

Planning for Nature in the City: The Restoration of the Mouth of  
the Don River as a Case Study

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## Foreword

This research paper reflects the culmination of the knowledge gained through course work, readings, and the development of my Plan of Study during phases I and II of the MES program. This paper uses a site-specific case study to examine, analyze and apply the theories and principles relevant to the fulfillment of the learning objectives specified in my chosen Area of Concentration: Environmental Planning in Urban Centres. It has allowed me to apply many of the principles, concepts and ideas acquired over the course of the MES program, while further developing knowledge of the theoretical foundations of environmental planning.

My Plan of Study focuses on the interrelatedness of the built environment and the natural environment, and the role of urban and environmental planning in bridging the gaps between them. This paper, with its focus on the proposed Port Lands redevelopment and mouth of the Don River restoration, closely examines a space where the built and the natural environments are intimately related, and, where addressing one necessitates addressing the other. Applying such ideas as environmental restoration, political ecology, and an ecosystem approach, challenged me to think critically about the intricacies and complexities of planning such spaces. Overall, this paper has furthered my understanding of how to plan for environmental protection in an urban setting.

Specifically, the completion of this research paper has fulfilled the following Learning Objectives from my Plan of Study:

### Component 1 – Environmental Planning in Urban Settings

- To understand the theories and practices of urban planning and environmental planning specifically.

### Component 2 – Ecology in Urban Settings

- To gain an understanding of ecological principles as they apply to planning, design and restoration in ecosystems in Southern Ontario.
- To broaden my knowledge of plant systems and vegetation communities important to environmental planning, design and restoration in Southern Ontario.
- To develop an in-depth appreciation of ecological complexity in urban landscapes.

### Component 3 – Planning for Environmental Management in Cities

- To understand the connections between humans, the built environment and the natural environment, and how natural processes can function within the urban context.
- To learn the processes and practices involved in environmental planning and ecological design.
- To gain knowledge of how to best manage ecosystems in a rapidly urbanizing environment.

## **Abstract**

The Don River once travelled from the Oak Ridges Moraine, through dense forests, to empty into a large marsh at its mouth in Lake Ontario. The Don River now travels through some of the most urbanized parts of the Greater Toronto Area, to its final destination at the Port Lands, where it empties into the Keating Channel. The Don Mouth Naturalization and Port Lands Flood Protection Plan (DMNP) is a plan to restore and realign the mouth of the Don River so as to return it to a semblance of its former self, while simultaneously revitalizing the Port Lands and providing essential flood protection for downtown Toronto. The DMNP holds the potential to undue a legacy of environmental degradation in the lower Don River while forging an important connection between the built and natural environments. Additionally, the DMNP plans to transform the Port Lands from an industrial site to an urban mixed-use community with a realigned and restored mouth of the Don River running through the centre of the community. For these reasons it must be recognized as an important city building moment for Toronto.

This paper examines the proposed restoration of the mouth of the Don River using a framework established by Eric Higgs. This examination looks to the future, at the eventual implementation of the DMNP plan, and identifies potential strengths and weaknesses associate with the restoration project. An ecosystem approach is applied which places the project within the larger natural and built environments within which it is situated and whose processes have an impact. A political ecology approach is applied which reveals the political influences and decisions surrounding the planning process for the restoration project. This inquiry reveals that the DMNP plan possesses both strengths and weaknesses when it comes to the likely outcome of the restoration. The DMNP planning process to date has been rife with complexities and intricacies of a social, political, and environmental nature. How the plan will progress through to implementation will depend on such influences and will greatly impact the outcome of the restoration. The intent of this research paper is to provide an analysis capable of informing those interested in the project so that they may derive inspiration, learn from its mistakes, and gain knowledge to guide future work.

## List of Acronyms

CWSP	Central Waterfront Secondary Plan
DMNP	Don Mouth Naturalization and Port Lands Flood Protection Plan
EA	Environmental Assessment
GTA	Greater Toronto Area
MVVA	Michael Van Valkenburgh Associates Inc.
PLAI	Port Lands Acceleration Initiative
TRCA	Toronto and Region Conservation Agency
WT	Waterfront Toronto

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## **Chapter 1. Introduction**

For cities to be resilient, dynamic and vibrant, they must be ecologically healthy, which means they must be cities that integrate the natural world (Register, 2002).

Unfortunately, in most cities this is not the case as the dominant planning paradigm, of economic gain and expansion of the built environment, is valued over the natural environment. With increasing urbanization, the quality of the natural environment continues to decline, resulting in a loss of biodiversity, loss of habitat, and a diminishing landscape aesthetic and quality of life. In order for a new form of planning to take hold, societies must shift their focus to a value system rooted in an understanding of the importance of natural processes, and an appreciation for nature and humans in an urban setting (Hough, 2004).

The area along the Lake Ontario shoreline, which is now primarily industrial, post-industrial, and brownfield space, was once a vast area of wetlands and marshes. The Don River once travelled from the Oak Ridges Moraine, through dense forests, to empty into a large marsh at its mouth. Urbanization has dramatically changed the Don River from what it once was. The Don River now travels through some of the most urbanized parts of the Greater Toronto Area, to its final destination at the Port Lands. The possibility to restore the mouth of the Don River and redevelop the Port Lands stands out as an important city-building moment for Toronto. The remediation and restoration of the mouth of the Don (as well as extensive green space creation), alongside the large-scale urban redevelopment of the Port Lands, proposes a way of forging a connection between the built and natural environments. It also provides Toronto with a redemptive moment to

undo a legacy of environmental degradation in both the Don River watershed and along the Lake Ontario shoreline. For these reasons, what takes place at the Port Lands and mouth of the Don River is important for the future of Toronto's urban and natural landscape.

The overall success of what occurs at the Port Lands and mouth of the Don River will depend greatly on the planning and design of the restoration and redevelopment. All too often, traditional urban development processes require the elimination of nature and natural processes in order to accommodate growth. The result is a loss of connection between urban residents and the natural world. The challenge to urban planners, then, is to create an urban environment that incorporates nature and makes natural processes visible to urban residents so as to foster an understanding that humans are a part of nature, not separate from it.

The traditional approach to urban planning often offers single-faceted solutions to single-focus problems. To be truly successful, any solution should consider the broader scale and system within which the problem occurs. This is considered a systems approach, and it looks at the problem as part of a whole unit comprised of complex and interacting component parts. For example, planning for the regeneration of the Toronto waterfront can only be truly effective if the plan incorporates the protection and regeneration of the watersheds that feed into Lake Ontario. Any contamination, sediment or pollution that occurs upstream will eventually affect the Lake into which the watershed empties. Therefore, unless the entire system is considered, the final result will be ineffective. It is important to note that this systems approach stresses the interconnectedness of humans and the natural world. This type of design is holistic in

nature, recognizing that there are many diverse components that constitute a healthy environment, including both social and natural processes.

In urban settings the abundance and diversity of natural systems have been greatly reduced, and those that do remain are under pressure from the surrounding urban matrix. Existing buildings and infrastructure make it next to impossible to restore large tracts of natural space in cities. When such opportunities do arise it is critical that diligent planning (i.e. planning that takes a proactive approach, is responsive to stakeholder interests, is ecologically sensitive, and considers the broader ecosystem), be implemented to ensure the landscape's protection and recovery. Recovery, or restoration, initiates the establishment of the processes necessary to sustain natural systems. Consequently, in the case of the lower Don River and Lake Ontario shoreline, the intent of the urban planning process must be about more than maximizing development potential, it must be about returning ecological function and reestablishing resilient ecosystems that has been lost through urban development processes.

The grounds for encouraging restoration in urban settings frequently cite the commercial and business opportunities associated with redevelopment; ecological health and green space creation are typically seen as of secondary importance. In addition, ecological health is often considered in a site specific context without looking to the larger system. This leads to questions about how the mouth of the Don River will be restored and what the final goal of restoration will be, especially given the opportunity to promote economic development in Toronto. This research paper examines the process of planning the mouth of the Don River realignment and restoration as part of the Port Lands redevelopment, with a view towards the eventual implementation of the *Don*



*Mouth Naturalization and Port Lands Flood Protection Plan* (DMNP). The principle questions that guide my research inquiry are: “Is the restored mouth of the Don River likely to be an example of a successful restoration?” followed by: “What factors have influenced the planning process and what is the likely outcome of the implementation of the *Don Mouth Naturalization and Port Lands Flood Protection Plan* for Toronto?”

This research paper answers these questions with a view to the future, at how the DMNP will be implemented, its anticipated outcome, and its likely success. This is done through a literature review focused on providing a theoretical foundation and a policy document review focused on providing context. The main methodological focus was an in-depth examination of the DMNP and its predecessor designs and plans. The information gathered was then evaluated using three methods of inquiry: (1) to examine the proposed ecological restoration plan with a view to determining its likely success; (2) to use an ecosystems approach to consider the broader influences on the site; and (3) to identify the political forces that have influenced the DMNP planning process using a political ecology approach. This inquiry reveals that the DMNP plan possesses both strengths and weaknesses when it comes to the likely outcome of the restoration. However, it indicates that in its current form, the weaknesses of the DMNP outweigh its strengths. The DMNP planning process to date has been rife with complexities and intricacies of a social, political, and environmental nature. How the plan will progress through to implementation will depend on such influences and will greatly impact the outcome of restoration. The intent of this research paper is to provide an analysis capable of informing those interested in the project so that they may derive inspiration, learn from its mistakes, and gain knowledge to guide future work.

## **Chapter 2.** **Case Study Selection, Methodology and Criteria for Evaluation**

### **2.1 Case Study Selection**

Rather than focus on waterfront redevelopment in Toronto in general, or ecological restoration in general, this research focuses on the Port Lands and mouth of the Don River as a case study. Specifically, this research centres on the *Don Mouth Naturalization and Port Lands Flood Protection Plan* (DMNP). As the DMNP is still in the process of being finalized, this case study focuses on the planning process to date and looks to the future at the eventual implementation of the plan and its potential successes and set-backs.

Many interesting waterfront projects have taken place, or are currently taking place in Toronto, and there are many more clear-cut examples of ecological restoration in the Greater Toronto Area. However, the proposed Port Lands and mouth of the Don River project is a particularly interesting case study from an urban planning and urban ecology perspective. This is attributed to the fact that the Port Lands are being converted from a largely industrial site to an urban mixed-use community and this conversion is being accompanied by an extensive environmental restoration that will transform this section of Toronto's waterfront, improve the health of the Don River and Lake Ontario, and dramatically increase the amount of urban green space in the city. In the case of the Port Lands, the accompanying realignment and restoration of the mouth of the Don River alongside a large-scale urban development, represents a way of forging a connection between the built and natural environments, begins to undo a legacy of environmental

degradation, and provides an iconic city building moment for Toronto due to the immense scale of the project.

## **2.2 Methodology**

### ***2.2.1 Literature Review***

A literature review of various academic papers provides a foundation for the research presented herein. The literature spans three main topics: political ecology, ecological restoration, and the ecosystem approach. It included a variety of works, which provided both theoretical knowledge and practical information. The literature review provides a foundation that allows connections to be made between the material in the readings and what is found in the policy and planning documents pertaining to the Port Lands and mouth of the Don River restoration. Additional related documents, including published opinion pieces, popular media articles, and documents produced by advocacy groups, are included to provide context of the social atmosphere within which the plan is being developed.

### ***2.2.2 Policy Document Review***

In addition to a literature review of academic works, a comprehensive policy and planning document review is presented pertaining to waterfront planning in Toronto, the Port Lands, the lower Don River, and the mouth of the Don River. This included historical documents, government documents, and documents produced by government agencies. Select documents pertaining to the health and functioning of the Don River and Don Watershed are also included for ecological context. As the Port Lands and mouth of

the Don River project is still in the planning stages, additional policy documents may be released and additional changes to the plan may be made. Therefore, this research paper focuses on the policy documents available up to July 2014, when the review for this research paper was conducted.

## **2.3 Criteria for Evaluation**

In order to analyze the information and materials gathered through the above research methods, three evaluation methods were applied: ecological restoration, ecosystem approach, and political ecology.

### ***2.3.1 Restoration***

Determining what constitutes ecological restoration, let alone good ecological restoration, can be difficult. In his book, *Nature by Design: People, Natural Processes and Ecological Restoration* (2003), Eric Higgs provides a foundation for defining ecological restoration and identifies four keystone concepts of ecological restoration which can be used to evaluate specific restoration projects. Higgs' approach is applied in this research paper in order to analyze the planned restoration of the mouth of the Don River, including the likely success of the restoration and where it may fall short, and to identify areas for improvement.

Pinning down a precise definition for ecological restoration can be difficult. According to Choi (2004) ecological restoration is considered as “improving ecological productivity in degraded lands, conserving biological diversity, and mitigating lost ecosystems” (p. 75). However, many additional definitions exist, including: “the re-

creation of entire communities of organisms, closely modelled on those occurring naturally” (Jordan, Peters and Allen, 1987); “the return of an ecosystem to a close approximation of its condition prior to disturbance” (Natural Research Council, 1992); and “the process of repairing damage caused by humans to the diversity and dynamics of indigenous ecosystems” (Jackson, Lopoukhine and Hillyard, 1995). The Society of Ecological Restoration proposes: “Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed” (The Society of Ecological Restoration, 2004). Importantly, The Society of Ecological Restoration’s definition does not require restoration to some increasingly unattainable predisturbance state that may be irrelevant to current circumstances. Choi (2004) explains that restoration to an identical predisturbance ecosystem is not a realistic goal; and in the case of the Port Lands and mouth of the Don River this would be entirely unreasonable given how dramatically the landscape has changed. The world has changed, and will continue to change even more in the future; therefore, we need to move on from the notion that we can restore to a previous static state and instead restore with a view to the future (Hobbs et al, 2011; Clewell and Aronson, 2009).

The literature covering ecological restoration often uses multiple terms to describe subtly different things. For example, *rehabilitation*, *naturalization*, *remediation*, and *revitalization* are all terms used to describe varying types or degrees of restoration activity (Clewell and Aronson, 2009). Restoration remains an important social and ecological practice but has been dogged by terminological issues focused on what is and what is not restoration (Hobbs and Norton, 1996). Drawing steadfast boundaries of what is and what is not a true restoration often fails to acknowledge projects that may still have

ecological value. Higgs (2003) is in favour of a restoration that allows for “as many kinds of projects as possible to thrive... [and includes] social, cultural, aesthetic, economic, political, and moral values” (p. 96). Rather than remain steadfast in the rules and boundaries of what constitutes an ecological restoration, Hobbs et al. (2011) believe that restoration should be thought of under the broader umbrella of *intervention ecology*. Intervention ecology covers a wide range of active interventions in ecosystems, which are increasingly required in order to ensure the continuation of ecosystem health and resilience (Daily et al, 2009). This more overarching approach is focused on how humans intervene in ecosystems, either to maintain or to repair them. Hobbs et al. (2011) explain that it would be wrong to advocate doing away with the idea of restoration altogether and that we should instead accept that it is one particular type of intervention that fosters community engagement with nature. When restoration is thought of under this broader framework of intervention, many terminological problems evaporate. (Hobbs et al, 2011)

Even more problematic than determining what constitutes ecological restoration is determining what constitutes good ecological restoration. As a practice, restoration recognizes the unique ecological character of each site, protects significant natural features, establishes priorities for restoration efforts and seeks to create low-maintenance, ecologically self-sustaining solutions (Hough et al, 1995; Sauer, 1998). But how do we know a restoration project has been successful? Higgs (2003) advances four specific conceptual touchstones that serve as criteria to measure the success of a restoration project: 1) ecological integrity, which focuses on the quality of the ecosystem resulting from restoration; 2) historical fidelity, which considers the extent to which the restoration reflects the history of a place, without demanding exact reproduction of prior conditions;

3) focal practice, which speaks to bridging the divide between technological solutions and community engagement; and 4) wild design, which evaluates the design of a restoration. Higgs maintains, “there is no single, correct approach to restoration, but many kinds of good restoration” (2003, p. 272-3). He adds that restoration is really about “assisted recovery” where the goal is to reestablish natural processes and welcomes the involvement of humans in this process.

It is clear that any complete definition of good ecological restoration must include a host of factors, including social, cultural, aesthetic, economic, political, and moral values. This paper will use The Society of Ecological Restoration’s definition as it provides a more broad definition of restoration, and will also think of ecological restoration under the umbrella of intervention ecology. While the mouth of the Don River case study may not be a clear cut example of an ecological restoration project, viewing the project within this broader scope allows the project to be thought of as a restoration and to be evaluated as such. Chapter 5 will closely examine the plan for the restoration of the mouth of the Don River and will use Higgs’ (2004) criteria of ecological integrity, historical fidelity, focal practice, and wild design as the basis for the evaluation.

