UBC Social, Ecological Economic Development Studies (SEEDS) Student Reports

University Neighbourhood Association Open House Assessment

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LARC 543

December 2009

University Neighborhood Association Open Space Assessment

UNA
UNIVERSITY NEIGHBOURHOODS ASSOCIATION

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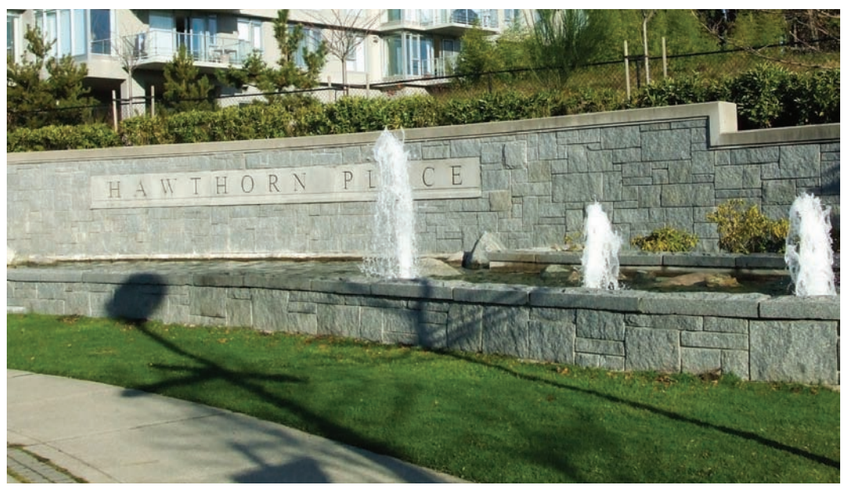
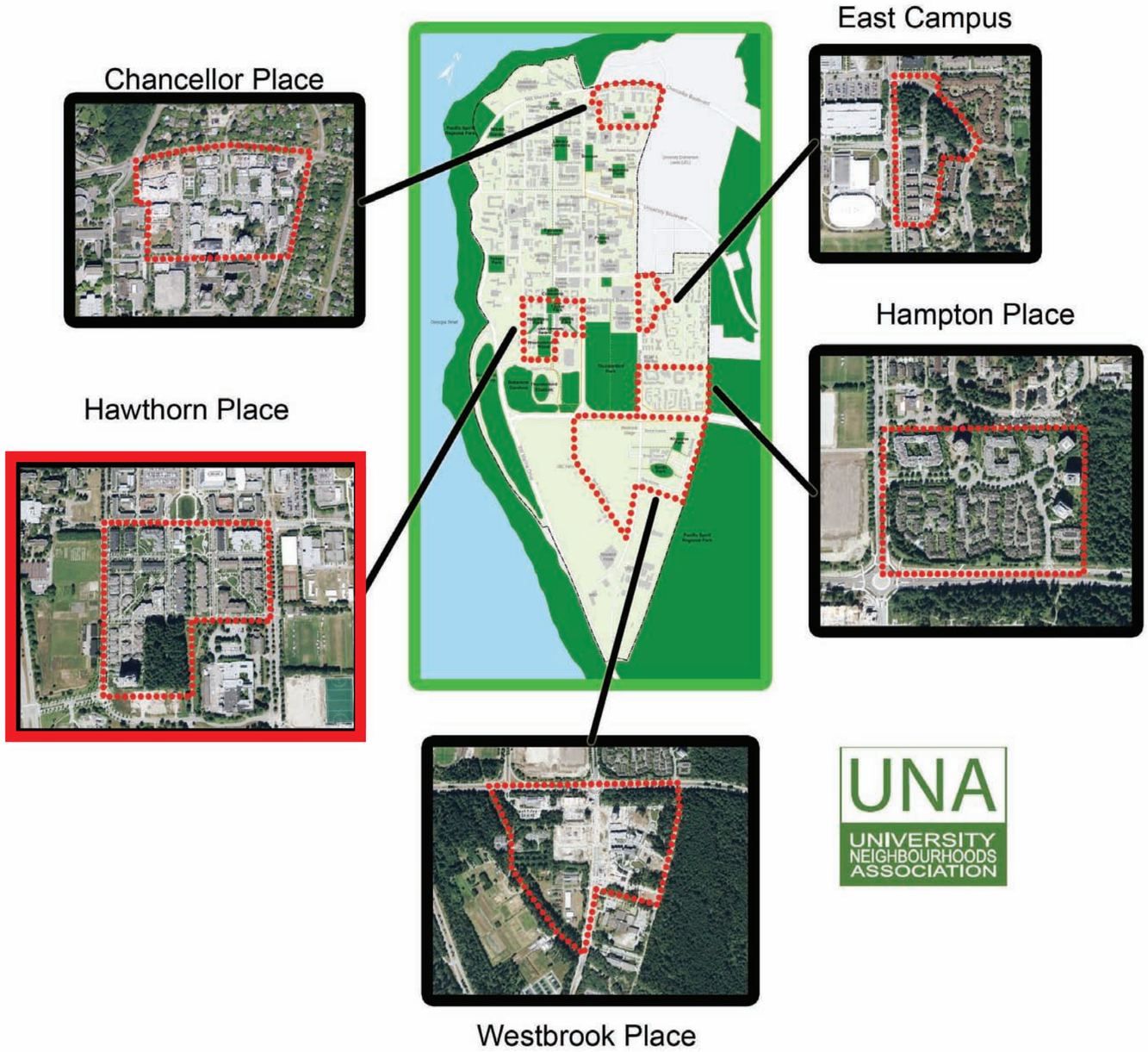
Focus of This Assessment - Hawthorn Place Neighborhood





