CLOSING THE GAP:

Green Infrastructure as a Cultural Resource

PLG720: FINAL REPORT
Bright City Consulting
Supervisor: Nina-Marie Lister
Client: David Carruthers
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BRIGHT CITY CONSULTING TEAM

RYERSON SCHOOL OF URBAN AND REGIONAL PLANNING

Group Members:

Melissa Alcinii
Allison Annesley
Patrick Collyer Brown
Hallie Church
Matt Edwards
Jassie Hayer
Laura Kalbun
Marla Rotsztain
Murray White
Samantha Zavaglia

EXECUTIVE SUMMARY

The field of Municipal Cultural Planning (MCP) has recently garnered a significant amount of attention from various stakeholders in Canadian municipalities. Stemming from the ideas of the creative class and the creative economy forwarded by Richard Florida, Municipal Cultural Planning has evolved to assist municipalities in implementing strategies that incorporate these concepts in order to shift the economic focus of their communities. The concept of the Creative City places great importance on culture as an economic generator. Florida has argued that cities will need to move away from manufacturing as the main generator of wealth towards more creative industries that utilize the creative class. The creative class is made up of professionals that rely on creativity in their employment such as artists, musicians, doctors, lawyers and urban planners. Municipal Cultural Planning aims to use culture to create distinctive places and spaces that are attractive to the creative class. Culture is not only the art, music and institutions of a community but also the thoughts and ideas of citizens as well as the ways in which communities set and accomplish their goals.

Municipal Cultural Planners often use maps to record and organize data to create inventories of cultural resources. Maps are communication devices that are used to tell stories. In order to tell a story, it is necessary that mapmakers make decisions about what to include and what to ignore. Effective maps tell complete stories, which are direct reflections of the decisions made by the mapmaker. In community mapping projects, it has been shown that the process of creating a map is much more important than the map itself. The process creates a dialogue between different groups within a community and helps to forge bonds and bridges between different groups. This helps to strengthen community identity and can foster a greater sense of place.

Natural elements in the urban landscape, or Green Infrastructure, have largely been overlooked in Municipal Cultural Plans as an important cultural asset. Beyond their environmental benefits, green spaces and natural areas have also been shown to be instrumental in the development of identity and sense of place. Natural elements impact personal experiences and narratives that affect how people view their community. Natural spaces are places where culture lives through the ordinary and extraordinary events that take place in them.

Despite the cultural significance of natural elements and green spaces, they have been overlooked in the cultural resource inventories and cultural plans drafted by municipal cultural planners. Part of this oversight stems from the fact that there is no tool to accurately measure the cultural value of Green Infrastructure or how it changes over time. This project attempts to investigate the unrecognized link between Municipal Cultural Planning and Green Infrastructure. An indicators method has been used to measure the cultural value of the selected assets. This method, if replicated, can track the progress of various municipal programs over time.

In order to narrow down local Green Infrastructure assets for further examination, a comprehensive list consisting of hundreds of assets was created through a collective brainstorming process. Additionally, a set of metacategories to classify different aspects of Green Infrastructure assets has been developed and categorized as primary, secondary and tertiary assets. Primary assets are defined as natural building blocks of an ecosystem including flora and fauna, climate and habitats. Secondary assets are built infrastructure that contribute to the environmental health of a city. Finally, tertiary assets are policies that support, maintain and enhance the natural environment.

The selected assets and the indicators and targets that were developed to measure their value are as follows:

Primary Asset: Tree Canopy

Indicator: Percentage of canopy cover

Target: 40% total coverage

EXECUTIVE SUMMARY

Secondary Asset: Farmers Market

Indicator: Distribution

Target: residents should live no further than two kilometres from a farmers market

Tertiary Asset – Recreational parks

Indicator: Ease of access to special event permits

Target: Increase ease to promote more community events

Data collection for each asset has been performed and presented, where appropriate, with a map. Our findings have provided new places for tree cover, 17 new farmers markets and new guidelines for event planning in recreational parks.

It is hoped that this exercise will lead to greater recognition of Green Infrastructure as a cultural resource and an asset in the field of Municipal Cultural Planning. This report is meant to serve as a preliminary guide for other practitioners. As this was the first attempt at such an exercise, Bright City Consulting has documented the process throughout. The report is divided in to two parallel parts. The first is the more formal report, which has been the product of our process. The second tracks the process Bright City Consulting followed, including all the speed bumps and u-turns along the way.

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1.0 INTRODUCTION

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Bright City Consulting is a group of ten senior Ryerson University urban planning students who have been paired with PlanLab Ltd. to merge the ideas behind landscape urbanism with the ideas promoted by the emerging field of Municipal Cultural Planning.

Municipal Cultural Planning (MCP) is at the forefront of many city building agendas because of its promise of revitalization through arts, culture and the creative class. Cities are attempting to inventory, measure and evaluate their cultural assets. At the same time, advances in technology such as digitized maps and Web 2.0 tools have increased the capacity for community groups to contribute meaningfully to the dialogue between planners and politicians.

Nature has always held deep significance and aesthetic value in urban landscapes (Beatley, 1997, 82). However society's connection with the natural world has grown weaker through the processes of industrialization and urbanization. There is a growing realization that this connection needs to be re-forged. Natural elements including Green Infrastructure, a community's managed network of natural and working landscapes, are crucial to local cultural development and well being but this has not yet been recognized in the field of MCP.

Bright City Consulting has been retained to create a method of measuring the cultural value of natural elements in the urban landscape. An indicators and mapping approach has been developed within a cultural context in order to accomplish this task. It is hoped that through this method it will be possible to incorporate natural elements into future municipal cultural plans.

Over the course of this studio project, Bright City Consulting discovered the importance of story-telling as a crucial element in mapping Green Infrastructure as cultural assets. Our process formed part of the method for this undertaking and we feel we have a story to tell. So please read along and follow our journey of discovery surrounding Green Infrastructure and Municipal Cultural Planning.

FIGURE 1 : Group Members

ADMINISTRATION

Bright City's consultants: Melissa, Murray, Jassie, Pat, Allison, Sam, Marla, Matt, Laura and Hallie are colleagues in their final year of Ryerson's Urban and Regional Planning program. We come from a diverse range of academic and social backgrounds and each of us independently chose this studio project over several others on offer as part of the curriculum for the fall of 2009. In forming Bright City Consulting, concepts for a logo were discussed and roles were assigned based on self-declared strengths and weaknesses. These roles included: Joint Team Leaders, Communicator, Photographer, Minute-Taker, Editor and Bookkeeper, as well as mapping, writing and editing sub-groups. A blog was also created to document our process. It can be viewed at http://www.ryersonbrightcity.blogspot.com/

BRIGHT CITY consulting

FIGURE 2 : Group Logo

Bright City Consulting has developed the following principles to guide this project:

Systems Approach:

A recognition that ecosystems and cities can be interpreted as dynamic systems. As such, all elements are interrelated and a change in any part may reverberate and affect other elements in the system.

Creativity:

The process of creating and defining asset categories should be done by thinking outside the box. The measurement of Green Infrastructure in connection with Municipal Cultural Planning must transcend traditional planning ideas.

Innovation:

A way of thinking or doing something that has not been done before. In this project, Green Infrastructure is being identified, measured and analyzed with this in mind. Innovative ideas should be well thought out and applied successfully in practice.

Intuition:

While research has informed this process, the ideas expressed should be easy to identify, understand and employ in future municipal cultural plans.

Education:

This project aims to inform the general public as well as individuals in the professional realm. Once connections have been made between Green Infrastructure and cultural planning, they should be measured and understood. This should help inform planning and design as well as encourage civic engagement.

FIGURE 3 : Blog


FIGURE 4 : Blog

Consideration was also given to the allocation of resources and the anticipated capital necessary to execute this project. These costs were outlined in a proposed budget. At this point the group developed a work plan to determine tasks and timelines.

In our initial discussions, the aspects of the project that appealed to individual consultants ranged from potential opportunities to hone research and technical skills and participate in brainstorming, to hands-on tasks like creative mapping and the opportunity to stretch our minds. With a unanimous desire to rise to the challenge of this project, Bright City Consulting proceeded to "get our heads around it" with some preliminary research.

DEFINING THE PROJECT

The obvious starting point for defining the project was in our Terms Of Reference. A group read-through led to further discussion with an aim to build a contextual framework for tackling the research.

Bright City Consultants believe their collaboration with PlanLab Ltd. will contribute to a body of research and discussion for a new planning model. This process is articulated as part of our comprehensive report, which culminated with a presentation to colleagues, faculty and a panel of external reviewers in early December 2009.

2.0 CREATIVE CITY THEORY AND MUNICIPAL CULTURAL PLANNING

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Cities have always been centres of culture and hubs of wealth creation. Today cities face a wide range of economic and social challenges related to growth and sustainability. If cities are to flourish, there has to be a paradigm shift in the way they are managed to draw more fully on the talents and creativity of residents, businesses, and local government. The Creative City movement is both a clarion call for imaginative action to improve the quality of urban life and a detailed toolkit of methods designed to help revitalize and revive our cities.

According to Richard Florida, the strength of a city can largely be determined by the strength of its creative class (Florida, 2002); those who primarily use creativity in their work. Florida calls for municipal governments to be proactive about making their cities attractive to this class through the development of cultural resources.

Proponents of the Creative City call on policy makers to make the transition to an economy based on creativity, emphasizing the need for a creative economy that is more inclusive and sustainable (Florida and Martin, 2009). However, the focus is on economic sustainability rather than fostering creativity. In Municipal Cultural Planning there is no economic value attributed to Green Infrastructure (Florida, 2002; Florida and Martin, 2009) beyond providing an amenity to attract the creative class. Although government reports call for a creative economy that is more inclusive and sustainable (Florida and Martin, 2009), Green Infrastructure is not specifically named as an important element in a sustainable economy (Florida and Martin, 2009, 27).

Cultural planning evolved as a result of the Creative City movement as policy makers, planners and other professionals sought a method to adopt the ideas pioneered by Florida (Florida, 2002; Authenticity 2008) and put them into action. Cultural planning is more frequently addressed as part of urban planning and city building but there is no clear recipe for what ingredients should be included in Municipal Cultural Planning efforts. Although there is growing recognition of the need for improved connectivity between places and communities, the important links between connectivity, creativity, culture and natural heritage have not been clearly established (Florida, 2002; Florida and Martin, 2009; Hume, 2008).

Due to the dynamic nature of our research and the flexibility we were given for the process, we needed to re-interpret our mandate. This helped us focus on the tangible aspects of the project and allowed us to develop our guiding principles. We also isolated the key terms that needed to be defined such as Green Infrastructure and Municipal Cultural Planning.

PRELIMINARY RESEARCH

A preliminary reading list within our Terms of Reference provided the launching pad for research. This was divided among the consultants. Literature covering topics such as the Creative City movement, cultural planning, Green Infrastructure, culture-nature dualism and the subtext and importance of mapping were summarized and formed the basis of Bright City consultants' understanding of the context behind this project. This put us in a position to meet and discuss the project with our client, David Carruthers of PlanLab, before conducting a more comprehensive literature search with the aim of a full review. Summaries of articles were compiled allowing us to come together and discuss where overlap occurred.

FIGURE 5 : David Carruthers Powerpoint Presentation

Cultural planning is a strategic method of analyzing the historical and cultural landscape of a neighbourhood or community. Municipal Cultural Planning is meant to be holistic in its approach, to assist in prescribing future plans and goals. The inherent identity of place is used to develop and understand cultural resources, such as festivals and events, facilities, organizations, businesses, industry and natural heritage. The significance of this definition, developed by Bright City Consulting, is that it overtly names natural heritage as a cultural resource.

Cultural planning facilitates the creation of distinct urban places, which is increasingly seen as important for the development of prosperous urban settings. At the core of Municipal Cultural Planning is the concept that the community is key. A dialogue has been established between municipal officials and community members to identify valuable elements. Municipal Cultural Planning is used to develop municipal strategies based on an understanding of cultural resources, like Green Infrastructure, with the goal of enhancing these resources in support of place-making and local prosperity, as well as community sustainability.

In 2002 the West Kootenay Regional Arts Council called for culture to be integrated as the fourth pillar of sustainability along with economy, ecology and equity. Additionally, Duxbury (2007) has argued that culture informs the creation of conceptual frameworks in which communities and governments operate when developing a Culture Plan. Culture informs the way people think about their community and how they act within it (External Advisory Committee, 2006). Gord Hume (2008) has also emphasized the value of culture in the sustainability framework, saying culture should inform the planning process just as much as any other sustainability pillar. Culture is the overarching factor that ensures efforts in the other three pillars will be of value to the community because it is the culture of a community that determines the viability of any policy.

A prominent theme within Municipal Cultural Planning is the idea of place-mak ing (Matyas, 2007; Jones 2006; Hume, 2009). Over time, those that inhabit and frequent a space each play a role in contributing small yet cumulative effects that attach meaning to the space thus shaping its identity and transforming it into a place. Story-telling is an integral part in place-making because the stories told by those

MEETING OUR CLIENT

Meeting with David provided us with more context. He delivered a presentation to us that emphasized the importance of making clear connections between creative economies and Municipal Cultural Planning. This led into an overview of our project, which turned into a discussion. We discovered that when we initially set out to find answers in the literature, what we should have been looking for were the gaps in existing literature. Realizing this made it easier to justify our mandate and rationale. We were then in a better position to direct our research and approach to illustrating the gaps in theory and practice related to Green Infrastructure and Municipal Cultural Planning.

FIGURE 6 : Meeting with David Carruthers

FIGURE 7 : Meeting with David Carruthers

that live in a space are the narratives that shape and give it identity. It is argued that this collective process and the means by which it is achieved are functions of a community and its culture, both of which are central to cultural planning (External Advisory Committee, 2006; Fulton and Newman, 2003; Ontario Rural Council, 2009; Thorne, 2009). Moreover, a collective exercise to identify and express personal narratives strengthens the community through a shared experience. A strong community is more able to appreciate and utilize its strengths to move towards a shared vision.

Collective story-telling can benefit planners, policy makers and the community at large. In the context of Green Infrastructure, this must also be followed up with a careful analysis of whether or not the assets are at risk. If story-telling is embraced widely, Green Infrastructure can have a more clearly defined role and the Municipal Cultural Planning process can become more meaningful and reflective of community values. This concept will be discussed again later.

Cultural planning is focused on developing and enhancing the economic future of a municipality. This can be difficult to define because the economics of society are constantly changing (Hume, 2008). As a result there is little guidance for how enhancing the economic future of a municipality can be achieved. Attracting members of the creative class is just one of many reasons why municipalities will benefit from the analysis of transferable indicator data to reflect the many contributions of Green Infrastructure to culture. One of the limiting factors to the successful adoption of cultural planning tools in planning activities is the measurement of benefits derived as a result. John Holden (2004) argues that measuring cultural value in the same way one would measure other aspects of municipal governance, like economic development, fails to capture authentic intrinsic value. As a result, cultural planning often does not appear to generate enough return for investment. The cultural planning field has responded by developing new methods to measure cultural value. One involves identifying cultural value indicators and the means to test them (Carruthers, 1994; Duxbury, 2007; Tomality et al., 2007). The goal is to measure cultural value consistently and over time to demonstrate change based on the effect of cultural investment. Historical, social, symbolic, aesthetic and spiritual cultural values can all form a valid basis for possible indicators (Holden, 2004), which in turn, can be applied to natural heritage assets.