### ***2.3.2 Ecosystem Approach***

An ecological system, or an ecosystem, can be defined as “a community of organisms occupying a given region within a biome [including] the physical and chemical environment of that community and all the interactions among and between organisms and their environment” (Dearden and Mitchell, 1998, p. 539). An ecosystem is a community of different species, including humans and the nonliving components of

their environment, which interact collectively as a system. Changes at one level in a system can have repercussions in other parts or other levels of the system due to the interconnectedness and complexity of ecosystems (Carpenter and Gunderson, 2001). An ecosystem approach, then, is a framework that accounts for the interrelationships among the living and nonliving components and the various levels of a system (Hartig and Vallentyne, 1989). Importantly, the ecosystem approach also recognizes the connections between human activity and the natural world and the various impacts of environmental health and degradation on economic and social activity.

The ecosystem approach originated in the fields of ecology and biology and has moved from situations centred on a natural feature (e.g. a watershed management) to be centred on multi-dimensional issues that emphasize human-nature relations. The ecosystem approach falls under the framework of systems thinking. Systems thinking integrates traditional science into more holistic methods of enquiry focused on interrelated elements and actors (Bunch and Jerrett, 2003). It switches the attention from the study of the parts to the study of the whole; it recognizes that the whole is larger than the sum of its parts (Ibid). A common element found in most definitions of the ecosystem approach is that of a holistic view of environmental situations as complex and dynamic. The essence of an ecosystem approach is that it views social, economic, and environmental issues within the context of the larger ecological systems that contain them, rather than as entities amongst themselves (Vallentyne and Hamilton, 1987).

The ecosystem approach can be used as an environmental management tool to help comprehensively and systematically address root causes of environmental problems. Adopting an ecosystem approach has the ability to initiate a shift from a narrow



perspective of managing a single environmental medium (e.g. water, air) or a single resource (e.g. fish, trees) to a broader perspective that focuses on managing human uses and abuses of watersheds or bioregions. A discussion of the ecosystem approach is highly relevant for the Port Lands and mouth of the Don River as the Royal Commission on the Future of Toronto's Waterfront suggested the idea of employing an ecosystem approach for the planning of the Toronto waterfront. Specifically, the ecosystem approach is relevant for the discussion of the mouth of the Don River as the approach allows for a broader level of analysis and allows many interesting questions to be asked, such as: is the plan for the mouth of the Don River based on natural geographic units such as watersheds, rather than on political boundaries? Does it emphasize the importance of species other than humans? Does it embrace all levels of activity – local, regional, national, and international? Does it take into account generations other than the present? Chapter 6 will employ an ecosystem approach and seek to answer some of these questions as they pertain to the plan for the Port Lands and mouth of the Don River.

### ***2.3.3 Political Ecology***

Building on the more eco-centric approach of the previous sections, the political ecology approach attempts to elucidate the political forces, actors and ideals which may have influenced the development of the DMNP, and may influence its eventual implementation. It is important to employ a political ecological analysis to ensure that environmental events and conditions are not examined in isolation of their political and social networks. In the book *Political Ecology* (2004) Paul Robbins explains that political ecology “seeks to unravel the political forces at work in environmental access,

management, and transformation...[so as to] demonstrate the way that politics are inevitably ecological and that ecology is inherently political” (2004, p. xvi-xvii). Failing to pay attention to political influences produces only “superficial” and “incomplete” understandings of environmental events and conditions, rendering it difficult to craft effective solutions or contribute to preventing such events and conditions in the future (Robbins, 2004).

There are many definitions of political ecology, some lean more towards political economy and some lean more towards formal ecology (Ibid). Some of these definitions include: “A confluence between ecologically rooted social science and the principles of political economy” (Peet and Watts, 1996b, p.6); “The study of interdependence among political units and of interrelationships between political units and their environment...concerned with the political consequences of environmental change” (Tempel, 1996, p. 150); and “To understand the complex relations between nature and society through the careful analysis of what one might call the forms of access and control over resources and their implications for environmental health and sustainable livelihoods” (Watts, 2000, p. 257). This paper will use Robbins’ (2004) definition, in which political ecology is used to “explain linkages in the condition and change of social/environmental systems, with explicit consideration of relations of power” (p. 12). In this case, power is conceptualized through the ability of stakeholders to actively participate and affect change in the DMNP planning processes. This is relevant because it brings to light how a stakeholder’s position of power is able to influence the decisions made regarding the DMNP project thereby impacting the outcome and demonstrating that decisions are not necessarily based on the best social or environmental outcome.

Moreover, it has the ability to reveal that “there are likely better, less coercive, less exploitative, and more sustainable ways of doing things.” (Ibid, p. 12)

According to Light and Higgs (1996) “...every act of restoration contains a political dimension” (p. 233). When it comes to ecological restoration, there is both the politics *in* restoration and the politics *of* restoration (Light and Higgs, 1996, emphasis in original). Baker and Eckerberg (2013) explain that the first is about the political issues and choices made when determining what should be done and why, and the latter is about how this process is embedded in a wider political, economic, and social context.

Uncovering both the politics in and of ecological restoration provides a more informed understanding of ecological restoration as a part of wider social and political complexities and interests (Bliss and Fischer, 2011). It is important that the restoration of the mouth of the Don River be viewed through a political lens, thus bringing to light how different interests and conflicting values negotiate how such restoration is achieved, and with what consequences for both ecological and social processes.

Political ecology is also applicable to waterfront sites in general as these are places where material components of nature (such as large bodies of water) and ecosystems (such as marshes) intersect with each other with great fluidity. It is also where the human manipulations of these material forms of nature have heavily influenced their transformation over time. Desfor and Bunce (2007) explain that a political ecology approach is directly relevant to a discussion of waterfront development because: (1) it incorporates an analyses of the complex and fluid connections in society and nature, and further, the inseparability of society and nature in the production of these landscapes; (2) it includes relationships between urbanization, scale, and policy in urban waterfront

planning and development; and (3) it provides for analyses that view urban waterfronts as subjective, open, and constantly changing areas for research rather than static and insular sites of investigation (p. 253).

A political ecology approach will be employed in Chapter 7 to closely examine the political nature of ecological restoration, the planning process for the restoration of the mouth of the Don River, and the framing of the Port Lands project. Including an examination of this nature is relevant for the Port Lands and mouth of the Don River discussion in that it is able to provide a politically-oriented analysis of the influences and decisions surrounding the restoration of the site and provides a more informed understanding of ecological restoration as a part of wider social and political complexities and interests.

## **Chapter 3. Background**

*[The Don] is a river whose essential natural values have been ignored and despoiled for over two hundred years: its once pristine waters now badly degraded from storm and combined sewers; its lower valet channelized and ransacked by an expressway, a four lane-road, railway tracks, transmission towers and salt dumps; its vegetation and wildlife diversity greatly impaired; its sense of wholeness, beauty and place a fond memory for those whose had known it that way.*

-Hough, 2004, p. 39

### **3.1 History of the Don River**

The Don River was formed at the end of the last ice age, approximately 13,000 years ago (Hough, 2004). When the glaciers retreated, streams began to flow south from their source at the Oak Ridges Moraine. The Don River is one of a system of watersheds in the Greater Toronto Area that extend from the Oak Ridges Moraine to Lake Ontario (Ibid). The east and west branches of the Don River originally flowed south as two separate rivers into proglacial Lake Iroquois. When the waters of Lake Iroquois retreated approximately 9,000 years ago to form Lake Ontario, the two rivers united to flow into their new outlet. As the Don River entered Lake Ontario the process of building a baymouth bar and backshore lagoon began, forming the harbour islands spit and a protected lagoon known as the Ashbridges Marsh (Ibid).

When European settlement began in the Greater Toronto Area over 200 years ago, the Don watershed contained abundant vegetation and wildlife. The river-valley provided a large area of habitat that was able to serve "... as a corridor for migratory species to travel from lake Ontario to the headwaters of the north" (Toronto and Region Conservation Authority, 1994a, p. 3) However, industry quickly sprang up in the lower part of the Don watershed, including mills, quarries and factories. Later, in the mid-

1850s, heavier industries such as gas works established themselves in the area (City of Toronto, n.d.). Pollution from these industries began to affect the health of the river and surrounding wildlife. By the 1880s, rapid industrialization and a growing residential population resulted in horribly polluted conditions along the river's lower reaches (Toronto Public Library, 1998). Visions of a "sanitary and rational" river landscape that would foster prosperity prompted the Don Improvement Plan; by the early 1890s, the winding lower reaches of the Don had been straightened and channeled (see Figure 1.) (Bonnell, 2010). This channelization facilitated increased industrial development and protected adjoining developments from flooding. After the Gardiner Expressway was built in the 1950s, the mouth of the Don River became buried beneath off-ramps and bridges, and access to the river was virtually cut off. As Hough (2004) described it: "By the mid-twentieth century, the city had turned its back on the river, a gap between places rather than a place in itself. As a sensory experience it has become a forgotten place; unloved and unused" (p. 42). Increasing urbanization in Toronto has done nothing to reconnect urban dwellers with the lower Don River; the river and the Port Lands largely remain a "forgotten place".

### **3.2 History of the Port Lands**

One of the largest and most ecologically productive marshes in the greater Toronto region was the Ashbridges Bay marsh at the mouth of the Don River at 526-hectares (Reeves, 1999; Hough, 2004). The Don River meandered through the marshlands before entering Lake Ontario at a point southwest of the current river mouth (see Figure 2.) (Toronto and Region Conservation Authority, n.d a). As the city grew in

the 1880s, the river received the nutrient-rich runoff of cattle byres, mills, industries, sewage, and agricultural runoff, which created stagnant waters and polluted the Ashbridges Bay marsh (Hough, 2004). The pollution became a source of health concerns, such as outbreaks of cholera (Desfor and Keil, 2004).

In 1911 the putrid condition of the area was used to justify the decision to fill the marsh in order to construct port facilities (Reeves, 1999). In 1912 the Toronto Harbour Commission developed the *Waterfront Development Eastern Section Plan* to transform Ashbridges Bay into a new industrial district (City of Toronto, 2013). The mouth of the Don River was redirected into the concrete-lined Keating Channel in 1914 and infilling of the surrounding wetlands began. Approximately 8.23 million cubic metres of fill was dredged from the Inner Harbour of Lake Ontario and dockwalls were constructed. By 1922 more than 200-hectares of land had been created on the former marsh, with approximately another 200-hectares soon to follow (Waterfront Toronto, 2013).

By 1936 the plan was completed and the marshes were completely filled in to form the port lands (Toronto and Region Conservation Authority, n.d a). Industries had moved to the area by 1925, the largest uses consisting of storage for coal and oil. The Canada Cement Company, now Lafarge Cement, began its operations in 1929. In 1949, Ontario Hydro began construction of the R.L. Hearn Generating Station. Soon after, in 1953, the incinerator at 400 Commissioners Street was constructed. Oil companies continued to operate their storage facilities and tank farms dominated the Port Lands landscape well into the late 1970s and early 1980s (see Figure 5) (Stinson, 1990).



**Figure 1. Straightening of the River Don. Source: River Don Straightening Plan (1886).**



**Figure 2. Historic Ashbridges Bay Marsh and Ecology of the Lower Don Lands. Source: Michael Van Valkenburgh & Associates, Inc. (2007).**



### **3.3 The Don River Today**

The Don River watershed extends over 36,041-hectares with the river running 28-kilometers through parts of the City of Toronto and the City of Vaughan, Town of Markham, and Town of Richmond Hill (Toronto and Region Conservation Authority, 2009b). The Don River can be divided into three defined landscape types: the upper section where the river maintains its original meanders and is still embedded in a natural landscape; the lower Don River where it is channelized, straightened and physically restricted; and finally the mouth where the river makes a sharp right-angle turn into Keating Channel and discharges into the Inner Harbor. Approximately 80% of the watershed is in urban land use, with 4% in rural use and about 16% under natural cover (Ibid). The Don River is significant to the City of Toronto in that it is less than two kilometers east of Toronto's downtown core, making it the most highly urbanized river in the Greater Toronto Area (see Figure 3) (Ibid; Bonnell, 2010).

The Don River is one of the most polluted rivers in the Greater Toronto Area, with the natural habitat being badly degraded in its lower reaches. A 2007 Environment Canada report gave the Don River a water-quality rating of 34.8 out of 100, and it is known to frequently fall below the Provincial Water Quality Objectives, especially during wet weather (Bonnell, 2008). The major sources of pollutants are runoff from roads and residential, industrial and commercial land uses through storm sewers, the effluent of the North Toronto Sewage Treatment Plant, combined sewer overflows along Taylor / Massey Creek and the Lower Don and spills from industrial and commercial lands (Toronto and Region Conservation Authority et al, 2014; Bonnell, 2010). The last 2.5-kilometers of the river is a straight, narrow and hard edged canal that makes a sharp

right-angle turn at the Keating Channel where the water flows through the industrialized Port Lands out to the Inner Harbour (City of Toronto, 2010; Toronto and Region Conservation Authority, n.d a). The fish habitat features within this area are generally characterized as “degraded, highly disturbed conditions that are uniform in nature and lack habitat diversity and complexity” (Toronto and Region Conservation Authority et al, 2014, p.5). In addition, the terrestrial environment in the Lower Don River area is heavily influenced by human activities, and is of little ecological value with a limited number of species present.



**Figure 3. The Don River Watershed. Source: Forty Steps to a new Don: A report of the Don Watershed Task Force (1994b)**

In a sudden storm, the river can rise from a sluggish trickle to a raging torrent in a matter of minutes. This is exacerbated by the damming effect of a too-narrow stream crossing under the Canadian National Railway and other utility bridges, and the absence of a confining valley around the Don River (see Figure 4) (Toronto and Region Conservation Authority, n.d b). The risk of flooding is heightened by the fact that the river has a natural tendency to fill with sediment carried down from its upper reaches, and the Keating Channel acts as a sediment trap for a large proportion of the total sediment load. These sediments must be continuously dredged from the Keating Channel to avoid flooding; on average 30,600 cubic metres of dredged sediment is removed each year and transported to the disposal holding cells on the Leslie Street Spit (Toronto and Region Conservation Authority et al, 2014). Approximately 10-15% of the total sediment load makes it to the Inner Harbour, however, reports by Aquatic Habitat Toronto (2009) and previous Remedial Action Plan (2009) reports have concluded that sediment quality in the Inner Harbour is degraded with concentrations of metals above Provincial Sediment Quality Guidelines Lowest Effects Levels at most locations (Toronto and Region Conservation Authority, 2007). Flood protection measures in the lower Don River area would remove approximately 240-hectares of urban land to the east and south of the river from risk, including the Port Lands.



**Figure 4. Image of Lower Don River and Gardiner Expressway.**  
**Source: Uploaded to the Wikimedia Commons (24 August, 2005).**

### **3.4 The Port Lands Today**

It is in the lower Don River area that the river meets the Port Lands. The Port Lands are bounded by Lake Shore Boulevard East to the north, Leslie Street to the east, North Shore Park to the south and the Inner Harbour to the west (see Figure 5). At 356-hectares (880 acres), the area is roughly the same size as downtown Toronto (see Figure 6) (City of Toronto, 2013).



**Figure 5. The Port Lands Today. Source: Port Lands Acceleration Initiative (2012).**



**Figure 6. Port Lands/Toronto Overlay. Source: Port Lands Profile (2013).**

The Port Lands are made up of a mix public and privately held lands. Excluding streets, the City of Toronto, through the Toronto Port Lands Company, own approximately 236-hectares, including all parkland. The Federal Government owns approximately 25-hectares, which includes Toronto Port Authority lands. The Province of Ontario, through Ontario Power Generation, owns 25-hectares, and Waterfront Toronto owns 1.5-hectares. The remaining 28-hectares of land are held by private interests, which include commercial, industrial, and shipping activities. There are a number of long-term leases on City owned land, as well as a lease of the provincially owned Hearn building to Studios of America (City of Toronto, 2013). Contained within the Port Lands are the Lower Don Lands. The Lower Don Lands are significant as planning for the mouth of the Don River primarily impacts this portion of the Port lands. The Lower Don Lands are a 125-hectare area bound by the Inner Harbor of Lake Ontario, the Don Roadway, the rail corridor and the Ship Channel. The Lower Don Lands are where the mouth of the Don River is found (see Figure 7).

Development in the Port Lands has been limited by obsolete or substandard infrastructure and the need for comprehensive flood protection. The industrial uses have left a legacy of contaminated soils, groundwater, and sediments. (City of Toronto, 2010; City of Toronto, 2012) Writing in 2004, Michael Hough illustrates the sense of disarray characterizing the Port Lands when he writes “The place is a visual mess. Many of its old industrial buildings are falling apart. There is litter everywhere: hunks of concrete and building materials lie scattered about, like gigantic toys left after the kids have kids have gone to bed.” (p. 249)

The culmination of years of activity within the Don River watershed has resulted in current conditions that are vulnerable to flooding, have very low ecological function, and an area that is largely not available for public use and enjoyment. It is clear that the Port Lands would be unable to support redevelopment without significant financial investment (City of Toronto, 2012).



