



Don River Watershed Plan

Nature-based Experiences – Report on Current Conditions

2009

Prepared by: Toronto and Region Conservation



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1.0 Introduction

The Toronto and Region Conservation Authority (TRCA), in consultation with the multi-stakeholder Don Watershed Regeneration Council and watershed municipalities, is developing a watershed plan for the Don River. This watershed planning process has been initiated in response to a number of recent policy and planning developments, including the need to fulfill York Region's watershed planning requirements under the *Oak Ridges Moraine Conservation Plan* (ORMCP, Ontario Regulation 140/02) and to update the original management strategy outlined in *Forty Steps to a New Don* (Metropolitan Toronto and Region Conservation Authority [MTRCA], 1994).

The goal of the watershed planning study is to recommend updated management strategies that will guide land and water use decisions, such that the overall ecological health of the Don River watershed is protected and improved. The aim is to build on the *Forty Steps*' principles to protect what is healthy, regenerate what is degraded, and take responsibility for the Don. Recognizing the significant watershed planning work that has already been completed, and given that there are limited undeveloped lands remaining on the Oak Ridges Moraine within the watershed boundary, this study will focus mainly on filling information gaps, guiding land use planning and approval decisions and providing direction to advance implementation of regeneration priorities.

This report has been prepared as part of the scoping and characterization phase of the watershed planning process. This phase presents current watershed conditions in the form of technical reports covering a range of subject areas, including groundwater quality and quantity, surface water quantity, low flows and water use, fluvial geomorphology, surface water quality, aquatic systems, terrestrial systems, nature-based experiences, cultural heritage, and land and resource use.

The Don River watershed is home to 1.15 million residents¹ of the City of Toronto and the rapidly growing municipalities of Markham, Richmond Hill and Vaughan in York Region. Public greenspace within this highly populated watershed is necessary because it provides residents with the ability to experience "nature" and offers them a location for various outdoor recreational activities. It is well documented that an active population is healthier both physically and mentally and that active lifestyles promote a sense of well-being.

This report provides updated information on existing opportunities for nature-based experiences throughout the Don River watershed. It focuses on understanding public use and recreation within an urban setting and presents information about important regional-scale greenspaces, trails, and other nature-based activities and events. In addition, objectives, indicators, measures, and targets are presented for evaluating the condition of nature-based experiences in the Don on an ongoing basis (an update on the indicator presented in earlier

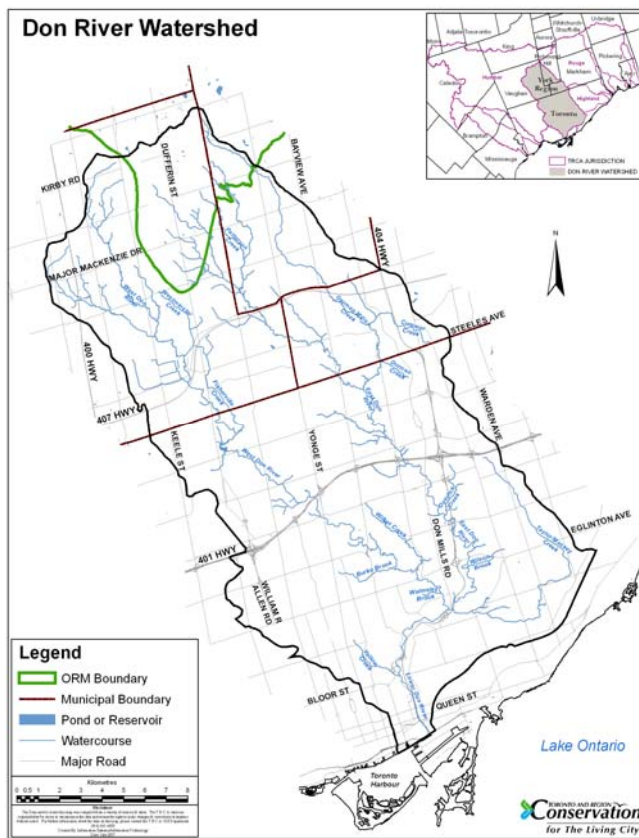
¹ In 2001 the population of the Don River watershed was 1,152,138, based on interpretation of the 2001 Statistics Canada Census of Population.

Don Watershed report cards). Finally, there is a summary in which management considerations are discussed.

2.0 Nature-based experiences in an urban landscape

The Don River flows through the heart of the Greater Toronto Area (Figure 1). The watershed's greenspaces² and heritage sites, located primarily along the River and its tributaries, are popular locations for nature-based experiences and recreational activities of all types. In a highly urbanized and populated watershed like the Don, other outdoor spaces, such as sports fields, golf courses, cemeteries, and hydro corridors play an important role in expanding the opportunities for nature-based experiences. Collectively, these spaces become home to a host of activities, such as tai chi, yoga, and recreation and education programs that traditionally use indoor spaces.

Figure 1: The Don River watershed.



Greenspaces and trails play many roles in the lives of residents of urban areas, including providing opportunities for physical activity and recreation, aesthetic enjoyment, spiritual renewal, and environmental education. Population growth and demographic changes make it challenging to provide access to greenspace that meets residents' needs. The following sections summarize key issues likely to influence nature-based experience needs and preferences in the future. The focus of this report is on greenspaces, rather than privately owned outdoor spaces (e.g., golf courses).

2.1 Health and wellbeing

Greenspace is integral to the mental and physical health and well-being of people and it provides aesthetic, social, environmental and spiritual values. Outdoor public uses range from walking and bird-watching to biking, picnicking and a variety of other active and passive activities. The need for

² Greenspace is defined as all publicly-owned land available for nature-based recreation, including municipal parks and conservation lands, and valley and stream corridors, but not including golf courses, cemeteries, and municipal parks intended for intensive recreational use (e.g., soccer fields).

outdoor recreational activities is consistent with an overall trend towards healthier lifestyles that will lessen the burden of physical inactivity on the health care system. A paper published in 2004 estimated that the direct cost of physical inactivity to the health care system in Canada was \$1.6 billion per year with an additional \$3.7 billion in indirect costs (Katzmarzyk & Janssen, 2004). The health care costs of physical inactivity represent 2.6% of the total health care costs in Canada (Katzmarzyk & Janssen, 2004).

Improving access to greenspace and safe pedestrian paths and bike lanes can help to encourage physical activity and foster a stronger sense of community (Ontario College of Family Physicians, 2005a; 2005b). A recent study from Chicago found that people whose homes are surrounded by greenspace have a stronger sense of community, better relationships with neighbours, and less heated domestic conflicts (Kuo and Sullivan, 2001). Research has also found a link between living near walkable greenspaces and senior citizens' longevity (Takano *et al.*, 2002); the health of seniors is likely to be a growing issue in the Greater Toronto Area (GTA) as the median age of its residents is projected to rise from 36.4 years in 2004 to 41.1 years in 2031 (Ontario Ministry of Finance, 2005a). There may be an increasing need to provide more accessible greenspace for seniors and residents with physical disabilities. Greenspace and trail systems provide excellent opportunities for participation in various physical activities that can benefit all residents.

In the Don Watershed, particularly in the south, trails are used not only for recreation, but also for primary transportation by commuters. As population and development density increases, if trails linkages are maintained and created, "active transportation" (i.e., walking, biking) could become a more popular mode of commuting. Municipalities across the watershed are developing trails and cycling master plans to facilitate this behaviour.