FIELD TRIPS

We all took a week-long hiatus in the third week of the semester for school field trips. Half of us went to Chicago and the other half went to Washington, D.C. These trips provided us with a unique opportunity to observe these cities from the perspective of Green Infrastructure and its value to the community.

CHICAGO

In Chicago, Bright City consultants met with a couple of very interesting organizations. The first is called Open Lands, a private non-profit that works to support the conservation and connection of open spaces in the Chicago area (www.openlands.org). The other interesting group is called the Little Village Environmental Justice Organization (LVEJO). Located on the south side of Chicago, Little Village is a neighbourhood whose population is primarily Latin American. The ward is home to 200,000 people but residents have only one park in their ward, and that park is not centrally located. LVEJO works with the community to improve environmental justice, including lobbying for new transit routes and more park space. To strengthen their argument, the group has utilized a community mapping program provided by the Chicago Metropolitan Agency for Planning (CMAP) called "Full Circle". Devices similar to Smart Phones are given to community members, who set the parameters of what they want to map. This may include libraries, open spaces, grocery stores selling cultural food products and various other community resources. This information is entered into a database and hard copy maps are then generated for use in the community. This is a way for residents to participate, learn about mapping and provide information about what is valuable to the community (www.lvego.org).

When policy makers take a leap and invest in fostering local culture, the return on investment can be surprisingly positive. In one example, a municipal government in Kentucky and a local bank funded the successful rehabilitation of a derelict neighbourhood and transformed it into a cultural a hub. The result was a $14 return on every dollar spent supporting this project (Matyas, 2007), exemplifying the important role municipalities and local businesses have to play in helping build on existing community assets.

Other communities have utilized cultural assessment tools like the Community Capitals Framework (CCF) to help raise awareness of and enhance community assets (Emery and Flora, 2006; Government of Ontario, 2009). This involves community stakeholders working with external consultants to map and inventory cultural assets and to develop strategies to enhance these assets. Realistic goals for building community capital are developed collectively, along with ways of encouraging more citizens to become engaged with the process. CCF has demonstrated success in tackling community problems by engaging in "joint learning" in support of common goals (Emery and Flora, 2006). Cultural planning is recognized as an important tool to help communities "spiral up" to their potential. Natural capital is one of the key indicators in this approach. CCF explicitly recognizes the importance of exploiting social capital to help evaluate current assets and develop strategies to invest in them wisely to enhance community capacity. However the means to assess natural capital and its connection to the Municipal Cultural Planning process is still missing.

Governments at the municipal, regional, provincial and federal levels have been seeking the assistance of cultural planners to move municipalities toward a creative framework (AuthentiCity, 2007; AuthentiCity, 2008; City of London, 2005; City of Mississauga, 2009; External Advisory Committee on Cities and Communities, 2006; Florida and Martin, 2009; Ontario Rural Council, 2009; The West Kootenay Regional Arts Council, 2002). Culture and its place-making value may be the most important element of cultural planning because it helps promote the kind of social cohesion that is necessary to accomplish positive community change (External Advisory Committee on Cities and Communities, 2006).

WASHINGTON

The Washington trip provided different insights into what can attract members of the creative class. With a population that includes a disproportionately high number of well-educated residents whose professions involve a high degree of creativity, Washington is a hub of creative culture. As first-time visitors, Bright City consultants were amazed by the number of green spaces and famous attractions like the National Mall and Rock Creek Park that are available for all groups to enjoy. We were also impressed by the far-sighted master plans that recognized the importance of parks and open space to the future of the city. We later discovered that Washington has over 3,000 hectares of parks and open space, which is one of the highest ratios of parkland per resident in the United States. While there is a policy goal in Washington to increase the urban tree canopy to 40%, the city's historic focus on managed green networks is already providing 35% coverage. This layer of leaves, branches and stems of trees is credited with improving local water quality, saving energy, providing wildlife habitat, lowering city temperatures, reducing air pollution, facilitating social and educational opportunities, enhancing property values, and providing aesthetic benefits. We were just as impressed by Washington residents' awareness and appreciation of their Green Infrastructure as we were by the green assets themselves.

The Creative City movement has been highly influential in Ontario where municipalities have been working to create cultural plans that help improve the lives of residents and their local economies by adapting a creative approach to planning. Municipal Cultural Planning involves shaping, developing and enhancing the economic future of a municipality through identifying and harnessing its cultural assets and resources, developing arts and artisans and changing how communities do business in order to become a Creative City (Sickenger, 2009, 1).

The Province of Ontario and the Canadian federal government both support Municipal Cultural Planning efforts. The Ontario government is promoting the importance of fostering a vibrant cultural scene to its municipalities in order to generate economic activity, create prosperous cultural industries and attract major employers and new residents (Huron County, 2008; Florida and Martin, 2009; Government of Ontario, 2009). Municipalities believe cultural planning is essential for validating various forms of cultural expression, celebrating community uniqueness, building social capital, encouraging grassroots involvement and helping nurture communities (Ontario Rural Council, 13). Cultural planners all over Ontario are focusing their new policy documents in similar ways. They are each hoping to promote economic growth and sustainability through culture and they are aware that changes in their municipal policies are necessary to facilitate this new cultural development and preserve cultural heritage.

City planners and councillors believe fostering culture will help attract and retain residents while improving the local economy. They are realizing that culture is becoming an inherent value that sustains successful communities. Oakville's cultural plan suggests creative communities are more economically viable and more sustainable and therefore require creative plans to move their communities in this direction (AuthentiCity, 2009, 2). It is obvious municipalities in Ontario are making room on their agenda for Municipal Cultural Planning.

The cultural plan for Cambridge defines culture as an expression of the arts, customs and heritage of a community and the energy generated by night life, festivals, events and the creative industry (BRAY, 2008). A number of cultural plans suggest cultural vitality is as essential to a sustainable society as social equity, environmental

LITERATURE REVIEW

Sources were initially summarized and compiled as an annotated bibliography. This proved to be a valuable resource internally for all consultants to understand the breadth of our research as a group and helped keep track of our resources. A literature map was created to establish common themes. This was created using the summaries to determine how all the pieces fit together.

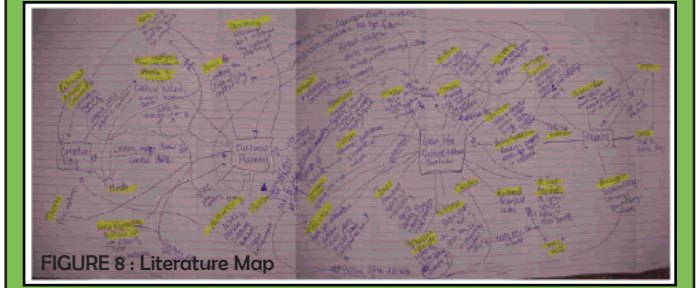


FIGURE 8 : Literature Map

The literature review included all the sources provided to us in our Terms of Reference and was categorized according to the four main streams of preliminary research: The Creative City, Cultural Planning, Green Infrastructure, the Culture-Nature Dualism and Mapping.

The literature search and review was a long process that continued through the majority of the semester. A lot of resources were identified that had to be read, summarized and incorporated into the literature review. Some of this work had to be re-visited, as the initial contextual and conceptual ideas were still being developed. A lot of initial research also overlooked the importance of justifying our research based on what was NOT contained within the existing literature.

responsibility and economic viability and they call attention to the four-pillar model of sustainability (AuthentiCity, 2008, 22; City of Mississauga, 2009, 16; Sickenger, 2008, 8). Toronto's Cultural Plan suggests we must put creativity and place at the centre of the vision of cities (AuthentiCity, 2008, 22).

The process of cultural planning differs broadly amongst municipalities but focuses on a number of similar themes. Toronto's toolkit for creative city planning encourages leveraging assets, connecting resources, developing community improvement areas to change land use and zoning to encourage development, tax increment financing to generate revenue to improve these areas, and building capacity through mapping, governance and engagement (AuthentiCity, 2009, 27-30). Mississauga's move toward a culturally sustainable city includes strengthening arts, culture and heritage organizations, encouraging community celebrations and festivals, strengthening cultural infrastructure, building partnerships, identifying and strengthening cultural nodes and attracting and supporting creative individuals (City of Mississauga, 2009). Huron County's Cultural Plan focuses on a number of deliverables including establishing an arts community, developing and promoting events, cultural mapping, and preparing an inventory of current and potential physical resources to house cultural activities (Sickenger, 2008).

Although many municipalities insist on creating tangible deliverables to achieve creative city status, Toronto's creative planners believe creativity cannot be legislated or regulated. It requires an open environment, which places a high value on originality and on new ways of looking at issues and the solutions that may be implemented to solve them (AuthentiCity, 2009, 18). The city hopes to build and preserve a desirable sense of place in order to attract creative individuals. Cultural planners in London are thinking along similar lines, suggesting the key to making their city more creative is to focus on economic development, public art, capital projects and built heritage (City of London, 2005). Planning for cultural resources as a priority is also important for making a city more culturally viable. According to the city of Hamilton's cultural plan, "cultural resources can include tangible and intangible contributions and resources involved in the development and expression of culture such as: built heritage, natural heritage, landscapes, facilities, artists, events, industries, organizations associations and groups," (Priel, 2008, 4). The city of Thunder Bay intends to include the development

This type of project has never been done before in Municipal Cultural Planning and many of us had never participated in this type of research. One Bright City consultant observed that "in a weird way, we're trailblazing and like any trailblazers, we sometimes have to re-trace our steps and forge a new trail."

Initially we underestimated the value of the literature as a major project element. We thought this was simply a step we needed to take to be in a position to develop indicators, test them and then conduct field research and mapping. We recognized that our mapping would be informed by what we learned in the literature but we didn't realize the larger significance of the literature review.

With direction from our client and our faculty supervisor, we realized we needed to find where the literature left off in order to understand where we needed to go. This led to re-visiting our literature, searching out new literature and reviewing a selection of municipal cultural plans to see how they address or fail to address Green Infrastructure.

BRAINSTORMING

Sometimes frustrating and sometimes energizing, a recurring feature of our project was group brainstorming. These sessions were conducted to determine the path our journey would take us on next, to solve or simplify ambiguous questions, to clarify or rule out an aspect of the project and to enable us to get over hurdles that were holding us back. This was an effective and ultimately efficient way to get all of us on the same page at given points in the process. A brief summary of selected brainstorming sessions is included as follows.

of cultural programs and facilities, award-winning festivals, public art and recreational activities that appeal to a wide ranging demographic in order to meet the cultural needs of its citizens (Thunder Bay, 2009, 4).

A review of selected Ontario municipal cultural plans shows there is a void in recognizing the cultural value of Green Infrastructure in a significant and relevant way. While many municipalities articulate the need to create a more effective and sustainable cultural space for their residents to use and be inspired by, most cultural plans fail to mention where natural heritage fits into their agenda (AuthentiCity, 2008, AuthentiCity, 2009, BRAY, 2008; City of London, 2005; City of Mississauga, 2009; Priel, 2008). None of the municipal cultural plans Bright City Consultants reviewed comprehensively communicated the value of natural heritage and Green Infrastructure in conjunction with cultural planning. London's cultural plan mentions natural heritage as an afterthought (City of London, 2005). Hamilton's cultural plan acknowledges that natural heritage landscapes should be recognized as cultural resources that have tangible and intangible values but does not elaborate upon this idea (Priel, 2008). The cultural plan for Cambridge fails to mention Green Infrastructure at all although the city's Heritage Plan suggests the city's natural landscapes need to be properly inventoried (BRAY Heritage, 2008, 36). While Mississauga's cultural plan recognizes natural heritage as a component of its cultural resources framework along with the importance of natural heritage preservation, there are no specific plans to measure or enhance these assets (City of Mississauga, 2009). Similarly, Oakville's cultural plan recognizes the value of natural heritage by referring to the need for a second round of cultural mapping to include natural heritage assets (AuthentiCity, 2009, 5). Toronto's Cultural Plan recognizes the value of supporting green projects like the adaptive reuse of the Don Valley Brickworks and the Wychwood Green Arts Barn and emphasizes natural heritage as a major cultural resource. However, Toronto's Cultural Plan does articulate the value of Green Infrastructure to the city.

A clear connection between culture and natural heritage is also missing in much of the Creative City and cultural planning literature. The fact that Green Infrastructure is not typically recognized as an important cultural asset detracts from public awareness and engagement and represents a missed opportunity for planners. If Municipal Cultural Planning efforts can effectively communicate the historical and

FIGURE 9 : Group Meeting

LISTING POTENTIAL ASSETS

The quadrangle on the Ryerson University campus provided a change of scenery for the Bright City consultants to brainstorm potential asset categories. The preliminary brainstorm provided in excess of fifty assets to be considered. Assets were chosen based on the groups knowledge of what green infrastructure is.

FIGURE 10 : Brainstorming Session in Quad

FIGURE 11 : Brainstorming Session in Quad

cultural value of these assets and set targets for their condition, citizens will become increasingly interested in their enhancement.

The fact that there is no clear framework for incorporating Green Infrastructure into Municipal Cultural Planning demonstrates the need to develop a better understanding of how these assets can be effectively reflected and incorporated into future Municipal Cultural Planning efforts. A comprehensive understanding of Green Infrastructure's full impact and the connections between Green Infrastructure and other municipal priorities is still in its infancy. This project attempts to elucidate this connection and offers a method for measuring and mapping Green Infrastructure assets.

REFINING ASSETS

We put our asset list on big pieces of paper and added some examples along with the benefits derived from each. The benefits could be environmental or cultural and in some cases overlapped. This helped us develop a rationale for our study and for why each asset should be included in our list. We also drew lines linking assets together through function, or definition. The result was a huge mash-up of lines and colours that is likely incomprehensible to anyone other than those in our group.

