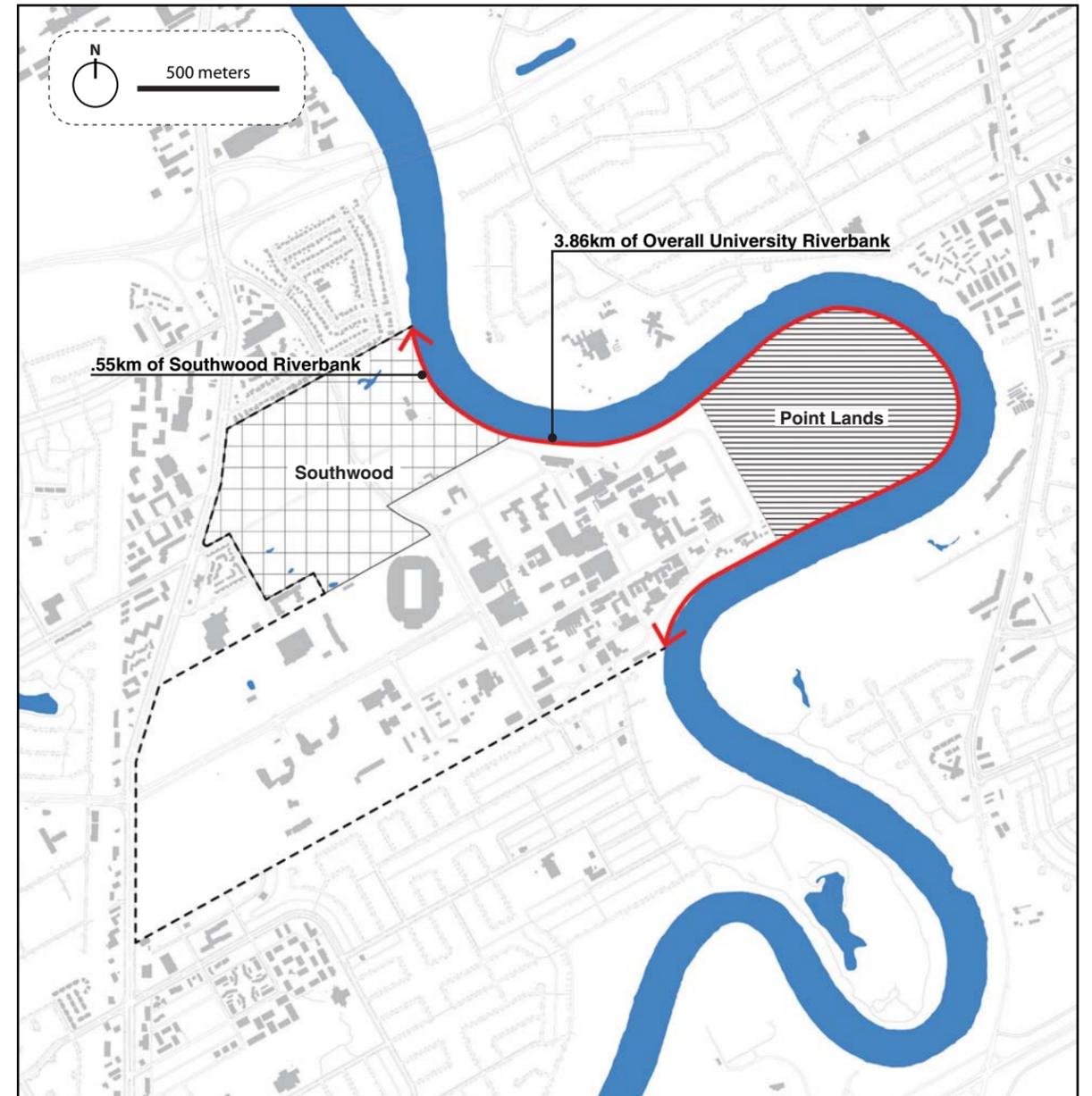
## Littoral Zone

Every October water levels fall by two meters over a period of two weeks. This is due to the lifting of the St. Andrew’s Lock + Dam. As a result, the Littoral Zone (the area between the highwater mark that is rarely submerged to the shoreline areas that are permanently submerged) are exposed and frozen, reducing the productivity of this portion of the Riparian Zone.

## Habitat and Spawning

According to Stewart and Watkinson, “the majority of fish species spawn in the spring or summer” (as cited in Manitoba Conservation, 2010, p.95). However, *Coregonus clupeaformis* / Lake Whitefish and *Coregonus artedii* / Cisco spawn in the fall and *Lota lota* / Burbot spawn midwinter.

No specific information is available about fish spawning habitat around the University of Manitoba lands. However it is reasonable to suggest that polluted surface runoff from rooftops, roadways, parking lots, and other hard surfaces could have a detrimental effect on fish and benthic populations. Any pollutants entering the waterways would be entering the food chain, eventually finding their way into our bodies.



[3.48] Riverbank Distance

# 31

NUMBER OF FISH SPECIES WITHIN WINNIPEG'S RED RIVER

# 23

NUMBER OF FRESHWATER CLAM AND MUSSEL SPECIES

# 3

SPECIES AT RISK

species name	common name	Winnipeg
Family: Petromyzontidae / Lampreys		
* <i>Ichthyomyzon castaneus</i>	Chestnut Lamprey	
<i>Ichthyomyzon unicuspis</i>	Silver Lamprey	
Family: Acipenseridae / Sturgeon		
* <i>Acipenser fulvescens</i>	Lake Sturgeon	
Family: Hiodontidae / Mooneyes		
<i>Hiodon alosoides</i>	Goldeye	x
<i>Hiodon tergisus</i>	Mooneye	x
Family: Cyprinidae / Minnows		
<i>Carassius auratus</i>	Goldfish	
<i>Cyprinella spiloptera</i>	Spotfin Shiner	x
<i>Cyprinus carpio</i>	Common Carp	x
<i>Hybognathus hankinsoni</i>	Brassy Minnow	
<i>Luxilus cornutus</i>	Common Shiner	
* <i>Macrhybopsis storeriana</i>	Silver Chub	x
<i>Nocomis biguttatus</i>	Hornyhead chub	
<i>Margariscus margarita</i>	Pearl Dace	
<i>Notemigonus crysoleucas</i>	Golden Shiner	
<i>Notropis atherinoides</i>	Emerald Shiner	x
<i>Notropis blennioides</i>	River Shiner	x
* <i>Notropis dorsalis</i>	Bigmouth Shiner	
<i>Notropis hudsonius</i>	Spottail Shiner	
<i>Notropis stramineus</i>	Sand Shiner	
<i>Phoxinus eos</i>	Northern Redbelly Dace	
<i>Phoxinus neogaeus</i>	Finescale Dace	
<i>Pimephales notatus</i>	Bluntnose Minnow	
<i>Pimephales promelas</i>	Fathead Minnow	x
<i>Platygobio gracilis</i>	Flathead Chub	x
<i>Rhinichthys cataractae</i>	Longnose Dace	
<i>Rhinichthys obtusus</i>	Western Blacknose Dace	
<i>Semotilus atromaculatus</i>	Creek Chub	
Family: Catostomidae / Suckers		
<i>Carpodius cyprinus</i>	Quillback	x
<i>Catostomus commersoni</i>	White Sucker	x
* <i>Ictiobus cyprinellus</i>	Bigmouth Buffalo	x
<i>Moxostoma anisurum</i>	Silver Redhorse	x
<i>Moxostoma erythrurum</i>	Golden Redhorse	x
<i>Moxostoma macrolepidotum</i>	Shorthead Redhorse	x
Family: Ictaluridae / Catfishes		
<i>Ameiurus melas</i>	Black Bullhead	x
<i>Ameiurus nebulosus</i>	Brown Bullhead	x
<i>Ictalurus punctatus</i>	Channel Catfish	x
<i>Noturus flavus</i>	Stonecat	x
<i>Noturus gyrinus</i>	Tadpole Madtom	

[Table 3.12] Red River Watershed Fish Species  
\*denotes a species that has status under COSEWIC or SARA  
i denotes a species that is introduced

species name	common name	Winnipeg
Family: Esocidae / Pikes		
<i>Esox lucius</i>	Northern Pike	
Family: Umbridae / Mudminnows		
<i>Umbra limi</i>	Central Mudminnow	
Family: Osmeridae / Smelts		
<i>Osmerus mordax</i>	Rainbow Smelt	
Family: Salmonidae / Trout and Whitefish		
<i>Coregonus artedii</i>	Cisco	x
<i>Coregonus clupeaformis</i>	Lake Whitefish	
<i>Thymallus arcticus</i>	Arctic Grayling	
<i>Oncorhynchus clarki</i>	Cutthroat Trout	
<i>Oncorhynchus mykiss</i>	Rainbow Trout	
<i>Salmo trutta</i>	Brown Trout	
<i>Salvelinus alpinus</i>	Arctic Char	
<i>Salvelinus fontinalis</i>	Brook Trout	
Family: Percopsidae / Troutperch		
<i>Percopsis omiscomaycus</i>	Trout-perch	x
Family: Gadidae / Codfishes		
<i>Lota lota</i>	Burbot	x
Family: Fundulidae / Killifishes		
<i>Fundulus diaphanus</i>	Banded Killifish	
Family: Gasterosteidae / Sticklebacks		
<i>Culea inconstans</i>	Brook Stickleback	x
Family: Moronidae / Temperate Basses		
<i>Morone chrysops</i>	White Bass	x
Family: Centrarchidae / Sunfishes		
<i>Ambloplites rupestris</i>	Rock Bass	x
<i>Lepomis gibbosus</i>	Pumpkinseed	
<i>Lepomis macrochirus</i>	Bluegill	
<i>Micropterus dolomieu</i>	Smallmouth Bass	
<i>Micropterus salmoides</i>	Largemouth Bass	
<i>Pomoxis annularis</i>	White Crappie	
<i>Pomoxis nigromaculatus</i>	Black Crappie	x
Family: Percidae / Perch		
<i>Ethiostoma exile</i>	Iowa Darter	
<i>Ethiostoma nigrum</i>	Johnny Darter	
<i>Perca flavescens</i>	Yellow Perch	
<i>Percina caprodes</i>	Logperch	
<i>Percina maculata</i>	Blackside Darter	
<i>Percina shumardi</i>	River Darter	x
<i>Sander canadensis</i>	Sauger	x
<i>Sander vitreus</i>	Walleye	x
Family: Sciaenidae / Drums		
<i>Aplodinotus grunniens</i>	Freshwater Drum	x

## Birds and Other Fauna Species

### Species Information

According to Manitoba Conservation, “the Winnipeg Ecodistrict includes habitat for a variety of wildlife species including nine species of amphibians, six species of reptiles, three hundred forty-two species of birds, and forty-six species of mammals as residents or migrants” (Manitoba Conservation, 2010, p.71).

A full list of fauna species found in and around the Southwood Lands does not exist, but as much information as possible is provided from multiple sources.

Observations made by Dillon Consulting found the following species: *Anas platyrhynchos* / Mallard ducks, *Branta canadensis* / Canada Geese, *Caruelis tristis* / American Goldfinch and

*Tyrannus tyrannus* / Eastern King Birds on site. These species were observed around the existing retention wetlands; the smaller pond was found to support the smaller bird species. *Danaus plexippus* / Monarch Butterfly was also observed due to the existence of milkweed. (Dillon, 2012).

The endangered species *Melanerpes erythrocephalus* / Red Headed Woodpecker was not observed on site, however according to Dillon they utilize similar landscape types in Winnipeg (2012).

### Site Observations - Southwood Lands

Observations revealed *Odocoileus virginianus* / White-tailed deer, and unidentified rabbit and other small mammal tracks. Tracks were only observed to be coming to and from areas with a shrubby understory, areas without an understory had no tracks.

species name	common name
<i>Agelaius phoeniceus</i>	Red-winged Blackbird
<i>Aix sponsa</i>	Wood Duck
<i>Anas platyrhynchos</i>	Mallard
<i>Branta canadensis</i>	Canada Goose
<i>Buteo jamaicensis</i>	Red-tailed Hawk
<i>Corvus brachyrhynchos</i>	American Crow
<i>Dendroica coronata</i>	Yellow-rumped Warbler
<i>Hirundo rustica</i>	Barn Swallow
<i>Junco hyemalis</i>	Dark-eyed “S-colored” Junco
<i>Larus delawarensis</i>	Ring-billed Gull
<i>Leucophaeus pipixcan</i>	Franklin’s Gull
<i>Oreothlypis peregrina</i>	Tennessee Warbler
<i>Passer domesticus</i>	House Sparrow
<i>Petrochelidon</i>	Cliff Swallow
<i>Quiscalus quiscula</i>	Common Grackle
<i>Riparia riparia</i>	Bank Swallow
<i>Setophaga ruticilla</i>	American Redstart
<i>Spizella passerina</i>	Chipping Sparrow
<i>Turdus migratorius</i>	American Robin
<i>Vireo olivaceus</i>	Red-eyed Vireo
<i>Zonotrichia albicollis</i>	White-throated Sparrow

[Table 3.13] Birds: Abundant - very easy to find in proper season and habitat

species name	common name
<i>Carduelis pinus</i>	Pine Siskin
<i>Carduelis tristis</i>	American Goldfinch
<i>Carpodacus mexicanus</i>	House Finch
<i>Catharus guttatus</i>	Hermit Thrush
<i>Catharus ustulatus</i>	Swainson’s Thrush
<i>Cyanocitta cristata</i>	Blue Jay
<i>Dendroica castanea</i>	Bay-breasted Warbler
<i>Dendroica magnolia</i>	Magnolia Warbler
<i>Dendroica pensylvanica</i>	Chestnut-sided Warbler
<i>Dendroica petechia</i>	Yellow Warbler
<i>Empidonax minimus</i>	Least Flycatcher
<i>Icterus galbula</i>	Baltimore Oriole
<i>Melospiza melodia</i>	Song Sparrow
<i>Mniotilta varia</i>	Black-and-white Warbler
<i>Molothrus ater</i>	Brown-headed Cowbird
<i>Passerculus sandwichensis</i>	Savannah Sparrow
<i>Passerella iliaca</i>	Fox Sparrow
<i>Picoides pubescens</i>	Downy Woodpecker
<i>Picoides villosus</i>	Hairy Woodpecker
<i>Poecile atricapillus</i>	Black-capped Chickadee
<i>Regulus calendula</i>	Ruby-cr. Kinglet
<i>Regulus satrapa</i>	Golden-cr. Kinglet
<i>Sitta carolinensis</i>	White-breasted Nuthatch
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker
<i>Spizella pallida</i>	Clay-colored Sparrow
<i>Vermivora celata</i>	Orange-crowned Warbler
<i>Vermivora ruficapilla</i>	Nashville Warbler
<i>Zenaidura macroura</i>	Mourning Dove

[Table 3.14] Birds: Common - usually easy to find in proper season and habitat

**Birds of St. Vital Park**

One hundred and one species of birds observed in the nearby St. Vital Park and vicinity are included in the upcoming tables. This information was compiled based on Mark Huebert and his father's "extensive personal experience and records in the area in the late 1980s and throughout the 1990s - and also includes data collected from other experienced birders" (Huebert, 2001, p.2). The proximity of these observations makes them relevant to the Fort Garry Campus and Southwood Lands.



[3.49] *Melanerpes erythrocephalus* / Red Headed Woodpecker

species name	common name
<i>Accipiter cooperii</i>	Cooper's Hawk
<i>Actitis macularius</i>	Spotted Sandpiper
<i>Anas carolinensis</i>	Green-winged Teal
<i>Anas discors</i>	Blue-winged Teal
<i>Bombycilla cedrorum</i>	Cedar Waxwing
<i>Bubo virginianus</i>	Great Horned Owl
<i>Bucephala albeola</i>	Bufflehead
<i>Carpodacus purpureus</i>	Purple Finch
<i>Catharus minimus</i>	Gray-cheeked Thrush
<i>Certhia americana</i>	Brown Creeper
<i>Chaetura pelagica</i>	Chimney Swift
<i>Charadrius vociferus</i>	Killdeer
<i>Chordeiles minor</i>	Common Nighthawk
<i>Colaptes auratus</i>	Northern Flicker
<i>Columba livia</i>	Rock Dove
<i>Contopus cooperi</i>	Olive-sided Flycatcher
<i>Contopus virens</i>	Eastern Wood-Pewee
<i>Dendroica fusca</i>	Blackburnian Warbler
<i>Dendroica striata</i>	Blackpoll Warbler
<i>Dendroica tigrina</i>	Cape May Warbler
<i>Dendroica virens</i>	Black-thr. Green Warbler
<i>Dumetella carolinensis</i>	Gray Catbird
<i>Falco sparverius</i>	American Kestrel
<i>Geothlypis trichas</i>	Common Yellowthroat
<i>Haliaeetus leucocephalus</i>	Bald Eagle
<i>Larus argentatus</i>	Herring Gull
<i>Lophodytes cucullatus</i>	Hooded Merganser
<i>Megaceryle alcyon</i>	Belted Kingfisher

[Table 3.15] Birds: Fairly Common - usually able to find a few individuals each year

species name	common name
<i>Melospiza georgiana</i>	Swamp Sparrow
<i>Melospiza lincolni</i>	Lincoln's Sparrow
<i>Mergus merganser</i>	Common Merganser
<i>Myiarchus crinitus</i>	Great Crested Flycatcher
<i>Parkesia noveboracensis</i>	Northern Waterthrush
<i>Passerina cyanea</i>	Indigo Bunting
<i>Phalacrocorax auritus</i>	Double-crested Cormorant
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak
<i>Podilymbus podiceps</i>	Pied-billed Grebe
<i>Progne subis</i>	Purple Martin
<i>Sayornis phoebe</i>	Eastern Phoebe
<i>Seiurus aurocapillus</i>	Ovenbird
<i>Sitta canadensis</i>	Red-breasted Nuthatch
<i>Spizella arborea</i>	American Tree Sparrow
<i>Sturnus vulgaris</i>	European Starling
<i>Tachycineta bicolor</i>	Tree Swallow
<i>Toxostoma rufum</i>	Brown Thrasher
<i>Tringa melanoleuca</i>	Greater Yellowlegs
<i>Tringa solitaria</i>	Solitary Sandpiper
<i>Troglodytes aedon</i>	House Wren
<i>Tyrannus tyrannus</i>	Eastern Kingbird
<i>Vireo flavifrons</i>	Yellow-throated Vireo
<i>Vireo gilvus</i>	Warbling Vireo
<i>Vireo philadelphicus</i>	Philadelphia Vireo
<i>Vireo solitarius</i>	Blue-headed (Solitary) Vireo
<i>Wilsonia pusilla</i>	Wilson's Warbler
<i>Zonotrichia leucophrys</i>	White-crowned Sparrow
<i>Zonotrichia querula</i>	Harris' Sparrow

species name	common name
<i>Accipiter gentilis</i>	Northern Goshawk
<i>Accipiter striatus</i>	Sharp-shinned Hawk
<i>Aechmophorus occidentalis</i>	Western Grebe
<i>Anas americana</i>	American Wigeon
<i>Anas clypeata</i>	Northern Shoveler
<i>Archilochus colubris</i>	Ruby-thr. Hummingbird
<i>Ardea herodias</i>	Great Blue Heron
<i>Aythya affinis</i>	Lesser Scaup
<i>Aythya collaris</i>	Ring-necked Duck
<i>Bucephala clangula</i>	Common Goldeneye
<i>Buteo lagopus</i>	Rough-legged Hawk
<i>Buteo platypterus</i>	Broad-winged Hawk
<i>Buteo swainsoni</i>	Swainson's Hawk
<i>Cathartes aura</i>	Turkey Vulture
<i>Catharus fuscescens</i>	Veery
<i>Chen caerulescens</i>	Snow Goose
<i>Coccythraustes vesperinus</i>	Evening Grosbeak
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo
<i>Corvus corax</i>	Common Raven
<i>Cygnus columbianus</i>	Tundra Swan
<i>Dendroica palmarum</i>	Palm Warbler
<i>Empidonax flaviventris</i>	Yellow-bellied Flycatcher
<i>Falco columbarius</i>	Merlin
<i>Falco peregrinus</i>	Peregrine Falcon
<i>Fulica americana</i>	American Coot
<i>Grus canadensis</i>	Sandhill Crane
<i>Hydroprogne caspia</i>	Caspian Tern
<i>Junco hyemalis</i>	Dark-eyed "Oregon" Junco
<i>Lanius excubitor</i>	Northern Shrike
<i>Megascops asio</i>	Eastern Screech-Owl
<i>Oporornis philadelphia</i>	Mourning Warbler
<i>Oxyura jamaicensis</i>	Ruddy Duck
<i>Pandion haliaetus</i>	Osprey
<i>Pelecanus erythrorhynchos</i>	American White Pelican
<i>Pica hudsonia</i>	Black-billed Magpie
<i>Podiceps auritus</i>	Horned Grebe
<i>Podiceps grisegena</i>	Red-necked Grebe
<i>Sialia sialis</i>	Eastern Bluebird
<i>Sterna forsteri</i>	Forster's Tern
<i>Sturnella neglecta</i>	Western Meadowlark
<i>Tringa flavipes</i>	Lesser Yellowlegs
<i>Troglodytes hiemalis</i>	Winter Wren
<i>Wilsonia canadensis</i>	Canada Warbler

[Table 3.16] Birds: Uncommon - This category includes both birds expected to be seen each year but in small numbers and birds that may not be seen every year

species name	common name
<i>Aegolius acadicus</i>	N. Saw-whet Owl (1970's)
<i>Tyrannus verticalis</i>	Western Kingbird

[Table 3.17] Birds: Historical Breeders - used to breed in area, but not in recent years

species name	common name
<i>Ammodramus leconteii</i>	Le Conte's Sparrow
<i>Anas acuta</i>	Northern Pintail
<i>Anas rubripes</i>	Am. Black Duck
<i>Anas strepera</i>	Gadwall
<i>Asio flammeus</i>	Short-eared Owl
<i>Aythya americana</i>	Redhead
<i>Aythya marila</i>	Greater Scaup
<i>Calidris melanotos</i>	Pectoral Sandpiper
<i>Caprimulgus vociferus</i>	Whip-poor-will
<i>Carduelis hornemanni</i>	Hoary Redpoll
<i>Chroicocephalus philadelphia</i>	Bonaparte's Gull
<i>Circus cyaneus</i>	Northern Harrier
<i>Cistothorus platensis</i>	Sedge Wren
<i>Dolichonyx oryzivorus</i>	Bobolink
<i>Dryocopus pileatus</i>	Pileated Woodpecker
<i>Empidonax alnorum</i>	Alder Flycatcher
<i>Euphagus carolinus</i>	Rusty Blackbird
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird
<i>Gavia immer</i>	Common Loon
<i>Icterus spurius</i>	Orchard Oriole
<i>Loxia leucoptera</i>	White-winged Crossbill
<i>Mergus serrator</i>	Red-breasted Merganser
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron
<i>Oporornis agilis</i>	Connecticut Warbler
<i>Parula americana</i>	Northern Parula
<i>Perisoreus canadensis</i>	Gray Jay
<i>Phasianus colchicus</i>	Ring-necked Pheasant
<i>Pipilo erythrophthalmus</i>	Eastern Towhee
<i>Podiceps nigricollis</i>	Eared Grebe
<i>Poecile hudsonicus</i>	Boreal Chickadee --RW
<i>Porzana carolina</i>	Sora
<i>Scolopax minor</i>	American Woodcock
<i>Stelgidopteryx serripennis</i>	Northern R-winged Swallow
<i>Strix varia</i>	Barred Owl
<i>Vermivora chrysoptera</i>	Golden-winged Warbler
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird

[Table 3.18] Birds: Rare - Either only one to three reported records in area since 1980 or possible, but not expected annually

species name	common name
<i>Bombycilla garrulus</i>	Bohemian Waxwing
<i>Carduelis flammaea</i>	Common Redpoll
<i>Loxia curvirostra</i>	Red Crossbill
<i>Pinicola enucleator</i>	Pine Grosbeak

[Table 3.19] Birds: Irregular Species - may occur in large numbers one year and be absent the next

species name	common name
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker

[Table 3.20] Birds: Extirpated - Historically regular in area but not seen at all in past 5 - 10 years

## Cultural Significance of Non-human Species

### Traditional Land of the Anishinaabe Peoples

“Our University is located on Treaty One territory, on the traditional territory of the Anishinaabe peoples and the homeland of the Metis Nation. The University and the Forks of the City of Winnipeg sit at the crossroads of the Anishinaabe, Metis, Cree, Dakota and Oji-Cree Nations” (University of Manitoba, 2013).

According to Aboriginal philosophy, all creatures are related, but the most important creatures are those that fly because they are closer to the heavens, and see everything that happens on earth. Aboriginal cultural tradition and ways of living relied on an intimate understanding of the relationship between landscape and the plants, birds, and animals that are part of the living world and the cosmos (Petch, 2003; McMahan, n.d.; Canada Heritage Information Network, 2003).

Legends, using non-human actors, were “designed to reinforce the relatedness of all things, describe universal behaviours and personalities, and teach morals to guide human conduct” (Petch, 2003, p.60). For example, the story of Mishka Muska or the Great Bear.

### Miska Muska or the Great Bear

The story of Miska Muska or the Great Bear is about the consequences of being a bully and “how even the littlest of animals can bring down the most ferocious” (McMahan, n.d.).

The bear was big and mean, picking on everyone for years and years. Finally everyone had enough, so all of the living beings met. They were tired of being bullied so seven birds were chosen (the best hunters, trackers and shots).

Unfortunately the bear was warned by the raven and the crow, so it ran. The birds were forced to chase the bear around the world. On the fourth time they were going so fast that they flew over the horizon and into the air.

The bear began to get tired and then turned and faced the hunters, allowing one of the birds to get a direct shot to its head. The bear became injured and started bleeding, so it shook to remove the blood.

All of the blood fell to the earth and hit the broad leaf plants, and that is why the leaves turn red in the fall. The lead bird was also hit with a drop of blood, causing the birds breast to turn red (the robin).

To warn everyone about being a bully, the bear was placed in the sky, as were the seven birds, the lead bird shining the brightest. The robin was also given a special egg that was painted blue to represent the sky with speckles to represent the stars. According to the legend this is why you should never harm a robin, because it is the creators bird. (McMahan, n.d.).



[3.50] *Turdus migratorius* / American Robin



[3.51] Apisikish (Cree), *Branta Canadensis* / Canada Goose



[3.52] Wapaw Estiquan, *Haliaeetus leucocephalus* / Bald Eagle

### A Traditional Way of Thinking

Due to suppression of traditional Aboriginal culture, which is only further suppressed by increasingly rapid societal changes, Anishinaabe cultural traditions have regrettably been widely eliminated or are simply not visible within the contemporary landscape. As a result these ideas are not reflected in our built world.

Ultimately how we think about the world, is how we act and build upon it. Although this is only a brief overview of aboriginal culture, if we were to consider the relationship between life-forms more deeply and consciously, we would be able to make better environmental design decisions. We are at risk of losing (or perhaps already have lost) a way of thinking that teaches us to consider larger scale relationships more deeply in the decisions we make. These relationships are embedded in nature.

The University of Manitoba has taken some steps to creating a more inclusive society and recognizing Anishinaabe culture more fully. Despite this, there will need to be a jump from a ‘token object’ way of thinking to a relationships based thinking that ultimately has greater potential to have greater cultural meaning and evoke societal change related to how we think about the land.

The question is how? Could it be as simple as taking the care to consider species that are not of our own? Or what about being good stewards of the land? And how do we do this in a way that has greater meaning, and is not a token gesture based on token objects?

### Cultural Significance of Birds

Within Aboriginal culture, “all birds are considered sacred because of their special association with the circle, which is considered to be the embodiment of life and the symbol of power” (Petch, 2003, p.56). Species such as the Raven occur within Aboriginal mythology, while the behaviour of certain birds was used to help provide knowledge of what is occurring within the landscape (Petch, 2003).

The feathers from around the eye of the Great Grey Owl were used to protect householders and children.

The Bald Eagle is “considered to be one of the most respected of all non-human beings because it is believed to fly higher than all other birds, seeing everything as it moves through the sky in the sacred form of the circle” (Petch, 2003, p.59).

