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Constructing connections: urban forestry and Toronto's West Don Lands revitalization

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Article abstract

The West Don Lands played an important role in Toronto's history, primarily as an industrial centre from the mid-19th century to the mid-20th century. Therefore, the negative impacts of de-industrialization on the precinct can hardly be considered surprising. However, efforts are being made to revitalize the West Don Lands and redress the decay experienced by the precinct. This paper examines these efforts, detailed in the Waterfront Toronto's Precinct and Block Plans, with particular focus being placed on the role that urban forestry can play on the creation of physical and social linkages.

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CONSTRUCTING CONNECTIONS: URBAN FORESTRY AND TORONTO'S WEST DON LANDS REVITALIZATION

Paul L. NICHOLS

◖ RÉSUMÉ
Les West Don Lands ont joué un rôle de premier plan dans l'histoire de Toronto. Du milieu du dix-neuvième siècle jusqu'au milieu du vingtième siècle cette zone est connue comme centre industriel. Aujourd'hui, force est de constater que le quartier subit les conséquences négatives de la désindustrialisation. Des travaux sont en cours pour revitalisation les West Don Lands et freiner la dégradation de ce milieu. L'étude se penche sur les initiatives proposées par la Société de revitalisation du secteur riverain de Toronto dans son plan de réaménagement, en mettant l'accent sur le rôle de la foresterie urbaine dans la création de liens physiques et sociaux.

MOTS-CLES ▪ Foresterie urbaine, développement durable, West Don Lands, revitalisation, liens

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◖ ABSTRACT
The West Don Lands played an important role in Toronto's history, primarily as an industrial centre from the mid-19th century to the mid-20th century. Therefore, the negative impacts of de-industrialization on the precinct can hardly be considered surprising. However, efforts are being made to revitalize the West Don Lands and redress the decay experienced by the precinct. This paper examines these efforts, detailed in the Waterfront Toronto's Precinct and Block Plans, with particular focus being placed on the role that urban forestry can play on the creation of physical and social linkages.

KEYWORDS ▪ Urban forest, sustainable development, West Don Lands, revitalization, linkages

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INTRODUCTION

Within the broad discourse concerning the benefits to be gained through the development and nurturing of the urban forest, the existing literature is extensive (Treiman and Gartner, 2006); however, much less emphasis has been placed on the benefits resulting from the redevelopment of brownfield sites into urban forests. In the search for unique case-studies of brownfield to urban forests transformation, Toronto contains multiple examples worthy of study. With a well established urban forest incorporating the Don River and large scale brownfield redevelopment in the West Don Lands, an examination of the potential for creating physical and social connections through redevelopment can be conducted. This paper examines the existing plans for creating such connections using the Waterfront Toronto's area projects. The objectives of this examination are to:

1. Illustrate the broad relationship between urban forest and social benefits, and to contextualize this relationship in terms of Toronto's West Don Lands' revitalization.

2. Determine the strengths and weaknesses of urban forest component integration in the West Don Lands' redevelopment plans.

3. Highlight how the West Don Lands' redevelopment will increase the potential for social connection creation in the precinct and subsequently address key current social issues.

To this end, current proposals for the development of parks will be critically reviewed and the proposal's attention to the physical creation of linkages between parks and existing urban forests will be discussed. This will be followed by a discussion of the potential social benefits and externalities that may be expected from the realization of such proposals. Finally, conclusions regarding the potential utility of current plans for urban forestry in the West Don Lands will be drawn. However, before any such analysis can be undertaken, an appropriate contextual and epistemological background should be constructed.

1. DEFINING "URBAN FORESTRY"

Generally speaking, "[u]rban forests are [areas] situated within a town area, they are part of city infrastructure and are daily accessible by means of public city transport, cycling and walking to at least a part of the inhabitants" (Pirnat, 2000, p. 135-36). However, it must also be acknowledged that street trees and trees on private property are also part of the "urban forest" (Heynen et al., 2006). More academically defined, "urban forestry" is a concept which, emerging in mid-1960s from a student research project, aimed to use trees to provide "environmental and social benefits for urban populations" (Johnston, 1996; Jorgensen, 1986, p. 179). This broad definition is still valid today and has been further detailed to highlight the environmental and social benefits while diminishing the traditional econo-centric focus of forests and their products (Heynen et al., 2006; Konijnenedijk, 2003). For example, urban forests and parks have been noted as components of urban stormwater management and air filtration (Solecki and Welch, 1995). There is also on-going discussion as to the impact of forest size on increased biodiversity (Guirado et al., 2006). Additionally, reductions in stress and violence as well as contributions to social integration have all been linked to the presence of urban forests and green space (Hunter, 2001; Germann-Chiari and Seeland, 2004). However, as with any social constructed concept, the term "urban forests" will be defined in unique and often contrasting ways from one group to another. The way such a term is defined is highly dependant on the values and requirements one places on nature or "green space" (Tyrväinen et al., 2007). In contrast to the broad and somewhat theoretical academic definition, for those focused on urban planning and management, urban forests often represent the most multifunctional and dynamic opportunity to provide green space to urban residents (Van Herzele, 2006). And for the residents themselves, the concept of urban forests has been linked to areas within the city where the individual can feel that they are closer to nature (Cole and Bussey, 2000).

