Symbiotic Urban Parks: Exploring Design Aesthetics, User Experiences and Ecological Services

by

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SYMBIOTIC URBAN PARKS: EXPLORING DESIGN AESTHETICS, USER EXPERIENCES AND ECOLOGICAL SERVICES

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University of Guelph, 2015

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Increasing ecological awareness and the availability of green technologies are transforming the contemporary urban park landscape. This research explored new design innovations that incorporate ecology to create new values and experiences of urban parks. A literature review helped to understand the design evolution of urban parks. The High Line and Brooklyn Bridge Park located in New York City were selected as case study sites to analyze their approach to design and innovation, and questionnaires were conducted to further understand visitors’ experiences, behaviours and expectations. Interviews were conducted with four key informant landscape architects to identify the demands, challenges, and approaches to public green space design. The findings revealed that programming variety and connectivity, free-flowing design aesthetics, and designed wildness for biodiversity were key relationships for creating resilient and high performance green spaces. Future research could include measuring the performance of park ecology, resource metabolism, and park maintenance strategies.
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Chapter 1 – Introduction

Introduction

The Merriam-Webster dictionary defines “symbiosis” (adj. symbiotic) in the biology context as the relationship between two different kinds of living things that live together and depend on each other. Symbiosis in Landscape Architecture and in the context of this exploratory research is defined as the mutually beneficial relationship among the designed landscape, urban nature and user groups. In the spirit of this symbiotic relationship, the three different factors mutually challenge, reinforce and reinvent their roles in the designed landscape within the boundaries of urban infrastructures.

In recent years, there has been keen interest and investment made in designing and constructing new urban parks and sustainable infrastructures for cities around the world. It is believed that parks and open spaces in general bring significant value, distinction and amenity to the city, enhancing both the environmental and social aspects of urban life (Green, 2009), especially in response to contemporary trends of global densification of cities.

The 21st Century urban parks assume a broader diversity of programs, design forms, characteristics, values, sustainable goals, design approaches and ideologies, and provide new levels of experience and place-making qualities for the community (Swaffield, 2002). Urban densification and population diversification present many opportunities and difficulties for imagining and planning inclusive and multifunctional parks, where the availability of space is limited. Such opportunities and difficulties raise important questions for landscape architects about the current and future directions in urban park planning, design and implementation.

Contemporary landscape architecture seeks to recover and re-establish a “symbiotic relationship” between human processes and natural processes of the landscape, while providing
the facilities to accommodate social and cultural manifestations of the community and ecology in the urban park landscape (Corner, 1999).

**Research Purpose**

The term “symbiotic” is used in this research to describe the harmonious and productive relationship among the design elements, human interactions and the biodiversity of plants and wildlife that inhabit the urban environment. The scope of the exploratory research investigated the contemporary design approaches to urban park design and attempted to create a definition for symbiotic urban parks and what the underlying ideology might encompass. This exploratory research attempted to answer three significant questions:

I. Does design influence the concept of symbiotic urban parks? What is the concept?

II. Are there important user experiences and expectations? What are these?

III. Does urban ecology influence the final design? How?

The results will inform a better understanding of the direction of contemporary urban parks design in their delivery of better user experience and greater ecological benefits for local biodiversity. Furthermore, the results will be synthesized into a set of considerations for addressing the role of urban parks as green infrastructure for the city and to build a more sustainable and symbiotic city of tomorrow.

**Research Design**

As an exploratory investigation, this research follows a qualitative approach to analyze the contemporary trends concerning urban park design and the challenges to create better user experiences and sustainable natural habitats for local biodiversity.

Following a comprehensive literature review to familiarize with the design evolution and usage of urban parks, the methods used to answer the research questions included: i) selected case study of two sites, ii) user experience survey of visitors to the selected case study sites,
and iii) key informant interviews. These approaches are further discussed in the research methods section. Methodological triangulation – using multiple sources to gather data that are mutually reinforcing – of the results from the case studies, survey and interviews can provide greater insight concerning urban park design (Deming & Swaffield, 2011), and the results could inform the idea of symbiotic urban parks. The conclusion of this investigation addresses the design considerations for symbiotic urban parks, the limitations of this study and areas for future research.
Chapter 2 – Literature Review

Park History, Typology and Ideologies

Park development is shown to have a history of its own which has been shaped by visionary individuals such as the nineteenth century landscape architect Frederick Law Olmsted, who envisioned public parks as sites with a pastoral harmony and open to everyone (Beveridge et al., 1995). Citizens from the nineteenth century perceived parks as refuge and safe havens from crowded cities, which were considered dangerous, unsafe and unhealthy places to live (Beveridge et al., 1995; Cranz and Boland, 2004). In contradiction, ongoing patterns of global urbanization made cities prosperous and sustainable places to live and work, while parks remained a vital component for enhancing livability and quality of life in cities (Chiesura, 2004).

In the nineteenth century, a landscape was still, more or less, an ideal place. By the twentieth century, it had become a designed product through the shaping of topography, vegetation aesthetics and diversity, and natural processes of the land, thus transforming and repurposing meanings for the landscape (Swaffield, 2002). The advance of scientific functionalism during the later twentieth century influenced architects and other designers to view design as an avenue for problem solving, hence the "form follows function" slogan of Modernism (Hunt, 1992; Langhorst, 2014). Post-Modernism was an expressive movement to return to artistic expressions of design and reconnect with the human element in the designed environments and landscapes (Langhorst, 2014). There are greater challenges facing the twenty-first century due to the effects of climate change, urban densification and finite resources.

A study of urban parks (Cranz, 1982) described four different types: the Pleasure Ground, the Reform Park, the Recreation Facility and the Open System. While later, Cranz and Boland (2004) defined a fifth typology of urban parks, the Sustainable Park. These different types of parks exhibited different design styles and created in response to the different social concerns, recreation needs and objectives at the times (Table 2-1).
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Social Goal</strong></td>
<td>Public health &amp; social reform</td>
<td>Social reform; children's play; assimilation</td>
<td>Recreation service</td>
<td>Participation; revitalize city; stop riots</td>
<td>Human health; ecological health</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td>Strolling, carriage racing, bike riding, picnics, rowing, classical music, non-didactic education</td>
<td>Supervised play, gymnastics, crafts, Americanization classes, dancing, &amp; pageants</td>
<td>Active recreation: basketball, tennis, team sports, spectator plays sports, swimming</td>
<td>Psychic relief, free-form play, pop music, participatory arts</td>
<td>Strolling, hiking, biking, passive &amp; active recreation, bird watching, education, stewardship</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>Very Large, 1000+ acres</td>
<td>Small, city blocks</td>
<td>Small to medium, follow formulae</td>
<td>Varied, often small, irregular sites</td>
<td>Varied, emphasis on corridors</td>
</tr>
<tr>
<td><strong>Relation to City</strong></td>
<td>Set in contrast</td>
<td>Accepts urban patterns Suburban</td>
<td>City is a work of art; network</td>
<td>Art-nature continuum; part of larger urban system; model for others</td>
<td></td>
</tr>
<tr>
<td><strong>Order</strong></td>
<td>Curvilinear</td>
<td>Rectilinear</td>
<td>Rectilinear</td>
<td>Both</td>
<td>Evolutionary aesthetics</td>
</tr>
<tr>
<td><strong>Elements</strong></td>
<td>Woodland &amp; meadows, curving paths, placid water bodies, rustic structures, limited floral displays</td>
<td>Sandlots, playgrounds, rectilinear paths, swimming pools, field houses</td>
<td>Asphalt or grass play area, pools, rectilinear paths, standard play equipment</td>
<td>Trees, grass, shrubs, curving &amp; rectilinear paths, water features for view, free-form play equipment</td>
<td>Native plants, permeable surfaces, ecological restoration green infrastructure, resource self-sufficiency</td>
</tr>
<tr>
<td><strong>Promoters</strong></td>
<td>Health reformers, transcendentalists, real estate interests</td>
<td>Social reformers, social workers, recreation workers</td>
<td>Politicians, bureaucrats, planners</td>
<td>Politicians, environmentalists, artists, designers</td>
<td>Environmentalists, local communities, volunteer groups, landscape architects</td>
</tr>
<tr>
<td><strong>Beneficiaries</strong></td>
<td>All city dwellers (intended), upper middle class (reality)</td>
<td>Children, immigrants, working class</td>
<td>Suburban families</td>
<td>Residents, workers, poor urban youth, middle class</td>
<td>Residents, wildlife, cities, planet</td>
</tr>
</tbody>
</table>
Hunt (1992) found the works in landscape architecture, up to 1990, presented three main common themes: i) “concerns how we process the so-called natural or physical world for our consumption”, ii) “addresses gardens as an art of milieu – how gardens, where humans exercise control over space and nature, become the most eloquent expressions of complex cultural ideas”, and iii) “invokes the notion of cultural translation” (p3). Hunt’s three themes could be reinterpreted as suggestions for landscape architects to better suit current concerns and challenges in landscape architecture as the following:

i. Designs respond to natural patterns and processes of the land

ii. Designs respond to human patterns and uses

iii. Designs innovate new avenues to communicate meaning and place-making

Similarly, Corner (1999) pointed out three phenomena of great importance and influence for the contemporary practice of landscape architecture:

i. The specificity of site to inform design approach

ii. The importance of ecology on the designed environment

iii. Deindustrialization and its implications for landscape architecture

Hunt and Corner both integrate the importance of contextual approach and ecology to the design of urban parks for the enjoyment of the people and for promoting and fostering a healthier biodiversity in the designed environment. Corner also mentions that the trend of deindustrialization presents exciting opportunities for landscape architecture to create new typologies of green spaces for both natural and human processes. Similarly, Hunt and Corner’s design considerations and/or departure points are in line with Green’s (2009) summary of the main concerns and opportunities for contemporary landscape architecture including post-industrial landscape renewal, design for people and wildlife, the relationship between city and park, and the role of community participation in design, which is important in determining the needs of the citizens to inform the design outcomes.
The Symbiotic Cities Network (2012) is a not-for-profit open network of urban planners, architects, engineers, ecologists and economists with a mission to explore innovative ideas and projects to help the human species to transition from the role of parasitic relationship with the planet towards a role of symbiotic relationship with the living environment. The symbiotic cities network identified nine important transformations to help current cities transition into symbiotic cities: (1) Zero-carbon energy economy, (2) Ecosystem services infrastructure, (3) High-density planning, (4) Regenerative building fabric, (5) Urban food production, (6) Infinite water recycling, (7) Infinite material recycling, (8) Zero-carbon mobility, and (9) Economic transformation.

Through these nine transformations, urban parks have been identified to play an important role to support and help achieve many of these transformations, thus making urban parks’ roles to be more symbiotic with the surrounding environment, biodiversity, infrastructure development and human processes on the landscape.

Corner (2014) says that “design innovation” (p319) is not a clearly defined nor clearly understood term which creates further difficulty, with today’s challenges of budgets, regulations and client demands, in the contemporary practice of landscape architecture. However, everyone is looking for it everywhere. In order to achieve design innovation, Corner advises a strategy for professional practice to pay closer examination to three important aspects: i) experimentation and delivery, ii) public engagement and legibility, and iii) collaboration and disciplinarity. These three important aspects could inform the synthesis of outstanding design outcomes.

The abovementioned series of design considerations provide a foundation for the exploration and experimentation with new ideas and for thinking outside the box to deliver an innovative system of thinking, conceptualizing and visualizing symbiotic urban parks.

Urbanization and Urban Parks

Historically, parks were created for aesthetic pleasure that favoured savanna-like environments (Cranz, 1982; Parsons & Daniel, 2002; Cranz and Boland, 2004). In contemporary
times, the aesthetics and functions of parks have evolved, but basic principles of framing scenic elements and experiences in their design and composition remain (Swaffield, 2002). Recreation and contemplation of the landscape remain central to park values today. However, the presence of other values, for example community participation and identity, make parks more complex spaces to design and manage, this often creates a tension between preservation of spaces (biodiverse areas) and the demands for new uses by today’s users (Low et al., 2009).

Increasing city densification challenges urban park development (Van den Berg et al., 2007). In developing countries, where the pressure from population growth is far more intensive, global urbanization and densification processes result in residents with unequal and deficient access to urban green space and to the environmental and social benefits that such green spaces provide (Kabisch et al., 2015). Fuller and Gaston (2009) observed a drop in per capita urban green space in relation to human population increase. According to Low et al. (2009), the availability and access to urban public spaces is decreasing because of three factors: (1) deliberate programs to reduce the number of “undesirables”(p1) – informal uses of the park that might result in perceived unsafe activities, (2) the increased privatization and commercialization of park management, and (3) increased surveillance and other security measures. As a result, the social viability and vibrancy of urban parks is threatened by patterns of design and management that have reduced social and cultural diversity in parks.

