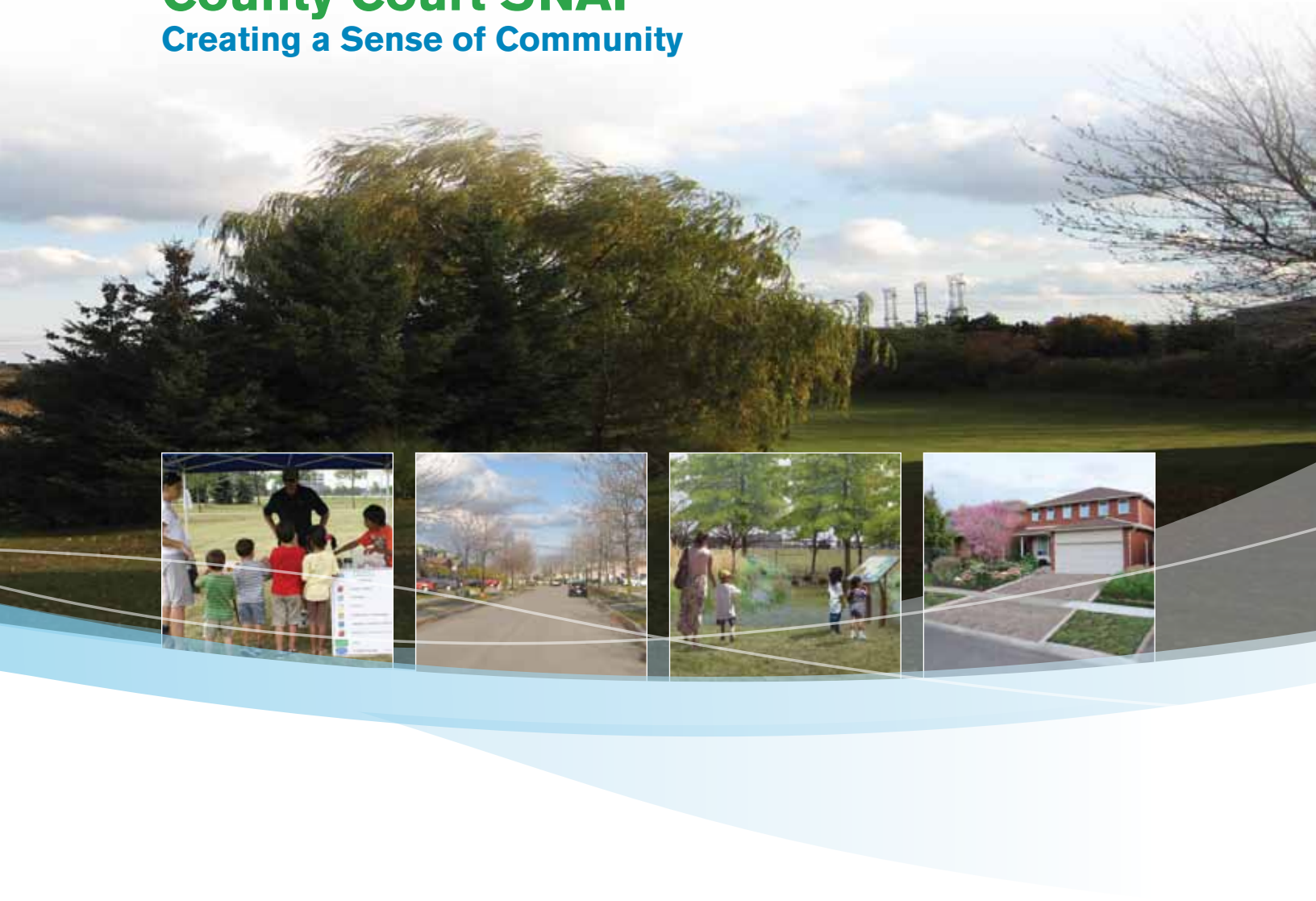
SNAP
Sustainable Neighbourhood
Retrofit Action Plan

