

How Can We Make Our UNA Parks More Sustainable?

UNA Hawthorn Park Demonstration Project

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UNA Hawthorn Park Demonstration Project Final Report

Rebecca Colter
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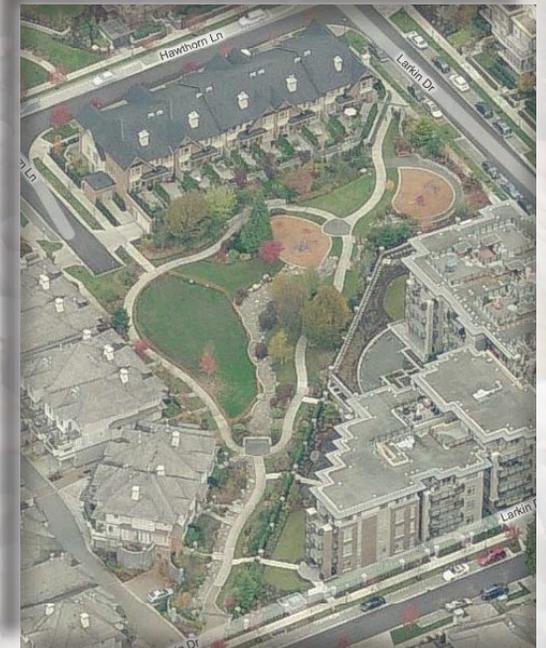


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Executive Summary

High quality urban open spaces are integral to social well being and environmental health. The University Neighbourhood Association (UNA) has many open spaces including parks, woodlands and playgrounds, all primarily functioning as social spaces. Social sustainability is the key function of these open spaces, although the concept of sustainability reaches into the environmental and economic realm as well.

The project asks the question: How can we make our UNA parks more sustainable? This question was addressed through two phases (a project definition phase and schematic alternatives phase). In each phase, feedback was obtained through an expert and stakeholder workshop and public open house.

In Phase 1, recommendations and benefits of sustainable techniques for the UNA parks were determined by assessing social, environmental and economic sustainability of Hawthorn Park. With these suggestions in mind, for Phase 2, four areas of improvement in the landscape were identified: park participation, park management, park plantings and park reconstruction. With these enhancement themes, three schematic alternative packages for Hawthorn Park were produced: minimal, moderate and maximum interventions in the landscape. UNA residents and local experts then chose and vetoed the recommendations of the three interventions.

Top choices selected include reducing or eliminating high maintenance plantings in the park, reintroducing an ephemeral stream to the site, and utilizing infiltrated rainwater in the UBC Botanical Garden. The top vetoes were all associated with community member maintenance in the park. In the open houses and workshop, residents also expressed that any proposed changes to Hawthorn Park

should maintain the current level of appearance, ensure safety and maintain property values. Further, any proposed changes should involve community consultation.

Looking forward, three scales of recommendations for Hawthorn Park are provided:

Minimal Intervention Recommendations

- Encourage various community events such as:
 - ~ Fall leaf cleanup
 - ~ Spring weeding day
 - ~ Guided watershed walk from Hawthorn Park through the Botanical Garden
 - ~ Guided "Sustainable Features" walk through the UNA and UBC campus
- Experiment with different turf treatments in small grassy areas (less or no mowing, manually maintained, etc.)
- Design educational watershed signs

Moderate Intervention Recommendations

- Replace highly maintained shrubs with native species which are beautiful, encourage habitat and have lower maintenance regimes
- Find an appropriate water feature for the park, such as a hand operated pump
- Encourage use of rain barrels in the neighbourhood
- Allow rainwater to collect in the existing swale

Maximum Intervention Recommendations

- Reconfigure the stream bed to collect water and possibly introduce aquatic habitat
- Thicken the plantings adjacent to the stream
- Test out turf alternatives in larger areas
- Utilize infiltrated water in the Botanical Garden



Project Introduction

The University of British Columbia-Vancouver (UBC) campus is situated on a peninsula, overlooking the Georgia Strait and is surrounded by the University Endowment Lands and the Pacific Spirit Regional Park. This area has great potential to increase its already substantial levels of biodiversity, as B.C. has protected vast areas of green space through their Livable Region Strategic Plan (GVRD 1999). These preserved lands maintain numerous environmental, social and economic values. The treatment of our urban spaces is equally as important when regarding sustainability.

The metro Vancouver region, like most metropolitan areas, has become increasingly urban as populations rise. Streams have been buried, rich habitat paved, non-native and invasive vegetation has taken hold as people continue to disconnect from their environment.

UBC is committed to implementing sustainable practices throughout the campus and the University Neighborhoods Association (UNA) strives for sustainability in its neighbourhoods. As the UNA continues to grow with new homes and parks for UNA residents, they continually evaluate their planning and implementation techniques from a sustainability lens.

Within the UNA, the Hawthorn neighbourhood provides unique opportunities for sustainable design. Currently, Hawthorn park contains standard play equipment, a dry, rock filled swale, large turf areas and highly maintained planting areas, not unlike other park sites on campus.

This project considers sustainability through an

environmental, social and economic lens. There is potential to daylight an ephemeral stream to reflect the original natural condition. And with carefully selected and placed vegetation, there are opportunities to increase both terrestrial and aquatic habitat on the site and increase biodiversity.

Human uses, perceptions and expectations are crucial to the success of the site. The UNA community was engaged in each phase of the project with open houses. These consultations led to ideas about the structured and free play elements, open areas for free activity, gathering areas intended to strengthen community, interaction with the natural elements on the site, recreation paths connecting to other parks and possibly the Botanical Garden, educational opportunities about sustainable practices, and the ability to adjust the design of the park through the thorough planning process.

The current park is currently maintained with mowing, pruning, fertilizing, weeding and leaf litter clean up. This project examined decreased maintenance time and costs through low maintenance plant selections, low input ground covers and encouraged community stewardship of the park.

This report summarizes the project's process through phase one and two, the project definition and schematic alternatives phase. With information on current conditions of the park, as well as feedback from residents, stakeholders and experts, we begin to decipher future sustainable improvements for Hawthorn Park.



Project Outline

The Hawthorn Park Demonstration Project, based in the Hawthorn neighbourhood, illustrates an instructive model of landscape design for sustainability applicable to public open spaces and street right of ways in the UNA.

PROJECT PROCESS TO DATE:

Phase I: Project definition (March-May 2010)

- Identify and consult with key stakeholders and advisors to define and illustrate goals, issues and expectations for the project.
- Host an open house with the UNA residents to survey recommendations for park programming and receive feedback on our initial conclusions.
- Prepare a written and illustrated report of the survey results, expert recommendations and preliminary conclusions will be produced for this phase.

Phase II: Schematic Alternatives (June-November 2010)

- Develop and communicate alternative design concepts with:
 - 2-3 Schematic Design Packages including:
 - Concept Design Illustrations
 - Precedent examples of sustainable techniques in community parks
- Review alternative concepts with key stakeholders and advisors and revise the design in response to their feedback.
- Hold a second open house for the residents to receive feedback on schematic alternatives.

POTENTIAL FUTURE PHASES:

Phase III: Design Refinement (TBD)

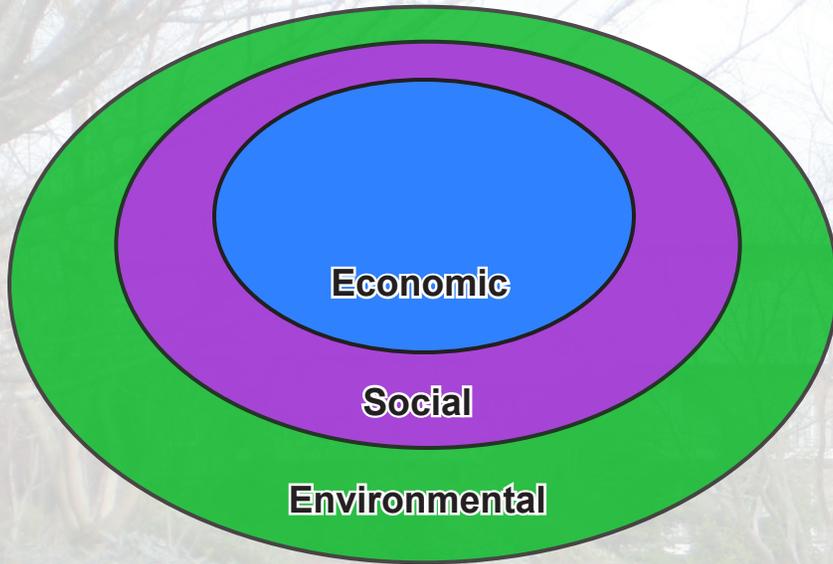
- Refine a preferred schematic design. With the scope and complexity of the design *this task will need to be handed off to an appropriately qualified professional.*

Phase IV: Implementation (TBD)

- Qualified professionals will implement the final design. The initial sustainability objectives should be kept in mind through this final stage. Construction should be sensitive to ecological objectives, possibly involve the community where appropriate, and consider methods of minimizing costs where suitable.



Three Tiers of Sustainability - Economic, Social, Environmental



Sustainable development is often referred to as, "... development that meets the needs of the present without compromising the needs of future generations to meet their own needs." (United Nations 1987).