Industrialized cities have been trying for a long period of time to integrate sustainable, ecological, social, and economic dimensions in all fields of urban development and rehabilitation to improve livability and quality of life in cities (Bunce, 2009; Haase et al., 2010). Among these dimensions, the development and revitalization of urban parks has played an important role (Szulczewska et al., 2014) in conceptualizing and planning the sustainable cities of the future. It is understood that developing more sustainable cities is not just about improving the abiotic and biotic aspects of urban life, it is also about the social aspects of city life that concerns people’s satisfaction, experiences and perceptions of the quality of their everyday environments.
The relationship between urban parks and city sustainability is important. Urban parks provide many benefits to sustainable developments, including: economic benefits such as increased real estate prices because of proximal green spaces (Jim and Chen, 2006); environmental benefits with the promotion of biodiversity (Fuller et al., 2007); and social benefits such as supporting social interaction and integration of diverse population groups for fostering strong and resilient urban livelihoods (Chiesura, 2004). Planners, designers and policy makers around the world understand the benefits of urban parks, but implementing this knowledge remains difficult as urban densification could create compact urban living that compromises people’s needs for access to green spaces (Van den Berg et al., 2007; Breuste et al., 2013).

Amenities, Programming and User Experience in Urban Parks

Urban parks, as important public open spaces and multifunctional places, can be used for wide ranges of activities. Urban parks are domains for both active and passive recreation facilities and providers of intimate, social, historical and magical design experiences for urbanized societies and urban dwellers (Chiesura, 2004; Matsuoka & Kaplan, 2008). Goličnik and Thompson (2010) argue that spatial characteristics and relationships of urban park spaces have great influence on the usage levels of the spaces. Whyte (1980) explains that the usage–spatial relationship is referred to the forms and occupancies; the various design forms in the parks setting and public spaces might be used differently, in combination with their formal or intended uses, by users according to their spatial configuration and location.

According to affordance theory, Gibson (1979) suggests that peoples’ preferences for the environment depends on its ability to provide more than activity for them. The theory discloses that people perceive environments not only in terms of object shapes and spatial relationships, but also in terms of object possibilities for action – what they can make of it or do with it. For instance, people experience parks in general by walking or sitting, relaxing, enjoying the plants,
trees and wildlife around them, and observing the social interactions in the different spaces (Conway, 2000; Peters et. al, 2010), thus the park environment needs to provide suitable surfaces and volumes first, then amenities, facilities and circulation to encourage such usage of the spaces. The needs to experience nature and to escape from the stressful rhythm of the city also constitute important reasons for people to visit parks (Chiesura, 2004; Gobster, 2001; Matsuoka & Kaplan, 2008).

Giles-Corti et al. (2005) found the following factors influence the use of public green space: quality and quantity of spaces, user socio-demographic characteristics, access to diverse facilities, ability for amenities to match user needs, maintenance, and perceived safety. These factors constitute a solid foundation for the design and development of well-used parks.

Parks are appreciated and used differently due to people’s diversity of experiencing and sensing space; therefore, parks can potentially serve as spaces to diversify and better inform people’s perceptions of ‘ecological experience’ in cities (Buchel and Frantzeskaki, 2014). The needs result in programming the space beyond simple function, but a holistic approach that considers ecology and human uses to find sensible solutions. It is important to think about design solutions not only in terms of accessibility and welcoming spaces, but also think about the intricacies of choreography of spaces that are connected and multifunctional to be able to accommodate the needs of diverse user groups of urban parks (Giles-Corti et al., 2005; Peters et al., 2010). The integration of cultural diversity in parks leads to community empowerment, expanded social responsibility, and the involvement of people in the governance and maintenance of their neighbourhoods and workplaces (Low et al., 2009).

**Sustainability, Ecology and Biodiversity in Urban Parks**

Infrastructure sustainability is critical to more sustainable cities. Urban green spaces in general can increase the sustainability and resilience of a city to climate change events and the effects of pollution (Ernstson et al., 2010).
Urban parks are well understood to provide important environmental services such as air and water purification, and social services such as community engagement and psychological services such as stress relief, which are of crucial significance for the quality of life in cities and the well being of urban dwellers (Chiesura, 2004; Jim and Chen, 2006). Environmental and psychological benefits of parks can be further enhanced with the promotion of urban wildlife and plant biodiversity (Fuller et al., 2007; Van den Berg et al., 2007).

The use of native plants has a significant contribution to maintaining the present and securing the future of biodiversity in urban parks. Known benefits of using native plants in landscape design include: reduce maintenance and cost; increase resilient to climate change; promotion of local and regional biodiversity and provision of habitats for wildlife (Meadows et al., 2012). The importance of increased biodiversity preservation (Castelló et al., 2010) further increases the use of native plants in parks.

Sustainability embodies the proper management of resources on site (Jim and Chen, 2006). The design aesthetics, recreational values and cultural significance of well-maintained urban parks increase the attractiveness of the city, increase property values and promote local tourism, and thus increasing employment and revenues for the city and park maintenance (Luttik, 2000).

Furthermore, the sustainability of urban parks is also about fostering a strong and inclusive character for the space by encouraging residents to take on a more active role in the design and stewardship of their environment (Matsuoka & Kaplan, 2008; Peters et al., 2010). Nassauer (1997) indicated that “landscapes that attract the admiring attention of human beings may be more likely to survive than landscapes that do not attract care or admiration” (p69). Landscape architects, stakeholders and community groups can build a strong foundation to sustain natural processes, functions and maintenance regimes in urban parks, where political, financial, and other unforeseen forces have an important role in shaping the qualities of the spaces, but only if they are cared for and protected by people.
Summary

Urban parks are destinations for visitors for recreation, whether passive or active; for community engagement and participation, and improve the overall quality of life in cities. The quality, spatial configuration and effective management of the spaces are linked to the success and vibrancy of the park (Project for Public Spaces, 2012). The pressures of urbanization, diversification of cultural groups in cites and the current environmental concerns make urban parks important platforms for providing and sustaining the diversity of cultural interactions, biodiversity and health of cities. The idea of urban parks for contemporary practice has evolved to address concerns of integrating ecology and human needs into the designed spaces not merely for recreation opportunities, but for biodiversity as well. However, the strategies still need further exploration.
Chapter 3 – Research Methods

This chapter outlines the three methods used for this exploratory research. The research process has been designed to aid in the collection of information related to design aesthetics, user experiences and ecological services of urban parks to answer the three research questions. Results of the research process will inform the ideas of what symbiotic urban parks could be. Figure 3-1 shows the methodological outline, research methods and workflow for this research investigation.

![Methodological Outline Diagram]

Figure 3-1 Methodological Outline
Case Study Approach

The purpose of the case study approach was to find new design approaches, opportunities and innovative solutions resulting in parks that are considered to be ecologically diverse, sustainable and richer in user experience.

The case study approach is a commonly used research method among various social science disciplines and professions, ranging from psychology, sociology, political science, and anthropology (Yin, 2014). According to Deming & Swaffield (2011), the case study approach is appropriate in landscape architecture because of the complex phenomenon that is landscape, a mixture of social and biophysical relationships. Case studies in landscape architecture are used to “describe and/or evaluate a project or process” (Francis, 1999, p9), and to explore (in the context of this exploratory research) existing and new thoughts, design approaches, ideas and imagination for the direction of urban park design.

Site Selection Criteria

The case study sites were selected based on a set of seven pre-determined criteria informed by the literature review. These criteria helped to select relevant projects to inform answers for the research questions:

i. The site is located in city centres
ii. The site is constructed in the 21st Century to explore current design approaches
iii. The site is designed by influential, reputable and award-winning landscape architects
iv. The site was in a post-industrial or brownfield condition prior to its design
v. The design uses materials, green technologies and ecology towards site sustainability
vi. The design is well-used by the community
vii. The site is accessible to the researcher
The selected sites for the case studies are: The High Line and Brooklyn Bridge Park. The parks are located in New York, United States. Both urban parks meet the pre-developed site selection criteria.

The High Line is a preserved elevated 2.33 km freight train corridor transformed into a public urban park. The design was conceived by an award winning and influential team of designers, Field Operations and Diller Scofidio + Renfro. Since the opening of the first section in 2009, the High Line has become a destination for tourists and locals alike with over 3.7 million visits in 2011 to enjoy the views, architecture and the extensive collection of plants on the site.

Brooklyn Bridge Park sits on a decommissioned cargo shipping and storage complex on the shores of the East River in Brooklyn. The masterplan for the site was conceived by the award-winning Michael Van Valkenburgh Associates Inc. The park collects, filters and stores stormwater on site through a series of rain gardens. The park has quickly become a destination for tourists, locals and community social events.

The creativity and solutions in designing and implementing these urban parks are worth exploring in further detail to extract relevant and important information to inform a definition for symbiotic urban parks and to explore what resulting design aesthetics and concerns might be.

**Data Collection and Analysis**

The initial data collection for these cases was kept flexible to allow for unforeseen opportunities for data collection that was deemed to be relevant to the case studies (Yin, 2012). Document analysis can consist of scholarly journal articles, project files, web searches, published books and public documents as suggested by Francis (1999). According to Canter (1997) and Yin (2012), making direct field observations through site visits is one of the distinct features of case study methodology and can be used to make observations on human actions, physical environments and real-world events. Direct observation can be used to “gain insight
into the character, use and performance of places already designed” (Deming & Swaffield, 2011, p. 66).

Michelson (2011) introduces two forms of observation: participant and non-participant. In participant observation, the researcher considers himself/herself as a participant to experience more or less the same phenomena as those normally present at the study area. Non-participant observation, the chosen form of observation for this exploratory research, involves visual concentration on interaction between individual activities and the physical environment without the observer being an insider. These observations could be organized through recordings, field notes, photographing, mapping, or a combination of these techniques.

Direct site observations were recorded through a single site visit on December 8, 2014. Observations, in the form of field notes and photographs, were made to increase familiarity with the parks, and to observe park design elements and facilities, visitors’ interactions, planting schemes, and the overall environment of the spaces.

**On-site User Experience Survey**

A user experience survey is an appropriate method for obtaining detailed and descriptive data about how visitors used space, and how designed spaces influenced their routine and changed, whether positively or negatively, their experience and perception of the place (Marshall & Rossman, 2010). Strengths of surveys can include their accuracy, generalizability and convenience (Deming & Swaffield, 2011). According to Walter (2013), user experience surveys can elicit meaningful responses to learn more about characteristic preferences, attitudes or beliefs about park users of the case studies. Thus, this method can inform the answer to the second research question concerning user experiences in symbiotic urban parks.
Data Collection and Analysis

The survey was structured with open-ended questions (see Appendix D). The development of survey questions was informed by the literature review, research questions and documented information of each selected case study site. The respondents, local residents only, were randomly approached as they travelled towards the direction of the researcher at each site and their participation was voluntary. Verbal consent was obtained (see Appendix B) and then followed by a brief introduction to the research topic. All surveys were conducted face-to-face with the researcher recording responses manually in writing. The survey was conducted over the course of three days in December 2014: Sunday 7th from 10-4:30pm, Thursday 11th from 10-4:30pm, and Friday 12th from 10-4:30pm. As the survey was conducted on two sites, time was divided equally for both sites. Transitioning from one site to the other took approximately one hour through public transit and on foot.

The survey questions were subdivided into three themes that reflected the three research questions: i) Use of the park (frequency of visit, distance from park, and activities in the park), ii) Design aesthetics of the park (reason for visit, experience of visit, and potential improvements to the park), and iii) Ecology and wildlife in the park (vegetation aesthetic preference and wildlife in the park). The average length of interaction was approximately 5-10 minutes, depending on the respondent’s time per question.

The analysis of the 87 completed surveys from the two sites took place in the following manner. The first step was to read over the completed surveys. The demographic (age group and gender) data and frequency of responses (activities and experiences of the park and vegetation) were then tallied so that the results could be analyzed. Content and qualitative analysis was used to examine and code the descriptive data for identifying common and frequent responses within the open-ended questions (Marshall & Rossman, 2010). The process was performed by hand and with Microsoft Excel.
Key Informant Semi-structured Interviews

The purpose is to gain access to the perspectives of professionals in the field for a critical understanding of the relationships between theoretical knowledge and professional practice, and to explain and clarify the knowledge areas that are yet to make sense of (Deming & Swaffield, 2011). Qualitative and in-depth interviews with practicing professionals selected for their first-hand knowledge about urban parks design was utilized. Descriptive interviews give the respondents the opportunity to voice their own thoughts and perspectives, therefore producing richer and detailed descriptive data (Neuman & Robson, 2009). The interviews were loosely structured, relying on a list of open-ended questions to be discussed. Key informant interviews took on the rhythm of a conversation, allowing a free flow of ideas and descriptive information. Results from the interviews will help inform answers to research questions 1 and 3 (Chapter 1), and partially support the results from the user experience survey.