County Court SNAP

Creating a Sense of Community



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County Court SNAP

Creating a Sense of Community

Sustainable Neighbourhood Retrofit Action Plans (SNAPs) help established communities improve environmental conditions, reduce resource use and prepare for climate change, while considering the unique needs of their residents. The County Court SNAP focuses on devising a plan for the sustainable transformation of a 30 year old suburban neighbourhood located in Brampton, within the Region of Peel (Figure 1). One of five pilots in the Greater Toronto Area (GTA), the County Court SNAP was initiated by Toronto and Region Conservation (TRCA) and developed in close partnership with the City of Brampton, the Region of Peel and other community members and partners (Box 1).

Located in south central Brampton, within the Etobicoke Creek Watershed, County Court is an established neighbourhood developed in the mid-1980s (Figure 1). The community was selected for the SNAP primarily due to the identified need for retrofit of the local municipal stormwater management (SWM) facility, Upper Nine pond, and the City of Brampton's interest in exploring creative stormwater retrofit solutions within the catchment. At the same time, there is great opportunity to enhance local ecosystem health throughout this highly developed and urbanized watershed.

Driven by the need for stormwater infrastructure retrofit, the County Court SNAP has taken an integrated and collaborative approach to exploring water, energy and natural heritage retrofit needs within the context of social and economic interests, and has identified a series of projects that achieve multiple community and partner goals. County Court's mix of local land uses and extent of public land has allowed for engagement of new partners in strategic and coordinated actions that address technical objectives and showcase a range of sustainable retrofit techniques and initiatives. The SNAP model can also act as a template for partners to consider as they tackle environmental and community improvement in other older neighbourhoods across the City and beyond.

Box 1: Who's involved?