2.2 Nature-based experience and greenspace preferences

People prefer to live close to greenspace areas. A survey of 1,527 buyers of new homes in the GTA, conducted by J. D. Power and Associates and TRCA, found that 77% ranked proximity to parks, common outdoor areas, or natural areas a 4 or 5 out of 5 in importance in their purchase decision (J. D. Power and Associates, 2006). About 80% of respondents lived within a 10 minute walk of a public greenspace. Eighty-eight percent of respondents cited walking and hiking as their preferred activity in public greenspace.

Current public use trends show that people are seeking individual unstructured activities that fit into their busy lifestyles such as hiking, running, and biking (ENVision, 2005). Recreational activities carried out within greenspace and natural areas are expected to increase in popularity and the demand for such activities within urban areas is expected to surpass the supply (ENVision, 2005). Trends, however, are not static; public use surveys, therefore, need to be carried out periodically as well as prior to initiating any new programs and facilities.

Within a largely urbanized watershed, public greenspace is extremely valuable as it allows for unique leisure opportunities not found elsewhere within the watershed. Natural areas in and around urban developments satisfy needs for healthy back-to-nature experiences that include

exercise, fresh air, scenic vistas, the challenge and adventure of rugged terrain and the excitement of encountering wildlife. However, urban areas also present extra complexities for public use and recreation because of the diversity of residents and of user groups.

Population demographic changes, such as the aging population and shifts in cultural diversity, may impact demand for nature-based recreation and result in shifts in preferred types of recreation opportunities. The nature-based recreation needs of an aging population may be expected to differ from the current demographic, requiring adaptation of services (e.g., accessibility, level of trail difficulty).

Urban and urbanizing areas, such as the Don River watershed, are home to a large population of new Canadian residents. In 2001, the prevalent ethnic origins in the Don River watershed were Canadian or British heritage (23%), followed by Jewish (8%) and Chinese (8%). Of the recent immigrants (i.e., those who immigrated to Canada between 1996 and 2001), the predominant countries of origin were: China (14%), Iran (8%), Philippines (7%), Russia (7%), and Pakistan (6%). The remaining new immigrants came from over 35 different countries. Across Ontario, population growth over the next couple of decades is expected to be driven by immigration (Ontario Ministry of Finance, 2005b). Therefore, the nature-based recreation needs and preferences of immigrant populations will become increasingly important.

People of all cultures enjoy the benefits of greenspace and many new Canadians regularly use these public areas for family gatherings and picnics. The changing ethnic composition of communities and the continued influx of new Canadians may mean that there is a shift towards different types of activities occurring within public greenspace. For example, there is strong demand for booking ravine areas, traditionally not available for reservations, for cultural festivals and family and community gatherings. These shifting trends present a challenge because anticipating future public uses is difficult.

Further study is needed to assess anticipated changes to nature-based recreation needs in the watershed due to the aging population and changes in cultural demographics. For example, a recreation needs and opportunities assessment was undertaken as part of the *Heart Lake Conservation Area Master Plan* (Heart Lake CA is in the Etobicoke and Mimico Creek watershed). The report notes that research on the topic of the recreational preferences of new Canadians is limited and the literature varies in its applicability. Potentially relevant findings include:

- “Canadians of Anglo-European descents prefer nature-based, individualistic recreation activities such as walking, hiking, and biking. These individuals are more likely to value time alone, individual activities and participate in outdoor recreation activities for exercise, fitness and fun.
- New Canadians of East and South Asian descent prefer organized passive and social outdoor activities such as picnics, barbeques, and social gatherings. These activities are focused around the community and the extended family and they reinforce cultural values, social interaction, language and religion. Large group picnics, festivals, and cultural events would be in highest demand.

- Second generation new Canadians find themselves caught between the conflicting pressures...there is growing interest in sports and athletics as these individuals attempt to integrate into mainstream society
- The literature emphasizes the recreational and social-cultural roles that festivals play in the lives of new Canadians by reinforcing ties to language, religion, and culturally significant customs and values...
- Research in Canada shows a strong preference for sport and recreational activities such as swimming, cricket, badminton and soccer among West Asian and Middle Eastern groups. However, these activities are often pursued in the context of larger group family outings or events that are specific to their cultural or ethnic group” (Heart Lake Conservation Area Master Plan Advisory Committee and TRCA, 2006, pages 132-133).

2.3 Environmental education and stewardship

Outdoor recreation provides people with the perfect platform to learn about their natural environment. Through greater exposure to the outdoor environment, people gain an appreciation of their natural surroundings and are more likely to support watershed protection efforts. Education programs offered in greenspace provide children and adults with an essential understanding of the critical role that nature plays in our lives. For example, clean-up events in the Don River valley organized by the Environmental Centre for New Canadians have provided some recent immigrants with an opportunity to learn about local environmental issues and problems (Britnell, 2006). Environmental education is essential to the TRCA’s goals of building a public commitment to environmental conservation and creating sustainable communities.

Education, stewardship, and regeneration activities are popular nature-based experiences in the watershed. TRCA, municipalities, and numerous grassroots organizations host clean-ups, plantings, nature walks and other outdoor activities throughout the watershed, drawing many participants. Children experience nature at day camps at Maple Nature Reserve in Vaughan, and through programming at the Don Valley Brick Works.

2.4 Income and opportunities

Another complexity in urban areas is the fact that the population is composed of a diverse range of income levels. Public greenspace is integral to this varied social and socio-economic landscape because it is available to everyone and it benefits the population as a whole. Public greenspace and its associated recreational uses are especially important for low-income families who may not have the financial means to belong to a gym, take exercise classes, or buy expensive exercise equipment. There are many low-cost activities that are possible on trails and within greenspace such as hiking and running. These areas also provide new opportunities and diverse experiences to those who are unable to travel and who seek new and interesting activities closer to home.

2.5 User conflicts and encroachment

A concern associated with public use is the existence of conflicts among user groups on trails and in greenspace, as well as among users and adjacent landowners. Since privately owned land often abuts public land, users may infringe on the privacy of adjacent landowners or may even trespass or interfere with property. The incidence of conflicts will grow as greenspace becomes overcrowded or when people partake in inappropriate uses. On trails, in particular, different user groups may disagree with each other about desired trail practices. Conflicts could arise, for example, when mountain bikers and hikers, who are moving at very different speeds, use the same trail system. The City of Toronto is attempting to address this growing problem in Crothers' Woods and other problem areas. The City worked with the mountain biking community to develop a *Trails Management Plan* for Crothers' Woods, focusing on sustainable mountain biking trails that encourage use within specific areas and minimize the negative impacts on the natural environment (The Planning Partnership *et al.*, 2007).

People and their activities within greenspaces and on trails can harm the natural environment. While public use opportunities are important to human health and well-being, they must also be balanced with a concern for the ecological health of greenspace and natural areas. When public use areas become degraded from overuse, the public use experience also decreases in value. Overuse can lead to the trampling of vegetation; soil compaction and erosion; garbage dumping; illegal collection of plants and animals; excessive noise, light, and traffic; and competition from non-native flora and fauna. Artificial lighting and impervious surfaces related to intensive public use also have a negative impact on wildlife behaviour and water quantity, respectively. Many of the most valued public uses contribute to the spread of non-native invasive species as well as erosion problems, which can negatively affect both the terrestrial and aquatic ecosystems. Providing sufficient public greenspace for the population is a very important factor in mitigating negative environmental damage and in increasing user satisfaction. For more information on disturbances of these sorts in natural areas, consult the current conditions report on Terrestrial Natural Heritage.