Key Informant Selection Criteria

Respondents must be well informed, through professional practice and/or academic knowledge, on current trends of urban park development and/or urban recreational design and planning to increase the likelihood of gaining rich and relevant data (Deming & Swaffield, 2011). The key informants were selected based on a set of four pre-determined criteria:

i. Practicing and/or registered as a landscape architect

ii. Well-informed of urban sites and recreational design through their professional practice

iii. Experienced with site programming and user experience design in urban environments through their professional practice or academic experiences.

iv. Well-informed of sustainable practices and ecology through their professional practice, academic experience or certification
**Data Collection**

Data were obtained through face-to-face, semi-structured interviews. The development of the open-ended interview questions was informed by both the literature review and the case studies preliminary results concerning design approaches and aesthetics, programmatic elements and site sustainability. The questions were grouped into three themes: 1) design aesthetics and site context, 2) ecological servicing and sustainability, and 3) human experiences. The questions were forwarded to the key informants a week prior to the scheduled interview for their review and preparation. The interviews took place throughout December 2014 in the interviewees’ respective professional work place.

The conversations were recorded using an audio recording device and later transcribed by the researcher. A denaturalized transcription approach, where accuracy concerns the substance of the interview, was used rather than literal or naturalized transcription of the information, as the meanings and perceptions of the data collected were more important to this research than the mechanics of the interview (Oliver et al., 2005). This selective transcription method is appropriate when the research focus on qualitative information to answer the research questions 1 and 3 (Chapter 1), and answers from the human experiences theme reinforces the results from the user experience survey.

The analysis of the data took place in the following manner. The recordings were played for a total of four times. On the first time, the researcher listened thoroughly through the entire length of the recordings to familiarize with the contents of the interviews. The following three times, the researcher performed the denaturalized transcription of the information with Microsoft Word. Content analysis and interpretation approach were used to analyze the information to draw themes and relationships within the three thematic question groups. The results will inform the final discussions and to further understand and inform the design approach and concept of symbiotic urban parks. This research seeks to make only general considerations with the potential to inform and guide urban parks and green space design and development in the city.
Chapter 4 – Case Studies Results

This chapter summarizes the case studies findings as the result of careful examination of various types of information sources (Francis, 1999) and non-participant direct field observations from the site visit in the form of field notes and photographs. The findings for each case study have been divided into five themes in response to the three research questions (Chapter 1): i) Site context & surroundings, ii) Design approach and aesthetics, iii) Programmatic elements, iv) Ecological servicing & sustainability, and v) Direct field observations. The summary statement discusses the similarities and differences in the design solution for each case study and their relevance and contribution to this exploratory research.

Case 1 – The High Line – Manhattan, New York City

The High Line was an elevated freight train transportation corridor, constructed from 1929 to 1934, to replace the ground level tracks that run down the West Side of Manhattan (Figure 4-1). It was constructed to offset the number of collisions between trains, pedestrians, cars and other traffic at ground level causing many fatalities, hence the name “Death Avenue.” Almost 45 years after construction, the final train travelled on the High Line in 1980. With the passing of time, a self-seeded vegetation emerged on the High Line from seeds deposited by birds, wind, and from previous cargo, such as grains, onboard the train. Photographer Joel Sternfeld captured the magic and transformation of this wild landscape in the sky in an effort to save and to bring new life to the High Line when it was being considered for demolition. Joshua David and Robert Hammond founded Friends of the High Line to advocate for the preservation and transformation of this ‘magical place’ to become a new typology of public urban green space (Corner & Scofidio, 2008). James Corner Field Operations and Diller Scofidio + Renfro were
selected as winners in the High Line design competition with their submission to design the site as a public park.

The data sources used to explore the High Line included: published books, journal articles, web searches, photographs and documentary video.

Figure 4-1 Location of The High Line in New York City
(Labels added by author. Image source: http://eud.leneurbanity.com/high-line-park-new-york/highline-org/)
Site Context & Surroundings

The High Line is a 2.33 km-long (1.45 mile) lineal park that weaves above two neighbourhoods: the Meatpacking District and Chelsea. The development and success of the High Line contributed significantly to the revitalization of Manhattan’s West Side (Broder, 2012). The Meatpacking District was once a desolated industrial site, slaughter place and undesirable neighbourhood, but now it is filled with high-end fashion stores, trendy restaurants and fancy hotels (Stevens, 2010). A few meatpacking hold-outs still remain visible in the southern areas of the neighbourhood and a reminder of the neighbourhood’s history. The transformation of Chelsea was already underway in the late 1980s, when trendy art galleries and local artists started coming to the area (Broder, 2012). The presence of the High Line only accelerated change and growth in the neighbourhood. Images of luxurious loft-style condos and a vibrant commercial gallery scene dominate the present Chelsea neighbourhood (Stevens, 2010). From 2000 to 2010, the population within the High Line neighbourhoods and rezoned areas grew more than 60% and new development permits doubled, thus increasing real state prices and services for the area (Broder, 2012).

The High Line runs along major public transportation corridors including surface public transit and subway. Accessibility to the site is convenient through the use of stairs and elevators, and offers many access points to the park. The context of the High Line is very important because it is not constrained by the grids of the city, but by the built forms around it that create different kinds of opportunities and challenges for use and access.

Design Approach and Aesthetics

James Corner Field Operations and Diller Scofidio + Renfro’s design of the High Line as a public park plays with the structure’s distinctive character and history, while enhancing nature, culture and design innovation (Doyle and Doyle, 2014). The design concept and solution has three main components: first the design of a new concrete paving system with finger-like
openings at the ends that creates spaces for plants to grow and interact with the circulation system. The second component was to create an unhurried experience to promote a sense of duration to the journey. That was accomplished by the meandering circulation path, slow and long stairs, and hidden niches with seating for relaxation and contemplation of the city. The third component involved a “careful sense of dimension and scale” to make design elements and subtle gestures that speak volumes rather than big and obvious to compete with the presence of the High Line (Corner & Scofidio, 2008, p28).

An innovative strategy of “agri-tecture that combines organic and building materials into a vegetal/mineral blend” was conceived to grow a variety of planting typologies (Figure 4-2), programmatic and social conditions on the High Line (Corner & Scofidio, 2008, p32). Among the unique features include “peel-up” (rising from the ground) typology for seating and water features, sunny deck with movable chaise lounges, elevated square, woodland flyover, and other features such as temporary site specific art installations, many different planting typologies and wildflower fields (La Farge, 2014). The 10th Avenue Square, with its sunken theatre-style seating area and massive glass panels, offers a window to simply showcase the street and cars from a different perspective, but transforms the visitor’s perspective of looking at the city and its congested gridlock layout (Wesselman, 2013).

On the other hand, The High Line, as a public space, is “reminiscent of a nineteenth-century Parisian boulevard on a Sunday afternoon” (Stevens, 2010), where the crowds stroll and taking in the views unhurriedly – in contrast to New York City’s fast pace. The High Line, as an elevated platform suspended 8.8m (29ft) above street level, is an otherworldly place that disrupts the grid of the city and stands in clear contrast with the repetition and monotony of the grid (Wesselman, 2013).

The High Line presents distinct design approaches and solutions in response to the context, history and character of the place. This section helps inform answers for research question 1: the image and concept of the symbiotic urban park.
Figure 4.2: Agri-lecture Technique and Planting Typologies for the High Line
(Image source: Corner & Scofidio, 2008)
Programmatic Elements

The High Line is designed to be a slow-paced environment (Figure 4-3) where “time doesn’t feel pressing” (Corner & Scofidio, 2008, p28). The space is discontinuous with the surrounding city and does not fit with the gridlocked urban fabric, thus creating a new type of urban space with fewer constraints (Wesselman, 2013). The High Line’s unique location offers spectacular views of the city, the surrounding architecture, and the movement and energy of the streets of NYC. The High Line is a site of public performance and offers a voyeuristic experience for both visitors and spectators living among the buildings that surround the site (Corner & Scofidio, 2008). The visitor's experience of the metropolis is a series of carefully framed views or scenes framed by both the choices of the landscape architects and the location of the High Line (Stevens, 2010). Art and installation projects are a part of the experience of walking along the

Figure 4-3 Sundeck with Movable Chaise Lounges
(Image source: https://healthytastebuds.files.wordpress.com/2011/07/the-high-line.jpg)
meandering paths, and their temporality and originality reminiscent of the past and present conditions of the park (Corner & Scofidio, 2008). The High Line is accessible across its entire length, with numerous entry points being staircases and elevators.

The extensive collection of plants and the different planting typologies – wetland, mossland, tall meadow, mixed perennial meadow, woodland thicket, young woodland, wildflower fields – provide the visitors with a different experience, suspended above the city streets, of nature in the city throughout the seasons (La Farge, 2014).

The High Line offers and hosts a wide range of social, cultural and educational events for the community (Figure 4-4) including: walk & talk series, plant tours of the High Line, star gazing, art hours, meditation and Tai Chi classes, and many more (thehighline.org). The High Line’s schedule of activities offers something of interest for most visitors, regardless of age or abilities, and for every season.

**Ecological Servicing & Sustainability**

The High Line is sustainable as a recycled structure; however, the design replaced almost entirely the successional ecologies (the self-sown vegetation) with artificial ones based on aesthetics of the picturesque (Langhorst, 2014).

The park is a giant linear green roof where the extensive plantings and green areas slow down and soak up some amount of stormwater, limited capacity in aerial soils, before reaching the pipes (thehighline.org). The new planting schemes use a combination of native and non-native, drought-tolerant and low-maintenance vegetation (Figure 4-2 list a sample of the plants) to minimize the park’s irrigation needs. The vegetation typology is one of naturalistic picturesque looking, but carefully and intensely designed (See Figure 4-5) based on the plant knowledge and expertise of Piet Oudolf. The richness and complexity of the plants and vegetation groups (thickets, grasslands, woodland forests) attract diversity of insects, bees, butterflies, birds and among others to share this generous habitat (La Farge, 2014).
The long-term challenge for the High Line will be sustaining its large maintenance costs (Figure 4-6), estimated at approximately $4.5 millions per year, that are currently being privately funded (Broder, 2012). Sustainability in the High Line might benefit from careful assessment through the sustainability loop (economic, social and environmental) to determine the true meaning of its sustainability.

Figure 4-5 The Flyover Woodland
Figure 4-6 Ecology Phasing and Maintenance
(Image source: Corner & Scofidio, 2008)
Direct Field Observations of the High Line

The site visit took place in December 8, 2014 from 1:30-4:30pm. The temperature was from -5°C to -10°C, sunny and with clear skies. The weather was comfortable when dressed properly for the time of year.

Walking along Gansevoort Street, the one end of the High Line, the Meatpacking District and Chelsea areas looked gentrified. The image and style of the area was artistic with a variety of boutique shops, restaurants and art galleries. Just underneath the first access point or entrance to the High Line, a meatpacking establishment still remains in full business, where loading and unloading of meat is in full view of the public.

The High Line is accessible from many different points along its length, through a combination of staircases, colourful elevators and the ground entrance by the Hudson Rail Yards, the end and last section of the park. The established pavement system of concrete planks with finger-like ends runs through the length of the first two sections of the park, and then transitions into a compressed asphalt path that travels the third and final section of the park. The design aesthetics for the last section differ greatly from the rest of the park, where the existing conditions and vegetation are preserved and little has been done to restore the structure itself. The first two sections look like brand new construction, despite the first section having been open to the public since 2009.

The linear circulation system meanders along the length of the park connecting different kinds of amenities and facilities such as: the elevated square on 10th Avenue, the sunken amphitheatre, two washroom facilities, flyover bridge, sunny deck with movable chaise lounges, observation nooks and the lawn.

During the four different visits to the park, people were engaged in various kinds of activities in the spaces: walking at a moderate pace with quite constant stopping and looking at the surrounding people, traffic and movements of the streets below; taking picture of the plantings, especially the winterberries (*Ilex* sp.) and the white birch trees; sitting and relaxing by
the movable chaise lounges; having lunch; reading a book, enjoying the surrounding architecture; and enjoying the plants and the different types of gardens such as the Chelsea thicket, the flyover woodland, grasslands, and the existing vegetation by the rail yards. The park’s staff was constantly patrolling the park to ensure visitor safety and the protection of the different spaces. The staff was friendly and helpful when asked questions. Other interactions included a person soliciting monetary contributions from the visitors and tourists alike and two vendors selling souvenirs on the market area of the park.