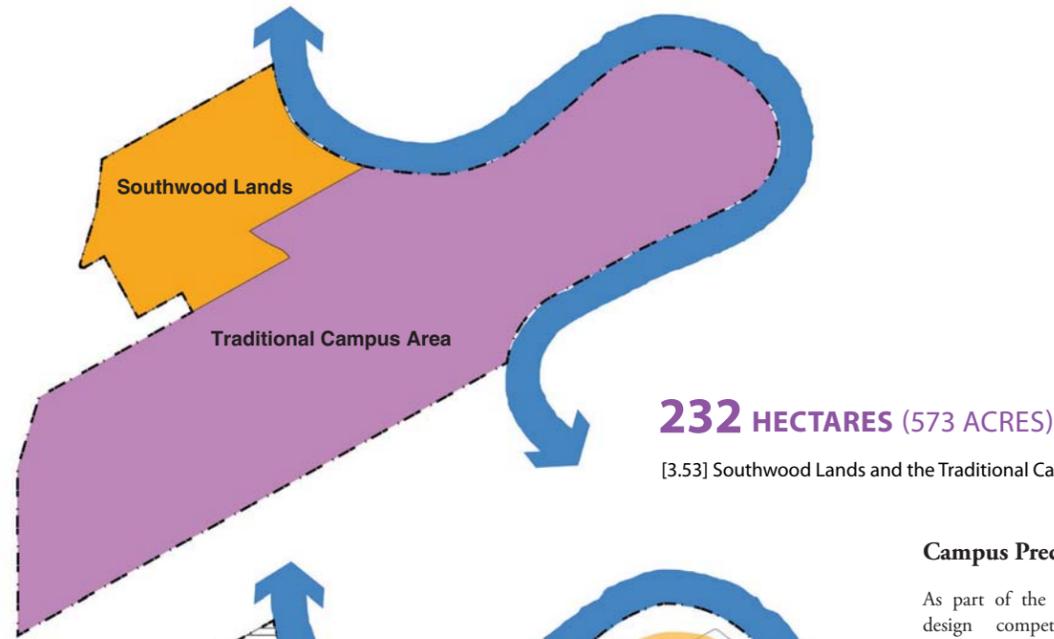
Geese were so significant for marking the fall and spring that Cree and Ojibwa would hold ceremonies such as the goose dance, “to ensure their return” (Petch, 2003, p.60). The Canada Goose has a strong physical presence within the prairie landscape and the Southwood Lands.

While this is only a small glimpse into the significance of certain birds within Aboriginal culture, it provides a context for their importance in considering how we dwell on the land.

# Campus Analysis - Land Cover

## Overview

This section provides a brief analysis of the entire University of Manitoba Fort Garry Campus. While the entire campus lands comprises 283 hectares (699 acres), this analysis focuses on traditional campus area and its relationship with the Southwood Lands.



[3.53] Southwood Lands and the Traditional Campus Area

## Campus Precincts

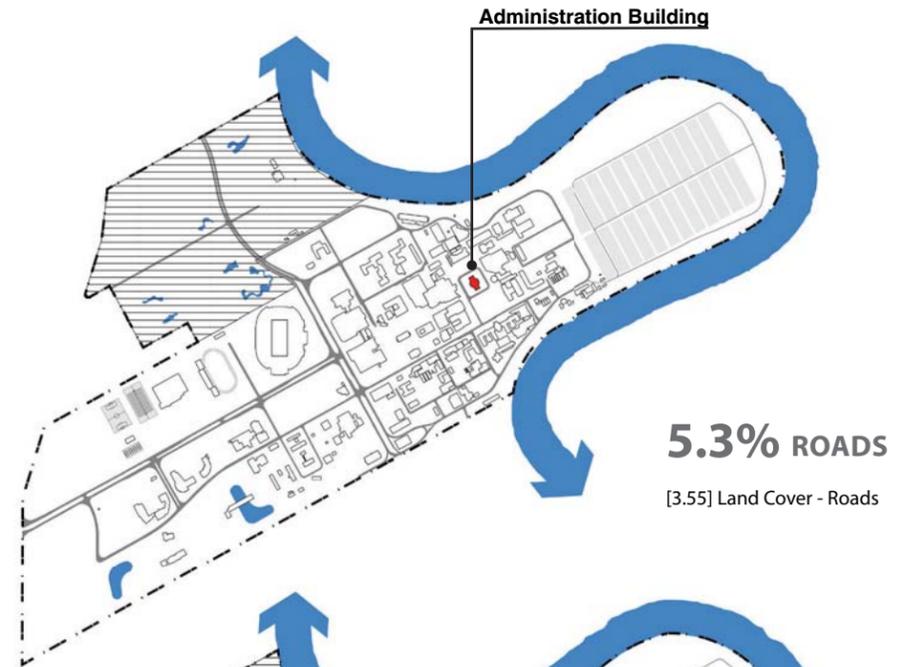
As part of the Visionary (re)Generation design competition existing campus precincts were delineated to help guide instructions. It represents a moment in time, and the current divisions of the campus (University of Manitoba and [Phase Eins], 2012).



[3.54] Fort Garry Campus Precincts

## Land Cover

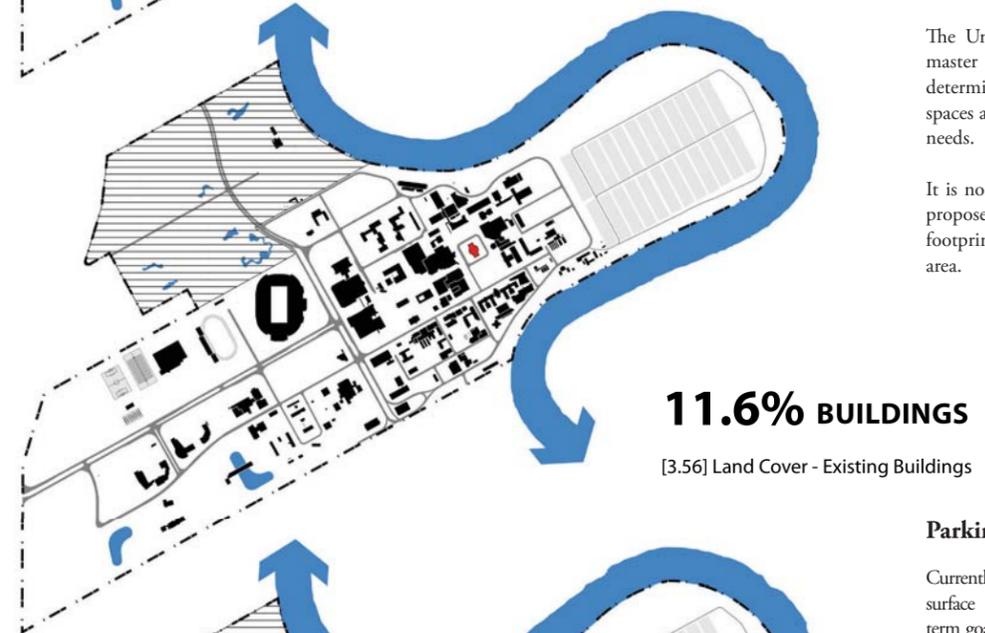
The upcoming land cover percentages have been calculated using the area defined as the traditional campus only.



## Buildings

The University began a space utilization master plan in late 2012 that will determine how well existing academic spaces are being used and any future space needs.

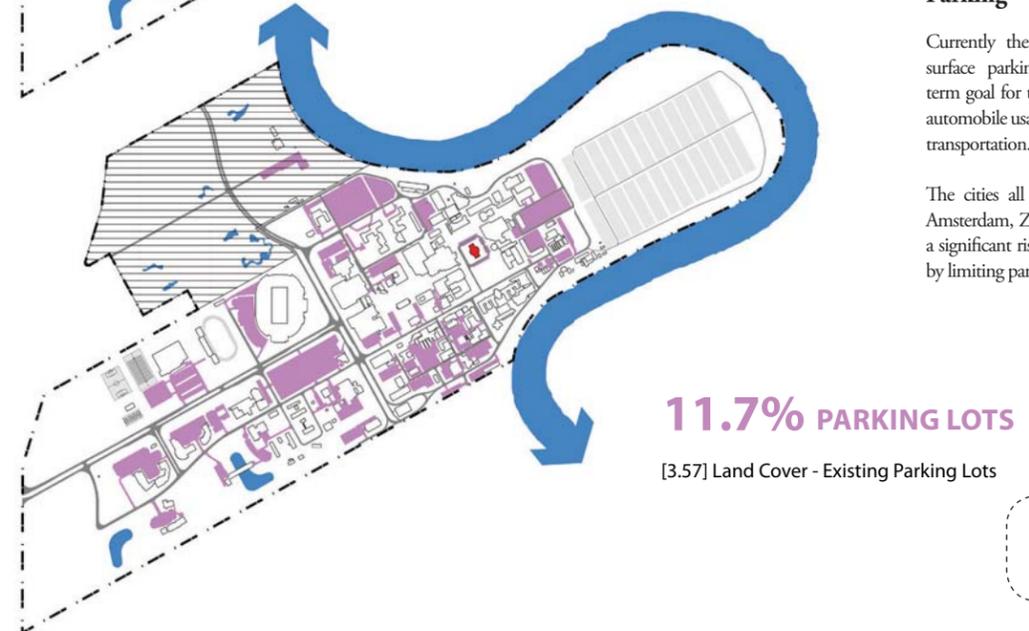
It is not the purpose of this practicum to propose new buildings or new building footprints within the traditional campus area.

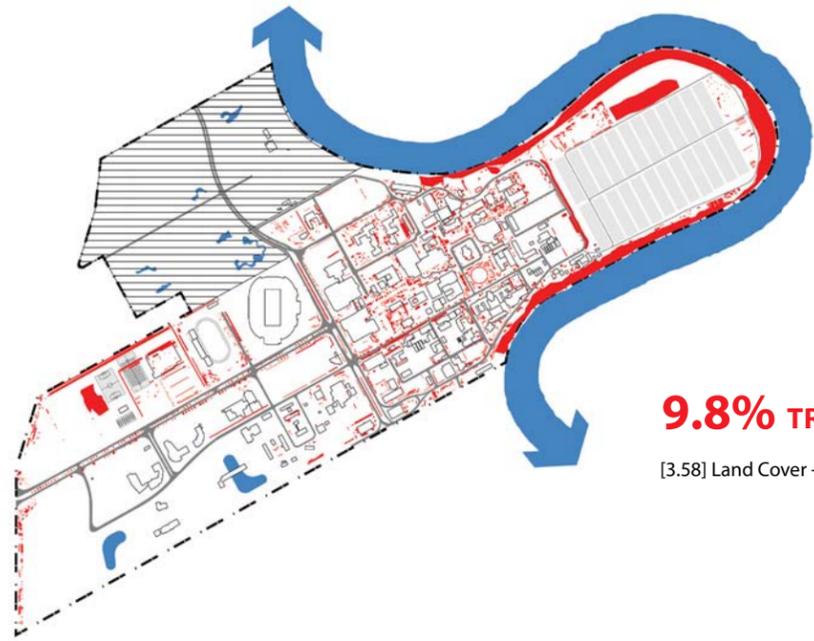


## Parking

Currently there are well over six thousand surface parking stalls on campus. A long term goal for the campus should be to reduce automobile usage by promoting other modes of transportation.

The cities all over the world such as Paris, Amsterdam, Zurich, and Strasbourg have seen a significant rise in public transportation usage by limiting parking (Ridden, 2011).





**9.8% TREE COVER**

[3.58] Land Cover - Existing Canopy Cover (2000)

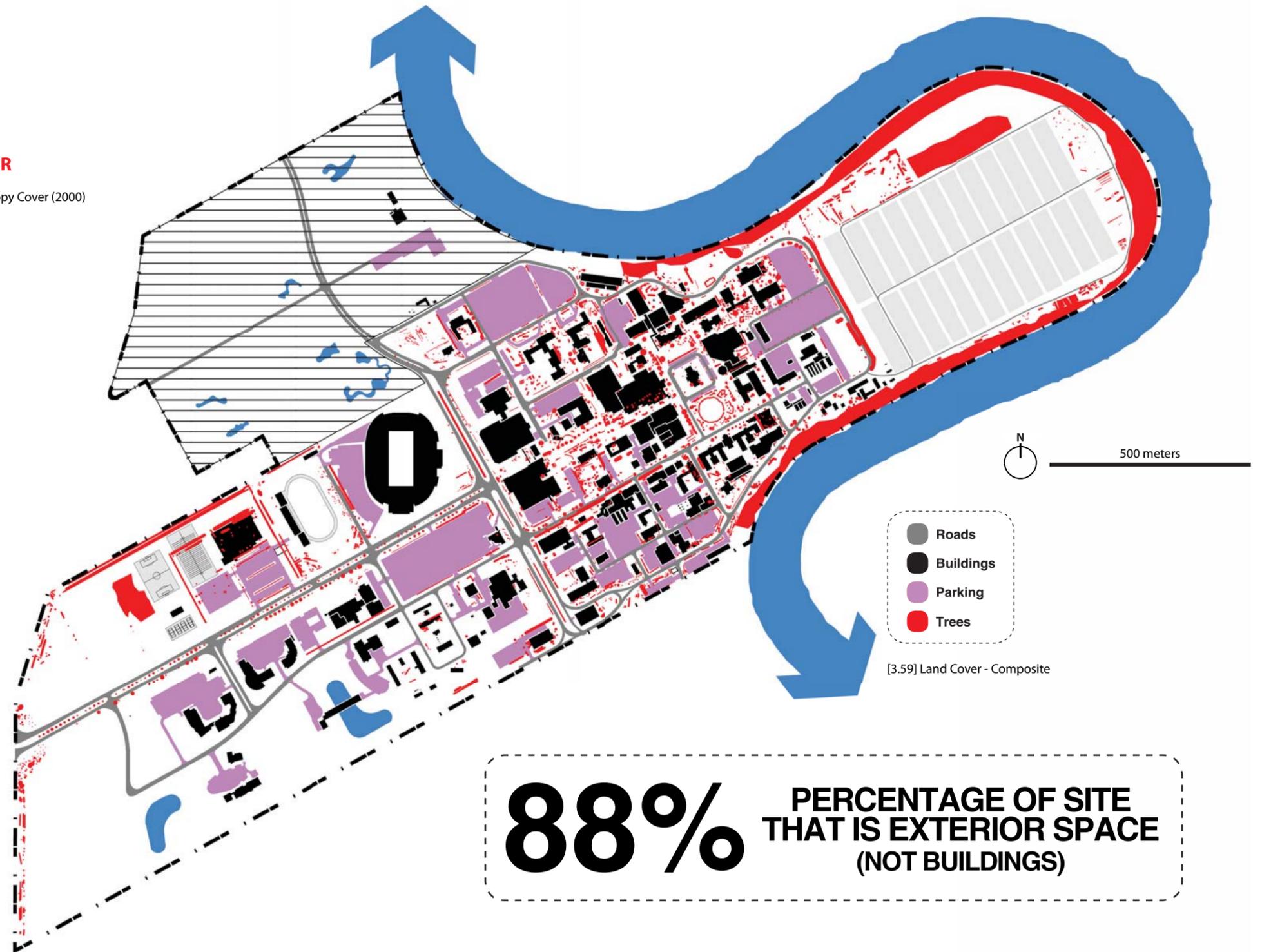
**Tree Cover**

Currently the University of Manitoba does not have baseline funding for new tree planting on an annual basis (to my knowledge). Other universities have set tree cover goals as part of their campus plans. For example Indiana University in Bloomington has twenty percent tree cover with the goal of doubling this to forty percent within twenty years. Clean air, carbon storage and sequestration, storm water runoff reduction are stated benefits (University of Indiana, 2009). Additionally there is psychological well being associated with landscapes as demonstrated in Edward Wilson's Biophilia Hypothesis and the work of Rachel and Stephen Kaplan (Wilson and Kaplan et. al as cited in Rampton, 2013).

The University of Manitoba does not keep an up to date inventory of existing campus trees for both campus planning and maintenance purposes. There is also no (known) documentation of memorial trees that are dedicated to individuals.

**Recommendations for Campus Tree Cover**

1. Complete an up to date inventory of all trees and tree stands on campus;
2. Set campus planning and sustainability goals related to campus tree cover;
3. Establish baseline funding related to set goals;
4. Establish an alumni tree donation program;
5. Establish a memorial tree program for those wishing to plant memorial trees on behalf of loved ones.



[3.59] Land Cover - Composite

**88%** PERCENTAGE OF SITE THAT IS EXTERIOR SPACE (NOT BUILDINGS)

**Maintenance and Snow Dump**

The existing maintenance yard and snow dump are highly visible as visitors enter the University. Vegetation and topography should be used to provide shelter for those working in the area, while hiding equipment and stored goods from people entering the University via Chancellor Matheson Road. The drainage of melt-water from the snow dump needs design consideration so that water is retained and filtered before moving out to the Red River.

**Primary Line of Defense (PLD)**

The City of Winnipeg's primary dike system (PLD) has an approximate finished elevation of 232.2 metres. New PLD's must be designated as public property with vehicular access in case they need to be raised in an emergency.

There is an existing dike around the Point Lands, however it is a lower elevation when compared to the Primary Line of Defence.

**Existing Campus Structure**

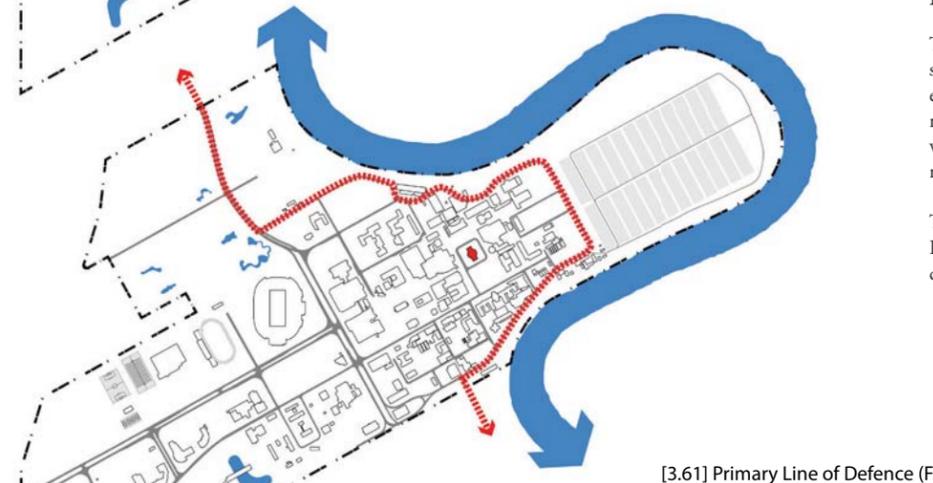
Axis one is the historic Avenue of Elms that provides views to the Administration Building (the building that is used to represent the University).

Axis two is spatially, the poorest of the three, but presents the greatest opportunity for physical connections with the Southwood Lands.

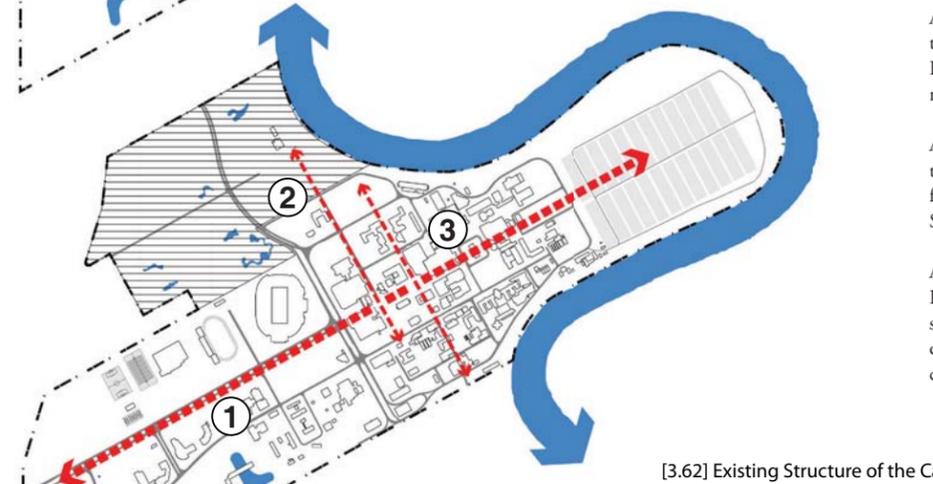
Axis three contains areas such as 'Princess Royal Walk' that are well defined. Spaces south of this area are of poor quality and do little to enhance the experience of the campus.



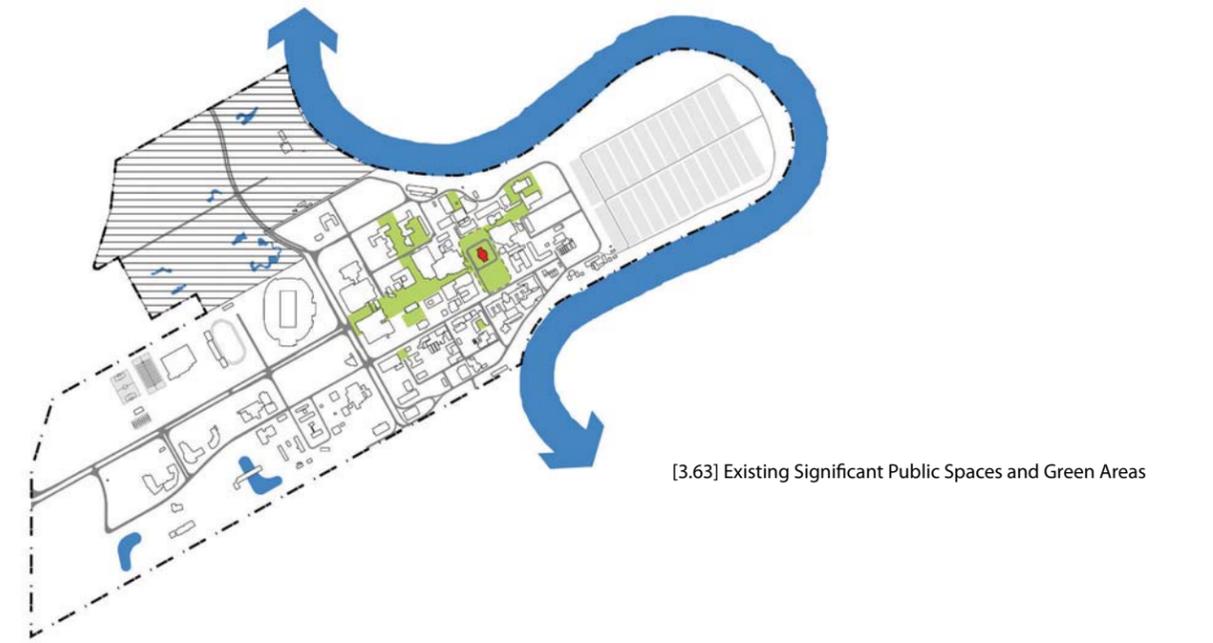
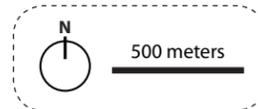
[3.60] Existing Maintenance Yard and Snow Dump



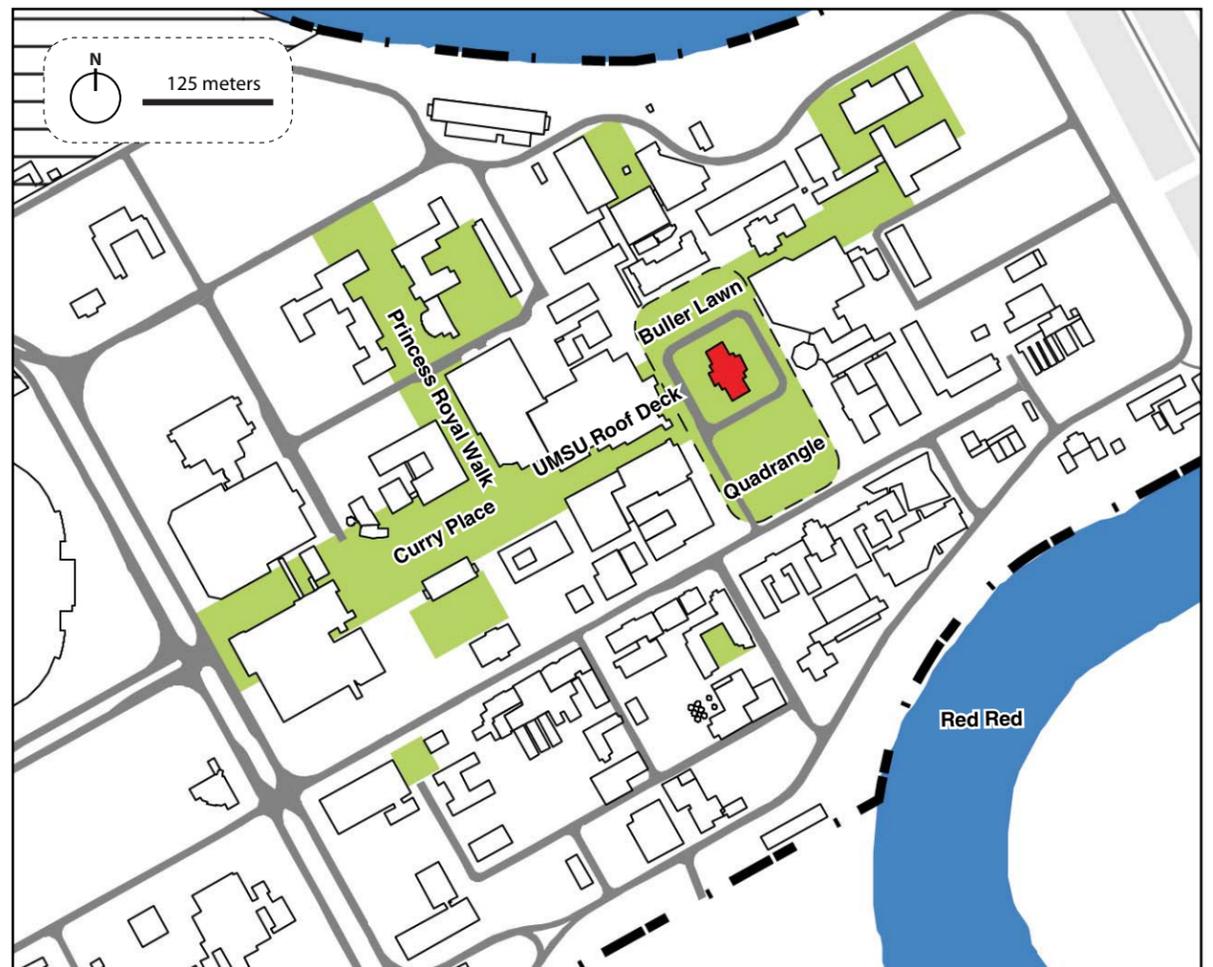
[3.61] Primary Line of Defence (Flood Protection Line)



[3.62] Existing Structure of the Campus

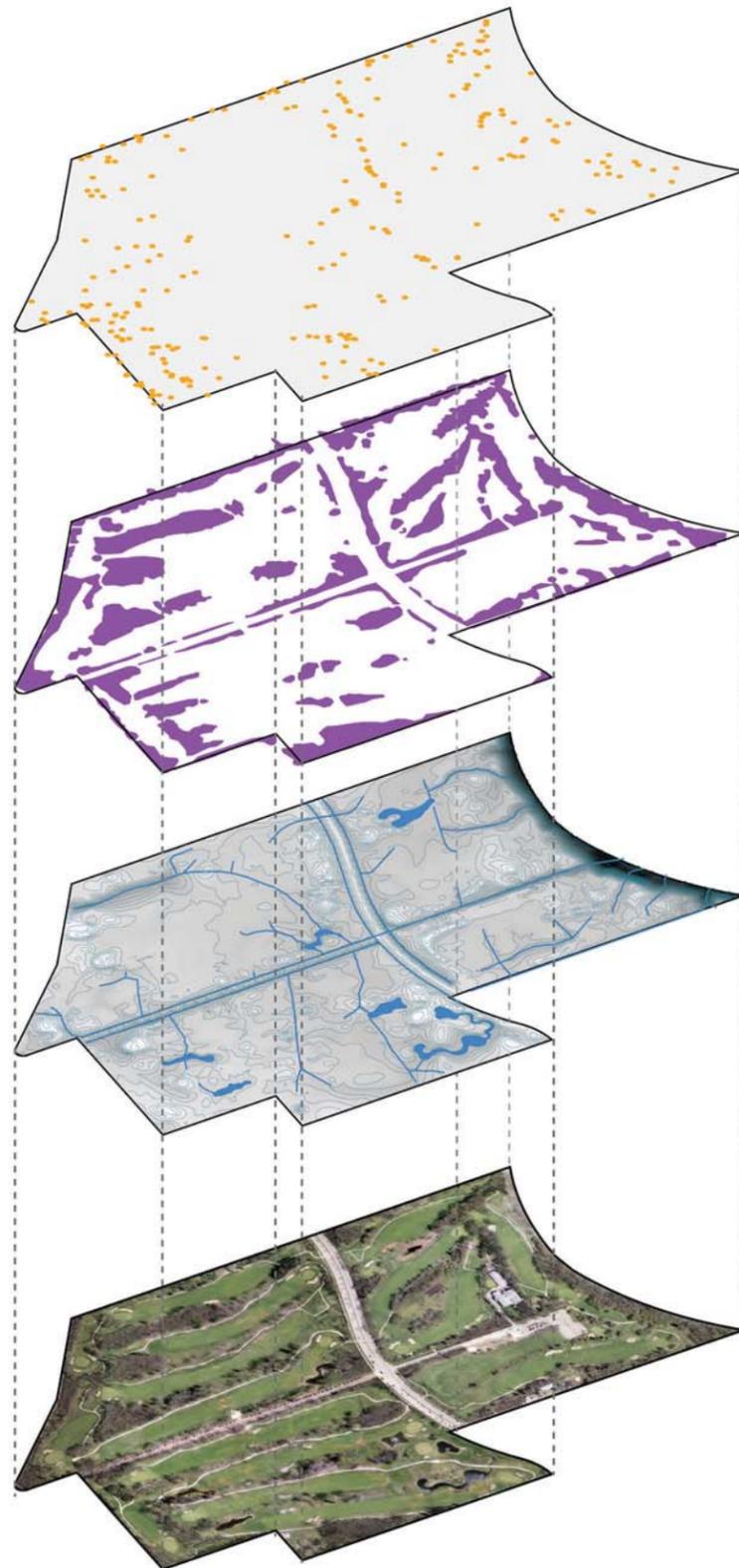


[3.63] Existing Significant Public Spaces and Green Areas



[3.64] Detail of Existing Significant Public Spaces and Green Areas

## Southwood - Existing Landscape Features



[3.65] Exploded Axonometric of Existing Landscape Features

### Large Trees

Large trees within the Southwood Lands were documented in 2012 as part of the scope of work undertaken by Dillon Consulting. Trees that are greater than sixty-one centimetres girth measured at a height of 1.0 or 1.3 metres were identified as 'large'- "they are large specimen trees of significant size and usually age (usually more than 200 years or greater)" (Dillon Consulting, 2012, p. 18).