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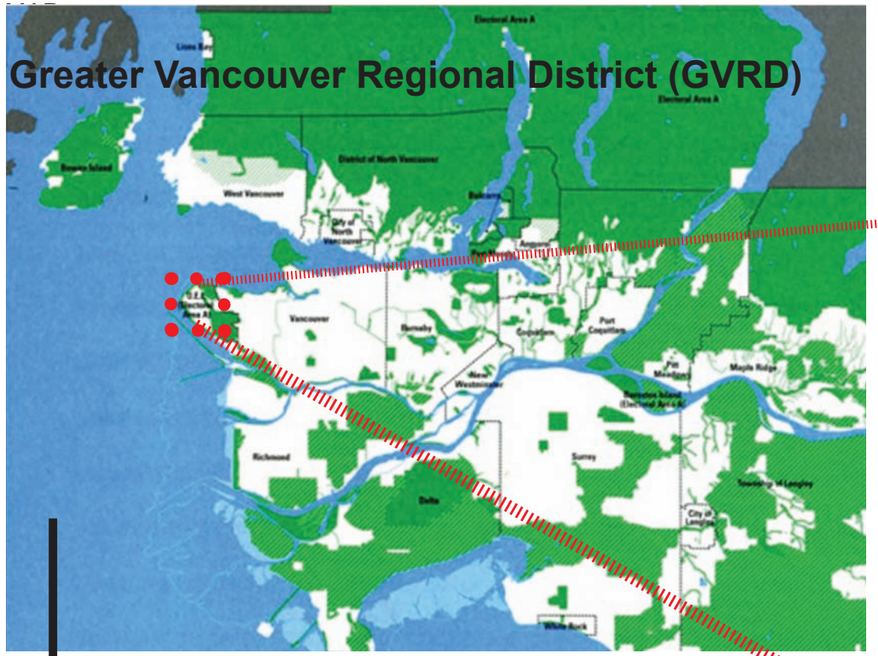
Open Space Context

The Greater Vancouver Regional District's "Livable Region Strategic Plan" has dedicated itself to four main purposes: to increase transportation choices, to build complete communities, to create compact communities and to protect the green zone. Because of this plan, the region is blessed with a high percentage of protected green space. This green space provides many benefits including water cleansing, habitat and recreation for humans. This assessment focuses on the University Neighborhood Association with special attention taken to the Hawthorne Neighborhood, located on the far right map. The open space network in this neighborhood has been mapped and further assessed for relative success from a human, water and habitat standpoint. Recommendations for enhancements of these areas is also included.



GVRD =283,183 Hectares Total
=205,520 Hectares Green Space
=Approximately 70% Green Space

UBC =1165 Hectares Total
=813 Hectares Green Space
=Approximately 70% Green Space*

*Includes surrounding University Endowment Lands

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Open Space Classifcation

Open Space Types

All spaces dominated by vegetation, in any scale in Hawthorn Place has been defined as open space in our analysis. To understand the quality of these spaces, it is important to categorize them by their functions.
In doing this, the classifications also conveniently categorized the spaces into possible ownership status and maintenance responsibilities.

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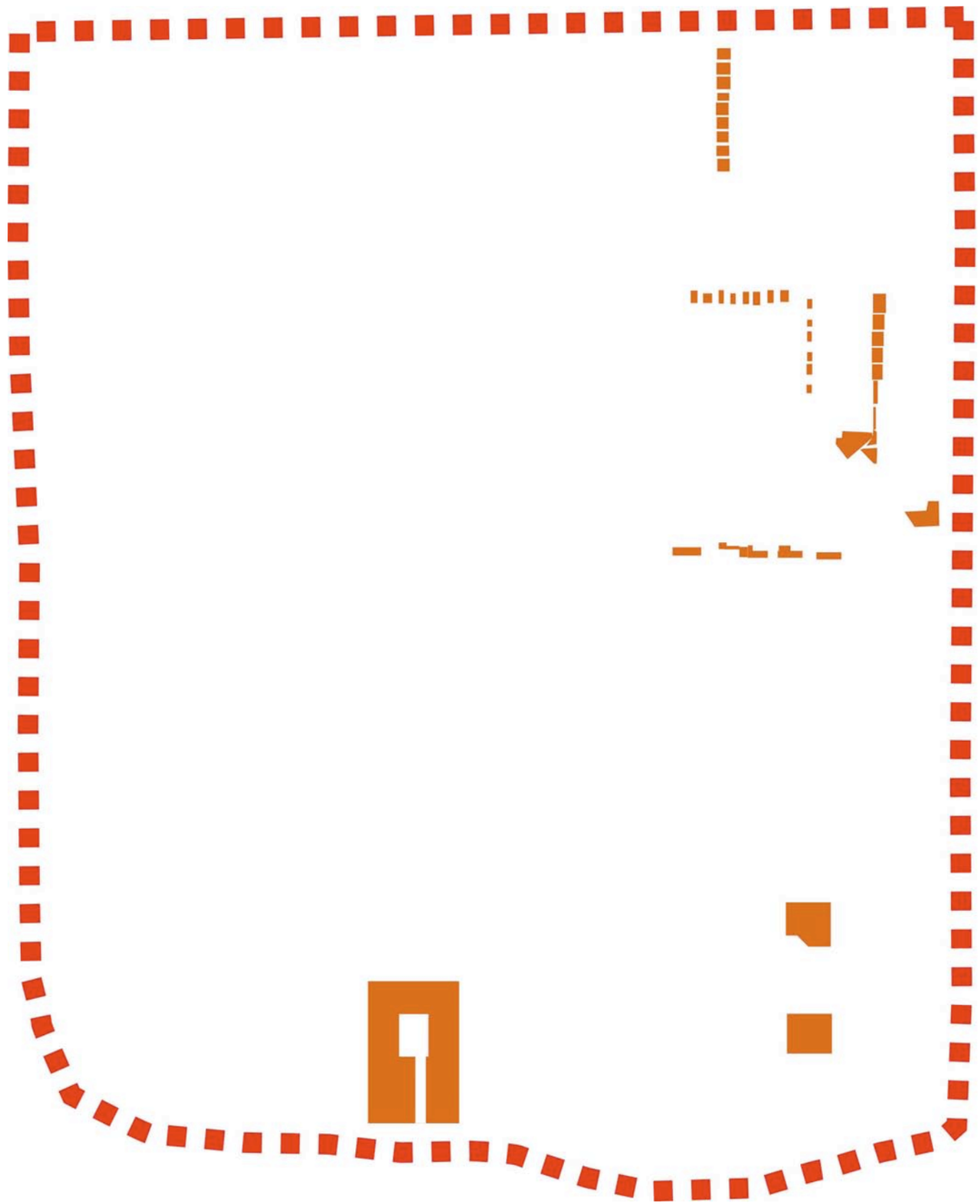
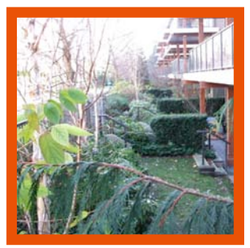
Open Space Classification