The High Line features interesting and unique site furnishings such as benches rising from the ground (“peel-up” typology), the movable chaise lounges, the elevated square, the sunken amphitheatre, and the sunken play structure on the third section. Art and sculptures are scattered throughout the park and throughout the surrounding buildings and spaces that contain the High Line. The art is in the form of murals, banners, graffiti, pop art and advertising billboards. The sculptures and installations vary in size and aesthetics, from large scale human-shaped pieces to the most recent installation on the last section of the park that features cube-shaped forms made of dirt, grass, concrete and bones.

The planting schemes in the park are very intensive. The overall aesthetic of the vegetation looks naturalistic but, on closer inspection, the design and planting patterns are evident. During the course of the site visits, no sign of wildlife was observed in the park. However, the composition of the vegetation, a mix of native and non-native plants, might suggest otherwise. The time of year and the weather conditions did not allow for more types of interactions to be observed on the park.

Overall, the High Line is a lively place with constant traffic flow, varying throughout the day; an intensive planting regime; an interesting combination of aesthetics, design elements and site furnishings; and accessibility from many directions of the city.
Case 2 – Brooklyn Bridge Park (BBP) – Brooklyn, New York City

The Brooklyn Bridge Park (BBP) site extends 2.1 km (1.3 miles) along the shores of the East River on a non-operational cargo shipping and storage complex built by Port Authorities of New York and New Jersey in the 1950s (See Figure 4-7). The complex’s operations came to an end in 1983 due to the rise and popularity of container shipping. The complex contains six piers and various warehouses. The Brooklyn-Queens Expressway cuts off the site from the surrounding neighbourhoods, thus making accessibility a real design challenge (Berrizbeitia, 2009). Michael Van Valkenburgh Associates Inc. (MVVA) completed the BBP Master Plan in 2005. Construction continues, but most of the piers are completed and open to the public.

Figure 4-7 Brooklyn Bridge Park Site Plan with the Three Major Access Points, New York City (Labels added by author. Image source: http://www.mvvainc.com/project.php?id=3&c=parks )
Site Context & Surroundings

BBP is located in Brooklyn with a population of over 2.5 million people, the most populated of New York City's five boroughs (Padilla, 2012). The site borders the shore of the East River and runs under the Brooklyn Bridge overlooking the Lower Manhattan Skyline on one side, while on the other, the elevated Brooklyn-Queens Expressway and the DUMBO (Down Under the Manhattan Bridge Overpass) neighbourhood fortify the site making accessibility a real challenge. There are three main access points to the park on street level and the Squibb bridge that zigzags its way over the Expressway and down to the park from Brooklyn Heights park (Berrizbeitia, 2009). The site is close to surface public transit and subway. The site’s connection to the water presents opportunities for programming and experiences.

Design Approach and Aesthetics

The design of BBP intended “to create visual and physical connectivity both within the site and the surrounding neighborhood” (Berrizbeitia, 2009, p239). The design transformed the post-industrial site into a productive and active landscape while preserving and telling the dramatic experience and history of the post-industrial waterfront. BBP introduced variety to a previously monotonous and flat industrial site. The introduction of topography and massive sound attenuation berm (See Figure 4-8) that reduces sound pollution coming from the expressway to this flat site made the place more organic and more conducive, in terms of material and energy, to its sustainability and process-based design approaches, such as collecting, cleaning, channeling and storing stormwater, in the design (Berrizbeitia, 2009). Every detail of the design was carefully choreographed to produce a holistic experience of the new waterfront edge. The programmatic elements on the six different piers include:

- Pier 1: Constructed topography with meandering paths, meadows, wetland gardens, lawns, extensive vegetation and best views of the city.
• Pier 2: Courts for a variety of sports and spiral pool access to water for kayaking.
• Pier 3: A civic lawn.
• Pier 4: A bird island, beach area, boating basin / safe water zone.
• Pier 5: Multiuse soccer fields, picnic peninsula, salt marsh and marina.
• Pier 6: Children play landscape, perched wetland and beach volleyball.

Programmatic Elements

The design of the park offers a variety of passive and active recreational opportunities and facilities that are inclusive for users of all abilities. It features sports courts for an array of activities including handball courts and an outdoor skate park. It also offers countless numbers
of community-oriented, cultural, artistic, and educational programs for the majority of citizens to participate in and enjoy. Most programs are free. The atmosphere is energetic (at the sports facilities) and the pace is fast and slow (walking, lying on the lawn, running or cycling) at the same time. Unlike other waterfront parks, where visitors remain perched above the water, BBP encourages close interaction with the water (See Figure 4-9) along the park’s diverse water edge types. Salt marshes, boat ramps, beaches and waterfront promenades provide visitors with a unique opportunity to interact with the water element (Berrizbeitia, 2009).

The programs and experiences are all connected and intertwined. Every pier is different and unique, and they are all connected through the main waterfront promenade. The contrast of Lower Manhattan Skyline, the Brooklyn Bridge and the nature-like quality of Pier 1 is very distinctive. The park has a space and place for everyone to feel comfortable and safe.

Figure 4-9 Kayaking at Pier 1 in Brooklyn Bridge Park
(Image source: http://www.mvvainc.com/project.php?id=3&c=parks)
Ecological Servicing & Sustainability

Sustainability is at the core of MVVA’s design. The design of BBP is driven by the concept of "structural economy", which is the careful planning and coordination of programs on the existing structural integrity of the piers. Demolition debris is recycled and used as a base to add topography to the flat site not only as design element, but functions as a sound barrier against the busy freeway on the background. The concrete shells of some piers are left intact, as these are still structurally sound, to allocate the various sport facilities and recreation amenities. A series of water gardens (See Figure 4-10) collect, filter and store stormwater, in 4 underground tanks with a combined storage capacity of over 350,000 gallons, on site that in turn satisfy most of the park’s irrigation needs and provide aquatic habitat for local biodiversity. The park also makes extensive use of salvaged wood for the construction of fences and tree staking (Berrizbeitia, 2009). Old over-water structures are removed to create marine habitats such as functioning marshlands and shallow tidal pool areas for bivalves (Brown and Chapman, 2011).

The design also reduces shade producing over-water structures, such as boardwalks, to facilitate the development of marine habitats and communities (Padilla, 2012).

The park uses not only native plantings and the very naturalistic quality of the horticulture schemes further enhances the importance of ecology on parks. The different kinds of habitats such as salt marshes, shallow water for fish, woodlands, fresh water gardens, hedges and more, produce desirable habitat conditions for all kinds of insects, birds and other local wildlife.

Further reinforcing the sustainable design, a multifunctional network of lighting structures and canopy systems create comfortably shaded areas for sports activity, players and spectators alike. The custom-designed fabric canopies are anchored onto existing lighting structures in the park using special connectors. The park is the first in the United States to use metal halide dimming in its lighting design and implementation according to Domingo Gonzales Associates, Architectural Lighting Design. The lighting infrastructure conserves energy by dimming the lighting structures using automatic dimming controls with occupancy sensors or photocells (Ji
and Wolsey, 1994) when the space is in low use and for after-hours security. Green roofs are installed on the park’s facilities to create habitats, reduce urban temperatures, absorb stormwater and provide insulation. The vegetation, trees and lawns (Figure 4-11) in the park are managed organically without the use of pesticides (brooklynbridgepark.org).
Direct Field Observations of BBP

The site visit took place in December 8, 2014 from 10-12:30pm. The temperature was from -5C to -10C, sunny and with clear skies. The weather was comfortable when dressed properly for the time of year.

Going from the nearest subway stop to the park took approximately 10 minutes by foot. There are primarily two routes that will take the visitor directly to Pier 1 in the park: through Squibb Park Bridge or walking down Old Fulton Street. Alternatively, going down Washington Street takes the visitor close to Manhattan Bridge, rather than Brooklyn Bridge, and to the northern corner of the park (Figure 4-5). The Brooklyn Queens Expressway divides the site from the rest of the neighbourhood, making accessibility to the site a major challenge. The noise pollution from the cars also presents a barrier to creating a quieter park environment.

The design aesthetics throughout the park varies greatly, but the different spaces are connected by the main promenade that serves as a cycling route as well. The six different piers have quite different aesthetics. Pier 1 is the most intensely cultivated space with the artificial topography that includes three rain gardens, salt marshes, cultivated edges and generous lawns. The aesthetic of the vegetation is very naturalistic, contrasting with the well-trimmed lawns. Pier 2 offers a variety of facilities and surfaces under an open roof for indoor sports such as rock climbing, basketball, handball, and roller-skating, and access to water through a spiral path for kayak launch. Pier 3 is still under construction. Pier 4 features a sandy beach area with the remnants of an old pier to be transformed into a bird sanctuary. A picnic peninsula with blue umbrellas and barbeque grills connects to Pier 5, which features artificial turf soccer fields. Pier 6 is still under construction. The natural children’s playground area at the end of Pier 6 is intensely cultivated and features a butterfly garden for kids to explore and learn from the informational signs by the entrance. The vegetation along the promenade is mostly of tall grasses such as Miscanthus and evergreen trees such as Pinus. A massive berm runs along the
promenade from the end of Pier 2 to the beginning of the picnic peninsula in Pier 5. The massive berm blocked quite a lot of noise from the expressway, making the space quieter.

The facilities on the site included: washrooms on Pier 6; a food concession on Pier 5; sport facilities on Pier 5 and 2; information booth, water taxi and ferry dock on Pier 1; Jane’s Carousel on the north side of Brooklyn Bridge; lots of seating options and different types of surfaces to sit on (on the lawn, granite steps and boulders, long benches, picnic tables); garbage collection containers throughout the park; and a limited selection of pubs and restaurants along Old Fulton Street and on Pier 1.

BBP’s treatment of the shoreline varies from vertical concrete hard edge to sandy beach on Pier 4 to boulder edges and steps into the water by Jane’s Carousel. The different edge treatments allow the visitor to freely interact with water.

Over the course of the four site visits, the different types of recreational activities and interactions among people observed included: walking (leisure stroll, parents pushing strollers, walking the dog, going from one end to the other); running and cycling along the promenade; enjoying the views of the lower Manhattan skyline and the Brooklyn Bridge, looking at the vegetation along the rain gardens; sitting and relaxing; playing sports such as basketball on Pier 2; jogging on the different paths around Pier 1; people watching, especially the amount of tourists gathering on Pier 1; and riding Jane’s Carousel.

The amount of wildlife observed was limited to Pier 1 and 2 at the time of year. Gulls were around everyday, but there were no signs of other birds, except for small a bird nest by the water gardens.

Sustainable approaches in the design were evident in the use of recycled tree trunks for fencing along Pier 1, the function of the rain gardens to filter and store stormwater, and their implications as potential habitats for biodiversity. The salt marsh provide habitat for marine life and fish according to the information stand by the salt marshes. All built facilities observed have a green roof.
Art and sculpture were spread out around the park. A photography exhibit was mounted on the fences of the construction site of the new condo just behind Pier 1. A colourful Plexiglas house sculpture/installation sits beside Jane’s Carousel. Life-size replicas of sections of the drape of the Statue of Liberty was installed in front of Pier 2 one day and gone the next.

Overall, the spaces within the park support different kinds of activities. Due to the time of the year and the weather conditions, the researcher did not observe more types of social or communal interactions within the park or any kind of informal uses around the park.

Summary

The designs for case 1 and case 2, the High Line and BBP respectively, are embedded with visible markers that preserve and communicate the history of the space very loudly (Wesselman, 2013). The High Line’s finger-like paving design aims to capture or recreate the original self-sown landscape on the tracks, while actual sections of the rail tracks weaves through the entire length of the park and incorporate movable chaise lounges in the Sundeck area. In BBP, the bold and rigid lines of the repurposed piers remind the users of the site’s history and contrast with the nature and play that occupy those spaces.

The High Line escapes partially the grids of the city by being elevated above the streets, but follows above the grid for most of its alignment, thus offering a different perspective and outlook towards the surrounding built forms. The design approach communicates a classical imagery with picturesque plantings and a long meandering path with unique features along the way. The pace is slow and most conducive for passive recreation, people watching and relaxing. On the other hand, BBP is divided by the freeway and making accessibility to the space a challenge. The design approach establishes a visual connection of the surrounding neighbourhoods with the shoreline and reestablishes the people’s relationship with water. The design is active and energetic, offering many options for playing sports and active recreation. The site context for both cases are different, thus results in different design and programmatic
approaches to find solutions. However, both cases provide new, interesting and diverse experiences and facilities for the users. The focus of both designs is to build a strong community that fosters stewardship, education and preservation of the history of the space.

The design aesthetics of both parks are different as their location and context are different. The High Line is more refined by the meticulously designed circulation, the aesthetics of site furnishings and the materiality of the design. BBP is more rugged by the use of recycled materials, boulders along portions of the shoreline, and the overall industrial quality of the design is visible.