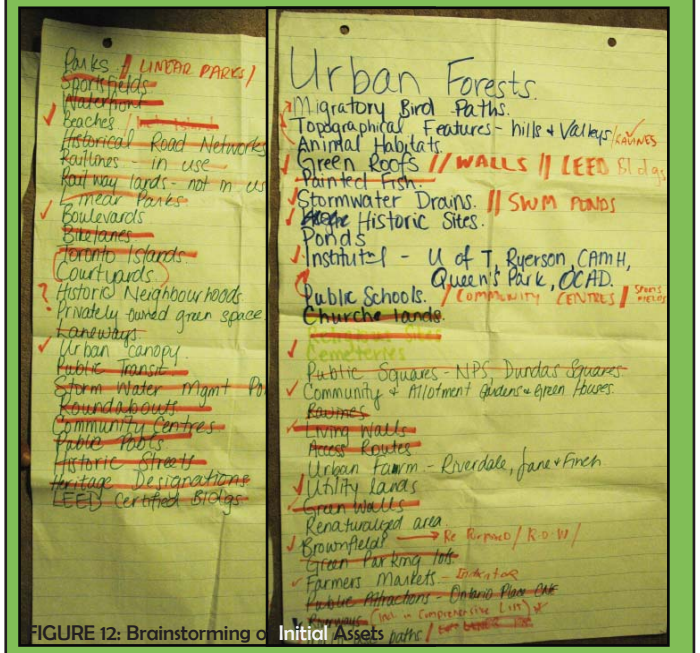


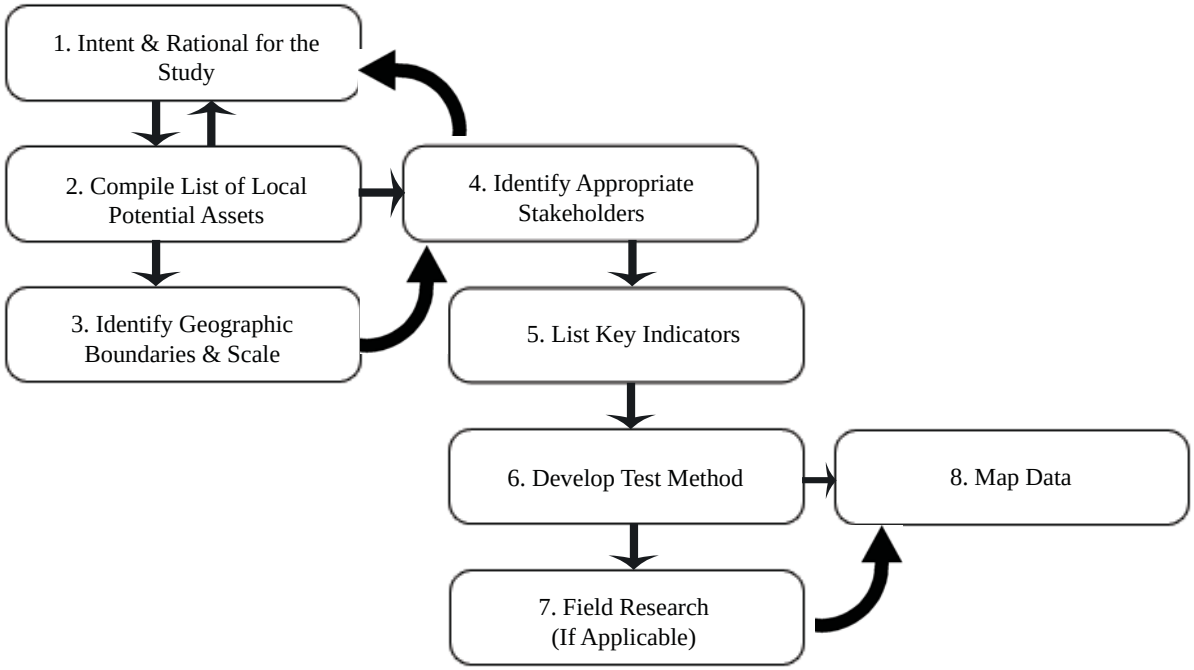
FIGURE 12: Brainstorming o Initial Assets

Through a concentrated, driven discussion our group fleshed out each asset. This provided a snapshot of relationships between assets, definitions and benefits. If there was disagreement as to whether or not to include an asset or whether it might fit better under an existing asset, the group discussed the options presented and came to an agreement or compromise.

3.0 APPROACH

3.0 APPROACH

Bright City Consulting developed an approach that can be followed by planners who are developing cultural plans that include a discussion of the value of Green Infrastructure to their community. It should be noted that because this exercise has never been performed before, Bright City's process was not linear in nature. It was necessary to return to previous steps to reconsider various elements. A diagram of a proposed linear method follows. The arrows represent the reconsideration of previous steps.



1. Intent and Rationale for the Study

Define the intent and rationale for the study. The intent should outline the purpose of the study and how it will be used by those conducting the study. The rationale must visibly illustrate the need for the study.

2. Compile list of Local Potential Assets

Identify a list of assets to be studied. A brainstorm is a helpful way of developing this list.

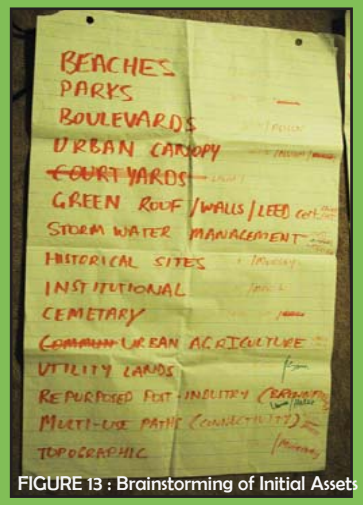


FIGURE 13 : Brainstorming of Initial Assets


FIGURE 14 : Brainstorming Session


FIGURE 15 : Brainstorming Session

3. Identify Appropriate Stakeholders

It is important to identify stakeholders for the purpose of maximizing positive impact potential for this group. Identify stakeholders that are appropriate to the goal of the study and the selected assets. Stakeholders should be knowledgeable in the functioning and features of the selected assets. Stakeholders can include citizens, community groups, politicians, private firms, non-governmental agencies and academics.

4. Develop Key Indicators

Indicators should be related to the ideal functioning of the asset as they measure the quality of the asset over time.

5. Identify Geographic Boundaries and Scale

The geographic area to be studied should be isolated in order to identify relevant stakeholders. This can be dictated by the nature of the indicator.

6. Identify Necessary Data

The data should describe the current conditions of the indicator in relation to the asset.

7. Field Research

All significant and relevant data that is important for the final mapping of assets is gathered and tested according to criteria developed in the previous step.

8. Mapping Data

The collected field data is mapped graphically to communicate the measurement of the indicator. This creates a visual representation of the work completed and presents it in a clear medium. The boundaries and scale of every map must coincide with one another to create a visual image that is easy to identify and understand.

The value of mapping exercises has been well documented. An efficient way to present the findings of an indicator-based approach of measuring cultural value is through mapping. Rather than being an objective representation of current conditions, a map can convey information on any number of criteria. A map communicates

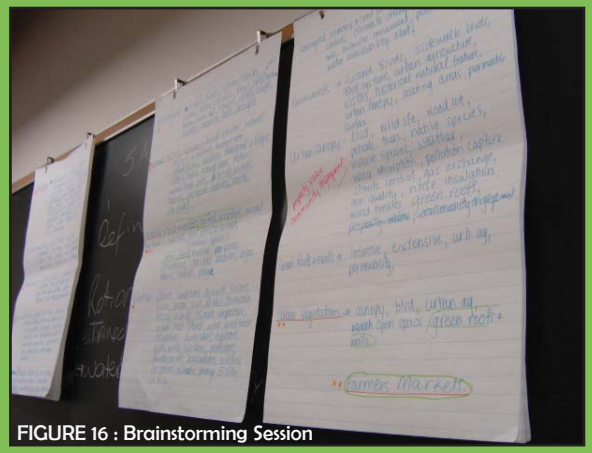


FIGURE 16 : Brainstorming Session

FIGURE 17 : Brainstorming Session

FIGURE 18 : Brainstorming Session

information in support of a particular goal and ultimately only shows what is of importance to the mapmaker (Abrams and Hall, 2005; Carlucci and Barber, 2001; Corner, 1999; Monmonier, 1996; Tufte, 2006). Contemporary maps reflect the technology used to create them and bend perception to tell a story about a place.

There is a trend in contemporary mapping toward the utilization of geographic information systems (GIS) in an effort to achieve greater precision and accuracy. However, Monmonier (1991, 1996) warns that although maps produced using computer mapping programs may look professional, they may also be misleading if inexperienced or untrained mapmakers do not use elements such as scale, lines, symbols and colours effectively and honestly (Lister, 2005, 12). The communication of information using "maps" has also been examined by Tufte (2006) in Beautiful Evidence through his discussions of evidence from maps to bar graphs, to images of the natural world including plants and animals. Through his examinations and criticisms, Tufte has developed a set of guidelines and considerations for anyone creating pictographic evidence. Carlucci and Barber (2001) have examined the motivations of mapmakers when creating maps. These motivations help explain why a military map may differ from an administrative or community map. Further to these discussions, Corner (1999) has argued that more than just being a snapshot of current conditions, maps have the ability to relay ideas. He argues maps not only show where we are but where we are going or where we have been. For example, Eric Sanderson (2009) has peeled back the layers of the history of the city of Manhattan and mapped what the island looked liked when the first European explorers landed on the island in 1609. The Mannahatta Project consists of an in-depth cartographic analysis of landscape ecology. Sanderson stresses that Manhattan is still a habitat; humans now dominate but this does not mean humans are not connected to the original natural world. Conversely, a manipulation, extrapolation or alteration of data to reflect future conditions can produce maps that convey multiple new futures depending on a range of possible future inputs.

Urban planner Kevin Lynch (1960), observed that people tend to form mental maps of their perceptions of spaces. Lynch argued that certain physical features possess a high level of "imageability"; qualities that make a feature more likely to be remembered by a viewer and thus appear in their mental map. Similar to Lynch,

SETTING GEOGRAPHIC BOUNDARIES:

This discussion determined whether we would be selecting site specific areas or whether our research would be on a smaller scale. It was decided that all studies would be conducted within Toronto city limits.

Although everyone saw the value in brainstorming, there came a point when we were ready to move on. The brainstorming process was really useful though. One consultant described it as being a bit like breathing, saying, "The process comes in and goes back out, only to come back in again". At the end of the brainstorming process we found that we had created a comprehensive list of things that might qualify as Green Infrastructure that was larger than any of the other lists that we had created. From this list we created a shortlist of assets that we wanted to study and eventually map. The assets we finished with were: Ravines, Wetlands, Urban Farms, Natural/Historic Shorelines, Recreational Parks, Geographical Features, Bird and Animal Migration Routes, Farmers Markets, Native Plants and Green Roofs. See Appendix 1

FIGURE 19 : Asset Category Mind Map

Rapoport (1977), recognized that humans make sense of their surroundings by way of a complex continuum of sensory, cognitive, emotional and evaluative processes based on observable, distinct patterns. Just as with formal or professional maps, mental maps are entirely personal and only convey information deemed necessary to the mapmaker, who is ultimately the only viewer of such a map at any given time.

Community mapping is a movement that has developed to capture and aggregate the mental maps of members of a given community. Community mapping has been used all over the world to meet various goals set by the communities themselves. Community mapping enables members to attach value to various parts of their community through a dynamic dialogue whereby only the most valuable parts are being represented on their map. The process, which Tufte (2006) calls "deep thinking", helps create a sense of place as members share their stories of their community. Community mapping exercises have also been shown to create a greater sense and reality of ownership over lands inhabited by the community. This translates into greater decision-making power for communities to make changes in support of their collective goals. By understanding the process of map-making as a social and cultural practice, we can better understand that certain forms of spatial information are not necessarily better because they are more scientific (Crampton, 2001).

Parker (2003) has examined the purpose and power of community mapping using experiences in Portland with a green mapping exercise. He draws on Lydon's (2003) argument that "community mapping is not just the mapping of community, it is mapping by a community of their values, assets and visions of, or goals for the future". Parker (2003) emphasizes that the most important part of community mapping is the process, not the product (472); community mapping should be about the negotiation between members. Parker (2003) also argues that community mapping projects are most empowering when they are inclusive. Empowerment can come from using the maps to gain control over lands or resources, or to affect change within the community by building capacity or human capital. This can be accomplished through the development of skills or through the cohesion of the community around a strong identity and sense of place (Parker, 2003, 477). Community maps are ultimately a representation and reflection of a community's culture; how they **make decisions, what they value and their behaviours around those areas of value.**

KEY INDICATORS

The process of developing indicators was a lengthy series of discussions that left the group very frustrated. Every time we thought we were getting closer we hit a wall getting caught on the "so what" issues of choosing indicators. Deciding on what a good indicator is, how to measure it, and most importantly why is this information important?

Finally Bright City consultants took part in an indicators workshop with our client, David Carruthers. This discussion helped us clarify how to better choose and categorize our indicators with our assets.

REFINING INDICATORS

In the end we found indicators that could be looked at in primary, secondary and tertiary metacategories. It was important to select indicators from each of these categories as they represent different aspects of Green Infrastructure. The indicators that we chose were recreational parks, farmers markets and tree canopy cover. Each of these indicators meaningfully reflects cultural value.

DEVELOPING A TEST METHOD

In developing a robust test method that can be duplicated, we encountered many constraints. The main obstacles to mapping our indicators were time, access to secondary data and limitations in the collection of primary data.

To communicate ideas surrounding the research, we selected three assets and an indicator for each of the three metacategories to demonstrate what might be possible in studying Green Infrastructure within the realm of Municipal Cultural Planning.

Community maps have been an important tool for recording the history and culture of indigenous peoples. Groups have used maps to track their culture by recording borders, water courses, hunting grounds, oral histories and other elements in order to facilitate several goals including reaching treaty claim agreements, preventing inappropriate development and resource-sharing. Mapping translates cultural differences into a common scientific language through an objective method that effectively communicates what is important to indigenous groups to a larger audience (Flaherty, 2005).

Hugh Brody (1981) spent 18 months living and working with the Beaver Indians of Northeastern British Columbia in an effort to understand and record their relationship with their landscape. To capture this relationship, whereby Aboriginal culture is intertwined with the land, Brody worked to map the important activities that contribute to this culture. Brody worked with seven different reserve groups to track hunting areas, rivers and fishing spaces, camping sites and foraging areas. Brody also looked at and mapped non-Aboriginal activity in the area including development into Aboriginal lands, oil and gas deposits and sporthunting areas. In this way, the cumulative effects on the Aboriginal community and their land of all these activities were captured and translated into a means of communication that can be understood by decision makers. Similarly, Terry Tobias has been instrumental in working with Canadian Aboriginal peoples to develop cultural maps (Unfolding Visions, 2005). Tobias uses layered maps to record the overlapping cultural interests attached to a given piece of land. These are then used as negotiation tools. He has developed a best practices guide to cultural mapping for Aboriginal communities.

Offen (2003) has studied a community mapping project in the Miskitu Aboriginal community of northeastern Nicaragua. The Miskitu people undertook this mapping project to identify the boundaries of their territory because their lands were consistently ignored in national maps. Members of the community were given Global Positioning System (GPS) devices and inventoried hunting lands, sacred sites, agricultural and timber lands. The cultural identity of the Miskitu was subsequently mapped in order to gain official status by the state.

It is hoped that through adopting this framework, a comprehensive inventory can be taken of multiple assets within a community to acknowledge the importance of Green Infrastructure and how it affects the culture and narrative of a community.

FIELD RESEARCH

Although our initial intention was to conduct field research and collect primary data, aside from taking some photographs, we felt that this was not a realistic undertaking in the time we had. It was also felt that it would not be necessary because the majority of the data could be obtained through secondary research.

MAPS AND STORYBOARDS

Several conceptual mapping possibilities were discussed for the storyboards. This included mapping out the process we undertook. We developed several conceptual designs for communicating both our process and the outcomes of our research. We considered conducting a live-mapping exercise to continue using the process to inform design, with the understanding that research is an ongoing conversation. By doing this we felt we could illustrate the process we had been engaged in while having the audience contribute to the research. We were advised that due to the limited time we would have to present our studio project, this would unfortunately not be possible. Another concept we had for mapping was to use our process and research to inform the design and content of the storyboards and maps.

A similar exercise was performed in Cameroon with the Tinto community and studied by McCall and Minang (2005). The government of Cameroon undertook a community forest initiative to preserve forested areas through indigenous forest management techniques. Interested communities needed to produce a map showing the proposed boundaries of the area they would like to manage, a history of previous conservation actions, an inventory of forest resources and a management plan. The community worked with a non-governmental organization to produce the maps and the community then used them to argue their case to the government. Although it was hoped that more power would be placed in the hands of groups such as farmers and women as a result, power actually shifted from the government to the chiefs of the tribes, with little power trickling further down. However this still resulted in more control over natural resources for those who lived on the land.