Private Space

Hawthorn Place is comprised of a small amount of privately owned spaces. This means that significant changes for open space quality in Hawthorn Place does not have to rely on persuading private owners to change their behaviors.





Private Yard

Private Yard

N

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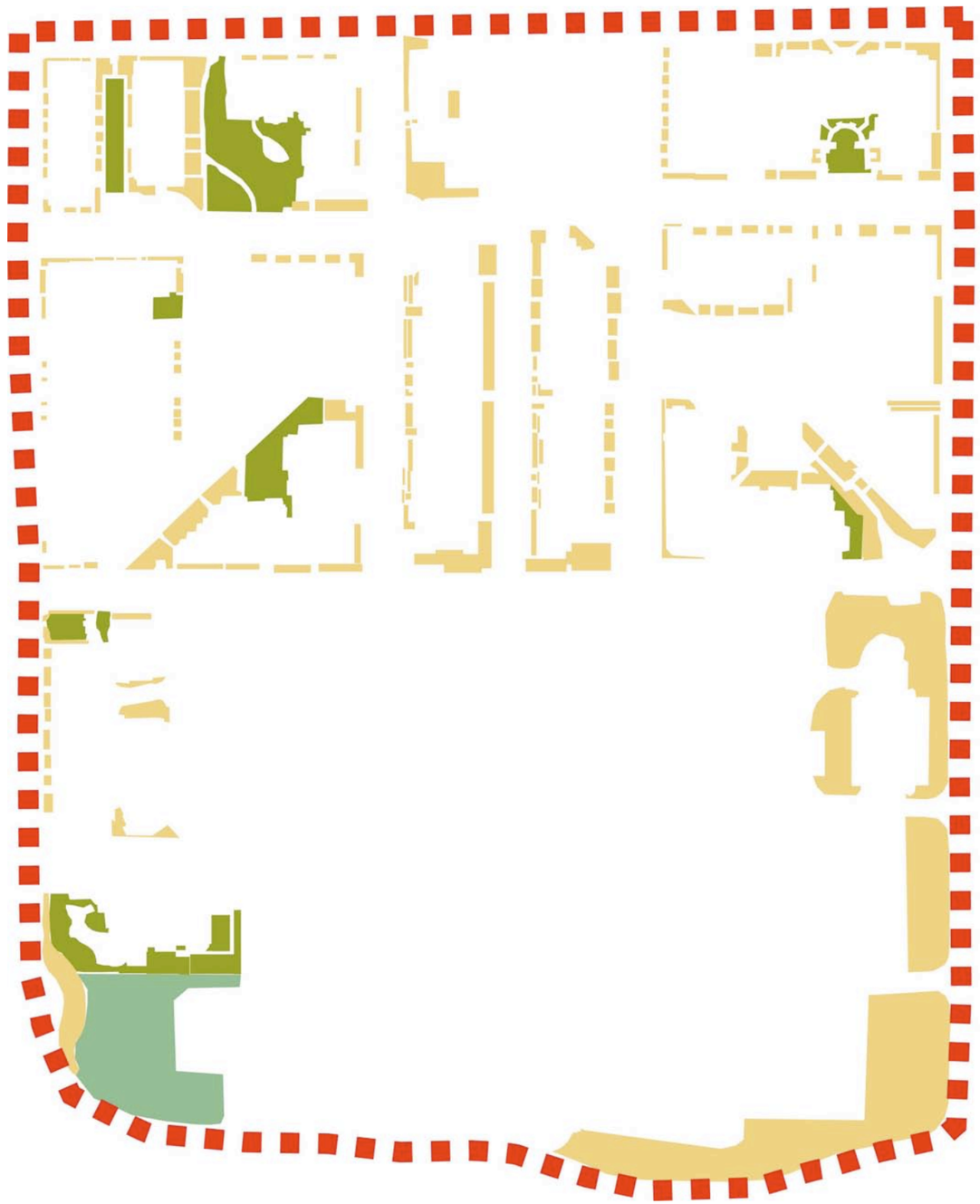
Open Space Classifcation

Shared Space

A shared space is located on private property, but does not have physical barriers or boundaries to prevent the public from entering it. But these spaces are functionally designated for the owners or residence of the property. This implies that change in planting styles may not be in the control of the UNA.