Lead Partners

TRCA
City of Brampton
Region of Peel

Community

Residents
Golf courses
Businesses
Court House
(Infrastructure Ontario)
407 ETR

Partners

Enbridge Gas
Hydro One Brampton
Private sector
Industry Associations
CMHC

Municipal Upper Nine SWM pond

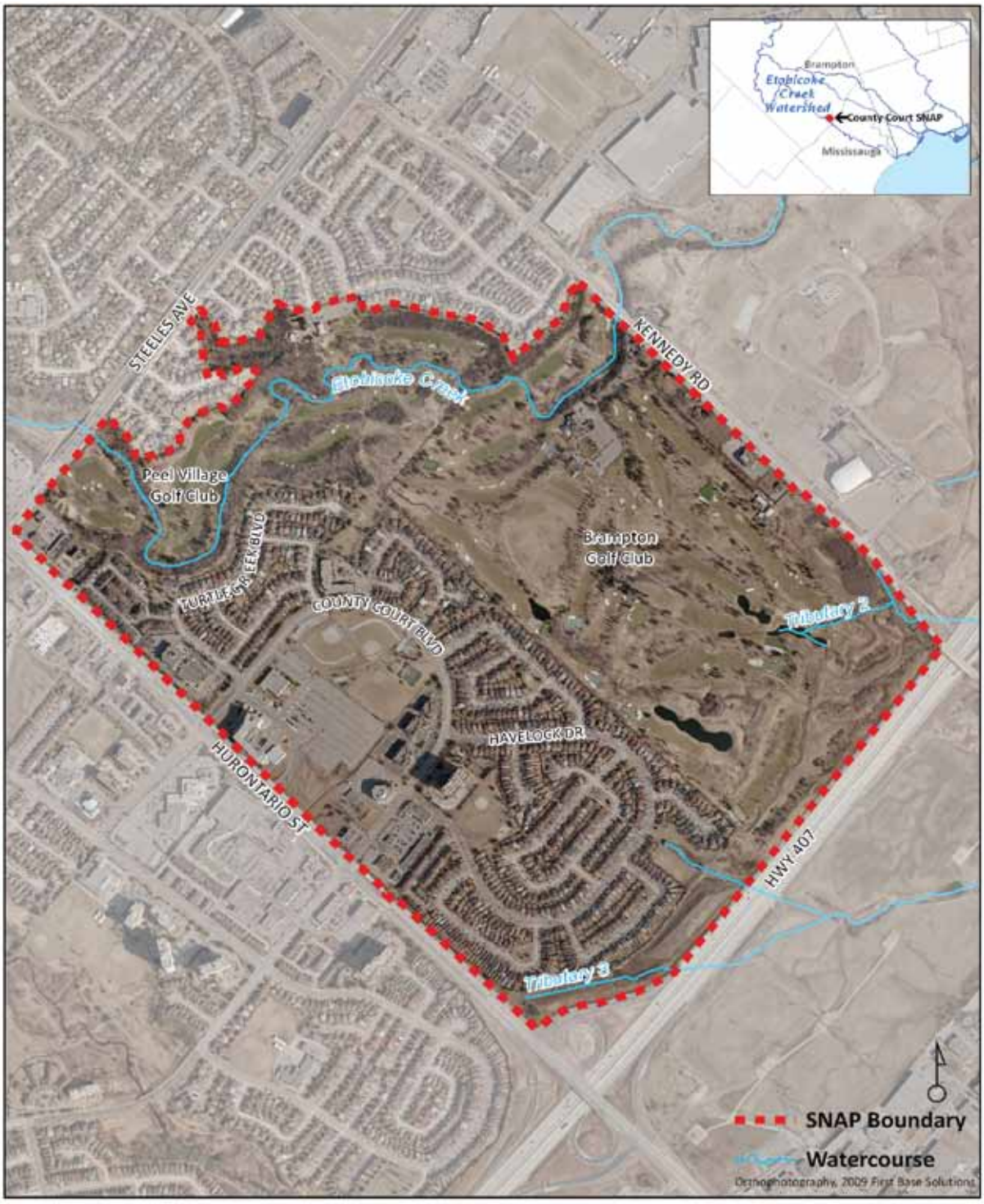


Figure 1: County Court SNAP neighbourhood, City of Brampton, Region of Peel, Ontario (TRCA orthophoto 2010)

Consistent with the community design principles of the 1980s, the neighbourhood is generally comprised of low density single-detached homes, and also includes townhomes, a high rise condominium tower, a Peel Living non-profit apartment building, commercial and office developments, retail plazas and the provincial A. Grenville and William Davis Courthouse (Box 2). There are six local parks, most notably the large and centrally located County Court Park, as well as two golf courses, the municipal Peel Village Golf Course and the private Brampton Golf Club. Much of the area's natural heritage system lies in the valley lands of the West branch of the Etobicoke Creek, extending through the golf course lands and includes limited woodland, meadow and wetland features.

The County Court SNAP Action Plan identifies local projects that address objectives of multiple partners. Implementation of these actions will represent on-the-ground illustration of sustainability strategies set out in Brampton's *Official Plan 2006 and Grow Green Environmental Master Plan*, the Region of Peel *Water Efficiency Strategy and Climate Change Strategy*, and TRCA's *Living City Strategy* and *Etobicoke-Mimico Creeks Watershed Plan*. The SNAP also helps further energy conservation and community retrofit objectives of local utilities Hydro One Brampton and Enbridge Gas. The