The UNA Hawthorn Park Project considers the concept of sustainability to have three tiers: economic, social and environmental. The success of our economy is embedded in the success of our society, and both are dependent on the success of our environment. Each facet of sustainability is defined as follows:

Economic Sustainability: Living off the dividend of our resources, maintaining and improving the asset base so that the generations that follow will be able to live equally well or better; the greatest amount that can be consumed in the current period without reducing prospects for consumption in the future. (Robert Repetto 1985)

Social Sustainability: Development that is compatible with harmonious evolution of civil society, fostering an environment conducive to the compatible cohabitation of culturally and socially diverse groups while at the same time encouraging social integration, with improvements in the quality of life for all segments of the population (Polese and Stren 2000)

Environmental Sustainability: Capacity of an environment to maintain its essential functions and processes, and retain its biodiversity in full measure over the long-term (Business Dictionary 2010)

This project's preliminary objectives are economic, social and environmental in nature:

- Economic:** Decrease the Cost of Maintenance
- Social:** Improve Human Uses of the Park
- Environmental:** Increase Rainwater Infiltration
Increase Habitat Quantity and Quality



Current Social Conditions



What community amenities are offered in a 5 minute walking distance from Hawthorn Park?



Sports Fields



Open Spaces



Botanical Garden



Pacific Ocean



Trails



Community Garden



Sports Courts



Seating



Playgrounds



Community Center



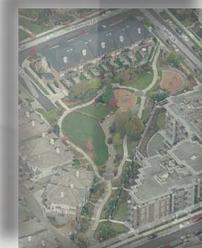
Cafe



Stadium

Social sustainability is often under-evaluated as it is difficult to measure and analyze. This facet of sustainability contributes to our need for recreation, beauty, amenities, children's play, gathering opportunities, and entertainment. By using a 400 meter walking circle, generally known as a 5-minute walking distance, we were able to discern the current community amenities available to Hawthorn Park users. A large portion of campus can be walked in 5 minutes. Within this time a person may see the UNA community center, playgrounds, sports courts and fields, a cafe, walking trails, the UBC Botanical Garden and the Pacific Ocean.

In general, Hawthorn Park users are well served with community amenities. In this project our task is to determine how we can improve upon the existing social structure of the area. The next section highlights possible methods and benefits of improving social sustainability in this area.



Possible Social Improvements and Benefits

Improve Human Uses



Outdoor Education



Enhance Recreation



Aesthetic Value



Accomodate all Ages



Play Opportunities



Community Groups



Outdoor Entertainment



Cultural Festivals

Encourage Stewardship



Leaf Collection Day



Community Garden



Weed Education



Utilize Green Bins

Social sustainability contributes to our experience of a place. By improving upon existing human uses and encouraging stewardship of the park, we can contribute to one's experience. By providing outdoor education spaces, quiet and active gathering areas, play opportunities, and encouraging cultural festivals and community groups, we will contribute to the social sustainability of the area.

The benefits of these socially sustainable methods are extensive and include childhood development, community building, educational opportunities, and a sense of well being.

Benefits of Socially Sustainable Methods



Community Building



Education Opportunities



Increase Sense of Place



Social Mixing



Recreation Opportunities



Know Your Neighbours



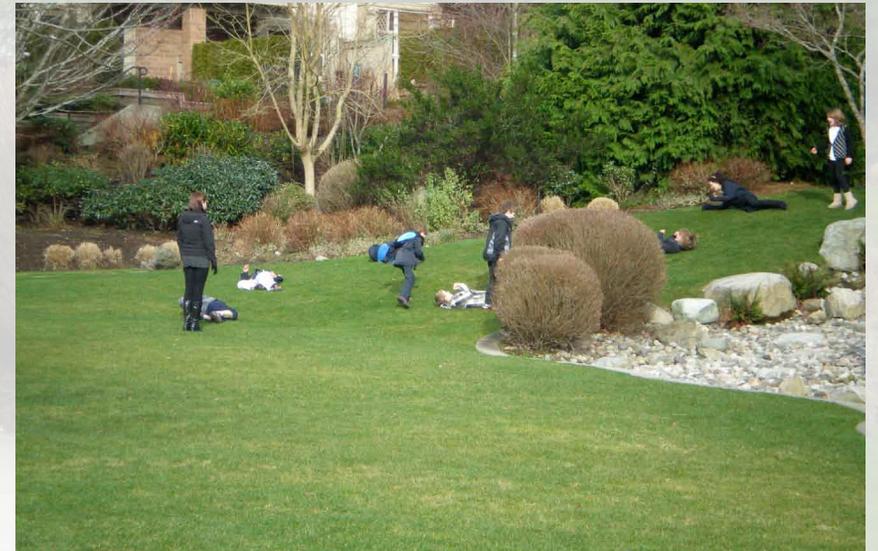
Participation



Sense of Well Being



Childhood Development



Children rolling down the hill in Hawthorn Park at lunch time
Rebecca Colter



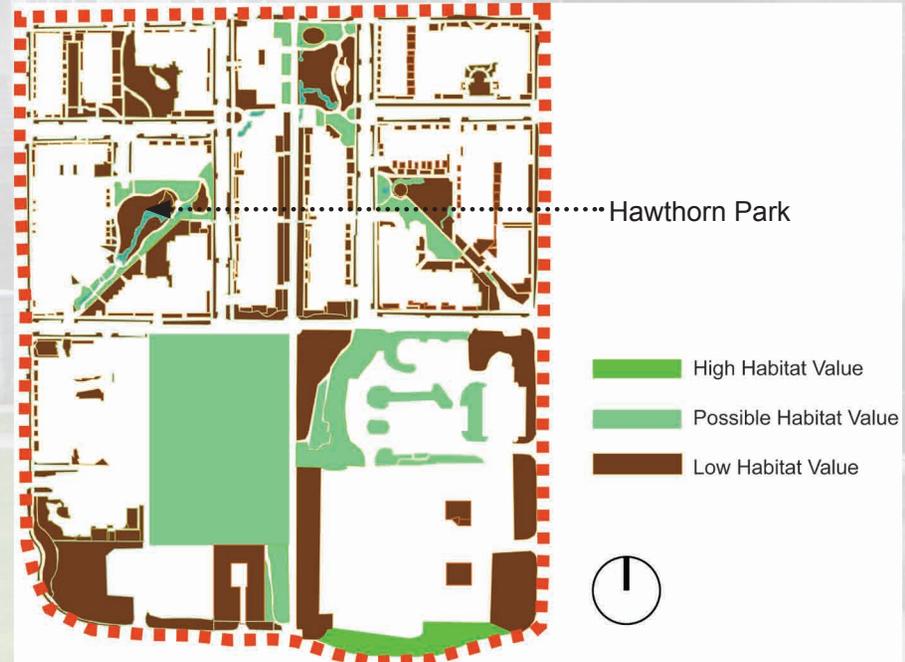
Current Environmental Conditions

Where is the water from Hawthorn Place currently drained?

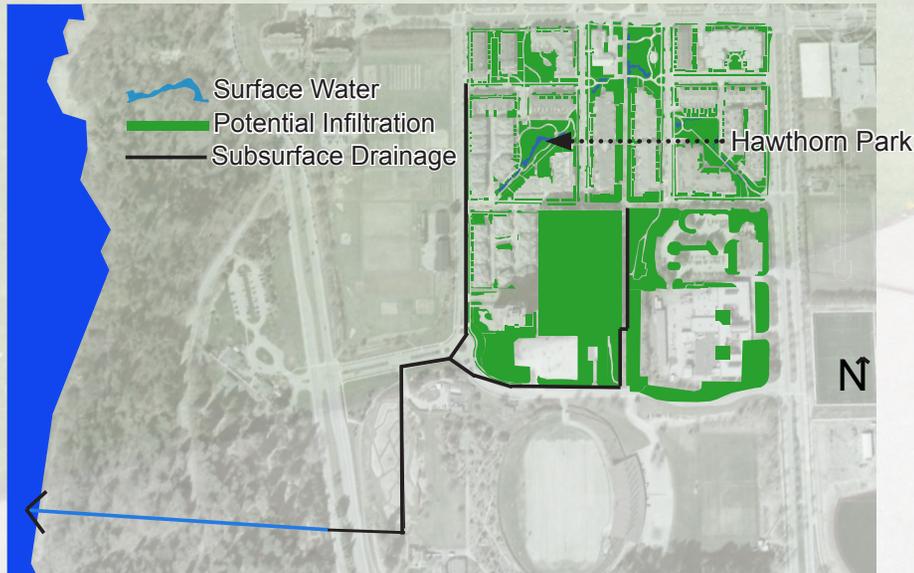


Hawthorn Place is located at the headwaters of the west watershed and drains into the Strait of Georgia through the UBC Botanical Garden.

Is there current habitat potential?



How is this water currently drained?



This project considers environmental sustainability to have two main issues: water and habitat. Hawthorn Park is situated at the headwaters of the west watershed on campus, and covers a large portion of the watershed. What we choose to do on this park site has an affect downstream through the Botanical Garden and out into the Strait of Georgia. Most of the water is currently drained below the surface in existing stormwater pipes, providing potential daylighting opportunities. As for habitat, Hawthorn currently has the structure for habitat corridors and patches. However, the open space is currently underutilized from a habitat standpoint. Enhancing for habitat is key to environmental sustainability success.