### Large Patches of Vegetation

Information on vegetation patches was created using aerial photography taken in 2012. The patches are large relative to this site, and the context of an urban environment.

### Site Drainage and Topography

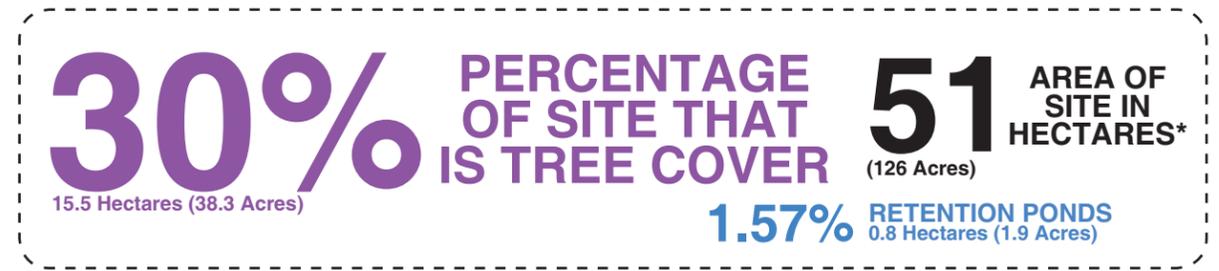
Topography information was gathered by Pollock & Wright in the Summer of 2012.

Drainage lines were created from aerial photography flown in 2005, the topography survey, site visits and georeferencing a Golf Course Drainage Study Completed in 1991 by Wardrop Engineering Inc.

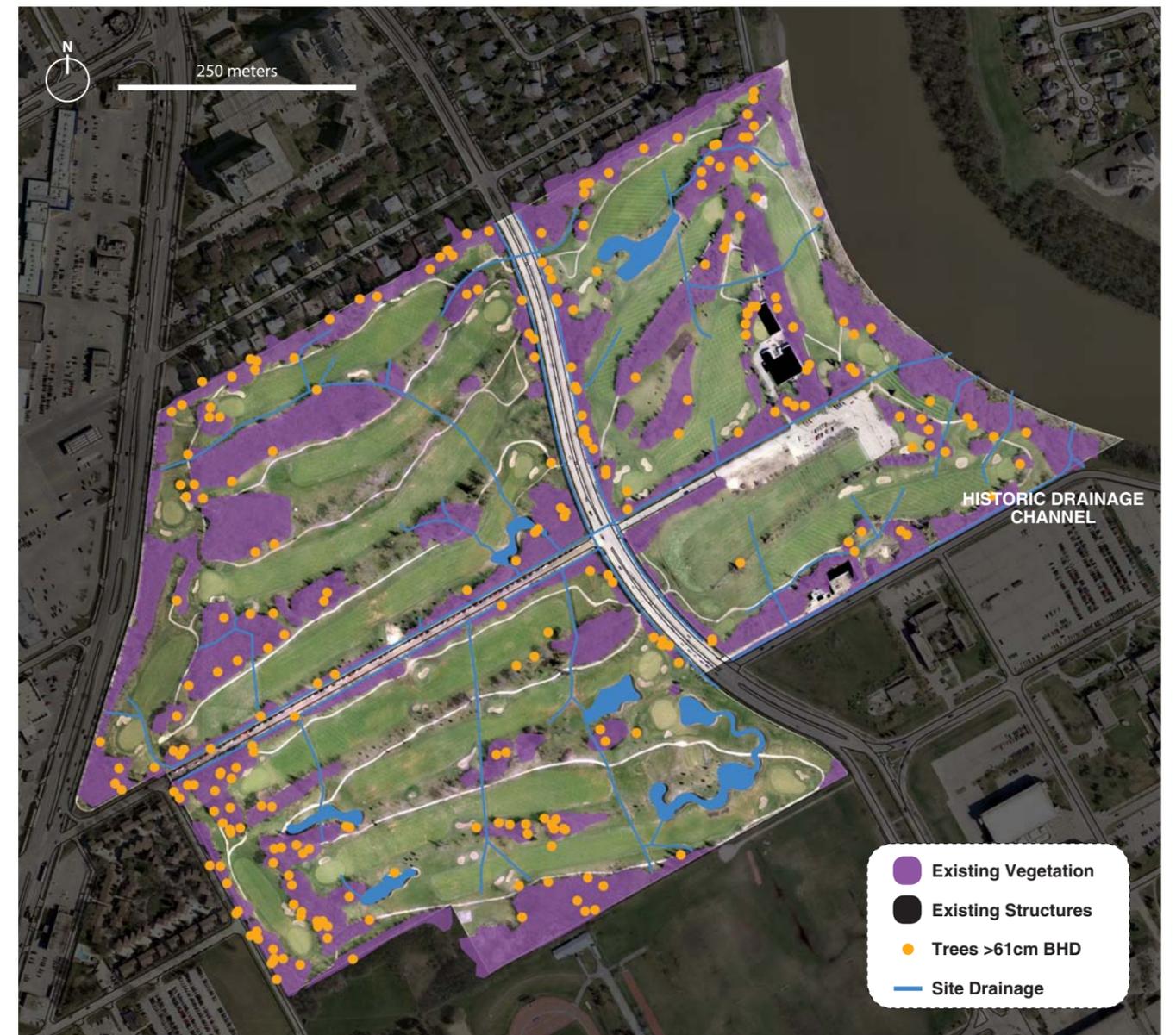
The grey-scale ground plane is a raster image created using Arc GIS 10.1.

### Aerial Photography

Aerial image shown is from 2005 and is used with permission from ATLIS Geomatics.

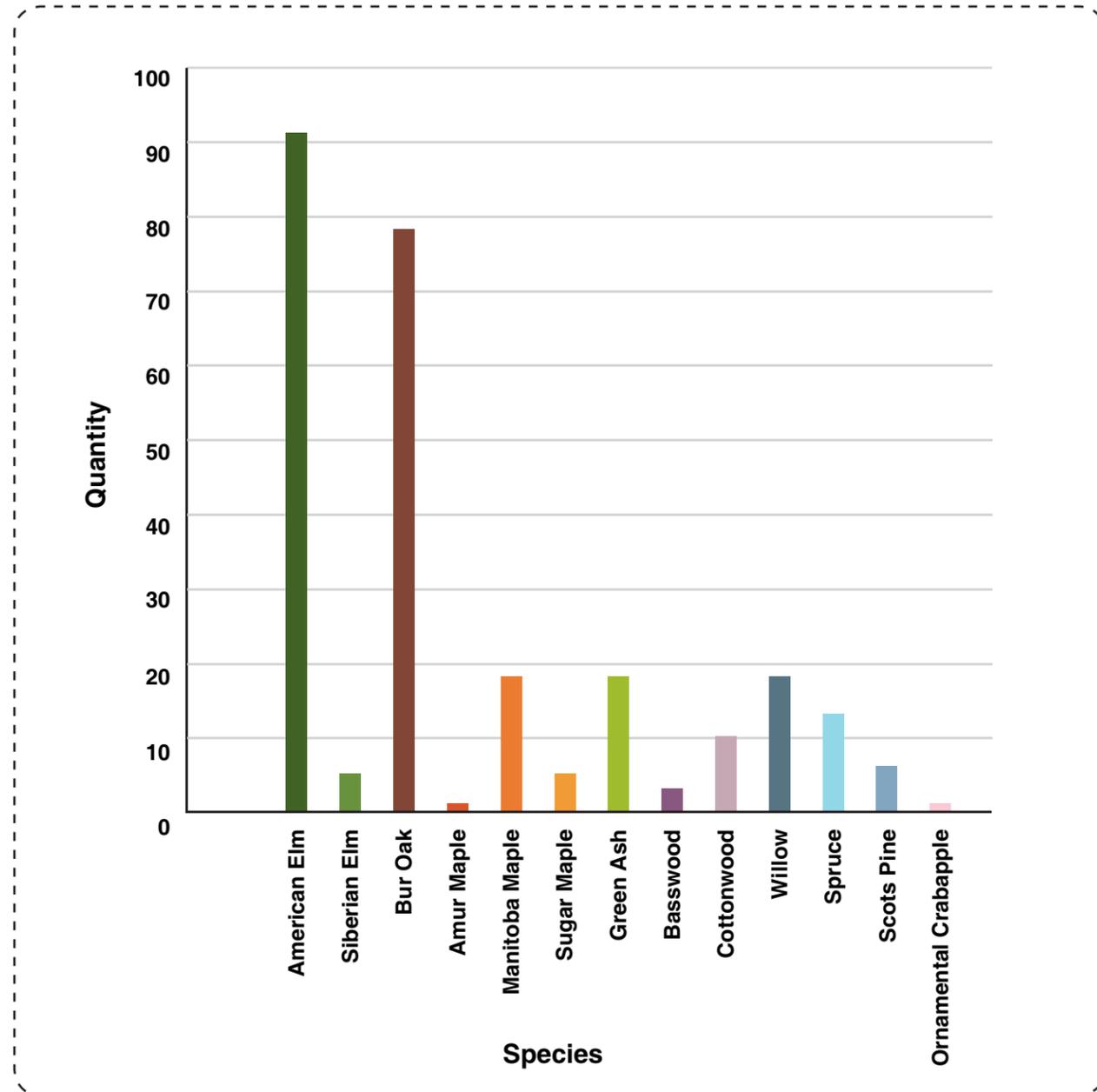


\*Overall site area does not include University Crescent



[3.66] Existing Vegetation and Drainage Channels

# Southwood - Existing Large Trees



[3.67] Species distribution (trees >61cm BHD)

species name	common name	Quantity
<i>Ulmus americana</i>	American Elm	90
<i>Ulmus pumila</i>	Siberian Elm	5
<i>Quercus macrocarpa</i>	Bur Oak	78
<i>Acer ginnala</i>	Amur Maple	1
<i>Acer negundo</i>	Manitoba Maple	18
<i>Acer saccharum</i>	Sugar Maple	5
<i>Fraxinus pennsylvanica</i>	Green Ash	18

species name	common name	Quantity
<i>Tilia spp.</i>	Basswood	3
<i>Populus deltoides</i>	Cottonwood	10
<i>Salix spp.</i>	Willow	18
<i>Picea spp.</i>	Spruce	13
<i>Pinus sylvestris</i>	Scots Pine	6
<i>Malus spp.</i>	Ornamental Crabapple	1

[Table 3.21] Large Tree Quantities

**266** INDIVIDUAL TREES > 61CM BHD

**34%** BUR OAKS

**29%** AMERICAN ELM



[3.68] Heatmap showing density of trees >61cm BHD - Created using Kernel Density in ArcGIS

# Southwood - Existing Site Drainage and Topography

## Overview

Existing site drainage generally flow towards Markham Road on the north-west and south-west thirds of the site. Existing drainage occurs overland using swales designed to take water out towards the Red River.

Any new development on the site would need to take into account these drainage patterns and the associated increases in non-permeable surfaces leading to an increased need to retain and treat surface water on site.

## Drainage Examples

### Location A

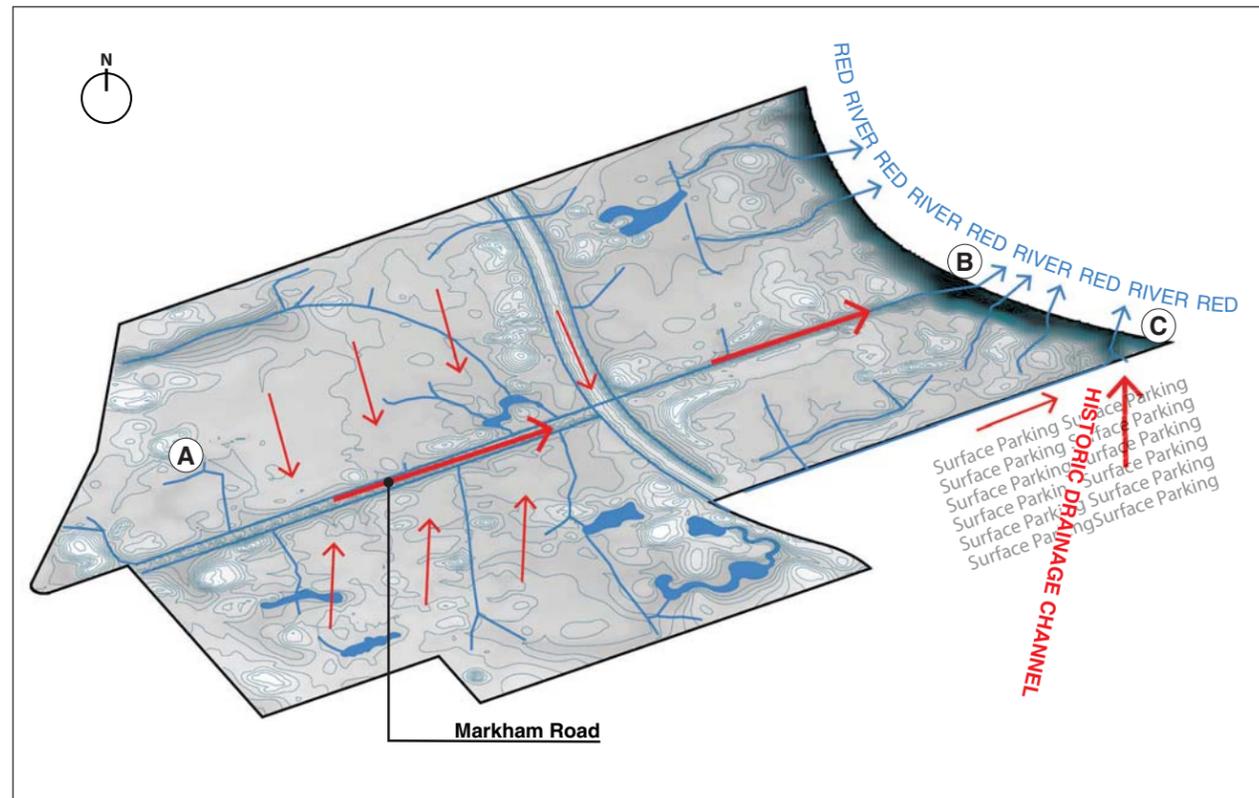
Typical drainage swale running through mature stand of trees found on the western edge of the Southwood Lands.

### Location B

Erosion due to drainage from Markham road swale. Predominant location of site drainage, near the Red River,

### Location C

Gully / historic drainage channel, near the Red River



[3.69] Generalized Drainage Patterns



[3.70] Location A - Typical swale within mature stand of vegetation (September 9, 2012)



[3.71] Location B - Markham Road drainage swale-outfall at the riparian edge (April 26, 2012)



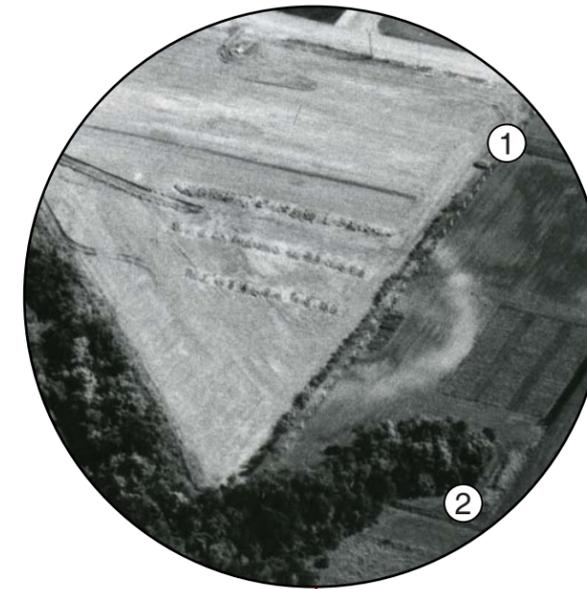
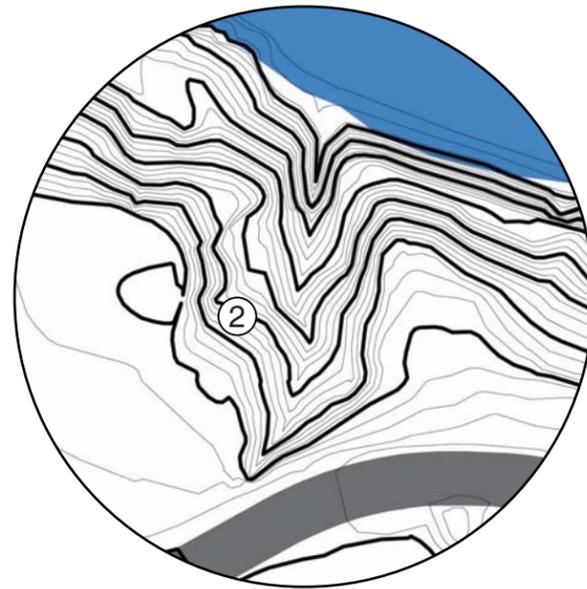
[3.72] Location C - Historic Drainage Channel (February 20, 2012)

# Historic Drainage Channel

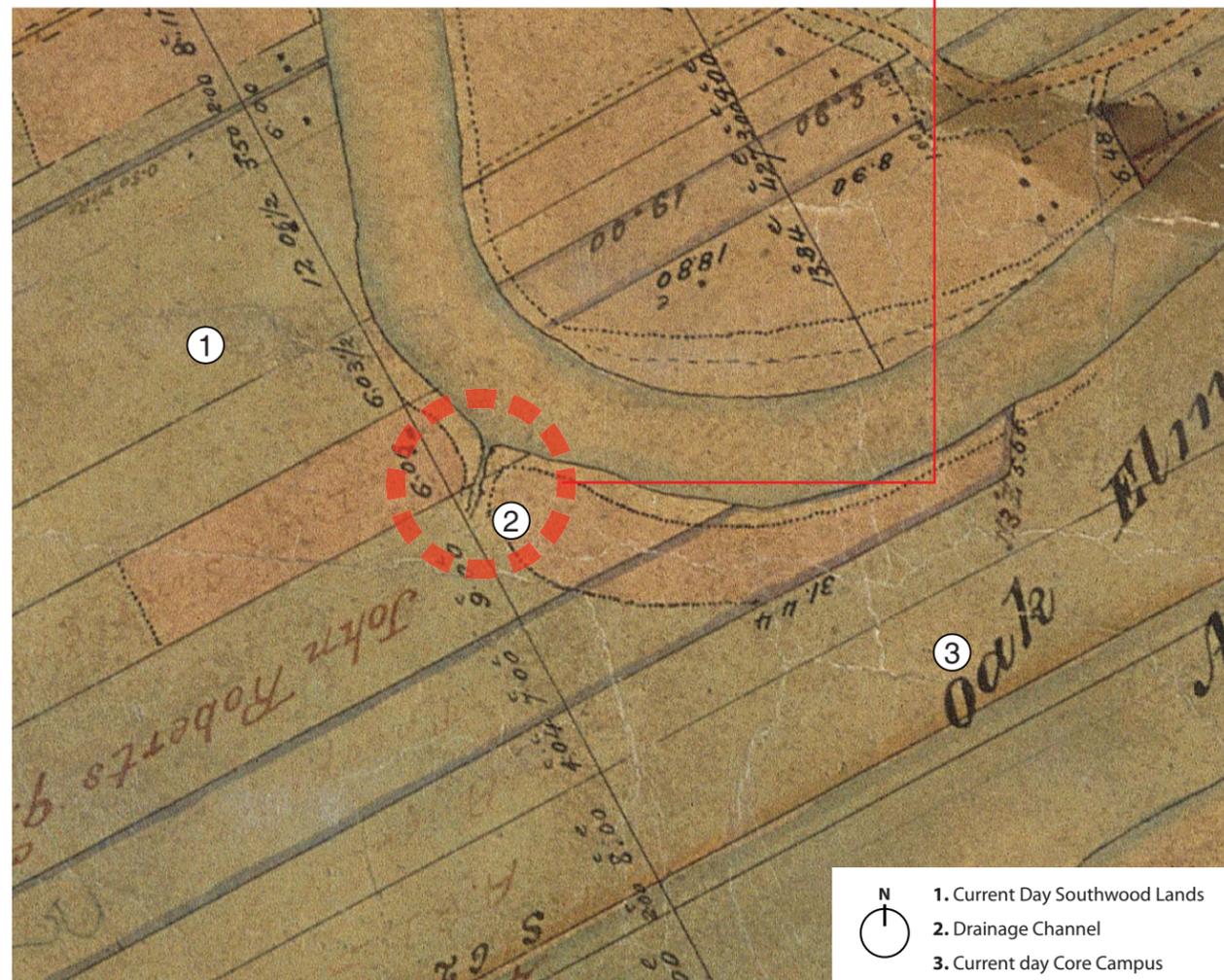
## Overview

The historic drainage channel annotated on (Figure 3.69) on the previous page as 'Location C' was first discovered on a site visit on February 20 of 2012.

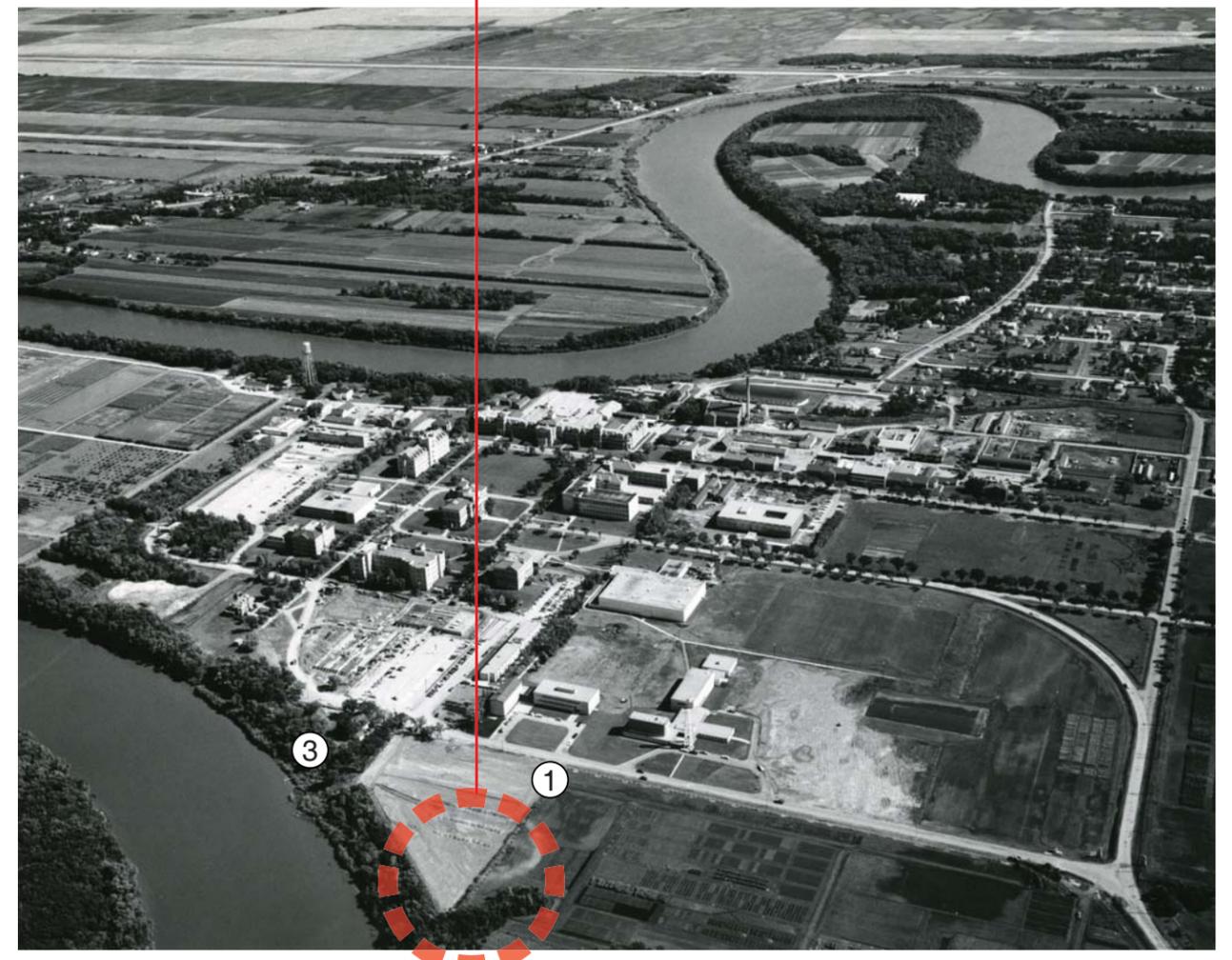
Additional evidence was found in the 1874 Parish map (Figure 3.73) and a plan from 1931 (not shown). Aerial photography from 1959 also supports this finding and is shown on the opposite page. Finally, City of Winnipeg contour data taken in 1999 indicates the location of the swale (Figure 3.75).



- 1. Drainage Swale that still exists today only between two parking lots rather than two agricultural fields.
- 2. Retained planting due to land drainage pattern
- 3. Lot 5 - Known as 'Sprague Property' (1913, 1940)



[3.73] Plan of River Lots in the Parishes of St. Vital and St. Norbert (April 1874) showing Drainage Channel

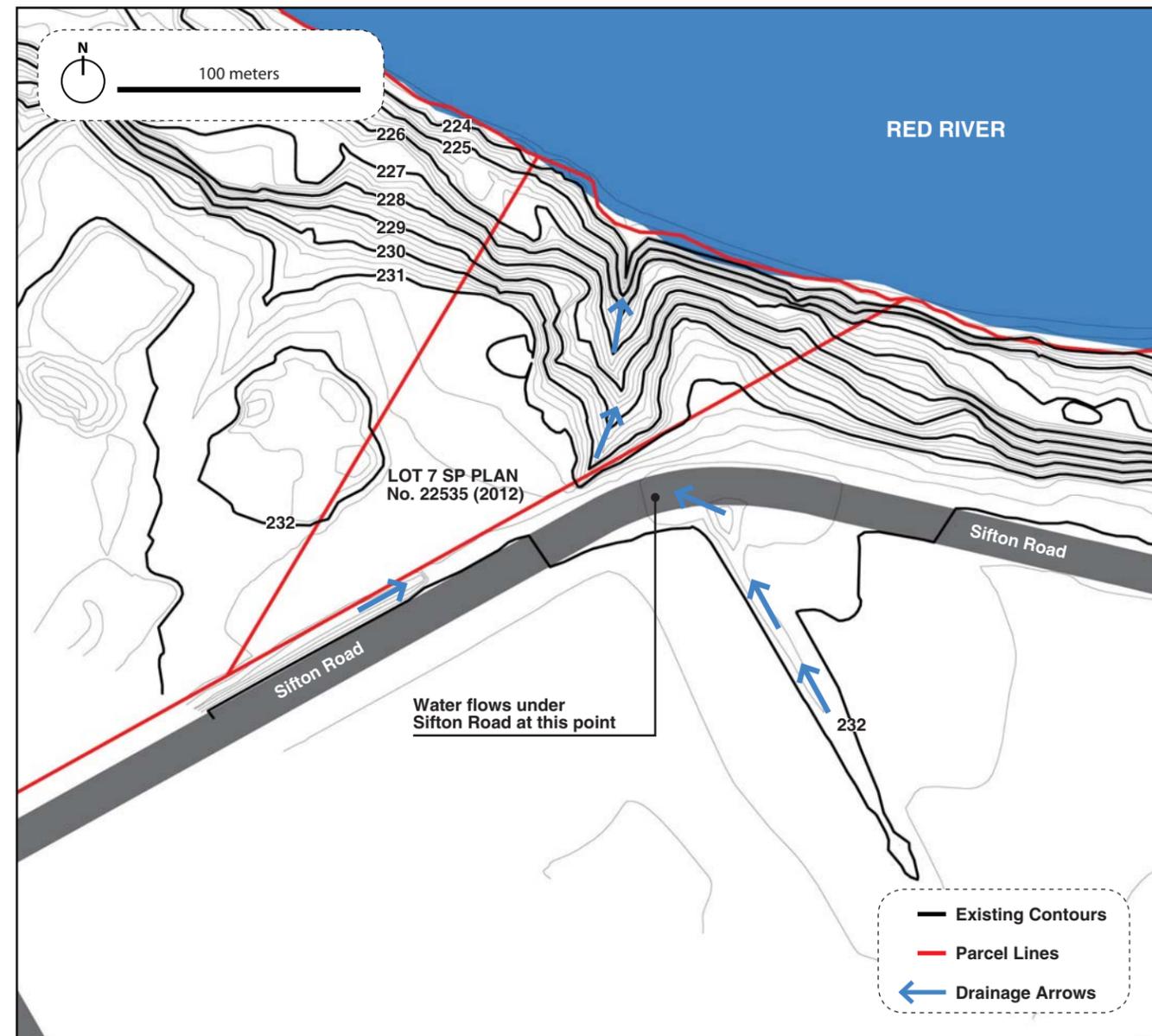


[3.74] Aerial showing historic drainage channel at edge of University of Manitoba and the Southwood Golf Course (1959)

## Drainage Swale + Parcel Lines

### Overview

Lot 7 of SP Plan No.22525 was previously subdivided so that the drainage condition is within its own land parcel.