Interestingly, the same social constructions that help to describe the connotations of and associations to urban forests also influence the physical structure of those forests as well. While policy does and should play a role in pro- and retro- active planning of green spaces and their connectivity (Jim, 1999; Jim, 2004), the policy is (or at least should be) a reflection of the public's demands of such green spaces. Quite often these demands are culturally linked (Tyrväinen et al., 2007); however, gender, age and various other factors also contribute to the demands placed on the urban forest. Konjinendijk (2003) identifies that an urban forest's multifunctionality is the key to addressing the diverse needs of a city's population, and thus its success. For example, Cole and Bussey (2000) note that at 2 ha, woodlands are appealing to all ages;

however, adults prefer the potential for exploration that blocks of woodlands provide. Yet, others put emphasis on the appearance of green space as "natural" (Hull IV et al., 1994), thus suggesting that there may be a need or benefit from complementing the planned portions of urban forests and green spaces with areas that are left as "wild" (Thompson, 2002; Jim, 2004). The more rugged areas of an urban forest can contribute in ways that traditional parks cannot (Jim, 2004), such as through providing a sense of adventure for those seeking local opportunities for rural exploration. An urban forest should therefore be structured in a way that appeals to the old, the young, women, men, bicyclers, ramblers, pedestrian commuters, and various other classifications of users. In addition, the structure should also allow the forest to continue or improve on its biophysical roles of storm water management, heat reduction and air filtration. Therefore, for the purposes of this paper, the term "urban forest" will be defined as multifunctional wooded areas (including streets and parks) in and directly adjacent to densely urbanized areas and whose social and environmental roles have eclipsed the traditional material production-centric benefits (Pirnat, 2000) and are influenced by both climatic and human actors (Welch, 1994).

2. DON RIVER VALLEY AND THE WEST DON LANDS-PAST AND PRESENT

The Don River is a significant part of Toronto's physical and social history. It also forms the eastern edge of the West Don Lands revitalization project, thus an understanding of the River's historic and modern roles is a key component of this discussion. Physically, the Don River is 38 km long and consists of two main branches (City of Toronto, 2007a), the East Don and the West Don which joined into one river approximately 9000 years ago (Desfor and Keil, 2000). With its similarities to British rivers and landscape, early Anglo settlers were attracted to the area (Desfor and Keil, 2000). However, the Don River served as more than just scenery to the settlers.

The Don River and its connection to what is now Lake Ontario greatly contributed to the urbanization of Toronto, as did the natural resources within its floodplain (Keil and Desfor, 2003; Foster, 2005). This industrialization and urbanization meant changes for the River; the natural course of the lower Don River was altered and generally straightened in order to reduce spring flooding (Donald, 1997; Desfor and Keil, 2000; City of Toronto, 2007a). The urbanization, industrialization and "improvements" to the Don River resulted in a variety of ecological problems. These problems were compounded with the de-industrialization of Toronto which then became home to a large complement of unutilized or underutilized brownfield sites. However, perhaps due to the fact that the Don River has traditionally been viewed with regard to its importance and potential (Desfor and Keil, 2000), its problems were not left to fester.

The Task Force to Bring Back the Don, a primarily volunteer citizens' organization formed in 1989 is attempting to redress some of the damage done to the River over the past two centuries through projects such as tree planting and wetland restoration (City of Toronto, 2007c). And while redevelopment of brownfield sites has traditionally been economically focused, a more recent shift to balance the economic and ecological benefits of redevelopment is beginning to show (De Sousa, 2003). Redevelopments along the Don River such as the Don Valley Brick Works wetland project have begun to provide additional green space for Toronto's residents, even if the ecological benefits are debatable (Foster, 2005). Such improvements are going to be essential, given the current focus on making Toronto North America's leading "green" city (Gorrie, 2007; City of Toronto, 2007b). Failure to address this need for increased urban canopy and green space within Toronto, given its increasing compaction, will result in the city becoming the very antithesis of its stated goal (Jim, 2004, p. 312). However, the placing of urban forests and green spaces in a random or convenient manner will also fail to provide Toronto's residents with maximum utility. Instead, these spaces must be treated like any other land use and be planned with specific goals in mind. Given their public nature, the plan for these areas should reflect a desire for both social and environmental justice. Additionally, it would be folly not to include the Don River Valley into such a plan, given the river's ability to link city to itself as well as to nature. Therefore, the following section will examine the level of attention paid to the physical creation of linkages to existing urban forests in the current West Don Lands redevelopment proposal, with particular interest given to areas along and directly west of the Don Valley River's eastern branch. However, it is important to first understand the process of redeveloping the West Don Lands by looking at its site history.