Possible Environmental Improvements and Benefits

Increase Infiltration



Permeable Paving



Green Roof



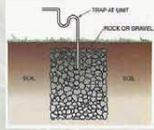
Increase Organic Matter



Increase Leaf Litter



Increase Vegetation



Dry Well



French Drain



Rain Garden

Enhance for Habitat



Choose Berry & Nut Producing Plants



Increase Stratification



Encourage Native Vegetation



Include Plants with Thick Cover

Environmental sustainability can be improved by increasing natural rainwater infiltration and enhancing for habitat. To increase infiltration one may use methods such as rain gardens, using permeable paving, french drains, dry wells, and by increasing vegetation and leaf litter. To enhance for habitat, we must choose berry and nut producing plants, encourage native vegetation, increase vertical and horizontal plant stratification, and include plants with thick cover for nesting.

The benefits of these practices are numerous and include slowing runoff velocity, increasing biodiversity, naturally purifying the water before it enters the Strait of Georgia, recharging our aquifers, providing educational opportunities and habitat value.

Benefits of Environmentally Sustainable Methods



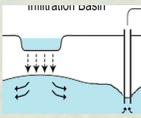
Habitat Value



Education Opportunities



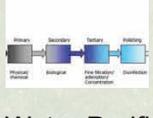
Sense of Place



Aquifer Recharge



Ease of Problem Solving



Water Purification



Recreation Opportunities



Slow Runoff Velocity



Increase Biodiversity

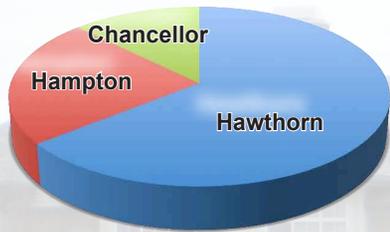


The current dry rock swale in Hawthorn Park
Rebecca Colter

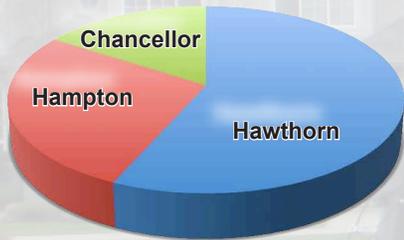


Current Economic Conditions

What are we currently spending on maintenance in Hawthorn Neighbourhood?



Irrigation Costs in 2009-2010



Landscaping Costs in 2009-2010

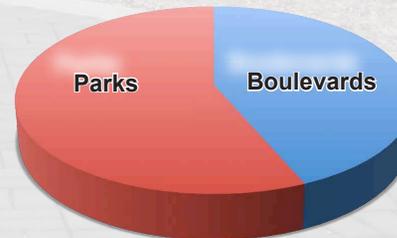
Hawthorn neighbourhood spent approximately \$180,000 in twelve months between 2009-2010 on landscaping and irrigation, more than Chancellor and Hampton neighborhoods combined. Although Hawthorn has more parks than these other neighbourhoods, this is a significant portion of the budget and could be decreased with a new maintenance plan. Much of this money and time is spent on grass maintenance throughout the year. In the fall, leaf cleanup dominates the maintenance hours. Pruning and weeding are also areas of potential improvement.

Now that we know the approximate amount of maintenance being done and where the time is being spent, we have an idea of how to decrease our maintenance time in the parks. The next page focuses on methods of decreasing maintenance time and the benefits of these practices.

How do we spend our time and money?



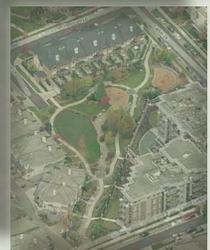
Hawthorn Neighbourhood Maintenance Hours - July 2009



South Campus Maintenance Costs - July 2009



Hawthorn Neighbourhood Maintenance Hours - October 2009



Possible Economic Improvements and Benefits

Intelligent Materials & Maintenance



Grass Alternative



Decrease Pruning



Allow Some Leaves



Utilize Compost



Natural Infiltration



Manual Equipment



Recycle Materials



Solar Lighting

Encourage Stewardship



Leaf Collection Day



Community Garden



Weed Education



Utilize Green Bins

Hawthorn neighbourhood can decrease maintenance by using intelligent materials, limiting maintenance practices and encouraging stewardship in the community. Methods which will have the largest affect on maintenance time include finding alternatives for grass where appropriate and practical, allowing some leaf accumulation, and decreasing pruning by using low maintenance plants.

Encouraging stewardship of the community will decrease maintenance as residents start to take ownership of shared spaces. Not only will this decrease maintenance costs, it will also contribute to community building, allow for educational opportunities, and increase the residents' connection with their neighbourhood.

Benefits of Cost-Effective Sustainable Methods



Minimize Waste



Education Opportunities



Increase Biodiversity



Utilize Organics



Recreation Opportunities



Decrease Noise



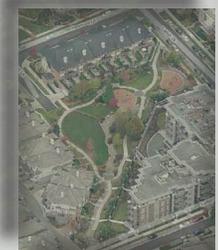
Community Building



Decrease Energy Costs



Increase Property Values



Stakeholder Workshop Feedback

On May 4, 2010, several experts and stakeholders gathered for a brief presentation regarding this project. The following is a summary of the feedback we received, see appendix I for complete comments.

- Tell the story of the watershed
- Bring children, habitat and water together
- How can we best represent the story of the headwaters?
Park users should be conscious of the watershed
- South campus looking to open up streams
- Make the swale more effective in Hawthorn Park
- Need more information regarding social uses and needs; how is it currently functioning? How do we measure this?
Possibly reach out to SEEDS to see if individuals or classes will take this on
- Opportunities for relationship with campus, utilize students and resources

Why has Hawthorn Park been chosen?

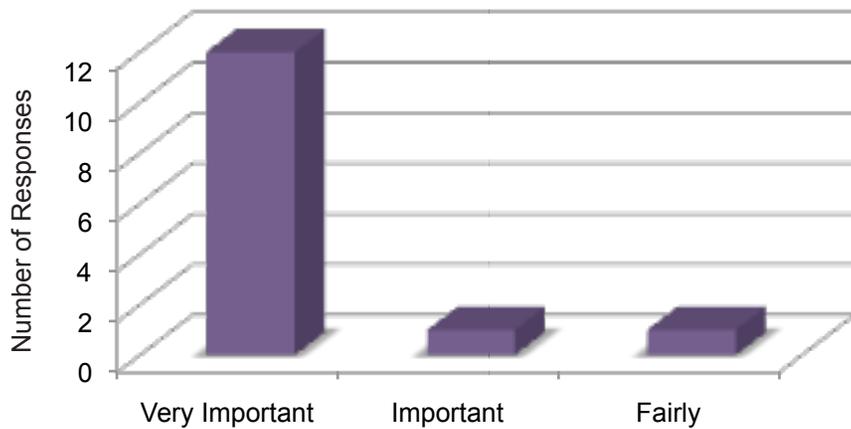
- Available Park space unlike Hampton or Chancellor
- South Campus is still in development stage
- Located at headwaters of watershed
- Connection with the Botanical Garden



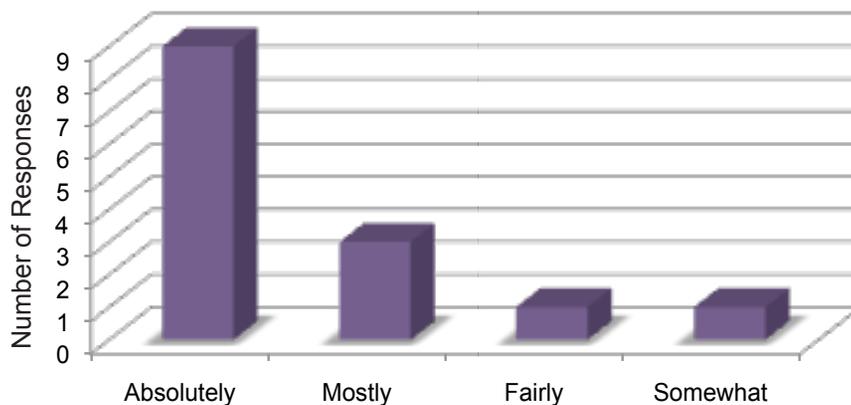
Open House Feedback - Social Sustainability

On May 12, 2010, an open house in Hawthorn Park was held to receive feedback from the community. In addition, the information was uploaded online and included a survey for additional comments. The following is a summary of the feedback we received, see appendix II for a complete list of comments.

How important is social sustainability to you?



Would you be in favor of implementing the socially sustainable techniques pictured on this poster?