[3.75] Drainage Swale - Contour and Lot Lines

## Southwood - Current Day Parcel Lines with Historic Annotations

### Overview

Current day parcel lines were overlaid with the annotations found on historical parcel / land division maps. This predominantly revealed changes to the names of streets.

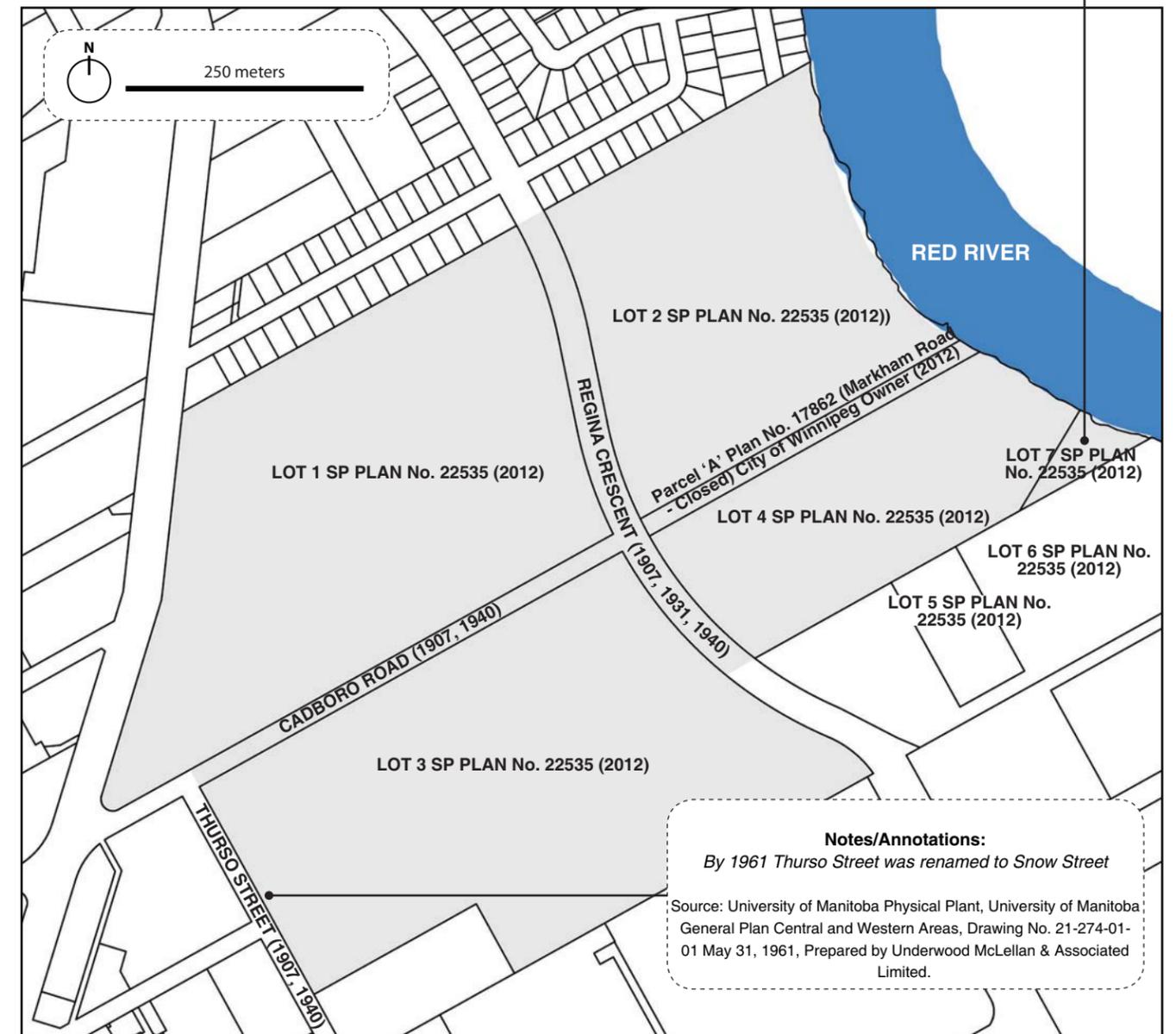
#### Notes/Annotations:

*'Small Ravine' noted on drawing as text; also shown graphically*

Source: University of Manitoba Physical Plant, University of Manitoba (Lee Property) C.T. 375517 Area = 20 Acre, August 20, 1931, Survey work done by Gilbert Beebe McColl. Enforced and Registered in the Winnipeg Land Titles office on September 25, 1907 as Plan Number 1279.

*Ravine clearly shown on drawing*

Source: Archives of Manitoba, Map - H9 614.11 gbbd Series 1 - Plan of River, Lots in the Parishes of St. Vital & St. Norbert, April 1874, Survey work done by George McPhillips.



[3.76] Current Day Parcel Lines with Historic Annotations (dates correspond to the year of map that information was recorded on)





# 4

## Founding

### A Strategy for the Fort Garry Campus

Founding is the final trace concept, what Girot calls the most significant trace act that is an accumulation of all three prior acts. It is about constructing or removing in order to bring newness to a place based on what traces already existed. “Founding may be either conservative - referring to some past event or circumstance - or innovative - importing something new to a place. Whatever the case, founding is always a reaction to something that was already there” (Girot, 1999, p.64).

The work builds up a series of layers that address the riparian edge, campus entrances, roadway removals, public space enhancements, edge treatments, and public transportation before presenting an overall strategy. The strategy sets out a starting points for a Campus Plan that is guided by four goals: treating the landscape as framework, increasing campus tree cover, increasing building density in already built up areas, and ultimately shifting away from the ‘commuter campus.

## A Strategy and not a Master Plan

### Semantics or a way of thinking?

The differentiation between using the term 'Master Plan' versus framework, strategy or simply plan is small, but not insignificant. It is not that the terminology is wrong, it is simply that the term 'master' is often misused and applied to work not deserving of this title. Only work that has a level of robustness, rigor, and clarity should consider using the title 'master'. There are many 'Master' Plans that lack depth in what they consider, are vague, and seem to use the title as a way of giving people permission to make sweeping decisions that ignore detailed thinking and context. Again, it is not that all Master Plans do this, there are many Master Plans deserving of the title.

The word 'master' has also historically been applied to male dominated positions of power, and its use very much rooted in authoritarian tradition (Oxford University Press, 2013). It implies proficiency, control, and rigidity. 'Master Plan' can be the correct title for something that becomes relatively fixed in its outcome (which can be appropriate in many different contexts); however, within the context of a University this is difficult because of long term uncertainty; a framework, a strategy or simply a 'Campus Plan' is the better title; all three imply something that is less authoritarian, and less rigid - having both long-term elements as well as being flexible. 'Campus Plan' is the preferred terminology because it is descriptive of the task and scale of the work.

University of British Columbia's (UBC) Campus Plan prepared by Du Toit Allsopp Hillier in the early 1990's discusses the idea of a Master Plan in a University context.

### *"Master Plan vs. a Set of Strategies"*

*It is a common idea that a university facing the volume of construction activity faced by UBC over the next decade requires a Master Plan to shape that growth, so that the constituent projects work together to form a cohesive whole. And it is a common misunderstanding that it is desirable and somehow possible to firmly fix the shape of years of future development through a Master Plan. The reasons for preparing a Master Plan are extremely valid. The method of pre-definition is not. Plans that try to predefine usually form a strait jacket to the needs of the constituent projects and are soon abandoned. This leads to an opposite feeling about master plans: that they should be as vague as possible to allow for future flexibility, minimize constraints on building committees, and allow architectural creativity to flourish.*

*The Campus Plan takes neither of the above approaches, and it is not called a Master Plan. Its central theme is that the campus whole is greater than its parts, and that this whole can be beneficially designed, or at least directed, but not in the same way that buildings are designed. The essential difference between architectural design and campus design is that the Campus Plan must be permitted to respond to its own evolution. The Campus Plan is therefore in essence a set of strategies, that will last over time, and that are clearly definitive as to intent but not in final form" (Du Toit Allsopp Hillier, 1991, p.1).*

## A Campus Strategy

### Goals + Objectives

For the purposes of this practicum, goals and their supporting objectives have been defined to assist in the creation of an overall strategy for the University of Manitoba Fort Garry Campus.

#### Goal One - Treat Landscape as Framework

Clearly define exterior spaces to create a coherent and legible landscape / exterior space structure for the campus. The landscape provides a framework for future growth that can be both immediately legible through the planting of vegetation, but flexible enough to allow for the strategic insertion of new campus programming, buildings and open spaces as the University evolves over time. This is what the Canadian Landscape Architecture firm Phillips Farevaag Smalenburg refers to as 'landscape as organizing frame' (McKinnon, K. (2010).

*"Landscape architects structure future form not only by direct shaping of material, form and space, but also indirectly, through anticipating how process will continue to mold the landscape, and by devising a plan for management of change over time." (Spirn, 1998b, p.202)*

#### Practicum Objectives

- Analyse existing conditions to determine the legibility of the current landscape structure;
- Define exterior spaces within the existing structure that are already pleasant and well defined (and subsequently which ones are not);
- Determine which buildings should and could be removed in a long-term plan to aid in the legibility of the overall campus (based on the understanding that additional study of these structured beyond the scope of this practicum would be needed to make these decisions);
- Plan for the placement of trees and buildings that defines space and help to reinforce the overall structure of exterior environment (outside the scope of this practicum).

#### Goal Two - Increase Tree Cover

Increase tree canopy cover to create an inspiring and beautiful campus environment that is held to the same high standard of research, teaching and learning that the University of Manitoba continually seeks to achieve.

Trees provide outdoor microclimates that protect against the cold northerly and westerly winter winds, create shade in the summer, have restorative benefits for human health, create habitat, shelter buildings (leading to a potential energy cost savings; a more sustainable use of energy).

#### Operational Objectives (beyond the scope of this practicum)

- Complete an up-to-date inventory of all trees and tree stands on all University property;
- Set campus planning and sustainability driven goals related to campus tree cover;

- Establish a planting and tree maintenance strategy along with required baseline funding to meet set goals. The planting strategy should be conducted on the basis that the slowest growing and longest lived trees are placed in areas that are least likely or should not be built upon. Where-as the fastest growing and shortest lived species ought to be placed in locations where buildings are destined to go at some point in the future;
- Trees should first be planted in locations that help to meet the objectives set out under goal one (helping to define space and create a framework for future additions to the campus);
- Establish an alumni (graduate) tree donation program;
- Establish a memorial tree program.

#### Goal Three - Increase Building Density

Increase overall campus building density by limiting campus sprawl.

*"There are significant costs to such sprawl. Longer roads and paths, acres of paving and landscaping, and extended underground services all cost more to build and maintain. Salaries paid to maintenance workers, academics, researchers, and staff are continuously being lost to unproductive travel time..." (Du Toit Allsopp Hillier, 1991 p.38).*

#### Practicum Objectives

- Define 'build -to' lines that restrict campus sprawl;
- Create well placed transportation nodes / stations that growth is centred around;
- Use surface parking as an opportunity to create spaces and places that better meet the mission of the University of Manitoba which is to "create, preserve and communicate knowledge, thereby, contribute to the cultural, social, and economic well being of the people of Manitoba, Canada and the world" (University of Manitoba, 2013).

#### Goal Four - Shift Away from the 'Commuter Campus'

Decrease automobile dependency and shift away from the 'commuter campus'. The University should position itself as a leader in sustainable transportation that can be achieved (partially) through environmental design.

#### Practicum Objectives

- Make alternative modes of transportation the most logical and easiest choice by designing for different users in this order: pedestrians, bicycles, public transportation, commercial trucks / vehicles, taxis, high occupancy private automobiles followed by single occupancy vehicles;
- Provide a range of housing options for students, employees and visitors directly on campus.

#### Operational Objectives (beyond the scope of this practicum)

- Determine how people are currently arriving on campus, and set well defined goals and targets that are measurable.

# Riparian Edge

## Overview

The University of Manitoba has 3.86km of riverbank frontage. Despite this, the overall campus provides very little opportunity to experience being adjacent to the river. The University also has no management strategy that ensures a healthy riparian edge, and no plan that addresses the experiential quality of the riparian zone, providing little opportunity to learn about this unique habitat type.

## Invasive Species

As discussed in the previous chapter, two highly invasive species are now established on the banks and will choke out native ones, preventing riparian forest regeneration. This will have long term implications for not only the ecological quality of the area but also erosion control.

If the riverbank is not allowed to regenerate itself due to invasive species out-competing native ones, then the riparian forest will lose its biodiversity and its resiliency to respond to change. Biodiversity and resiliency are absolutely critical to long term riverbank stability and ecological health.

## Experience

During a walk from Southwood to the Point Lands, the northern riverbank of the University was analysed on May 11<sup>th</sup>, 2012. There are four main conclusions made from this trip:

1. The University's outer ring road acts as a barrier that fragments pedestrian access to the Red River. There is no consideration made to provide safe crossing points and cars often go well over the posted speed limit of 30km/h.
2. Spaces along the river are disjointed. There is no consideration for how they are sequenced or choreographed, and nothing that ties individual areas together to create a coherent experience.
3. Lawn is overused as a ground cover. Lawn should be used in direct support for a specific program - not as a low up-front, high maintenance cost default solution.
4. There are critical points where surface drainage from the campus meets the river. These areas are in need of design consideration given the amount of water runoff leading to erosion, and channelization. They are opportunities for learning about natural processes, and to mitigate the effects of pollution from runoff water.



[4.0] Left image - drainage channel, location A (May 11, 2012); Right image - same drainage channel (May 5, 2013)

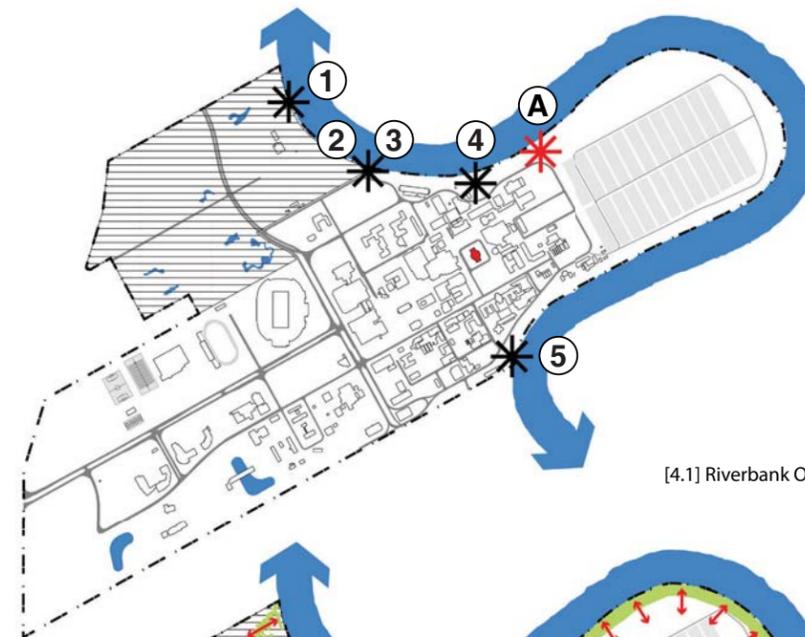
## Riverbank Opportunities

Five existing cuts into the riparian zone that allow for direct access to the Red River have been identified. Due to their already degraded ecological conditions, they should be seen as opportunities to engage with the river.

1. The eroded and slumping riverbank within the Southwood Lands.
2. The land drainage outfall that takes surface water from Investors Group Stadium to the river.
3. An existing land drainage outfall.

4. Large areas of mowed lawn (too large for their intended purpose). The lawn mowing zone within this area should be minimized to allow for a regeneration of riparian habitat.
5. An existing land drainage outfall with south facing views towards Henteleff Park across the Red River.

Location A was documented over two years around the same date; this revealed the variability of the Red River, and the importance of this location for surface drainage. This location is an opportunity to store and filter water before it enters the Red River, as well as learn about natural processes. Images are shown on the next page.



[4.1] Riverbank Opportunities



[4.2] Riparian Edge Enhancement

## Riparian Edge Enhancement

Where-ever possible the riparian edge should be expanded based on the premise that larger habitat areas support larger species (along with additional species diversity), and provide additional long-term erosion control measures.

Location one requires the removal of Sifton Road. This decision will be discussed in more depth on upcoming pages.

Location two requires the removal of a surface parking lot and trailer adjacent to the Red River.



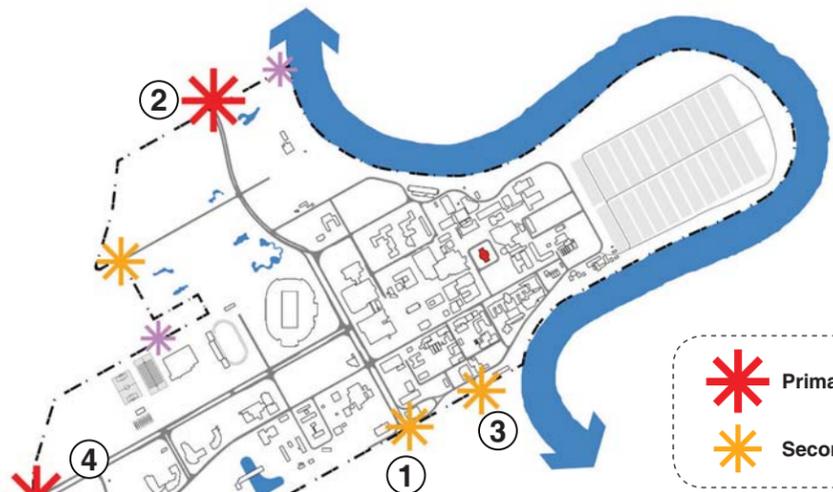


[4.3] Drainage channel, location A (May 13, 2013)



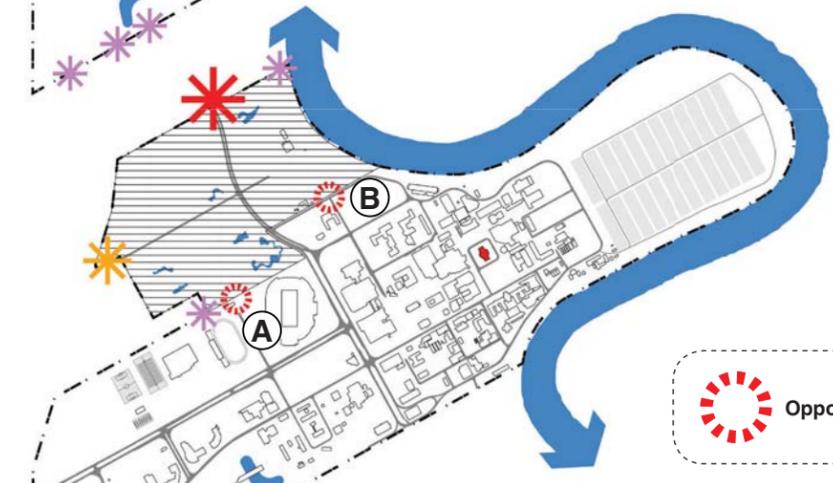
[4.4] Riverbank Opportunities (May 5, 2013)

# Campus Entrances Analysis and Proposal



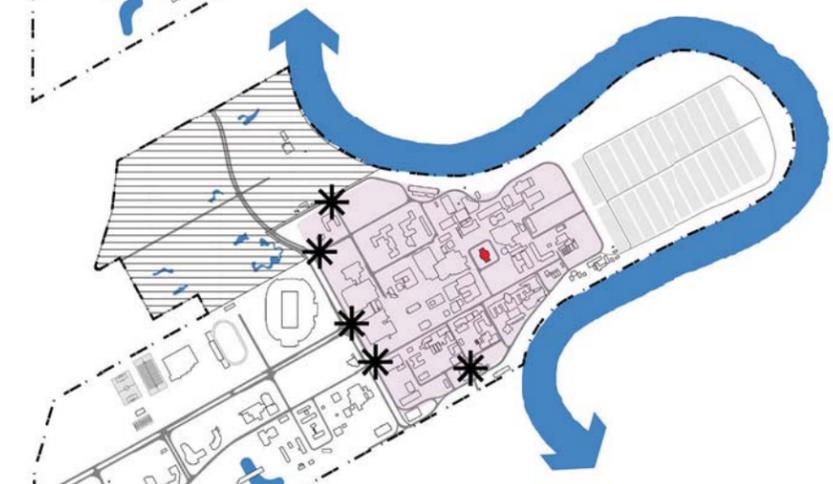
[4.5] Entrances - University

✱ Primary    ✱ Pedestrian Only  
✱ Secondary



[4.6] Entrances - Southwood

⊙ Opportunities



[4.7] Entrances - Core Campus

N  
 500 meters

## Primary and Secondary Entrances

Four of the five primary and secondary entrances were studied and are documented through photography.

One of the secondary entrances (Markham Road) is not shown in upcoming photographs, but has been observed during previous site visits to the Southwood Lands; it has the most potential to radically change.

## Southwood Opportunities

There are two key opportunities to connect the traditional campus lands with Southwood (labelled A and B).

## Core Campus Entrances

Five existing and important gateways into the Core Campus have been identified. These are important from a pedestrian perspective.



[4.8] University Crescent at Freedman Crescent (May 5, 2013)



[4.9] University Crescent (May 5, 2013)



[4.10] King's Drive Entrance (May 5, 2013)



[4.11] King's Drive Entrance - looking left (May 5, 2013)



[4.12] King's Drive Entrance - looking right (May 5, 2013)

## Analysis and Proposals

### University Crescent at Freedman Crescent

The overwhelming majority of people using this entry-way use it as a shortcut to move through the campus. This statement is based on observations. Vehicles tend to go around the bend in the road at a speed which as a pedestrian feels unsafe and unwelcoming. The movement of pedestrians and cyclists is not well considered at this location.

*Recommendation:* Devoting this entrance to pedestrians and cyclists only, and reconfiguring a portion of the roadway. This will alleviate some of the vehicular traffic moving through the campus as a shortcut in addition to creating a more welcoming

and safer environment for pedestrians. Further photographs of this location and a proposed road re-configuration is shown on upcoming pages.

### University Crescent

This entrance has never been fully considered based on the aesthetics and experience of moving into the university. It receives an average of 17,300 to 23,900 vehicles per day (City of Winnipeg Public Works Department, 2009). Proposals for this entrance are not included in this practicum.



[4.13] Chancellor Matheson Road at Pembina Highway (May 5, 2013)

### King's Drive

*Proposed nickname: The President's Entrance*

One of the major north-south pedestrian axis of the campus begins at this location; most people entering here move between the existing maintenance garage and the Physical Plant building (see Public Space Enhancements on upcoming pages). Vehicles and some buses also use this entrance. These conditions, along with the two parking lots that flank either side of the entry are a very poor way of entering a major university.

Work that is upcoming proposes removal of these buildings to strengthen the pedestrian axis into the campus; this, with the removal of the parking lots allows for an opportunity to create a strong and positive experience as one enters the University.

A prairie landscape as one moves from the suburban community to the south, into the campus would create a unique experience and identity for this entryway.

The proposed nickname for this entrance is to give the area increased importance. It is also likely the entrance that the University President would take from the house that the University provides just south of this area.

### Chancellor Matheson Road

*Proposed nickname: The Chancellor's Entrance*

The Pembina Highway corridor analysis created in chapter three revealed the importance of signifying the University as a place that has special importance along this major roadway. This work analysed the entire corridor within a 150m buffer of

Pembina Highway from Confusion Corner north of the campus to the Perimeter Highway south of the campus (11.5km total). What makes the University stand out is how the front door of the campus is neither a parking lot or a building like the rest of the corridor.

Creating a threshold by planting an urban forest at this edge of the campus would further help to distinguish the identity of the University from the rest of Pembina Highway. It will also provide people with a sense of arrival as they enter the campus, stating its importances as a special and unique place, while providing some variety for the people travelling along Pembina each day.

This edge condition is the face of the University, it's ambassador to the city. What message does the University of Manitoba want to send? A forest would signify the University's values to the public; speaking directly to the fact that we care about sustainability; we care about the future of the planet, and that the University is a special place to be.

A strong example of using landscape as a threshold condition is the transition from city to forest to campus as one enters the University of British Columbia (UBC). The journey through the forested landscape of the endowment lands truly signifies a sense of arrival. This forested landscape is not a barrier, but announces UBC as somewhere that is special and important within the community. While this experience would be different at the University of Manitoba, the idea still has merit and would be a powerful, beautiful and inspiring way to enter a major University.

It is important to think about moving through the urban landscape and the rhythm of the built environment. Within the rhythm of the city, the idea of having a pause in the fabric of buildings and parking lots can be a very powerful experience. It is even more powerful when this gap is a strong statement such as a forested landscaped that creates juxtaposition.

A major post secondary institution should have a strong identity and address within the city. It should be unique, and state the importance of the institution, but also be welcoming and present a positive message to the community - a forested landscape is one way to do this.

### Precedent

A surprise discovery was made after the above argument was formulated. The 1991 UBC Campus Plan created by the Canadian Landscape Architecture firm DuToit Allsopp Hillier has a statement which confirms thinking about UBC's entrance experience.

*"A Garden Commuter Campus at Land's End  
The University is at the land's end of Point Grey, perceptually separated from the rest of the city by a forest of Pacific Grey Park. This location gives it a sense of being special, set in a garden bounded by forest. Its founders sited it there with an idyllic 'university city' in mind"* (DuToit Allsopp Hillier, 1991, p.1).

This confirms that signifying the University of Manitoba as somewhere that is special and unique along Pembina Highway is an appropriate decision, with precedent.



[4.14] Trees provide a better pedestrian scale and experience along the sidewalk. They also create a strong identity for the University along Pembina Highway which should be strengthened (May 5, 2013)

# Roadway Removals

## Overview

Within the campus area there are two small sections of roadway that should be removed as there are significant benefits that would accrue from this action.

### Sifton Road - Removal

Sifton Road is a one way, two lane roadway at the northern edge of campus. There are five primary reasons for removing Sifton Road:

1. It fragments access to the Red River - there are two key opportunities along this section for engagement with the river;
2. The existing road configuration constricts the existing riparian forest. With the road gone the forested banks could extend outwards from the river. This is important for overall riparian health and long term erosion controls.
3. There is a historic drainage channel in this location (discussed in Chapter 3). Revealing and recalling this channel can serve as an opportunity to learn about ecology, hydrology and the role of natural systems in the built environment. It could be designed as a form of ecological / landscape infrastructure that polluted water from impervious surfaces while also providing habitat for small creatures. Polluted water enters our food system through the lakes and rivers that also provide recreation and joy - making this an important teaching opportunity.
4. The roadway is rarely used to its full capacity. There is no need for a road this size in this location (in my opinion).

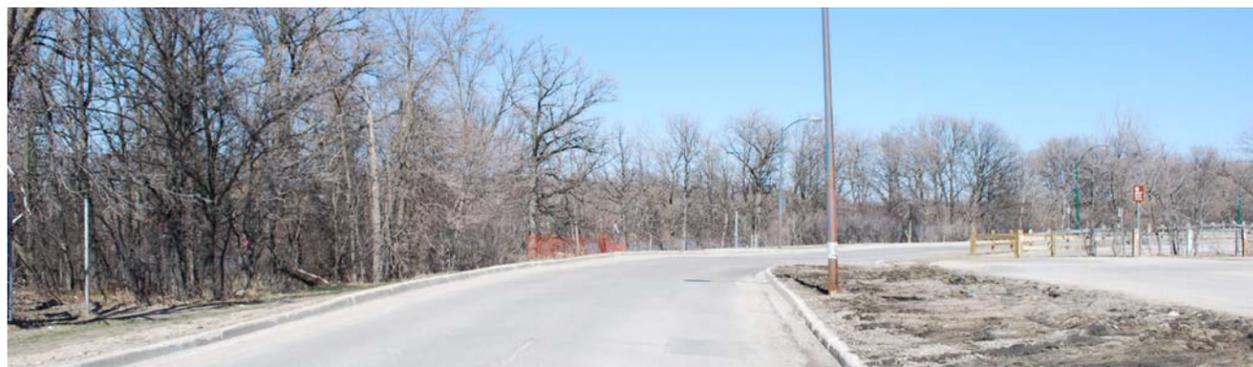
5. A long term goal for the campus should be to reduce dependency on the private automobile through promoting active and public transportation, meaning this roadway will be used less in the future (and its removal could encourage more people to use the bus).

Currently Dysart Road is also a one way, but two lane roadway. It would be very easy to allow two way traffic within this area as part of the Sifton Road Removal.