Front Setback

Semi- Private Courtyard

Remanent Space

Front setback

Semi private courtyard

Remanent space/ leftover

N

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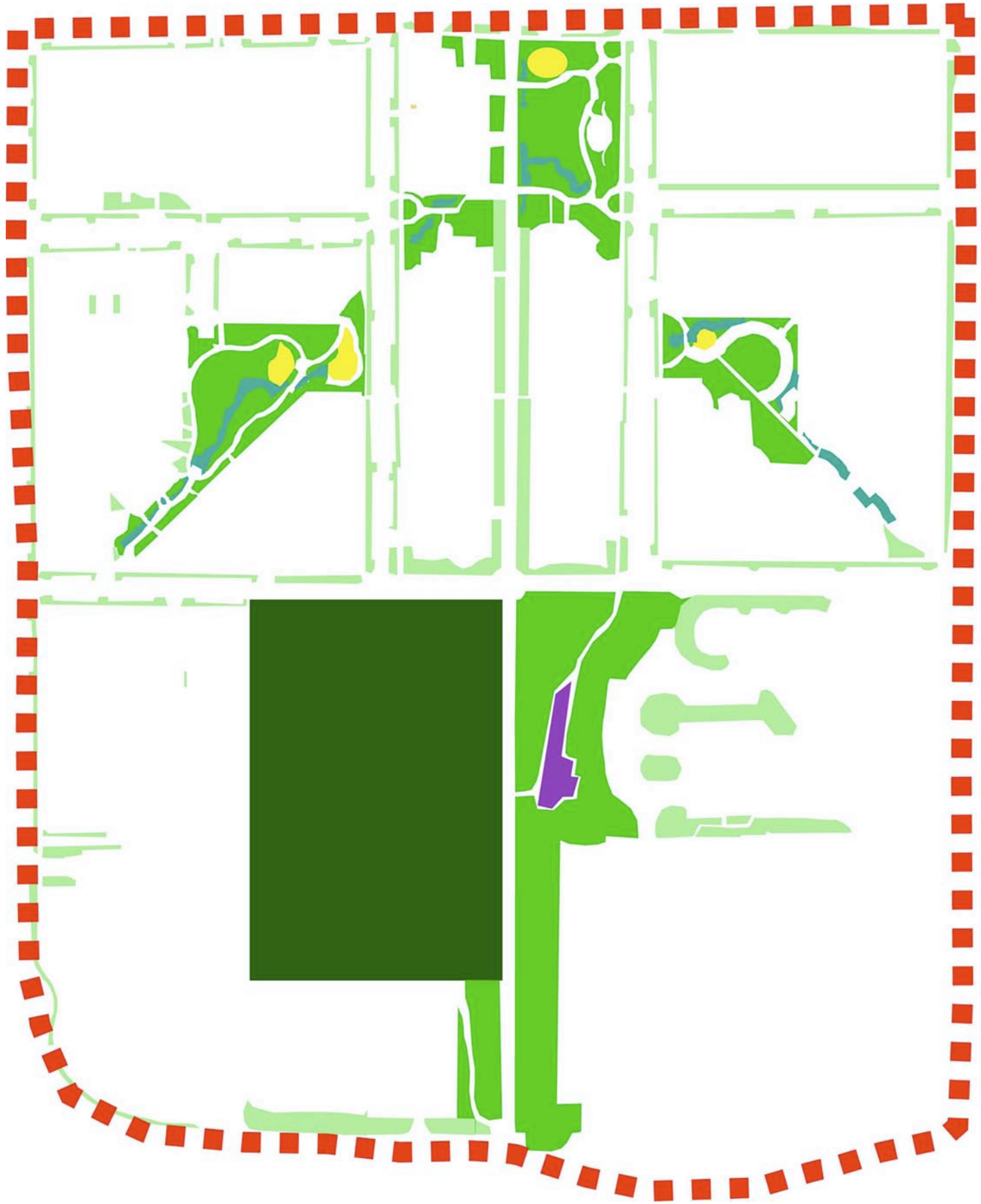
Open Space Classification

Public Space

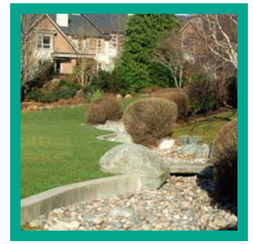
The functions of these spaces are designated for public use. The large amount of these types of spaces in Hawthon place means that the UNA has a significant amount of influence in possible changes in the quality of these spaces.



- Forest
- Pocket parks
- Possible Riparian corridor
- Neighborhood playground
- Community garden
- Street row

Forest

Pocket Park

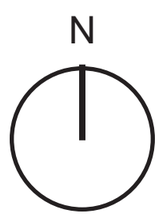


Riparian area

Playground

Community Garden

Street Rows



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400 m Walking Radius

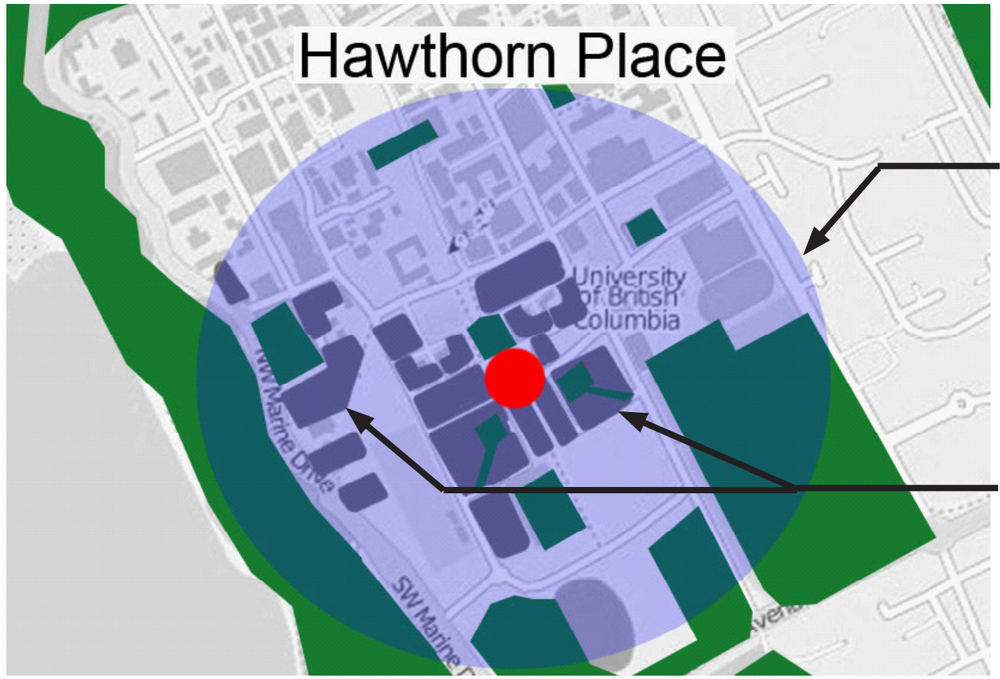
There are many ways to talk about and analyze how open space serves people. Two indicators we chose to look at are diversity of recreation and proximity to dwellings.