**Figure 7. The Lower Don Lands. Source: Michael Van Valkenburgh Associates Inc. (2007).**

## Chapter 4. Planning Process

Since the 1990s, the Port Lands and mouth of the Don River have been the subject of numerous area-wide and site-specific planning studies. From *Regeneration* to the *Don Mouth Naturalization and Port Lands Flood Protection Environmental Assessment*, there are more than 20 years of planning history for the Port Lands (see Figure 8).

Year	Title
1992	Regeneration
1998	Unlocking the Toronto Port Lands: Directions for the Future
1999	Our Toronto Waterfront: The Wave of the Future
2000	Our Toronto Waterfront: Gateway to the New Canada
2000	Our Toronto Waterfront: Building Momentum
2002	Toronto Waterfront Design Initiative
2003	Making Waves: Central Waterfront Secondary Plan
2003	Making Waves: Principles for Building Toronto’s Waterfront
2005	Port Lands Implementation Strategy
2007	Lower Don Lands Design Competition
2008	Waterfront Community Improvement Plan
2010	Don Mouth Naturalization and Port Lands Flood Protection Plan
2010	Lower Don Lands Framework Plan
2012	Port Lands Acceleration Initiative
2013	Don Mouth Naturalization and Port Lands Flood Protection Plan (Amended)

**Figure 8. Port Lands and Mouth of the Don River Planning History. Source: Multiple sources.**

This chapter introduces the planning process to date as it pertains to the Port Lands and mouth of the Don River. This chapter begins with a high-level overview of the policy decision history to date, it then introduces two site-specific plans that have greatly influenced the recent planning process (Port Lands Estuary Design, and Port Lands Acceleration Initiative), and finishes with an in-depth look at the Don Mouth Naturalization and Port Lands Flood Protection Plan Environmental Assessment, as this plan will guide the restoration of the mouth of the Don River.



#### 4.1 Port Lands Decision History

In 1992, the Royal Commission on the Future of Toronto's Waterfront (Royal Commission) released its final report, *Regeneration*. This report and the proposed 'ecosystem approach' acted as the catalyst for a new era of progressive, environmentally based planning for Toronto's waterfront (Laidley, 2007). In 1998 a more comprehensive vision of the Port Lands began to form stemming from *Unlocking the Toronto Port Lands: Directions for the Future*. In 1999 the Toronto Waterfront Revitalization Task Force (Task Force) was created by the Federal, Provincial and Municipal governments with a mandate to develop a business plan and make recommendations for the revitalization of Toronto's waterfront. In March 2000, the Task Force released *Our Toronto Waterfront: Gateway to the New Canada*, which received City Council approval and also saw all three levels of government pledged their financial support to revitalizing Toronto's waterfront.

In 2001 all three levels of government came together and created the Toronto Waterfront Revitalization Corporation, with a mandate to revitalize 2,000 acres of brownfield lands on Toronto's waterfront; with the naturalization of the mouth of Don River identified as one of four priority projects (City of Toronto, 2014) In 2003, City Council approved *Making Waves: Central Waterfront Plan*, now known as the *Central Waterfront Secondary Plan (CWSP)*. The CWSP focused on core principles and big public moves; the naturalization and relocation of the mouth of the Don River was identified as a "big move." In 2004, the *Don Mouth Naturalization and Port Lands Flood Protection Project Environmental Assessment (DMNP EA)* was initiated by the Toronto and Region Conservation Agency (TRCA) on behalf of Waterfront Toronto (formerly the

Waterfront Revitalization Corporation). The goal of the DMNP EA would be to transform the existing mouth of the Don River into a naturalized river channel.

In 2007 Waterfront Toronto (WT) held an urban design competition to develop a design strategy for the Port lands that integrated the naturalization of the mouth of the Don River with strategic redevelopment. Michael Van Valkenburgh Associates Inc. (MVVA) *Port Lands Estuary* concept was announced as the winning design in May 2007. WT refined the design concept to prepare the *Lower Don Lands Framework Plan*. The Lower Don Lands Framework Plan was intended to demonstrate the broader objectives and elements for the Lower Don Lands to coordinate and inform detailed planning, such as, precinct plans and planning approvals.

In 2011 the City of Toronto, WT and the TRCA undertook a comprehensive review and study of plans for the Port Lands and mouth of the Don River that was ultimately called the *Port Lands Acceleration Initiative* (PLAI). City Council adopted the direction developed during the PLAI in October 2012, and directed City of Toronto, WT and TRCA staff to develop a high-level planning framework for the entire Port Lands and to continue and revise the DMNP EA. The now under way *Port Lands Planning Framework* will establish a coordinated plan for how revitalization efforts will unfold over the coming decades (City of Toronto, 2014). The TRCA, WT and the City of Toronto staff are finalizing amendments and integrating comments to the DMNP EA. The DMNP EA was submitted to the Environment Canada/Ministry of Environment for review and approval in March 2014.

## **4.2 Overview of Port Lands Estuary Design**

The purpose of the Waterfront Toronto Design Competition was to create an iconic identity for the Don River that accommodated crucial flood protection, and that integrated development, transportation infrastructure and the re-naturalized river mouth into a single comprehensive design (Toronto and Region Conservation Authority et al., 2014). The winning MVVA Port Lands Estuary design featured a realignment of the primary course of the Don River from Keating Channel to across the Lower Don Lands to the Inner Harbour, while constructing a greenway to the Ship Channel and maintaining the Keating Channel. This represented a design shift from the CWSP, which saw the river's main course through the Keating Channel. The justification for this change was that: "a renewed recognition of the functional and experiential benefits of river ecology allows a sustainable approach to flood control and river hydrology to become the symbolic and literal center around which a new neighborhood can be constructed" (Michael Van Valkenburgh Associates, 2007).

The MVVA design established the vision of a naturalized Don River mouth, integrated into future development in the Port Lands, and led to a refinement of the previously developed alternatives in terms of the area available for naturalization, the composition and optimization of naturalized areas, as well as the area available for development and parkland (see Figure 9) (Toronto and Region Conservation Authority et al., 2014). This design formed the basis for the DMNP and was referred to as 4WS (2010) (see Figure 10).



**Figure 9: MVVA Port Lands Estuary Design.**  
Source: Michael Van Valkenburgh Associates Inc. (2007).



**Figure 10: DMNP Preferred Alternative 4WS (2010).**  
Source: Port Lands Acceleration Initiative (2012).

### **4.3 Overview of Port Lands Acceleration Initiative**

In 2011 political opposition resulted in City Council requesting a review of the DMNP and a temporary halt to the EA process (this topic will be discussed in further detail in Chapter 7). The outcome of the review by City of Toronto staff and private consultants was the development of the *Port Lands Acceleration Initiative* (PLAI). The conclusion of the PLAI was that development in the Port Lands could advance in such a way as to be consistent with the goals of the DMNP EA (2010) while at the same time demonstrating phasing potential, cost efficiencies, and increased developable area (City of Toronto, 2012)

The modified option emerging from the review, known as 4WS (2012) involves a slight realignment of the river, the river mouth and the greenway (see Figure 11). The modified plan concludes that development in the Port Lands and the naturalization of the mouth of the Don River can be done in cost-efficient phases, with each phase releasing a successive series of developable areas from flood risk (see Figure 19). The PLAI states: “the provision of these three elements provides the greatest flexibility and effectiveness in flood conveyance and provides the greatest opportunity for good city building” (City of Toronto et al, 2012). The PLAI also concludes that strong market interest in the area could potentially allow the site’s considerable infrastructure costs to be progressively offset by development revenues.



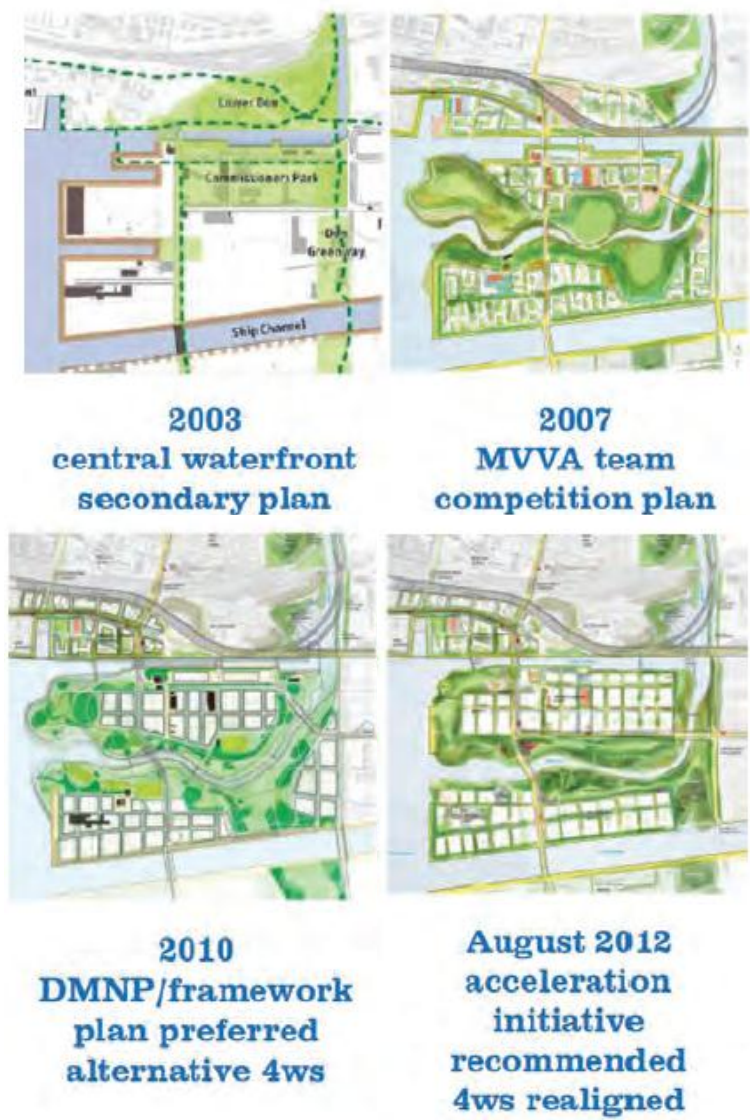
**Figure 11. Detail of the PLAI Design. Source: Port Lands Acceleration Initiative (2012).**

#### **4.4 The Plan for the Naturalization of the Mouth of the Don River**

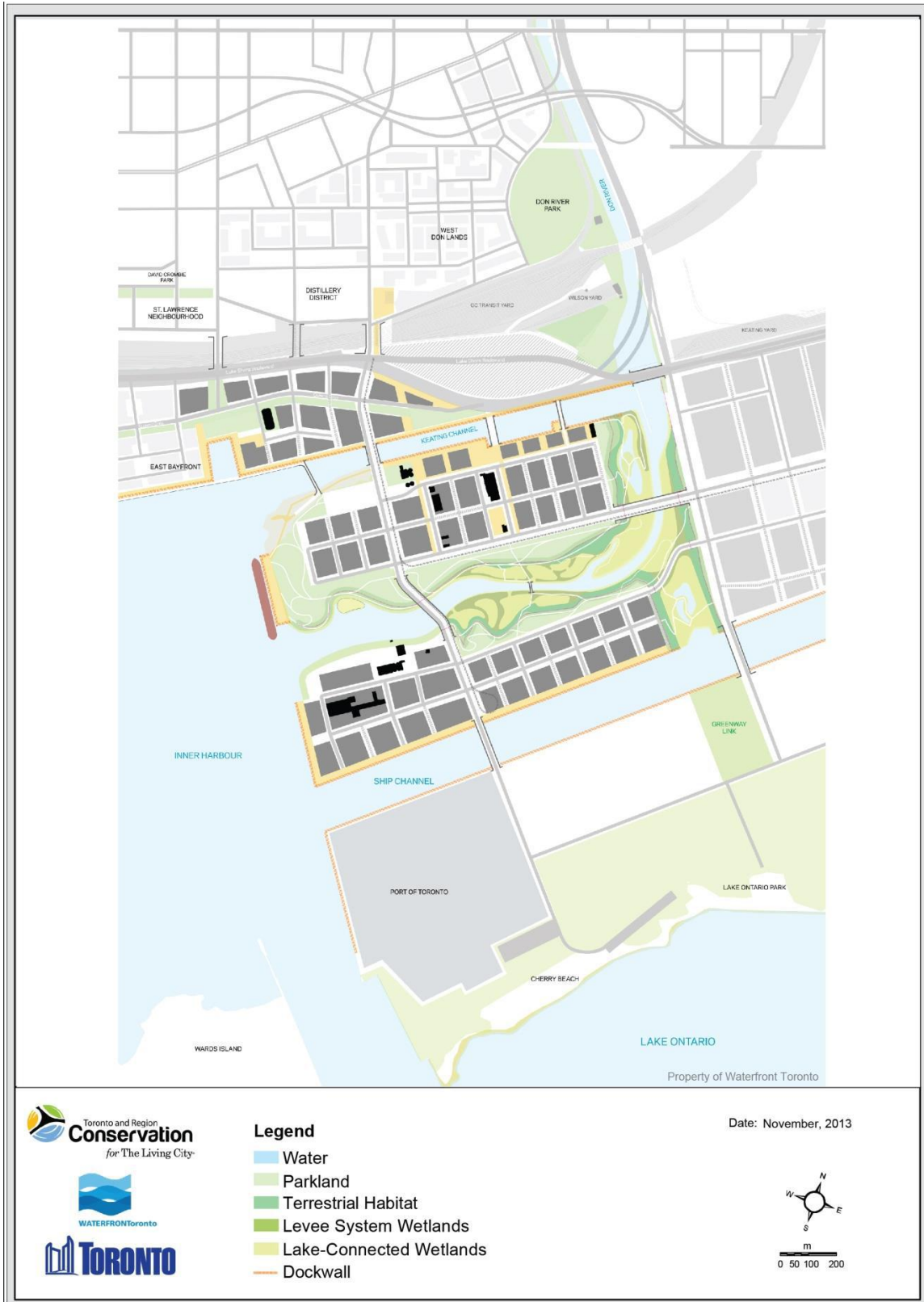
##### ***4.4.1 Overview***

The DMNP 4WS (2012) conceptual design is a direct result of both the MVVA design and the modified PLAI design (see Figure 12). The plan includes a new river valley system developed through a combination of cut and fill. The primary course of the river mouth is to flow south and then west, with an approximate location halfway between Cousins Quay and Polsons Quay. There is an associated overflow greenway to the south of the mouth which discharges into the Ship Channel (see Figure 13). Aligning the river course to flow straight south to the Ship Channel results in a consolidation of the developable parcels, with the overall developable area being increased 4.2 hectares (see Figure 12 for comparison of 4WS (2010) and realigned PLAI alternative). The revised

design significantly decreases the size of Promontory Park at the western edge of Cousins Quay in order to maintain the Redpath Sugar shipping dock. Additionally, it only naturalizes the river course on the south side of Cousins Quay due to the need to maintain the Lafarge Concrete shipping dock on the north side of Polson Quay (this is not made explicitly clear in the design (see Figure 13)). Overall, there is a loss of 8.3 hectares of green space (floodplain and park land) from version 4WS (2010) to amended version 4WS (2012).



**Figure 12: Comparison of Design Details.**  
**Source: Port Lands Acceleration Initiative (2012).**



**Figure 13: Detail of the DMNP Preferred Alternative 4WS (2012) Design.**  
**Source: Don Mouth Naturalization and Port Lands Flood Protection Plan (2014).**



#### **4.4.2 Goal and Objectives**

The goal of the DMNP EA is to “*establish and sustain the form, features and functions of a natural river mouth within the context of a revitalized city environment while providing flood protection up to the Regulatory Flood.*” (Toronto and Region Conservation Authority et al., 2014)

The project’s objectives as defined in the Terms of Reference are:

1. Naturalize and rehabilitate the mouth of the Don River utilizing an ecosystem based approach;
2. Provide flood protection for Spill Zone 1 – the Port Lands and Spill Zone 2 – east of the Don River and north of Lake Shore Boulevard;
3. Maintain the provision for navigation and existing flood protection through sediment, debris and ice management;
4. Integrate existing infrastructure functions that could not be reasonably moved or removed (including road, rails, utilities, trails and power);
5. Encourage additional compatible recreation, cultural heritage opportunities and improved accessibility for the public and persons with disabilities;
6. Contribute to the revitalization and sustainability of the waterfront and co-ordinate with and inform other planning and development efforts and associated certain and foreseeable infrastructure; and,
7. Design and implement the DMNP in a manner consistent with Waterfront Toronto’s Sustainability Framework and applicable provincial legislation.