The West Don Lands were originally used as open space in the Old Town of York (Waterfront Toronto, nd). In the 1830s the open space gave way to residential and industrial land uses (Waterfront Toronto, nd), a process that was assisted through the straightening of the Don River later in the century

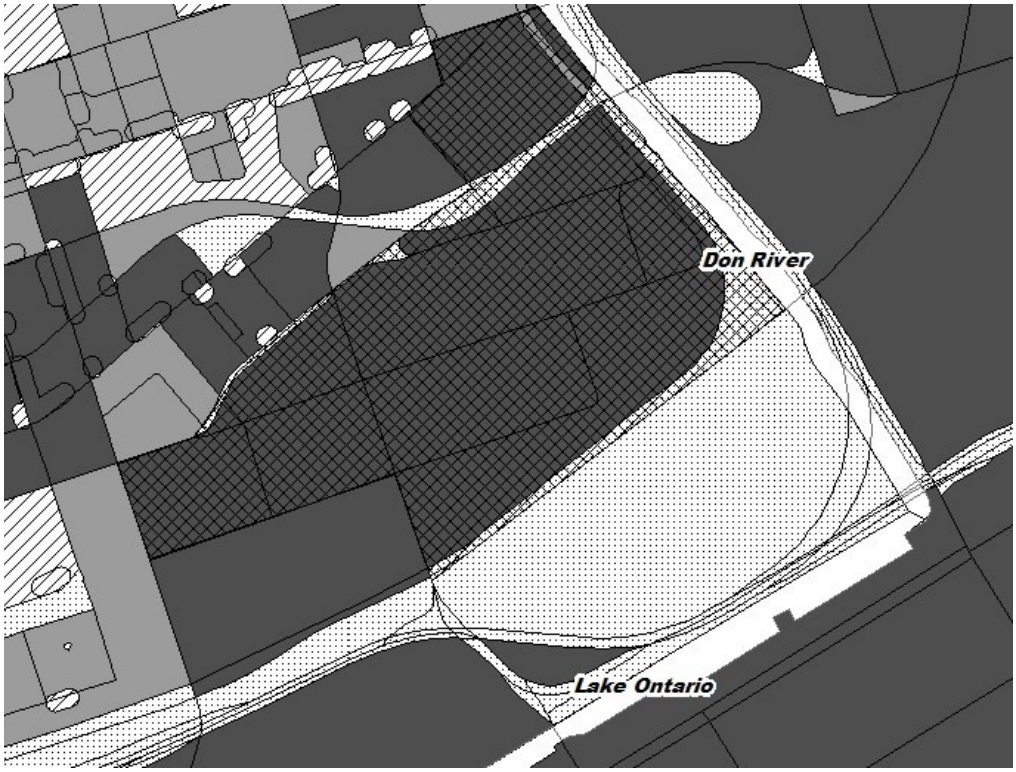

Fig. 1 – ***Based on data from: DMTI Spatial, Inc., 2005***

(Desfor and Keil, 2000). However, since the 1970s the West Don Lands and Toronto in general, have experienced a significant and continual deindustrialization (Norcliffe, 1996). Evidence of deindustrialization's impact on the area became visible starting in the late 1980s, when preliminary redevelopment ideas for the industrial parts of the area began to be discussed (USEPA, 2006). More generally, the result of deindustrialization was the creation of contaminated brownfield sites that have scarred Toronto's landscape for decades. Conversations between the city and the Ontario provincial government concerning clean up of the West Don Lands lasted decades and were initially halted due to complications caused by trying to remediate a site located within a floodplain and due to concerns over liability (USEPA, 2006). As a result, industrial land uses continue to dominate the West Don Lands precinct. This is visible in the dark grey area representing industrial uses within the cross-hatched areas of the West Don Lands revitalization project (see Figure 1). However, as site contamination is a significant issue in judging the redevelopment potential of an area (TWRC, nd), the extensive and extended consultation process seemed a prudent path to take. Ultimately, the province acquired the land, and in 2001 the Toronto Waterfront Revitalization Corporation (now Waterfront Toronto, an arms-length NGO, was established by the Canadian federal government, Ontario and the city to manage the redevelopment process (TWRC, nd).