A 400 m radius walking circle is generally accepted as the distance a person is willing to travel by foot for an amenity. Travelling by foot puts less reliance on the automobile and promotes personal interaction and exercise, just to name a few benefits. The other caveat to travelling on foot is that the path generally has to be safe and the destinations accessible (e.g. crossing as few streets and major intersections as possible). At the very worst end of this spectrum one could imagine a sub division, drawing a 400m walking circle, and finding no public open space, no amenities, and quite possibly no sidewalks.

When we draw a 400m walking circle around Hawthorn, a medium density residential development with ~1500 residents (circle also encompasses high density dorms), we can see that the recreational opportunities available within the 400m radius have the potential to be well used by many people.

Our findings also show that there is an incredible diversity of recreation available to Hawthorn residents (and others) - that is also very easily accessible.

400 m Walking Radius



Current Diversity of Recreation Inside 400m


Fields


Courts


Pacific Ocean


Botanical Gardens


Playgrounds


Community Garden


Running


Walking


Sitting

Just Outside 400m


Rose Gardens


Golf

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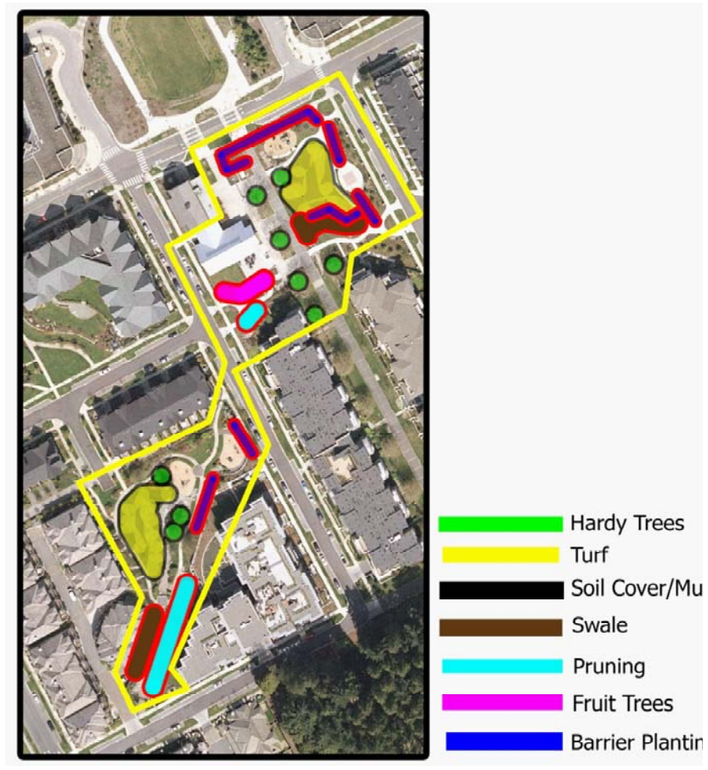
Current Maintenance Conditions

We also performed an assessment of current maintenance conditions and sustainability of Jim Taylor Park and Hawthorn Park.

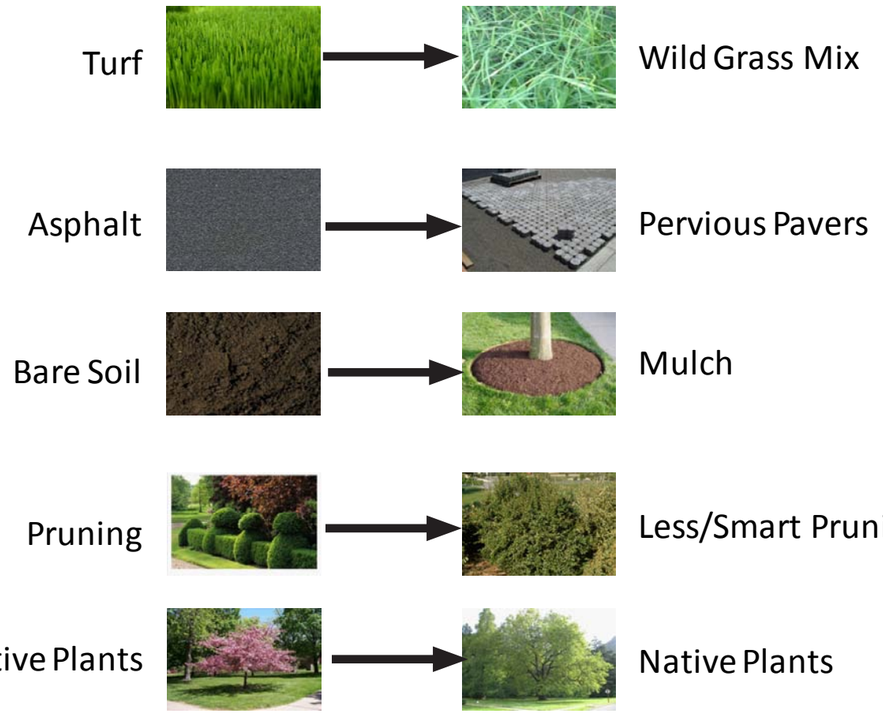
Both parks are beautifully landscaped with a great concept and programmation, with wide sinuous pathways, a level grade, and a great variety of activities that people can take part in in the surrounding area, such as a coffee shop, playground, benches, walking, and turf play. The park is a good mix of both social and ecological.