Objective 1 *Naturalize and rehabilitate the mouth of the Don River utilizing an ecosystem based approach*, will result in the creation of approximately 26 hectares of naturalized area (not including park land). This is made up of: 4 hectares of terrestrial habitat and valley slope transitions; 11 hectares of wetland habitat, including levee systems, lake-connected wetlands; and 11 hectares of permanent aquatic habitat. This naturalized area will be composed of: upland forest and / or thicket; treed swamp; thicket swamp; meadow marsh; emergent marsh; and, submergent marsh.

Objective 1 aims to attract a variety of flora and fauna species, these include: Woodland breeding birds (Red-Tailed Hawk, Black-capped Chickadee, Cedar Waxwing, Baltimore Oriole); Thicket breeding birds (Ruby-throated Hummingbird, Northern Flicker, Eastern Kingbird, American Goldfinch); Migrant birds (Flycatchers, Warblers,

Thrushes, Finches); Amphibians and reptiles (Green Frog, American Toad, Garter Snake, Painted Turtle); Mammals (Muskrat, Meadow Vole, Raccoon, Skunk); and, Trees (Red Oak, Sugar Maple, American Beech, Black Cherry, and Aspen Shrubs).

Objective 1 aims to ensure the restoration is successful through the following specifications:

Objective 1: Aquatic Environment

- Create new high quality habitat of a larger area and greater complexity to compensate for permanent loss of low quality habitat during construction
- Limit in-channel construction and conform to fish timing window guidelines to avoid adverse flow conditions and avoid fish spawning and migration periods
- Minimize sediment loads to naturalized area by regular dredging of sediment trap and trap management
- Monitoring and Adaptive Environmental Management (AEM) to ensure that vegetation communities are not adversely affected by more frequent flood events and by sedimentation
- Ensure long-term maintenance of connecting feeder channels to eliminate infilling with sediments and effectively maintain wetlands

Objective 1: Vegetation Communities, Wildlife Habitat, Wildlife Biota, Wildlife Linkages / Connectivity

- Create new higher quality terrestrial and wetland habitat to compensate for loss of low quality habitat including ESA
- Salvage plants for replanting, where appropriate
- Use native plant species to maximize opportunities for breeding and forage
- Implement sustainable soil methods to maximize health and age of plantings
- Provide appropriate care / restoration techniques (e.g., watering) for upland plantings during initial establishment period
- Maintain vegetation structure through renewal of plantings over time
- Monitoring and AEM to ensure that the area of terrestrial habitat remains intact

Objective 1: Wetland Biota, Wetland Habitat

- Create new high quality wetland habitat to compensate for loss of low quality habitat including the ESA
- Salvage plants for replanting, where appropriate
- Manage flooding as described in more detail in Objective 2 (Flood Protection) as described in Section 7.3.2
- Optimize design of lake-connected wetlands to minimize influence on vegetation from residual fines that are not captured in the sediment trap (see Appendix N)

- Optimize wetland design to minimize shear stresses experienced in wetlands under more frequent flooding events
- Monitoring and AEM, including monitoring of invasive species, effective saturation and / or flooding of wetland substrates, etc., to ensure wetland habitat remains intact
- Monitoring and AEM to ensure that largest single wetland patch remains intact, that habitat continues to support desired species, and that vegetation communities are not adversely affected by more frequent flood events and by sedimentation
- Where possible, design trails (especially those related to the Ship Channel wetland) to circumvent, rather than bisect, naturalized areas
- Limit trail placement adjacent to other lake-connected wetlands
- Control access to other less sensitive wetlands through use of boardwalks and other strategies
- Monitor human effects on wetlands and close or modify trails as required
- Do not light trails or use focused, direct lighting if required

The details of the DMNP (2014) that have been presented in this chapter form the basis of the restoration project and will be the focus of the evaluation in the following chapters.

## **Chapter 5. Restoration**

*“In sites like the Lower Don Lands, the combined impacts of industrialization and past improvement schemes have so transformed the landscape as to make it very difficult to imagine any other reality.”*

-Bonnell, 2010, p 339.

The mouth of the Don River project is a pivotal case study of urban ecological restoration. As the DMNP is still in the planning stages, this analysis will focus on the planning process to date, the plan in its current form, and the likely success of the plan when implemented.

### **5.1 Naturalization Not Restoration**

The decision to call the mouth of the Don River project a ‘naturalization’ project rather than a ‘restoration’ project is significant. The decision likely stems from the fact that the project could not be classified as a true restoration, as well as the higher standards to be met for a restoration project versus a naturalization project. As was discussed in Chapter 2, assigning a ‘correct’ terminology to the processes we employ can be complex. According to a strict definition of ecological restoration, the mouth of the Don River project would not qualify as a true restoration project given that many popular expectations associated with restoration may be untenable for this project. The City of Toronto’s *Task Force to Bring back the Don* presented a proposal in 1991 to return the Lower Don to marshland and a river delta, removing the Port Lands and reestablishing former habitats (Crombie, 1992). However, given the immense scale, the nature of the human alterations, and the amount of economic activity generated, eliminating the Port

Lands to undergo a true restoration and return the mouth of the Don River to a predisturbance form, would not be feasible politically, economically, or physically (Reeves, 1999).

The latter reasons lead to the conclusion that the term naturalization was chosen to reflect the true nature of the mouth of the Don River project. Rhodes and Herricks (1996) define naturalization as the return of selected characteristics of an ecosystem to a more natural condition while retaining beneficial social and economic uses; which is clear in this case. For example, reconnecting the river with its floodplain will result in a win-win situation as it will improve habitat for native plants and animals as well as reduce the risk of flooding and potential flood damages to the surrounding area (Sparks et al, 2005). Green space creation results in an additional win-win as it expands waterfront habitat and enhances habitat connectivity along the lakeshore as well as creates an aesthetic and recreational amenity that can be used by residents in the area. Use of the term naturalization removes many of the requirements of a true restoration and allows for a more simplified approach and easily achievable results.

Devoted practitioners would likely claim a restored site with permitted public use should not be considered a true restoration project; however, according to Roberti (2004) there are “many benefits to making natural processes visible, and there is value in sites providing access for awareness, reflection, interaction education and play” (p.11). Fostering a connection between the built environment and the natural environment is essential for changing perspectives and perceptions of nature in the urban context, and gaining support for larger scale restoration, protection and conservation initiatives (Ibid). Despite not being a true restoration, per strict definition, the mouth of the Don River

project will result in measurable ecological benefits. According to Clewell et al (2000) “the mission of every ecological restoration project is to re-establish a functional ecosystem” (p. 1), the following section will examine the likelihood of the mouth of the Don River restoration achieving such a mission.

## **5.2 Restoration Assessment**

### ***5.2.1 Ecological Integrity***

According to Higgs (2003), ecological integrity focuses on the quality of the ecosystem resulting from restoration, and is centered on the notion of wholeness by encompassing a range of indicators such as resiliency, elasticity, and stress response. Ecological integrity determines how species-rich an ecosystem is, as well as how it functions, and is largely based on two factors: biodiversity and habitat. These are intimately related as an abundance of healthy available habitat means that many species are able to survive and thrive, thereby increasing biodiversity. The presence of both ensures ecological integrity.

Objective 1 of the DMNP: “to naturalize and rehabilitate the mouth of the Don River”, addresses both habitat creation and quality stating that the naturalization will “create new higher quality terrestrial and wetland habitat to compensate for loss of low quality habitat” (Toronto and Region Conservation Authority et al, 2014). The DMNP shows the creation of 33 hectares of habitat through a series of connected wetland and terrestrial habitats. This represents a vast area of newly created habitat. However, current habitat conditions within the Lower Don River and Keating Channel are characterized as degraded, highly disturbed conditions that are uniform in nature and lack habitat diversity

and complexity (Toronto and Region Conservation Authority et al, 2014). These conditions will have detrimental effects on the establishment of habitat capable of supporting flora and fauna. It is essential that improving ecological conditions (such as diversity, composition and quality) are explicitly addressed in order for this new habitat to attract and sustain the desired aquatic and terrestrial species.

The Don River has a natural tendency for high flows and risks of flash flooding which makes spawning fish and establishing aquatic habitats difficult. To combat this problem, Objective 1 states that it will “optimize wetland design to minimize shear stresses experienced in wetlands under more frequent flooding events” and use “monitoring and Adaptive Environmental Management (AEM) to ensure that vegetation communities are not adversely affected by more frequent flood events” (Toronto and Region Conservation Authority et al, 2014). This approach is reactive, ensuring the restored landscape is able to withstand flooding. However, a proactive approach that aims at preventing or lessening flooding would be beneficial. This could include measures such as reforestation along the full length of the river to slow runoff and sloped river banks in combination with aquatic vegetation to slow the movement of water as it approaches the mouth of the Don River. Such measures are important in establishing and maintaining aquatic habitats and species and would increase the stress response and overall resilience of the newly created ecosystems.

Special attention is needed in the lower stretch of the river where the hard-edged river channel walls increase the river’s flow, creating conditions that are not suitable for fish populations or for enabling fish spawning. Naturalizing the channelized portion of the lower river is difficult because it is abutted by railroad tracks and expressways and

has steel and concrete banks. The decision was made to maintain the hard edged river bank with the redevelopment of the West Don Lands, despite the opportunity to reimagine the course of the lower Don River and return meaningful ecological health. The plan for the mouth of the Don River does return some of the natural meanders to the river as well as grading of some of the river banks. However, the steel walls that make up the shipping docks for Redpath Sugar and Lafarge Concrete will remain intact in the Port Lands. The Redpath Sugar shipping dock is located where Promontory Park was originally designed to be located, which resulted in the park being significantly decreased to accommodate the shipping dock and to maintain ship navigation in the harbor (see Figure 12). The Lafarge Concrete shipping dock is located on the north side of Cousins Quay. The intention is that when the Lafarge Concrete lease expires in the Port Lands, the dock will be dismantled and naturalized. In the meantime the shipping dock will remain in place, thereby reducing overall naturalization and hindering habitat regeneration. Such decisions impact the end result of restoration and decrease the potential ecological integrity at the site.

Human activities surrounding a restoration site can impact plant communities and plan succession (Menninger and Palmer, 2006; Prack et al, 2007). The design of the Port Lands site to accommodate a high degree of use (residential, recreational, etc.) will affect the species content and will only further decrease the ecological integrity of the restoration. Various faunal species are likely to be absent on the site, except in cases where the site may be used to facilitate movement to larger intact natural areas (e.g. the Leslie Street Spit). This is because the restoration is likely to result in primarily edge habitat (i.e. habitat at the exterior of a patch rather than the interior). Edges often do not



have a high diversity of species and commonly favor adaptable generalist species as well as multihabitat species. Interior species are intolerant of human disturbances and are not likely to be found at the mouth of the Don River site (Perlman and Milder, 2005). In the broader context of the Don Valley, the site may help to expand the overall amount ecological integrity by acting as a buffer to surrounding natural areas and greenways, and by facilitating movement throughout the Don River watershed (Robertti, 2004). The task of establishing ecosystem integrity is a challenging one, made even more difficult with the presence of human activities. It may be difficult to separate the relative effects of natural and anthropogenic perturbations at the site, therefore, it is critical that DMNP planning accounts for the influence of human disturbance on the site to ensure ecological integrity (De Leo and Levin, 1997).

Objective 1 *to naturalize and rehabilitate the mouth of the Don River* and “create new high quality habitat of a larger area and greater complexity to compensate for permanent loss of low quality habitat” (Toronto and Region Conservation Authority et al, 2014) holds the potential for many ecological returns, including increases in biodiversity, slope stabilization, improvements in water and air quality, improved permeability of surfaces and subsequent percolation and absorption of water, as well as increased habitat for wildlife. However, the objective is so broad and non-specific that it does not specify what ecological returns it plans to achieve, leaving the results and measurable successes open for debate. The mouth of the Don River could conceivably be considered as rehabilitated with only modest improvements to habitat size and quality, given the highly degraded state of the existing habitat. This does not necessarily translate into a successful restoration. Specific objectives with clear tasks and desired outcomes would vastly

improve the DMNP plan and make it clear as to how issues will be dealt with in a proactive, rather than reactive manner. It can be said that there is some indication that the DMNP plan will result in an improvement to the ecological integrity of the site. Overall, it appears that the plan will fall short on many of its objectives, leaving the potential integrity of the site in question.

### ***5.5.2 Historical Fidelity***

Historical fidelity considers the extent to which the restoration reflects the history of a place, without demanding exact reproduction of predisturbance conditions (Higgs, 2003). Planners, designers and restorationists must consider how the place would have changed and evolved over time in the absence of overwhelming anthropogenic influences and recognize that it may not be possible to restore a place to its former trajectory (Bonnell, 2008). As was discussed in section 5.1, the City of Toronto's Task Force to Bring Back the Don proposed returning the Lower Don to marshland and a river delta by removing the Port Lands. However, as was previously mentioned, the immense scale and the nature of the human alterations make eliminating the Port Lands in order to undergo a restoration of this nature impractical if not impossible. As a result, there is limited desire to take the river back to its predisturbance condition and limited ability to put the river back on its former trajectory. Given that restoring to an historical point is not feasible, the MVVA design looks to a more creative reworking of the past, to include historic cultural symbols that make reference to the sites industrial heritage. MVVA proposes leaving the Keating Channel as an "industrial artifact" (Michael Van Valkenburgh Associates, 2007) and instead routing the river further south through a naturalized wetland environment.

The design rationale was that this path would more closely reflect the historic course the river took before it was straightened and channelized.

MVVA asserts that it is neither possible nor desirable to erase the past; “likewise, it is neither possible nor desirable to replicate what nature had placed here before.”

(Michael Van Valkenburgh Associates, 2007) The design does establish some natural meanders and wetland habitat that is reflective of the river’s predisturbance state. The design also “[weaves]... several heritage structures... into the new urban fabric” in order to “[speak] to the physical past of the site” (Michael Van Valkenburgh Associates, 2007). Overall, one could say there is some sense of historical fidelity; it is simply reflective of the river’s industrial history rather than its ecological history.

### ***5.2.3 Focal Practice***

Higgs contends that restoration should not simply be the application of a perfected technique, but also about building communities connected to natural processes (Higgs, 2003). Focal practice functions to bridge the gap between technical requirements and community involvement. Public participation, consensus building, partnerships and long-term monitoring have become central to the success of many urban ecological restoration initiatives. Where there is no community involvement, there is no community ownership or care for the site. Higg’s concept pushes for the examination of the level of societal involvement and cultural engagement of a restoration project.

Many Toronto residents have been interested and actively involved in the planning process through public consultations and design charrettes. From online transcripts and available materials, it appears that the consultation process has employed a top down

approach. In this approach, the planners leading the consultation process act as experts, imparting knowledge and dictating the process, without fully recognizing the potential contributions of the stakeholders involved. The problem with this method is that it does not invite open participation and does not view participants as equal partners in the process with valuable knowledge to provide. At the March 29, 2008 meeting the TRCA and WT presented the 4WS design as the 'preliminary' preferred option to the public along with Alternatives, 2, 3, 4S, and 4W. This public meeting sought feedback on the public's preferred design choice. Before conducting this meeting, the project team had already eliminated design options 5, 6, 7, and 8 (which were not presented) and evidence from the meeting notes and presentations suggest that the decision to move ahead with design 4WS had already been made. This calls into question how many other decisions were made prior to public consultation.

Despite extensive public participation in the planning process to date, the impact of that participation appears to be minimal. The planning process has largely been based on technical requirements and expertise, political influence, and the desire for high visibility in the design. The connections between public forums of discussion to those that occur in the arenas of power and action can be tenuous, indirect, filtered, and distorted (Neuman, 2000). Chapter 7 will discuss the politics of decision making in greater depth.

Due to the nature of this restoration project, active stakeholder involvement in the physical restoration is likely to be minimal. This project is a large scale, public sector undertaking, involving extensive engineering expertise and physical reworking of the landscape. Work of this nature does not leave much room for local community groups or

interested members of the public to become involved. As of now, the planning documents do not make reference to the inclusion of interested stakeholders in the restoration process. This is unfortunate, as active stakeholder participation increases the likelihood of care and management for restored sites in the long-term.

Where active stakeholder involvement becomes apparent, is in MVVA's final vision for the site. MVVA ranks social benefits as highly as ecological ones and envisions the restored river mouth within a parkland complex that includes recreational fields, walking and cycling trails, and shoreline spaces for water-based activities. Despite their good intentions, MVVA and the planners involved have failed to make the connection between stakeholder involvement and social benefits. In this case, the planners are managing a deliberative process that does not include societal involvement, but are delivering an end result based around the rhetoric of social benefits. Without social involvement, how can social benefits be determined? If planners want to provide social benefits, they must give a voice to under-represented issues and ideas and provide fair venues that are equitable to all participants (Neuman, 2000). If places are to have meaning for their residents and users, then the processes used to create and improve them must be invested with meaning as well (Ibid). Despite the opportunity to build a community connected to the natural processes that surround them, it is difficult to say that there will be much use of focal practice as Higgs envisioned it.