3. THE WEST DON LANDS PROPOSAL- PHYSICAL LINKAGES

For the purposes of this paper, references to the West Don Lands "proposal" draw on two key documents: the West Don Lands Precinct Plan (Urban Design Associates, 2005) and the West Don Lands Block Plan and Design Guidelines (Urban Design Associates, 2006). The documents lay out a detailed conceptual guideline for the overall redevelopment of the area. As such, neither provides explicit information concerning the role that urban forestry can or will play in the redevelopment process. Instead, the documents provide a more general discussion of topics such as the integration of natural and built environments (Urban Design Associates, 2006), as well as accessibility to public space and parks (Urban Design Associates, 2005). Additionally, the prevalent inclusion of street trees in the conceptual designs is also relevant to the discussion of physical linkages and Toronto's urban forest, even if it fails to be appreciated in the documents themselves. Finally, the

Don River Park, the largest of the proposed open spaces at 18.2 acres (Urban Design Associates, 2006, p. 7), is the most important feature to consider with regard to the attention given to connecting the redevelopment to Toronto's urban forest and more distant neighbourhoods.

The West Don Lands Precinct Plan structures the precinct's parks and open spaces based on the "natural relationship between the river and the harbour" (Urban Design Associates, 2005, p. 9). Such a relationship would suggest that some consideration of the natural connectivity will be given during the later stages of the redevelopment process. While it is unlikely that such consideration will be able to extend very far beyond the precinct, there is potential for the green space to benefit the local community cumulatively through flood control (Solecki and Welch, 1995). Additionally, the plans show an understanding of the potential that the areas directly adjacent to the river have as a transitional stage between the manicured parks and the less manicured, forested areas found along the river (Solecki and Welch, 1995). With regard to the inland areas of the precinct, the manicured parks in the western portion of the precinct appear to be interconnected to each other and the more "natural" areas adjacent to the river through the inclusion of street-trees along all the precinct's roads, as illustrated in the Precinct Plan (Urban Design Associates, 2005, p. 9). This level of natural connectivity provide a range of habitats for local flora and fauna, from increased nesting space in street and park trees for birds and small mammals to more complete, functional ecosystems in the transitional and unmanicured areas. For local residents and visitors, this means increased opportunities to experience "nature" in varying degrees. Collectively, the plans show a good sense of connectivity within the precinct as well as to the urban forest found along the Don River.

While connectivity and linkages issues are well addressed in various ways throughout the plans, attention to details with regard to street trees in the Precinct was inadequately discussed. The plans show the intent to use street trees through various illustrations but an analysis of the benefits provided by these trees is lacking. References could have been made to the intangible visual benefits (Jim, 2004), as well as to the shading and cooling effects, which make walking to the green spaces more pleasant. In addition, no reference to the street trees' contribution to Toronto's total urban forest area was made, despite the fact that urban forest expansion is a stated goal of the City (City of Toronto, 2006). All of these topics would have supported the assertion that West Don Land redevelopment will be a "global model of sustainability" and be well suited for inclusion in "The Precinct Plan" section of The Block Plan document (Urban Design Associates, 2006, p. 5). So, while street trees are illustrated in the planning documents, the lack of reference to this part of Toronto's urban forest suggests a lack of real appreciation for the benefits that these trees will provide for the Precinct, its residents and visitors and Toronto as a whole.

From a more positive angle, a careful review of the Precinct and Block Plans suggests that sufficient attention was paid to the equal distribution of green space/urban forest throughout the precinct. This complements the connectivity previously discussed and encourages pedestrians to fully utilize those connections through the provision of multiple greens spaces and urban wood lots. The distribution of parks around the edge of the precinct is evenly distributed and the inclusion of park space along the Front Street Esplanade helps shape a balance between center and periphery. This design discourages the "herding" of pedestrians to a sole green space. Courtyard space may provide additional opportunity for building residents, particularly for those living between Mill and Front Streets. It must be acknowledged that the Precinct and Block Plans' focus on park space could be seen as contributing to the already uneven distribution of Toronto's green spaces which are disproportionately concentrated in the river and ravine areas (De Sousa, 2003). This is a problem that needs addressing and suggestions are provided in the conclusion of this paper; however, it is clear that the accessibility to urban forest and green space being created here has significantly more merits than demerits. In addition to providing residents with easy access to green space in what will be a former brownfield site, this focus is also contributing to the restoration of lost urban forest environments along the River's banks. The restoration will also provide continuity of access to other park users from outside the West Don Lands area.

The "Don River Park will be the signature space of the new Precinct" according to the Block Plan (Urban Design Associates, 2006, p. 7). Located in the south-east corner of the Precinct, the Don River Park contains, by far, the largest reserve of green space. As such, it also provides the best opportunity for 'wild' urban forests. This is referred to in the Precinct Plan as an area earmarked for "natural regeneration" (Urban Design Associates, 2006, p. 26). Indeed, the eastern edge of the park is well suited for this purpose and will act essentially as an extension of the urban

forest that runs along the Don River north of the Precinct. The park covering a total area of 18.2 acres will serve as an urban forest node for southeast Toronto, particularly for users of the Martin Goodman Trail going east-west and the Don Valley Trail, which runs north-south. The Don River Park will also bring environmental benefits through flood control. Although the initial plans found in the Precinct Plan have been deemed inadequate (Urban Design Associates, 2006, p. 14), the space will remain a permeable surface adjacent to the river. It is clear that the Don River Park will contribute to Toronto's urban forest in multiple ways, both directly through "natural regeneration", which includes street and park trees, and indirectly through flood control required for the Precinct's redevelopment. However, for our discussion, its most important contribution is as a physical link between major nature trails and between the urban and "wild".