The mapping exercises with various indigenous peoples in Northeastern B.C., Northeastern Nicaragua and Cameroon show the empowering nature of community mapping. These maps bridge culture and language gaps between indigenous groups and decision-makers. Maps are a means to translate cultural value into a language that is understandable to those making decisions. These cultural maps made using conventional mapping methods add a validity and legitimacy to indigenous culture that is often not taken into account, due in part to the fact that they are not understood. Maps can level the playing field between indigenous and non-indigenous parties at the negotiation table through a shared language for communication.

Community mapping is not unique to indigenous peoples. Communities all over the world are undertaking community mapping exercises to achieve an infinite number of self-identified goals. Sometimes these mapping projects are ambitious undertakings to get a number of different groups together to develop and move toward a common goal. Other times through the use of a Web 2.0 application, members of the community don't have to actually meet to discuss what is important to them. Some mapping projects are a combination of both approaches.

Fahey and Ó Cinnéide (2009) documented a community mapping exercise in Galway, Ireland, used to identify and map cultural, social and natural assets. The exercise was designed to further sustainable development initiatives but the main benefits

TEAM BUILDING

Due to the nature of this project, a lot of discussion was necessary and a whole lot of "Back to the drawing board' type scenarios ensued. A change of scenery was necessary on an almost weekly basis for the team to remain engaged, creative and on-topic. Several team building exercises were proposed, and then followed up by churning out some work, then heading out socially for a meal and discussion. It became apparent early on that there was a natural divide in the group between two sides; the technical and the academic, for lack of better terms. The need to merge the two groups into one big team was necessary to produce our final product. A solution in "teaming-up" was to put consultants' names under their respective strengths in two hats and then draw names to pair up Technical and Academic consultants.

The aim was for these pairs to spend an afternoon together to creatively tackle a tangible problem the group had come up against. The paired consultants would walk a local labyrinth together. A labyrinth is not a maze, but a path that folds in on itself many times over. Each member was to go in thinking about their particular question and walk at their own pace. Thoughts were to be discussed before and after and we met as a group for dinner in the evening to share and discuss the ideas in a more social setting. We chose Spring Rolls, a restaurant close to campus. Participants felt this was a valuable exercise to keep the momentum of the project going.

proved to be the public participation in policy decisions and an improvement in the relationship between the community and the municipal government. The municipal government developed a set of indicators to track the economic and cultural progress of the city and its efforts. In order to raise awareness of this and promote greater community engagement, the municipal government hosted mapping exercises to test their indicators and measure their progress. Workshop leaders provided base-maps and materials to indicate areas of importance. The community members then marked areas of importance for them on the maps which included cultural venues, parks, walking paths, farmers markets, and religious sites. Participants noticed some groups valued entirely different sites than others. The act of sharing information opened the different members of the community up to an entirely new way of viewing their city. Through the mapping process, a more consistent sense of place surrounding the city was developed and integrated within the community.

The Chicago Metropolitan Agency for Planning (CMAP) has recognized the power of community planning by launching a program called Full Circle that facilitates community mapping by local organizations. CMAP provides groups with GPS devices, which groups use to identify parameters to be mapped. They then go out and record the data in the GPS devices, which CMAP then compiles using geographic information systems (GIS) to create maps that can be used by the groups. One such group called the Little Village Environmental Justice Organization (LVEJO) located in the Little Village neighbourhood of Chicago signed up to Full Circle. The neighbourhood identified areas that needed improvement in their community, such as a lack of green space and grocery stores selling healthy food, inadequate public transit routes, and air pollution. They taught a group of school children how to read and use maps, then sent the hildren out to map a number of parameters. These included green spaces, businesses, industries, schools, community centres and their programs, meeting places for adults, grocery and the products they carried. As a result of the group's efforts, grocery stores have started to carry a larger variety of healthy items. LVEJO also has knowledge of where to go to get a message to the adults of the community. Using their maps, they lobbied various levels of government and received funding and land for a new 27-acre park, a new bus route and closed two polluting power plants in their community (Wasserman, 2009).

Lister (2005) examined the development of an Explorer's Map of Toronto Bay by another group of Ryerson students. The exercise was an action-research based case study of a university-community partnership with two phases; the first to teach sustainability through ecological design and map-making to urban planning students; the second to foster community-based learning and action in urban sustainability through a collective uncovering and telling of the story of a place and its community through time. A series of prototype maps were created by the students in a workshop forum by creating an inventory of over one hundred assets associated with the space and place of the waterfront, including natural and cultural heritage elements, historical events and landmarks, recreational opportunities, and anecdotes of place (21). A bioregional atlas was compiled based on the themes that emerged in the asset list. The most effective map was then used to engage the wider community. In the second phase, a larger group of community members, waterfront citizens and experts were selected using a snowball sampling method. A second workshop was held to map the collective knowledge of the community encompassing over one hundred stories. This kind of map fosters the users' understanding of unique places and their relationship to the rest of the city. The map can also activate and facilitate an on-going narrative, and from this, a dialogue about the assets and identity of a place (26). This makes the map as much a social process and cultural product as it is representa tion of spatial data (27).

Green Maps are online maps created by members of communities using Google Maps™ technology to identify environmental and cultural assets (Green Map System, 2009). This was developed by a non-profit organization called the Green Map System, which also developed a set of appropriate icons. This platform allows communities to record their data gathering exercises and makes them freely accessible to anyone through the Green Maps website. The website also has Web 2.0 capabilities allowing others to update a map by adding new sites or new stories to the existing community map.

Mapping is a creative process that defines and describes space and place (Korzybski, 1931) while revealing and realizing hidden potential (Corner, 1999). The story-telling element of maps is an important element in place-making and can be seen as the culmination of a process of exploration, discovery, meaning-making and story-telling (Lister, 2005, 2). By focussing on place, maps can play a significant role in social change, especially with depictions of the future that serve as demonstrations of what is possible (Lister, 2005, 15). As seen in the research cited, maps can be used as cultural recording tools and visioning devices for community engagement in the pursuit of a more empowered, engaged and connected future.

4.0 GREEN INFRASTRUCTURE

4.0 GREEN INFRASTRUCTURE

Cultural resources are one parameter often mapped in community or cultural mapping exercises (Hume, 2009; Wasserman, 2009). In mapping these attributes, a community identity is informed through the process (Eckstein and Throgmorton, 2003; Hume, 2009). Eckstein and Throgmorton (2003) discuss the importance of story-telling in community cultural planning. They explain that stories and their effects on people and places can be measured in terms of time spent on and emphasis given to a specific aspect of one's story. Story-telling is an important part of cultural planning because it adds identity to a space; a necessity for place-making.

Considering the importance given to identity and place-making in the realm of cultural planning, it is remarkable that Green Infrastructure is rarely considered by cultural planners. Green infrastructure consists of strategically planned and managed networks of natural lands, working landscapes and other open spaces that conserve ecosystem values and functions and provide associated benefits to human populations (The Conservation Fund, 2009). Considering a formal zoning process identifies areas of open space, these spaces imply a cultural view of nature held by urban dwellers by default; where it should be and how it should look.

Humans have always felt a connection to their landscape. This is inherently and intuitively known, but old views still exist about humans living in opposition to nature whereby the goal is to conquer and control (Cronon, 1996; Jorgenson and Tylecote, 2007; Merchant, 2003). Literature has demonstrated a large disconnect between humans and nature. This is due to the tendency to view and define nature through the lens of human assumptions and values, which makes sense because much of human history is entangled with nature. In the late 18th century the most common use of the English word "wilderness" referred to deserted, savage, desolate and barren landscapes. In the 19th century these views began to change. Writers such as Thoreau in 1862 declared areas of wilderness to be the "preservation of the world". The meaning of the word wilderness changed from a wasteland area to a priceless resource (Cronon, 1996, 70). This leads to the question; is nature a result of culture or is culture a result of nature?

Desfor and Kiel (2004) have argued that public policy should link economy and ecology in order to develop new systems of production and consumption. Through

CITIES ALIVE! CONFERENCE

Cities Alive was a three-day conference that brought the international Green Infrastructure community together to discuss green roof and green wall research and policy. Groundbreaking projects from markets around the world were also demonstrated. Three Bright City consultants attended the conference at a key point in the project process and came away with another viewpoint to justify the rationale of this project. At the conference, it became apparent there has not yet been a clear link established between Green Infrastructure and Municipal Cultural Planning.

FIGURE 20 : Cities Alive Conference

Discussions at the conference helped formulate ideas for developing key indicators. A variety of speakers touted the benefits of building green roofs, and spoke of technology and the value of Green Infrastructure for sustainability. However we were left with the impression that this trade event and many speakers

the literature, there is an understanding that at the heart of the relationship between nature and humans is an interplay whereby humans alter nature and in turn, nature alters humans. Potteiger and Purinton (1998) describe the process by which humans create both public and private narratives influenced by their interactions with nature through experiences, rituals, actions and events. These narratives are an important part of the personal story-telling that attaches personal meaning to place. Stories by urban planners often lack the ability to portray a community, life or situation. The best stories produce the will to change and disrupt individual habits of thought. They de-familiarize people with conventional expectations and engage strangers in dialogue.

Story-telling can help create social spatial boundaries and a feeling of "our own place" allowing people to explore the realities past their front door. This, in turn, creates a shared sense of moral purpose at a regional scale. Discourse on sustainability includes multiple contending voices because the powerful elite can be very persuasive and offer counter stories that undermine a community's collective ability to imagine sustainable cities (Eckstein & Throgmorton, 2003).

In James Corner's article "Narrative" he discusses narratives that stem from history, fiction, myth and anecdote. Stories and narratives explain the origin of a place along with its character and purpose. This helps mark boundaries and gives those places meaning for individuals and groups. Corner's goal is to change people's perceptions of place by providing a way to have a deeper understanding of landscapes and how they affect our lives and experiences (Corner, 1999).

Instead of making efforts to preserve natural spaces, it is argued that humans have imitated nature by constructing full size versions of nature in shopping malls (Merchant, 2003, 167) as well as through the work of Frederick Law Olmstead in Central Park, Niagara Falls and Yosemite National Park (Cronon, 1996). *Kiss Nature Goodbye: Marketing the Great Outdoors*, an article by John Beardley, is a concrete example of this distorted societal vision of nature. The commodification of nature and landscapes can be confusing along with the idea that not everything on earth exists for our entertainment. Places like the Rainforest Café, Water World and Disneyland are the only exposure to nature that some people have. This can give children mixed

had a marketing agenda, rather than a cultural one. A Municipal Cultural Planning session or booth at the conference to address Green Infrastructure would have added much relevance and value.

FIGURE 21 : Bright City Consulting at Conference

messages about nature's significance in the world and why it exists (Beardsley, 2008, 55 and 58; Merchant, 2003).

Whiston (1984) suggests many of the problems that arise in cities can be linked to an ambivalent view of nature. This type of research has spurred a call for humans to live in partnership with nature by considering the relationship between humans and nature when planning (Conway, 2006; Cronon, 1996; Desfor and Kiel, 2004; Jorgenson and Tylecote, 2007; Merchant, 2003; Thompson and Steiner, 1997). Erik Higgs in his book Nature by Design: People, Natural Process, and Ecological Restoration (2003) discusses how places are perceived and defined. Individual culture, experience and history all play a role in defining space. Current users' perspectives of space may be very different than those of people who previously inhabited the same space. Today Jasper National Park is a recreational resource. People stay at expensive resorts in the woods or explore the wilderness fully by immersing themselves in nature by hiking and camping. Originally, maintenance of this landscape was performed by Aboriginal people who burnt, hunted and grazed the land. Today perception of the appropriate way to maintain or preserve land is dependent on the cultural context of the person being asked.

Higgs (2003) also discusses wilderness parks and how people perceive and use them in different ways. The world is seen in two parts; the protected and the unprotected. According to Higgs, people are respectful of places that have been deemed special and treat the rest of the world with carelessness and disrespect. Recreational wilderness areas used and enjoyed by humans in today's world represent our one chance to interact with "wild nature." However, society often finds it difficult to see the importance of things that can not be actively used. How urban dwellers perceive nature has been influenced by aesthetic conditions, urban, suburban and exurban living, the rise of formal (or imitated) nature, outdoor education, television and media programming and theme parks. Nature has become just another human commodity (Higgs, 2003).

A study conducted by David Carruthers for Environment Canada attempts to measure the state of green spaces in and around Ottawa using an indicators approach. The social and environmental functions of different types of green spaces are determined and then indicators are developed to evaluate their current conditions (Carruthers, 1994). The purpose of this kind of study is to develop a means to understand why green space is important environmentally and socially and how we can use greater understanding to enhance and develop future goals for these spaces.

This project contributes to the groundwork laid by Carruthers to illustrate the cultural value associated with Green Infrastructure. The mapping exercise being undertaken in this project aims to provide a framework that will inform municipalities of the cultural value of Green Infrastructure when creating inventories. It is hoped that in recognizing Green Infrastructure as culturally important it will help elevate culture as a pillar of sustainability, along with ecology, economy and equity.

5.0 ASSET DEFINITION AND RATIONALE

5.0 ASSET DEFINITION AND RATIONALE

Assets related to Green Infrastructure are elements that contribute to the connection humans have with nature. This involves living organisms, habitats and areas of human intervention that enhance the built form with natural elements such as green roofs or living walls. As implied by the term asset, this indicates something of value, whether aesthetic, economic, ecological, social or cultural.

Through a process of brainstorming, Bright City Consulting created a list inventorying Toronto's Green Infrastructure, which yielded over fifty potential assets. Further brainstorming sessions expanded and contracted this list over the course of a month. A final, comprehensive list consisting of hundreds of assets falling under dozens of asset categories was developed.

Waterfront

rivers, ponds, streams/creeks, oceans, lakes, canals, bays, ports/harbors, beaches (natural and human made), reservoirs, cliffs/bluffs, islands, marina, floods, droughts

Natural Historic Features

buried streams, natural historic waterfront, natural/historic shorelines, Aboriginal villages, historic/native natural areas, historic animal/people paths, extinct animal habitats, geographical features, ravines, canadian shield

Wildlife (flora and fauna)

bird migration, animal migration, animal habitats, feral domestic animals, native, invasive species, scavengers, animal adaption, algae, bloooms, insects, plagues

Weather

floods, landslides, droughts, seasons, rain, snow, sun, hail, storm water, erosion, runoff, climate, temperature, urban heat island, hurricanes, wind, wind tunnels, tornadoes, typhoons, whilly willies, cyclones, mudslide, avalanche, thunderstorms, wildfires, ice storms

DEFINITIONS

Informed by our research, we discussed what Municipal Cultural Planning and Green Infrastructure meant to us.

ASSETS & ASSET CATEGORIES

In the context of our project, an asset is described as a useful or valuable aspect of Green Infrastructure that cannot be broken down further into sub-assets without losing its identity. An asset category consists of a broad group of assets with commonalities that form the basis of a larger aspect of Green Infrastructure. Through our research we came up with some overarching descriptive categories into which the assets, or different examples of the same asset, could be slotted. The categories represent different points on a continuum of nature. This continuum helped us remember that everything is relative. An asset example may straddle two categories at any given time or may move from one category to another over time. Also important is the recognition that these are descriptive categories and are not value-based; one is no better or worse than the others, merely different.

METACATEGORIES

Our assets brainstorming session resulted in the development of broad, all-encompassing categories, which we called metacategories. We realized these metacategories broadly framed assets based on context and allowed the assets to overlap.