#### ***5.2.4 Wild Design***

Wild design is based on the idea that the design of a restoration is not simply considered for its enhancement of the human experience, but also for its ability to meet

the interests of other species (Higgs, 2003). Generally, the plan seems to demonstrate the prioritization of human needs and desires over ecological ones. As was discussed previously, the PLAI process resulted in the loss of green space. In version 4WS (2010) the flood plan was 30.7 hectares and park space was 14.4 hectares. In amended version 4WS (2012) the flood plain is 26.1 hectares and the park space is 10.7 hectares. Most of this loss in green space can be attributed to the need to maintain the Redpath Sugar and Lafarge Concrete shipping docks. This resulted in the loss of Promontory Park at the Redpath Sugar dock and the lack of naturalization and a reduction in parkland at the Lafarge Concrete dock. However, some of the lost green space appeared passive and unprogrammable in version 4WS (2010) and it is unclear why it was reduced in version 4WS (2012). Additional ecological considerations were curtailed in order to enhance specific human uses of the site, including a number of land-based recreational uses such as bike trails, multi-use trails, parks, and sports fields.

The terrestrial and aquatic environment is likely to be heavily influenced by human activities and such activities are likely to have a negative impact on the outcome of restoration. In order to mitigate the effects of human activity, Objective 1 states: “where possible, design trails to circumvent, rather than bisect, naturalized areas;” “control access to wetlands through use of boardwalks and other strategies;” and “monitor human effects on wetlands and close or modify trails as required” (Toronto and Region Conservation Authority et al, 2014). While such provisions may prevent humans from entering restored habitats and causing damage, additional problems can arise due to invasive species that result from pests and predators (e.g. dogs and cats). Invasive species can change ecosystem function and halt succession by outcompeting native species

(Clewell and Aronson, 2006; Prack et al, 2007; Walker and del Moral, 2003). Objective 1 addresses this concern through the provision to: “salvage plants for replanting, where appropriate”, including “monitoring of invasive species” (Toronto and Region Conservation Authority et al, 2014).

The latter Objective 1 provisions directly address the need to maintain habitat quality by minimizing human interference. However, what remains unclear thus far is the role of wildlife at the site and the desire to maintain the presence of wildlife species. In writing about the presence of coyotes at the Leslie Street Spit, Foster (2007) brings to light the important issue of the desirability of wilderness in urban spaces. Urban residents experience wilderness "in" and "out" of place very differently. That is to say, the idea of making space for wildlife is desirable in theory, but the reality of sharing the space with species such as racoons, skunks, or coyotes is quite different. The case of the Leslie Street Spit suggests that the aesthetic appeal of the space has been overshadowed by concern of the risks faced by the coyotes and other species (Ibid). This raises questions about what is being restored through habitat creation if wildlife is not considered an important, or desirable, component of the restored mouth of the Don River site.

The presence of human activity results in negative impacts on natural areas, especially where the density of people is high relative to the overall size of the space. The plan for the Port Lands includes significant commercial and residential development that will add a large residential population to the area. Despite this, the DMNP is likely to result in benefits to species other than to humans. These benefits include: creation of a large amount of connected habitat, improving water and soil quality, reducing sedimentation, slowing down the movement of water, and reducing the effects of

flooding on habitats. Unfortunately, many of these benefits are overshadowed by the focus on human benefits derived from the site. The expression ‘loved to death’ is a clear example of what can happen when a public place exceeds its carrying capacity for public uses. Some of the effects of public use include: elevated water temperature through runoff from buildings leading to local extinction of cold-water species; pesticide and herbicide pollution through runoff from parkland leading to decreased reproductive success of aquatic animals; the introduction of invasive species through accidental release or introduction which can outcompete native species; elevated peak flows through runoff from impervious surfaces which can change the structure of river habitat; and the removal of riparian vegetation which undermines aquatic food chains thereby reducing the abundance of insects and fish. The site nonetheless exhibits some effort to meet the interests of the entire ecosystem, but overall, the plan demonstrates a prioritization of human needs and desires over ecological ones, and produces a weak sense of wild design.

### **5.3 Restoration Outcome**

Ultimately the goals of restoration determine its success. Goals that are more specific to an outcome, such as to return a specific ecosystem process or more natural community structure, may be more easily attained than an impractical goal of completely restoring a site to a historic state (Hobbs, 2007). The plan for the mouth of the Don outlines a series of outcomes it is believed will result from the naturalization. These include: improve aquatic and terrestrial ecological functions and provide enhanced linkages to upstream habitats; address sediment deposition, debris and ice jams; accommodate changes in precipitation, water flow, and Lake Ontario water levels



resulting from climate change; enhance recreation opportunities and local aesthetics; provide natural habitat, pedestrian and bicycle trail linkages between Lake Ontario and the Don watershed; and, manage significant sources of contaminated soil within the Lower Don Lands (Toronto and Region Conservation Authority et al, 2014). Given that the Port Lands and mouth of the Don River project is still in the planning stages, the plan and design could change and evolve as the process progresses. In order to ensure the DMNP has a successful outcome, it will be necessary to create and maintain specific goals and achievable objectives that are clearly measurable.

## **Chapter 6.**

### **Evaluation: Ecosystem Approach**

*“The notions of humanity and nature have long been understood to be separate issues. Such a dichotomy has had profound influences on the way people have thought about themselves: the cities where people live and the non-urban regions beyond the city where nature lives”*  
-Hough, 1995, p.10

According to Hartig and Vallentyne (1989) an ecosystem approach is a framework for environmental management that accounts for the interrelationship among the living and nonliving components and the various levels of a system. The ecosystem approach stresses the importance of integrating humans into ecosystems (Pickett et al, 1997; Grove and Burch, 1997; Grimm et al, 2000). The Royal Commission for the Future of the Toronto Waterfront (Royal Commission) introduced the ecosystem approach in the early 1990's as a new approach to waterfront planning. The legacy of the Royal Commission continues to impact regional and local planning efforts, and has certainly had an impact on the planning for the Port Lands and mouth of the Don River as this chapter will show. Applying an ecosystem approach, as envisioned by the Royal Commission, to an analysis of the restoration of the mouth of the Don River site enables a discussion of human-nature relations and the importance of considering the broader bioregion. The following sections will build on these ideas.

#### **6.1 The Ecosystem Approach and Waterfront Planning**

The Royal Commission on the Future of the Toronto Waterfront (The Royal Commission) released a series of three reports (*Interim Report* in 1989, *Watershed* in 1990, and *Regeneration* in 1992) that had a great impact on waterfront planning in

Toronto. The Royal Commission adopted an ‘ecosystem approach’ from the start with the release of its *First Interim Report of the Royal Commission on the Future of the Toronto Waterfront* (1989). The release of its *Second Interim Report: Watershed* (1990) further engrained the importance of an ecosystem approach and presented it as a form of planning capable of solving the regions environmental ills (Ciesielski, 2011). The Commission’s final report *Regeneration: Toronto’s Waterfront and the Sustainable City* (1992) continued to engrain the importance of the ecosystem approach. According to the report and the Royal Commission, an ecosystem approach:

Includes the whole system, not just parts of it; focuses on the interrelationships among the elements; understands that humans are part of nature, not separate from it; recognizes the dynamic nature of the ecosystem, presenting a moving picture rather than a still photograph; incorporates the concepts of carrying capacity, resilience, and sustainability – suggesting that there are limits to human activity; uses a broad definition of environments – natural, physical, economic, social and cultural; encompasses both urban and rural activities; is based on natural geographic units such as watersheds, rather than on political boundaries; embraces all levels of activity – local, regional, national, and international; emphasizes the importance of species other than humans and of generations other than the present; and, is based on an ethic in which progress is measured by the quality, well-being, integrity, and dignity it accords natural, social, and economic systems.  
-Royal Commission on the Future of the Toronto Waterfront, 1992, p. xxi

This view emphasizes the importance of humans within the ecosystem and recognizes that humans are a part of nature and not separate from it. *Regeneration* also proclaimed that the new ecosystem approach to planning would bring together “...the long-term promise of a healthy environment, economic recovery and sustainability, and maintaining a livable community” (Royal Commission on the Future of the Toronto Waterfront, 1992, p. 16–17). This approach to planning is significant because it brings together social

and natural systems and seeks to create solutions that strengthen and build human-nature connections.

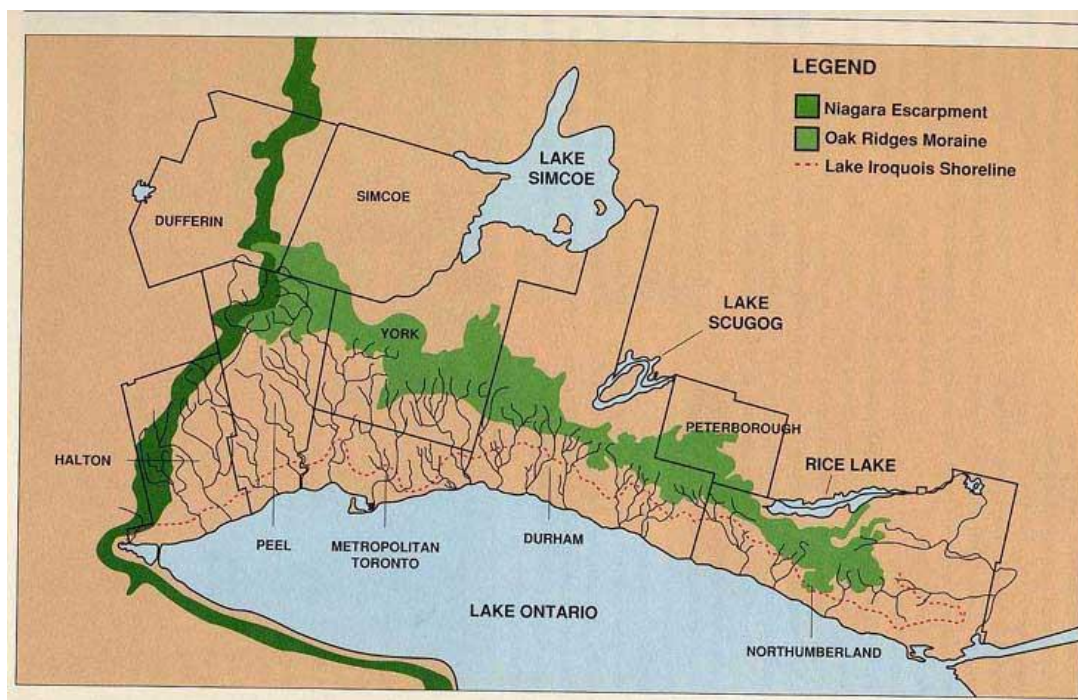
The Royal Commission's *Regeneration* report and 'ecosystem approach' became somewhat of a catalyst for a new era of progressive, environmentally based planning on the Toronto waterfront. The Royal Commission's ecosystem approach stressed the importance of coordinating municipal planning efforts, resolving jurisdictional gridlock at all levels of government, and negotiating a balance between public and private interests (Laidly, 2007; Ciesielski, 2011). The extensive and favourable media coverage of the Royal Commission, David Crombie and the ecosystem approach elevated public and political will. Media outlets stated: "Toronto's 'ecosystem approach' generates hope" (Suzuki, 1992) and "Waterfront plan unveiled, 'jurisdictional gridlock' must end, Crombie says" (Armstrong, 1992). Through an environmentally concerned public and a supportive media presence, the Royal Commission was able to leverage concerns surrounding the Don River, and for the larger waterfront, into government consensus that an ecosystems approach to planning was necessary (Ciesielski, 2011). The Province endorsed the Royal Commission's report, *Regeneration*, and went on to create the Toronto Waterfront Regeneration Trust (TWRT) to implement its recommendations. The TWRT began to implement the ecosystem approach to coordinated land-use and planning activities.

Both the *Watershed* and *Regeneration* reports featured the Greater Toronto Bioregion Map (see Figure 14). The Bioregion Map was featured during the Royal Commission's public hearings and was used to represent the ecosystem approach to urban planning. The Bioregion Map sought to draw attention away from the waterfront

and shift it to the rivers of the watershed as a means of showing that the waterfront is one element in a larger context. The Bioregion Map showed that ecosystems are geographically defined by larger landscape features, thereby demonstrating the “incompatibilities” of jurisdictional boundaries as ecosystem features do not conform to such boundaries and often overlap (Desfore and Keil, 2004, p.46). The DMNP may be focused on the mouth of the Don River and Port Lands, but the ecosystem really encompasses the lower Don River and much of the Inner Harbour, Outer Harbour, Toronto Islands, Ashbridges Bay, Tommy Thompson Park and central waterfront areas. This area spans multiple boundaries from an urban planning and political perspective. Hence, such boundaries must be considered secondary, as addressing environmental concerns necessitates the cooperation of different jurisdictional locals and levels. It is important to consider ecosystems as part of the larger natural and built environments within which they are integrated and whose processes impact them.

The legacy of the Royal Commission’s initial work has continued to influence, to some degree, regional environmental planning and legislation over the past twenty years (Laidley, 2007; Boudreau et al, 2009). Regional environmental planning, per the Bioregion Map, is rearticulated through plans for the protection of the Oak Ridges Moraine (2002), the designation of the Greenbelt (2005), and Places to Grow (2006). The work of the Royal Commission demonstrates that the health of the broader watershed defines the condition of the ecosystems at the lower Don River, including the mouth of the river. The Royal Commission was able to draw attention to the fact that ecological systems operate at many scales, are interconnected, and complex (Carpenter and Gunderson, 2001). This helped foster government consensus that resolving jurisdictional

gridlock and taking action at all three levels of government is necessary to effectively plan the Toronto waterfront. The continuity of the Royal Commission's work through the TWRT embedded the ecosystem vision into local planning activities and established the ecosystem approach in the doctrine of those planning the Toronto waterfront. The idea of an interconnected greenway featured prominently in the Royal Commission's plans. This is reflected in the creation of Corktown Common in the West Don Lands and Tommy Thompson Park, as well as future Lake Ontario Park and a restored mouth of the Don River, which all form an interconnected greenway at the local landscape level as well as at the regional watershed level due to their connection to the Don Valley. Such urban green spaces help to forge human-nature connections and advance the Royal Commissions ecosystem approach which views humans as a part of nature (Hartig and Vallentyne, 1989).



**Figure 14. The Royal Commission's Bioregion Map. Source: Regeneration, Toronto's Waterfront and the Sustainable City: Final Report (1992).**

## 6.2 Considering the Larger Region

The Don River watershed is an urban watershed that has been degraded by the development and urbanization that has taken place around it (refer to Chapter 3). The ecosystem approach switches attention from the study of the parts to the study of the whole, by recognizing that the whole is larger than the sum of its parts (Bunch and Jerrett, 2003). This necessitates considering the broader ecological and social context within which an ecosystem is embedded. Failing to consider the broader context by instead offering single-faceted solutions to single-focus problems is not highly effective as a means to ensure overall ecosystem health. As has been previously discussed, the Don River watershed is embedded in an urban and suburban matrix, and is highly urban at the mouth of the river. Restoring ecological integrity to the mouth of the Don River would be most effective if the river and its surrounding matrix were viewed as a whole unit comprised of complex and interacting component parts (Ibid; Hartig, 1995), all of which must be considered. In terms of the restoration of the mouth of the Don River, the ecosystem approach initiates a shift from a narrow perspective of restoring a single environmental medium (e.g. water quality) or a single resource (e.g. fish populations) to a broader perspective that focuses on managing human uses and abuses of watersheds or bioregions (Hartig, 1995).

Urban planning and environmental management based on the ecosystem approach work to develop strategies for land-use, conservation and development that are sensitive to natural processes. One attribute that these models share is the idea that boundaries should, as much as possible, be in tune with natural landscape patterns, functions, and processes. Due to the complexity of ecosystems, enacting changes at one level of an

ecosystem requires consideration of the other levels of that ecosystem (Carpenter and Gunderson, 2001). For example, planning for the regeneration of the Toronto waterfront can only be truly effective if the plan incorporates the protection and regeneration of the watersheds, which feed into Lake Ontario. There are nine urban watersheds in the Greater Toronto Area and surrounding municipal regions (Toronto and Region Conservation Authority, 2009b). Any contamination, sediment or pollution that occurs upstream will eventually affect the Lake into which the watershed empties. Much of the DMNP project is about reducing the risk of flooding in Toronto. Urbanization in the Don River watershed increases runoff into the Don River, thereby increasing its flow and the risk of flooding. The Don River Watershed Plan says that urbanization will continue upstream due to suburban development pressures (Toronto and Region Conservation Authority, 2009b). This will only exacerbate flooding and pollution risks downstream through elevated peak flows as a result of increased impervious surfaces and increased pesticide and herbicide pollution through runoff from parkland. Focusing on a single problem (e.g. flooding) and addressing the symptoms (e.g. building a flood protection landform) does not address the root cause of the problem (eg. upstream urbanization) (Hough, 2004). The Port Lands and mouth of the Don River requires planning and environmental management based on the ecosystem approach because what happens in one level of an ecosystem can greatly affect what happens in another level. Unless the entire system is considered, the final result will be ineffective.