The physical connections that are planned for the West Don Lands redevelopment have the potential to create both intricate and unique linkages between the planned and existing components of the local forested areas and more distance components of Toronto's urban forest. This potential is found in the Precinct and Block Plans' attention to the integration of the natural and built environments, the well distributed provision of green space and the detailed plans for the Don River Park which will be turned into an urban forest node within the Precinct as well as for two major trails that run through Toronto. Street trees will also play an important role in the creation of these physical linkages, though a detailed discussion is not explicit in the Plans. These physical linkages are crucial in facilitating the creation of social linkages. In the following section, the potential for social linkages will be discussed and critiques of similar redevelopments that could potentially be translated to the West Don Lands will be addressed.

4. THE WEST DON LANDS PROPOSAL- POTENTIAL FOR SOCIAL LINKAGES

Having examined the West Don Lands Precinct and Block Plans and analyzed the proposed physical linkages, the question remains, what potential exists within those linkages that may be realized within the realm of social linkage creation? Social linkage creation may take on a variety of forms, at both individual and group levels. At the individual level, the potential rests in the urban forest's ability to encourage movement outside of what would otherwise be considered "normal" neighbourhood boundaries, and thus for interactions between individuals who would otherwise not come into contact with one another. In Toronto, this could mean greater interaction between economically and demographically diverse individuals; particularly as the Don River runs through neighbourhoods that exemplify such diversity (Desfor and Keil, 2000). At the group level, the potential for social linkages comes from the urban forest's ability to provide or facilitate interactions between groups with the same or similar interests or purposes, such as between rambling clubs or between varying types of nature-based groups. In addition, these areas would also serve as a location for meeting new potential members. In both instances, the overall benefit to the urban social environment results from the positive interaction between city residents which aids in the creation of cohesive communities (Konjinendijk, 2003).

This potential is not simply realized from the random inclusion of green space in any given location; and the level of potential reflects the quantity and quality of thought that is put into the planning of such spaces. Methodologies have been developed to measure the social benefits of green space and to suggest how best to use green space in the planning process (De Ridder et al., 2004, p. 497). While it is beyond the scope of this paper to analyze these methodologies and apply the best of them to Toronto as a whole, certain assertions can be made regarding the elements required of urban forests/green spaces to facilitate the creation of social linkages. First and foremost, urban forests must provide spaces where movement can occur and interaction can take place. An urban forest node provides no potential to create social linkages if it does not provide space for various forms of interaction. In addition, urban forests must allow for movement with regard to access and egress as well as movement within the forest itself. It is also ideal if urban forest nodes can be accessed via urban forest paths or at least tree lined streets. The combination of urban forest nodes and forested access routes can provide for interactions between individuals or groups who use urban forests in a variety of ways.

Drawing on these criteria, the proposed redevelopment of the West Don Lands holds a great deal of potential for the development of social linkages. The following examples reveal only a fraction of the possible interactions that could take place. Each of these examples could in-and-of-itself be studied at length to identify the value of urban forests in promoting a specific type of social interaction. However, as a whole, they suggest the overall importance of thoughtfully designed urban forests and

reveal how brownfield sites can be transformed from desolate scars on the urban landscape to inspirational locations that contribute to the development of community cohesion.

4.1 Local Social Activity

Generalized social interaction logically increases in areas that feel safe and comfortable and thereby encourage people to linger. The transformation of the West Don Lands from a brownfield to a mixed-use, urban forested precinct with ample amounts of public green space will encourage residents to frequent it. Additionally, the physical connections to the surrounding precincts will facilitate non-precinct residents to use the area parks and forests as well, transforming the area from a location of isolation to a hub of social activity. By drawing non-residents in, unique social connections can be created. These connections serve to move community development beyond the neighbourhood level to the wider southeast Toronto area. Such community cohesion leads to a concern for surrounding neighbourhoods and could also take the form of concern for and interconnection between local businesses and organisations. This increased activity and social cohesion subsequently serve to reduce the negative externalities caused by underutilized urban space, such as crime. These benefits directly address the current needs of the West Don Lands and Toronto.

4.2 Sport/Recreation

The locations of the proposed urban forest redevelopment and green space placement provide a great deal of potential for a variety of sports and recreation based interaction. The proposed location and size of the Don River Park in particular will provide space for group activities such as pick-up ball games or as a start/end point for runners or bicyclists. This increase in open space will reduce demands on some of Toronto's other sports and recreational areas, such as Sunnybrook Park, which are often dedicated to more formalized activities. The increased space for informal physical activity also provides opportunities free of charge for consumers of the space to address the broader issue of physical inactivity and its surrounding issues. In addition, the physical linkages to other neighbourhoods could draw such individuals from distant locations around Toronto to the park and district as a central location for their activities.