During this step of the process, we took the asset categories and merged them under our metacategories, which became the overarching rationale for choosing assets. These metacategories consisted of primary, secondary and tertiary categories. After making this decision, we received feedback from our client and redefined primary, secondary and tertiary as the

Corridors

utility lands, rec paths, boulevards, railways, roads, multi-use paths, trails, creeks and rivers, tunnels, sewers, subterranean, ravines

Topography

mountains, valleys, ravines, hills, escarpments, caves, drumlin, sinkholes, canyons, cliffs/bluffs, natural routes, funnels, coordinates, sea levels, tree lines, elevation, plains/prairies, deserts, eskers, wetlands, watersheds, soil type, basins, water table, oasis, waterfront

Urban Agriculture

urban farms, community gardens, allotment gardens, private gardens, green roofs, food gardens, vertical farming, green houses, urban fruit trees

Parks

recreational parks, sports fields, open land, utility lands, corridors, cemeteries, botanical gardens, forests/woodlots, courtyards, school gardens, institution lands, golf courses, waterfront parks, dog parks, ravines, conservation areas, gated parks, urban canopy, boulevards

Awareness (Ecological Literacy)

fish, anti-smoking, public education campaigns, weather alerts, pollution air quality, anti-idling, quarantine, climate change, emergency preparedness, locavore movement, plastic bag fee, water availability alerts

Boulevards

grand boulevards, sidewalk boulevards, boulevard systems, urban agriculture, vistas, historical natural features, urban canopy, seating areas, permeable surfaces

Urban Canopy

boulevards, wildlife, woodlots, private trees, native species, invasive species, weather, water absorption, pollution capture, climate control, gas exchange, air quality noise insulation, wind breaks, green roofs

categories under which we would develop our indicators. Bright City Consulting then slotted a few assets to be studied into each of these categories.

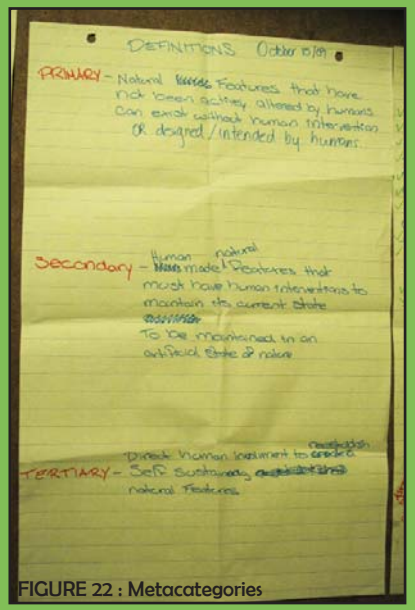


FIGURE 22 : Metacategories

The asset categories we developed consisted of:

Primary : Could exist or is created without direct human intent. For example: an old growth forest.

Secondary: A human-made natural feature that must be maintained to remain in its current artificial state of nature. For example: a green roof or manicured park.

Tertiary: A natural feature that requires human intervention to restore or revitalize a self-sustaining state of nature. For example: an ecologically restored or created wetland.

These metacategories still needed refining but provided a good starting point in the process of developing a framework for key indicators.

Green Roofs and Walls

intensive, extensive, urban agriculture, permeability

Urban Vegetation

canopy, boulevard, urban agriculture, open spaces

Three metacategories to measure specific aspects associated with each asset were developed. These metacategories have been designated as primary, secondary and tertiary. These have been defined as:

Primary (Natural)

Ecological building blocks that support ecosystem function, such as climate, topography, plants, animals and their related habitats and enduring features.

Secondary (Infrastructure)

Elements that perform an ecosystem function and/or contribute to the environmental health of the city, such as green roofs, multiuse trails, farmers markets, urban gardens, stormwater retention ponds and other facilities.

Tertiary (Policy)

Public and municipal policies and regulatory tools that focus on maintaining and enhancing the natural environment such as zoning, conservation policies, outreach volunteers, environmental awareness campaigns, other bylaws related to the environment and stories.

It is important to note that these designations are nebulous. Assets will often straddle more than one designation. These designations are a conceptual framework to assist in organizing assets and in guiding discussion and should be considered flexible and dynamic.

Indicators are used to identify, inventory and assess the condition of Green Infrastructure assets. Indicators are developed based on what is meant to be measured. For this project, indicators have been developed in terms of their cultural value as opposed

REFINING METACATEGORIES

It was important to create metacategories to continue our research as they helped categorize the assets we had selected. These categories helped us define how each asset may affect Green Infrastructure through a cultural lens. By creating these categories, we were able to understand that Green Infrastructure is not just a physical matter. It is also a role or function that can be culturally played within the city.

Primary:

Ecological building blocks that support ecosystem function.

Secondary:

Green infrastructure that performs an ecosystem function and/or contributes to the environmental health of the City.

Tertiary

Public and municipal policies as well as regulatory tools that focus on maintaining and enhancing the natural environment.

to environmental value associated with the selected assets. Indicators should meet the following criteria as outlined by PlanLab:

- *Scientifically valid*
- *Sufficient data should be available*
- *Responsive to change*
- *Intuitive*
- *Relative to stated goals*
- *Have a target or threshold*
- *Be transferable to other municipalities*

Moreover, indicators should be measured over time to gauge the changing condition of the asset and as an indication of cultural trends and values. These can also determine the overall success of policies designed to enhance, preserve or raise awareness around specific or multiple assets.

In order to measure indicators, relevant data sets need to be identified or created through primary research. Static and digital maps can be used extensively to organize and display multiple indicators as layers, to tell a more complete story of the overall condition and relationship of one or more assets. Furthermore, when stored in digital format, layers can be manipulated or updated to tell a different story, real or imagined. These can be used to direct future plans or communicate alternatives.

6.0 PRIMARY ASSET

6.0 PRIMARY ASSET

Primary Asset: Tree Canopy

This asset is culturally valuable because it has been shown that vegetation, especially trees, can increase the usage of green space. Kuo et al.'s (1998) study on the use of green space in the Robert Taylor homes in Chicago showed green space that had trees and other vegetation was frequented more often by the community than areas devoid of vegetation. They also found that community ties were formed through informal meetings between neighbours. As more people used areas with vegetation, it was determined that more informal meetings occurred, making these spaces valuable sites of cultural development.

Indicator: Percentage of canopy cover

Target

The target for increasing the urban tree canopy is to reach 40% coverage. This is based on the goals of current urban canopy campaigns across North America, many of which have targets of 40%. American Forests, a group that performs tree planting for environmental restoration and urban forestry, bases their average 40% tree canopy target on the need to maintain a robust enough tree cover to reduce the need to build expensive infrastructure to manage air and water resources (American Forests, 2008). According to American Forests, the urban tree canopy in North America has declined by 30% over the past twenty years, while the area of urban built form has increased by 20%.

The 40% target can be transferred to other municipalities as the need for a healthy tree canopy is an integral and universal aspect of urban sustainability. Cities can be engaged in urban canopy management either through the planting and maintainance of trees or through policies such as tree removal bylaws and planting requirements. As well there are local, national and international organizations dedicated to tree planting.

How will the target be achieved?

To achieve a 40% tree canopy cover for the City of Toronto, it will be necessary to identify the current city-wide tree canopy. This information will be used to create canopy density maps to provide visual information regarding the amount of tree cover in city neighbourhoods. In creating such a map it is then possible to create planting, maintenance and community engagement programs that address the needs of specific areas within the city. A singular model would be ineffective at recognizing differences between neighbourhoods as well as densities and uses, which is why this approach has been chosen.

Data

Aerial Photographs:
Provide visuals of the tree canopy in Toronto. This data can also be used to provide a historical comparison of the change in tree canopy coverage over time

Tree Inventory:
The number of trees in the City of Toronto

Leaf Area Index (LAI):
The percentage of an area covered by tree canopy

Proposed Leaf Area Index (PLAI):
The proposed percentage of tree cover for an area

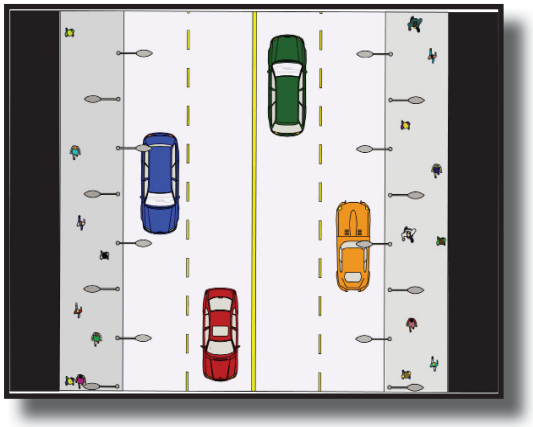
GIS Mapping:
Geo spatial information regarding tree canopy cover

Maps

17% Tree Canopy (Current)

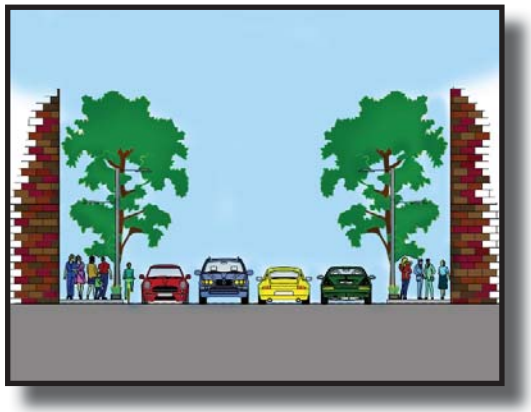
Streetscape (Current)

Birds Eye View (Current)



40% Tree Canopy (Potential)

Streetscape (Potential)



Birds Eye View (Potential)

Analysis

Displayed in the previous maps are the aerial views of tree canopy cover around the intersection of Bathurst and Dundas in Toronto. The first map displays the area with 17% tree canopy cover, which is the current state in this area. The City of Toronto has set a goal of achieving 40% tree canopy cover. The second map provides an idea of what this area of the city may look like when 40% tree canopy coverage is achieved.

A number of transformations in the cityscape will be apparent when 40% tree canopy coverage occurs in Toronto. One of the most significant changes that will occur in the streetscape will be the green feel that one would get when walking down a street. On sunny days, areas that are heavily shaded by trees are significantly cooler compared to those that have a lower coverage rate (American Forests, 2008). A result of this temperature change could be that people may choose to walk on cool shady streets rather than drive in their personal vehicles. An increase in walking trips may benefit local businesses as more residents would be walking past their storefronts. When walking, people are more likely to pass a neighbour on the sidewalk, stop in at a local business or simply enjoy a sunny afternoon outside. This change in behaviour would increase community interaction and reduce the number of car trips taken. If a decline in car trips is made as a direct result of shadier sidewalks and a more desirable, walk-able streetscape, a positive reaction will occur as fewer vehicles would be on the road thereby decreasing emissions and congestion .

While vehicle travel has the potential to be significantly affected by increased canopy cover, a number of impacts can also be anticipated on personal properties. House cooling costs would decrease as more shade can provide a cooling impact on a house. Backyards may become more attractive to homeowners as shade provides a more comfortable environment to be outside. Expensive awnings and covers would be unnecessary as the canopy would provide a natural refuge from the sun. It is hoped that residents would be more likely to spend time in their front or backyards, interacting with those passing by on the street or in neighbouring backyards. To the cultural world, the main goal of increased canopy cover would be in providing a more favourable environment for people to spend time outside and be with those around them. The natural world greatly benefits from an increase in canopy cover as trees naturally filter the air and provide life giving oxygen. An increase in tree canopy cover will also decrease the urban heat island affect, decrease smog, and will have the potential to decrease the overall temperature of the city (Centre for Watershed Analysis, 2009). The impacts of increased tree canopy coverage have the potential to drastically change how Toronto operates socially, environmentally, economically and physically.

7.0 SECONDARY ASSET

7.0 SECONDARY ASSET

Secondary Asset: Farmers Market

Farmers markets play an important role in the cultural identity and activities of a community. Markets such as Toronto's St. Lawrence Market (1803), Ottawa's Byward Market (1826) and The Halifax Farmers Market (1750) have created nieghborhood identities that are recognized well beyond the residents who live there. In helping to create local identities, farmers markets also help foster a sense of place that encourages community awareness and engagement. Farmers markets offer a unique opportunity for urban dwellers to connect and engage with the people that grow their food. This creates an indirect link to the land.

Indicator: Distribution

Target

To ensure that all residents have access to farmers markets and the cultural benefits they provide, it has been determined that a farmers market should be within two kilometres of every resident. This will ensure that most residents can access farmers markets by walking. This indicator is meant for built up urban areas. An alternate indicator for lower density areas might be density per capita, meaning a farmers market should serve a minimum number of people.

How will the target be achieved?

To achieve the target of increasing the availability of farmers markets that are within a comfortable two-kilometre walking distance it will be necessary to identify where these markets occur. Once located on a map, a two-kilometre buffer zone will be applied to cover the area of walkability. Within the City of Toronto there are currently 29 farmers markets as identified by the Toronto Farmers Maket Network. Of these, 15 are located on city-owned property. The majority of these markets are located within the area south of Dupont Street between Dufferin Street and the Don Valley Parkway. The remaining markets are broadly diffused throughout the city.

It will also be necessary to identify potential groups that are providing services that function much like farmers markets. In Toronto there are 12 year-round and 4 seasonal Good Food Markets. FoodShare, a non-profit organization created Good Food Markets to provide affordable fruit and vegetables in an accessible public space. This was in response to the fact that some communities did not have access to fresh, local produce. Sometimes these Good Food Markets may only be a single stand but there is hope the stands will develop into full-fledged farmers markets. While specific to Toronto, Good Food Markets provide an example of a community-based organization trying to meet a need not otherwise not provided for.

Data

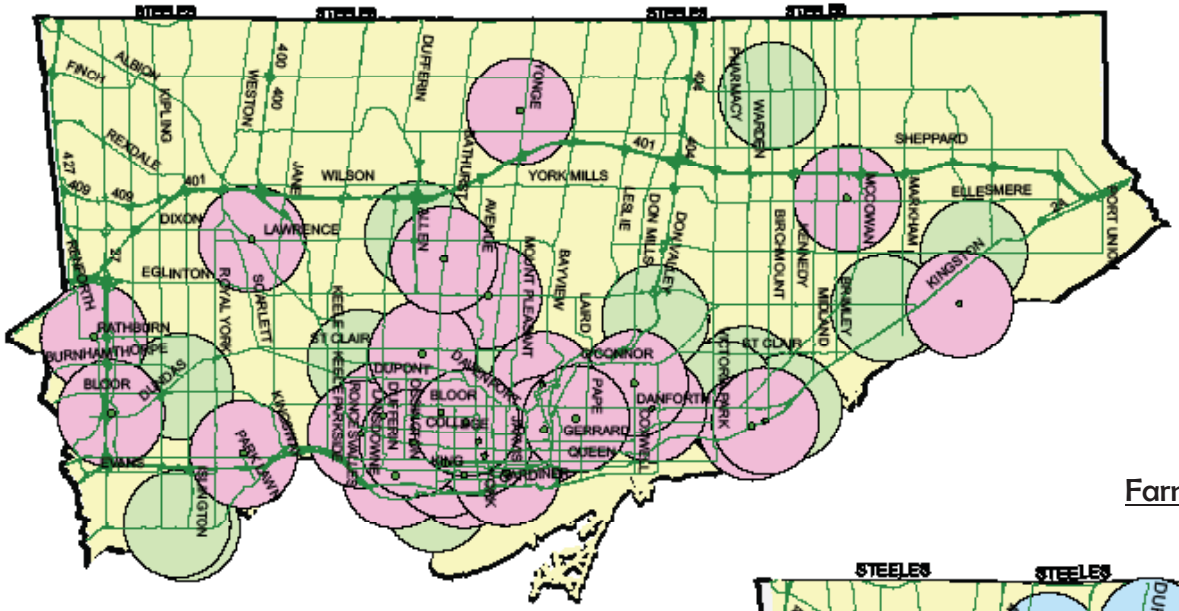
City of Toronto:
Owns 15 of the city's 29 farmers market locations. The city may also be able to provide sites for future locations and provide information on the availability of sites in chosen areas.