In the City of Toronto, in particular, individual and professional dog-walkers have presented a problem in public greenspace and on trails. One of the noted areas of concern is Sunnybrook Park which is widely used by individual and professional dog-walkers. Within Toronto, dogs must be kept on leash at all times except when in a designated dog-off-leash area. Even though there are many dog-off-leash areas, many dog-walkers do not keep to the designated sections, do not follow the regulations and allow their dogs to roam freely in other areas of the park. This results in high levels of nutrient loading from dog excrement, trampling of sensitive vegetation, and even disruption and death of wildlife. Furthermore, dogs off-leash result in a higher incidence of conflicts between dogs as well as among owners and other user groups. The problems encountered because of individual dog-walkers not following the regulations are only amplified in professional dog-walkers who sometimes walk 10 or more dogs at a time. Demand for off leash areas is growing and municipalities throughout the watershed are planning to create new off leash areas.

3.0 Measuring nature-based experiences

In the Don River watershed, nature-based experiences have been assessed using indicators of the amount and accessibility of public greenspace, and trail length.

The evaluation of current conditions in Section 4.0 of this report is based on data collected by TRCA and data made available by municipalities and other organizations. Mapping greenspace was challenging as the definition of greenspace incorporates aspects both of land use (nature-based recreation opportunity) and of land ownership (publicly-owned and -accessible). The greenspace map was developed using parks and greenspace data layers³ from TRCA, municipalities, and others. Unfortunately, consistent data layers were not available from all watershed municipalities, and municipalities do not all use the same definitions of parks and greenspace. The map potentially includes lands not typically considered greenspace, such as municipal parks intended for intensive recreational use.

To assess residential areas' access to greenspace in the Don River watershed, patches of greenspace that were greater than 10 ha were identified and a 2 km buffer created around them. Residential areas that fell within the buffers were considered to have adequate access to greenspace. The distance of 2 km is based on research showing that the average distance people are willing to walk or cycle to greenspace is roughly 2 km (Ulmer and Hoel, 2003; Iamtrakul *et al.*, 2005). A minimum size of greenspace area of 10 ha or larger was selected to eliminate smaller parkettes, and encompass areas more likely to provide a greater variety and quality of nature-based recreational opportunities.

The per capita measure of greenspace access uses an estimate of the watershed's population of 1,152,138, based on interpretation of Statistics Canada's 2001 Census of Population data.

Measuring actual use of greenspaces and trails, and participation in nature-based recreation poses a number of challenges. At present, TRCA does little recreational use monitoring. Where attendance is uncontrolled, use could be measured by using automated techniques such as trail counters; however, these measures are not currently in place on TRCA properties.

Nature-based recreation can also be measured using signs of environmental degradation, such as trail erosion, waste accumulation, cultural heritage damage, and the trampling and destruction of plant and animal species. Trail user conflicts and public safety are other issues which arise with increasing recreational activities in our natural areas. The report *Terrestrial Natural Heritage – Report on Current Conditions and Refinement of a Target System* (TRCA,

³ TRCA-accessible data layers used to identify greenspace included: municipal property layers from Toronto and Richmond Hill, a TRCA properties layer, and a 905 area public property layer. These layers were overlaid with the 2002 land use layer and polygons falling within the natural cover, urban open space, vacant and recreation categories were retained as greenspace. Greenspace areas were checked against the 2002 orthophotography to ensure golf courses, cemeteries and hydro/utility corridors were excluded.

2008) presents data collected on disturbances to natural areas, resulting from trampling and trails, trash and dumping, and exotic flora.

The map of existing trails in the Don River watershed was based on the following data sources:

- Town of Richmond Hill's Trails Master Plan (May 2004),
- City of Vaughan's Parks, Open Spaces, Woodlots, Stormponds & Facilities Map (January 2008),
- Town of Markham's Pathways and Trails Master Plan map (2007), and
- City of Toronto's Recreation Facilities Report (City of Toronto, 2004a).

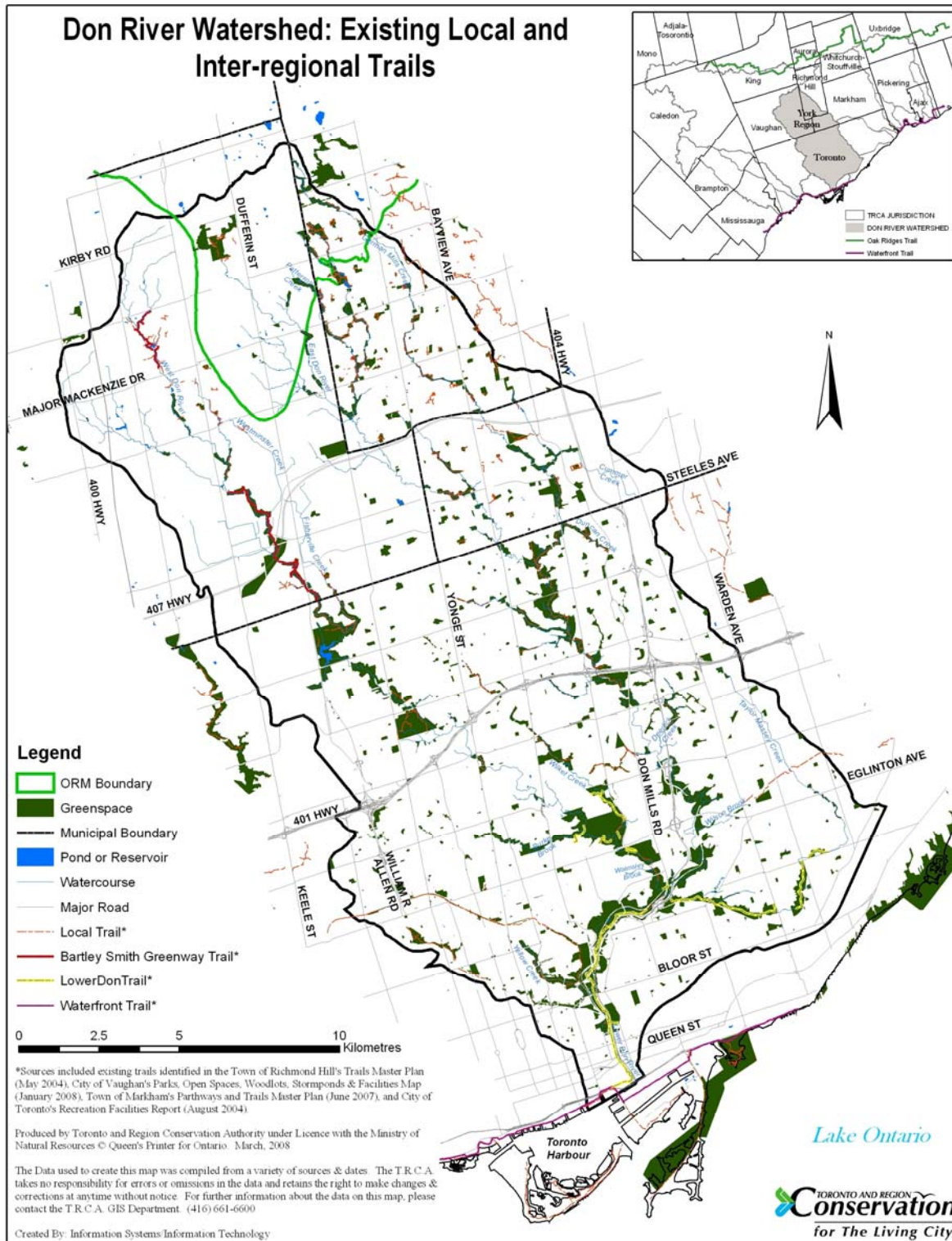
4.0 Current conditions and nature-based experiences in the Don River watershed