The watersheds of the GTA, along with the Oak Ridges Moraine, form the main network of green space in Southern Ontario. The restoration of the mouth of the Don River as well as the green space creation in the Port Lands, are a means for improving



overall green space connectivity throughout the watershed. Connected green space is a feature of the DMNP. Future Lake Ontario Park will connect to the Leslie Street Spit and Tommy Thompson Park, as well as connect to the restored river mouth and broader Don Valley. The location at the mouth of the Don River and Lake Ontario shoreline, allows for the enhancement of corridor quality and connectivity and movement from the waterfront to the moraine (see Figure 15).



**Figure 15. Connected Green Space in Toronto. Source: Lower Don Lands Framework Plan (2010).**

The focus on creating green linkages in the DMNP is significant – it provides environmental protection, ensures resilience, generates habitat, and offers recreational opportunities for people (Eidelman, 2012). The DMNP’s emphasis on restoring degraded landscapes, re-establishing ecological processes, and balancing human uses with ecological integrity is supportive of the ecosystem approach. Planning for the

regeneration of the Toronto waterfront can only be truly effective if the plan incorporates the protection and regeneration of the watersheds, which feed into Lake Ontario.

### **6.3 Humans as a part of Nature**

Humans dominate Earth's ecosystems, whether it be individuals, groups, or societies, they have all been shown to have a major role to play in the ecosystems that contain them (Cadenasso and Grove, 2004). The ecosystem approach emphasizes the importance of species other than humans, but recognizes that there is a place for humans within the ecosystem. This means that it is necessary to recognize that humans are a part of nature, not separate from it (Grimm et al, 2007). If humans are a part of nature and the ecosystems that contain them, then it follows that the actions impinged on the ecosystem have consequences for all parts of that ecosystem, including humans.

Human societies are a particularly important part of urban ecosystems (McDonnell and Pickett, 1993). This makes it critical to account for the "strong, often dominant influence of humanity" in urban ecosystems, such as cities (Vitousek et al, 1997, p.494). Rather than taking an anthropocentric approach to planning in cities, the ecosystem approach considers the whole system - human, natural, and built - as part of one system (Pickett et al, 1997; Grim et al, 2007). The mouth of the Don River is a place where the strong influence of humanity has resulted in nature and its processes not being adequately accounted for, and thereby devastated by the intense human development that has taken place around it. Any hope to restore the area and its natural processes will require that the human, built, and nature components all play functional roles (Blood, 1994).

Unparalleled urban growth in Toronto has transformed the landscape into an “emblem of contemporary urbanism” (McHarg and Steiner, 1998, p. 64). Increasing urbanization means that many urban dwellers struggle to connect with the natural world and often see this reconnection as possible only by leaving the built urban environment altogether (Ibid). The restoration of the mouth of the Don River as well as green space creation in the Port Lands holds the potential to foster the creation of an urban landscape that incorporates nature and makes natural processes visible to urban residents so as to foster an understanding that humans are a part of nature, not separate from it.

Reconnecting humans and the built environment to the natural systems around them could go a long way to restoring ecosystem health in urban settings. As Hough (2004) explains, the separation of humanity and nature has had profound influences on the way people have thought about nature and the city. Cities are places where people live and the non-urban regions beyond the city is where nature lives. This separation from, and perception of nature and its processes as removed from the urban landscape has resulted in urban regions with reduced overall ecological health. Issues of poor air and water quality are now common occurrences, and have long-term implications for the health and well-being of both humans and non-humans. Addressing the need to re-integrate the natural world into the urban landscape requires changing urban residents’ perception of nature as a crucial component of urban environments.

Reaching people at perceivable scales of nature is vital to reintegrating humans and nature. In 1992 the Royal Commission recognized that connected public access throughout the Don River Valley could act as a “mobilizing force for restoration” (Crombie, 1992, p. 256). The Royal Commission believed that allowing people to

connect to the river valley through trails and a park system would generate a feeling of care and stewardship for the river. At the mouth of the Don River site, the opportunity exists to bring people into the space, and reconnect them with natural processes through restoration activities such as active planting or weeding (Berkes, 2004). Additionally, the restoration of the mouth of the Don River will require monitoring and active intervention after the project has been completed to ensure its long-term success. As Iverson Nassauer (1997) states: “people take care of what they own” (p. 69). It follows then that without active involvement in the restoration, there will be no ownership for it and there will be an unwillingness to monitor and care for it. The best examples of urban ecological restoration engage what Light (2002) calls ecological citizenship, “whereby as many people as possible can see the ends of environmental sustainability as part and parcel of their own personal interests or with broader community interests” (161). The lack of involvement and personal interest in the restoration project represents a weakness in the DMNP plan.

Restoration is about enriching human relationships with nature, thereby restoring human affinities with the nonhuman (Foster, 2007). Foster (2007) in writing about the Leslie Street Spit, explains that places that evoke a sense of wilderness play an important function in urban environments by acting as counterpoints to purely urban experiences. That is to say that the restored mouth of the Don River and associated green space could act as a place “where intense settlement retreats and nature takes over” (Foster, 2007, p. 199). This would allow urban dwellers to connect with the natural world without leaving the built urban environment. Despite the lack of involvement, the opportunity to connect humans with their surroundings is a strength of the project.



**Figure 16. MVVA Vision for the mouth of the Don River.  
Source: Michael Van Valkenburgh Associates Inc. (2010).**

The DMNP offers the opportunity to change the perception of nature in the city. The restored and realigned river will run through the centre of a new mixed-use community in the Port Lands (see Figure 16). This new community features parks, trails, and outdoor recreational opportunities. These all make nature and its processes visible, which is beneficial because “when cities and neighbourhoods have thriving public spaces, residents have a strong sense of community; conversely, when they are lacking, they may feel less connected to each other” (Project for Public Space, 2002, p. 14). Such public places not only add to the overall liveability and health of communities and cities, they become places that encourage interaction with nature, helping to forge human-nature connections. Such human-nature connections are an important part of planning for the restoration of the mouth of the Don River, which must account for these natural systems and including them as integral parts of the city systems.

## Chapter 7. Political Ecology

*How nature is reinserted into these particular areas of the city—sites of longstanding intersections between economic, riparian, and social systems—is a key component of the political and ideological reconstruction of urban areas, involving networks of power between numerous actors, and resulting in new and contradictory understandings (Castree and Braun, 1998).*

Political Ecology provides a politically-oriented analysis of the influences and decisions surrounding a restoration project and may reveal that accepted ideas did not develop through simple linear trends and that certain outcomes are not inevitable (Peet and Watts, 2000; Stott and Sullivan, 2000). The plan for the Port Lands and mouth of the Don River is not simply a product of decisions based on what would best contribute to ecological interests; rather, there are tensions between different groups' desires for the site, combined with financial constraints and economic considerations. According to Robbins (2004), it is important to recognize that "politics are inevitably ecological and that ecology is inherently political" (Robbins, 2004, p. xvi-xvii). Failing to pay attention to the political influences in many environmental situations produces incomplete understandings of those situations (Ibid). The following political ecology analysis of the site demonstrates that the planning for the Port Lands and mouth of the Don River, and eventual outcome, is inherently political. This chapter explains the ecological restoration of the mouth of the Don River as a part of wider social and political complexities and interests.

## 7.1 The Politics of Public Participation

Light and Higgs (1996) in *The Politics of Ecological Restoration* state: “every act of restoration contains a political dimension” (p. 233). As a practice, restoration involves making decisions about what to restore and how to restore, to name a few. Any decision is inherently political against the background of the ideal practice of restoration ecology (Light and Higgs, 1996). The political dimensions of restoration manifest in two ways: the politics *in* restoration and the politics *of* restoration (Ibid; Baker and Eckerberg, 2013). Politics *in* restoration refers to the political issues and choices made when determining what should be done and why and is theoretically consistent (the political issues involved in restoration as a practice remain the same regardless of the location of the project) (Baker and Eckerberg, 2013). According to Light and Higgs (1996) the politics *in* restoration refers to the ability of restoration projects to include public participation in the decision-making process (i.e. what to restore) as well as the physical restoration project (i.e. how to restore). This makes restoration inherently democratic. The politics *of* restoration refers to how the process is embedded in a wider political, economic, and social context and interrelationship. Unlike politics *in* restoration, the politics *of* restoration is based on the context within which a restoration physically occurs and will not always remain the same. It is the politics *of* restoration which determines whether the politics *in* restoration ever achieves its democratic potential – that is, if there is stakeholder involvement (Baker and Eckerberg, 2013; Light and Higgs, 1996).

Stakeholder interest has been an important factor in calling for the restoration of the mouth of the Don River. Since the early 1980s many groups have formed with the goal of restoring the Don Valley and river to a semblance of its former self. These groups

include: Friends of the Don Valley, Friends of the Don East, the Don Watershed Task Force (part of the Metro Toronto and Region Conservation Authority), Friends of the Don (Headwaters), the North Toronto Green Community, and the Waterfront Regeneration Trust (Reeves, 1999). In 1989, 500 people attended a forum on saving the Don River, out of which the informal citizen's organization the *Task Force to Bring Back the Don* (Task Force) was formed. The Task Force was formalized and supported politically by Toronto City Council, providing it with staff support and an annual financial allocation (Bonnell, 2008). In 1991 The Task Force released its first report to City Council "Bringing Back the Don", which examines several concepts for restoring some of the functions of the river mouth that were lost when the river was straightened and the Ashbridge's Bay marsh was filled in. The report led to a groundswell of public interest for the Don River and over the decades that followed calls for the restoration of the mouth of the Don River grew steadily stronger (Reeves, 1999; Bonnell, 2008). The Task Force model suggests that the formula of strong commitment from citizens, coupled with political and financial support, is the key to successful stakeholder involvement. This emphasizes the disparity between the Task Force model and local grassroots initiatives without access to funding or political clout and leads directly to questions about who is granted the power and legitimacy to participate (Light and Higgs, 1996).

According to Baker and Eckerberg (2013) there are always different distributions of power between the various actors involved in an ecological restoration project. Power is often concentrated in the hands of the traditionally powerful elite (e.g. politicians, developers, funded interest groups). The result is that fundamental decision-making often



remains outside of the public eye, which strategically affects the structuring of the public process itself (Beder, 1999; Hagerman, 2007). Consultations, meetings, and presentation all present progress and design options to solicit input from the community, but at the same time they present an opportunity to frame the project and articulate and reinforce a particular pattern and desired outcome (Kenny, 1992; McCann, 2001; Nelkin and Pollak, 1977). As Hagerman (2007) explains, the consultation process becomes an “opportunity for the framing of new forms of urban-nature” (page 291), which will be discussed in detail in section 7.3. When it comes to the consultation process for the Port Lands and mouth of the Don River, this type of process has certainly increased direct public influence on the project and provided planners advance notice of public concerns through comments. On the other hand the process can also be said to have been a means to manipulate public opinion, to win acceptance of decisions already made, and to facilitate the implementation of these decisions. The decision to hold a competition to determine the design of the Port Lands and mouth of the Don River rather than do it through public participation and consensus building set the process up for stakeholder exclusion from the get-go. As was discussed in Chapter 5 section 5.2.3 *Focal Practice*, alternative 4WS had already been selected as the preferred design alternative before the consultation process began. Clearly there is a disconnect between what took place in the public forum and the decisions that were made in the arenas of power. Ecological restoration operates within this complex interplay between technical decision making, stakeholder ideologies, and interest politics (Light and Higgs, 1996). It is necessary to unravel these forces to ensure that powerful interests do not dominate the public planning process.

The influence of stakeholder groups has certainly helped to shape the DMNP plan to some extent. For example, as a result of stakeholder feedback the TRCA has extended its plans for naturalization beyond the river mouth to incorporate the Don Narrows. It has also incorporated earlier visions for a restored Don River mouth into the planning and design selection process that were inspired by Task Force visions for the Don in the early 1990s (Bonnell, 2008). However, power tends to remain unevenly held, which has relegated control of the discourse and decision making to the traditionally powerful groups that favour development and economic gain. This undermines the agenda and intentions of many of the stakeholders that participate (Hagerman, 2007). Additionally, as Chapter 5 indicated, it is not likely that there will be any substantial stakeholder participation in the physical restoration process as the project is framed as a large-scale technical undertaking. Overall, it is hard to say that stakeholder involvement has had, or will have, any truly significant influence on the project beyond stirring public demand for restoration. In this case, the democratic potential in restoration is not met as a result of the wider political, economic, and social contexts.

## **7.2 Politics in the Planning Process**

In 2007 the MVVA *Port Land's Estuary* proposal began to formalize the DMNP. Despite any contention in the planning process, “optimism and excitement” was the prevailing response to the DMNP from most stakeholders (Bonnell, 2008). However, there was skepticism about the scale of the project and the likelihood that it could be completed within the timeframe and budget proposed (Ibid). In 2011, amongst concerns about costs and timelines, an alternate plan for the Port Lands was proposed by City of

Toronto councilor, Doug Ford. This alternate plan attempted to capitalize on concerns and proposed that the Port Lands be handed over to the City for redevelopment, claiming that Waterfront Toronto had not made significant enough progress to date, had not engaged the public, and had wasted taxpayer dollars on plans and consultants (D’Cunha, 2014; Keenan, 2011). Up until 2011, millions had been spent on environmental assessments, impact studies, planning reports and public consultations (Church, 2011; Hume, 2012; Kupferman, 2014). As a result of the work done to that point, the DMNP largely reflected stakeholder consensus on what should take place at the Port Lands; however, the new plan as proposed by Councillor Ford was a dramatic departure from the DMNP. The new plan featured a Ferris wheel, high-end hotel, and mega mall; with no attention to greening or re-naturalizing the Don River mouth (see Figure 17). Media reports from BlogTO, The Grid TO and Toronto Life proclaimed: “New Port Lands vision moves one stop closer to fantasy” (Flack, 2011); “Doug Ford’s waterfront sells us out for the short-term money” (Keenan, 2011); and “Doug Ford revives his war on Waterfront Toronto...” (Kupferman, 2014). This plan clearly reflected one group of powerful political elites and was not representative of broader public opinion. Despite extensive consultation on the DMNP, city politics was able to call the plan into question, attempt to derail the entire process, and then force a re-evaluation of the plan.

Waterfront Toronto drew widespread support from planners and activists who supported the original vision. This led councillors to rise up and push back against the Ford plan. Media outlets, such as The Globe and Mail, Toronto Star, and Toronto Sun, again proclaimed: “Ford waterfront vision sinking quickly” (Church, 2011); “Waterfront report sinks Doug Ford’s Port Lands vision” (Hume, 2012); “Ford’s Port Lands plan

sinks” (Peat, 2011); and “Ford’s ‘abrupt and add’ move to take control of Port Lands denounced” (Church, 2011). Despite Ford’s vision being denounced, Waterfront Toronto still agreed to look for ways to accelerate development in the Port Lands. As a result, the City of Toronto, Waterfront Toronto and the TRCA undertook a comprehensive review and study that was ultimately called the Port Lands Acceleration Initiative (PLAI). The goal of the PLAI was to develop a business and implementation plan with the objective of accelerating development opportunities in the Port Lands and exploring alternative designs.



**Figure 17. Councillor Ford’s Vision for the Port Lands. Source: BlogTO (2011).**

The PLAI sought to examine whether the Port Lands could be developed more affordably and sooner than previously anticipated, while simultaneously exploring cost efficiencies by obtaining funding through private interests (City of Toronto et al, 2010). As part of the PLAI planning process, the DMNP EA was put on hold and a short list of ‘Alternative Methods’ that were identified during the initial DMNP process were re-examined within the context of City Council direction. The analysis undertaken during the PLAI confirmed the fundamental conclusions of the initial DMNP EA and confirmed that the optimal design for flood protection was a refinement of the DMNP preferred alternative 4WS (2010). However, certain modifications to the preferred alternative were proposed. The option emerging from the review involved a slight realignment of the river, the river mouth and the greenway. The outcome of the PLAI indicated that large-scale revitalization could occur based on phased implementation of the required flood protection and infrastructure, resulting in cost savings and a shortened timeline for implementation. This revised design is known as 4WS (2012).

The PLAI process took several months, involved another round of public consultation and required additional reporting, thereby elevating the costs. The PLAI determined that Alternative 4WS (2012) is the preferred design for all of the DMNP objectives except naturalization (Objective 1) and recreational and cultural opportunities (Objective 5) (see Figure 18). Overall, Alternative 4WS (2010) is preferred over Alternative 4WS (2012) with regard to the natural environment. Alternative 4WS (2012) has a slightly shorter river channel length, provides a smaller naturalized area, and results in a greater amount of wetland habitat fragmentation than Alternative 4WS (2010). However, the capital costs to naturalize Alternative 4WS (2012) are anticipated to be

lower than what is required to naturalize Alternative 4WS (2010) based on the smaller naturalized area (Toronto and Region Conservation Authority et al, 2014). Unfortunately, the opportunity for green space creation and restoration was compromised due to competing political priorities, suggesting that the planning that had taken place previously was undermined to some degree. The planning process undertaken to date exposes distressing political motivations that have corrupted the process and adversely impacted the outcome of the restoration.