Toronto Farmers Market Network:
Source of information regarding size, occurrence and variety of goods at each farmers market. The network could also provide information on attendance levels.

FoodShare:
Source of information about areas that could benefit from farmers markets.

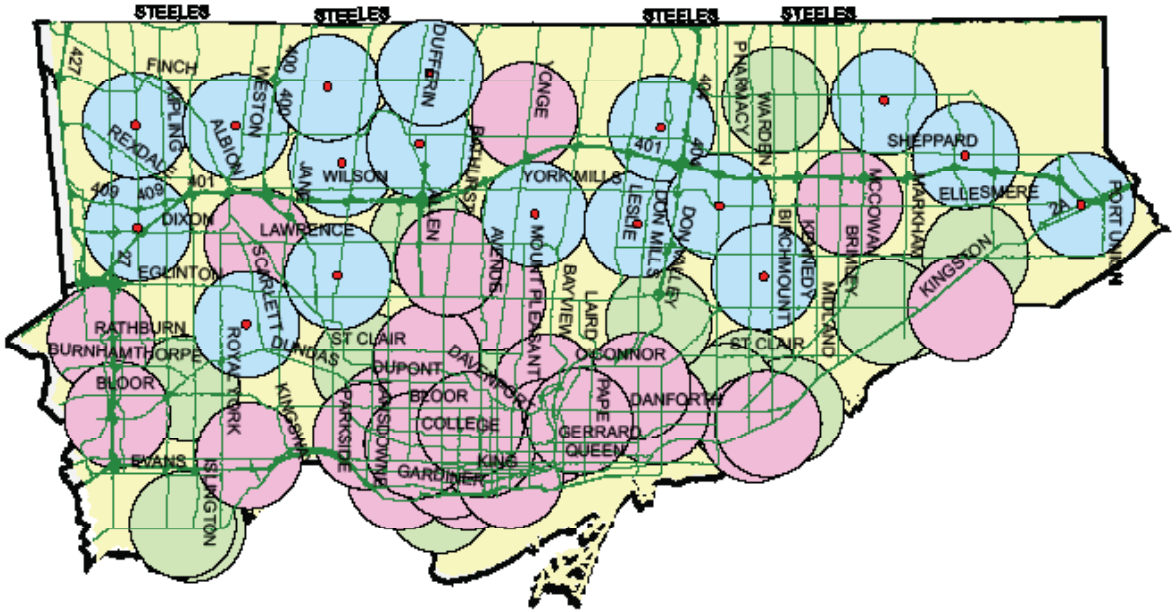
Maps

Farmers Market Current



Context Map

Farmers Market Potential



Legend

- 2km Radius from Good Food Markets
- 2km Radius from Farmers Markets
- 2km Radius from proposed Farmers Markets
- Location of Farmers Markets
- Location of proposed Farmers Markets

Analysis

A major goal for Toronto's farmers markets would be the increased use of these seasonal marketplaces. The first map highlights Toronto neighbourhoods that have direct walking access to farmers markets. A target for future farmers markets would be having as many residents as possible within walking distance to their local farmers market. An increase in the usage of farmers markets would spread the benefits that are associated with them. These benefits include creating connections to food sources, reducing food miles, encouraging healthy eating habits and keeping profits local, within the community. While positive impacts will be seen through the creation of new farmers markets, a significant number of spin-off benefits could be realized as well. A major benefit may involve an increased feeling of community within a neighbourhood resulting from the formation of a new weekly meeting place to purchase food, socialize, and learn.

The radii that are displayed around each market represent a 2-kilometre walk to the market itself. This 2-kilometre measurement has been deemed a reasonable walking distance and, in many areas, has become a standard for determining walking distances (Walk Score, 2009). As more of the city begins to fall within a 2-kilometre walking distance from farmers markets, a number of outcomes may occur. The second map represents the placement of potential new farmers markets in neighbourhoods that do not currently have markets within them. Seventeen new farmers markets have been added to the original distribution of markets in the city. With these additions a significant portion of the city is within 2-kilometers of a source of locally grown food.

New customers may be attracted to farmers markets as they open closer to their place of residence. This will increase markets' profitability and increase the number of people using markets in Toronto. Present customers who formerly drove to a market may be able to walk to a new market that is closer to their home. As more people have access to local food in their communities, there is potential for food buying trends and patterns to move towards buying food seasonally and locally. As demand increases, access will increase as local retailers and farmers markets increase their stock of locally grown food.

The cultural impacts that can be expected from the increase in farmers markets have the potential to improve community involvement and social cohesion across the city. As residents have the ability to walk to a farmers market, they are moving out of their cars and onto the streets with their neighbours. Customers have the chance to get to know the farmers selling their food along with other consumers who are also buying food in the farmers markets.

8.0 TERTIARY ASSET

8.0 TERTIARY ASSET

Tertiary Asset: Parks

Special events provide a number of opportunities for community engagement. They are opportunities for neighbours to meet and share experiences. These shared experiences help develop a neighbourhood narrative that in turn helps create a sense of place and identity among community members. These events and festivals also contribute to the broader identity of the community as it becomes defined by the events held. Hume has emphasized that strong communities are active and use the compact spaces provided to them in the best way possible (Hume, 2009). By allowing more groups access to public spaces and making it easier to hold community events, the likelihood of this occurring increases. There is also a greater chance spaces will be used on a year-round basis.

Indicator: Ease of access

Target

The target for this indicator will be to see an increase in park permit applications. The measurement tool for the indicator will be the tracking of the number of permit applications and events that occur in city parks. Community groups such as Business Improvement Areas (BIA's), rate payer associations and other community groups will be the target population of those running community events. The main goal will be to encourage local groups, regardless of what their affiliations may be, to hold community events in the current park system. These events will mobilize people within spaces they may not currently be visiting or spaces that may be underutilized. Improving access to the park system for community events has the potential to strenghten community groups while making the spaces they use a more important part of the city's cultural fabric.

This target can easily be transferred to other municipalities, as most geographic areas include some form of recreational space. The permit system for the use of public space is a widely used concept in all municipalities and large community events require additional conditions in most situations. The significance of this indicator also transfers well to other cities, as community involvement and participation is important in any context. Events may differ from one city to another but all communities have the potential to encourage and support a diverse range of activities.

How will the target be achieved?

In the context of the City of Toronto, strong steps have been taken to provide support for groups who want to hold events. The "Event Support Unit", which falls under the Cultural Services Department, has a number of documents such as the "Toronto Event Support Planning Guide" to help applicants navigate the process of obtaining an event permit (City of Toronto, 2009). This system can provide a replicable model for encouraging greater access to park systems in other municipalities. There is little diversity in the range of applications one may seek in Toronto. There are no clear categories in the event planning process to differentiate one type of event from another. While events with certain features may require additional support like policing and barricades, in general, all events must conform to the same requirements. For small gatherings of family or friends, picnic permits can be obtained quite easily. However, the next step in the permit system moves to a level where washroom facilities, policing services, barricades and fences may be required. Permit fees range from $60 for events with under 200 people up to $300 for groups of 600 people or more. The associated costs of meeting permit requirements can be quite expensive. Through the creation of sub-categories within the permit application system, events which may currently require large resources to obtain a permit can be facilitated more easily. Examples of these changes may be:

- Extended rebates for first-time applicants along with extra guidance on how to obtain necessary services for permit approval.
- A reduction in service requirements. One option could be to allow events which do not serve alcohol to use private security rather than Toronto Police.
- A reduction in the application timeline for specific requirements. For example, in Toronto, one must apply eight weeks prior to an event to close a street.
- Make audio equipment available for smaller events. Currently only two "Show Buses", modified vehicles that contain portable audio equipment, are available throughout the city and they are both geared toward large bands and concerts. Small events which may only require a basic public address system are not supported through this process.

In terms of monetary grants, the City of Toronto has a number of programs available to community groups to assist in hosting events and festivals, such as the Community Festivals and Special Events Investments Program. Municipalities that want to encourage public events could utilize these programs as a resource to help determine potential assistance options. To encourage and increase the number of events in Toronto, new BIA and community groups could be given preferential consideration for available grants.

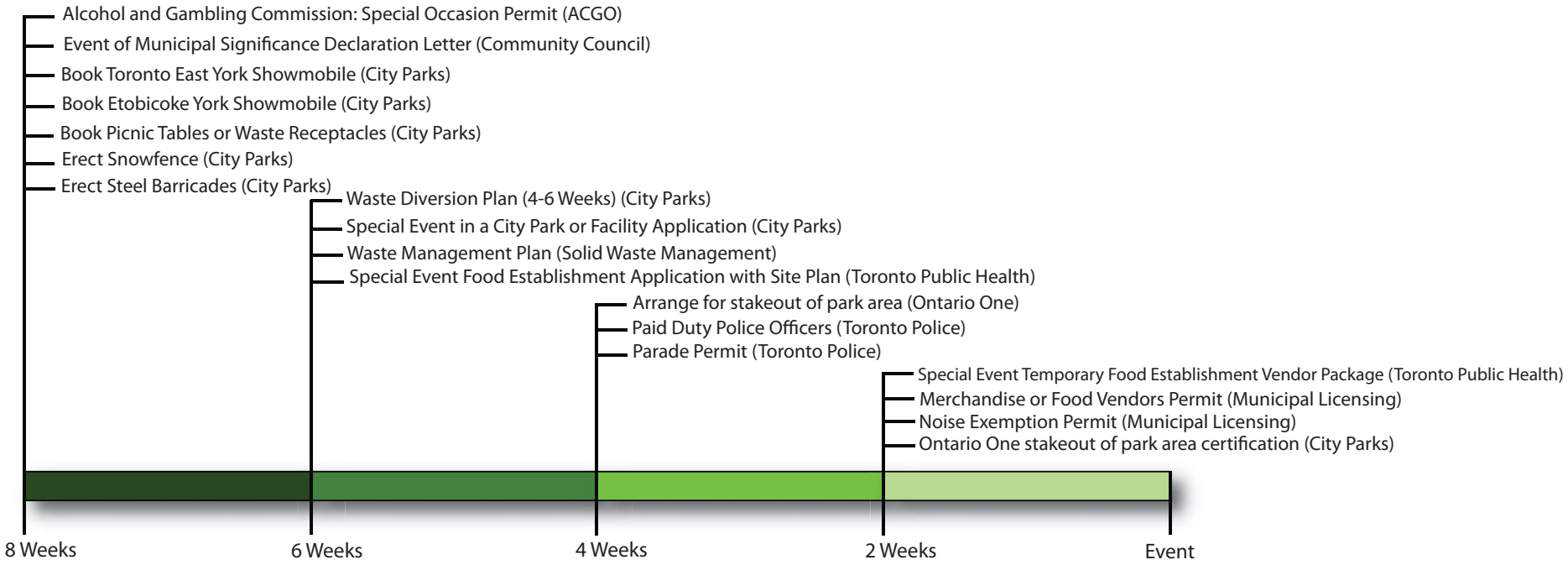
Data

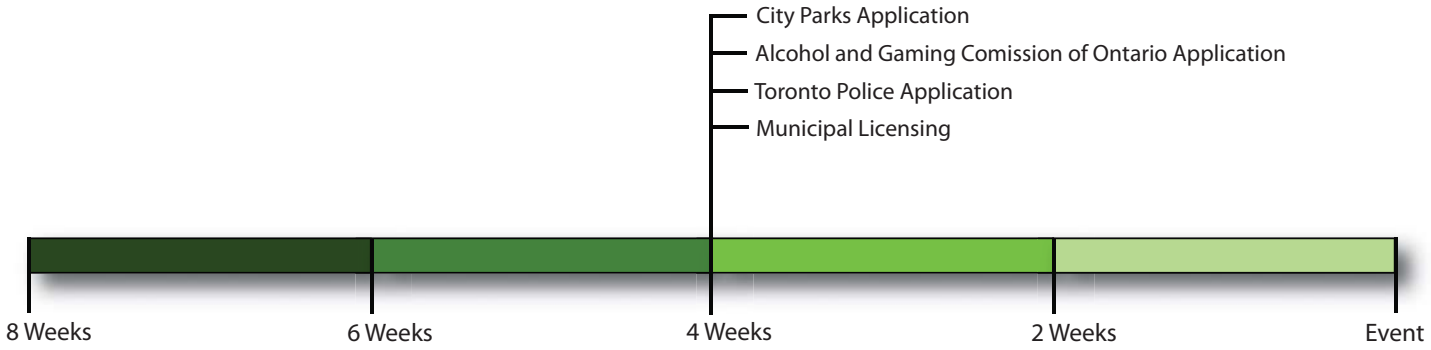
This data will not capture the myriad of activities in parks that do not require a permit or groups that do not apply for permits for their events. This makes the full story hard to tell because many events that are culturally valuable are impromptu or go unnoticed by city staff because permits have not been obtained.

City of Toronto permit office:

Record the number of permits applied for and received.

Maps


Alcohol and Gambling Commission: Special Occasion Permit (ACGO)
Event of Municipal Significance Declaration Letter (Community Council)
Book Toronto East York Showmobile (City Parks)
Book Etobicoke York Showmobile (City Parks)
Book Picnic Tables or Waste Receptacles (City Parks)
Erect Snowfence (City Parks)
Erect Steel Barricades (City Parks)
Waste Diversion Plan (4-6 Weeks) (City Parks)
Special Event in a City Park or Facility Application (City Parks)
Waste Management Plan (Solid Waste Management)
Special Event Food Establishment Application with Site Plan (Toronto Public Health)
Arrange for stakeout of park area (Ontario One)
Paid Duty Police Officers (Toronto Police)
Parade Permit (Toronto Police)
Special Event Temporary Food Establishment Vendor Package (Toronto Public Health)
Merchandise or Food Vendors Permit (Municipal Licensing)
Noise Exemption Permit (Municipal Licensing)
Ontario One stakeout of park area certification (City Parks)
8 Weeks
6 Weeks
4 Weeks
2 Weeks
Event


City Parks Application
Alcohol and Gaming Comission of Ontario Application
Toronto Police Application
Municipal Licensing
8 Weeks
6 Weeks
4 Weeks
2 Weeks
Event

Analysis

Toronto's parks host a countless number of events on any given weekend providing a wide range of entertainment options to local residents. Many of these events are large, well organized and are expensive to plan. As displayed by the above permit timeline, planning needs to happen far in advance in order to organize events in Toronto's parks because countless applications and permits are currently required to host events in Toronto's parks. In some cases, smaller, local groups looking to host events may not have the capacity, funds or knowledge to navigate this bureaucratic maze. By simplifying the process and decreasing the number of forms, phone calls and signatures that are needed to manage an event, smaller community groups will have greater access to city parks in order to host events. The goal is not to overwhelm those looking to host events, but instead provide them with a simple process that can be easily followed.