Sustainability and ecological services approaches are visible on both designs. The High Line’s intensive horticulture scheme, native and non-native, helps with stormwater absorption and provides habitats for local biodiversity. BBP recycles construction debris and materials into the design of berms, fences and site furnishings, minimize energy consumption by using metal halide lighting, and the series of water gardens filter and store stormwater for the park’s irrigation needs. BBP offers greater potential for creating wildlife habitats and biodiversity with its location by the shoreline. However, increase in wildlife has been observed in each of the parks.

Overall, the parks provide extra recreation space for the crowded neighbourhoods of New York City, add value to the community, serve as catalysts for positive transformations around the neighborhoods, and incorporate biodiversity on their grounds.
Chapter 5 – User Experience Survey Results

As indicated in Chapter 3, the user experience surveys were conducted for the two case study sites using the same survey format and questions. The case study sites differ in context and design approach, but the overall programming, design and creation of user experiences shared many common characteristics. Major findings for each site are summarized below, followed by a cross-case survey analysis to compare and contrast similarities and differences, and discussion of the survey. A total of 87 completed surveys were collected from two sites: 53 surveys from the High Line and 34 surveys from BBP.

Site 1 – The High Line – Manhattan, New York City

A total of 53 completed surveys (Table 5-1) were conducted on three different site visits to the High Line in December 7, 11 and 12, 2014.

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<tr>
<th>Table 5-1 Respondents to the High Line Survey</th>
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There were a total of 23 (43.4%) males and 30 (56.6%) females respondents with ages ranging from 18 to over 46 years. The 18-25 years age group had the lowest number of respondents with only 5 (9.4%), while the 36-45 years age group had the highest number of respondents with 18 (34%). The High Line is quite centrally situated and very accessible by public transit. The results indicated that 32 (60.4%) respondents lived in the surrounding neighbourhood and within walking distance (5-10 min) to the park, while the remaining 21 (39.6%) required transportation (either personal vehicle or public transit). Visitor frequency results showed that 26 (49%) respondents visited the park several times a week, 11 (20.8%) once a week, and the other 16 (30.2%) visited the park a few times a month. No respondents visited the park twice a week.

The findings (Table 5-2) show that visitors of the High Line were very satisfied with their experiences of the park. The overall description of their experiences was positive with 73.6% of the responses being a wonderful experience, and 71.7% as an escape in the city. Over half of the respondents (28) said that they spent more time than intended in the park. The most frequent activities that respondents engaged in the park included: enjoying the views and architecture of the city (86.8%), walking (77.4%), and relaxing and enjoying the day (54.7%); looking at the plants and gardens was the top activity (96.2%). The respondents also pointed out that access and location, amenities and artwork in the space attracted them to visit the park.

All 53 respondents expressed interest and enjoyment of the diversity of vegetation and said the plants looked beautiful all the time (84.9%), and that the park has an amazing collection of plants (62.3%). A total of 38 respondents noticed the presence of wildlife in the park such as birds, bees and butterflies, with a response rate for birds at 60.4%. 
Table 5-2 Summary of Responses to the High Line Survey (Percentages)

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<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attraction to visit the park</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access / location</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Amenities</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Cultural activities</td>
<td>26.1</td>
<td>60.0</td>
<td>45.3</td>
</tr>
<tr>
<td>Views</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Nature (plants)</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Others</td>
<td>39.1</td>
<td>23.3</td>
<td>30.2</td>
</tr>
<tr>
<td><strong>Experience of the park</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unique place in the city</td>
<td>69.6</td>
<td>66.7</td>
<td>67.9</td>
</tr>
<tr>
<td>Dreamy space</td>
<td>26.1</td>
<td>43.3</td>
<td>35.8</td>
</tr>
<tr>
<td>Wonderful experience</td>
<td>82.6</td>
<td>66.7</td>
<td>73.6</td>
</tr>
<tr>
<td>Beautiful space with lots to see</td>
<td>73.9</td>
<td>50.0</td>
<td>60.4</td>
</tr>
<tr>
<td>Very cool and fun</td>
<td>56.5</td>
<td>40.0</td>
<td>47.2</td>
</tr>
<tr>
<td>Excellent place to be</td>
<td>56.5</td>
<td>50.0</td>
<td>52.8</td>
</tr>
<tr>
<td>An escape in the city</td>
<td>82.6</td>
<td>63.3</td>
<td>71.7</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relaxing and enjoying the day</td>
<td>52.2</td>
<td>56.7</td>
<td>54.7</td>
</tr>
<tr>
<td>Enjoying the views and architecture of the city</td>
<td>82.6</td>
<td>90.0</td>
<td>86.8</td>
</tr>
<tr>
<td>People and movement (e.g. traffic) watching</td>
<td>65.2</td>
<td>66.7</td>
<td>66.0</td>
</tr>
<tr>
<td>Walking</td>
<td>78.2</td>
<td>76.7</td>
<td>77.4</td>
</tr>
<tr>
<td>The artworks in the surroundings</td>
<td>56.5</td>
<td>63.3</td>
<td>60.4</td>
</tr>
<tr>
<td>Community / social events</td>
<td>30.4</td>
<td>40.0</td>
<td>35.8</td>
</tr>
<tr>
<td>Looking at the plants and gardens</td>
<td>91.3</td>
<td>100</td>
<td>96.2</td>
</tr>
<tr>
<td><strong>Vegetation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beautiful all the time</td>
<td>91.3</td>
<td>90.0</td>
<td>90.6</td>
</tr>
<tr>
<td>Very interesting and very different</td>
<td>78.3</td>
<td>73.3</td>
<td>75.5</td>
</tr>
<tr>
<td>An amazing collection of plants</td>
<td>60.9</td>
<td>63.3</td>
<td>62.3</td>
</tr>
<tr>
<td><strong>Wildlife</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birds</td>
<td>65.2</td>
<td>56.7</td>
<td>60.4</td>
</tr>
<tr>
<td>Bees</td>
<td>52.2</td>
<td>36.7</td>
<td>43.4</td>
</tr>
<tr>
<td>Butterflies</td>
<td>39.1</td>
<td>26.7</td>
<td>32.1</td>
</tr>
</tbody>
</table>

\[
\text{n} = 23, 30, 53
\]
Site 2 – Brooklyn Bridge Park (BBP) – Brooklyn, New York City

A total of 34 completed surveys (Table 5-3) were conducted on three different site visits to BBP in December 7, 11 and 12, 2014.

Table 5-3 Respondents to the Brooklyn Bridge Park Survey

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 25 years</td>
<td>5</td>
<td>2</td>
<td>20.6</td>
</tr>
<tr>
<td>26 - 35 years</td>
<td>1</td>
<td>2</td>
<td>8.8</td>
</tr>
<tr>
<td>36 - 45 years</td>
<td>3</td>
<td>12</td>
<td>44.1</td>
</tr>
<tr>
<td>46+ years</td>
<td>2</td>
<td>7</td>
<td>26.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency of visit</th>
<th>Male</th>
<th>Female</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once / week</td>
<td>3</td>
<td>9</td>
<td>35.3</td>
</tr>
<tr>
<td>Twice / week</td>
<td>0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Several times / week</td>
<td>5</td>
<td>10</td>
<td>44.1</td>
</tr>
<tr>
<td>Few times / month</td>
<td>3</td>
<td>4</td>
<td>20.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance from park</th>
<th>Walking distance (5-10 min)</th>
<th>Need transit / car</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>n</td>
<td>11</td>
<td>23</td>
</tr>
</tbody>
</table>

There was a total of 11 (32.4%) males and 23 (67.6%) females respondents with ages ranging from 18 to over 46 years. The 26-35 years age group was the lowest number of respondents with only 3 (8.8%), while the 36-45 years age group was the highest number of respondents with 15 (44.1%). Accessibility to BBP is not as easy due to the Brooklyn-Queens Expressway acting as a major barrier and the limited number of access points to the park, yet the results indicated that 24 (70.6%) respondents lived in the surrounding neighbourhood and within walking distance (5-10 min) to the park, while the rest 10 (29.4%) required transportation (either personal vehicle or public transit). Visitor frequency results showed that 15 (44.1%)
respondents visited the park several times a week, 12 (35.3%) once a week, and the other 7 (20.6%) visited the park a few times a month. No respondents visited the park twice a week.

The findings (Table 5-4) showed that visitors of Brooklyn Bridge Park were very satisfied with their experiences of the park. The overall description of their experiences was positive with 79.4% of the responses being spectacular views of the city and Brooklyn Bridge, and 73.5% said the site was a wonderful park in which to spend the day. Less than half (47%) of the respondents said that they spent more time than intended in the park. The most frequent activities that respondents engaged in the park included: walking (94.1%), enjoying the views (82.4%), and having picnics and BBQs with friends and family (70.6%). The respondents also pointed out that access and location (mostly location), amenities, the water’s edge and the sports facilities attracted them to visit the park.

All 34 respondents expressed interest and enjoyment of the diversity of vegetation and said the plants looked beautiful along the park (79.4%), the vegetation was interesting and the lawns were nice (67.6%) and the surroundings were natural, such as the existence of the trail (58.8%) at Pier 1. All 34 respondents noticed the presence of wildlife in the park such as birds (100%), bees (47.1%) and sometimes even hawks (8.8%) are being observed in the park.
### Table 5-4 Summary of Responses to Brooklyn Bridge Park Survey (Percentages)

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attraction to visit the park</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access / location</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Amenities</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Cultural activities</td>
<td>45.5</td>
<td>69.6</td>
<td>61.8</td>
</tr>
<tr>
<td>Views</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Nature (plants)</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Others</td>
<td>18.2</td>
<td>4.3</td>
<td>8.8</td>
</tr>
<tr>
<td><strong>Experience of the park</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wonderful park to spend the day</td>
<td>63.6</td>
<td>78.3</td>
<td>73.5</td>
</tr>
<tr>
<td>Amazing place to be</td>
<td>81.8</td>
<td>69.6</td>
<td>73.5</td>
</tr>
<tr>
<td>Very interesting place to walk around</td>
<td>63.6</td>
<td>87.0</td>
<td>79.4</td>
</tr>
<tr>
<td>Very enjoyable for relaxing</td>
<td>72.7</td>
<td>78.3</td>
<td>76.5</td>
</tr>
<tr>
<td>Anytime is a good time to be around</td>
<td>45.5</td>
<td>34.8</td>
<td>38.2</td>
</tr>
<tr>
<td>Spectacular views of the city &amp; Brooklyn Bridge</td>
<td>63.6</td>
<td>87.0</td>
<td>79.4</td>
</tr>
<tr>
<td>Awesome place for playing sports</td>
<td>36.4</td>
<td>30.4</td>
<td>32.4</td>
</tr>
<tr>
<td>Lots of free stuff to do</td>
<td>36.4</td>
<td>34.8</td>
<td>35.3</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relaxing</td>
<td>45.5</td>
<td>73.9</td>
<td>64.7</td>
</tr>
<tr>
<td>Sunbathing in Summer</td>
<td>36.4</td>
<td>43.5</td>
<td>41.2</td>
</tr>
<tr>
<td>Picnic and BBQ with friends and Family</td>
<td>63.6</td>
<td>73.9</td>
<td>70.6</td>
</tr>
<tr>
<td>Enjoying the views</td>
<td>81.8</td>
<td>82.6</td>
<td>82.4</td>
</tr>
<tr>
<td>Playing sports in the sports facilities</td>
<td>54.5</td>
<td>26.1</td>
<td>35.3</td>
</tr>
<tr>
<td>Enjoying the water's edge</td>
<td>72.7</td>
<td>65.2</td>
<td>67.6</td>
</tr>
<tr>
<td>Running</td>
<td>45.5</td>
<td>30.4</td>
<td>35.3</td>
</tr>
<tr>
<td>Walking</td>
<td>100</td>
<td>91.3</td>
<td>94.1</td>
</tr>
<tr>
<td>participate in community / social events</td>
<td>36.4</td>
<td>73.9</td>
<td>61.8</td>
</tr>
<tr>
<td><strong>Vegetation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beautiful along the park</td>
<td>63.6</td>
<td>87.0</td>
<td>79.4</td>
</tr>
<tr>
<td>Interesting and nice lawns</td>
<td>45.5</td>
<td>78.2</td>
<td>67.6</td>
</tr>
<tr>
<td>Natural - like in a nature trail</td>
<td>36.4</td>
<td>69.6</td>
<td>58.8</td>
</tr>
<tr>
<td><strong>Wildlife</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birds</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Bees</td>
<td>54.5</td>
<td>43.5</td>
<td>47.1</td>
</tr>
<tr>
<td>Butterflies</td>
<td>36.4</td>
<td>65.2</td>
<td>55.9</td>
</tr>
<tr>
<td>Ducks</td>
<td>54.5</td>
<td>52.2</td>
<td>52.9</td>
</tr>
<tr>
<td>Hawks</td>
<td>9.1</td>
<td>8.7</td>
<td>8.8</td>
</tr>
</tbody>
</table>

\( n \) | 11 | 23 | 34 |
Cross-cases Survey Analysis

A total of 87 respondents from both sites were surveyed. Results from both surveys indicated a positive response of visitors to the design, function and nature of the parks. The overall experiences of the respondents were wonderful, beautiful and very enjoyable experience. The High Line is more centrally located and offered more opportunities for access than BBP; however, respondents from BBP indicated that taking transit to the park is not a problem because the amenities, activities and the experiences of the park were worth the trip.