The over 6,000 hectares of greenspace, as well as natural areas, private lands (e.g., golf course and hydro corridors), and heritage sites in the watershed make possible a range of nature-based experiences, largely influenced by the varying character of the greenspaces. Figure 2 illustrates typical locations of three major types of nature-based experiences found in the Don: Headwaters Forest, Valley-based Recreation, and Industrial Heritage. Reflecting the level of development across the watershed, greenspaces are more natural and less disturbed in the north, and more urbanized and representative of mixed cultural and natural heritage landscapes in the south. However, this distinction is not absolute, as natural areas can be found well south of Steeles, such as remnant old growth forests in the ravines of the City of Toronto.

While there is a lower percentage of publicly owned land in the Don River watershed in comparison to other large watersheds in the GTA, trails are an important feature of public greenspace. There are currently about 143 km of publicly owned trails within the watershed, used by a variety of user groups (Figure 3). As is the case with greenspace, trails are largely concentrated along the river valley corridors.

Trails provide valuable opportunities for public use and recreation and attract diverse user groups. Provincial recognition that trails are important to community health and wellness was confirmed by the Ontario Trails Strategy (Ontario Ministry of Health Promotion, 2005). This report provides a vision for Ontario trails that promotes diverse user groups, enhancement of environmental responsibility and an improved quality of life. Currently, there is unprecedented development of major trail systems at the local, regional, provincial and national levels in Canada. Public access will have to keep pace with increased demand, stemming not just from population increases, but also from an increase in the proportion of trail users in the population.

Figure 3: Existing local and inter-regional trails in the Don River watershed.



The following sections describe the three major types of nature-based experiences and greenspaces found in the Don: Headwaters Forest, Valley-based Recreation, and Industrial Heritage. Notable properties, trails, activities, events and issues are identified and discussed. Section 4.5 presents a set of objectives, indicators, measures, and targets against which the current condition of nature-based experiences in the Don is evaluated.

4.1 Headwaters forest

The greenspaces of the Headwaters Forest theme area, on and around the Oak Ridges Moraine, are some of the least impacted by urbanization in the Don Watershed. More natural vistas can still be experienced in some of these areas, such as Maple Nature Reserve and Baker Sugar Bush. Greenfield development has progressed rapidly here in recent years and the remaining patches of greenspace are becoming surrounded by residential development.

The Baker Sugar Bush, in the Upper East Don subwatershed, is the largest tableland woodlot (30 ha) remaining in the urbanized part of the Don River watershed, and has been designated as both an Environmentally Significant Area and a regionally significant Area of Natural and Scientific Interest, Life Science. Public access to the woodlot interior is restricted. The woodlot is significant in southern Ontario as a whole, since tableland forests are regularly lost because of the suitability of the land for development (Federation of Ontario Naturalists, 1999). The property was acquired by the TRCA with assistance from the Government of Ontario, City of Vaughan, and Region of York. The property also has cultural importance since it was operated as a sugarbush by the Baker family from 1820 until 1999.

4.2 Valley-based recreation

A broad range of passive and active recreational activities occur in the municipal parks spread throughout the Valley-based Recreation theme area. These parks aren't uniform in character or experience, despite being largely confined to the valleys. Experiences range from the dense, wilder landscapes of the ravine parks, such as Sunnybrook Park, to the more open, regenerated industrial and residential areas through which the Bartley-Smith Greenway meanders. These greenspaces are among the most heavily used and are likely to see increased demand as population density rises in response to provincial growth planning. Four Urban Growth Centres have been designated by the Province in the Don – Downtown Toronto, Yonge – Eglinton Centre, North York Centre, and Richmond Hill – Langstaff – generally along the Yonge Street corridor (Ontario Ministry of Public Infrastructure Renewal, 2006). Greenspaces near these Centres may be the first to experience rising intensity of use. Maintaining a consistent and high standard of care and quality of condition in these parks will be difficult as use intensifies.

Much of the urban infrastructure that supports our communities runs through these valley parks, including water, stormwater, and sewer pipes. Trails, park facilities and infrastructure are often vulnerable to erosion and flood damage in the valleys. Ongoing maintenance and care for these greenspaces, already a major issue, will be a critical challenge in the future.

The following sections describe many of the major greenspaces and trails in the Upper and Lower portions of the Don River watershed, where the Valley-based Recreation experience is most prevalent.

4.2.1 Parks and trails in the Upper West Don River, Upper East Don River and German Mills Creek subwatersheds

Harding Park is located along German Mills Creek in Richmond Hill, and was one of the first concept sites from *Forty Steps to a New Don* (the 1994 watershed strategy) to be implemented. In addition to providing a natural setting, the park has public use amenities including two lit baseball diamonds, a mini soccer field and two basketball courts. There are also wildlife viewing opportunities such as watching groups of cedar waxwings feeding and listening to green frogs calling. Harding Park contains a stormwater pond which was upgraded and plantings of thousands of native plants, including shrubs and grasses.

The 26-hectare German Mills Settlers Park is a large natural environment park in the Town of Markham. This park is located within the German Mills Creek subwatershed and contains an old gravel pit and a landfill site. Tree plantings and naturalization efforts have been carried out within the park which offers greenspace, a nature experience and a peaceful walking trail. A regeneration plan for the German Mills Creek subwatershed was developed for *Forty Steps to a New Don* and the Town of Markham has been actively involved in protecting and restoring the area.

There are several short sections of multi-use trail within the Markham portion of the Don River watershed. The longest trail is the Huntington Trail which is accessible by two parking areas and is two and a half kilometers in length. It runs west from Leslie Street, across German Mills Creek, through Huntington Park, along the edge of the mature Maple Valley hardwood forest, to just east of Bayview Avenue. The unique feature of this trail within the Don River watershed is that it is not restricted to valleylands and areas close to the river but also meanders through tablelands and meadows associated with the hydro corridor.

The most recent trail system to be created in the Don River watershed is the Bartley Smith Greenway. Found within the City of Vaughan, the Bartley Smith Greenway is a 15-kilometre valley corridor. A notable part of this public greenspace is the Keffer Marsh, a successful wetland creation and naturalization project. The Greenway provides the public with access to scenic natural areas from open spaces to woodlands. While there are approximately six kilometres of trail open, the final length of the trail will be 15 kilometres. The southern part of the trail is open from Langstaff Road to Steeles Avenue, ending south of Marita Payne Park. There will be a future connection from Jacob Keffer Parkway to the trail section beginning at Langstaff Road. There are also two other completed sections of trail, one north of Rutherford Road and east of Keele Street, and the other spanning McNaughton Road to Teston Road. The middle sections of the trail between Major Mackenzie Drive and Rutherford Road are still in the planning stage.