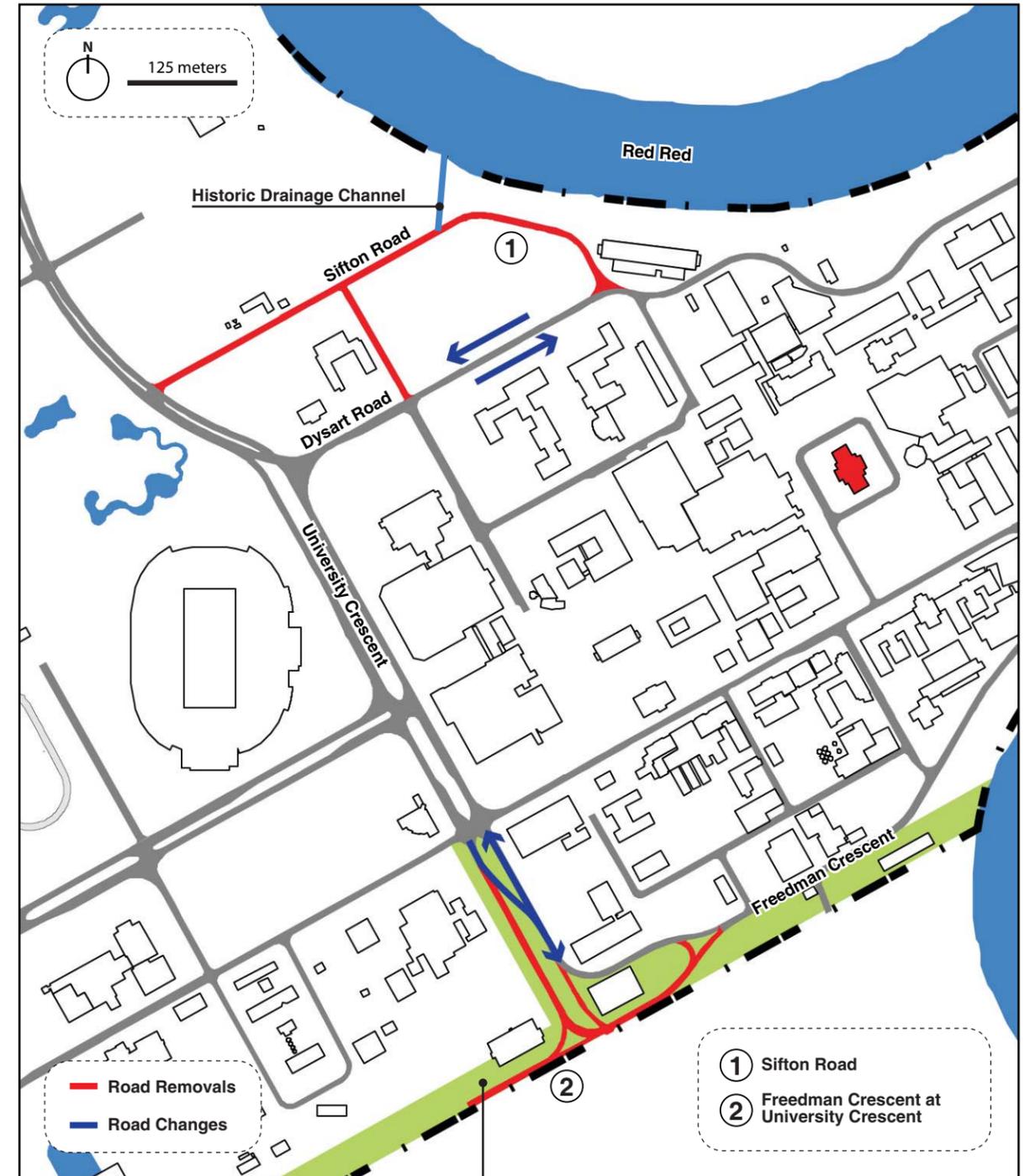
### Freedman Crescent at University Crescent

There are also a number of reasons for removing Freedman Crescent at University Crescent.

1. Less traffic cutting through the campus. Observations were made that the large amount of people use this route only as a cut-through, and have no intention of being on campus to use facilities.
2. The opportunity to create a spectacular linear parkway from Pembina Highway to the Red River, that connects the campus to the city. This also provides recreation opportunities for the University family and surrounding communities.
3. An enhanced entry point for pedestrians and cyclists (see next page). It is currently a dangerous corner that people speed around as they leave going south. This is based on observation and personal experience as a pedestrian.



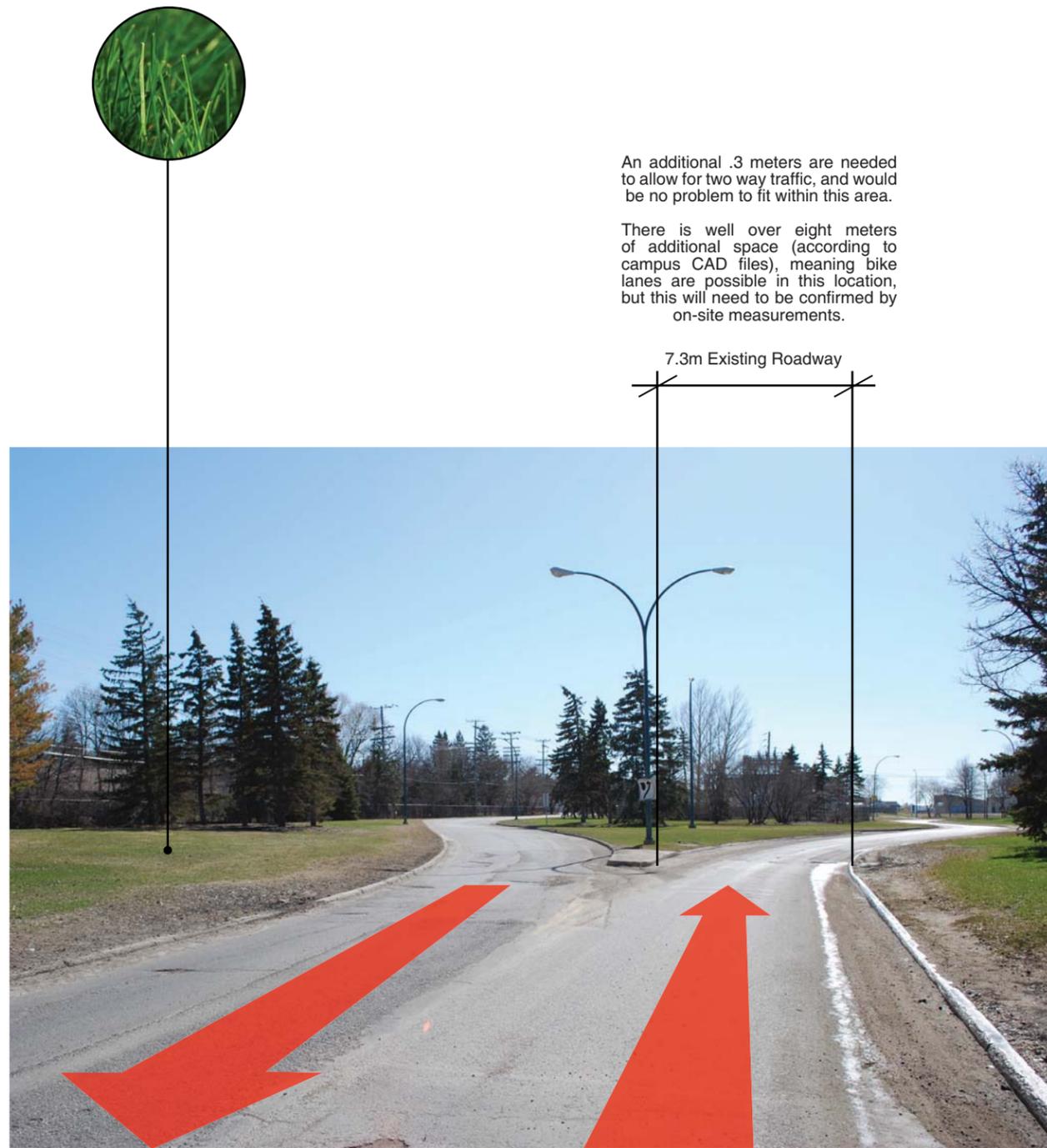
[4.15] Top - Proposed Two-Way Traffic; Bottom - Proposed Road Removal (May 6, 2012)



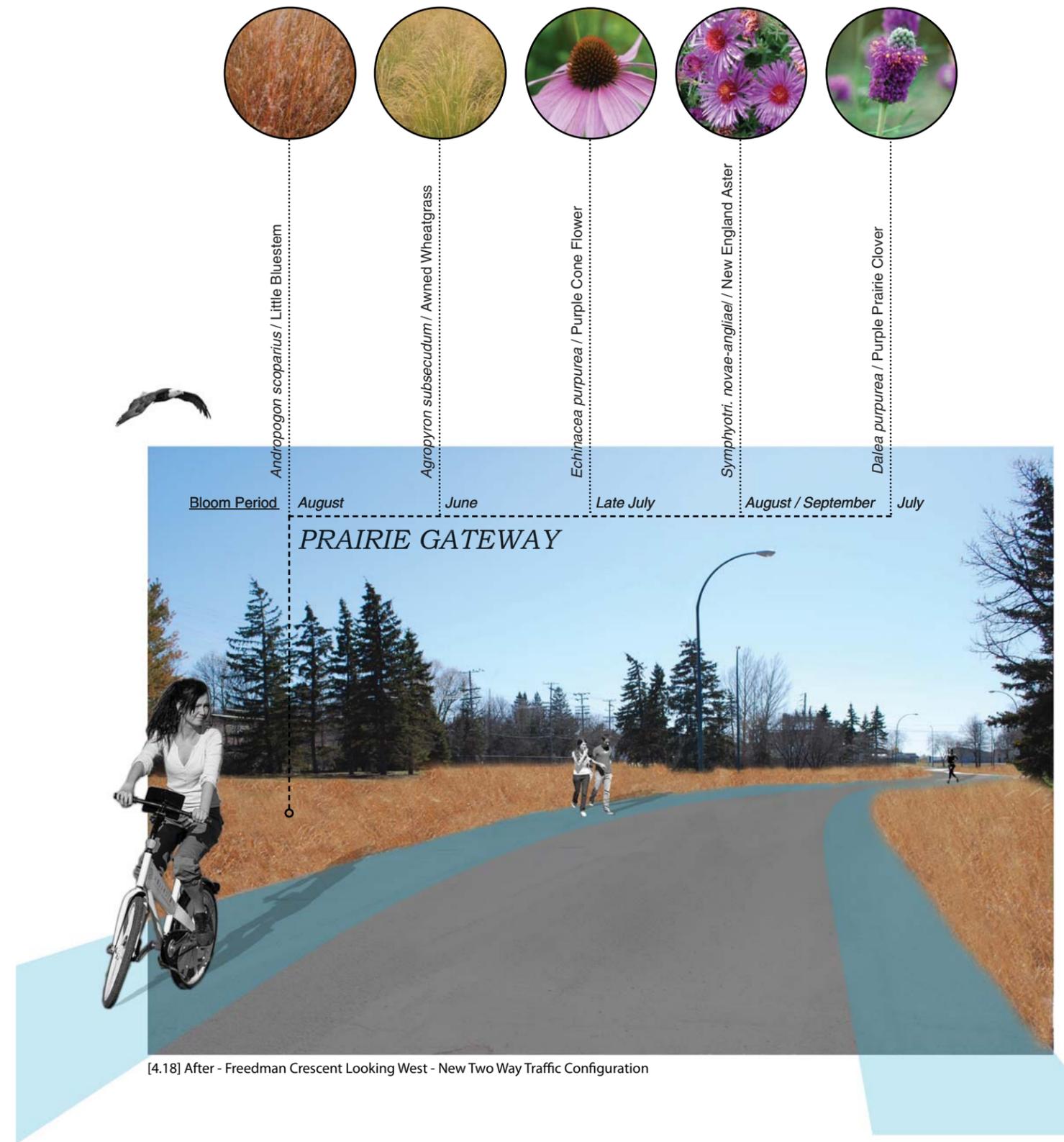
[4.16] Proposed Road Removals

Pedestrian Pathway Extends from Pembina Highway to the Red River

Freedman Crescent Before / After



[4.17] Before - Freedman Crescent Looking West (May 6, 2013)



[4.18] After - Freedman Crescent Looking West - New Two Way Traffic Configuration

# Public Space Enhancements

## Public Space Enhancements

Public spaces that would enhance the legibility and structure of the exterior spaces on campus have been identified. This exterior space structure already exists, but is in need of enhancement through design.

## Views to St. Paul's Bell Tower

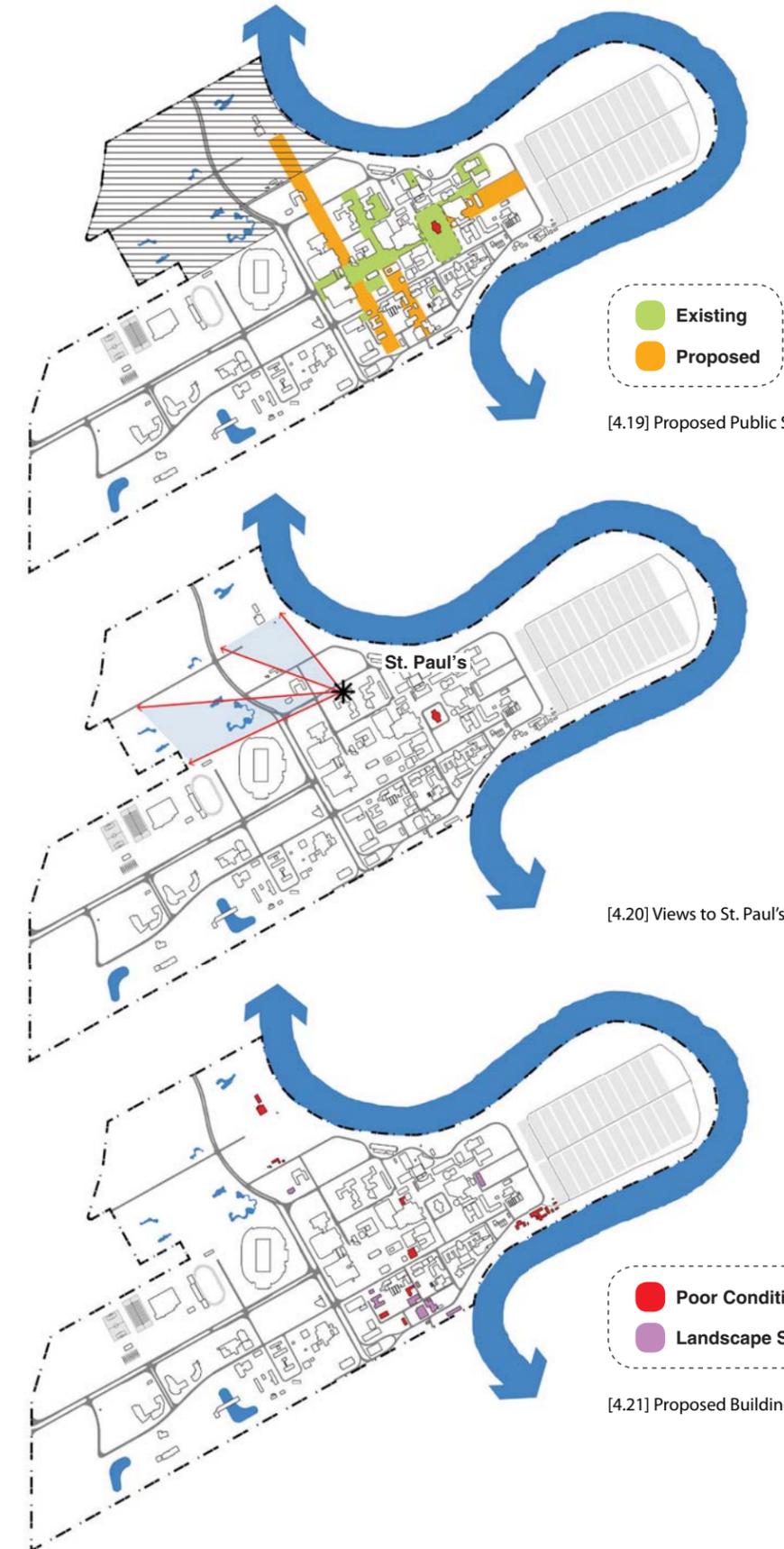
Site visits revealed the importance of the St. Paul's Bell Tower in creating a visual relationship with the existing campus. When the structure was built, it was the highest point on the campus. The goal of this study is to show the opportunities to create a visual and physical relationship between the old and new, by using the bell tower as a wayfinding device. The existing day-care building was removed in this analysis to extend the viewing area, with the idea that this could be better integrated into the campus.

## Proposed Building Removals

Building removals have been proposed based on two considerations:

1. The condition of buildings (University of Manitoba and [Phase Eins], 2012).
2. Building that if removed will help to create a more legible exterior-space (landscape) structure for the campus.

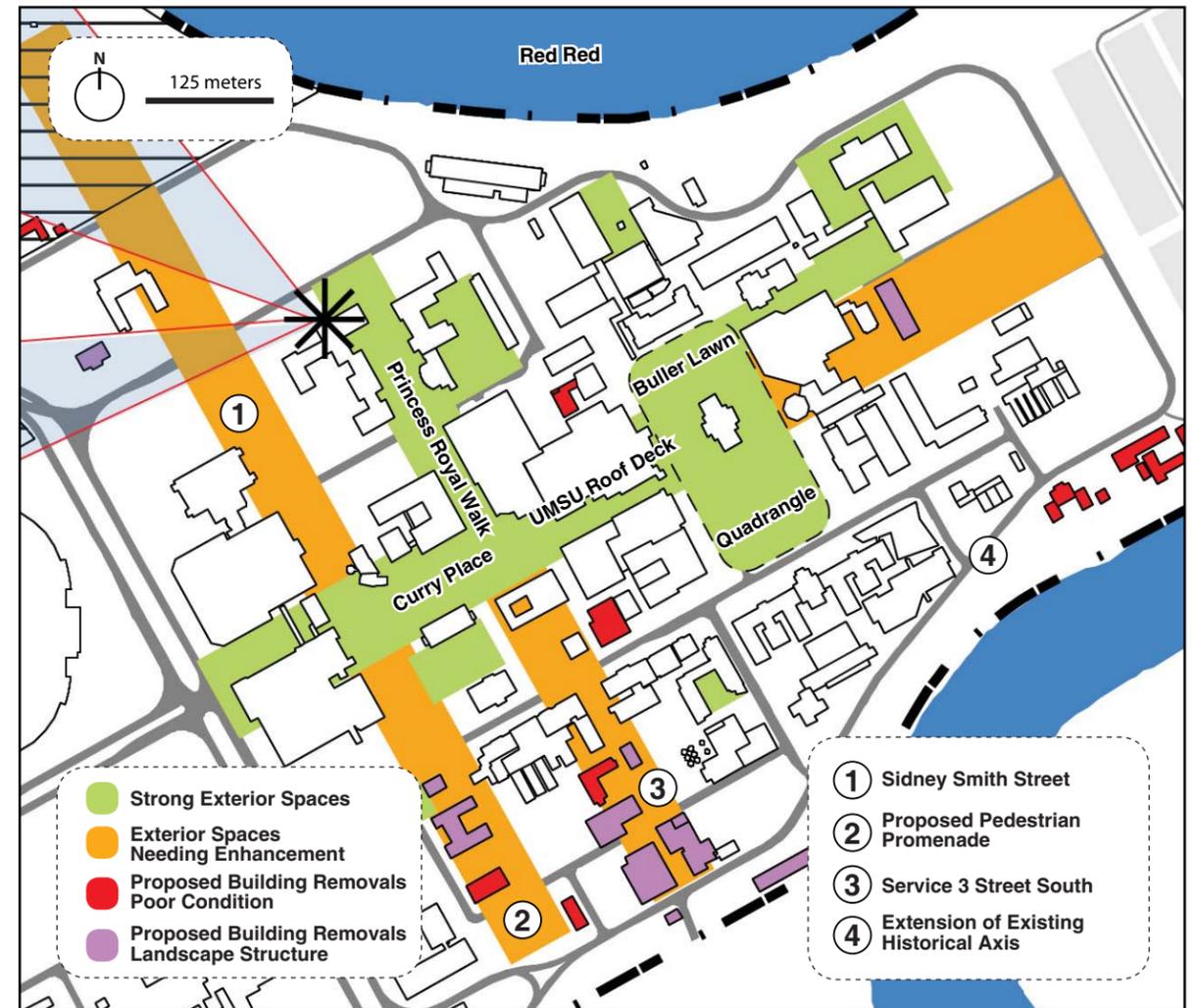
These ideas are preliminary, intended for the long-term, and would require further consideration / study.



[4.19] Proposed Public Space Enhancements

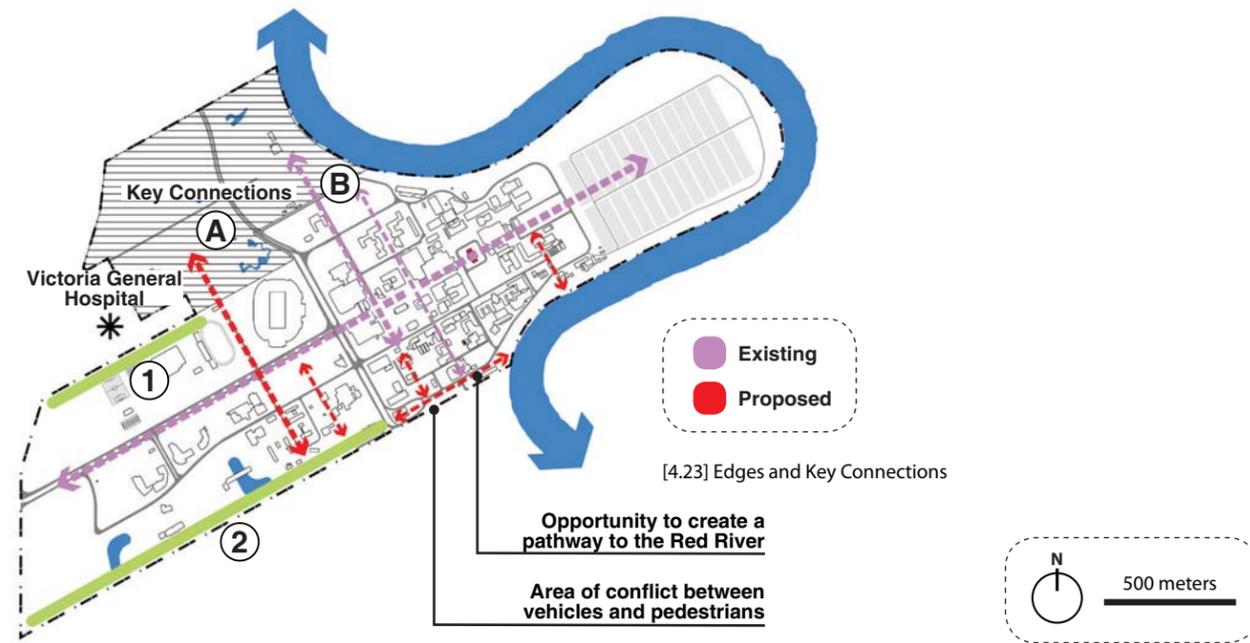
[4.20] Views to St. Paul's Bell Tower

[4.21] Proposed Building Removals



[4.22] Composite - Public Space Enhancements

# Edge Treatments and Key Connections



## Edge Treatments

The existing edge of the campus (location one) bordering the Victoria General Hospital has a very strong shelter belt planting that is an opportunity to provide connections from Pembina Highway to the Southwood Lands for pedestrians and cyclists. Images of this space are located on the opposite page.

Location two used to have a rail line that would take coal to the University Central Energy Plant. It is a well used pedestrian pathway, but currently has very little vegetation. This space could be strengthened by planting a similar shelter belt. Tree rows would also

filter out light pollution from the Smartpark parking lots that effect adjacent residential neighbours, provide protection from winds, an enhanced sense of privacy, and create a more pleasant way to enter the University. The rhythm of the plant spacing and species choice could relate to the railroad ties that would have been here previously.

## Key Connections

Two north-south axis form key connections between Southwood and the traditional campus area, and should be enhanced through the planting of trees and the appropriate siting of buildings to create a clear and legible exterior space structure.



[4.24] Key Connection 'A' - North-south axis between the traditional University Southwood



[4.25] Tree belt on north-west edge of campus (April 27, 2013)



[4.26] Former rail-line on south-west edge of campus (May 5, 2013); left image - looking west, right image - looking east towards Red River



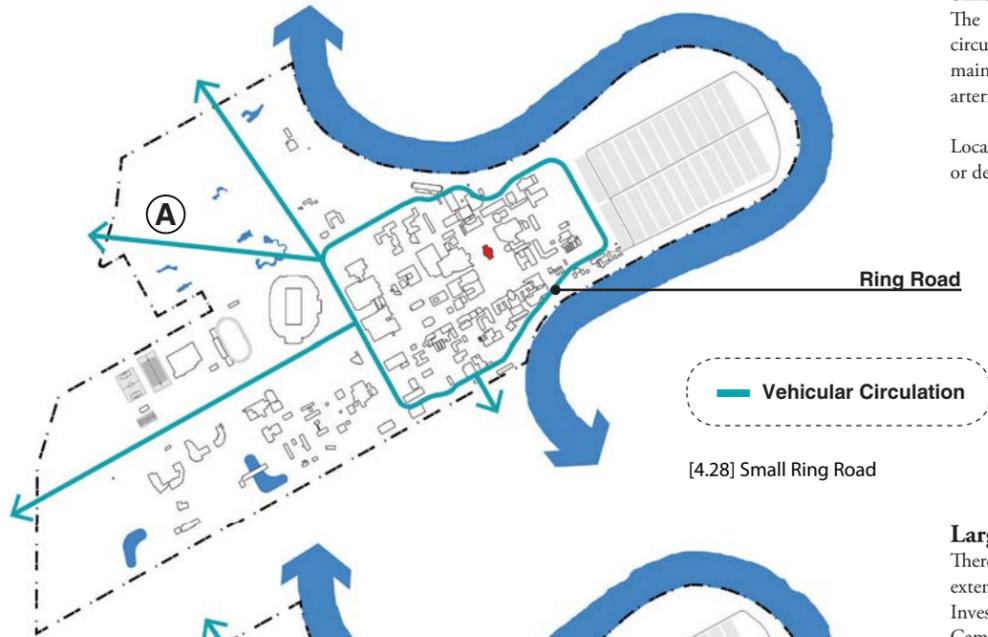
[4.27] Former rail-line on south-west edge of campus (May 5, 2013)

# Campus Public Transportation Proposals

## Overview

A number of public transportation options were studied to find the best solution for the entire University area. Key options are presented here. A number of other solutions were considered but ultimately not considered reasonable.

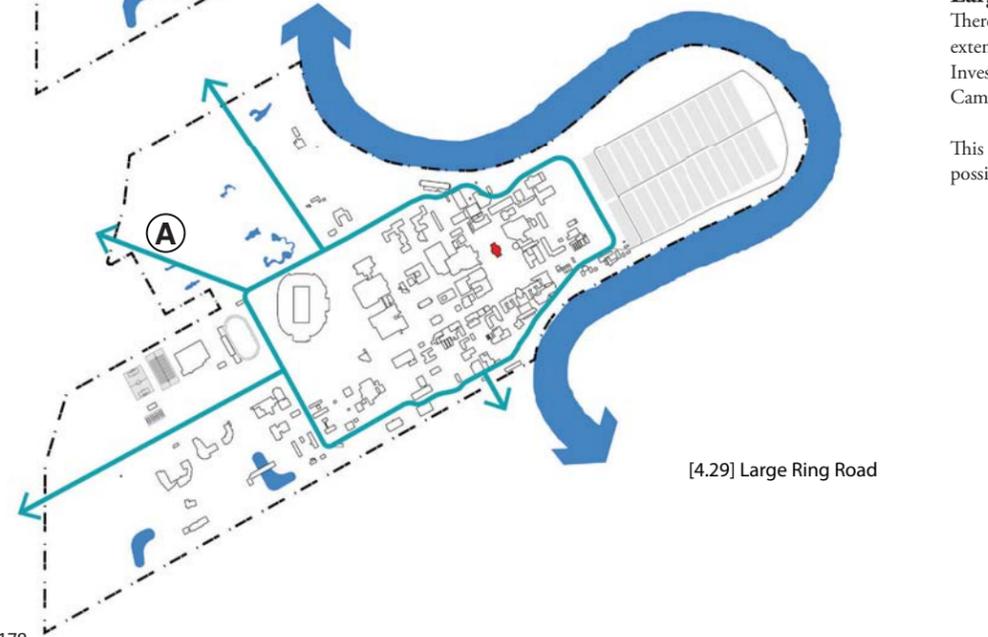
Note: Bus-way routes and roadways are shown as generalizations that would need further design development at a more detailed scale. Only primary roadways and transit routes are shown.



## Small Ring Road

The existing Core Campus area is circumscribed by the ring road. This is the main vehicular circulation between the arterial roadways and on-site parking.