But while programmatically this mix of social and ecological is a strength, it's also very expensive to maintain.

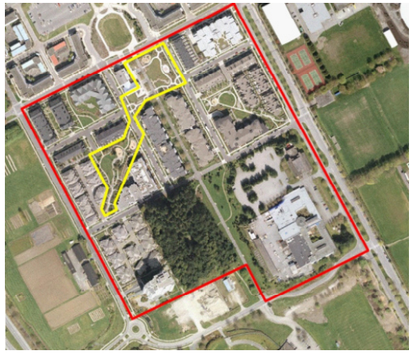
Analysis



Recommendations



Evaluation Area



Hardy trees -- London plane,Carpinus - species are pest resistant, well adapted in this climate, hardy and can handle human interaction (soil compaction and physical contact)

Soil cover -- Maintenance will often blow across soil to clear leaves (or wind will naturally blow through). This exposes soil, and in the heavy fall and winter rains this will cause compaction in the soil and change the hydrology. Adding mulch will insulate soil, protect from water droplets and humans, protects trees, and keeps the weeds down giving perennials a chance to compete with the other woody plants.

Barrier plantings -- Barrier plantings like berberis and birch are not particularly hardy or planted densely enough to form a solid barrier. As a result they will continue to be trampled by people and look worse for wear.

Swale -- In a wet climate like B.C. accumulation of organic matter and soil washes down into the rock matrix, creating perfect conditions for moss and weeds to thrive. We live in a climate that does not get hot enough to burn and oxidize the organic matter that accumulates in the rock crevices, it will have to be weeded by hand which is very difficult, time consuming, and expensive. Larger rocks would create larger gaps that can dry out. Also, the swales are not connected to the overall campus water plan and as such are more ornamental than functional.

Pruning -- When pruning is necessary it must also be done intelligently. For example, raspberry trees fruit on their 2nd year's chutes, and each year, if they are being cut back, they will continue to look anemic and bear very little fruit. Also, plants like Arbu tus have to be pruned by taking out the oldest (5-6 year) chutes as opposed to sheering the sides and top off.

Non Native trees -- Growing fruit trees well is a very high maintenance and high expertise endeavor. Cherry trees are disease and mildew prone, need room to grow and generally do not tolerate a high level of human disturbance.

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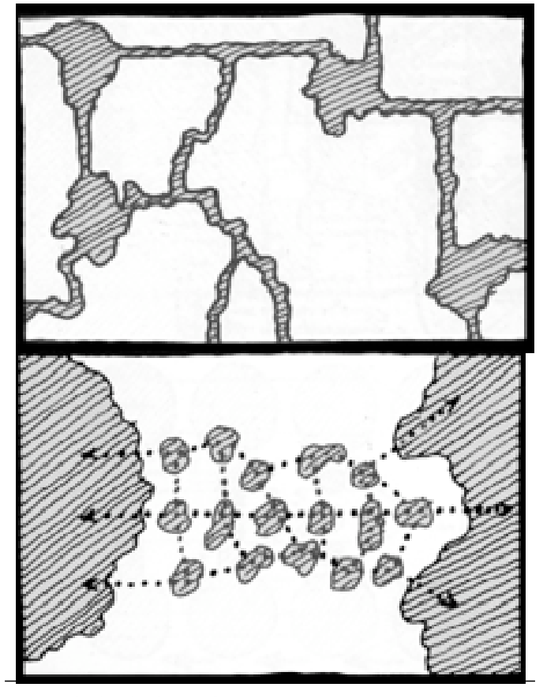
Habitat- Hawthorn Place

When talking about sustainable habitat, it is important to understand the concept of how animals move within a “Habitat Matrix.” The diagram below shows corridors, patches and stepping-stones as ways animals move. The density, connectivity, and proximity of these elements dictate how well animal species can move through and among green spaces to feed, shelter, and breed to promote population diversity. The diagram to the right applies this concept to Hawthorn Place to show that the framework is already in place, but that plant species enhancement would have to take place before these spaces become high quality animal habitat.



Habitat Matrix Diagram

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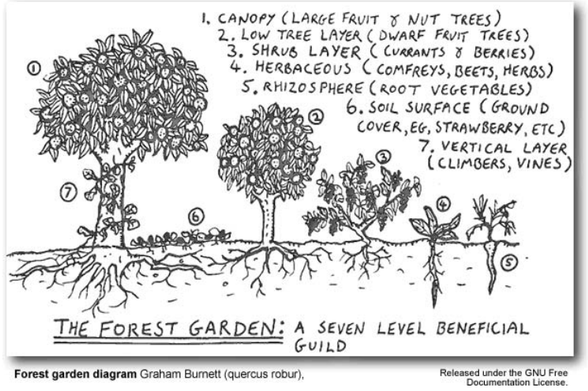
When assessing the quality of the open space for habitat use, water possibilities as well as plants and their layout, density, and species were assessed. High habitat value locations usually included a variety of plant species, but specifically species that are berry, seed, nut, or pollen producing. In addition, the layout and arrangement of the plants affect their ability to act as good habitat. Vertical stratification is important planting arrangement for animal habitat. Low habitat value locations generally consist of lawn. While, lawn is good for children free play, lawn is a monoculture that provides little to no habitat value. In addition, it requires high maintenance energy, fertilizer, and water use. From site observations, locations for current possible habitat were evaluated. These locations have the framework in place for supporting habitat, but are not of high quality. Generally, vertical layering was lacking and improper plant choices.