4.3 Educational

The potential for educationally-based interaction is dispersed across the precinct in the West Don Lands plan. This type of interaction may take an institution form as well as forms which are less structured, such as through community groups. The draw of Don River Park will provide an excellent opportunity to highlight the roles of urban forests in ecosystem management, such as riverbank stability, storm water management and biodiversity management. The lattermost of these is in direct agreement with Cornelis and Hermy's (2004, p. 399) finding that urban green spaces can be considered biodiversity 'hotspots' for cities. These roles could be highlighted through information stands in the park, similar to those provided by the City of Toronto in other locations. Less formally, community groups focused on urban gardening, wildlife observation and other related recreational activities could use the parks as opportunities to introduce themselves to other park-users through exhibitions and other events. With the types of urban forests and green spaces ranging from manicured street trees and parks to 'wilder' areas adjacent to the river, a variety of groups could benefit from the local pockets of 'nature'. In particular, these types of interaction would benefit children growing up in an urban environment who have less exposure to 'natural' environments.

5. ADDRESSING THE CRITICS

In examining the social linkage potential of the proposed West Don Lands redevelopment, it is important to address critiques of previous attempts at brownfield to green space conversions as well as the more general critiques of urban green spaces. The first critique is that parks/urban green spaces act as boundaries rather than facilitators. In particular, Solecki and Welch (1995) noted that larger parks have served to divide socio-economically different neighbourhoods. In the case of the West Don Lands, however, such a critique would be misplaced. The precinct is already bound to the east by the river and to the south by Lake Ontario. Additionally, the largest of the parks, and therefore the one which would be most susceptible to this type of critique, is located in the southeast corner of the precinct and thus acts as a cornerstone of the community rather than a wall intended to keep 'others' out.

The second critique concerns the potential for the development to be exclusionary in nature. Foster's (2005) critique of the Don Valley Brick Works focuses on the site's location adjacent to some of Toronto's

most wealthy neighbourhoods, as well as the inaccessibility of the site for those not residing in these neighbourhoods in order to suggest that the redevelopment is exclusionary in nature. And while the Don Valley Brick Works does lend itself to such debates, the same factors of location and accessibility have an inverse relationship to the West Don Lands redevelopment. The southeast section of Toronto can not claim the same financial opulence as the area around the Brick Works. And while the Toronto Metro lines do not pass under the West Don Lands, the existing bus and street car services do provide the general public sufficient access to the area. Thus, rather than exclusionary in nature, the urban forests and green spaces that are to be included in the West Don Lands redevelopment can be seen as a cohesive force for Toronto residents.

The final critique, and potentially the most valid, is that the value of urban forests in this type of redevelopment is overstated. Indeed, there is the potential to promise more than will be, or ever could be, delivered. However, the nature of this paper has not been to guarantee or prophesize which type of benefits will result from the redevelopment and in what quantities. The attempt here is merely to suggest that, if designed and implemented thoughtfully, the resulting urban forest can be more than just an individual park and street trees. The suggestion remains that the various components of the proposed redevelopment's urban forest can form physical linkages throughout the precinct and to existing urban forests in adjacent neighbourhoods and that those physical linkages could facilitate the creation of social linkages. However, the ability and scale in which this can occur is reliant on a variety of actors and factors, ranging from the realization of the plans already in existence to the municipal government's encouragement of diverse uses of the urban forest to the suitability of the forest to the interests of individuals and community groups. Thus, such a critique of the redevelopment would be extremely premature at this stage.

CONCLUSION

Urban forests play multiple roles for cities and their residents. They are both air filters and storm water management systems. They are transportation routes and centers for activity. Urban forests' potential utility is constructed in and limited by the vision of those who plan and use them. The overall potential of urban forests is increased through the interconnectivity of their components along with their size and variation in "wildness" or "naturalness". In the case of the urban forest component of the West Don Lands proposed redevelopment, there is a high level of potential utility. The City of Toronto has acknowledged the important role that urban forests have in maintaining and improving the City's environmental sustainability, evidenced in their treatment in Chapter Three of Toronto's Official Plan (City of Toronto, 2006). However, this paper reveals that urban forests' contributions to social sustainability have yet to be appreciated in an equal manner by city officials. Indeed, urban forest and urban planning concepts and considerations still need further integration by these officials if the benefits of urban redevelopment are to be fully realized. The implicit danger in the lack of attention to the social benefits of urban forests is the potential failure to realize the social, recreational, educational and other benefits previous discussed. Additional dangers emerge in the potential for current brownfield conversions to become overly susceptible to the critiques of past conversions. And in a city that strives to be the greenest in North America (City of Toronto, 2007b), it is critical that policy reflect all of the benefits of brownfield to urban forest conversion, in order to facilitate rather than hinder the process.