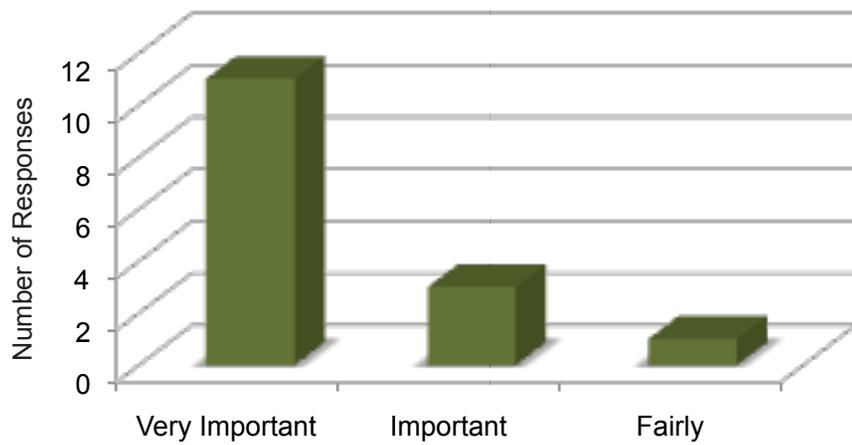
Key Social Sustainability Comments:

- Eliminate gas powered equipment for peace and quiet
- Utilize gathering areas for UNA residents
- Encourage outdoor entertainment
- Beauty, safety and property values are primary objectives



Open House Feedback - Environmental Sustainability

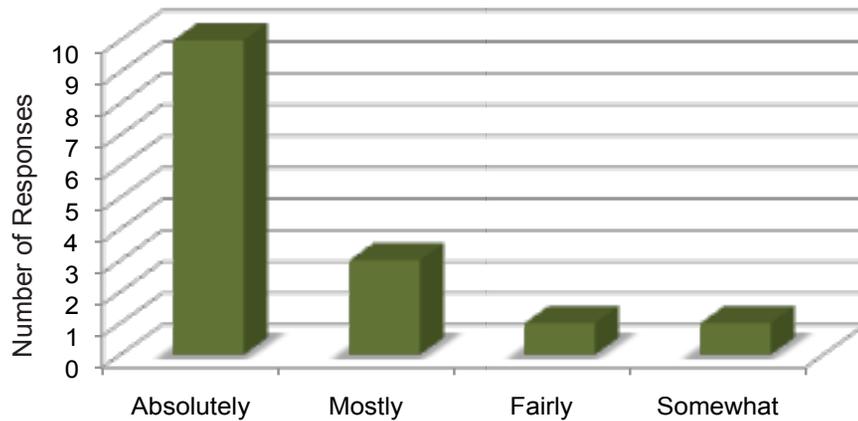
How Important is Environmental Sustainability to You?



Key Environmental Sustainability Comments:

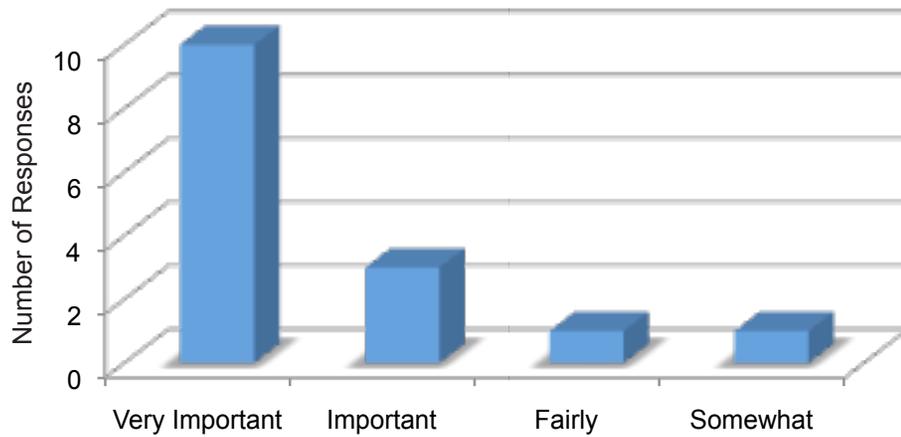
- Enhance plantings for habitat
- Avoid gas powered equipment to decrease our fossil fuel dependence
- Provide biodegradable doggie bags and compost receptacles

Would you be in favor of implementing the environmentally sustainable techniques pictured on this poster?



Open House Feedback - Economic Sustainability

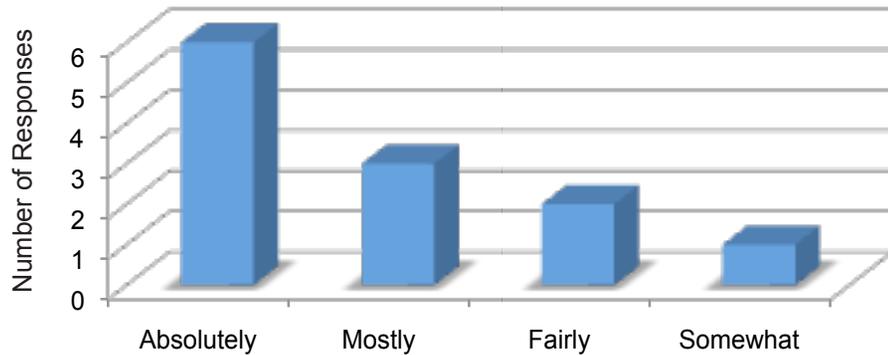
How Important is Economic Sustainability to you?



Key Economic Sustainability Comments:

- Maintain the park less often
- Utilize practical grass alternatives in appropriate areas
- Allow some leaf accumulation

Would you be in favor of implementing the economically sustainable techniques pictured on this poster?



Phase One Outcome

Hawthorn neighborhood parks are currently utilized and loved by UNA residents, children, staff, faculty and UBC students. Hawthorn park is cherished by those who live adjacent to the park, and those who visit and use the park daily. The idea behind this project is recognizing the current success of the park and asking ourselves how we can build upon these factors in an economically, socially, and environmentally sustainable manner.

Key economic findings of this phase include the cost and time spent on grass areas and leaf cleanup as well as the residents' distaste of noisy maintenance practices in the park. There is a desire to decrease grass and leaf maintenance, pruning, and our reliance on fossil fuels.

Important social conclusions include the desire for gathering areas where people are able to interact with their community, the need for spaces for older children, teenagers and adults, and the need for various cultural celebrations.

Environmental conclusions from this phase include the need to increase rainwater recycling and infiltration, enhance for habitat, and to recognize Hawthorn Park as the head of the west watershed at UBC.

Now we return to our original question: How can we make our UNA Parks more sustainable? With these key conclusions in mind and clearly identified sustainable practices, we move onto phase two: designing conceptual alternatives for Hawthorn Park. This stage will incorporate meetings with experts, stakeholders, as well as another open house to receive feedback from the community.



Phase One Community Open House in Hawthorn Park
May 12, 2010



Phase One Outcome

To increase **social sustainability**, we should increase **stewardship in the park**.

Therefore we should:

- Facilitate Community Interaction
- Include Spaces for All Ages
- Encourage Cultural Integration

To increase **environmental sustainability**, we should increase awareness of **water use and the watershed in the park**.

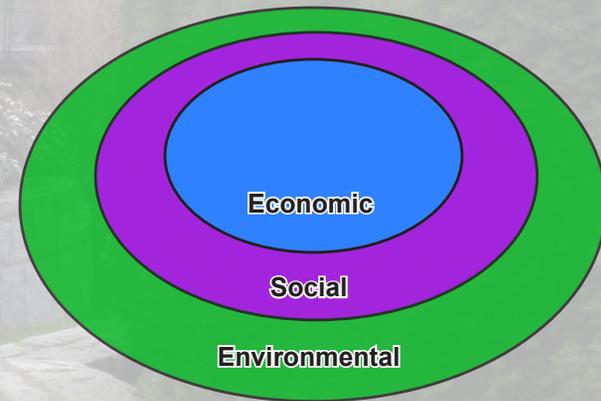
Therefore we should:

- Increase Rainwater Recycling and Infiltration
- Provide Watershed Education
- Enhance for Habitat Using Water and Vegetation

To increase **economic sustainability**, we should decrease **maintenance in the park**.

Therefore we should:

- Decrease Grass and Leaf Maintenance
- Decrease Pruning
- Decrease our Reliance on Fossil Fuels



Phase Two Introduction

Four Areas of Improvement:



Park Management



Park Reconstruction



Park Participation



Park Plantings

With the phase one outcomes in mind, four areas of improvement have been identified for Hawthorn Park. Park management, park participation, park reconstruction and park plantings should all be taken into consideration when determining appropriate sustainable changes. Both management and participation improvements can be made without significant spatial changes in the park, while reconstruction and planting changes are inherently spatial.

Three Degrees of Intervention:

- 1 - Scratch the Surface - Minimal Intervention**
- 2 - Start Digging - Moderate Intervention**
- 3 - Sustainable Reconstruction - Maximum Intervention**

Now that possible improvement areas in the UNA parks have been identified, we have built three schematic packages, each at a different scale of intervention in the landscape. With the identified four areas of improvement in mind: park management, participation, reconstruction and plantings, we have identified a social, environmental, and economic goal for each area. The minimal intervention includes ideas that scratch the surface, the moderate intervention takes the sustainable ideas one step further, and the maximum intervention is considered a sustainable reconstruction of the landscape. Each intervention has twelve ideas, three for each area of improvement. These ideas are presented with concept collages and local precedent images. These packages were brought to the UNA public, stakeholders, and experts for voting and feedback.



1 Scratch the Surface - Minimal Intervention



- A • Facilitate community events such as “Spring Weeding Day” or “Autumn Leaf Clean Up” in Hawthorn
- B • Provide educational signage which tells the story of the watershed
- C • Schedule maintenance for one day per week



- D • Provide recycle and compost receptacles in the park for UNA residents and landscape waste
- E • Interact with water on the site through features such as a hand pump and rain barrels
- F • Encourage community members to take charge of the landscape by watering, mowing, pruning, etc.