While large city-wide events benefit the city in a positive way, any event that is run, regardless of size, will benefit local communities. Local events can provide an opportunity for Torontonians to meet their neighbours, provide an opportunity to create a greater sense of community and simply provide a positive experience for local residents who may feel that Toronto may be a large, unfriendly city. The two application timelines display the number of documents required and the timeframe in which these documents must be completed. The new proposed timeline has amalgamated a number of these applications and set a more uniform timeline with all applications being due 4 weeks prior to the event occurring. The goal is to minimize the number of applications that the applicant will have to complete along with the number of city officials that they will have to deal with.

By easing the permit application process, there is a chance that events will become more viable to run at times that parks are not traditionally used for events. By easing the permit application process, there is a chance that events will become more viable to run at times that parks are not traditionally used for events. Generally, the summer months place a heavy burden on parks and community spaces to run events consecutively without much time between them. By making events easier to organize and get approved, year-round events may become more popular as it is easier to obtain the necessary documents to operate them. A more diverse set of events may also emerge, as non-traditional groups may be able to step into the event planning realm. Smaller community groups, religious, cultural, social or any other affiliated organizations may be more willing to run local events under a new, user friendly application system.

9.0 IMPLICATIONS FOR CULTURAL PLANNING

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Cultural Planning is a segment of the planning field that has yet to develop a solid shared definition amongst those who practice it. While authors have written extensively on the matter, a real consensus on what should be included in municipal cultural plans has yet to form. From Bright City Consulting's analysis of Municipal Cultural Plans, it is apparent that not all cities have the same vision when creating municipal cultural plans. One aspect that is consistently missing is a rigorous, meaningful discussion of the importance of Green Infrastructure in Municipal Cultural Planning. Green Infrastructure, which includes parks, ravines, waterfronts and urban wildlife, among other things, is an important part of facilitating culture. Although Green Infrastructure exists within all cities and communities that have adopted cultural plans, it has no meaningful recognition in the relevant policy documents. The research Bright City Consulting has conducted is one step toward recognizing that Green Infrastructure must have a more important place within the field of cultural planning.

It is important for municipalities to realize how Green Infrastructure affects the culture of their communities. What would cities be like without parks, ravines, waterfronts and other natural assets? These natural elements are an important part of urban environments. They serve as recreational spaces, meeting places, and when they are well utilized, have the ability to transform the way a city is used by its residents. Think about what Toronto would be like without its ravines, Chicago without its waterfront and New York without Central Park. Green Infrastructure is an integral part of the urban environment, offering people a refuge from city life without having to leave the urban boundary. It should be protected, enhanced and celebrated by cities and residents alike. While Bright City Consulting focused on tree canopy cover, events in municipal parks and farmers markets in Toronto, the projected 'cultural ideals' for these indicators might not necessarily resonate with other municipalities in exactly the same way. Instead of saying the research is not transferable, Cultural planners and city officials are encouraged to take an inventory of Green Infrastructure in their own communities and discover how it affects their residents. They are also encouraged to think innovatively to discover how a change or improvement in the fabric of their existing Green Infrastructure could improve the cultural vibrancy of their communities. The benefits Green Infrastructure provides will become increasingly obvious to city planners, policy makers and city officials who participate in this process. This new approach to Municipal Cultural Planning should

CONCLUSION

From where we originally set out with this project, to develop maps that measure assets with key indicators, by the end of the project we realized that developing these maps was not actually our main goal. Throughout the research process, we determined that to develop an understanding of these concepts and to create a method for categorizing assets and indicators was the more important part of this project. We have developed maps and storyboards to use as a template, to demonstrate what may be possible. Our group was successful in developing a method and process. This brings us to the important conclusion that design should stem from process as a method and research as design.

Developing and continuously categorizing, defining and redefining all of our assets and indicators was an important part of the process to help us think about these elements in different ways. Our definitions and categories changed and developed numerous times before we came to understand that many aspects of our project overlap and are dynamic rather than static. The way these elements are perceived can also change, depending on who is telling the story and what they are attempting to communicate. We came away with an enhanced appreciation of the complexity of mapping and communicating natural assets to reflect their importance as key cultural resources.

for a variety of reasons including its potential to generate a second pool of funding that may be available to them. While current cultural planning research has a single stream of funding, adding Green Infrastructure and environmental enhancement initiatives provides both a new perspective and a new opportunity for funding from senior levels of government and other community stakeholders.

During the course of research conducted for this project, Bright City Consulting discovered that the process was actually much more important than the research results. Municipalities who want to better understand how Green Infrastructure affects their communities can use the process created by Bright City to conduct research that is relevant for their local economies and for residents' quality of life. The research in this report is a first step toward documenting the importance of natural heritage within an urban setting. While Bright City Consulting's project is complete, research on how Green Infrastructure contributes culturally to a municipality's well being is still in its preliminary stages. Although it is commonly recognized that there are major benefits to accessible urban green space, this general knowledge is not sufficient. Real, scientifically valid research needs to be conducted by planners and policy makers at every level to discover the real benefits of natural heritage to our social, cultural, and economic vitality. Relevant stakeholders are encouraged to use the process Bright City undertook as a guide to support the further study of Green Infrastructure and its value as a cultural asset.

10.0 BIBLIOGRAPHY

Abrams, J. & Hall, P. (eds). (2005) Else/Where- Mapping. University of Manitoba Press.

American Forests. (2008). Setting Urban Tree Canopy Goals. Retrived November 5, 2009, from http://www.americanforests.org/resources/urbanforests/treedeficit.php

Artscape (2007) Spacemaking in Culture-led Regeneration Artscape, Toronto

AuthentiCity (2007) Culture, Economy, Community: A Cultural Plan for Chatham-Kent AuthentiCity

AuthentiCity (2008) Creative City Planning Framework AuthentiCity

AuthentiCity. (2009). Enabling Culture to Thrive in Oakville. Retrieved on 30 October 2009 from http://www.oakville.ca/cultureliveshere.htm

Beardsley, John (2008) "Kiss Nature Goodbye: Marketing the Great Outdoors" in S. William (ed) Nature Landscape and Building for Sustainability Minneapolis: University of Minnesota Press

Beatley, T and Manning, K (1997) The Ecology of Place: Planning for the Environment the economy and community. Island Press

Bell, S., Montarzino, A., and Travlou, P. (2007). Mapping research priorities for green and public urban space in the UK. Urban Forestry and Urban Greening 6, pp. 103-116.

BRAY Heritage et al. (2008) Heritage Master Plan City of Cambridge

Briffett, C. (2001). Is Managed Recreational Use Compatible with Effective Habitat and Wildlife Occurrence in Urban Open Space Corridor Systems? Landscape Research 26, 2, 137–163.

Bosselmann, P., Macdonald, E. (1999). Livable Streets Revisited. American Planning Association. Journal of the American Planning Association 65 (2), 168-181.

Caquard, S. and C. Dormann. 2008. Humourous maps: Explorations of an alternative cartography. Cartography and Geographic Information Science, 35 (1): 51-64.

Carruthers, David (1994) Urban Green Space Indicators Development EIA Ltd.

Carruthers, D. 2005. Mapping Workshop Lectures and Notes to Students of PLE 835, Ecological Design. School of Urban & Regional Planning, Ryerson University, October-November 2005.

Carlucci, A., & Barber P., (eds.) 2001. Lie of the Land: The secret Life of Maps. London: The British Library.

Center for Watershed Protection and the U.S. Forest Service. Wathershed Forestry Resource Guide. Retrieved November 28, 2009 from: http://www.forestsforwatersheds.org/urban-tree-canopy

City of London (2005) Creative City Taskforce Report Retrieved 10-October 2009 from http://www.london.ca/Committees_and_Task_Forces/PDFs/creative_city_final.pdf

City of Mississauga (2009) Mississauga Culture Master Plan City of Mississauga

City of Scottsdale.(2009) Multi-Use Paths Retrieved 15 October 2009 from http://www.scottscaleaz.gov/trails/paths.asp

City of Thunder Bay. (2009). Municipal Cultural Plan. Retreived on 16 November 2009 from http://www.thunderbay.ca/TenderDocs/3715/64-2009%20Mun.%20Cultural%20Plan%20-%20APPENDIX%20B%20-%20Terms%20of%20Ref.pdf

City of Toronto (2009) City of Toronto: Parks and Recreation. Retrieved: 15 October 2009 from: http://www.toronto.ca/parks

Conway, T. 2006. "Can broad land use policies maintain connections between protected green spaces in an urbanizing landscape?" Landscape Journal 25: 218-227

Corner, J. (1999) "The agency of mapping: speculation, critique and invention." Chapter 10 in D. Cosgrove (ed.) Mappings. London: Reaktion. p 213-252.

COST (2005) Green Structure and Urban Planning. Brussels: European Commission, Retrieved 15 October 2009 http://www.greenstructureplanning.eu/COSTC11-book/pdfs/a-Intro.pdf

Crampton, J.W. 2001. "Maps as social constructions: power, communication and visualization". Progress in Human Geography, 25 (2): 2350252.

Cronon, William (1996) Uncommon Ground: Rethinking the human place in nature. W.W. Norton, New York

Desfor, G., and Keil, R. (2004) Nature and the City: Making Environmental Policy in Toronto and Los Angeles University of Arizona Press, Tucson

De Sousa, Christopher (2003) Turning brownfields into Green space in the City of Toronto Landscape and Urban Planning 62:181-198

Duxbury, Nancy. (2007). Cultural Indicators at the Local Level. Retrieved: 10 October 2009 from http://www.ontariomcp.ca/files/Cities%20and%20Communities%20-%20Cultural%20Indicators.pdf

Eckstein, B. & J. Throgmorton (2003) Introduction and Chapter 1 in Story and Sustainability: Planning, Practice, and Possibility for American Cities. Cambridge: MIT Press

Emery, M., Flora, C. (2006). Spiraling-Up: Mapping Community Transformation with Community Capitals Framework. COMMUNITY DEVELOPMENT: Journal of the Community Development Society 37 (1).

Event Support Unit: City of Toronto. Special Events Planning Guide. Vol. 1. Toronto: The City of Toronto, 2009.

External Advisory Committee on Cities and Communities From Restless Communities to Resilient Places: Building a Stronger Future for all Canadians, Infrastructure Canada, Ottawa.

Fahy, Frances and Ó Cinnéide, Micheál. (2009) "Re-Constructing the Urban Landscape through Community Mapping: An Attractive Prospect for Sustainability?" Area 41(2) p. 167-175.

Flaherty, Kathleen (2005) Unfolding Visions [Ideas] CBC

Florida, R. (2002) The Rise of the Creative Class. New York: Basic Books.

Florida, R. and Martin, R. (2009). Ontario in the Creative Age. Martin Prosperity Institute.

Fulton, W and Newman, M (2003) The Arts and Smart Growth: The Role of Arts in Placemaking The Fundraisers Network for Smart Growth and Livable Communities and Grantmakers in the Arts, Seattle

Government of Ontario. (2009). Discovering Ontario: a report on the future of tourism. The Ontario Tourism Competiveness Study.

Henderson, H. (1990). Open Space: How to get it and keep it. Planning(56) 11, 10-14

Higgs, E. (2003) Restoring an idea or a place? in Nature By Design: People,Natural Process, and Ecological Restoration. Cambridge, MA: MIT Press, pp 40-45.

Holden, John (2004) Capturing Cultural Values: How culture has become a tool of government policy. Demos

Holling, C.S. & M.A. Goldberg (1971) Ecology and planning. Journal of the American Planning Association. July: 221-230.

Hough, M. 1996. "Urban ecology: a basis for shaping cities", Ch. 1 in: Cities and Natural Processes. Routledge, pp. 5-32.

Hume, G. (2008) Canadian Municipal Cultural Planning and Economic Development Retrived 10 October 2009 from http://www.ontariomcp.ca/library/reference-materials/canadian-municipal-cultural-planning-and-economic-development

Hume, G. (2009) Cultural Planning for Creative Communities. Municipal World, Union, ON.

Jones, H. (2007). "Exploring the creative possibilities of awkward space in the city."Landscape and Urban Planning 83, pp. 70-76.

Jorgensen, A. and Tylecote, M. (2007). Ambivalent Landscapes – Wilderness in the Urban Interstices. Landscape Research 32, 4, pp.443-462

Kitchen, L., Marsden, T. & Milbourne, P. (2006) "Community forests and regeneration in post-industrial landscapes", Geoforum 37: 831 – 843.

Korzybski, A. 1931. "A Non-Aristotelian System and its Necessity for Rigour in Mathematics and Physics," Paper given before the American Mathematical Society at the American Association for the Advancement of Science, December 28, 1931. Reprinted in Science and Sanity, 1933, p. 747-61.

Kuo, F. E., Sullivan, W. C., Coley, R. L. and Brunson, L. (1998) 'Fertile ground for community: inner-city neighborhood common spaces'. American Journal of Community Psychology, Vol. 26(6), pp823-851.

Landry, Charles (1999) The Creative City: a toolkit for urban innovators Earthscan Publications: London

Lister, NM. 2009. Map-Making as Place-Making. Journal of Urbanism. (In press.)

Margolis, L., & Robinson, A. (2007). Living systems: Innovative materials and technologies for landscape architecture. (1st ed.). Basel, Switzerland: Springer Science+Business Media.

Matyas. J. (17 February 2007). Artistic renaissance revives community. Toronto Star. Retrieved from http://www.ontariomcp.ca/library/referencematerials/artistic-renaissance-revives-community

Merchant, Carolyn 2003 Reinventing Eden: The Fate of Nature in Western Culture Routledge, London

Monmonier, Mark (1996) How to Lie with Maps University of Chicago Press, Chicago

Munoz, Juan (2003) "Community Resource Mapping-an Exciting Tool for Decision Making in the Social Studies Classroom." The Social Studies p.20-22

Offen, K H (2003) "Narrating Place and Identity, or Mapping Miskitu Land Claims in Northeastern Nicaragua" Human Organization, 62(4) p. 382-392.

Ontario Rural Council, The (2009) Economies in Transition: Leveraging Cultural Assets for Prosperity 2008-2009 Municipal Cultural Planning Forum

Parker, B. (2006). Constructing Community Through Maps: Power and Praxis in Community Mapping, 58 (4), pp. 470-484

Pickett, S.T.A., Cadenasso, M.L. & Grove, J.M. 2004. "Resilient cities: meaning, models, and metaphor for integrating the ecological, socio-economic, and planning realms". Landscape and Urban Planning, vol. 69: 369-384.

Porter, Catherine. "Urban Park Sprouts a City Farm." The Toronto Star 2009.

Potteiger, M. & J. Purinton, 1998. "Beginning". Chapter 1 in: Landscape Narratives: Design Practices for Telling Stories. New York: Wiley, pp 3-30.

Priel, J. (2008). City of Hamilton Information Report. Retrieved 16 November 2009 from http://www.myhamilton.ca/NR/rdonlyres/4288C5F9-0E0F-44CD-943C- 66C446D998B6/0/Oct22Item55ECS08048INFOREPORTCulturalPolicy.pdf

Quayle, M. and Dreissen van der Lieck, T. C. (1997) 'Growing community: a case for hybrid landscapes'. Landscape and Urban Planning, 39, pp99-107

Qvistrom, M (2007) "Landscapes out of order: studying the inner urban fringe beyond the rural-urban divide", Geografiska annaler series B. 89(3), p. 269-282

Rapoport, A. 1977. Human Aspects of Urban Form: Towards a Man-Environment Approach to Urban Form and Design. New York: Pergamon Press

Sickinger, Rick. (2008). Huron County Cultural Plan. Retreived 1 November 2009 from http://74.125.93.132/search?q=cache:8rjaDiRMBt8J:www.ontarioswestcoast.ca/Huron%2520County%2520Cultural%2520Plan.pdf+huron+cultural+plan&cd=1&hl=en&ct=clnk&client=firefox-a

Suzuki, David, (2002) The Sacred Balance: Rediscovering Our Place In Nature. Toronto, Douglas and McIntyre Publishing

TCI Management Consultants (2009) Arts and Culture Master Plan City of Cambridge

Thompson, G. & Steiner F. (eds) (1997) Ecological design and planning Wiley, NY.