Objective	Alternative 4WS	Alternative 4WS Amended
1. Naturalization	Preferred	Not preferred
2. Flood Protection	Not preferred	Preferred
3. Operational Management and Constructability	Not preferred	Preferred
4. Integration with Infrastructure	Not preferred	Preferred
5. Recreational and Cultural Opportunities	Preferred	Not preferred
6. Co-ordination with Other Planning Efforts	Not preferred	Preferred
7. Consistency with Waterfront Toronto Sustainability Framework	Same	Same
Summary	Not preferred	Preferred

**Figure 18. Comparison of Alternative 4WS (2010) and Alternative 4WS (2012). Source: Don Mouth Naturalization and Port lands Flood Protection Plan (2014).**

### 7.3 Framing the Project

As the previous sections have shown, power in urban planning processes is often held unevenly in the hands of the traditionally powerful elite. This enables a specific group to control the discourse surrounding an environmental event, which means that they are able to ‘frame’ the event and distill the issue to a narrative that sets “a train of thought in motion for audiences about ... the relevance or importance of the issue, and

what should be done in terms of policy or personal actions” (Gamson and Modigliani, 1989). Bunce and Desfor (2007) explain that such frames are a means by which “facts, values, theories and interests are integrated”, so as to normalize a certain and distinctive social narrative. How a problem is framed determines who controls the discourse surrounding an environmental event and has consequences on the outcome of that environmental event (Healy, 1997; Hajer, 1997).

The DMNP plan has been framed as a project where the use of public money is justified in order to secure a public good in the form of ecological restoration and green space on the waterfront. As Hagerman (2007) demonstrates in his work in Portland, Oregon, such a framing can be used to shape expectations and soften criticism of other aspects of the development plans, such as views blocked by new condominium towers, increased traffic congestion, lack of schools or services, and little planned affordable housing. Planning in the Port Lands could be said to have sought to capitalize on the restoration of the mouth of the Don River to reinforce particular ideas of nature linked to specific types of marketable urban revitalizations (Ibid). DMNP plans visualize the transformation of what is now an industrial urban landscape, to reflect sustainability and nature ideals framed around a space where society and nature are intertwined. This imagery ignores the legacy of industrial pollution and industrialization that took place on Toronto’s waterfront. Such omissions may be seen as intentional “greenwashing” strategies to sell the project.

The interrelationship of society and nature can also be viewed in language that supports a desire for developing an image of Toronto as a global city through the creation

of sustainable waterfront communities that attract investors and increase global competitiveness and recognition for the city (Bunce and Desfore, 2007). In 2002 the Toronto Revitalization Corporation (now Waterfront Toronto) stated: “successful revitalizations are generally large, bold initiatives that generate early economic activity and establish the international presence of the city and its revitalization” (p. 27). Similar strategies for waterfront development are used in cities from around the world where “spectacular residential, commercial, and cultural projects are used to turn largely abandoned waterfronts into thriving areas attracting global capital” (Ute and Laidley, 2008, p. 787). Plans for the Port Lands and mouth of the Don River all chart the transformation from ecologically degraded industrial waterfront to revitalized sustainable condominium district, reconstructed to meet the consumption objectives of particular demographics of elite consumers (Hagerman, 2007). These consumers become the focus of liveability discourses as they hold the key to fulfilling the urban renewal district’s self-fulfilling objective to generate the private sector investment capital that is needed to initiate the next round of public infrastructure improvements (Ibid).

According to Light and Higgs (1996) restoration is increasingly being valued inasmuch as it appeals to the interests of the end consumer. Since Light and Higgs recognized that trend in 1996, the commodification of nature has become a phenomenon that is increasingly becoming a determining factor in restoration projects. The greening of the waterfront and restoration of the degraded Don River figure prominently in the plan to redevelop the district, linking to the identity of the new urban neighbourhood. In this scheme, economic revitalization and environmental revitalization are intimately linked (Ute and Laidley, 2008).



#### **7.4 Money Matters**

A major river restoration project such as this will not happen overnight. Flood protection of the Lower Don River was identified over thirty years ago in 1980 by the TRCA as its top priority. Naturalization of the Don Mouth was initially proposed by the Task Force to Bring Back the Don over twenty years ago in 1991. The environmental assessment for the Don Mouth was announced by the government partners as a waterfront initiative over a decade ago in 2001. These projects are finally coming to fruition, as plans for the mouth of the Don and the Port Lands begin to be finalized; however, funding for Port Lands related projects remains precarious. Despite the work done to date, the future of the Don River and revitalization of the mouth of the Don are still unclear.

In 2008, Toronto City Council adopted a report entitled *Toronto Waterfront Revitalization Initiative Five-Year Business Plan /Ten-Year Forecast (2008-17)* which includes \$7.0 million for Don River Environmental Assessments including the DMNP EA, and \$47.502 million under the Port Lands Preparation Project for preparation of the plans and infrastructure Environmental Assessments. Beyond this, no additional funds have been identified for Waterfront Toronto to undergo the design and construction of the Port Lands Project, including the mouth of the Don River naturalization (City of Toronto, 2010). WT's preliminary estimate of the cost, assuming it occurs over 7 years from 2017 to 2023, is \$600 to \$700 million (in 2010 dollars). This includes \$325 million for the new river, \$200 million for new bridges and utility relocation, \$60 million for the sediment/debris management area and \$40 million for the promontory park landform. This excludes additional related costs such as project management, land acquisition, site

remediation and contingency allowance, for which WT has not provided cost estimates. Further refined cost estimates are forthcoming, but in total the estimated amount required is approximately \$1.9 billion (City of Toronto, 2007; City of Toronto, 2010; City of Toronto et al, 2014).

Major infrastructure projects, such as this, require major public investment; there is little appetite at all three levels of government to pay for the required works.

Waterfront Toronto has a scheme to raise the required funds through land sales and development charge revenue, and hopes that developer demand will finance the remainder of the project. Public sector funders hope to receive a 14% return on their investment through the sale of residential and commercial units, “a plan that some feel places too much emphasis on the marketability of the proposed design plans” (Bonnell, 2008). Given that the river is on public land, it should not be dependent upon privatization and condo sales for its restoration. There is the additional risk that the current DMNP plan sees the naturalization of the Don River occur in the final stage of the project (see Figure 19). If there is a lack of funding or the private sector does not come through, the overall naturalization may be compromised.

Financial matters have a role to play in the final outcome of restoration. There is the lingering fear that ecological quality in the Port Lands will be sacrificed for political and capital gain, and that short-term land value capture will be realized at the expense of a greater long-term land value capture (Hagerman, 2007). The images of the expansive greenways, connected park system, restored riverbanks and abundant flora and fauna were mobilized to approve the plans for the DMNP plan, but the implementation of those

visions have been scheduled for the end of the development process with few guarantees that it will correspond with those images. Whether the project will move ahead as planned and whether sufficient funds will be available remains to be seen.



**Figure 19. Stages of the DMNP. Source: Port Lands Acceleration Initiative (2012).**

## **Chapter 8. Concluding Thoughts**

*“[T]here is a need and place for nature in the city of man. An understanding of natural processes should be reflected in the attribution of value to the constituents of these natural processes. Such an understanding, reflected in city building, will provide a major structure for urban and metropolitan form, an environment capable of supporting physiological man, and the basis for an art of city building, which will enhance life and reflect meaning, order, and purpose”*

-McHarg and Steiner, 1998, p.10

This research paper focuses its lens on the DMNP. The principle questions that guide this research inquiry are: “Is the restored mouth of the Don River likely to be an example of a successful restoration?” followed by: “What factors have influenced the planning process and what is the likely outcome of the implementation of the DMNP for Toronto?” Despite the attempt to develop a plan that is comprehensive, ecologically based, and creative, the plan for the DMNP is truly only an introduction to what is likely to take place at the Port Lands and mouth of the Don River site. No plan can truly encompass all elements of ecology or planning, nor should it attempt to do so. Ecological processes evolve and change over time, and thus, so should the DMNP.

Given that the DMNP is still in the planning process and that it is likely to continue to evolve and change as the planning process progresses, this evaluation has taken a broader perspective and done so with a view to the future, at the implementation of the plan.

Despite uncertainty about the final form of the DMNP, some conclusions can be drawn that answer the research questions posed.

## 8.1 Opportunities and Potential

The greatest opportunity the DMNP offers is the ability to return the mouth of the Don River to a semblance of its former self and restore its ecological integrity. It is difficult to say that there is any sense of historical fidelity in reference to the river's ecological past, as the restoration looks to the river's industrial conditions rather than pre-industrial conditions. However, one could say there is a sense of historical fidelity referencing the river's industrial past. When placed within the context of the Port Lands site, repurposing a large developable area of the site to accommodate a realigned river mouth is an enormous feat and demonstrates a prioritization of the river's ecological health, regardless of the historic past that is referenced.

The DMNP has the potential to provide a host of ecological benefits both at the site and beyond the site. Among the benefits are the positive effects it will have on the ecological functioning of the river. Currently, the natural habitat of the Don River is badly degraded in its lower reaches. The fish habitat features within this area are generally characterized as “degraded, highly disturbed conditions that are uniform in nature and lack habitat diversity and complexity” (Toronto and Region Conservation Authority et al, 2014, p.5). The restoration will go a long way to improve the water quality in the lower Don River and entering Lake Ontario. It will also dramatically increase the amount of terrestrial and aquatic habitat on the site, as well as foster connectivity to additional green space along the Lake Ontario shoreline. Some specific considerations from the DMNP Objective 1 “To naturalize and rehabilitate the mouth of the Don River utilizing an ecosystem based approach”, include:

- Create new high quality habitat of a larger area and greater complexity to compensate for permanent loss of low quality habitat during construction.

- Optimize wetland design to minimize shear stresses experienced in wetlands under more frequent flooding events.
- Salvage plants for replanting, where appropriate, use native plant species, and maintain vegetation structure through renewal of plantings over time.
- Ensure construction conforms to fish timing window guidelines to avoid adverse flow conditions and avoid fish spawning and migration periods.
- Where possible, design trails to circumvent, rather than bisect, naturalized areas, limit trail placement adjacent to other lake-connected wetlands, and monitor human effects on wetlands and close or modify trails as required.
- Implement Monitoring and Adaptive Environmental Management (AEM) including monitoring of invasive species, effective saturation and / or flooding of wetland substrates, etc., to ensure wetland habitat remains intact and to ensure that vegetation communities are not adversely affected. continues to support desired species

These considerations will go a long way to ensure the ecological integrity of the site.

Considered from a broader perspective, the DMNP holds the potential to contribute to the overall improvement of natural cover in the area. The project will help to contribute to the larger scale processes of regeneration happening along the Lake Ontario shoreline and throughout the Don River watershed.

In addition to the ecological benefits of restoration, the DMNP is likely to produce a host of social and economic benefits. The social benefits associated with restoration projects in particular include: increased passive and active recreational opportunities through naturally enriched local environments; enhanced potential for human-nature connections which leads to an increased awareness of local species and ecosystems; increased human and ecosystem health through enhanced natural surroundings and a green urban landscape (Daigle and Havinga, 1996). Embedding everyday life and the experiences of urban residents in the surrounding green space and parklands may help to build a community connected to natural processes. This can help people gain a better understanding of how their actions impact the environment and in turn foster a sense of stewardship (Vidra and Shear, 2008; Vivek and Messer, 2008). In

so doing, the DMNP has the potential of affecting positive environmental thought and action on a broader scale. The DMNP also offers an innovative approach to providing public green space opportunities for urban residents by offering either a passive or active nature experience. Humans are invited to explore nature through settings other than the traditional heavily manicured parks or traditional recreational opportunities, such as tennis courts or soccer fields. As with all public green space, there is the potential for negative impacts to the natural systems due to overuse. The DMNP takes care to separate the more sensitive ecosystem features from the more intense public use areas in an effort to minimize these negative impacts (per Objective 1). The DMNP will provide positive connections between people and the natural environment through the parks, trails, and recreational opportunities. Such public green spaces will not only add to the overall livability and health of the site and larger urban landscape, but will also become places that encourage interaction with nature and foster a sense of community and civic pride.

## **8.2 Challenges and Limitations**

The DMNP opens the door to many positive opportunities; however, it also faces many challenges. One of the most obvious challenges the restoration project faces is the physical condition of the site. It is highly degraded, contaminated, and homogenous, which reduces its suitability as a habitat and as a functioning ecosystem. As Chapter 5 discusses, establishing a “higher quality habitat” (per DMNP Objective 1) when the starting habitat is incredibly degraded is not overly challenging to achieve. Specific objectives would strengthen the plan and make it clear what the targeted outcomes are. Including provisions to explain how the plan will deal with issues of ecological integrity

in a proactive, rather than reactive manner, would also strengthen it. This includes, among other things, addressing hindrances to the establishment of viable fish spawning habitat and the effects of maintaining the shipping dock walls on ecological succession.

Development demands pose an additional challenge as they have the potential to undermine the ecological processes and the natural regeneration potential of the site. Plans for the Port Lands and mouth of the Don River all chart the transformation from ecologically degraded industrial waterfront to revitalized sustainable condominium district. The greening of the waterfront and restoration of the degraded river figure prominently in the plan to redevelop the Port Lands district; thereby establishing the identity of the new urban neighbourhood and helping to reinforce a form of marketable urban revitalization. Future residential and commercial development at the site will result in a large urban population and will increase pressure on the restored ecosystem. Incorporating the various features associated with the public use portion of the site (trails, recreational areas) could limit the establishment of functional terrestrial habitat. Curtailing restoration activities to maintain shipping and water navigation activities could limit the establishment of functional aquatic habitat. The prioritization of human needs and desires over ecological ones results in a weak sense of wild design, per Higgs (2003). Although the plan attempts, through design and restoration, to improve the ecological quality of the site, the reality is that the site remains variable and changing. For this reason and those listed above, the Don Mouth restoration must include monitoring of conditions and provide provisions for intervention. Otherwise, restoration efforts may be in vain. The outcome of the restoration is likely to result in benefits to the whole



ecosystem, including species other than humans; however the potential benefits will be stunted by the focus on human benefits derived from the site.

Public participation in the DMNP planning processes has had its highs and lows. The restoration of the mouth of the Don River is framed as a technical undertaking and does not seem likely to include any meaningful public participation in the process. Overall, it is difficult to say that there will be much use of focal practice as Higgs (2003) envisioned it. Walker and del Moral (2003) propose that partnerships be “forged between the private sector, government agencies, educational groups, and volunteer organization[s] to produce effective long-term programs” (p. 327). Such partnerships could prove useful to administer the monitoring and maintenance of the restoration site. Most restoration projects require some form of monitoring and intervention after the restoration has finished in order to keep the site on a successful trajectory (Walker and del Moral, 2003). It is unclear how this is accommodated in the DMNP. Engaging citizens in the restoration process could prove capable of instilling a sense of ownership, place and community, and could produce results that improve local ecosystem functioning (Clewell and Aronson, 2007; Vivek and Messer, 2008).

Financial matters also have a role to play in the final outcome of restoration and pose a significant challenge. There is the lingering fear that ecological quality in the Port Lands will be sacrificed for expediency, and that short-term land value capture will be realized at the expense of a greater long-term land value capture (Hagerman, 2007). Such fears are warranted given the political back-and-forth surrounding the DMNP. The images of the expansive greenways, connected park system, restored riverbanks and abundant flora and fauna were mobilized to approve the plans for the DMNP plan, but the

implementations of those visions have been scheduled for the end of the development process with few guarantees that they will be realized. Whether the project will move ahead as planned and whether sufficient funds will be available remains to be seen. The DMNP faces many challenges moving ahead, and how they are dealt with will determine the final outcome of the restoration.

### **8.3 Looking to the Future**

Looking ahead at the eventual implementation of the DMNP, reveals some important considerations that will greatly impact the end result of the restoration. The restoration of the mouth of the Don River is a highly complex endeavour. This is because a river is not a single place but an entity that flows through multiple places, while at the same time drawing influences from larger forces at work in the landscape. Restoration efforts must go beyond site specific considerations and activities, to considering the effects of a complex network of influences upon water quality, sediment loads, stream volumes and velocity (Bonnell, 2008). This means building an even stronger sense of common purpose with mobilized actors from the Don River's headwaters all the way to the mouth.

As has been discussed, the availability of funding for the DMNP has the potential to constrain the scope of work. Despite receiving the endorsement of environmentalists, the local community and government bureaucrats, funding for the DMNP remains precarious and what has been committed will only cover the planning and environmental assessment phases. These stages are nearing completion and there is no additional money allocated to this vital work (Toronto and Region Conservation Authority, 2009a).