One of the most important trail issues in the headwaters area is creating connections from the Don to the Humber and Rouge river watersheds and to trail systems on the Oak Ridges Moraine. The main trail on the moraine, the Oak Ridges Trail, was initiated in 1992 with the goal of creating, managing and maintaining a continuous recreational trail system across the Oak Ridges Moraine (ORTA, 2004). A possible link to the moraine could be created from the Don River watershed, north through Richmond Hill or Vaughan, and into the Oak Ridges Corridor Park. The Oak Ridges Corridor Park has a main trail as well as community trail systems and bridges both the Humber and the Rouge River watersheds. In the future, the main trail in the Oak Ridges Corridor Park will likely be incorporated into the Oak Ridges Trail and connected to the more northerly sections of that trail. Making the link to the Oak Ridges Trail is critical to achieving the overall goal of trail connectivity in the watershed.

The opportunities for additional public use and recreation in the headwaters are currently restricted by high levels of private land ownership. The upper subwatersheds of the Don are of particular ecological importance because a significant area is covered by the Oak Ridges Moraine. Thus, it is very important that sufficient greenspace is provided and that public use is monitored to limit negative ecological impacts.

4.2.2 Parks and trails in the Lower West Don River, Lower East Don River, Taylor/Massey Creek, and Lower Don River subwatersheds

There are a number of large publicly-owned greenspaces within the lower reaches of the Don River watershed, encompassing the Lower East Don and Lower West Don river subwatersheds, Taylor/Massey Creek subwatershed, and the Lower Don River subwatershed. Especially in the southern reaches, greenspace is found primarily in the wide valleylands.

The G. Ross Lord Park, on the Lower West Don River, is 137 hectares in size and provides many active and passive public use and recreation features. There are four and a half kilometers of trail found within the park. In the winter, there are groomed cross-country skiing trails. A series of naturalization projects have been carried out in the park to create a sustainable forest canopy. The park has diverse habitats ranging from wooded areas to wetlands and is an ideal place to view wildlife. The G. Ross Lord Dam and Reservoir is located within the park and controls the outflow of water into the more southerly reaches of the Don River.

Earl Bales Park is another large greenspace found to the south of G. Ross Lord Park. Located on Bathurst Street, south of Sheppard Avenue, the 60-hectare Earl Bales Park is also found within the Lower West Don River subwatershed. In this park and the attached Hinder property there are over three kilometers of trails for recreational use. There are also many amenities at Earl Bales Park including the 1,500-seat Barry Zukerman Amphitheatre, a playground, and an alpine ski centre. The park is also an important natural heritage site containing an Environmentally Significant Area and a mature Black Walnut stand.

Named after another prominent naturalist, E.T. Seton Park is a 76-hectare park located in the Lower West Don River subwatershed. The north-east corner of the park is leased to the

Province of Ontario and houses the Ontario Science Centre. The park provides extensive greenspace for walking (1.98 km of trails) and picnicking opportunities. There is also an archery range located south of the Ontario Science Centre, equestrian trails and casual cross-country skiing opportunities.

East Don Parkland is a valley wilderness park 146 hectares in size located in the Lower East Don River subwatershed. It is an important park to the ecological health of the region as it contains two Environmentally Significant Areas which provide habitat for nationally and provincially rare plant species. Naturalization work has been carried out in the park, including planting native trees and shrubs and performing aquatic habitat enhancements. The park has around six kilometers of trails which are perfect for viewing the many species of wildlife inhabiting the park.

The Charles Sauriol Conservation Reserve Park is located in the Lower East Don River subwatershed between the Forks of the Don and Eglinton Avenue. It was established in 1991 and named after the prominent naturalist and member of the conservation movement in Toronto, Charles Sauriol. The park is a natural environment park with approximately four kilometers of trails that can be enjoyed by the public. Notably, Milne Hollow, a six-hectare river valley park, is attached to the Charles Sauriol Conservation Reserve Park and is a site where significant naturalization work has been carried out.

South of E.T. Seton Park, and just east of the Forks of the Don, is Taylor Creek Park. This park is 74 hectares in size and is an important greenspace along the Taylor/Massey Creek tributary which flows into the Forks of the Don. The park has almost four kilometers of trail as well as picnic amenities. Casual cross-country skiing is also possible in the winter months. Taylor Creek Park is a valley park that provides habitat for many species of wildlife and contains an Environmentally Significant Area.

South of the Forks of the Don are the Lower Don Parklands, including the Don Valley Brickworks, which are located in the most densely populated section of the Don River watershed. The Lower Don Parklands are found in downtown Toronto and contain around eight kilometres of trail. Because of its location in the most urbanized part of the watershed, the land has been severely degraded by industry, roadways and over-use. Over the past decade, many projects have been completed in an attempt to naturalize this section of the valley and to create habitat for wildlife. Some of these projects include, among others, Chester Springs Marsh, the Riverdale Farm Ponds, Riverdale Park East wetland and forest, Beechwood Wetland, and the Don Valley Brickworks. Work to restore the natural environment in the Lower Don River subwatershed is still actively underway and plans to naturalize the mouth of the Don River are currently being reviewed in an environmental assessment process.

The trail system along the Lower West Don River is well connected from Edwards Gardens, south of Lawrence, to the waterfront. The Lower Don Trail begins in the Lower Don Parklands and continues to the Lake Ontario Shoreline, connecting with the Beltline Trail, and finally with the Waterfront Trail. Safe and regular access points present the biggest problem to the trail system in this highly populated and urbanized landscape. On the Lower Don Trail, there is only

one access point, through Riverdale Park, in the long stretch between Queen Street and Pottery Road.

Within the City of Toronto, the trails in the East Don are fairly connected with a few small breaks. The trails in the West Don are less connected and restricted to G. Ross Lord Park and Earl Bales Park. Creating a connected trail along the West Don River would be beneficial and would improve the connectivity of the watershed as a whole. A continuous trail system along the West Don River within the City of Toronto would also encourage a stronger connection up the West Don into the City of Vaughan.

The Lower Don is found entirely within the City of Toronto which has many kilometers of multi-use trails, both paved and with natural ground cover, that are popular for commuting and recreation. All the trails within the City of Toronto are accessible by public transit. In addition, four of the nine Discovery Walks are found within the Don River watershed. These include: Central Ravines, Belt Line & Gardens Discovery Walk, Northern Ravines & Gardens Discovery Walk, Uptown Toronto Discovery Walk and Don Valley Hills and Dales Discovery Walk. Discovery Walks are signed pathways that connect the city's parks, beaches, gardens and neighbourhoods. These trails are designed as a place to learn about the area's heritage and environment.

Within the Lower Don, there is an intensive system of informal trails that have been created by the public. These trails are popular with several user groups including hikers, dog walkers and mountain bikers. Several sections of mountain biking trails have also been built by the users. The City of Toronto has been working with the mountain biking community, including the International Mountain Biking Association, to improve the safety and sustainability of some of these trails. Several trail sections have already been rebuilt and the work is expected to continue.

While the Taylor/Massey Creek has its headwaters just north of Highway 401, the trail system begins at St. Clair Avenue and Birchmount Road. The trail winds along the path of the creek until it connects with the Lower Don Trail at the Forks of the Don. There are only two breaks in the trail's path and these have been highlighted as suggested trail connection areas by the City of Toronto.