With regard to the objectives of this paper, the review of the redevelopment plans found them to have more strengths than weaknesses in their utilization of urban forest components. The discussion also illustrated several social concerns that can be addressed through the increased potential for social connection creation found in the plans. Table 1 details the strengths and weaknesses and Table 2 summarizes and categorizes the social concerns addressed.

Table 1
Urban forest component integration in the WDL redevelopment plans

Strengths	Weaknesses
Good connectivity of components	Full appreciation of street tree benefits missing
Components evenly distributed	Potentially shallow depth of connectivity beyond precinct
Increased urban forest canopy	
Increased range of 'natural' habitats	

Table 2
Social concerns addressed through social connection creation

Category	Social concerns addressed
Local Social Activity	Revitalization of activity in precinct
	Increased social cohesion
	Reduced crime/anti-social behaviour
Sports and Recreation	Reduced demand on existing recreational space in Toronto
	Increased opportunities for informal sports/recreational activities
Education	Increased visibility of urban forests' roles in ecosystem management
	Increased opportunities for wildlife viewing and education activities
	Increased exposure to 'naturalized environment' for city youth

This paper began with a discussion of how to define urban forests, both academically and in a more technical/professional manner. This section concluded with a contextually relevant definition for the rest of the paper. Next, the backgrounds of Don River and the West Don Lands were detailed in order to highlight the relationship between the two entities. Having provided adequate background for the discussion, physical linkages of urban forest components of Waterfront Toronto's Block and Precinct Plans were addressed. Specific interest was paid to the potential offered by street trees, urban forest/green space distribution through the precinct and the Don River Park. The physical connectivity was found to be good both within the precinct as well as to other areas to the north along the Don River and to the east and west along the waterfront, both resulting from existing trails. With regard to distribution, while good within the precinct, it was acknowledged that the redevelopment would have little impact on the larger problem of unequal distribution of green space throughout Toronto as a whole. To that end, it is suggested that further enquiry into ways of rebalancing green space/urban forest would be a wholly worthwhile effort.

Having examined the physical linkages, the discussion then addressed the potential created by the components of the proposed urban forest and their physical connections with regard to the creation of social linkages (or at least the facilitation of their creation). After examining how the potential for creating social linkages can be developed, three contextualized examples were provided. First, a generalized social interaction was detailed, followed by sport/recreation and educational examples. Finally, three critiques common to this type of redevelopment/conversion were discussed and their inapplicability highlighted.

BIBLIOGRAPHIE

CITY OF TORONTO (2007a). *Don River*. http://www.toronto.ca/don/watershed.htm. Accessed: May 30, 2007.

CITY OF TORONTO (2007b). *Toronto Mayor David Miller unveils dynamic climate change Initiative*, Press Release: May 15, 2007. http://wx.toronto.ca/inter/it/newsrel.nsf/thismonth?OpenView. Accessed, May 30, 2007.

CITY OF TORONTO (2007c). *Wetlands are the best lands*. http://www.toronto.ca/don/wetlands.htm. Accessed: May 30, 2007.

CITY OF TORONTO (2006). *Toronto Official Plan*. June 2006: City of Toronto. http://www.toronto.ca/planning/official_plan/pdf_chapter1-5/chapter1-5_searchable_locked.pdf. Accessed: May 21, 2007.

COLES, R.W. and S.C. BUSSEY (2000). "Urban forest landscapes in the UK-progressing the social Agenda", *Landscape and Urban Planning*, Vol. 52, p. 181-188.

CORNELIS, J. and M. HERMY (2004). "Biodiversity relationships in urban and suburban parks in Flanders". *Landscape and Urban Planning*. Vol. 69, p. 385-401.

DE RIDDER, K., V. ADAMEC, A. BAÑUELOS, M. BRUSE, M. BÜRGER, O. DAMSGAARD, J. DUFEK, J. HIRSCH, F. LEFEBRE, J.M. PÉREZ-LACORZANA, A. THIERRY, and C. WEBER (2004). "An integrated methodology to assess the benefits of urban green space", *Science of the Total Environment*, Vol. 334-335, p. 489-497.

DE SOUSA, C.A., (2003). "Turning brownfields into green space in the City of Toronto", *Landscape and Urban Planning*, Vol. 62, p. 181-198.

DESFOR, G. and R. KEIL (2000). "Every River Tells a Story: The Don River (Toronto) and the Los Angeles River (Los Angeles) as articulating landscapes", *Journal of Environmental Policy and Planning*, Vol. 2, p. 5-23.

DONALD, B.J., (1997). "Fostering volunteerism in an environmental stewardship group: A report on the Task Force to Bring Back the Don, Toronto, Canada", *Journal of Environmental Planning and Management*, Vol. 40, p. 483-505.