Toronto is undergoing intense urban development and urban renewal across the waterfront. This environment of urban renewal provides an opportunity to implement a plan for the Port Lands that reinforces the importance of restoration activities and establishes the importance of a sustainable urban planning model. Despite the economic and political uncertainties, now is not the time to pull back on the Don River restoration and regeneration activities. The DMNP has, and will continue to, require big investments in time, finances, and resources. Partnerships between all levels of government are the key to its success. Municipalities, the conservation authority, provincial and federal agencies and the building sector must coordinate their efforts with local businesses and grassroots organizations to realize the regeneration of the mouth of the Don River.

All-in-all there remains a great deal of uncertainty about the future of the mouth of the Don River. Clewell et al (2000) suggest that the goal of every ecological restoration project should be to re-establish a functional ecosystem that contains sufficient biodiversity to continue its maturation by natural processes and to evolve over longer time spans in response to changing environmental conditions. Giller (2005) emphasizes that the success of restoration projects can be measured by whether the restored system may ultimately reach a point of self-sustainability and resilience. Palmer et al (2006), Clewell and Aronson (2007) and Walker et al. (2007) explain that the success of a restoration project can be measured through: species composition, indigenous species, functional groups, physical environment, normal ecosystem function, landscape context, external threats, resilience, self-sustainability, and ecosystem structure and dynamics. The DMNP has the rather subdued goal to “establish and sustain the form,

features and functions of a natural river mouth”. Whether the DMNP will be successful upon implementation and whether the goals of restoration will be met remains to be seen.

Some questions arise looking ahead at implementation: How do you measure the success of the restoration in an urban context prone to change? How do you address specific causes of environmental degradation without the ability to control broader bioregional influences? Who should be involved in a site’s restoration and to what extent? When a site is ecologically restored with a high degree of human use, how do you balance the ecosystem needs with the desires of the end users? How do you allow people to enjoy green space without destroying what they came to experience in the first place? Answering these questions is beyond the scope of work here, but it opens the door to future work on the topic. The hope is that the work done here can serve as an analysis from which others interested in the project may derive inspiration, learn from mistakes, and gain knowledge to guide future work.

## Bibliography

- Aquatic Habitat Toronto. (2009). *Toronto Waterfront Aquatic Habitat Restoration Strategy*. Retrieved from [http://www.aquatichabitat.ca/pdf/TWAHRS\\_STRATEGY.pdf](http://www.aquatichabitat.ca/pdf/TWAHRS_STRATEGY.pdf).
- Baker, S., and K. Eckerberg. (2013). A policy analysis perspective on ecological restoration. *Ecology and Society*, 18(2), 17.
- Beder, S. (1999). "Public participation or public relations?". In Martin, B (ed.), *Technology and Public Participation*. Wollongong: University of Wollongong.
- Berkes, F. (2004). Rethinking community-based conservation. *Conservation Biology*, 18(3), 621-630.
- Blood, E. (1994). Prospects for the development of integrated regional models. In Groffman, P. M and Likens, G. E. (eds) *Integrated regional models: interactions between humans and their environment*. New York: Chapman and Hall.
- Bonnell, J. (2008). Bringing back the don: sixty years of community action. In Palassio, C and Reeves, W. (eds). *HTO: Toronto's water from Lake Iroquois to lost rivers to low-flow toilets*. Toronto: Coach House Books.
- Bonnell, J. (2010). *Imagined Futures and Unintended Consequences: An Environmental History of Toronto's Don River Valley*. Retrieved from <http://hdl.handle.net/1807/24690>.
- Boudreau, J.A., Keil, R. and Young, D. (2009). *Changing Toronto: Governing urban neoliberalism*. Toronto: University of Toronto Press.
- Bunce, S and Desfor, G. (2007). Introduction to Political ecologies of urban waterfront transformations. *Cities*, 24(4), 251–258.
- Carpenter, S. R., and L. H. Gunderson. (2001). Coping with collapse: Ecological and social dynamics in ecosystem management. *Bioscience*, 51(6), 451-57.
- Choi, Y.D. (2007). Restoration ecology to the future: A call for new paradigm. *Restoration Ecology*, 15, 351-353.
- Ciesielski, L. (2011). *From Waterfront to Watershed: Mapping a Big Idea in the Greater Toronto Region*. Massachusetts: MIT Press.
- City of Toronto. (n.d). *Bring Back the Don: The Story of the Don*. Retrieved from <http://www.toronto.ca/don/watershed.htm>
- City of Toronto. (2001). *Making Waves: Principles for Building Toronto's Waterfront. Central Waterfront Part II Plan*. Retrieved from [www.city.toronto.on.ca/waterfront/waterfront\\_part2.htm](http://www.city.toronto.on.ca/waterfront/waterfront_part2.htm).
- City of Toronto. (2003). *Central Waterfront Secondary Plan "Making Waves", the Proposed Secondary Plan for the Central Waterfront*. Retrieved from <http://www.toronto.ca/legdocs/2003/agendas/council/cc030414/plt5rpt/cl001.pdf>
- City of Toronto. (2010). *Lower Don Lands project*. Retrieved from <http://www.toronto.ca/legdocs/mmis/2010/ex/bgrd/backgroundfile-30878.pdf>
- City of Toronto. (2012). *Staff report: Port Lands Acceleration Initiative – final report*. Retrieved from <http://www.toronto.ca/legdocs/mmis/2012/ex/bgrd/backgroundfile-49694.pdf>
- City of Toronto. (2013). *Port Lands Profile*. Retrieved from

- <http://www.portlandsconsultation.ca/sites/all/themes/portlands/files/Port%20Profile%20nov12.pdf>
- City of Toronto. (2014). *Port Lands Acceleration Initiative Phase 2 – Progress Report*. Retrieved from <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2014.PG34.11>.
- City of Toronto, Waterfront Toronto, and The Toronto and Region Conservation Authority. (2012). *Port Lands Acceleration Initiative*. Retrieved from <http://www.portlandsconsultation.ca/documents>
- Clewell, A. F., and Aronsson, J. (2007). *Ecological restoration: principles, values and structure of an emerging profession*. Washington: Island Press.
- Clark, J. P. (2012). Political ecology. *Encyclopedia of Applied Ethics*, 2(3), 505-516.
- Church, E. (2011, September 16). Ford waterfront vision sinking quickly. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/news/toronto/ford-waterfront-vision-sinking-quickly/article4256721/>.
- Crombie, D. (1989). *Interim Report*. Toronto: Royal Commission on the Future of the Toronto Waterfront. Retrieved from <http://www.waterfronttrail.org/library-publications.html>.
- Crombie, D. (1990). *Watershed*. Toronto: Royal Commission on the Future of the Toronto Waterfront. Retrieved from <http://www.waterfronttrail.org/library-publications.html>.
- Crombie, D. (1992). *Regeneration, Toronto's waterfront and the sustainable city: final report*. Toronto: Royal Commission on the Future of the Toronto Waterfront. Retrieved from <http://www.waterfronttrail.org/library-publications.html>.
- De Leo, G. A., and Levin, S. (1997). The multifaceted aspects of ecosystem integrity. *Conservation Ecology*, 1(1), 3.
- Dearden, P., and Mitchell, B. (1998). *Environmental Change and Challenge: A Canadian Perspective*. Toronto: Oxford University Press.
- Desfor, G, and Keil, R. (2004). *Nature and the City: Making Environmental Policy in Toronto and Los Angeles*. Arizona: University of Arizona Press.
- D’Cunha, P. (2014, August, 7). Waterfront revitalization a ‘waste of taxpayers’ money. *City News*. Retrieved from <http://www.citynews.ca/2014/07/08/waterfront-revitalization-a-waste-of-taxpayers-money-ford-says/>
- Eidelman, G. (2012). *Three's Company: a review of waterfront Toronto's tri-government approach to revitalization*. Toronto: University of Toronto press.
- Flack, D. (2011, September 7). New Port Lands vision moves one stop closer to fantasy. *BlogTO*. Retrieved from [http://www.blogto.com/city/2011/09/new\\_port\\_lands\\_vision\\_moves\\_one\\_step\\_closer\\_to\\_fantasy](http://www.blogto.com/city/2011/09/new_port_lands_vision_moves_one_step_closer_to_fantasy)
- Foster, J. (2007). Toronto's Leslie Street Spit: Aesthetics and the ecology of marginal land. *Environmental Philosophy*, 4(1&2), 117-133.
- Fuller, R. A., and Irvine, K. N. (2010). Interactions between people and nature in urban environments. In Gaston, K. J. (ed.). *Urban Ecology*. Cambridge: Cambridge University Press.
- Gamson, W. A., and Modigliani, A. (1989). Media discourse and public opinion on nuclear power: A constructionist approach. *American Journal of Sociology*, 95, 1-37.

- Hagerman, C. (2007). Shaping neighborhoods and nature: Urban political ecologies of urban waterfront transformations in Portland, Oregon. *Cities*, 24, 285–297.
- Hajer, M.A. (1997). *The politics of environmental discourse: Ecological modernization and the policy process*. Gloucestershire: Clarendon Press.
- Hartig, J.H. (1995). *Practical steps to implement an ecosystem approach in Great Lakes management*. Detroit: Wayne State University.
- Healy, P. (1997). *Collaborative planning*. Vancouver: University of British Columbia Press.
- Higgs, E. S. (1997). What is good ecological restoration? *Conservation Biology*, 11(2), 338-348.
- Hough, M. (2004). *Cities and natural process: A basis for sustainability*. New York: Routledge.
- Hume, C. (2012, March 30). Waterfront report sinks Doug Ford’s Port Lands vision. *The Toronto Star*. Retrieved from [http://www.thestar.com/news/gta/2012/03/30/waterfront\\_report\\_sinks\\_doug\\_ford\\_s\\_port\\_lands\\_vision.html](http://www.thestar.com/news/gta/2012/03/30/waterfront_report_sinks_doug_ford_s_port_lands_vision.html).
- Kuferman, S. (2014, February 27). Doug Ford revives his war on Waterfront Toronto in new “Ford Nation” YouTube videos. *Toronto Life*. Retrieved from <http://www.torontolife.com/informer/toronto-politics/2014/02/27/doug-ford-revives-war-on-waterfront-toronto/>.
- Keenan, E. (2011, September 7). Doug Ford’s waterfront sells us out for the short-term money. *The Grid TO*. Retrieved from <http://www.thegridto.com/city/politics/doug-ford%E2%80%99s-waterfront-sells-us-out-for-the-short-term-money/>.
- Laidley, J. (2007). The Ecosystem Approach and the global imperative on Toronto's central waterfront. *Cities*, 24(4): 259–72.
- Light, A., and Higgs, E. S. (1996). The politics of ecological restoration. *Environmental Ethics* 18(3), 227-247.
- LURA Consulting. (2012). *Port Lands Acceleration Initiative meeting report*. Retrieved from <http://www.portlandsconsultation.ca/sites/all/themes/portlands/files/Final%20-%20December%2012%20Public%20Meeting%20Report.pdf>
- McCann, P. (2001). *Urban and regional economics*. New York: Oxford University Press.
- Michael Van Valkenburgh Associates Inc. (2007). *Port Lands Estuary*. Retrieved from <http://www.mvvainc.com/project.php?id=87&c=competitions>.
- Michael Van Valkenburgh Associates Inc. (2010). *Lower Don Lands framework plan*. Retrieved from [http://www.mvvainc.com/project.php?id=87&c=urban\\_design](http://www.mvvainc.com/project.php?id=87&c=urban_design)
- Nelkin, D and Pollak, M. (1977). The politics of participation and the nuclear debate in Sweden, the Netherlands, and Austria. *Public Policy*, 25(3), 334.
- Neuman, M. (2000). Communicate This! Does consensus lead to advocacy and pluralism? *Journal of Planning Education and Research*, 19, 343-350.
- Peat, D. (2011, September 21). Ford’s Port Lands plan sinks. Retrieved from <http://www.torontosun.com/2011/09/21/fords-port-lands-plan-sinks>.

- Perlman, D.L and Milder, J.C. (2005). *Practical ecology: Chapter 6. The ecology of landscapes*. Washington: Island Press.
- Platt, R. H. (2006). *The humane metropolis: people and nature in the 21st century city*. Massachusetts: University of Massachusetts Press.
- Reeves, W. (1999). From acquisition to restoration: A history of protecting Toronto's natural places. In Roots, B., Chant, D., and Heidenreich, C. (eds). *Special places: The changing ecosystems of the Toronto region*. Vancouver: UBC Press.
- Rhodes, B.L and Herricks, E.E. (1996). Human-induced change in low energy agricultural streams: an example from east central Illinois. In Brooked, A. and Shield, F.D. (eds). *River Channel Restoration*. Chichester: Wiley.
- Robertti, L. (2004). *Integrating people and nature in urban wilderness: Bringing together concepts from ecological planning, design and restoration to address the opportunities and challenges of an urban ecological regeneration project*. Retrieve from FES Outstanding Graduate Student Paper Series.
- Robbins, P. (2004). *Critical introductions to geography : Political ecology (2nd Edition)*. West Sussex: Wiley-Blackwell.
- Society for Ecological Restoration. (2004). *SER International primer on ecological restoration*. Retrieved from <http://www.ser.org/resources/resources-detail-view/ser-international-primer-on-ecological-restoration>.
- Sparks, R., Ahn, C., Demissie, M., Isserman, A., Johnston, D., Lian, Y., Nedovic-Budic, Z., and White, D. (2005). Linking hydrodynamics, conservation biology, and economics in choosing naturalization alternatives for the Illinois River, USA. *Large Rivers*, 15, 521-538.
- Stinson, J. (1990). *The heritage of the Port Industrial District: a report*. Toronto: Toronto Harbour Commission.
- Toronto and Region Conservation Authority. (n.d. a). *Don River Watershed Features*. Retrieved from <http://trca.on.ca/the-living-city/watersheds/don-river/watershed-features.dot>.
- Toronto and Region Conservation Authority. (n.d. b). *Lower Don River West Remedial Flood Protection Project*. Retrieved from <http://trca.on.ca/the-living-city/green-infrastructure-projects/environmental-assessment-projects/lower-don-river-west-remedial-flood-protection-project/#>.
- Toronto and Region Conservation Authority. (1994a). *Valley and stream corridor management program*. Retrieved from <http://www.trca.on.ca/dotAsset/40105.pdf>.
- Toronto and Region Conservation Authority. (1994b). *Forty steps to a new Don: A report of the Don Watershed Task Force*. Retrieved from <http://www.trca.on.ca/dotAsset/95621.pdf>.
- Toronto and Region Conservation Authority. (2007). *Baseline data for the Inner and Outer Harbour*.
- Toronto and Region Conservation Authority. (2009a). *Don River Watershed Plan: Beyond Forty Steps*. Retrieved from [www.trca.on.ca/dotAsset/95649.pdf](http://www.trca.on.ca/dotAsset/95649.pdf).
- Toronto and Region Conservation Authority. (2009b). *Don River Watershed Plan Land and Resource Use: Report on Current Conditions*. Retrieved from <http://trca.on.ca/dotAsset/55385.pdf>.
- Toronto and Region Conservation Authority and Waterfront Toronto. (2008). *Public*



- Presentation, Discussion and Drop-In*. Retrieved from <http://www.trca.on.ca/dotAsset/103475.pdf>.
- Toronto and Region Conservation Authority, Waterfront Toronto, and City of Toronto. (2014). *Don Mouth Naturalization and Port Lands Flood Protection Amended Environmental Assessment*. Retrieved from <http://www.trca.on.ca/dotAsset/103331.pdf>.
- Toronto and Region Remedial Action Plan. (2007). *Moving Forward: 2007 RAP Progress Report*. Retrieved from <http://torontorap.ca/dotAsset/65197.pdf>.
- Toronto Public Library. (1998). *Research guide: Bringing back the Don River*. Retrieved from [http://vrl.tpl.toronto.on.ca/helpfile/ss\\_b0003.html](http://vrl.tpl.toronto.on.ca/helpfile/ss_b0003.html).
- Toronto Waterfront Revitalization Corporation and Toronto and Region Conservation Authority. (2006). *Revised Terms of Reference. Don Mouth Naturalization and Port Lands Flood Protection Project*. Retrieved from <http://www.trca.on.ca/dotAsset/103637.pdf>.
- Ute, L. and Laidley, J. (2008). Old mega projects newly packaged? Waterfront redevelopment in Toronto. *International Journal of Urban and Regional Research*, 32(4), 786–803.
- Vayda, A. P. and Walters, B. B. (1999). Against political ecology. *Human Ecology*, 27(1).
- Waterfront Toronto. (2013). *Port Lands Profile*. Retrieved from <http://www.portlandsconsultation.ca/sites/all/themes/portlands/files/Port%20Profile%20nov12.pdf>