Visitors to both parks observed signs of wildlife in the parks, with butterflies, bees and birds being mentioned most often. BBP’s location offered greater opportunity for more variety of wildlife; even hawks have been reported by 3 respondents. Visitors agreed that both parks have great vegetation coverage. The High Line is more beautiful and amazing in the gardens, while BBP is more “nature-like” due to the water gardens, topography and berms (from Pier 1), and simpler materials used.

The only negative comment from the respondents of both surveys was that crowding is an issue sometimes when they were asked about the improvements to the parks, especially on the weekend. A respondent said that “a nice weekend on the High Line is always packed with tourists”, and another said “biking along the (BBP) promenade is impossible on a nice weekend”. However, respondents also mentioned that crowding was expected because the parks are major tourist attractions in the city.
Chapter 6 – Key Informant Interviews Results

This Chapter presents summaries of the findings for the key informant interviews. The findings for each key informant are subdivided into the three themes of the questions used: design aesthetics and site context, ecological servicing and sustainability, and human experiences. The methods used for key informant selection and translation of audio recording is explained in detail in Chapter 3. The findings will help inform the answers for all three research questions stated in Chapter 1, and to potentially inform a definition for symbiotic urban parks.

Scott Streeb, Landscape Architect

Scott Streeb is a senior associate at Michael Van Valkenburgh Associates (MVVA) based in Manhattan, New York City. His expertise lies in translating programs and concepts into plan and physical form, as well as spatial distribution of programming on the design. As a MVVA team member, Scott is aware of and exposed to sustainable practices in landscape architecture. Scott has worked on numerous projects including: North Grant Park and Maggie Daley Park in Chicago, Jacob K. Javits Plaza in New York City, and Brooklyn Bridge Park in Brooklyn.

FINDINGS

Design Aesthetics and Site Context

Streeb stressed the importance of approaching each project contextually to understand the needs of the citizens and to find out the missing experiences. The history of the place should be celebrated and incorporated into the overall design. Instead of creating a consistent feel for the design, try to play out the unique characteristics of the site to create variety throughout that allows the visitor to spend a day in one part of the site and the next day in a different part of the site. At the same time, the design has to be defensible from the cost, logistics, program,
environmental concerns, sustainability aspects, and community satisfaction. All these checks and balances help push for design excellence.

Designing parks in the city is challenging. Streeb mentions that there are so many invisible lines such as utilities, subway lines, and flood plains, that create challenges and complexity at consolidating sites and for coordinating and getting approvals from city agencies. The contemporary challenge for creating parks in the city is the lack of quality spaces that are accessible for the majority of the residents. Alternatively, brownfields, post-industrial areas, spaces on top of structures (such as parking garages) and derelict sites have great potential for new urban parks and public spaces, which public groups can start advocating for. Ultimately the community needs to express an interest to create a new park.

**Ecological Servicing and Sustainability**

Urban ecology and green infrastructure practices are becoming more and more important to the everyday landscape. Scott believes in the potential of urban parks functioning as “green machines”, and he stresses that the profession of landscape architecture should not be shy to show and highlight natural processes in parks. At the same time, it is important to have a balance between naturalistic aesthetics such as natural and wild planting schemes and the inevitable presence of lawn in parks. Lawns serve as platforms for very important social interactions in parks. People love to lie on the lawn and relax, have a picnic, play sports, read a book or even watch the clouds go by.

The things landscape architects do to the land need to stand the test of time (weather, erosion, ecological regime, and extensive use of the spaces) and to adhere to the city’s green infrastructure goals. Streeb says that MVVA goes one step beyond the requirements in their designs.

Streeb further explains that the performance and sustainability of the park can be measured through ecological performance standards, sustainability standards (social, economic,
and environmental), and post-occupancy surveys by asking: how people use the space, what is successful about the design, and how are people misusing the park and why. Streeb says that there are complex mechanical systems that help measure the efficiency of water reuse in the rain gardens on Pier One of BBP by monitoring and recording how much water is recycled and how much city water is introduced to keep the rain gardens working and to maintain the biodiversity of these habitats.

**Human Experiences**

Streeb describes that designing urban landscapes for human experiences is not an easy task. Human beings are complex creatures and that is a beautiful thing to inspire the imagination for better designs. The key is not to think of design as homogenous objects and to make things look the same. Instead, try to create as much programming variety, interest, and different environments throughout the space that cater to all populations, ages, cultures, gender, and all personality types. There are people who love to socialize and be the beating heart of the party and there are people who just want to relax and enjoy the day. The spaces should make anybody feel comfortable, whether a group of people, family, a couple or just that single shy guy by himself in the park. The diversity and shapes of the spaces allow for improving existing experiences and for reinventing new ones.

Streeb adds that connectivity of experiences is very important for developing successful designs. The adjacency and the transition of amenities and facilities create windows of opportunity to do something incredible and to eliminate barriers. Consider the use of appropriate and quality materials, finishes, colour and planting schemes to help lead the user to the next destination of the journey.

Furthermore, Streeb encourages present and future landscape architects to highlight natural processes such as water recycling and cleaning in the landscape (e.g., rain gardens in BBP) not just as a design feature, but also for environmental awareness and stewardship.
Streeb concluded the interview by emphasizing the importance of seasonality of spaces. The design and programming of urban parks should accommodate uses throughout the seasons, especially addressing the challenge of getting people out to the park in the winter times. Planting schemes that offer year-round interest and seasonal activities are good approaches to ensure the vitality of the spaces even in cold weather.

**John Donnelly, Project Manager/Landscape Architect RLA**

John Donnelly is an associate at Scape Landscape Architecture PLLC based in Manhattan, New York City. John has a Certificate in Urban Green Infrastructure – Innovative Green Infrastructure and is CLARB Certified. In his 10 years of professional practice working in urban environments, John has worked on projects including: Water Works Park in Minneapolis, Minnesota, Buffalo Outer Harbor Masterplan, First Avenue Water Plaza in New York City, mixed use developments, landscapes on structures, and proficient with construction documentation. John’s expertise lies in his commitment to bring innovative, resilient construction technologies and sound ecological thinking to design urban landscapes that function rather than just look beautiful.

**FINDINGS**

**Design Aesthetics and Site Context**

The concept and role of parks have changed a lot over the course of the profession of landscape architecture. In contemporary times, Donnelly believes that the evolving ideal of a park is heading towards the concepts of functional and performative green spaces, as in green infrastructure for cities. Landscape architecture is inherently sustainable, unlike architecture, but in this age of climate change and environmental stewardship the roles of parks need to be more than just recreational spaces. It is important for future parks to follow a system and processes
based approach that considers three factors: nature, recreation and design innovation. This combination has the potential to produce higher performance green spaces.

Donnelly feels strongly that what makes parks or green spaces interesting is the irregular and the uncommon. A deep understanding of site context will have tremendous influence in the design of appropriate and higher value landscapes, which in turn elevates the richness of experience for the users. On the other hand, the park needs to retain all essential elements: seating, water, food amenities, diversity of spaces that are engaging and accessible for everyone, well-thought-out circulation, high quality facilities and materiality, and the perception of being safe and comfortable.

The aesthetics of urban parks have evolved with changing societal values and environmental concerns. Donnelly says that functional parks, as in more conducive for ecological processes and biodiversity, often present more naturalized aesthetics rather than formal or modern aesthetics that tend to be more structured and rigid in appearance. However, form making is still pretty strong among landscape architects. Naturalized aesthetics tend to use more natural or raw materials that have harmony with the surroundings, and often the history, context and genius loci of the site will inform some of the design decisions for a better product.

**Ecological Servicing and Sustainability**

Donnelly states that ecology and nature in parks have become much more important in recent times. Parks in general play a vital role in improving the quality of life in cities and provide important ecological services such as air purification and water cleaning. The integration of ecology and natural processes in urban parks provide opportunities, especially in dense urban areas, for city dwellers to experience the feeling of being in a forest or a marsh thicket, increase health, and increase habitats for biodiversity. However, Donnelly makes clear that designed natural systems in parks are not about mimicking real natural systems, but to approximate the intended functions.
Naturalized systems and naturalized plantings are highly designed and intensely maintained in the early stages but, once established, they could potentially require less maintenance. Donnelly points out that both the High Line and BBP have naturalized planting systems that are meticulously designed, following a pattern, to look wild. The visitors really enjoy the parks because of how the plantings look and there is richness to it. The diversity of plant materials, mostly native, makes a stronger and more resilient system that could potentially foster more biodiversity.

Measuring the benefits of ecologically sustainable parks is not very easy. Donnelly suggests the sustainability loop (social, economic and environmental) is a good performance-measuring tool to consider for managing the input and output of resources when creating new urban parks. However, it is even harder to measure the ecological benefits or metrics for measuring these are not yet established.

Human Experiences

Donnelly advises to always keep in mind the idea of the new in all design challenges: new planting typologies, new kinds of activities, new amenities, art, and new experiences to enjoy throughout the year. At the same time, one element that will remain is the lawn, because it is integral for all types of social activities and its position in the designed landscape needs to be carefully crafted and sized appropriately.

Nowadays, Donnelly says that urban parks are more inclusive places for all citizens and cultural diversities, and support very different kinds of activities and programming, whether formal or informal. Citizen engagement and participation in the design process are very important to find out the needs of the community, but also provide an opportunity to educate the citizens about the purpose behind the different design decisions, whether about planting schemes, materiality or the design of the spaces in general.
Jane Welsh has been working for the City of Toronto for 23 years. Jane is currently the Project Manager for Environmental Planning responsible for the Toronto’s Green Standard, natural heritage protection, ravine protection bylaw, and bird-friendly designs. Jane’s professional practice includes: waterfront planning and trails for Toronto, Mississauga and Burlington; planned natural areas for Hamilton at Halton Conservation Authority; and the Biodiversity Series of information booklets.

**FINDINGS**

**Design Aesthetics and Site Context**

Welsh believes that urban parks play a vital role in the sustainability of the city and improve the overall quality of life of the population. However, there are just not enough available spaces for parklands in already crowded cities that will be close enough and accessible enough for the majority of the population. There is a deficiency of parkland in City of Toronto and the situation is similar in other global cities. The lack of suitable land for green spaces has resulted in creative ways to provide more open spaces in urban cores, such as Privately-Owned Publicly-accessible Spaces (POPS). POPS are happening around the world.

POPS vary in size according to the development or their location. The developer is typically given more built floor spaces in agreement that a certain amount of square footage from the site is developed into small green or open spaces such as small plazas, green corridors for connection, pocket parks for passive and active recreation, and others that are fully accessible to the public and maintained by the development. POPS have proven to be a good approach to provide alternative open spaces to improve the quality of life in cities and to provide connections to the overall network of parks.
Welsh says that urban park design is contextually specific to respond to the needs of the community. Most often, design aesthetic preferences for urban parks are culturally set. For example, some people view their mowed lawn as something beautiful compared to others that might see it as ugly, because it is not allowing the natural areas to show through and has little ecological value. Also, people's level of education and exposure to different kinds of urban environments might affect their perspectives.

**Ecological Servicing and Sustainability**

Parks in general provide important ecological services, functions and benefits to the citizens. Welsh says that parks are very important for the cooling the city, purifying the air, cleaning and managing stormwater, contributing to the overall well-being of the citizens, and making the city a more sustainable place to live and work. Parks are becoming more and more multifunctional but, at the same time, parks need to be respectful of the natural environment and surrounding biodiversity by creating and preserving natural and wild areas within the parks.

Welsh points out that there are not enough funds to support a project for assessing and/or removing invasive plant species in parks, in order to allow the native understory to develop and support more biodiversity and to also create more interest in the natural look of the vegetation. The native flora suffers as a result, and reduces parks’ ecological services potential.