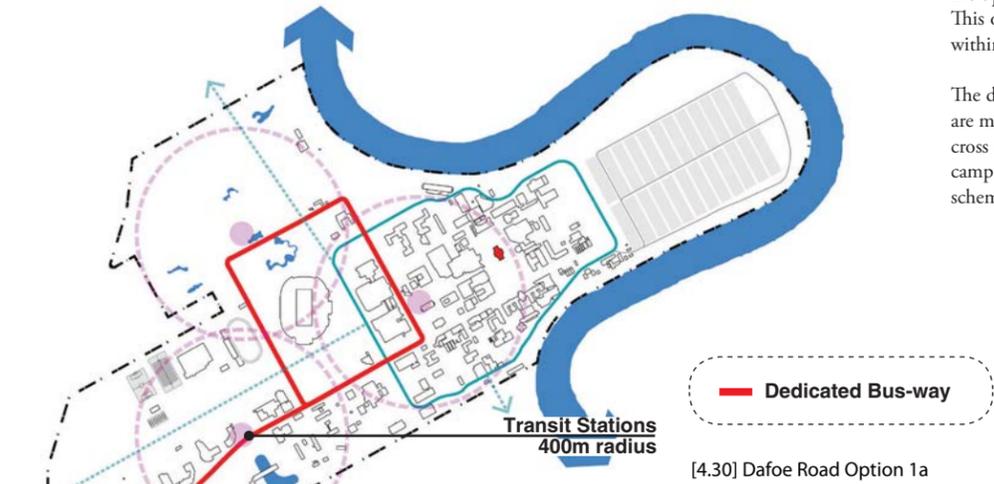
Location A is a possible routing for vehicles or dedicated public transit.



## Large Ring Road

There is an opportunity to explore extending the ring road to include Investors Group Field within the Core Campus.

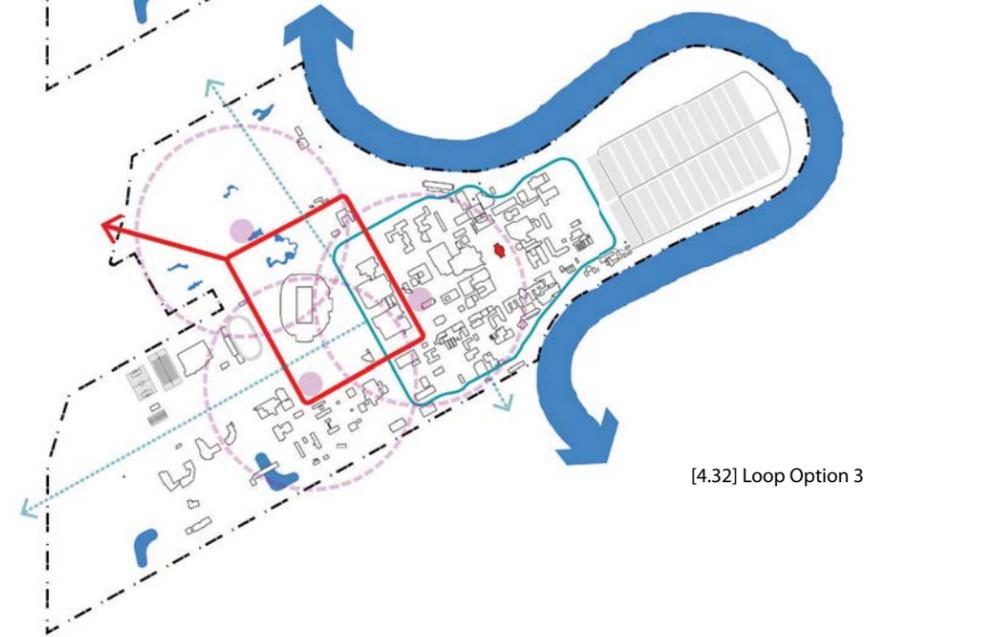
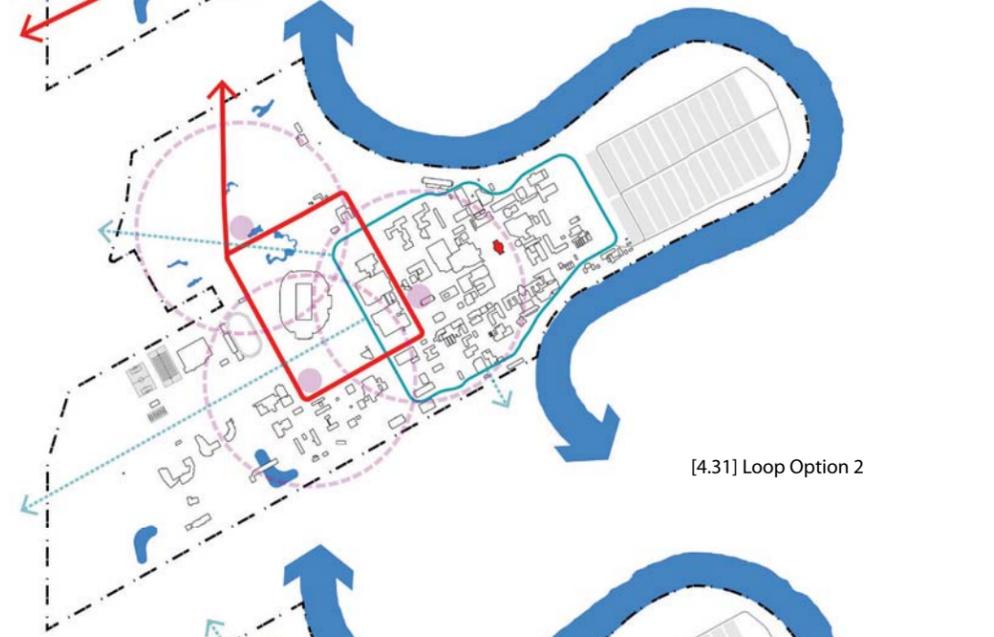
This option will be explored when it is possible with the dedicated bus-way.

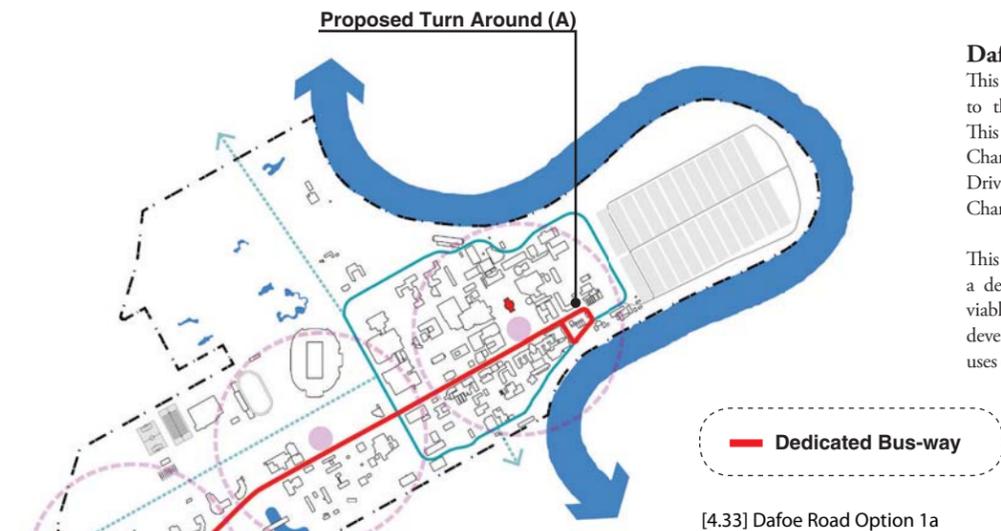


## Loop Option

This option allows for a concentrated core within the entire campus lands.

The downsides of this option are that there are many places where the vehicular routes cross the bus-way. The eastern-edge of the campus is also not well serviced by this scheme.





[4.33] Dafoe Road Option 1a

**Dafoe Road Option 1a**

This transportation option is an alteration to the City of Winnipeg 'U1' routing. This option proposes the roadway south of Chancellor Matheson Road (Innovation Drive), compared to 'U1' that uses Chancellor Matheson Road.

This option does not serve Southwood with a dedicated bus-way. It would only be a viable option if the University decides not to develop Southwood and instead intensifies uses on the traditional campus area.

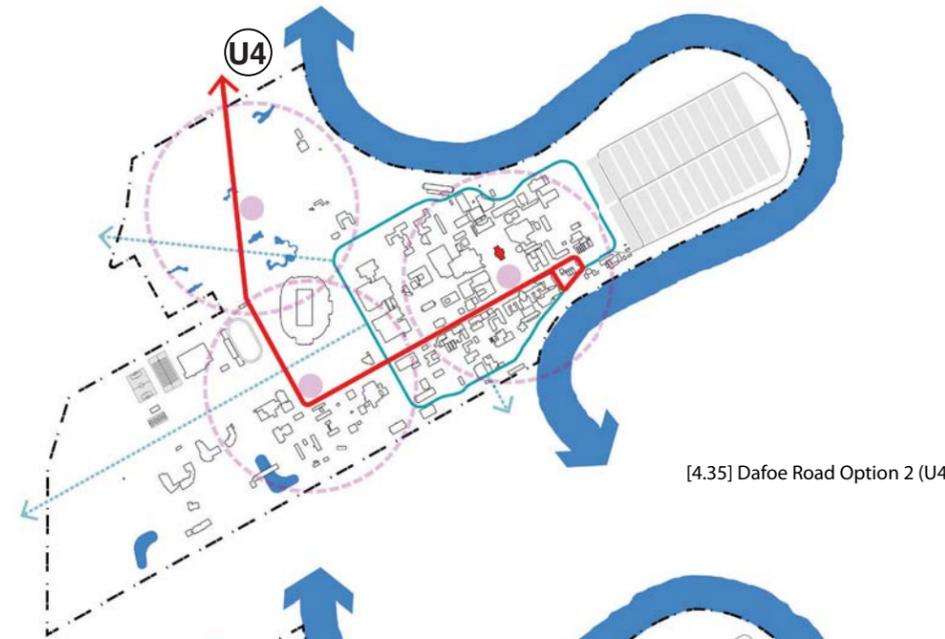


[4.34] Dafoe Road Option 1b

**Dafoe Road Option 1b**

This was the only option that allowed for extending the Ring Road around Investor's Group Field.

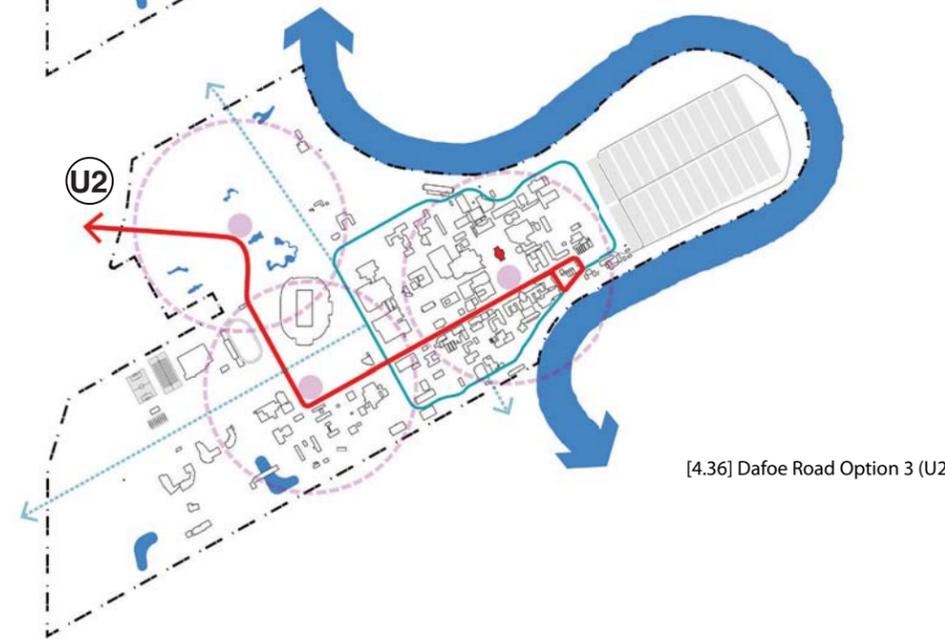
For reasons outlined under option 1a, 1b is also unlikely.



[4.35] Dafoe Road Option 2 (U4)

**Dafoe Road Option 2 (U4)**

This option provides transit stations for Southwood, Smartpark and the Core Campus. This provides a strong opportunity to add density to a concentrated area around the stadium.



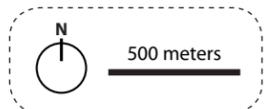
[4.36] Dafoe Road Option 3 (U2)

**Dafoe Road Option 3 (U4)**

U2 was the preferred option by the University of Manitoba and the City of Winnipeg.

This option allows the bus-way to run without crossing a major roadway (within Southwood).

Having a thru-road cut across Southwood is undesirable as it fragments the site and creates a bus corridor through a residential community.



## Preferred Transit Route - University Crescent

### Design Rationale

This final and best choice scenario was created based on the City of Winnipeg's U4 option. The difference between this proposal and the City of Winnipeg's is that existing infrastructure will be used to support dedicated bus lanes through the re-allocation of road space to public transportation. No expropriation of properties, and no significant new infrastructure will be needed.

This is the best choice for the following reasons:

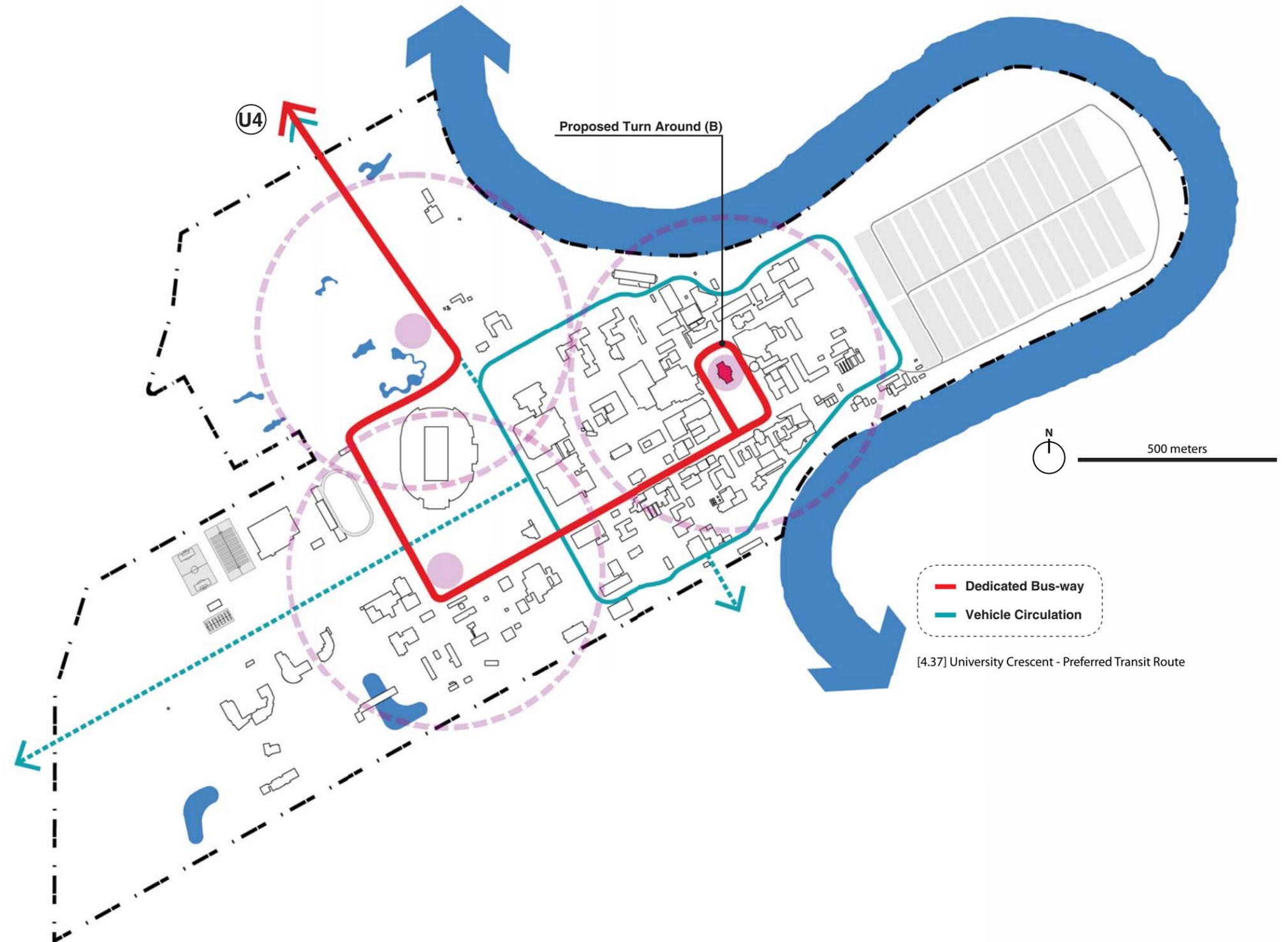
1. It does not require any new significant infrastructure therefore is a cost savings;
2. The Southwood Lands site is not fragmented by thru-traffic (any more than it is already);
3. Promotes the use of public transportation by making it the easiest and preferred method of entering the campus.
4. For the same reasons as the above points, it is the most environmentally sensitive and sustainable choice;

### Proposed Turn Around (Option B)

An alternative bus loop is proposed in this iteration that allows for additional staging (loading / unloading) zones for buses. It also brings transit users further into the heart of the campus. This is the preferred option for those reasons.

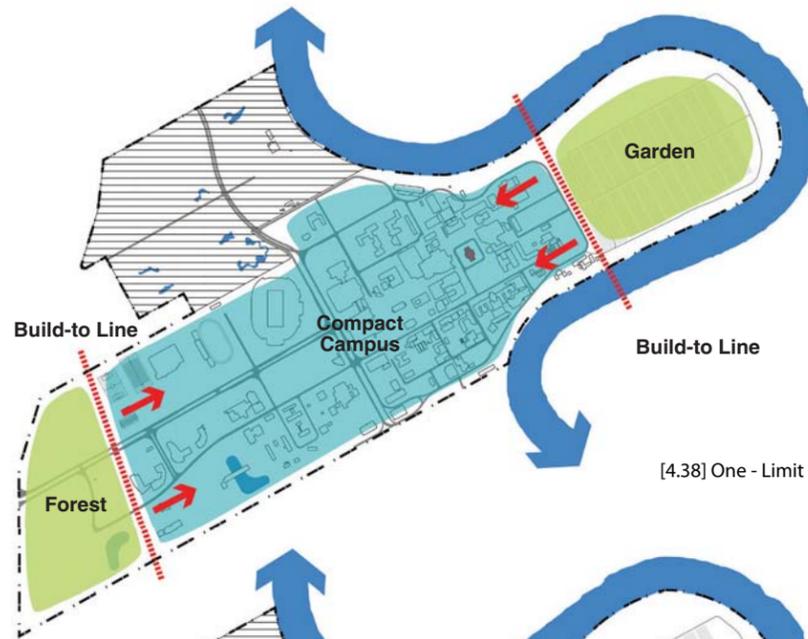
### Underground Infrastructure

There are sewer (1250mm) and water main (250mm) lines allocated directly underneath of the existing University Crescent, therefore further study is needed to determine the costs associated with making any routing changes to this road. It will be assumed that money would be better spent elsewhere, unless there is an exceptionally good reason for changing the configuration of University Crescent (Note: only the generalized location of University Crescent is shown on the opposite page).



[4.37] University Crescent - Preferred Transit Route

# Proposed Campus Strategy



[4.38] One - Limit Campus Sprawl (Proposed Build-to Lines)

## Build-to Lines

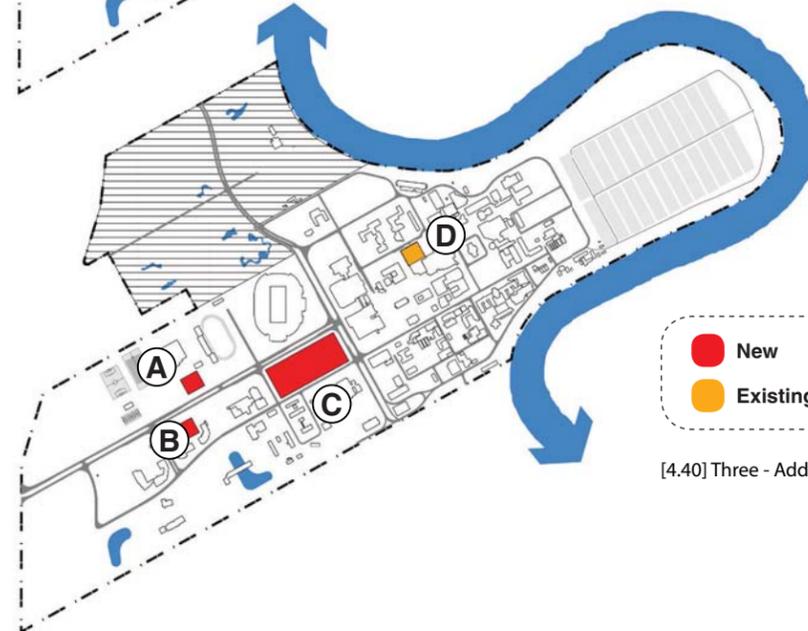
Containing campus sprawl is the first and most critical step to creating a better campus environment. A more compact campus will encourage walking, make travel by transit more appealing, and create a more vibrant environment.



[4.39] Two - Removal all the Surface Parking

## (-) Remove Surface Parking

Removing surface parking frees up 27 hectares (67 acres) of land for new programming (this does not include the parking lot on the Southwood Lands).

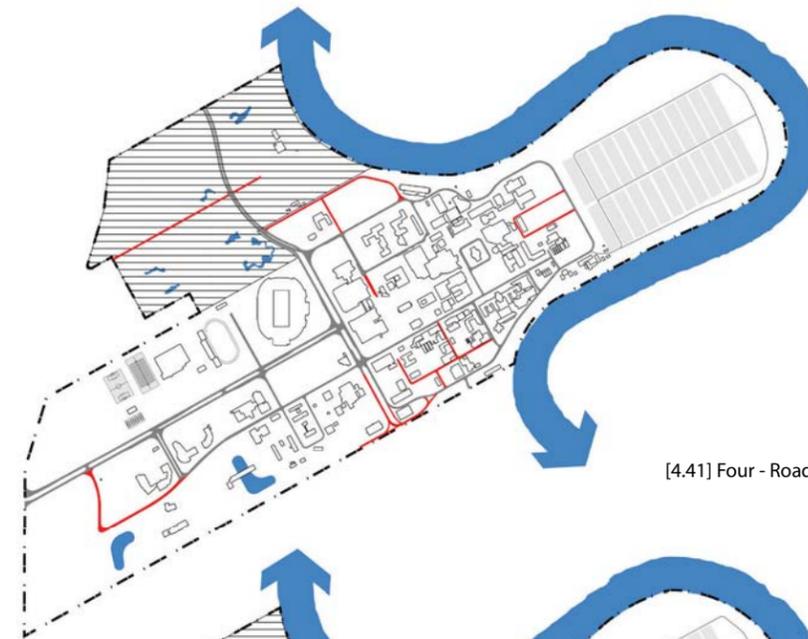


[4.40] Three - Add Parking Structures

## (+) Add Parking Structures

Existing: 6766  
Proposed: 4500 to 6500  
Difference: -33.5% to -3.5%

*Number of Parking Spots:*  
A. 500 (4 levels)  
B. 500 (4 levels)  
C. 3000-5000 (3-5 levels)  
Each parking level holds 1000 spots.  
D. 500 (4 levels)  
Parking should be reconfigured so that additional accessible parking is found within this area.

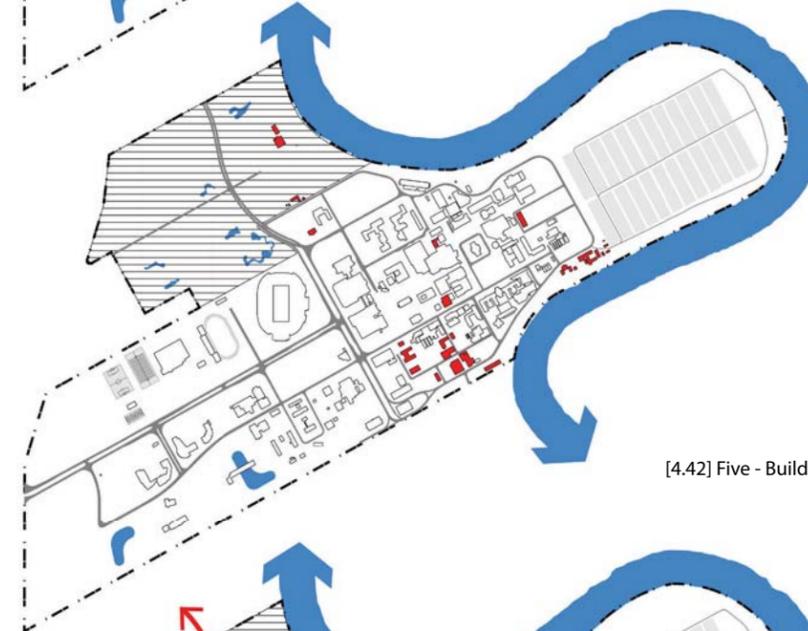


[4.41] Four - Road Removals

## (-) Road Removals

With surface parking removed, existing roadways can be taken out. Less road infrastructure means reduced ongoing maintenance and snow clearing costs.

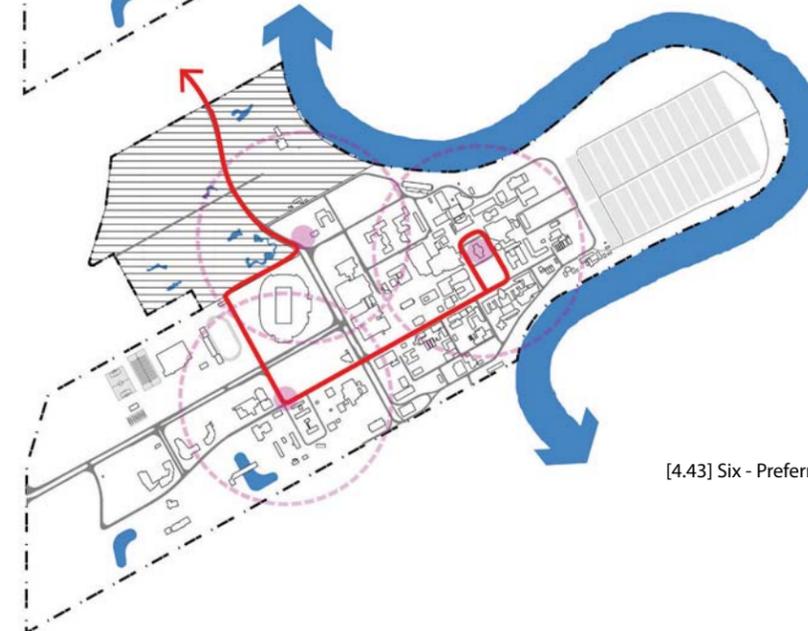
Some of the removed roads on the previous page are needed as service or emergency routes. However, the public space enhancements outlined on previous pages are flexible enough to allow for service vehicles (similar to the existing Curry Place).



[4.42] Five - Building Removals

## (-) Building Removals

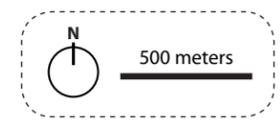
Discussed on previous pages.



[4.43] Six - Preferred Transit Route

## (+) Transit Busway

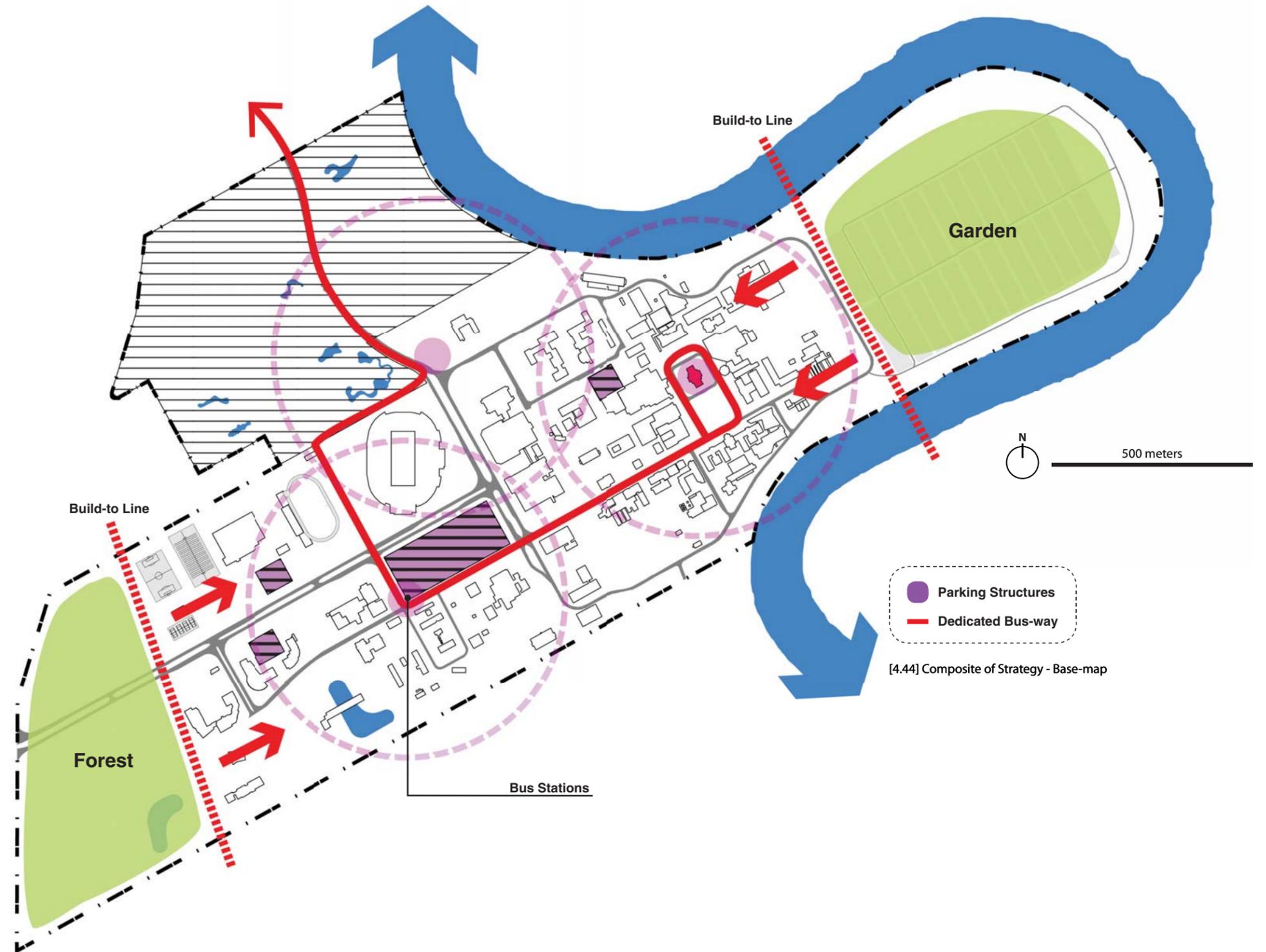
Discussed on previous pages.