The connection between the Lower Don trail and the Waterfront Trail is of particular importance since the Waterfront Trail is the only inter-regional trail that currently passes through the Don River watershed. This 740-kilometre multi-use trail travels along the Lake Ontario shoreline and brings new life to areas that have been neglected over the years. The trail's vision emphasizes a connection between ecological health, economic vitality and community life (Waterfront Regeneration Trust, 2005). The trail links many parks and cultural features and is used regularly as a commuting pathway as well as a recreational trail. The section of trail that passes through the Don River watershed is about two kilometers in length.

4.3 Industrial heritage

Industrial Heritage sites, such as Todmorden Mills, the Don Valley Brick Works, and the Portlands, are reflective of the blending of natural and urban spaces in the watershed. These sites are often the location for environmental education and stewardship programming, as well as community events and festivals. Redevelopment of former industrial sites, such as those along the Lower Don River, offer opportunities to celebrate cultural heritage, create and regenerate greenspaces, and highlight the links between development of our communities and the condition of the Don River.

The Don Valley Brick Works is a large scale regeneration site within this lower Don River area. The location of a former brick factory, the Don Valley Brick Works is an Environmentally Significant Area. The area is believed to contain internationally significant fossils and archaeological research has been performed on-site. At the Brick Works, several wetlands were created by day-lighting Mud Creek which had previously been piped into the main Don River channel. It is now possible to walk along paths and boardwalks observing many terrestrial and aquatic species that have been attracted to the renewed ecological environment.

The newest and southernmost park in the Don River watershed is the proposed Don River Park. Located in the West Don Lands, it is the most important future addition to public greenspace within the City of Toronto section of the watershed. This site is part of a flood protection project that will mitigate flooding risk to over 210 hectares of surrounding land. Through the flood protection efforts, the area will be turned mainly into parkland with limited development. The park will be almost 8 hectares in size and will greatly enhance this highly industrial section of the river. The environmental assessments for the Lower Don River West Remedial Flood Protection Project have been successfully completed and the work to build the park began in the summer of 2006.

4.4 Destinations, events, and resource-based activities

Nature-based destinations and events draw both watershed residents and visitors from far afield to the Don River watershed. These locations and activities present opportunities to deliver education and stewardship programming to raise public consciousness about the role of the Don River in the community, and the interrelationships between people and the natural environment. Some of the key destinations in the watershed are Toronto Botanical Gardens, Tommy Thompson Park, and the Science Centre. The proposed Don River Park at the Mouth of the Don is likely to be a popular future destination.

In most watersheds in the TRCA jurisdiction, TRCA lands, and especially conservation areas, provide many of the nature-based tourism and special event opportunities. While there are no conservation areas in the Don River watershed, there are several successful and regularly-held nature-based recreation events (Table 1). Privately run outdoor recreation opportunities also exist within the watershed but they have not completely filled this market niche.

Table 1: Outdoor recreational events in the Don River watershed.

Site	Description
Mill Pond Splash	The Mill Pond Splash is an annual event held at Mill Pond in Richmond Hill and is hosted by the TRCA, the Town of Richmond Hill and the Don Watershed Regeneration Council. The event is a celebration of the headwaters of the Don River watershed, found on the Oak Ridges Moraine. The public is welcome to participate in the event, which offers many free environmental activities, games and displays.
Paddle the Don	Every May, the TRCA and its partner organizations host a canoe trip down the Don River from Serena Gundy Park to the Keating Channel. This route along the Don River is not normally navigable by canoe, but the trip is made possible by releasing extra water through the dam located in G. Ross Lord Park. Many people come out to paddle and fight the white water for this one-day event which raises money for conservation efforts.

Popular resource-based activities in the watershed include recreational fishing, golfing, and participation in community gardening.

4.4.1 Recreational fishing

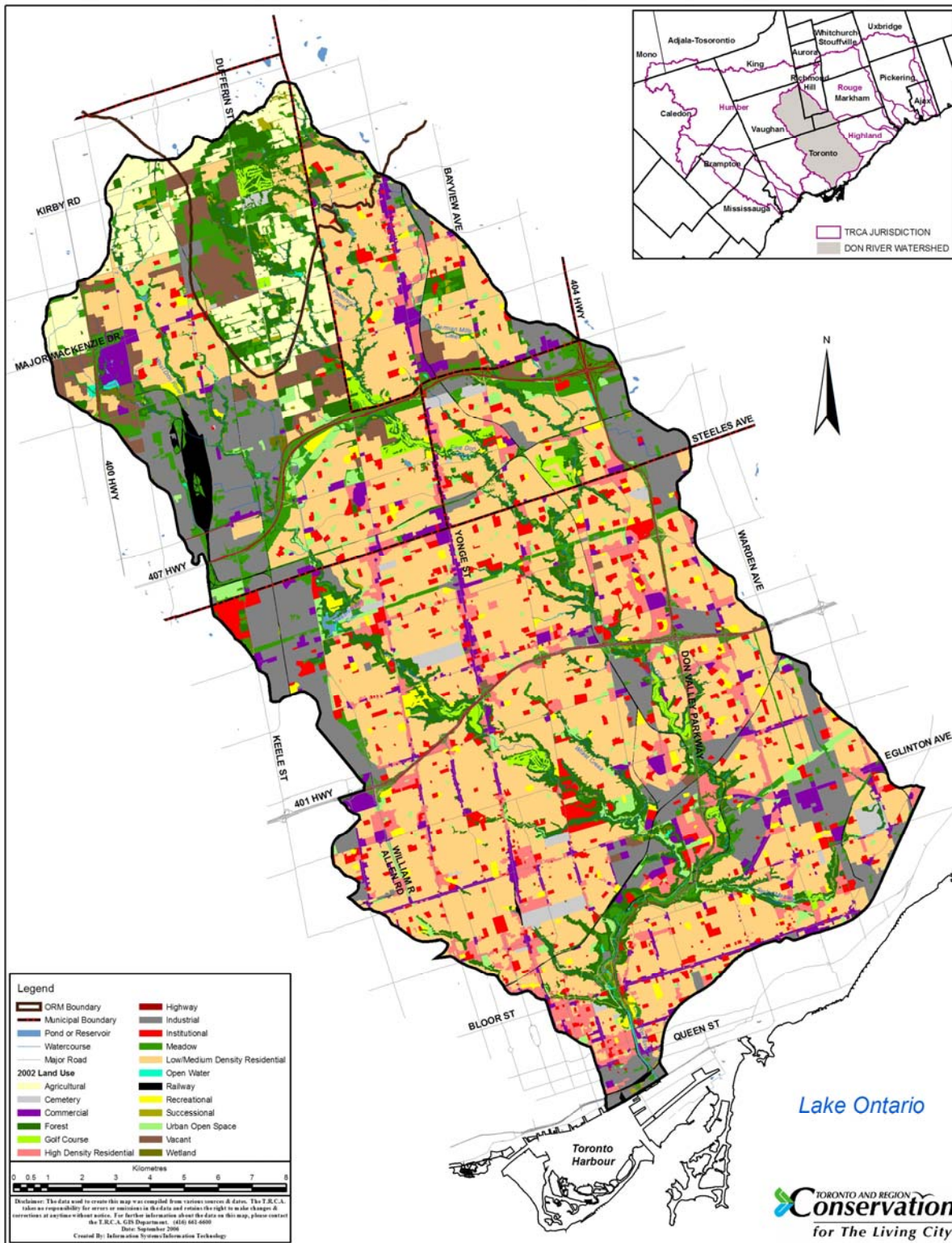
The Don River historically was home to many species of fish and waterfowl. The decline in water quality because of industrialization in the Lower Don River subwatershed greatly affected historic fish populations. There is strong public interest in revitalizing a fishery in the Don River and developing opportunities for sport fishing. Fish populations are currently rebounding and some fishing does occur in the river. The angling opportunities in the river will continue to improve as barrier mitigation efforts in the watershed proceed. All recreational fishing in the Don River watershed is subject to provincial fishing regulations.