- G • Offer small group seating in strategic gathering areas for UNA residents
- H • Design and build a rain garden to increase rainwater infiltration
- I • Utilize a small storage area for maintenance equipment on site, which residents are allowed to access



- J • Plant vegetables and fruit bearing plants available to the community members
- K • Use native nut and fruit producing plants to enhance wildlife habitat
- L • Decrease high maintenance plantings such as the grass and heavily pruned shrubs



1 Scratch the Surface - Minimal Intervention



J
Wildlife Enhancing Vegetation
SE False Creek
Vancouver, BC

By planting nut and fruit bearing native vegetation, this park will welcome the already rich wildlife that exists in the neighbourhood.

http://2.bp.blogspot.com/_YROYW3ykhQ/SvDa8k-9gII/AAAAAAACW/cmz-zOVpIdBcs400/Red-RedBellyBerry2.jpg



D
Compost Corral

By utilizing green waste from UNA residences and landscape maintenance, compost will provide fertilizer for the garden beds in the park. Compost also provides important educational opportunities for children and adults.

http://www.peachygreen.com/wp-content/uploads/2010/06/2985709812_4b2478c732.jpg



E
Garden City Park
Richmond, BC

This water feature is operated by a push button feature. The stone bubbles water from it's center, over it's sides and down the stream. This is another option for a water feature in Hawthorn Park.

<http://playgrounddesigns.blogspot.com/2008/09/garden-city-park-richmond-canada.html>



K
Native Plant Garden
Victoria, BC

This Kings Road native garden enhances for wildlife, stores rainwater, offers educational brochures and is beautiful year round. It continues to serve as a demonstration garden for native plant species.

<http://www.goert.ca/news/2009/07/kings-road-native-plant-garden/>



B
Watershed Painting
Portland, OR

These drinking fountains are placed beneath a painting of the Mt. Hood Watershed in Portland. This is a beautiful reminder of where the water in the city comes from.

<http://playgrounddesigns.blogspot.com/2008/09/garden-city-park-richmond-canada.html>



H
Elementary School
Rain Garden
Portland, OR

This garden retains rainwater from an elementary school in Portland. The students are educated about native species, natural rainwater infiltration and runoff. This garden reduces stream erosion and pollution downstream.

Rebecca Colter

The minimal intervention capitalizes on sustainable ideas that would be relatively simple to implement in the park. The images to the left represent six of the techniques presented in a local context. The collage on the previous page and these images represent what these techniques may look like, although they may take many other forms. It is important to note that these images focus on the sustainable techniques which are spatial. Some of the ideas, including scheduling maintenance for one day per week are not as easily represented in a visual format. Please see all twelve sustainable techniques on the previous page.



2 Start Digging - Moderate Intervention



- A • Encourage Strata Chairs to facilitate community maintenance in Hawthorn Park
- B • Guide watershed walks from the head of the watershed to the outlet in the Strait of Georgia
- C • Schedule maintenance for one day every other week



- D • Involve community members with plant choices and implementation
- E • Support interaction between community members and wildlife on site
- F • Educate children about the benefits and operation of manual equipment



- G • Build a small covered gathering area for community members
- H • Reintroduce the original ephemeral stream to the site
- I • Use exclusively recycled materials for all built elements



- J • Provide community garden plots for UNA residents
- K • Introduce aquatic habitat to the site with water and appropriate vegetation
- L • Eliminate high maintenance plantings



2 Start Digging - Moderate Intervention



B Watershed Education

At Virginia Tech, college students learn about watershed ecosystems. Hawthorn Park is at the headwaters of the west watershed. Walks could be led from the park through the Botanical Garden and to the outlet at Trail 7.

<http://www.cals.vt.edu/news/pubs/innovations/jan2008/images/People-Stream-web.jpg>



I Permeable Paving South Campus, UBC

Permeable paving options allow rainwater to infiltrate into the soil naturally. This reduces runoff, stream erosion and pollution. Permeable paving can also reduce the heat island effect in urban areas.

Rebecca Colter



F Utilize Manual Equipment

Manual equipment costs less, reduces the negative effect on the environment and our reliance on fossil fuels. We should use manual equipment in the park and teach children how to operate them.

<http://www.earthlygarden.com/wp-content/uploads/2009/06/push-mower-basics.jpg>



J Adopt-A-Garden

Garden beds in Hawthorn park could serve periodically as adopt-a-garden plots. Children and adult volunteers could tend the gardens for a short amount of time, followed by regular maintenance schedules.

<http://www.tomatocasual.com/wp-content/uploads/community-garden-intro.jpg>



H Still Creek Enhancement Vancouver, BC

The City of Vancouver has brought sections of previously buried stream back to the surface in Still Creek. They have thickened riparian productivity and provided enhanced habitat areas.

<http://vancouver.ca/commsvcs/cityplans/stillcreek/images/channel.jpg>



K Aquatic Habitat

Many species could benefit from enhanced aquatic habitat in Hawthorn Park. Fish and frogs could be welcome visitors, especially for neighbourhood kids.

http://www.bc-creeks.org/wp-content/uploads/2007/05/06032506pd_tailed_frog.jpg

This moderate intervention scheme builds upon the previous “scratch the surface” intervention, with ideas that take sustainability one step further. Again many of these ideas are not spatial, and are not represented in the photos or collage. Please see all twelve sustainable techniques on the previous page.



3 Sustainable Reconstruction - Maximum Intervention



- (A) • Expand cultural festivals and outdoor entertainment into Hawthorn Park throughout the year
- (B) • Utilize infiltrated water from Hawthorn Neighbourhood for irrigation at the UBC Botanical Garden
- (C) • Eliminate irrigation, fertilizers and other inputs which are not produced within the park



- (D) • Design for all ages to interact with the site and with each other
- (E) • Residents utilize water storage on site for gardens
- (F) • UNA members become solely responsible for the maintenance and future developments of the park



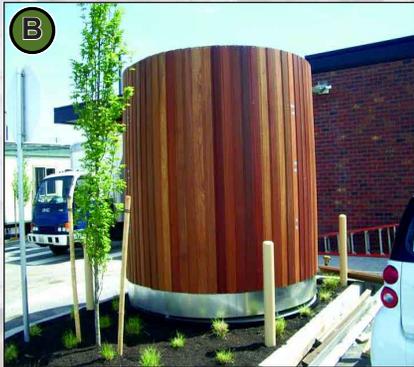
- (G) • Build a small green roof upon the maintenance shed as an educational piece
- (H) • Open up the existing stream and allow the water to collect in a small pond
- (I) • Residents assist with construction of the site



- (J) • UNA residents of all ages plant and maintain the gardens in Hawthorn Park
- (K) • Thicken the plantings adjacent to the stream to increase riparian productivity
- (L) • Exclusively use manual maintenance equipment to eliminate dependence on fossil fuels



3 Sustainable Reconstruction - Maximum Intervention



<http://technocult.net/wp-content/uploads/2010/04/rainwater-cistern.jpg>

Rainwater Storage Cistern

Above or below ground cisterns provide rainwater storage. This could be a viable method of water storage for utilization in the park and Botanical Garden.



Rebecca Colter

Pond Feature South Campus, UBC

This large water feature is located adjacent to a children's playground on south campus. This area acts as a detention pond and offers a fresh water source for wildlife.



<http://earthhome.wordpress.com/category/cob/>

Cob Garden Shed City Farmer, Vancouver

This shed was built with natural cob techniques and with a demonstration green roof. This shed offers storage, a beautiful and unique feature, and education of natural building techniques.



http://upload.wikimedia.org/wikipedia/commons/3/37/UBC_Botanical_Garden_water.jpg

UBC Botanical Garden Stream

Downstream from Hawthorn Park, the Botanical Garden stream has thick, diverse plantings along its edges. This provides for a rich riparian habitat and a wealth of wildlife.



Rebecca Colter

Interaction with the Landscape South Campus, UBC

This water feature is built without railings and is intended to be an interactive area in the landscape. People can walk through this area by using the stepping blocks placed in the water.



http://upload.wikimedia.org/wikipedia/commons/3/37/UBC_Botanical_Garden_water.jpg