# Composite of Strategy

## Overview

The first six parts of the strategy have been aggregated into one composite base-map; new additions are shown, but removals are not.



# Composite of Strategy - Key Areas of Opportunity

## New Opportunities

With the removal of surface parking from the campus, many opportunities for adding new University buildings, outdoor spaces, increasing campus tree cover, and adding housing for students, staff, and University retirees are available.

All former parking lots are shown as areas of opportunity. There are many other existing areas of opportunity within the campus besides the surface parking lots, but these have not been explored within the scope of this practicum.

## Areas for housing

Two large, contiguous areas are highlighted specifically as opportunities for housing, and while there are other areas where housing is possible, these are the best because of their location in the heart of the campus.

## Southwood

It is suggested that the University retain the Southwood Lands as park dedicated to teaching people about ecology and Anishinaabee cultural teachings. This decision is the best economic, ecological and socially responsible choice for these reasons:

### Best economic choice

- Southwood will need infrastructure. New infrastructure is expensive to build and expensive to maintain, and while infrastructure creates opportunity it also has the potential to create a financial burden on future generations in terms of ongoing costs. We should make best use of what we have before expanding outwards.
- Open space is less expensive - "A review of over 60 fiscal impact studies clearly indicated that preserving open space is likely to be a less expensive alternative for communities than residential development. On average, for every \$1 million received in revenues from residential developments, the communities had to expend \$1.15 million to service them. This suggests that if the area of land on which a development generating \$1 million in revenues is located was used as a park instead, then if the park's operation and maintenance costs did not exceed \$150,000 the community would financially benefit" (Crompton, 2000, p.3).

### Most ecological choice

- Maintains all of the existing tree cover within Southwood. Not only do trees grow slowly in our climate, there are very few places remaining in the City with such an abundance of mature vegetation; a gift to the citizen of Winnipeg, and future generations.
- Allows for the most habitat for wildlife. Southwood sits on the edge of a riparian corridor which is an important stepping stone for species movement and migration. As humans we have great power and influence over the land, but must remember we are not the only ones that use it. We demarcate our territory with signs and fences to define what we see as ours, asserting power and dominance over

nature and each other. But we must remember that this land belongs to the birds and the white-tail deer as much as it belongs to people. We should think what it is like to hear bird sings on a spring morning or the familiar sound of the Canada Goose returning in the spring and leaving in the fall, marking a change in season. Do we value these things in our decision making? And if not, what would it be like to never hear the sound of a bird on a spring morning?

- The proposed compact form promotes walking and public transportation which is less "polluting, less fossil-fuel consuming, less greenhouse-gas producing, and less space demanding" (Tate, 2013).
- Removes surface parking. Not only is the existing surface parking ugly to look at, it is ugly for the environment. Surface water flows unrestricted and untreated full of toxins and chemicals into our river and water system. In the winter, winds build-up speed across these flat areas, and in the summer they retain heat when the sun is at its warmest and most intense creating inhospitable environments almost year-round. Additionally, cheap parking on expensive land is not an efficient use of existing resources, not intelligent decision making, and does not help the University to meet its mandate.

### Most socially responsible choice

- The Southwood Lands and the University of Manitoba are located on traditional Anishinaabe territory. This culture had a deep and important relationship with the land and an underlying respect for nature. The Southwood Lands can be used as an opportunity to teach people about these values, the culture of the Anishinaabe people's, and about ecology. This task can be strengthened by working with the National Research Centre on Residential Schools, the landscape can provide a place for healing, and cultural understanding through teaching and dialogue.
- Provides the greatest recreational opportunities for students,

staff, and the general community - something we can all benefit from, while still providing options for housing directly on campus. In and of itself, the recovery and relief of stress through experience in nature would be a commendable benefit to the University population.

- Compact form promotes transportation options which are most equitable.
- Allows for the beauty of the Southwood Lands to be experienced by future generations; should the University not be promoting ethics and respect for the land and environment? Should the University not be a leader in good decision making?



[4.45] Composite of Strategy - Key Areas of Opportunity

## Three Opportunities for Housing

### University Land West of the Fort Garry Campus Boundary

The University of Manitoba owns land west of the campus boundary, shown as Location C. For the purposes of this practicum it is assumed that all of the parcels within location C are University owned. These lands consist of up to 16.7 Hectares (41.2 Acres).

- Opportunity A - 4.6 Hectares (11.4 Acres)
- Opportunity B - 4.3 Hectares (10.6 Acres)
- Opportunity C - 16.7 Hectares (41.2 Acres)

Relative to the Southwood Lands, three areas make up approximately half of that site at 25.6 Hectares (63.2 Acres). Locations B and C would be easiest to pursue building on first, while location A is more complex and would need building removals as shown as part of the public space enhancements outlined on previous pages of this chapter.

### Housing units per hectare

A density of 120 to 200 units per hectare (50-80 units per acre) would allow for 1050 to 1800 units within locations A+B and 2000 to 3350 units within location C. This number could be higher with smaller unit sizes, which is possible given the campus environment. It is outside the scope of this practicum to get into detailed design for these areas.

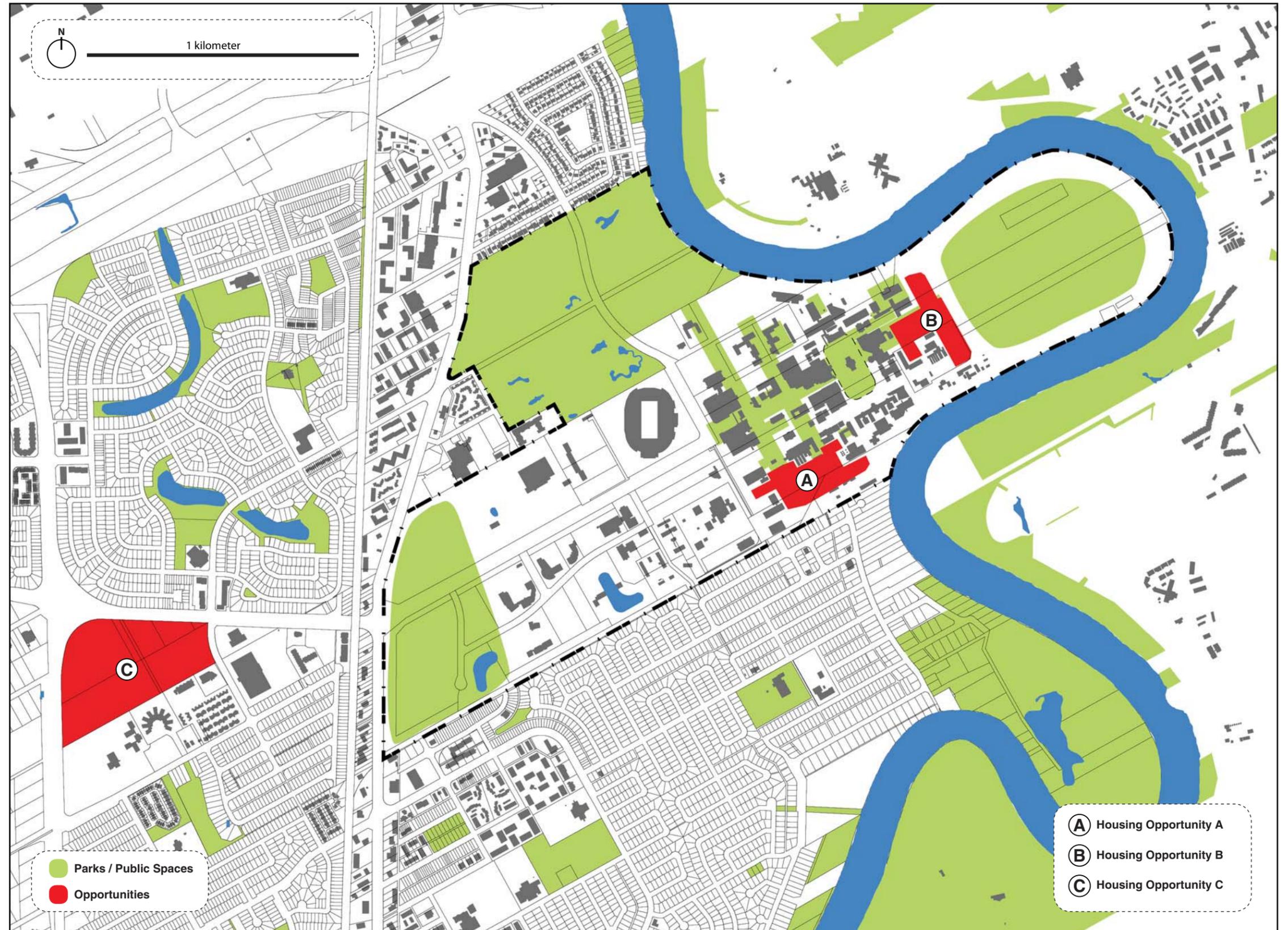
### Total Units A+B+C

The three designated locations could allow for 3050 to 5150 housing units. The Visionary (re)Generation design brief called for between 3600 and 4200 units on Southwood (University of Manitoba and [Phase Eins], 2012). These three locations have the potential to exceed that criteria.

### Benefits of location C

Key benefits to Location C are that it is away from noise associated with the stadium; is centred within existing residential neighbourhood with existing schools; is in close proximity to an existing grocery store and commercial amenities. Additionally, the University has the opportunity to sell units as 'marketplace' housing because of the location off campus, which in turn could provide a long-term revenue stream to aid the mission of the University.

This location is in the centre of three neighbourhoods: Waverley Heights (north), Fairfield Park (south), and Bridgewater Forest (west). This site has the potential to become a meeting point and centre for the community if commercial amenities on the ground floors are designed for, along with a focus on outdoor public spaces and common areas.



## Housing on Campus + Not Building on Southwood

### Three arguments and three conclusions

There are three arguments against having housing on the traditional Fort Garry Campus lands, and against maintaining Southwood as green space.

#### 1. The University paid ten million for Southwood to be developed, not to have it sit as a park;

In a 2007 Winnipeg Free Press article, former vice-president (administration) Debbie McCallum made public the purchase amount of ten million dollars for the Southwood Lands, stating that payments would be occurring over three years (Sandin, 2007). It is worth comparing this purchase amount to the University's operating budget over a three year period. Gross and net operating figures were taken from 2009/2010, 2010/2011, and 2011/2012 (years earlier than these were not found). The budgeted amount for these three years was \$1.515 Billion (gross) or \$1.355 Billion (net) (University of Manitoba, 2011/2012, 2010/2011, 2009/2010). The purchase of Southwood was only 0.66% (gross) or 0.74% (net) of the University's operating budget over this period.

*Conclusion One:* The investment made in purchasing this land was relatively small in comparison to the University's operating budget and therefore is not a strong argument in determining what should or should not occur on these lands. Opportunities within existing built-up areas should be the first areas considered for development on the basis that making better use of existing infrastructure (roads, water and waste, etc) is a better fiscal choice for the University when compared to building new. The decision by the University to purchase the Southwood lands was wise, but this does not necessarily mean it should be developed.

**2. "Maintaining the Southwood precinct solely as green space would enforce the physical barrier between the University of Manitoba and the rest of the city, perhaps even reinforcing any perception of the University of Manitoba as an area of the city cut off or otherwise set apart from the surrounding community"** (David Barnard, E-memo, September 25, 2012).

*Conclusion Two:* 'Greenspace' or parks form a large part of the social and ecological fabric of the city. They are the places where people meet for recreation, communal gathering, for an experience in nature, and most of all they are open to everyone. Parks are what help to make cities livable.

A park is not a barrier, but an opportunity: an opportunity for research, an opportunity to create connections between University and the community, an opportunity to be inclusive of anyone and everyone in the city. Are parks not the most democratic use of space? A park would be a gift to so many.

A park could house an outdoor centre for learning, with space for an outdoor amphitheatre for example (perhaps like the Rainbow Stage at Kildonan Park). This theatre could host cultural activities such as plays, music, speaker series, and lectures; connecting the University and the surrounding Community, while helping to reconnect people with the outdoors. With appropriate siting and design, thermal comfort can be created to expand the usable months in a cold climate, in addition to providing provisions to protect against mosquitoes.

Parks can also be considered a form of infrastructure. Not only social infrastructure as described above, but also of the ecological kind. Parks act as sponges to soak up and filter water during storm events, they provide habitat, and act as lungs to the city as they filter out polluted air; these are the things that make life possible, while providing direct and indirect public health benefit; therefore they must be considered in holistic decision making.

#### 3. Housing can not go on the traditional campus area and must go on Southwood as it will alter the University's tax structure;

If housing functions are put on the campus they must support the core mandate of the University to avoid taxation problems. It would be reasonable to conclude that housing for students and staff on campus aids in the overall mission of the University (the University already has student housing on the campus). It could also be argued that having specific housing geared towards demographics such as the elderly (for example) could easily be tied to the mission of the University if there were opportunities for research.

It is reasonable to think that if the University was interested in marketplace housing (as an income generator), it would be able to parcel off a section of land that it would then pay property taxes on; such as location C on the previous page. However, it is also reasonable that if the goal of marketplace housing was to make money that would go towards the mission of the University it would be possible (although unlikely) to negotiate an agreement in which the University would not have to pay property taxes.

*Conclusion Three:* It would be reasonable to have University related housing within the existing campus footprint. There is not a definitive argument against not having student / academic / staff housing on campus, nor is there clear and transparent evidence which supports not having market-place housing on parcelled land that would then be taxed. As a provincially funded institution for higher education, the University has an obligation to explore all options, and do so in a way that is one - transparent, and two - the best decision for both the University community and Manitoba tax-payers.

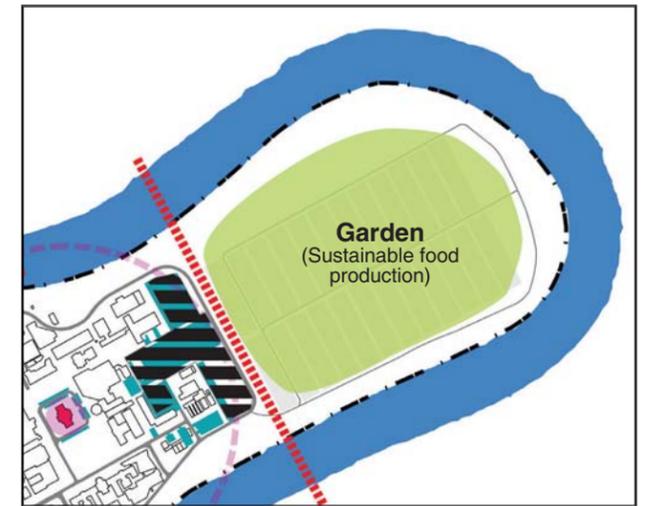
## A Garden by the Red River - Sustainable Food Production

### Garden by the River

Keeping with the agricultural traditions of the campus, the University of Manitoba Point Lands are transformed into a community based agriculture. Orchards, communal gardens, small livestock, and a farmers markets are part of the new program. This new future also marks a shift in the University's focus of research from input intensive methods of production (chemical + fossil fuel based), and GMO plant research to an agriculture that is about perma-culture - relationships to the land, and an understanding of processes related to nature, in addition to a focus on the social dimensions around food production.

### Additional Recommendations

It was observed during a site visit on May 13 of 2013 that water was being pumped out of the Point Lands following the spring melt of snow. There are areas where rain-fall and large amounts of winter snow-runoff for future irrigation could be accommodated. Water ought to be treated as a resource and retained on land for the purposes of irrigation during times of minimal rainfall.



[4.47] Garden at the University of Manitoba Point Lands



[4.48] Farmers market, orchard and public gardens in the Point Lands

## Chancellor's Entrance - Aspen Forest Gateway

### A new entrance into the University

An aspen forest is planted at the Chancellor's Entrance, creating a strong identity and a recognizable face for the University along Pembina Highway.

This threshold condition is as much about identity as it is about teaching, ethics, and values. The planting is chosen to foster respect for this landscape type, one that is being lost to make room for sub-urban development and strip malls within the boundaries of Winnipeg.

It also recalls the past conditions of the site when it consisted of 'principally poplar wood' - a 'Visionary (re)Generation' of the forests that used to extend out from the banks of the Red River, nearly to the edge of the Fort Garry Campus.

### Doing what others are not

While others destroy the few remaining stands of Aspen forest within the City of Winnipeg, the University should be bold enough to plant one, teaching others that these are places worth valuing.



[4.49] Aspen forest gateway into the University



[4.50] Assiniboine Forest (June 9, 2013)

## Southwood as Park + Anishinaabe Culture

### Anishinaabe culture, mythology, and the land

Anishinaabe leaders Ovide Mercredi and Don Robertson were invited to discuss their people's perspective on a number of topics with the competition participants for the Visionary (re) Generation design competition in June of 2013.

One of the lessons learned from this discussion is that there is little written knowledge about their culture because it has been traditionally communicated orally through stories, a process that was disrupted because of the residential school system in Canada.

### A design for the story of Miska Muska / the Great Bear

Research into the mythology and stories of the original people (Anishinaabe) in the previous chapter yielded few results with the exception of the story of Miska Muska / the Great Bear (see previous chapter). It is a story about respect for other living beings (both human and non-human). The proposed design for an area of Southwood creates a public gathering place inspired by this story.

A double row of basswoods encloses the space, while two more rows of oaks are on the outer exterior; planted because they will out-live the basswoods. An understory of Highbush Cranberry

provides Robin habitat and was chosen for the red fall foliage, referencing the blood that fell from Miska Muska. A circular disk of granite with a thin layer of water reflects the prairie sky and, representing the horizon of the prairies which no longer exists within the city. The story of Miska Muska is cut into the outer edges of granite consisting of pictograms and traditional Anishinaabe languages.

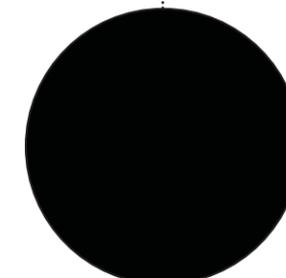
In the evening small led lights represent the stars, showing Miska Muska and the seven robins. This is also about how our relationship with the night sky and cosmos is currently hidden due to over-lit environments.



LED lighting set into the black granite reveals what would be seen in night sky if it were not for light pollution.



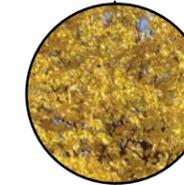
Reflection of the day-time sky over a thin sheet of circulating water - a reference to the horizon of the prairie landscape.



Black Granite with the story of Miska Muska cut into the outer edges of the circle.



Summer Foliage



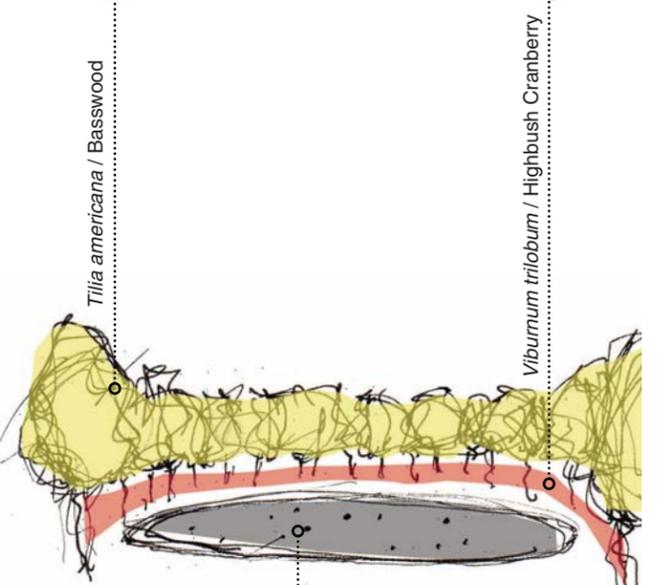
Fall Foliage



Flowers



Fruit



Tilia americana / Basswood

Viburnum trilobum / Highbush Cranberry

[4.51] Design for Miska Muska / the Great Bear





# 5

## Reflections

### Values + Lessons Learned

#### **The University's decision to develop Southwood**

It is the supposition of this practicum work that the decision by the University to develop Southwood and expand the campus outward was made without taking a careful, creative, and analytical look at what opportunities already exist within the current campus footprint.

The most recently completed Campus Plan and comprehensive review of the campus was '*A Networked Community*', created prior to the Southwood Lands being purchased in the early 2000's. Despite the plan being well over a decade old, many of the values and ideas it lays out still have relevancy to the University today. This includes ideas such as adding density by minimizing the footprint of new development (that takes advantage of existing infrastructure and services), by providing areas for housing on campus, promoting the campus as a 'pedagogical instrument', in addition to ensuring accountability and an open process (*A Networked Community*, 2000).

Since the purchase of the Southwood Lands in 2008, there has been little in the way of a comprehensive campus-wide analysis to determine if developing this land is the appropriate decision for the University of Manitoba. The current campus has an abundance of surface parking available for re-purposing, a significantly under-performing space utilization rate for classrooms (47% during the daytime, and 11% during the evenings for the Fall of 2012; far below the 80% utilization benchmark) (Educational Consulting Services and University of Manitoba, 2013), outdoor spaces and buildings that are in need of design attention (and maintenance), and a low-density technology and research park (Smartpark) with its eastern edge situated nearly one kilometer away from the University Administration Building making it somewhat disconnected from the academic core. In short, there is great opportunity and much to be done within existing developed areas!

### Context - This Practicum + Visionary (re)Generation

In December of 2012, the University of Manitoba launched a design competition 'Visionary (re)Generation', with the goal of selecting a design team to create a new Campus Plan for the Fort Garry campus and community within the Southwood Lands.

Research for this practicum was started prior to the University beginning the competition process, and some of the work contained in this practicum was used by the University to aid in *Visionary (re)Generation*.

Employment with the University in the Campus Planning Office began when Benjamin Hossbach of '[Phase Eins]' arrived in Winnipeg to present the firm's scope of services, and to strategize on the next steps after successfully winning a request for proposals process.

Two students (Jonathan Hildebrand and I), worked on the competition brief, elated with the opportunity, but without a full picture on how the decision to pursue developing Southwood was made, (or whether it was the correct decision for the University).

### The Competition task

Even with the full boundary of the campus included in the University's design Competition - *Visionary (re)Generation*, the question from the beginning has primarily been *how do we develop Southwood?* A more considered question would have placed no constraints on what should or should not occur within Southwood, it might have asked: *what is the best way to enhance existing built up areas, public spaces and assets within the low density footprint of the University, while fulfilling a need to have additional housing that services its constituents?*

The idea of conquering a seemingly unbuilt landscape can be alluring, but the decision to do so should occur after existing areas are put to their 'highest and best use' (which includes respecting existing conditions on the land). As human beings, we have a moral and ethical obligation to respect our relationship with the natural world.

### United Nations Charter for Nature

The United Nations Charter for Nature (1982) lays out values that are about respect for, and the importance of nature in decision making. Key pieces of this charter are quoted here as they relate to decisions around the design and planning of human settlement, and our fundamental relationship with the land.

*Aware that:*

*(a) Every form of life is unique, warranting respect regardless of its worth to man (sic), and, to accord other organisms such recognition, man must be guided by a moral code of action,*

*(b) Civilization is rooted in nature, which has shaped human culture and influenced all artistic and scientific achievement, and living in harmony with nature gives man the best opportunities for the development of his creativity, and for rest and recreation,*

*Convinced that:*

*(a) Every form of life is unique, warranting respect regardless of its worth to man, and, to accord other organisms such recognition, man must be guided by a moral code of action,*

*(b) Man can alter nature and exhaust natural resources by his action or its consequences and, therefore, must fully recognize the urgency of maintaining the stability and quality of nature and of conserving natural resources,*

*Persuaded that:*

*(a) Lasting benefits from nature depend upon the maintenance of essential ecological processes and life support systems, and upon the diversity of life forms, which are jeopardized through excessive exploitation and habitat destruction by man...*

### ...I. GENERAL PRINCIPLES

*1. Nature shall be respected and its essential processes shall not be impaired...*

### ...II. FUNCTIONS

*6. In the decision-making process it shall be recognized that man's needs can be met only by ensuring the proper functioning of natural systems and by respecting the principles set forth in the present Charter.*

*7. In the planning and implementation of social and economic development activities, due account shall be taken of the fact that the conservation of nature is an integral part of those activities...*

*9. The allocation of areas of the earth to various uses shall be planned, and due account shall be taken of the physical constraints, the biological productivity and diversity and the natural beauty of the areas concerned...*

*11. Activities which might have an impact on nature shall be controlled, and the best available technologies that minimize significant risks to nature or other adverse effects shall be used; in particular:*

*(a) Activities which are likely to cause irreversible damage to nature shall be avoided;*

*(b) Activities which are likely to pose a significant risk to nature shall be preceded by an exhaustive examination; their proponents shall demonstrate that expected benefits outweigh potential damage to nature, and where potential adverse effects are not fully understood, the activities should not proceed;*

*(c) Activities which may disturb nature shall be preceded by assessment of their consequences, and environmental impact studies of development projects shall be conducted sufficiently in advance, and if they are to be undertaken, such activities shall be planned and carried out so as to minimize potential adverse effects...*

### ...III. IMPLEMENTATION...

*15. Knowledge of nature shall be broadly disseminated by all possible means, particularly by ecological education as an*

*integral part of general education.*

*16. All planning shall include, among its essential elements, the formulation of strategies for the conservation of nature, the establishment of inventories of ecosystems and assessments of the effects on nature of proposed policies and activities; all of these elements shall be disclosed to the public by appropriate means in time to permit effective consultation and participation.*

*17. Funds, programmes and administrative structures necessary to achieve the objective of the conservation of nature shall be provided...*

*24. Each person has a duty to act in accordance with the provisions of the present Charter; acting individually, in association with others or through participation in the political process, each person shall strive to ensure that the objectives and requirements of the present Charter are met" (United Nations, 1982).*

### Respect for + setting up the site

According to the values laid out by United Nations Charter for Nature, and teachings of the Anishinabee peoples about respecting other living beings, there has not been enough value placed on the trees; an important asset within the Southwood Lands. It is unfortunate that, for reasons outside the focus of this Practicum, a full survey of the existing trees on the Southwood Lands was not conducted ahead of the competition invitation being issued. This is regrettable, since a full survey would have informed that process, and this work.

A plants strategy for first - retaining, secondly - moving / re-allocating, thirdly - new planting, and finally - the re-use of lumber from removed trees could have been an outcome had this information been available. This kind of strategy has the potential to set-up the land for future uses (whether that is a park or a new community), while still respecting the details of the site that makes it unique to this time and place.

This strategy can be both a *conservative* act - referring to some past event and *innovative* - importing something new to a place. In both circumstances the foundation of moving forward is an understanding and reaction to what is already there (Giro, 1999).

### Large trees versus complex ecologies

It is not only the large trees that have value, but it is also the patches of vegetation with diverse understories containing complex ecological interactions. These are the 'messy landscapes' that are often removed from maps, and overlooked when decision are made (the superimposition onto the landscape of new communities in OurWinnipeg for example).

Only a very small percentage of the large trees on Southwood were documented by a study commissioned by the University, and are mapped in chapter three (two-hundred and sixty six trees in total). There are many additional trees on the golf-course, and the study is not representative of typical existing conditions.

Within the Southwood Lands, the three large tree patches nearest to Pembina Highway are incredibly important in value, and to value (for future generations of human and non-human species) because of the ecological services they provide: the filtration of water, blocking of light pollution and creating a visual buffer from Pembina Highway, creation of microclimate, blocking of the northerly and westerly winds, habitat for wildlife, and a complex, diverse understory of, and for species (Sustainable Sites, 2009). This is also one of the only patches of this sort along Pembina Highway.