**Human Experiences**

The role and function of urban parks have changed or increased in intensity as population increased in cities. Welsh says that all different kinds of recreational and cultural activities take place in today’s urban parks: community gatherings, cultural congregations, active and passive recreation, areas for events, outdoor movies, areas for children playground, areas for dogs, etc. The greater population needs walkable distances to parks to experience all the life and social interactions that take place in parks, and parks need good infrastructures and
essential amenities (seating, washrooms, garbage collection, food, water) to accommodate all users and activities, especially for colder temperatures.

Welsh stresses the importance to keep providing green spaces in cities, but it is also important to have the resources to promote and inform the public about protection and conservation of native biodiversity and natural resources in parks. Education and community engagement are important avenues to spread the message, as well as government initiatives and projects such as Discovery Walks in Toronto, to encourage residents to explore and learn about the amazing biodiversity in cities, and to promote a different kind of recreation and a different way to experience green spaces and history of the city. Most recently, Welsh mentioned that social media, such as Facebook, have proven to be successful at trying to engage more of the public, and youth in particular to keep them informed of the issues or projects taking place in their neighbourhood parks.

**Alex Shevchuk, Project Manager / Landscape Architect** OALA, CSLA

Alex Shevchuk has been working for the City of Toronto for over 17 years in the Parks and Recreation Division. Alex has extensive knowledge in sustainable park design and planning, park rehabilitation and renewal, ecology, the conservation of resources, and community engagement and participation in design.

**FINDINGS**

**Design Aesthetics and Site Context**

Shevchuk has observed significant changes in park design and planning over the past decade. The increasingly informed recognition of ecology and environmental issues (climate change, urban heat island, carbon footprint) are changing the perspective of park development as systems planning that plays a meaningful role in the management of natural processes in
urban areas. Shevchuk says that current park design styles try to balance the traditional sense of aesthetics (pastoral feel with lawn and trees) with more refined aesthetics (quality of materials, better sense of design, contemporary form making) to create multifunctional spaces to accommodate all user groups.

The design and programming of the park depends largely on the inputs of the community and advocacy groups. Shevchuk explains that the programming of parks is evolving to accommodate the changing diversity and the ethnic cultural mix of people who live in cities, which results in new facilities arriving in parks such as cricket fields. In general, urban parks should provide amenities and facilities that support and reflect the social and cultural needs of the citizens.

Furthermore, the ever-growing population in cities and the demand for housing make park development a difficult task. Shevchuk points out the last remaining locations for parkland development are brownfields, post-industrial sites, decommissioned railways, hydro corridors, and other undesirable locations. These sites have a lot of potential, but require a new kind of mindset to envision these spaces, not just in terms of parks but also in terms of connecting these areas or corridors into a system of functioning green spaces.

**Ecological Servicing and Sustainability**

Shevchuk says that even in the downtown core, highly urbanized parks still have a sensibility of sustainability and ecology by constantly managing stormwater on site, reducing energy consumption in lighting, using environmentally-friendly and local materials, and enhancing the ecological benefits and services of plants.

The design and aesthetics of planting schemes in parks are slowly changing in the urban environment. Shevchuk says the idea of beautiful always changes. Urban parks are slowly welcoming a more naturalistic planting style that brings a kind of messiness and complexity to
the landscape. Naturalistic plantings bring more habitat value and biodiversity than the traditional lawn; however, the lawn is still very important for all kinds of social interactions.

Shevchuk concludes by adding that parks are also about the conservation of natural resources. It is important to select the right types of surfaces, hard or soft, and the right materials, such as native vegetation, to make the space more sustainable and more conducive for fostering local biodiversity.

**Human Experiences**

The beauty of cities is about the opportunities to experience the multicultural diversity of its people. Shevchuk believes that urban green spaces not only need to accommodate the passive and active recreational needs of the people, but cultural needs as well. Urban parks are certainly part of the city’s green infrastructure network, but these green spaces can also be productive lands for other user groups. It is hard enough to find quality spaces to build more parks in the city, but to find spaces for urban agriculture and community gardens is even harder.

Shevchuk also mentions that quality parks need quality facilities and lots of maintenance. However, the budget for park maintenance is never enough as demands increase constantly. The decline in the quality of parkland greatly affects the user experience and the overall livability of cities. Community engagement in the design process is very important in establishing the needs of the community, to improve how parks are designed and operated, and how decisions are made.

Lastly, Shevchuk concludes that the success of the parks is measured through user satisfaction surveys that are carried out every few years. The results help inform future improvements, changes in parks and to try out new things throughout the seasons.
Chapter 7 – Discussion

This chapter presents what the major results of this research have revealed about the design trajectory of urban parks in contemporary times. The findings have been critically analyzed in order to determine their relevancy for the profession of landscape architecture. The information presented offers considerations for landscape architects aiming to create urban parks to become symbols of pride for the community and places for nature. The considerations also serve as foundation for defining the concept of symbiotic urban parks.

Programming and Animating the Park

Design is the imagination at work, but most often the imagination can run wild or very still. A well-designed space should not just accommodate the needs and wants of the present demographic, but anticipate trend changes and future needs of the neighbourhoods’ residents. However, the data from the key informants and case studies suggest a great urban park should have the basic elements and facilities to accommodate the essential functions and activities, including spaces for relaxing with plenty of available seating; appropriate-size lawns for picnics; group passive recreation and gatherings; a well-thought-out circulation system to accommodate walking, running, jogging, cycling and other modes of active recreation; well-built and clean sanitation facilities; food facilities; garbage collection points; and well-designed lighting modules for safety at night. Unique programming and unique experiences come from deep understanding of site context and location and the reimagining of innovative approaches to best utilize existing resources.

The design of urban parks should be flexible, irregular and heterogeneous according to context, as indicated by the informants and the cases, to allow for user experimentation and for finding out new possibilities for the space. Results from this research suggested that providing a
wide range of programs, facilities and activities could increase park usage and enriched visitors' experiences.

**Community Participation and Partnership**

Active community engagement is an essential ingredient in making successful urban parks, as indicated by all four informants. This is the process of working collaboratively with individuals and groups to improve their local environment. For parks and open spaces, community engagement allows public officials and private investment partners to directly involve the residents in the ongoing design, planning, and management of these parks and resources for the city. This process results in informed and engaged residents who feel better connected to their communities and the promotion of environmental stewardship of the parks.

Parks support community engagement by providing residents with a venue for participation in and attachment to their communities. They also provide a sense of place and offer essential qualities to enhance the quality of life and environment to the community and to the individual's well-being. By understanding the benefits of community partnership in parks, decision and policy makers can develop long-lasting relationships with all user groups of parks for the ultimate goal of supporting and sustaining their urban park systems over time.

Past research studies (Chiesura, 2004; Conway, 2000; Peters et al., 2010) have demonstrated that when a space is well used and loved by the community, its residents will show more appreciation and consideration to safeguard and maintain the infrastructures and facilities. Knowing the real needs of the community can reinforce “less is more”, because an overly designed and structured site will not allow the freedom and creativity of people to explore their curiosity and their own ways to use the space through informal uses.
**Designed and Cultivated Wildness**

According to all four key informants, the careful and thoughtful selection of plants and planting aesthetics, both naturalistic looking and well maintained, has a strong influence on public perception and experience of the urban park, and the provision of valuable natural habitats for wildlife and biodiversity. The selection and use of native plants in the landscape is the most sustainable avenue, not only to increase the habitat value for wildlife but also to enhance genetic biodiversity of native plants in the urban landscape. It also adds an element of interest and connection to nature in the city.

According to John Donnelly, the complex aesthetics of the wild-like or naturalistic planting schemes in urban parks are carefully designed and intensely cultivated. The design principles and patterns are still there, but the interaction of the different plant communities are blurred and merged to form a nature-like system.

The return to nature is redemptive and redresses the site’s past and history, in an attempt to recapture the site’s formal qualities. However, respecting and working with the successional ecologies and vegetation typologies on the site creates a more symbiotic approach to not just repopulate the landscape, but to recognize the value and resilience of nature coexisting in the concrete urban medium.

**Change Over Time**

Change and transformation are an inherent part of the magic of landscape architecture, but most often the users do not experience this unique process. Most often, people only venture to parks when the time of day is favourable and with the right weather conditions. How can we encourage the public to experience the space at any time of year?

The thoughtful selection of native plantings that offer different kinds of interest with the change of seasons is a good strategy to encourage more park visits, as evidenced from the direct field observations and user experience survey. Nature is a powerful agent of
transformation. Working with the natural processes of the site to influence design approaches ensures a successful and valued product.

Change and transformation are natural and evident in nature, and thus create a history authentic to the site. Landscape architecture should be able to highlight and celebrate the history of the site by using deliberate design markers, such as artifacts from the site, information plaques about the site, preserved sections of the original site, and design clues and interpretations, to tell the story of the site and to create a balance and a symbiotic medium with the new.

**Landscape Maintenance**

Successful and well-maintained urban parks require tremendous input of resources for their daily operations. As all four key informant mentioned in the interviews, the city park maintenance budget is hardly enough to fully cover maintenance costs. However, there are ways to find the extra revenue needed for not only keeping the grounds in good conditions, but to make improvements and add amenities to the spaces.

Community involvement and volunteering are great avenues to allow citizens to know more about their environment and to discover different areas of interest and opportunity for the residents. The private and public partnerships in park development have become increasingly common. Private partners have the funds to support innovative designs, according to John, Scott and results from the cases, but also the agenda to be part of the development. As a trade off, an area of public space is given for private development which in turn ensures funds are provided for the operations of the park.

It takes all stakeholders, user groups and governing bodies to maintain the longevity and vitality of the urban parks, not just for the overall benefits and enjoyment for the people and cities but to maintain the heath, vitality and productivity of nature in cities, thus creating symbiosis and equilibrium in the urban landscape.
Chapter 8 - Conclusion

Summary of Research

The contemporary urban landscape is constantly changing, evolving and remaking itself over and over again. This research explored the complexities of making and managing the urban park landscape in the 21st century. The traditional understanding of public green space is no longer preserved for passive and active recreational uses, but now for fostering a better symbiotic relationship among the community, the built infrastructures and the local biodiversity population as a functioning and productive unit for a resilient future.

The pressures of urban densification have pushed urban park designers to reinvent their programming strategy to be more inclusive of the wide range of population diversity, cultural needs, community social interaction and integration, and to be a sensitive provider of habitat for nature and its biodiversity. The basic and traditional recreation functions of urban parks remain the same, but there is an increasing demand for richer experiences of activities.

Community consultation and involvement in all stages of park development are crucial in contemporary times, ensuring that the proper design forms, facilities and programming satisfy the recreation needs of the residents.

The economics of urban park planning, development and maintenance still reflect the ongoing challenge of park development in cities, where compact living has become the norm.

Defining Symbiotic Urban Parks

The analysis and results of this exploratory research has come to reference and reflect on Hunt’s (1992) and Corner’s (1999) suggestions, results from the research methods and analysis of the information, the author of this exploratory research proposes a theoretical definition for symbiotic urban parks as the following:
Symbiotic urban parks seek to balance interactions between human processes and natural processes in the designed landscape, in light of creating a better equilibrium of functional spaces for recreation, community engagement, environmental stewardship, and biodiversity in the urban fabric. The symbiotic urban park takes new appropriation of the aesthetics of the picturesque, of the wild and of the sustainable to inform a landscape of designed hybrid processes and functions that invite human participation to foster long-term productivity and perpetuity of the nature-human-city relationship.

The ideas and suggestions for the concept of symbiotic urban parks are summarized in the following points:

- The symbiotic urban park is site and context specific. Each design is unique, but its approach and design process are replicable. The site’s natural qualities, history and cultural significance help inform design planning and decision-making, but innovative vision and imagination are needed to execute the final design.

- The park is for the people. Active community engagement and participation ensure the design is inclusive and accessible to all users and diversity groups. Inclusive design promotes social integration and strengthens neighbourhood relationships. The inclusion of private partnerships park development ensures the overall success and ongoing input of resources in maintenance operations.

- Program for the unexpected and elevate the richness of experience. Urban parks are platforms for experimentation while maintaining the essential functions and recreational benefits of parks. The unique circumstances of the site inform site-specific programming and recreational opportunities for the space.

- The care for urban nature and urban biodiversity. The use of native vegetation in urban parks and the design of habitats for wildlife and biodiversity greatly enhance the opportunities for richness of experience. The symbiotic urban park seeks to renew and enhance the relationship among human beings, nature and the concrete built forms.
Emphasis is on the value of change and transformation of the landscape over time. Encourage visitors to experience the space even through inclement weather conditions through the use of plants, seasonal programming of space, presence of art and experimentation in the park, and highlighting natural processes of the landscape.

Future of Urban Parks

As people move to cities and space becomes more and more of a premium for housing infrastructure, parkland opportunities become challenged. The search for quality spaces for parkland is very limited. The future of urban parks is confined to the residual spaces: underutilized corners, peripheral lands or forgotten terrains. However, there is a potential for post-industrial sites and brownfields to become the next frontier for public green space developments in land-deficient cities.