Residents Assist with Planting the Park UBC Farm

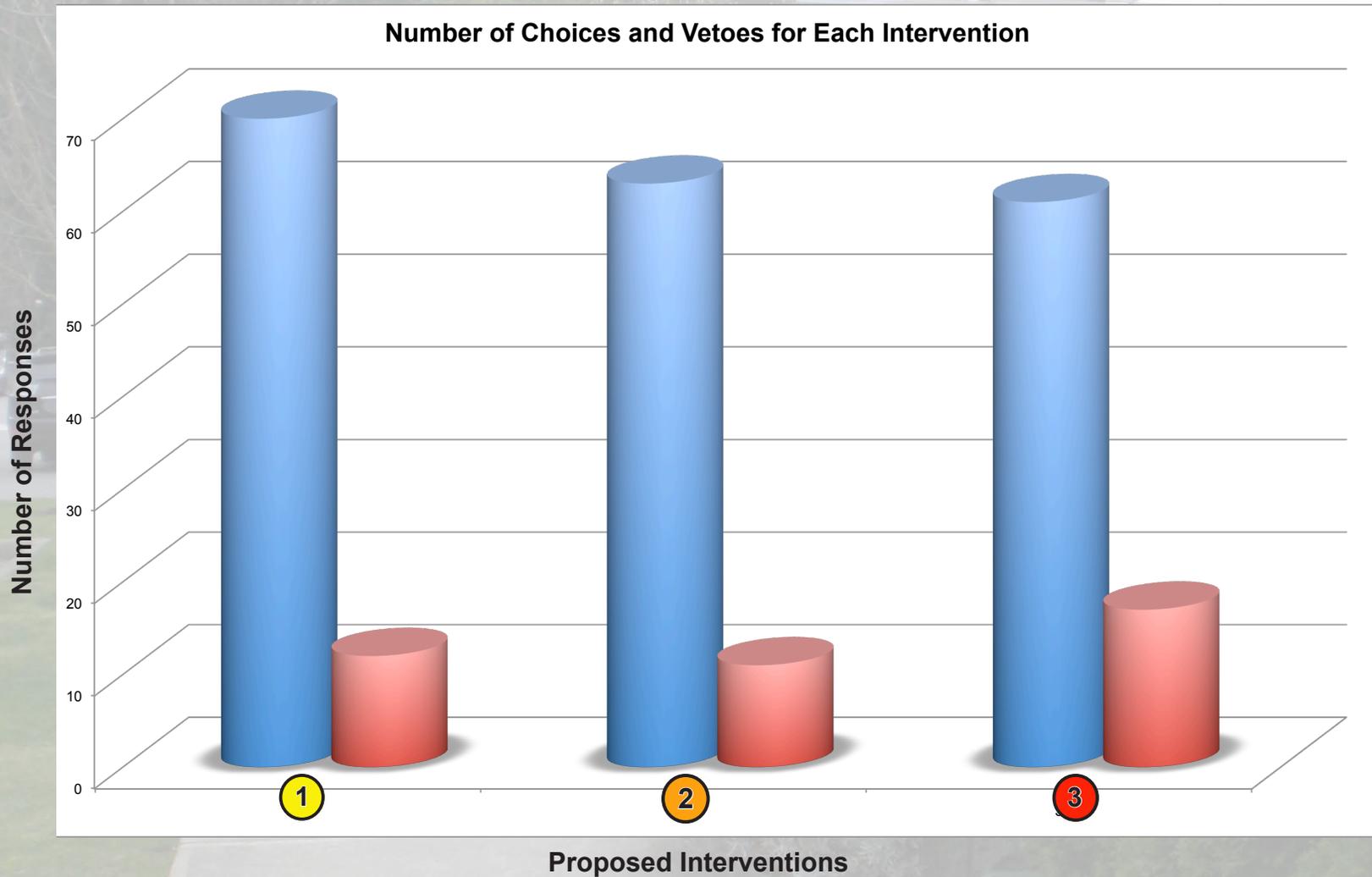
UNA residents could volunteer to plant trees or shrubs in the park. This example of stewardship encourages residents to feel a sense of pride and ownership of the park.

The sustainable reconstruction intervention is the boldest of the three, presenting twelve techniques which achieve the highest level of sustainability. Please note the examples from the south campus neighbourhood, the UBC Botanical Garden and Farm. These representations of sustainable techniques are achievable and appropriate for future UNA parks. Please see all twelve sustainable techniques on the previous page.



Feedback Results - Overview

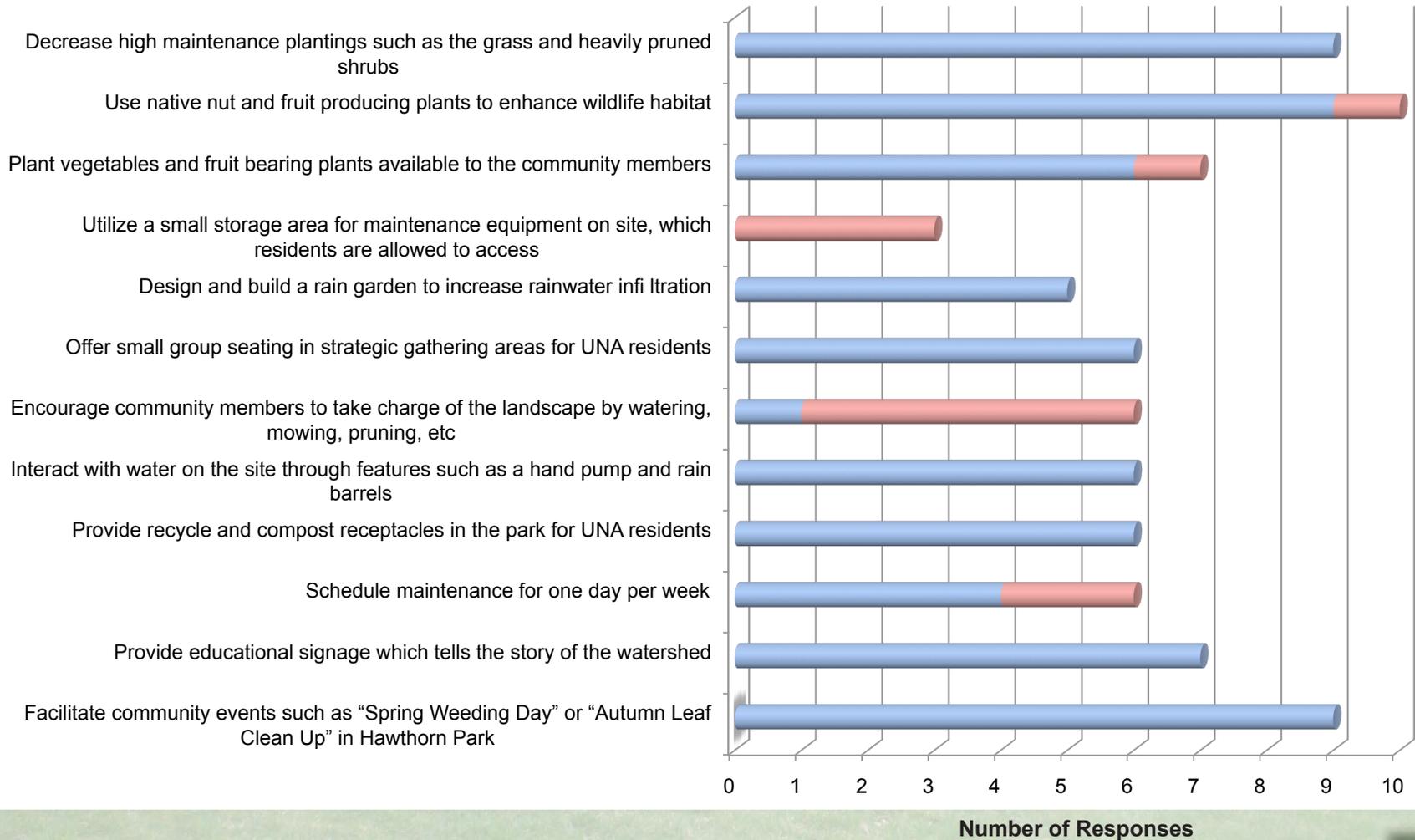
Between September and October of 2010, we surveyed the UNA residents at a second open house and invited stakeholders to a final presentation, where they chose and vetoed the proposed interventions. The results are found in the next three pages and summarized by the chart below. See appendix III for a list of complete comments.