The Ontario Ministry of Natural Resources (OMNR) stocks over 1.5 million fish every year for anglers, the majority of these in Lake Ontario watersheds, including the Don River watershed. Occasionally since 1975, the Don has been stocked with Coho salmon, rainbow trout, and Chinook salmon. Most recently, the Don was stocked with Chinook salmon in 2004 and Chinook salmon and rainbow trout in 2003. In 2007, OMNR will extend the fishing season in the Don River for rainbow trout, brown trout and Pacific salmon past the 30th of September until the 31st of December south from Highway 407 (OMNR, 2005). Several ponds in the Don River watershed (e.g., Mackenzie Glen, Mill Pond, Redelmeier Pond) provide urban fishing opportunities for panfish – bass and sunfish. These ponds rely on natural reproduction to sustain the fishery.

4.4.2 Golfing

There are 12 golf courses found within the watershed, covering a total of 412 hectares of land (Figure 4). Within the Don River watershed, there is one course located in Richmond Hill, two in Markham, four in Vaughan and five in Toronto. Of the twelve golf courses, there are four public courses, two semi-private and six private courses offering a variety of different experiences for golf enthusiasts.

Figure 4: Land Use (including golf courses) in the Don River watershed (2002 conditiona)



Since 1991, Audubon International has operated a program that encourages environmental protection and stewardship by golf course managers through which a golf course can be named a Certified Audubon Cooperative Sanctuary (Audubon International, 2005). Through the program, Audubon provides golf course managers with important information on proper environmental planning, wildlife and habitat management, ways to reduce water consumption and chemical inputs, improving water quality and outreach and education (Audubon International, 2005). Currently, within the Don River watershed only one golf course, Donalda Golf & Country Club has received the designation of Certified Audubon Cooperative Sanctuary.

4.4.3 Community gardens

Community gardens, such as the ones at Riverdale Farm, are found throughout the watershed and provide another opportunity for residents to connect with the natural environment. Community gardens are an expression of living culture and a leisure activity that relies on healthy environmental resources. Riverdale Farm is operated by the City of Toronto and is located in Riverdale Park. It is a 7.5-hectare area that contains an operating farm with animals including horses, cows, poultry and pigs. There are also community gardens and two naturalized ponds that provide wildlife viewing opportunities. Naturalization work and invasive species control are performed around the two ponds and in the natural areas. It is possible to watch the farmer perform the daily chores of collecting eggs, milking the cows and goats, and feeding the animals. Many classes and a day camp are also run out of the farm.

4.5 Indicators and measures of current conditions

The following objectives, indicators, measures, and targets are presented for evaluating the condition of nature-based experiences in the watershed (Table 2). While three management objectives are presented, the indicators and measures discussed relate specifically to the first objective, connecting people and places in the watershed. The remaining objectives may be evaluated qualitatively in the future by tracking protection and regeneration efforts and celebratory events held in the watershed.

Table 2: Objectives, indicators, measures and targets for nature-based experiences.

Objectives:			
1. Connect people and places in the Don River watershed. 2. Protect and regenerate natural areas and greenspaces for nature-based experiences. 3. Celebrate the natural and cultural heritage of the Don River watershed			
Indicator	Measure	Target	Overall Rating
Access to greenspace	# ha of greenspace per 1,000 residents	Maintain or increase	Fair
	% of residential area within 2 km of greenspace at least 10 ha in size	Maintain or increase	
Trails	% of formal trails complete (local and inter-regional trails that have been planned, approved and built)	Trail plans for all municipalities in the Don River watershed. 100% of planned trail systems complete.	Fair

4.5.1 Access to greenspace

Increasing the amount of greenspace would be highly beneficial to both the natural environment, as it may buffer ecologically sensitive areas, and human health, through providing more opportunities for nature-based recreation. Table 2 presents the proposed indicator, measures and targets for access to greenspace in the Don watershed. There are 2,850 ha of greenspace in the Don, representing about 8.0% of the watershed. Table 3 summarizes the distribution and the amount of greenspace in the watershed by municipality. There are about 2.5 ha of greenspace per 1,000 watershed residents, considerably lower than the 22.6 hectares of greenspace for every 1,000 residents in the Rouge River watershed. The low ratio of greenspace to population clearly demonstrates the density of the watershed population compared to the remaining natural areas. This value also indicates the extreme demands that remaining greenspaces face from human uses, and the pressures that these areas are under to meet a wide variety of recreational needs of the surrounding communities. A large and dense population collectively possesses a wide range of interests and needs. Available greenspace is under pressure to meet as many of these human needs as possible, without suffering degradation of its natural integrity, or degradation of the nature-based recreational experience.

Table 3: Amount of greenspace in the Don River watershed by municipality (2002 data).

Municipality	Ha of greenspace in the Don Watershed (by municipality)	% of Don watershed landbase that is greenspace in each municipality
Markham	178	7.0%
Richmond Hill	294	9.5%
Vaughan	299	3.1%
Toronto	2,080	10.1%
Don Watershed	2,850	8.0%

There are several challenges to greenspace accessibility throughout the watershed. While some future land acquisitions are still possible in the northern sections of the watershed, expansion of greenspace in the already-built majority of the watershed is unlikely. In the southern reaches, access to the Lower Don trail is severely limited and users have cut holes in the fencing to access the trail and greenspace. Some access is occurring across railway lines, which is dangerous. There are small patches of greenspace throughout the watershed; however, the majority of the remaining greenspace is restricted to the valleylands, especially in the southern reaches. This could be improved by increasing the amount of publicly-owned land on tablelands during redevelopment.

Since *Forty Steps to a New Don* was released in 1994, the Don watershed's population has grown from 800,000 to 1.15 million. York Region in particular has seen rapid population growth over the last ten years, growing by 50.6% between 1996 and 2006, while Toronto's population grew by 5%. The *Growth Plan for the Greater Golden Horseshoe* predicts York's population to roughly double between 2001 and 2031 and Toronto to continue to grow at current rates (Ontario Ministry of Public Infrastructure Renewal, 2006). As the watershed is almost entirely built out, future population growth will come from increasing development density, rather than continued greenfield development expansion. The result will be increasing pressure on existing greenspace and declining per capita access to greenspace. Redevelopment may offer some limited opportunities to expand greenspace, and other innovative opportunities should be pursued (e.g., naturalized street scapes).