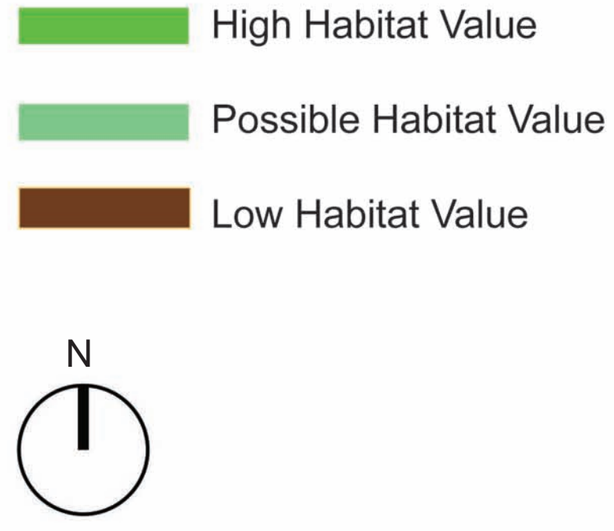


Forest garden diagram Graham Burnett (quercus robur), Released under the GNU Free Documentation License.

Vertical + Horizontal Stratification Diagram
http://www.avianweb.com/forestgardens.html

High value- low, medium, high shrub levels

Low value- monoculture, no food value



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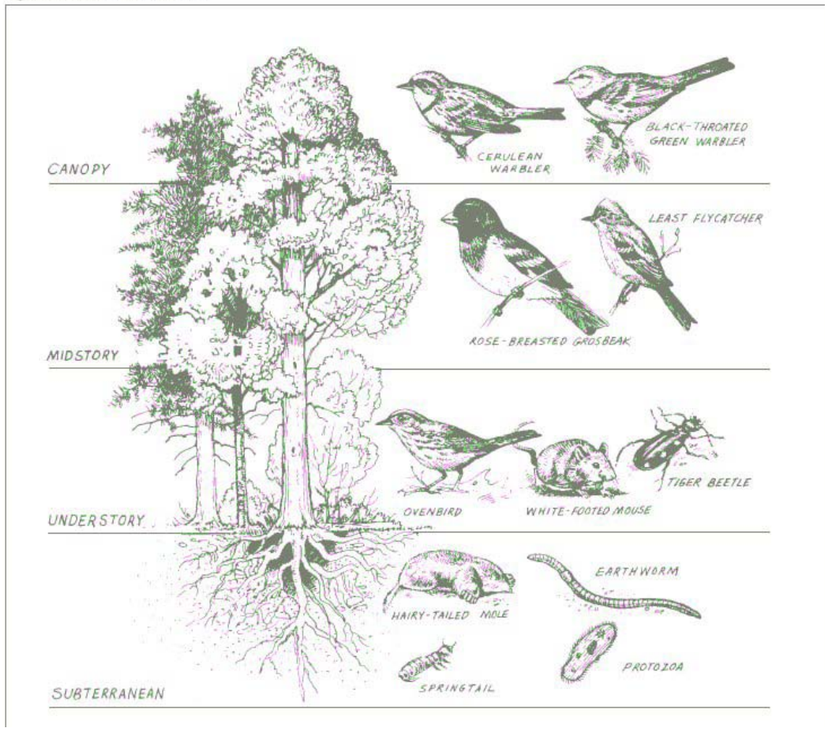
Habitat- Vertical Stratification

It is important to understand the concept of a layered forest garden when designing areas for high quality animal habitat. Vertical and horizontal layering is important to provide protection from predators, breeding grounds, and food source at multiple heights for different types of animal. Each vegetative layer increases biodiversity and offers important benefits for wildlife. It is important to note that this concept does not only apply to forest areas. Understanding this concept and applying it to all scales of design will increase sustainable animal habitat and in turn increase aesthetic value for human use and appreciation. Safety is often an issue when planting in vertical layers, but selecting

be beneficial.

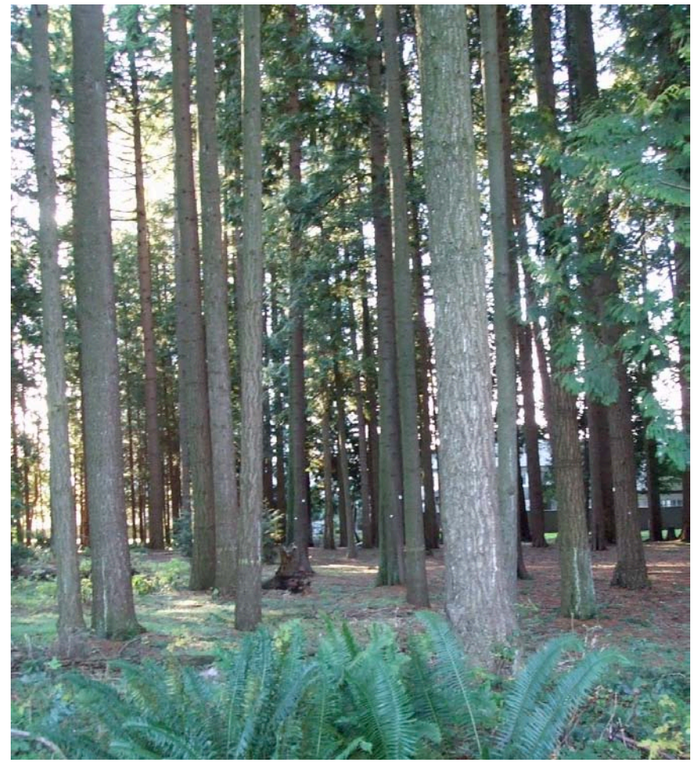
Figure 2. Vertical stratification



http://www.envirothonpa.org/documents/VerticalForestStratification.pdf

-Protection from Predators, place for breeding, food source
-Native plants offer high quality food source and lower maintenance requirements
-Choose berry, seed, nut, and pollen producing plant species
-Opportunities for water

VS



-No understory
-No groundcover
-No diversity
-Low animal habitat value
-Done for human safety?