As explored through key informant interviews, underutilized spaces such as underpass land beneath highways, hydro corridors, and spaces on top of parking structures will give rise to new forms of urban green spaces and recreational opportunities. These environments come with unique history and cultural significance that are worth preserving and building on to create new and exciting parks.

Limitations of the Research

This exploratory research is applicable to urban areas where higher population density can support the economic demands of a high quality and complex urban green space design project. The considerations offered in this exploratory investigation are more representative of the western perspective of urban green space design, traditions and ideologies. Nevertheless, the considerations can be applicable across disciplines and influence or provide a different perspective to other design disciplines. The results of this research can be scaled down to adapt
to suburban neighbourhood conditions and their respective needs for what amenities and facilities would best suit the recreational needs of the community.

The limited number of respondents may not provide a representative perspective of all the park users of the case studies, as the sample was directed to local residents for the purpose of this research. The researcher must rely on the honesty, accuracy and thoughtfulness of the respondents’ answers. The respondents’ backgrounds, professional experiences and degree of exposure to design could have influenced their perspectives and experiences of the parks.

As the survey was conducted on two sites, the answers differ in meaning and reflect respective sites only, and selecting certain times, whether morning or afternoon, to spend on each site was challenging as different times of day could have affected the amount of visitors being in the sites. The number of tourists visiting the parks represented a challenge to the researcher in distinguishing the local residents from visitors or non-residents (tourists) among the crowd; therefore, this technique did not distinguish local resident, who might visit the park more frequently versus a non-resident visitor. The survey responses were manually recorded by hand, only the relevant and major details, perspectives and experiences from the respondents were noted. In some cases there were two respondents responding to the survey at once, the responses from both individuals were recorded in a single survey and later divided into two distinct surveys at the discretion of the researcher. This means their responses might be affected. Other limitations include: the researcher’s bias in developing the survey, the respondent’s own interpretation of the questions, the subjectivity of the responses, and the process of coding and analyzing the open-ended questions create possibility of subjectivity by the researcher.

Both case studies were located in New York City, but site context and surrounding urban conditions differed. Potential case study sites in other urban areas might yield different approaches to parkland design and development. The small availability of resources and limited time frame of the researcher limited the case study selection. Time, resources and accessibility
limited case selection. Other limitations included: the documents under analysis might not fully characterize the work, the duration of establishment to publication timelines might miss relevant information, direct observations can be biased, the time and duration of observation, and any inherent biases of the observer, even awareness of interactions.

The informants’ responses may not be representative of the thinking of all landscape architects, as the practice is diverse and thoughts may differ greatly according to training, focus of practice, experience and locations of practice such as Europe, Asia or North America. Careful informant selection through the set of pre-determined criteria (Chapter 3) might reduce response bias. The validity of the findings may be difficult to prove. Time, resources and accessibility limited the number of interviews. Furthermore, the key informants are from New York City (two private professionals) and Toronto (two public professionals). Some interview questions asked directly about the changes in urban park development and policies of their own city, but others were rather general perspectives on the subject of urban parks development and community participation. New York City and Toronto are both developed and dense metropolis that share many similar social conditions, environmental challenges and sustainability goals.

**Future Research**

The results from this exploratory research identified a few key areas or topics of knowledge that have the potential for further investigation. The topics include:

- The role and importance of community engagement and participation for urban parks planning. How can citizens participate and engage more actively in the stewardship of their neighbourhood park?
- Further data collection and scientific knowledge for creating proper measuring techniques. Establish discrete scales to assess the performance of ecological processes in urban parks for collecting scientific data to inform, validate, and support the value of ecological processes and to justify the expenses.
Resource metabolism analysis in the implementation of green infrastructures in parks.

Do implementation and maintenance costs justify the scale of the project? What are the compromises?

Expanding the research methods used for this exploratory investigation to include case studies from different cultural perspectives on urban parks, bigger and more diverse sampling population, and a more diverse selection of key informants not limited to the profession of landscape architecture could produce different and/or richer results.

Final Remarks

The definition and ideas of the symbiotic urban park could serve as a base for generating future dialogue and research into the complex phenomenon of urban parks. The research process and methods used for this research are replicable for other social science disciplines. The results and considerations of this research will contribute to the profession of landscape architecture in better understanding the needs of different user groups of the spaces, by encouraging experimentation for improving existing experiences, and for imagining new and exciting ones for the symbiotic urban park.
References


Appendix A: Key Informant Interview Consent Form

Key Informant Interview Consent Form

PARTICIPATION AND CONFIDENTIALITY

You are invited to take part in a research project about urban parks. Your participation in this study is completely voluntary and you may refuse to answer any questions at any time for any reason. Answer from these questions will be used in the Master's of Landscape Architecture thesis entitled “Symbiotic Landscapes (SL): Aesthetics, Ecological Servicing & Human Experiences”. The interview will be recorded using an audio recording device. Data collected through this interview will NOT be anonymous due to the small sample size of key informants. Informants may be referred to by name and organization. Please do not write anything that may put you at risk within your profession or workplace if someone were to tell who contributed the data. Informants are also given the opportunity to have their personal information to remain confidential, in which case, their name and organization will not be mentioned in the thesis document. You may withdraw from the study and have your data removed if indicated to the student researcher by February 1, 2014.

This research has been reviewed and approved by the Research Ethics Board at the University of Guelph (Research Ethics Clearance number __14NV044__). Any questions regarding your rights as a participant can be addressed to:

Director, Research Ethics
(519) 824 - 4120 Ext. 56606
reb@uoguelph.ca

If you have any questions or concerns about this research please contact either:

Student Researcher: Ku Wing Chao, MLA Candidate
University of Guelph
(647) 282 - 1228
kchao@uoguelph.ca

Principal Investigator: Sean Kelly, Assistant Professor
University of Guelph
(519) 824 – 4120 Ext. 56870
skelly03@uoguelph.ca

CONSENT. In order to participate in this study informed consent is required and participants must be at least 18 years of age. I have read the above information provided and agree to participate in this interview.

Signature: __________________________ Date: ________________

☐ Wish personal information to remain confidential.
Appendix B: User Experience Survey Oral Consent Form

User Experience Survey
Oral Consent

You are invited to take part in this research project about urban parks. This brief survey has been written to gather information about how people experience urban parks and what kinds of activities they do in urban parks as part of my Master of Landscape Architecture thesis. Information gathered from this questionnaire is meant to help understand what experiences and features are important to the users of urban parks and what needs to improve.

The survey should take approximately 5 - 10 minutes to complete. Your participation in this study is completely voluntary and you may refuse to answer any questions or withdraw at any time for any reason. A condition of participation is that the participant must be at least the legal age of 18. The survey results will be kept anonymous. Participants will not be asked to disclose their name and, as such, under no circumstances will you be identified or be identifiable. Given that participants will be anonymous, withdrawal from the study will not be possible once the survey has been completed. Results from the survey will only be used for my thesis research.

KU WING CHAO
Master’s Student
University of Guelph
kchao@uoguelph.ca

SEAN KELLY
Assistant Professor, Principal Investigator
University of Guelph
Skelly03@uoguelph.ca
Appendix C: Research Ethics Board Certificate

RESEARCH ETHICS BOARDS
Certification of Ethical Acceptability of Research Involving Human Participants

APPROVAL PERIOD: January 9, 2015
EXPIRY DATE: January 9, 2016
REB: G
REB NUMBER: 14NV044
TYPE OF REVIEW: Delegated Type 1
PRINCIPAL INVESTIGATOR: Kelly, Sean (skelly03@uoguelph.ca)
DEPARTMENT: School of Environmental Design & Rural Development
SPONSOR(S): N/A
TITLE OF PROJECT: Symbiotic Landscapes (SL): Aesthetics, Ecological Servicing & Human Experiences

The members of the University of Guelph Research Ethics Board have examined the protocol which describes the participation of the human participants in the above-named research project and considers the procedures, as described by the applicant, to conform to the University's ethical standards and the Tri-Council Policy Statement, 2nd Edition.

The REB requires that researchers:
- Adhere to the protocol as last reviewed and approved by the REB.
- Receive approval from the REB for any modifications before they can be implemented.
- Report any change in the source of funding.
- Report unexpected events or incidental findings to the REB as soon as possible with an indication of how these events affect, in the view of the Principal Investigator, the safety of the participants, and the continuation of the protocol.
- Are responsible for ascertaining and complying with all applicable legal and regulatory requirements with respect to consent and the protection of privacy of participants in the jurisdiction of the research project.

The Principal Investigator must:
- Ensure that the ethical guidelines and approvals of facilities or institutions involved in the research are obtained and filed with the REB prior to the initiation of any research protocols.
- Submit a Status Report to the REB upon completion of the project. If the research is a multi-year project, a status report must be submitted annually prior to the expiry date. Failure to submit an annual status report will lead to your study being suspended and potentially terminated.

The approval for this protocol terminates on the EXPIRY DATE, or the term of your appointment or employment at the University of Guelph whichever comes first.

Signature: L. Kuczynski
Date: January 9, 2015
Chair, Research Ethic Board-General
Appendix D: User Experience Survey Questions

User Experience Survey Questions

Date: _________________  Age group:  □ 18 – 25  36 – 45  Male  
                 26 – 35  46+  Female

Part 1: Use of the Park
1. How often do you visit the park?
   Once/week  Twice/week  Several times/week  Few times/month

2. How far are you from the park?
   Walking Distance (5-10 min)  Need transit/car

3. Please describe the kind of activities you like to do in the park:
   __________________________________________________________________________
   __________________________________________________________________________
   __________________________________________________________________________

Part 2: Design Aesthetics of the Park
4. Please describe what attracts you about the park:
   Access/Location  Amenities  Cultural Activities  Views
   Nature  Other: ___________________________________________________________________

5. Please describe your experience of the park:
   __________________________________________________________________________
   __________________________________________________________________________
   __________________________________________________________________________

6. What features in the park do you think could improve?
   __________________________________________________________________________
   __________________________________________________________________________
   __________________________________________________________________________

Part 3: Ecology & Wildlife in the Park
7. What do you think about the vegetation in the park? What do you like or dislike?
   __________________________________________________________________________
   __________________________________________________________________________
   __________________________________________________________________________

8. Do you see wildlife or increase of wildlife in the park? Please describe:
   __________________________________________________________________________
   __________________________________________________________________________
   __________________________________________________________________________
Appendix E: Key Informant Interview Questions

Key Informant Interview Questions

Symbiotic Urban Parks: Exploring Design Aesthetics, User Experiences and Ecological Services

Research Questions:
• Does design influence the concept of symbiotic urban parks? What is the concept?
• Are there important user experiences and expectations? What are these?
• Does urban ecology influence the final design? How?

Introduction Questions:
1. How long have you been working as a Landscape Architect?
2. What is your job title and area(s) of expertise?
3. What kinds of projects involving human experiences and ecology have you involved in in the past?

Design Elements, Aesthetics, & Site Context:
3. How do parks influence or what roles do they play in the functioning of the contemporary city? Has that role changed over the years?
4. What are the essential programmatic elements to consider when designing or conceptualizing a new and successful urban park?
5. What kinds of aesthetics (plantings, design elements, open spaces, etc.) do people prefer in parks and how receptive people are towards new aesthetics?
6. What are cities' general strategies for park maintenance? Do you think standard parks (turf and trees) require less maintenance than parks with biodiversity habitats?
7. What are the contemporary challenges of allocating parks or open spaces in the crowded city?

Ecological Servicing and Sustainable Evolution:
8. What are the sustainable approaches or green technologies used in the design process and construction of contemporary parks?
9. Is it important to incorporate ecology, natural processes and biodiversity environments into the design of the park? Please elaborate.
10. How important are aesthetics, especially planting aesthetics, for designing biodiversity rich spaces in parks?
11. What are cities doing to increase the awareness and legibility of nature as an integral part of the urban experience?
12. How does the park contribute to provide better linkage to the surrounding environments and ecosystems in the city?

Human Experiences:
13. From your years of professional experience, what kinds of recreational and cultural opportunities do people often look for or expect in urban parks? How does the City address those programmatic needs?
14. How important is the understanding of site programming for providing better human experiences and interactions in urban parks?
15. How do the design elements and aesthetics of the park enhance and promote a better experience of nature and landscape in the city?
16. In your opinion, how would you describe the richness of experience being in a park?
17. How do cities measure the performance and success of their many parks?

Concluding Questions:
18. In your opinion, what do you think is the big scope of Landscape Architecture in times of climate change and ecological awareness?
19. Do you have any final comments or recommendations that could assist and further my research?

Thank you for your time.