Feedback Results - Minimal Intervention

1

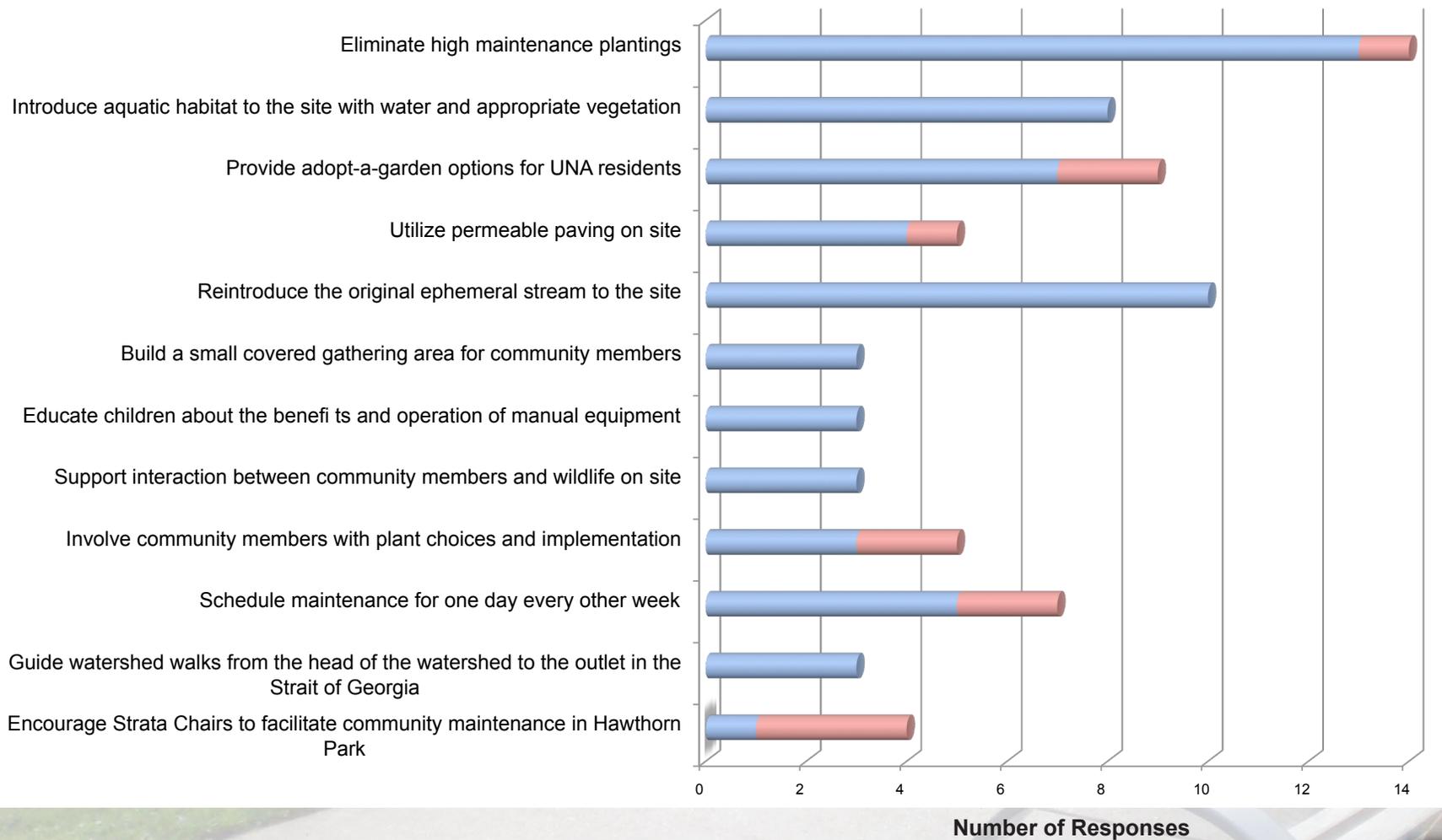
Minimal Intervention Choices and Vetoes



Feedback Results - Moderate Intervention

2

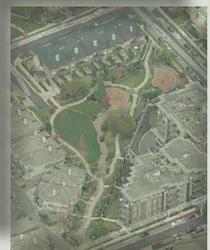
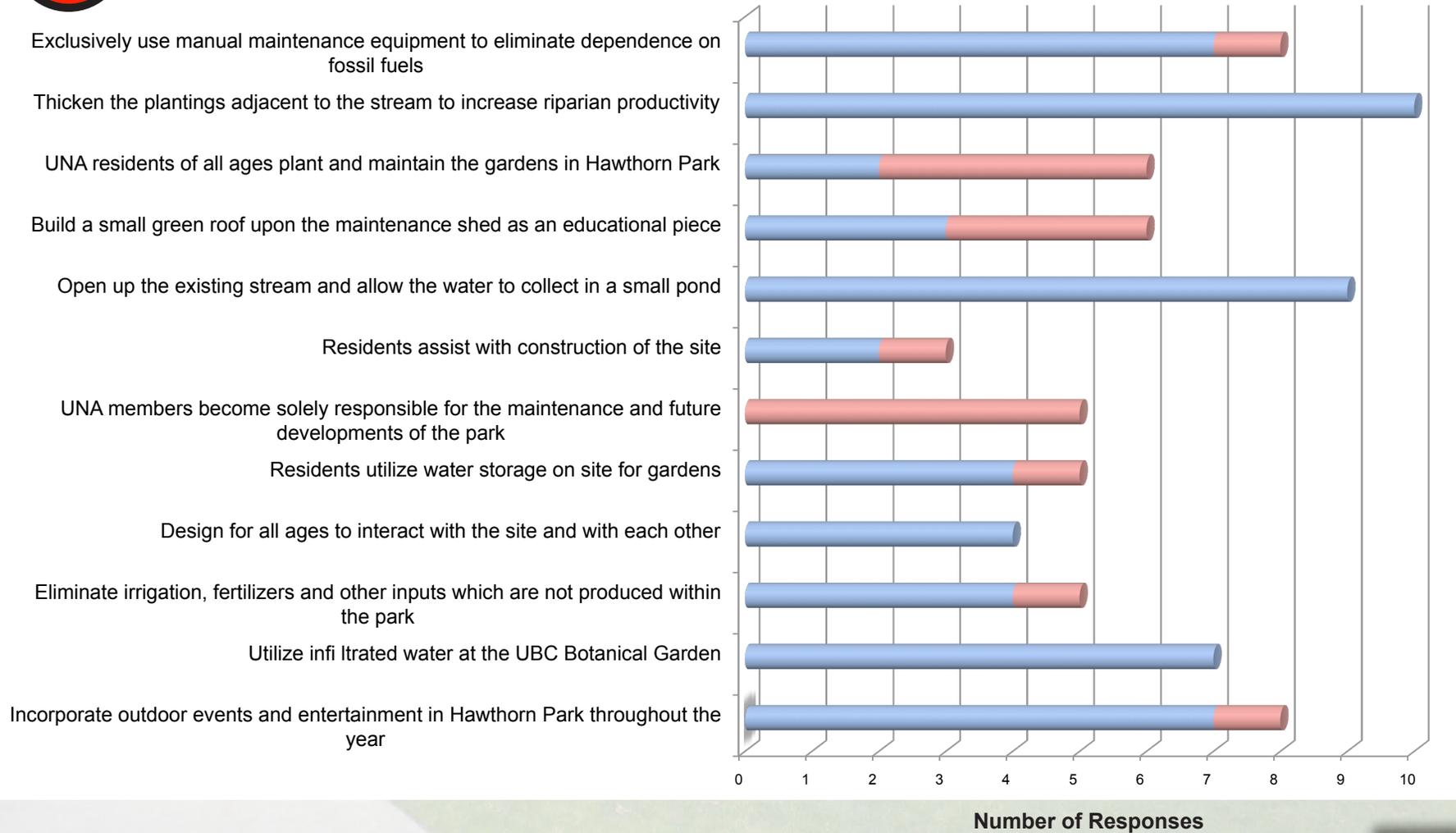
Moderate Intervention Choices and Vetoes



Feedback Results - Maximum Intervention

3

Maximum Intervention Choices and Vetoes



Phase Two Outcomes

Top Choices and Vetoes

1

1. Decrease heavily maintained plantings
2. Facilitate community events such as “spring weeding day” or “fall leaf cleanup”
3. Offer educational signage that tells the story of the watershed

Veto: Encourage community members to take charge of the landscape by watering, mowing, pruning, etc.

2

1. Eliminate high maintenance plantings
2. Reintroduce the original ephemeral stream to the site
3. Introduce aquatic habitat with water and appropriate vegetation

Veto: Encourage strata chairs to facilitate community maintenance in Hawthorn Park

3

1. Thicken the plantings adjacent to the stream to increase riparian productivity
2. Open up the existing stream and allow the water to collect in a small pond
3. Utilize infiltrated water at the UBC Botanical Garden

Veto: UNA members become solely responsible for the maintenance in Hawthorn Park

Conclusions

With the response from UNA residents and experts, top choices and vetoes for sustainable techniques in the park have been identified. Although community stewardship in the park was one of the preliminary objectives, the top vetoes were all associated with community member maintenance. In the comments from the community members, we know that most people move into this neighbourhood with the understanding that professionals will take care of the landscape, so they do not want to take on this responsibility and commitment.

The chosen techniques were largely related to water and vegetation changes in the landscape. Reducing or eliminating the high maintenance plantings, reintroducing the original ephemeral stream to the site, and utilizing the infiltrated water in the UBC Botanical Garden were identified as choices. These changes could be incremental, beginning with the community event days, planting replacements, and educational signage about the watershed. Appropriately qualified professionals should be consulted in regards to the reintroduction of water in Hawthorn Park. Intelligent design must be considered to avoid the original problems with the stream in the park. These sustainable methods must be aesthetically acceptable as well, as the residents here value the beautiful landscapes of the UNA neighbourhoods.



Recommendations

Hawthorn park is first and foremost, a place for people. Social sustainability is the top priority, which includes beauty, safety, community interactions, property values, and a sense of well being. With this in mind, we need to scale our recommendations for sustainable interventions in the park. Incremental change, that all residents are aware of is key to this process. Here is a list of recommendations, to inform future plans for UNA neighbourhood parks.

Minimal Intervention Recommendations

- Encourage various community events such as:
 - ~ Fall leaf cleanup
 - ~ Spring weeding day
 - ~ Guided watershed walk from Hawthorn Park through the Botanical Garden
 - ~ Guided “Sustainable Features” walk through the UNA and UBC campus
- Experiment with different turf treatments in small grassy areas (less or no mowing, manually maintained, etc.)
- Design educational watershed signs

Moderate Intervention Recommendations

- Replace highly maintained shrubs with native species which are beautiful, encourage habitat and have lower maintenance regimes
- Find an appropriate water feature for the park, such as a hand operated pump
- Encourage use of rain barrels in the neighbourhood
- Allow rainwater to collect in the existing swale

Maximum Intervention Recommendations

- Reconfigure the stream bed to collect water and possibly introduce aquatic habitat
- Thicken the plantings adjacent to the stream
- Test out turf alternatives in larger areas
- Utilize infiltrated water in the Botanical Garden

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- Polese, Mario and Stren, Richard. 2000. *The Social Sustainability of Cities*. The University of Toronto Press.
- United Nations. 1987. *Brundtland Commission*. Oxford University Press.