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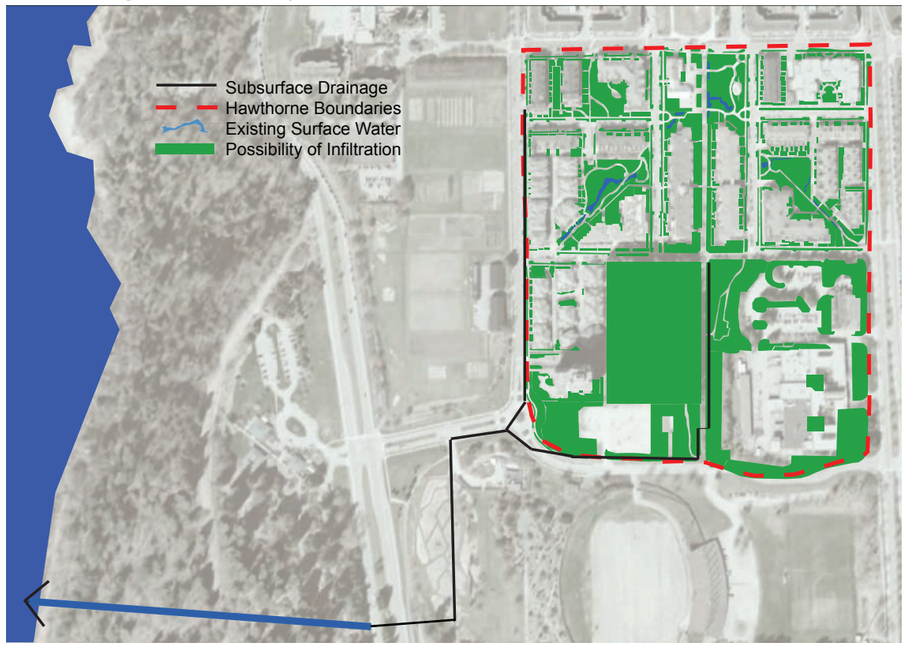
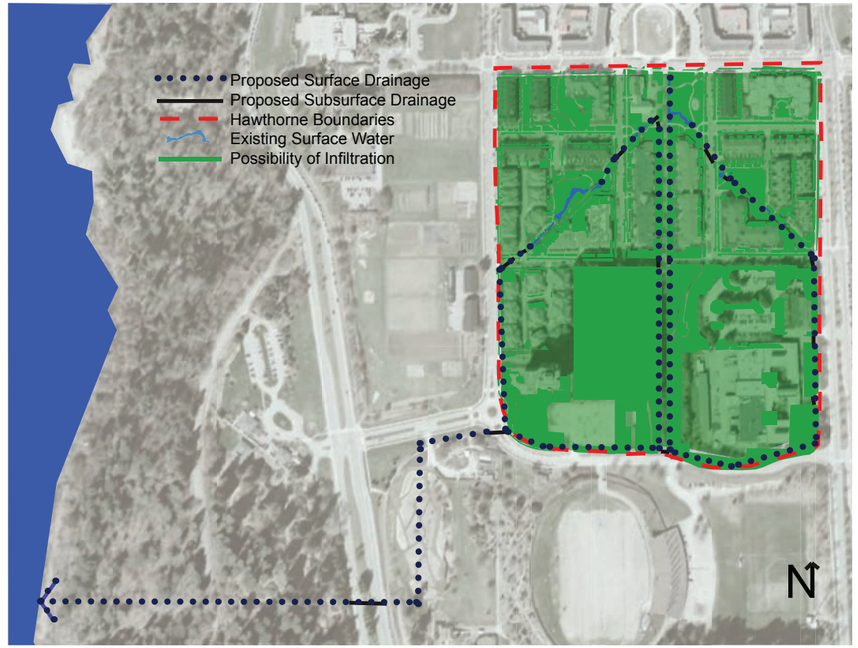
Hawthorne Place Water Systems

The Hawthorne Place neighborhood is located in what is known as the “west watershed” of the UBC campus. This neighborhood covers a large piece of the watershed, and therefore has a large impact on the water quality and quantity. This water is carried from the Hawthorne Neighborhood, south through the eastern research section of the UBC Botanical Garden, under Marine Drive and into a stream which carries the water through the garden and to the watershed outflow at Trail 7. Currently the water is piped underground until it crosses Marine Drive. The proposed water system on the map at the far right would increase inflitration and bring the water out of the pipes and back to the surface, also known as “daylighting streams.” Increased infiltration and daylighting streams are the two primary recommendations for water on this site.

Existing Water System



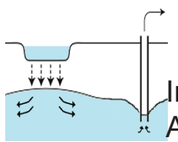
Proposed Water System



Benefits of Daylighting Streams:


Habitat Value


Educational Opportunities

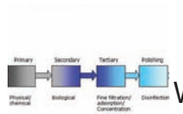

Infiltration & Aquifer Recharge


Ease of Problem Solving


Increase Recreation Opportunities


Slowing Runoff Velocity


Increase Property Values



Water Purification

Methods to Increase Inflitration:

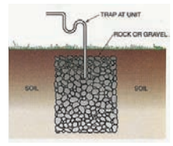

Permeable Pavement


Increase Organic Matter in Soil


Green Roofs


Rain Gardens


Increase Vegetation



Dry Wells


Increase Leaf Litter Layer


French Drains

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Conclusion

Is improvement possible? YES! The framework for sustainable open space in terms of people, animal habitat, and water is in place at Hawthorn Place in the UNA. A few simple changes can improve and enhance the space to simultaneously act as high quality human environment as well as a high quality wildlife habitat with clean water and rich biodiversity for learning and living.