Thorne, S. (2009). Cultural Tourism: A Place-Based Approach. Creative City Conference. Retrieved 11 October 2009 from http://www.ontariomcp.ca/files/Cultural%20Tourism%20-%20A%20Place-Based%20Approach_0.pdf

Tomality, R., Alexander, D,, Anielski, M., Wilson, J., Jozsa, A., Haider, M., Cartin-Artega, F., Casey, D. (2007). Ontario Community Sustain ability Report The Pembina Institute.

Toronto Parks, Forestry and Recreation. Annual Report 2007, Parks, Forestry and Recreation: Implementing our Common Grounds. To ronto: City of Toronto, 2007.

Tufte, Edward 2006 Beautiful Evidence Graphics Press LLC, Connecticut

Waldheim, C. (ed.) 2006. The Landscape Urbanism Reader. Princeton Architectural Press, New York.

Walk Score (2009). Walk Score-How it Works. Retrieved November 29, 2009 from: http://www.walkscore.com/how-it-works.shtml

Walmsley, A. (2006). Greenways: multiplying and diversifying in the 21st century. Landscape and Urban Planning 76, pp. 252-290

Ward Thompson, C. (2002). Urban open space in the 21st century. Landscape and Urban Planning, 60, 59-72

Wasserman, Kim (2009) personal correspondence, October, 16.

West Kootenay Regional Arts Council. (2002). Culture: The Fourth Pillar of Sustainability. Retrieved: 10 October 2009 from http://www.ontariomcp.ca/files/Culture%20the%204th%20Pillar%20of%20Sustainability.pdf

Whiston Spirn, A. (1984) The Granite Garden: Urban Nature and Human Design. Basic books, NY.

Williams, Nicholas (2009) Green Roof Industry and Review and Research in Australia, proceedings at CitiesAlive! Conference, World Con gress of Green Roof Infrastructure, 20 October 2009

Wooley, Helen & Rose, Sian (2004) The Value of Public Space: How high quality public spaces create economic, social and environmental value. London, CABE Retrieved 3 November 2009 http://www.cabe.org.uk/files/the-value-of-public-space.pdf

11.0 FIGURES

Figure 1

Bright City Consulting, September 27, 2009

Figure 2

Bright City Consulting, September 10, 2009

Figure 3, 4

Bright City Consulting, 2009

Figure 5

David Carruthers, 2009

Figure 6, 7, 8

Bright City Consulting, October 6, 2009

Figure 9

Bright City Consulting, October 8, 2009

Figure 10, 11

Bright City Consulting, September 24, 2009

Figure 12, 13, 16, 17, 18, 19

Bright City Consulting, October 15, 2009

Figure 14, 15

Bright City Consulting, September 24, 2009

Figure 20, 21

Bright City Consulting October 20, 2009

Figure 22

Bright City Consulting, October 22, 2009

APPENDIX

INITIAL ASSETS RESEARCH

The following is a collection of research that was compiled in a brainstorming session on what green infrastructure items were in the City of Toronto. The items discussed and documented through this process were the precursors for itemized lists of asset categories and assets that are contained in this report. Initial, exploratory research was required to fully understand the realities of what was really present in terms of green infrastructure and how it is used today. Here, each item is defined and rationalized, with examples given to provide context to the Green Infrastructure element that is being presented.

Boulevards

Definition

A boulevard (often abbreviated as Blvd) is usually a wide, multi-lane arterial thoroughfare, divided with a median down the centre, and roadways along each side. Boulevards are designed to include slow travel and parking lanes, bicycle right of ways, pedestrian walkways and often incorporate an above-average quality of landscaping and scenery (Bosselmann, 1999).

Rationale

A boulevard's main objective is to create access for municipal traffic. Its unique feature is its aesthetic value: in essence, its visual attractiveness. Boulevards can be also be used as a safety mechanism that separates vehicular movement and pedestrians. This generally consists of a grassy or landscaped area between a roadway and sidewalk.

Potential Locations of Study within Toronto

- Yonge Street
- Front Street
- University Avenue
- Lakeshore Boulevard

Potential Elements of Study within Toronto

1. Landscaping
2. Sidewalks
3. Benches
4. Aesthetic view
5. Parking spots (dependent of area)
6. Median (dependent on area)

Parks

Definition

Parks are defined as an open area of land set aside for the enjoyment of the public. These opens lands are often owned and managed by a city, region, or nation. Parks are a commonly used place where people go to take part in recreational activities.

Rationale

Parks offer everything from play to quiet relaxation. Parks allow one to enjoy the peace and natural beauty of the outdoors within city boundaries (Henderson, 1990). Some parks allow for paths to be created as space for walkers, joggers, cyclists and hikers to enjoy the outdoors.

Potential Locations of Study within Toronto

- Grange Park
- The Don Valley network of parks
- High Park
- Various waterfront parks
- Trinity Bellwoods Park

Potential Elements of Study within Toronto

1. Landscape - trees, flowers, plants, bushes, grass
2. Walkability
3. Attractiveness
4. Sitting area - benches
5. Children's Playground (dependent on area)
6. Animal habitat
7. Sustainability
8. Specified as a gathering place for people
9. Paths

Multi-Use Paths

Definition

Multi-use paths are "an off-road hard-surfaced path that may be separated from motorized vehicular traffic by an open space or barrier, which has been designated, or designed and designated by the city for public use for human-powered travel or movement." Human powered means movement accomplished or propelled by human power, such as walking, running, or by any vehicle or device propelled by human power without assistance from a motor or power unit (e.g., bicycle, roller skates, skateboard, wheel chair) (City of Scottsdale, 2008).

Rationale

Multi-use paths are important because they create a more pedestrian friendly atmosphere. These are spaces where pedestrians can travel safely, that are free of motorized vehicles. Multi-use paths also provide connectivity from one area to another.

Potential Locations of Study within Toronto

- Lakeshore Blvd
- All sidewalks on a roadway

Potential Elements of Study within Toronto

1. Connectivity
2. Safety measures (lights, open areas)
3. Maintenance of paths
4. Landscape- trees, flowers, grass
5. Only pedestrian use
6. Sidewalks
7. Pathways

Beaches

Definition

The shore of a body of water covered by sand, gravel, larger rock fragments, rocks or cliffs.

Rationale

Beaches make up a significant amount of the Toronto shoreline, with approximately 25 kilometres of beaches stretching across Toronto. These beaches play both a natural preservation and recreational role, with many large parks having beaches as the key feature of the park. A large portion of Toronto's beaches are owned by the City of Toronto and the Toronto Regional Conservation Authority, providing opportunities for growth and new possibilities.

Potential Locations of Study within Toronto

- Marie Curtis Park East Beach
- Sunnyside Beach
- Hanlan's Point Beach
- Gibraltar Point Beach
- Centre Island Beach
- Ward's Island Beach
- Cherry Beach
- Woodbine Beach
- Kew-Balmy Beach
- Bluffer's Park Beach
- Rouge Beach

Potential Elements of Study within Toronto

1. Water quality
2. Uses of beaches
3. Links to storm water management, sewage
4. Historic waterfront, Toronto's shrinking harbour

Cemeteries

Definition

Cemeteries are burial grounds and places to commemorate and respect the dead. Generally cemeteries are located in open areas, which include trees, pathways and other landscaping.

Rationale

In most cases, cemeteries occupy very large pieces of land, which are covered in greenery. In many ways, cemeteries appear to be parks in the sense that there are large amounts of grass, trees, shrubbery and other green elements. Cemeteries play a significant role in many cultural and religious circles, linking people spiritually to their deceased friends and family members. Cemeteries incorporate different elements of paths, architectural features, roads, and landscape architecture, giving many elements to link green infrastructure and culture together.

Potential Locations of Study within Toronto

- Mount Pleasant
- Prospect Cemetery & Mausoleum
- Park Lawn Cemetery and Mausoleum
- Riverside Cemetery and Crematorium
- St. James Cemetery
- Toronto Necropolis

Potential Elements of Study within Toronto

1. Landscape
2. Upkeep
3. Monuments
4. Layout/Design
5. Historical Importance

Storm Water

Definition

The existing, designed, and/or constructed features, which collect, convey, channel, store, inhibit, or divert the movement of storm water.

Rationale

Cities such as Toronto have significant amounts of underground pipes designed to control storm water. Toronto also boasts a number of underground streams and rivers. The precipitation that would normally flow into the ground is piped into this underground system into rivers, streams and lakes. While storm water management is essential to the survival of the city, the natural system being modified

by the system is also significant to the city.

Potential Locations of Study within Toronto

- Western Beaches Storage Tunnel
- Ellis Avenue and Colborne Lodge Drive Storm water Management Facilities (City of Toronto)

Potential Elements of Study within Toronto

1. Aquatic Habitats
2. Basement Flooding
3. Discharges from combined sewer overflows

Urban Agriculture

Definition

Urban agriculture can be defined as any space within city limits that is being used to grow food or keep livestock. It can include backyard gardens, allotment gardens, community gardens, food producing green houses and urban farms.

Rationale

These places are where citizens gather to cultivate food as well as create community, learn and interact while helping promote a sustainable food system

Potential Locations of Study within Toronto

Community Gardens in City Parks by Ward (City of Toronto)

- Ward 1 - Village Green Park
- Ward 3 – Heathercrest Park CG
- Ward 8 – Oakdale Community Centre CG
- Ward 12 – Rockcliffe Yard Greenhouse and CG
- Ward 13 – High Park Children's Garden
- Ward 16 – Eglinton Park Heritage & CG
- Ward 17 – Earlscourt Park CG
- Ward 18 – Dufferin Grove Park
- Ward 19 – Dundas/Manning & John Gibson House

- Ward 20 – Alex Wilson CG, Huron St CG, OISE Bedford Road Parkette, Scadding Court CG,

Toronto's Urban Farms

- FoodShare's space on Croatia Street and the CAMH Sunshine Garden
- Riverdale Farm
- Black Creek Farm
- Downsview Park – Keele and Sheppard (Porter, 2009)

Potential Elements of Study within Toronto

1. Pounds of produce harvested per year
2. Number of community events hosted
3. Number of people involved
4. Daily traffic
5. How many people are fed from the produce produced.

Institutional Uses

No information was compiled in this category of Green Infrastructure within Institutional spaces because the categories branch out to other aspects of Green Infrastructure, including park and recreational spaces.

Topographical Features

Definition

Topographical features include unique characteristics of the land including its surface and shape and the elements that it is made of.

Rationale

Because the process of city building generally involves flattening or bulldozing land, there are only a few major topographical features left in Toronto, cutting through our built form and grid system, in their natural state. These preserved areas are generally found in the form of ravines, hills, escarpment, and waterfront. These areas provide a habitat for many species as well as a place for people to do recreational activities.

Potential Locations of Study within Toronto

- Humber River Ravine System
- Don River Ravine System

- Toronto Harbour
- Toronto Islands
- Scarborough Bluffs
- Escarpment around Casa Loma
- Toronto's gradual slope towards the waterfront
- Artificial Infill – today's current waterfront – Port Lands
- The Leslie Street Spit

Potential Elements of Study within Toronto

1. Group Nature Walks
2. Cyclist Traffic
3. Number of original/wild species present
4. Pedestrian Traffic
5. Edible species available to forage
6. Number of picnics per day
7. Length of recreational trails along these spaces
8. Number of park benches
9. Historical signposts describing natural features.

Historical Sites

Definition

According to Parks Canada, Historical sites are places of profound importance within cities, regions, provinces and our country as a whole. These places are of significance as they provide reference to defining moments and illustrate human creativity as well as cultural traditions. Each historic site tells its own unique story, part of the greater story of a region, contributing a sense of time, identity, and place to our understanding as a whole.

Rationale

Many of these sites include a component of green infrastructure, which may be present today, or documented based on what was once there. These elements make up part of the story for the wider community regarding settlement choices, where events occurred

and where the natural environment was utilized in the past. This might have occurred through working with nature or inversely, through plundering its resources.

Potential Locations of Study within Toronto

- Former dwellings of prominent citizens
- Tourist Attractions and Landmarks
- Casa Loma
- CN Tower
- Black Creek Pioneer Village
- Historic Fort York

Potential Elements of Study within Toronto

1. Historic marker (such as plaque, cairn etc.)
2. Street names
3. Signage
4. Old Maps
5. References in Literature

Utility Lands

Definition

Utility lands follow linear paths (above-ground and subterranean), and are dedicated to the delivery of utility services, including water, sewer, electric, natural gas, telephone and cable. The linear nature of utility corridors and the need to keep them clear for maintenance makes them an ideal part of trail networks.

Rationale

Utility Lands may be a worthwhile topic, but they may be incorporated into a wider asset category such as multi-use trails, connective open space, linear parks or rights-of-way. Detailed information on utility lands is difficult to access, but these lands could simply be mapped out.

Potential Locations of Study within Toronto

- Further research will have to be conducted to obtain base maps and geographical information to inform exact corridor locations.

Potential Elements of Study within Toronto

1. Bike Paths
2. Animal Trails
3. Community Gardens
4. Sports Grounds

Urban Canopy

Definition

The amount of tree coverage from native and non-native trees on private and public property

Rationale

Trees cover a significant amount of space within cities such as Toronto and play a key role in the social, environmental, and economic features of the city. Trees play such an important role in these areas that there is a need to preserve, protect and encourage growth in the area of tree planting.

Potential Locations of Study within Toronto

- Everywhere

Potential Elements of Study within Toronto

1. The life span of street trees
2. Tree Cover
3. Tree planting programs (non profits and festivals)
4. Forest functions and values
5. Species composition
6. Regeneration

Green Roofs

Definition

A green roof is defined as a layer of vegetation on the top of the roof of the building.

Rationale

Green roofs create a number of positive outcomes when implemented. They increase biodiversity, reduce the urban heat island effect, insulate against heat, cold and noise and help filter pollutants from the air.

Potential Locations of Study within Toronto

- Mountain Equipment Co-op on King Street West
- The Royal Ontario Museum
- Toronto's City Hall
- Eglinton West Subway Station
- Ryerson Engineering Building

Potential Elements of Study within Toronto

1. Increase in Urban Biodiversity
2. Reduction of urban heat island
3. Reduction of energy costs
4. Increase in urban biodiversity

Ecological Restoration

Definition

Ecological Restoration can be defined as land that has been actively or passively returned to an ecological function.

Rationale

In many cases where ecological restoration has occurred, new opportunities have been created for the natural world to thrive in an area. Past manufactured spaces have been returned to a quasi-natural state, increasing the chances for creating biodiversity and providing recreational opportunities.

Potential Locations of Study within Toronto

- Brickworks
- West Deane Park (Etobicoke)
- High Park

- Downsview
- Dufferin Grove
- Downsview Park
- Ravines

Potential Elements of Study within Toronto

1. Amount of space that has been restored
2. Types of spaces that have been restored
3. Current uses for spaces that have been restored