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And thank you to all of the UNA residents and stakeholders who
participated in the open houses and workshops.

Please see appendix IV for a complete list of workshop participants.



Appendix I - Phase One Stakeholder Workshop

On May 4, 2010, several experts and stakeholders gathered for a brief presentation regarding this project. The following is the feedback we received:

Economic Issues and Recommendations

- Can we designate a dollar value to birds, fish, water, social aspects, etc?
- Consider the high rate of turnover of homes
- Consider trade-offs of economic incentives

Social Issues and Recommendations

- First and foremost we are creating habitat for people
- Have respect for the strata chairs and work with them
- Encourage community stewardship and ownership, facilitate opportunities such as “leaf collection day”
- Consider building a website or facebook profile
- Encourage long term involvement
- Lack of space for adults and teenagers – need quiet gathering areas
- Residents are frustrated with noise of maintenance
- Grass = noise on sunny days
- All strata need to agree on one day for maintenance, takes at least one year to plan this agreement – encourage now
- Does Hawthorn need to be all things to all people? How can we make the best use of the space?
- Helpful to attend strata chair meetings to discuss project

Environmental Issues and Recommendations

- Tell the story of the watershed
- Bring children, habitat and water together
- How can we best represent the story of the headwaters? Park users should be conscious of the watershed
- South campus looking to open up streams, make swale more effective

Spatial Recommendations

- How can we make more sophisticated decisions about land use type, arrangement, and maintenance?
- Create strong edges and entrances, sense of arrival
- How can each element, at all scales, contribute to the sustainability of the park?

Further Recommended Research

- Use City of Vancouver Green Streets initiative as precedent
- Need more information regarding social uses and needs; how is it currently functioning? How do we measure this? Possibly reach out to SEEDS to see if individuals or classes will take this on
- Opportunities for relationship with campus, utilize students and resources
- Look carefully at landscape management contracts – why and when is pruning, blowing, mowing happening?
 - Reference standards from GVRD guidelines for landscape maintenance, water and habitat
 - Reference ladybird, ASLA as well
- 3 scales of intervention: management, elements of landscape (irrigation, plants, etc.), systematic interventions (watershed, etc.)
- Unlock future scenarios with survey
- Consider changes in Jim Everett Park as precedent

Why has Hawthorn Park been chosen?

- Available Park space unlike Hampton or Chancellor
- South Campus is still in development stage
- Located at headwaters of watershed
- Connection with the Botanical Garden



Appendix II - Phase One Open House Comments

On May 12, 2010, an open house in Hawthorn Park was held to receive feedback from the community. In addition, the information was uploaded online and included a survey for additional comments. The following is the feedback we received.

Which economically sustainable techniques are you in favor of?

- Maintain less often *****
- Grass alternatives in appropriate areas **
- Utilize compost *
- Proactively work with landscapers for new plantings (low maintenance, drought proof, slow growers – no giants)
- Manual equipment
- Community garden **
- Allow some leaves *
- Fundraising supporting local community sports/arts/parks
- Partner with local junior and senior high schools or clubs to involve teenagers in economic sustainability projects. Engage the age group and empower them to make a difference and earn pride in their project and community
- Solar Lighting
- Leaf Collection Day
- Weed Education
- Use Native Plants
- Encourage Stewardship
- Increase Water Infiltration

Do you have any other economic suggestions for improving sustainability in the park?

- We need to make sure everyone is understanding “sustainability” in the same way
- Community spring weeding day
- Adopt a garden
- Add a few benches here and there so social discourse might have an opportunity to happen, otherwise it is still not people friendly. People do not sit on grass. In Vancouver it is usually too wet to do that and there are only a couple of weeks in mid summer when this is possible

Which socially sustainable techniques are you in favor of?

- Eliminate gas powered equipment for peace and quiet *****
- Think about creating features that act as focal points for people to run into their neighbours – fire pit
- Respect cultural differences, involve more residents
- Outdoor entertainment *
- Gathering areas *
- Beach volleyball or badminton
- Support local sports teams for kids in the community
- Fundraising for teams and the park
- Fountain for children to play in from the rain garden supply
- Host fair trade day for community to share and exchange goods/clothes in park area *
- Play Areas
- Community Garden
- Leaf Collection Day

Do you have any other social suggestions to make our parks more sustainable?

- Put in a garbage can
- Skate board area – not in center, but needed
- More community gardens
- Picnic tables
- Provide fenced, off-leash dog areas
- Allow ground level units more access to parks, people should be using these spaces as if they were their own backyards. Allow barbeques, bikes and lawn chairs
- The parks need more recreational facilities, like tennis or volleyball courts



Appendix II - Phase One Open House Comments

Which environmentally sustainable techniques are you in favor of?

- Enhance habitat ***
- Increase stratification (especially southeast corner)
- No gas powered equipment, decrease fossil fuel dependence ***
- Include nut, fruit bearing trees
- Involve children with feeders and nesting boxes
- Encourage native vegetation *
- Include kiwi vines over arbors at entrances to the park
- Rain Garden *
- Educational compost area for children
- Biodegradable doggie bags and compost receptacles **
- Green Roof
- Increase organic matter
- Utilize permeable paving
- Aquifer recharge
- Allow leaf accumulation *
- Use solar lighting

Do you have other environmental suggestions to make our parks more sustainable?

- No leaf blowers ***
- Install recycling bins in parks
- Public education to encourage the public to learn exotic species and take initiatives to remove them
- Less lawn or lawn made of hardier grasses. Parks here do not have to look like an Arizona golf course.
- All this green grass around UBC could be replaced with native species which do not need water, do not need cutting with noisy gas driven polluting machines and which would provide habitat for local species
- Allow our parks to be cared for by the community: more access, more ownership, more responsibility. Let stuff get wild. Things look better that way



Appendix III - Phase Two Comments

September 30th UNA Residents Open House Comments

- Hawthorn Park is **beautiful** and I wouldn't want to sacrifice that
- We should increase manual maintenance equipment
- Grass has many benefits: restful, great to gather on, etc.
- UNA needs to work with campus planning so when buildings are built and landscaped, plantings are going to require low-moderate maintenance
- There are issues of inappropriate plantings, especially poor tree choices adjacent to the buildings
- I particularly like the idea of having more **natural, native plants** and an edible landscape
- Yes to **utilizing rainwater** captured in our neighbourhood
- Yes to more native plants, shrubs, less grass
- Yes to involving the residents in adopt-a-garden options
- Consider not collecting grass clippings
- Keep the maintenance in professional, accountable hands
- Veto all maximum intervention techniques

October 25th UNA Stakeholder Workshop Comments

- Overall primary concern from residents is participation in decision making
- Primary considerations: threats to **safety** and/or **appearance**
- Need demographic description of each strata to properly advertise community events
- Many residents choose this type of living because of the inherent maintenance management
- Residents cannot commit to maintenance on a regular basis
- Could take baby steps towards sustainability, need opportunities for small events
- The progress and support of this project is encouraging
- Should see these parks as living labs to test these techniques
- Lawns are great for many reasons (cooling, beautiful) but require enormous inputs to maintain short, green, velvety look
- There are no simple solutions for high maintenance plantings
- May need to change species of turf to facilitate lower water inputs

- Bare soil areas are an issue, especially in this wet climate
- Turfgrass looks great with minimal efforts – try it! Flowers, bees, and other forms of wildlife will return, costs will be cut and the landscape will still look great
- Either limit lawn areas, use manual equipment, or maintain much less often
- Need to **connect people to habitat**
- Hawthorn cutting lawn more often to fight broadleaf weeds
- Need thorough understanding of management practices and educate people more effectively
- Native trees and shrubs are most sustainable plants
- People tend to like flowers which are usually perennials
- Perhaps people want color more than flowers? Color can be achieved with trees and shrubs
- Look at south campus for longer grass examples
- About 20% of the budget is currently spent on landscape practices
- Small strange bits of grass around that could be replaced
- Need more concrete visuals of what Hawthorn will look like with these practices
- Should do walk-about to see sustainable element examples
- Highly maintained landscapes give the impression that this is a nice area, which encourages high property values
- Community gardens were discouraged by some, and now they are beautiful and well used
- Overall most important goal: passing on biodiversity to our children
- Need sense of place
- **Let's be remarkable** to the campus and to the world
- We are interested in doing things that are **important and wonderful**
- Need scaled strategies with trajectories



Appendix IV - List of Participants

First Stakeholder Workshop Participants

Teri Arcand UNA Resident
Mike Feeley UNA Resident and Board Member
Erica Frank UNA Resident and Board Member
Cynthia Girling UBC SALA Faculty
David Grigg UBC Campus and Community Planning
Ronald Kellett UBC SALA Faculty
Nancy Mann UBCPT
Linda Moore UNA Resident
Rob Wood UBCPT
Paul Young UBCPT

Second Stakeholder Workshop Participants

Jack Eadie UNA Resident
Susan Eadie UNA Resident
Erica Frank UNA Resident and Board Member
Heather Friesen UNA Resident
David Grigg UBC Campus and Community Planning
Douglas Justice UBC Botanical Gardens
Ronald Kellett SALA Faculty
Colleen Landels UNA Resident
Mankee Mah UNA Resident
Patrick Moore UNA Resident
Jack Wood UNA Resident
Rob Wood UBCPT
Paul Young UBCPT