DMTI Spatial Inc. (2005). *CanMap RouteLogistics 2005.3 – (CMA Toronto Clip)*. Markham, Ontario: DMTI Spatial Inc. https://www.runner.ryerson.ca/madar/geospatial/libdata/action2b.cfm?ResourceID=170. Accessed: July 2, 2008.

FOSTER, J. (2005). "Restoration of the Don Valley Brick Works: Whose restoration? Whose space?", *Journal of Urban Design*, Vol. 10, p. 331-351.

GERMANN-CHIARI, C. and K. SEELAND (2004). "Are urban green spaces optimally distributed to act as places for social integration? Results of a geographical information system (GIS) approach for urban forestry research", *Forest Policy and Economics*, Vol. 6, p. 3-13.

GORRIE, P. (2007), February 17. "Toronto's green blueprint". *Toronto Star (online content)*. http://www.thestar.com/News/article/182867. Accessed: May 17, 2007.

GUIRADO, M. J. PINO, and F. RODÀ (2006). "Understorey plant species richness and composition in metropolitan archipelagos: effects of forest size, adjacent land use and distance to the edge", *Global Ecology and Biogeography*, Vol. 15, p. 50-62.

HEYNEN, N., H.A. PERKINS, and P. ROY (2006). "The political ecology of uneven green space: The impact of political economy on race and ethnicity in producing environmental inequality in Milwaukee", *Urban Affairs Review*, Vol. 42, p. 3-25.

HULL IV, R.B., M. LAM, and G. VIGO (1994). "Place identity: symbols of self in the urban fabric", *Landscape and Urban Planning*, Vol. 28, p. 109-120.

HUNTER, I.R., (2001). "What do people want from urban forestry?-The European experience", *Urban Ecosystems*, Vol. 5, p. 277-284.

JIM, C.Y. (1999). "A planning strategy to augment the diversity and biomas of roadside trees in urban Hong Kong", *Landscape and Urban Planning*, Vol. 42, p. 13-32.

JIM, C.Y. (2004). "Green-space preservation and allocation for sustainable greening of compact cities", *Cities*, Vol. 21, p. 311-320.

JOHNSTON, M. (1996). "A brief history of urban forestry in the United States", *Arboricultural Journal*, Vol. 20, p. 257-278.

JORGENSEN, E. (1986). "Urban foresty in the rearview mirror", *Arboricultural Journal*, Vol. 10, p. 177-190.

Keil, R. and G. Desfor (2003). Ecological modernisation in Los Angeles and Toronto", *Local Environment*, Vol. 8, p. 27-44.

KONIJNENDIJK, C.C. (2003). "A decade of urban forestry in Europe", *Forest Policy and Economics*, Vol. 5, p. 173-186.

Norcliffe, G.B. (1996). "Canadian urban landscape examples-16: Mapping deindustrialization: Brian Kipping's landscapes of Toronto", *Canadian Geographer*, vol. 40, p. 266-272.

PIRNAT, J. (2000). "Conservation and management of forest patches and corridors in suburban landscapes", *Landscape and Urban Planning*, Vol. 52, p. 135-143.

SOLECKI, W.D. and J.M. WELCH (1995). Urban parks: green spaces or green walls?", *Landscape and Urban Planning*, Vol. 32, p. 93-106.

THOMPSON, C.W. (2002). "Urban open space in the 21st century", *Landscape and Urban Planning*", Vol. 59, p. 59-72.

TREIMAN, T. and J. GARTNER (2006). "Are residents willing to pay for their community forests? Results of a contingent valuation survey in Missouri, USA", *Urban Studies*, Vol. 43, p. 1537-1547.

WATERFRONT TORONTO (No date). West Don Lands backgrounder. http://twrctest.webhandcentral. com /dbdocs//447b5c381a5de.pdf. Accessed: May 15, 2007.

TYRVÄINEN, L., K. MÄKINEN, and J. SCHIPPERIJN (2007). "Tools for mapping social values of urban woodlands and other green areas", *Landscape and Urban Planning*, Vol. 79, p. 5-19.

URBAN DESIGN ASSOCIATES (2006). *West Don Lands Block Plan and Design Guidelines*, *May 2006,* Toronto, Toronto Waterfront Revitalization Corporation.

URBAN DESIGN ASSOCIATES (2005). *West Don Lands Precinct Plan, May 2005*, Toronto, Toronto Waterfront Revitalization Corporation.

USEPA (U.S. ENVIRONMENTAL PROTECTION AGENCY) (2006). *International brownfield case study: Waterfront regeneration trust, Toronto*, http://www.epa.gov/brownfields/partners/toronto.html. Accessed: June 1, 2007.

VAN HERZELE, A. (2006). "A forest for each city and town: Story lines in the policy debate for urban forests in Flanders", *Urban Studies*, Vol. 43, p. 673-696.

WELCH, J.M. (1994). "Street and park trees of Boston: a comparison of urban forest structure", *Landscape and Urban Planning*, Vol. 29, p. 131-143.