Greenspace is most prevalent in Toronto (10.1% of municipality) and least prevalent in Vaughan (3.1% of municipality) (Table 3). Currently, 83.5% (or 16,308 ha) of the watershed's residential areas are located within 2 km of greenspace patches at least 10 ha in size. This figure is likely influenced more heavily by the southern portion of the watershed where the majority of residents live, and the majority of greenspace is to be found. In the southern (Toronto) section of the watershed the highest and most densely populated areas coincide with the largest amounts of greenspace. This means that access to greenspace is relatively good in these areas for the average resident.

In the northern section of the watershed (Markham, Vaughan, Richmond Hill), where the population is lower and less dense, greenspace is less abundant, so access may not be as good for the average resident as it is for residents to the south.

There is more greenspace in the southern portion of the watershed than in the north. Greenspace tends to be located in ravines and valleylands, and the southern portion of the watershed contains ravines and valleylands that are much wider and deeper than those in the north. These valley features have made development of these areas difficult, so much of this land has remained available for greenspace. Greenspace in the northern half of the watershed is less abundant, as the upstream areas typically possess smaller tributaries with more narrow and shallow valleys compared to downstream areas. Here development has left less greenspace.

Overall, the access to greenspace indicator is rated as “Fair”. Access is better in the lower watershed than in the upper watershed. In order to maintain adequate access to greenspace, protection and, where possible, expansion of the greenspace system is necessary. Also, maintenance of the condition of greenspace will be important as use intensifies due to increasing population density.

4.5.2 Trails

Table 2 presents the indicators, measures and targets for trails in the Don River watershed. As the aim is to create a network of interconnected trails across the watershed that links together local and regional trails, as well as providing links to neighbouring watersheds, both the overall length and connectedness of trails are important. However, measuring the connectedness of a trail network is difficult. The total length of new trails is easily monitored and can be used as an indicator of trail network improvement. Generally, new trails will improve the connectedness of the current system as municipalities and other organizations work towards the goal of a continuous trail system. There are about 143 km of existing trails across the Don River watershed, roughly 50% of the trail length is located south of Steeles, within the City of Toronto (Table 4).

Table 4: Existing trail lengths in the Don River watershed by municipality.

Municipality	Trail length (km)
Markham	13.1
Richmond Hill	31.4
Vaughan	25.9
Toronto	72.4
Watershed	142.7

Sources: Town of Richmond Hill's Trails Master Plan (May 2004), City of Vaughan's Parks, Open Spaces, Woodlots, Stormponds & Facilities Map (January 2008), Town of Markham's Pathways and Trails Master Plan map (2007), and City of Toronto's Recreation Facilities Report (City of Toronto, 2004a).

Planning for nature-based experiences and greenspaces is largely undertaken by municipalities in the Don. The City of Toronto, the Towns of Richmond Hill and Markham, and the City of Vaughan all have, or have underway, master plans for recreation, culture and parks (e.g., City of Toronto, 2004a; 2004b; Monteith and Brown Planning Consultants and The JF Group, 2006). Furthermore, all watershed municipalities have been active in developing and implementing plans to address the growing demand for trails and pathways for active transportation (walking, cycling) (City of Toronto, 2001; Town of Richmond Hill, 2004; Marshall, Macklin and Monaghan and ESG International, 2007; The Planning Partnership *et al.*, 2007; Town of Markham, 2007). An estimated 65% of planned trail systems have been completed and the percentage is expected to rise through implementation of municipal trail master plans (Mike Bender, TRCA, personal communication).

There is potential to greatly enhance the connectivity of the regional trail system. For instance, a possible link to the Oak Ridges Trail and the Oak Ridges Corridor Park could be created through Richmond Hill or Vaughan. Trail connectivity also could be improved in the Lower West Don River subwatershed.

Overall, the trails indicator is rated as "Fair". As municipalities continue to finalize and implement their trails plans, this indicator will improve. Trail plans need to be completed for all areas of the watershed and implementation of the plans must continue.

5.0 Summary and management considerations

Located in the heart of York Region and the City of Toronto, the Don's greenspaces and trails are popular locations for a variety of nature-based experiences. Increasing public use of these resources is anticipated due to population growth and intensification of development, as well as growing interest in healthy lifestyles. Valleylands and other publicly owned greenspaces are finite so each year the ratio of greenspace to population diminishes.

More intense use of the limited greenspace is expected to exacerbate current challenges of maintaining the quality and condition of existing park and trail facilities, mediating conflicting user groups, and protecting the ecological integrity of natural areas. To address this challenge, we will need to be creative in how we look at ways to increase our supply of greenspace. One consideration will be looking at multi-use facilities where there are competing interests for the same location. For example, a green roof design for an apartment complex could include picnic space or a running track to provide recreation value to residents or a stormwater management facility could incorporate a trail or garden feature.

Changing preferences for types of uses and activities in greenspaces is anticipated as a function of changing population demographics (e.g., age, cultural diversity). Public use surveys could play a key role in anticipating changing public use preferences and needs, tracking the intensity of use of specific trails or properties, and identifying incompatible access points.

Building a more robust greenspace system that will withstand rising public use as well as changing environmental conditions (e.g., potential impacts of climate change on vegetation

communities and outdoor activities) is key. In addition to operations and maintenance improvements, key components of bolstering the system will be redevelopment and regeneration of existing greenspaces (e.g., Maple Nature Reserve, Pomona Mills, Taylor Creek Park), as well as creation of new greenspaces, where opportunities exist (e.g., Don River Park at the Mouth of the Don). Improving the condition of valley parks will necessitate addressing infrastructure renewal needs and trail design issues.

One of the most popular places to experience the natural environment and to be physically active is the trail system. As with greenspace, the trail system must grow to meet the demands of new neighbourhoods and connect residents with the watershed as a whole. This is especially important in the northern reaches of the watershed where housing development is ongoing. A continuous trail system that stretches north-south as well as east-west will provide users with the most rewarding experiences. Gaps in the Don River trail system, particularly around golf courses and other private lands, need to be addressed. Don River watershed trails should one day link the Oak Ridges Trail in the north to the Waterfront Trail in the south, allowing walkers to travel from the moraine uninterrupted to the shores of Lake Ontario. The important connections between the Don River trails and the Oak Ridges Trail in Richmond Hill have already been planned and should be implemented as soon as possible. Creating other links north from Vaughan would also increase the connectedness of the system.

As more and more people use the Don trails, signage is required to both identify watercourses and to guide trail users. Signs that display a map of the local trail network, as well as the location of that particular sign, should be installed along the trail system. Furthermore, all main river crossings should display signs that indicate the name of the stream, creek, brook or river. The signs throughout the Don River watershed should all display the Don River watershed logo. Proper labeling at water crossings will encourage the public to identify with the watershed as a whole rather than with smaller communities and will promote greater use and stewardship. Improved signage will also provide trail users with an increased sense of security and will allow them to navigate the trail system successfully.

In order to improve the overall health of the Don River watershed for public use and recreation, partnerships between agencies, municipalities and community groups should continue to be developed. Initiatives that involve the community will promote environmental education and awareness and increase support for future projects.

Planning for future projects, public use areas and trail developments should consider the watershed as a whole as well as the watershed within a regional context. Higher intensity uses should target the areas that are most resilient, and the most sensitive areas should be protected for their natural features. The existing uses should also be evaluated and any activities that are occurring in inappropriate areas should be redirected to other locations. A well-managed system of public greenspace and trails will provide the most value to the communities and the natural environment for now and for the years to come.

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