Retaining these areas of forested cover are important as a teachable moment for the University of Manitoba to treat the University as a 'Living Lab'; an opportunity to teach ethical values about respecting other beings, teaching others that the environment is imperative to our survival on this planet, the biosphere is finite, and we need to live within the carrying capacity of the planet (Rubin and Suzuki, 2013). Former chief economist of CIBC - Jeff Rubin and Canadian geneticist David Suzuki argue that we can not have unlimited economic growth, and we need to live within the limits imposed by the natural world. Economics is a human made system that does not consider nature and is not grounded in the physical world we actually live in; because of this "we are undermining the life support systems of the planet" (Rubin and Suzuki, 2013).

### Walking the site + Photography as a documentation tool

Giro's four 'operational concepts' - landing, grounding, finding, and founding (that weave through this body of work) provide an armature in which to frame a process of discovery about a place. Photography was one tool used to implement these concepts.

Photography was used as primary tool for site documentation in this practicum. Upon reflection and further research, a number of recommendations for future work are outlined:

1. Geotagging photographs (embedded latitude and longitude coordinates, and location tracking) that aid in the mapping of site conditions by creating points of interest (POI), and recording of routes taken. This is possible at a low cost with digital cameras that have built in GPS capabilities.
2. Due to the size of the site, individual site locations were almost always visited without staying in one place for a long period of time. After initial and more general observations about a place are recorded, individual locations of interest should be observed in more detail over longer periods of time, and different times of the day.

A similar idea was used in one of Associate Professor of Landscape Architecture (Louisiana State University) Bradley Cantrell's assignments that are posted on his website - Visual Logic. He gave a site analysis assignment to his students that focused on capturing the changes within an area of a site over the course of three hours:

*"Each student was asked to create an annotated illustration that captured 60 observations and 30 events over the*

3hrs. While many of the events and observations are initially mundane most students came away with a greater appreciation for the vast amount of changes that are occurring across the site, particularly at the human scale. As a representation and diagramming exercise it is fascinating to see some of the methods used to build hierarchies, express impact or trace movement” (Cantrell, 2011).

3. Using quick annotated sketches to aid in the documentation process while on site.
4. While not directly photography, investigating the use of TLS (Terrestrial Laser Scanning) technology to capture a site in three-dimensions.

“TLS technology is based on Light Detection and Ranging (LiDAR) and is also referred to as ground-based LiDAR or tripod LiDAR. It is an active imaging system whereby laser pulses are emitted by the scanner and observables include the range and intensity of pulse returns reflected by the surface or object being scanned. Some instruments are capable of measuring multiple returns or even the full waveform of the reflected pulse. LiDAR measurements, combined with the orientation and position of the scanner, produce a 3-dimensional “point cloud” dataset. The primary capability of TLS is the generation of high resolution 3D maps and images of surfaces and objects over scales of meters to kilometers with centimeter to sub-centimeter precision.” (UNAVCO, 2012).

As costs decrease and technology improves, this tool for analysis has great potential in the field of Landscape Architecture. This technology is already being researched and applied at the Institute for Landscape Architecture in Zurich (ILA, n.d.).

#### Conclusions of the work

- Critical thinking and open conversation can improve the quality of the built environment.
- Context informs good design.
- Analysis informs good decision making.
- Being physically on the ground through multiple site visits is important to understanding a place.
- Landscape theory (in this case Giroi’s four trace concepts), provide an armature in which to frame design processes; *theory informs practice, and practice informs theory.*
- ‘Sustainability’ is not just technology and buildings, it is about our relationship to each other, the land and the planet.
- There will always be change - the need for new buildings at a University, or new development within a city for example. It is first *where* we decide to build that we should be concerned with (prior to deciding *how*).
- Landscape architects should be involved from the beginning of any project; first in the conversation of where, and then in the conversation of how, as we add value to projects, problem solving in ways that planners, engineers, and architects do not.
- Decisions on where to build must consider what already exists as it is fundamental to ‘sustainability’.
- It is landscape architects that give nature voice in design development decisions; a profession that should be at

the forefront of any project for decisions on what already exists.

- The profession also has the tools to imagine something new with a degree of radicalism that challenges how we dwell within the built environment.
- The outdoor environment as a setting for learning that is just as important as a building with classrooms and labs. The Earth is all we have, we should seek to understand, preserve, and enhance the natural areas that already exist, while infusing what we have already destroyed or radically altered with new life giving potential.
- A park can be many things, such as an opportunity to learn about ecology, our relationship with the land and indigenous cultural beliefs and value; while in this increasingly indoor, screen oriented world, providing a place of discovery for those who are not fortunate to have developed a life outside.
- Nature is not just ‘out there’, it is all around us and part of the metabolic flows of the city, and should be visibly part of our lives as it provides many benefits to everyday life and is essential to human existence.
- Learning opportunities outside of the indoor classroom and the office would be beneficial, as time in nature is good for physical and mental health, teaches us to respect the natural world, and fosters a deep connection and motivation to protect the outdoor places that we all enjoy.

*“People with a strong sense of connection to nature report more happiness than those who are less connected. A high degree of nature relatedness is also associated with more environmentally protective behaviour; if someone feels connected with their natural environment they are more likely to protect it. Environmental education and opportunities for nature contact are important for cultivating (or improving) connectedness. Regular time in nature is good for our physical and mental health, as well as for the planet. And as we learn more about our local ecosystems, we gain a better understanding of our interconnectedness with nature and the importance of keeping our environment healthy.*

*...there seems to be a potential ‘happy path’ to sustainability: the positive feelings we experience when in nature keep us coming back, motivated to protect the places we enjoy”* (Nisbet, 2013).

- Landscape architects need to teach people to think differently about the land, as it is not just a place to put buildings and roads. Many of the other disciplines have yet to be taught this (and perhaps some Landscape Architects as well).

#### Final Statement

Ultimately, the purchase of the Southwood Lands and the Visionary (re)Generation design competition were both positive undertakings that have given the University new opportunities while allowing the institution to better understand itself. However, the decision to develop the Southwood Lands appears to have been made without determining the feasibility of other options, and opportunities on the traditional Fort Garry Campus lands.

There are many opportunities for the University to add building density, enhance existing built up areas by better integrating the Core Campus and Smartpark, and to teach others the value of landscape.

In a time of a radically changing climate we need to consider ways in which to change the way we live and think, fostering a greater respect for the land. Others must learn that the landscape is not empty space, not just a place to put buildings, not a luxury that can easily be cut from budgets, and certainly not something that can be considered an afterthought; what better place to learn and demonstrate this then on the Southwood Lands at the University of Manitoba.





## Appendix

## Three Opportunities for Housing (UPDATED)

### Old Area Calculations

- Opportunity A - 4.6 Hectares (11.4 Acres)
- Opportunity B - 4.3 Hectares (10.6 Acres)
- Opportunity C - 16.7 Hectares (41.2 Acres)

These three areas make up approximately 25.6 Hectares (63.2 Acres).

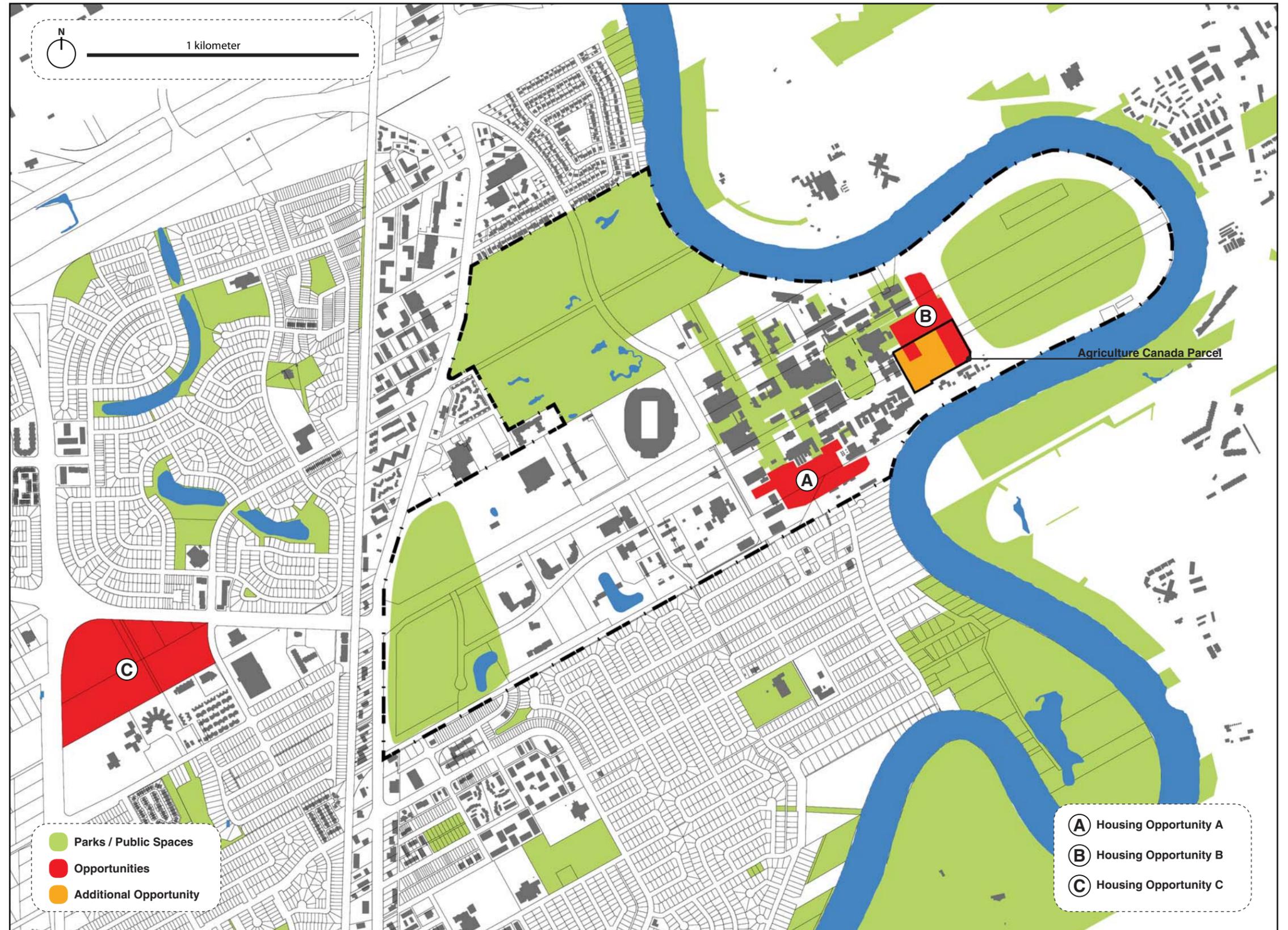
### Agriculture Canada Land

It is predicted that in 2014 the lease is up on the Agriculture Canada Land; buildings have to be removed before the land is turned back over to the University. This frees up an additional 2.6 hectares or (6.4 acres) of land for housing.

### Updated Area Calculation

- Opportunity A - 4.6 Hectares (11.4 Acres)
- Opportunity B - 4.3 Hectares (10.6 Acres)
- Opportunity C - 16.7 Hectares (41.2 Acres)
- Additional Agriculture Canada Land - 2.6 Hectares (6.4 Acres)

These areas make up approximately 28.2 Hectares (69.9 Acres); at a density of 120 to 200 units per Hectare (50-80 units per acre) would allow for 3400 to 5600 units.



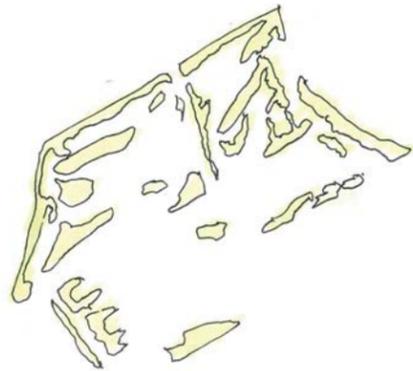
[A.0] Housing Opportunities

# If Southwood is Developed - Early Process and Analytical Sketches

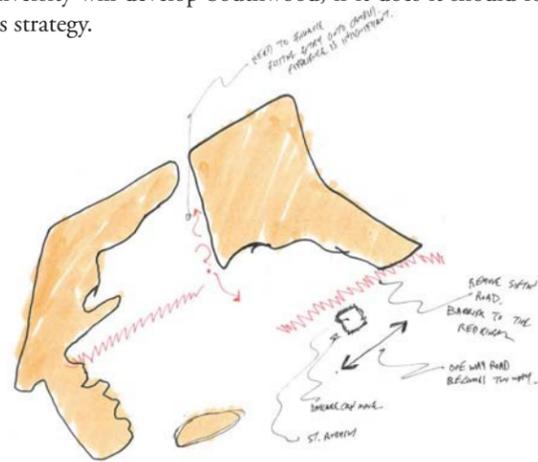
## Overview

Below are very early process sketches that were developed prior to analysing the entire campus. They helped to determine that more analysis about the relationship between the campus and

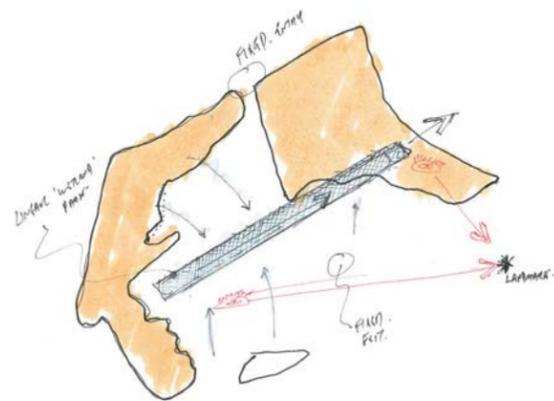
the Southwood Lands was needed. It is highly likely that the University will develop Southwood, if it does it should follow this strategy.



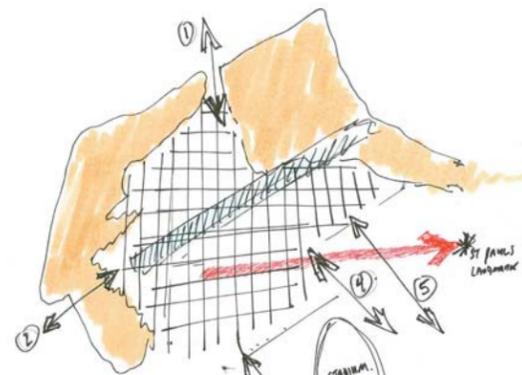
[A.1] Large Patches of Existing Vegetation



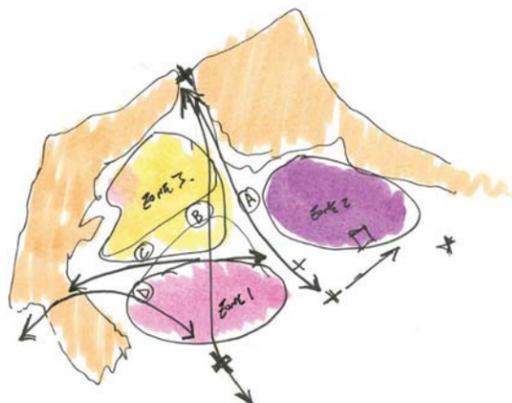
[A.2] Park Spaces



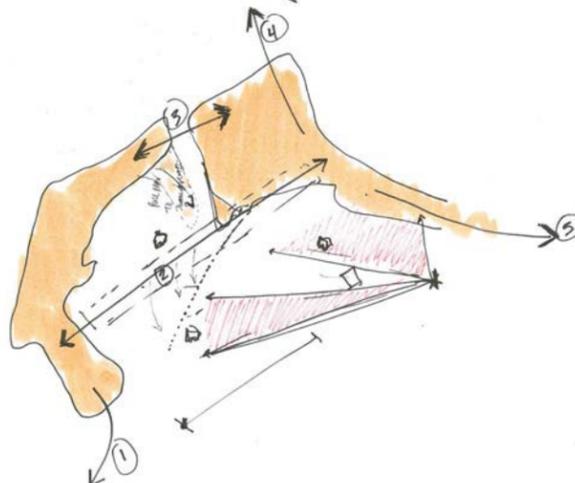
[A.3] Existing Hydrology



[A.4] Access Points and Grid Overlay



[A.5] Transportation Study and Development Zones



[A.6] View Analysis from Existing Campus Landmark

## Park Spaces

The areas with the best vegetation and experiences have been retained as park.

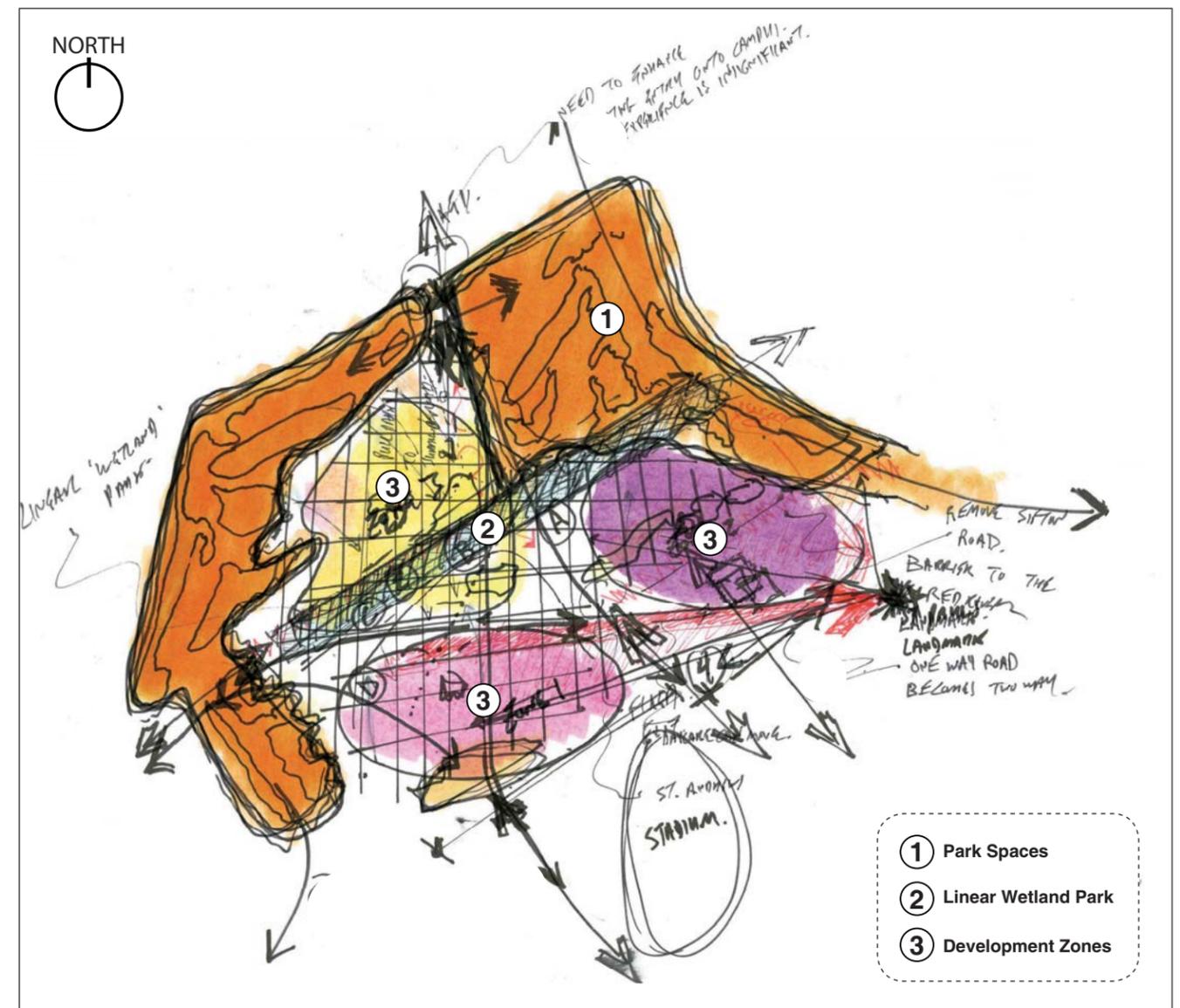
## Linear Wetland Park

The majority of existing site drainage flows towards the centre of the site before heading out to the Red River. There is an opportunity to allow the flows of water to remain visible, allowing for the filtration of water by plant material, and braiding natural systems through a new built environment. The organization of development should allow for water to flow back to this central spine that becomes a key consideration in organizing the site.

## Development Zones

Three zones for urban development have been defined.

The urban environment is set within a park - a clearly defined relationship between nature and culture. However, the addition of the linear wetland park through the centre of the space breaks through this divide both physically and symbolically. The idea of nature and culture being two separate and distinct considerations is broken as a symbiotic bond is formed between the new community and its relationship with the flows of water.

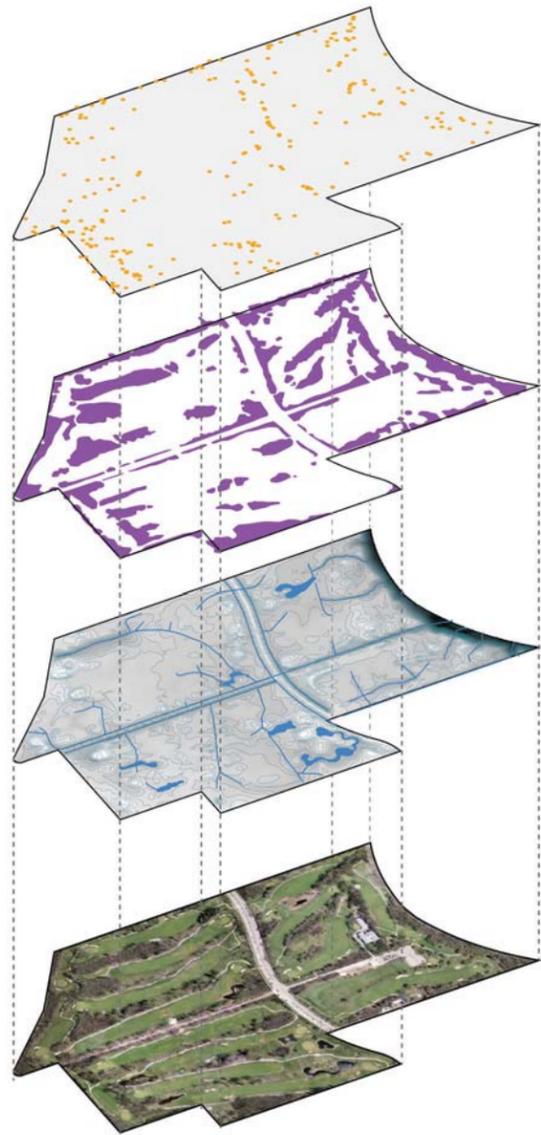


[A.7] Composite Overlay

# If Southwood is Developed - Defensive (Conservation) Strategy

## Overview

Both quantitative information and qualitative experiences determined the best places to conserve as landscape on site. This has been called the Defensive (conservation) Strategy (see Chapter 1 for an introduction to this terminology). The plan sets out to retain the areas with the best vegetation as it is the primary asset of this site (aside from location).



[A.8] Quantitative Analysis of Existing Landscape Features

[A.9] Qualitative Analysis of Existing Features and Experiences

**67%** PERCENTAGE OF IDENTIFIED TREE STANDS RETAINED

**45%** LAND DEDICATED AS PARK



[A.10] Defensive (Conservation Strategy

## If Southwood is Developed - Tees, Fairways, and Greens

### Overview

The tees, fairways, and greens of the former golf-course have been overlaid on the defensive (conservation) strategy.

Tees are about viewing, fairways about movement, and the greens about contemplation at the micro scale. By design, greens are places that people are intended to spend additional time in. These ideas should be used to help inform decision making.

There may be opportunities to use the existing structure of the tree rows to inform design decisions, even in the area designated as 'development land'.

The traces of the former golf-course provide an opportunity to make reference to one aspect of the site's history in a subtle way.



[A.11] Tees, Fairways, and Greens overlaid on Defensive Plan

# If Southwood is Developed - Summary of Decision Making

## Overview

The decision on what to keep as landscape was made based on research, quantitative data, and extensive qualitative experience on site. Five, key locations are discussed.

### 1. The Three Large Tree Patches

Within the Southwood Lands, the three large tree patches nearest to Pembina Highway are incredibly important in value, and to value because of the ecological services they provide: the filtration of water, blocking of light pollution and creating a visual buffer from Pembina Highway, creation of microclimate, blocking of the northerly and westerly winds, habitat for wildlife, and a complex, diverse understory of, and for species.

### 2. The greatest concentration of old trees

These trees need to be assessed to determine their health; they consist of oaks, elms and other larger species. The oaks are the longest lived species and definitely worth keeping.

### 3. The best spaces

The best landscape spaces are within this north-east quadrant of the site.

### 4. The best tree canopy and understory for sitting beneath

A very strong canopy cover, with a grassy understory.

### 5. Riparian edge

Provides bank stabilization and habitat along the Red River. \*Note the area shown as park on the South-east corner of the site is relatively small and could be expanded outward from the Red River to create a larger buffer zone.



[A.12] Significant Trees overlaid on Defensive Plan





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Archives of Manitoba, Map - H9 614.11 gbbd Series 1 - Plan of River Lots in the Parishes of St. Vital & St. Norbert, April 1874, Survey work done by George McPhillips.

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# Figures and Tables

## Chapter One - Introduction

### Full Table List

[Table 1.0] Terminology used in Our Winnipeg (main document only)

### Tables with Sources

[Table 1.0]

City of Winnipeg. (2011). *OurWinnipeg*. Retrieved from: [http://speakupwinnipeg.com/wp-content/uploads/2011/07/OurWinnipeg.Jul13.2011.WEB\\_RGB\\_.pdf](http://speakupwinnipeg.com/wp-content/uploads/2011/07/OurWinnipeg.Jul13.2011.WEB_RGB_.pdf)

### Full Figure List

[1.0] Multiple Scales of Investigation

[1.1] Guiding principles and intellectual foundation for work

[1.2] Site Location

[1.3] Existing Rapid Transit Line and the Southwood Lands Site

[1.4] Proposed Rapid Transit Network to 2031

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[1.6] Transformative Areas (City of Winnipeg, OurWinnipeg)

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[1.9] Natural Areas

[1.10] An example of a natural area in the south-west portion of the city close to where I grew up (March 18, 2011)

[1.11] Aspen Forest Stand (September, 2009)

[1.12] Former Aspen Forest Stand (January 28, 2012)

[1.13] Resiliency of the Aspen Forest Stand (May 16, 2012)

[1.14] Former Aspen Forest Stand (January 28, 2012)

[1.15] Aspen Forest Stand (September, 2009)

[1.16] Detail of Former Aspen Forest Stand (January 28, 2012)

[1.17] Former Aspen Forest Stand (January 28, 2012)

[1.18] Former Aspen Forest Stand as it is today (April 18, 2013)

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- [2.1] Same grove of trees (March 10, 2012)
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- [2.3] Stone formations along the journey (2011)
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- [2.10] Site Visit One (January 1, 2012)
- [2.11] Site Visit One (b) (January 1, 2012)
- [2.12] Site Visit Two (January 15, 2012)
- [2.13] Site Visit Three (February 1, 2012)
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- [2.15] Map of Site Visits Five to Nine
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- [2.17] Site Visit Six (April 26, 2012)
- [2.18] Site Visit Seven (May 9, 2012)
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- [2.21] Site Visit Nine (b) (September 9, 2012)
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- [2.23] Photographic Section AA (February 1, 2012)
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- [2.26] "360 Degree Planet" of open area on site (May 11, 2012)
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- [2.29] Large patch of vegetation (September 9, 2012)
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- [2.33] Winter Pond (January 5, 2012)
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- [2.36] Majestic old Oaks on the banks of the Red River (May 11, 2012)
- [2.37] Riparian zone from above (taken from tree on river bank) (February 20, 2012)
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- [2.41] Open area of the site (January 5, 2012)
- [2.42] Top - River edge (Fall, 2008)
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- [2.46] Top - raked sand bunker (Fall, 2008)
- [2.47] Bottom - deterioration of bunker conditions (April 26, 2012)
- [2.48] Top - soil aeration along fairway (Fall, 2008)
- [2.49] Bottom - former golf green (April 26, 2012)

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## Chapter Three - Finding

### Full Table List

[Table 3.0] Historical University of Manitoba Sites

[Table 3.1] Major Parks and Their Amenities

[Table 3.2] Historical Flood Events

[Table 3.3] Trees

[Table 3.4] Shrubs

[Table 3.5] Wildflowers and Related Plants

[Table 3.6] Grasses, Sedges and Rushes

[Table 3.7] Aquatics

[Table 3.8] Woody Vines

[Table 3.9] Ferns + Allies

[Table 3.10] Invasive's

[Table 3.11] Others

[Table 3.12] Red River Watershed Fish Species

[Table 3.13] Birds: Abundant - very easy to find in proper season and habitat

[Table 3.14] Birds: Common - usually easy to find in proper season and habitat

[Table 3.15] Birds: Fairly Common - usually able to find a few individuals each year

[Table 3.16] Birds: Uncommon - This category includes both birds expected to be seen each year but in small numbers and birds that may not be seen every year

[Table 3.17] Birds: Historical Breeders - used to breed in area, but not in recent years

[Table 3.18] Birds: Rare - Either only one to three reported records in area since 1980 or possible, but not expected annually

[Table 3.19] Birds: Irruptive Species - may occur in large numbers one year and be absent the next

[Table 3.20] Birds: Extirpated - Historically regular in area but not seen at all in past 5 - 10 years

[Table 3.21] Large tree quantities

### Tables with Sources

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[Table 3.2]

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[Table 3.3] to [Table 3.11]

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