Box 2: Neighbourhood Profile

Study Area

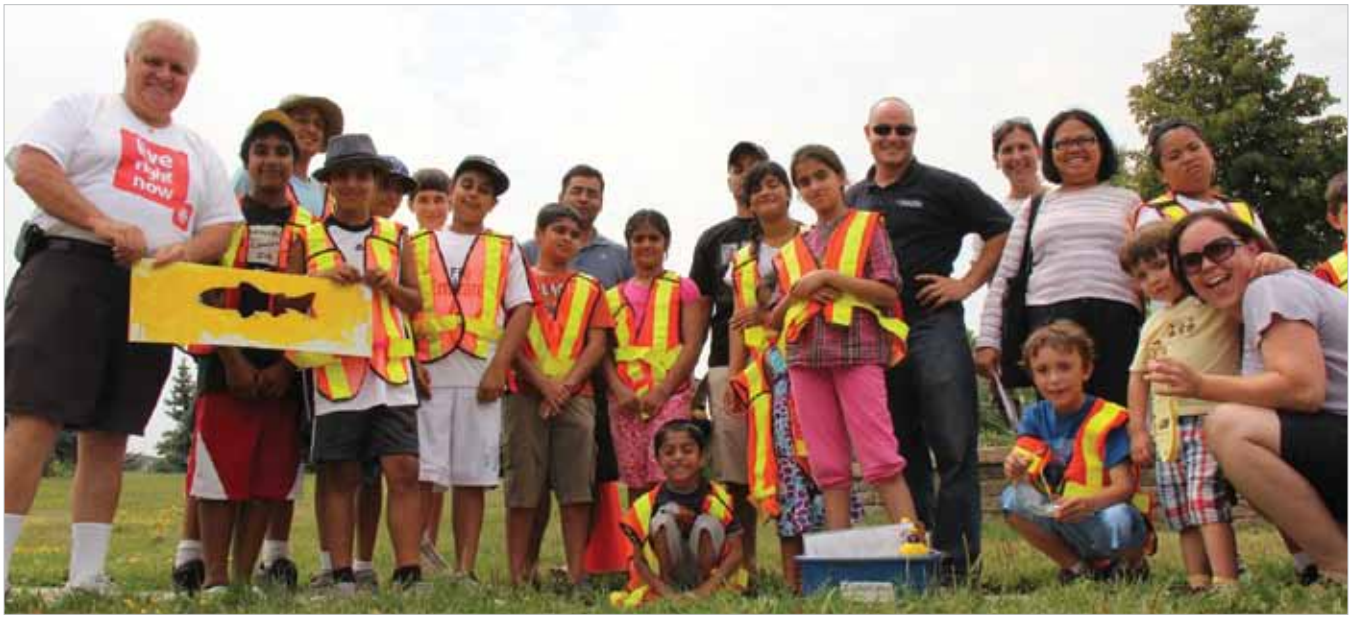
220 ha

Land Use

18.2% Low density residential (1000 single-detached)
3% Medium density residential (300 semis, townhouses)
1.3% High density residential (300 multi-units)
8.2% Commercial, Institutional
16.1% Parks, open space
45.4% Golf courses

Demographics

Population: 5,800 (1,600 households)
Immigrants: 55% (majority pre-1991)
Median age: 37
Language: English (45%), Punjabi (22%)
Median household income: $77,008
Employed outside of Brampton: 28.8%
Dwellings: 84% owned, 16% rented
Building age: 1983-1987



Engaging local children through educational workshops

Mix of land uses within the community

SNAP project has been developed in keeping with the Municipal Class Environmental Assessment process in support of a smooth approval process for potential future capital works.

With no organized groups at the neighbourhood-scale, an active and multi-faceted approach was used to engage residents and businesses (Box 3). Local input was needed to help shape the SNAP direction and help lead partners better understand current activities and attitudes towards sustainable action. Local residents exhibited significant interest in home improvement, including energy conservation and low maintenance landscaping.

Box 3: How we're listening

Social marketing research

On-the-street interviews
Action research surveys
Resident focus groups
Pilot strategy testing

Fun events, Demonstrations

Festivals, street parties, BBQs
Green home makeover
Educational workshops
Planting days and hikes

Feedback forums

Resident, business meetings
Virtual open house
Municipal workshops

Box 4: Modelling and assessment tools used to evaluate actions and estimate outcomes

- EPA PC-SWMM – model and analyze stormwater management
- USDA itree, MNR economic valuation – estimate and quantify urban forest ecoservices
- POLIS WaterSmart Scenario Builder – estimate and quantify water and energy savings
- ISO 14064-106 – establish inventory and future savings for water, energy greenhouse gas (CO_2e) savings

Local input also revealed resident interest in meeting other people from the neighbourhood, as well as an underutilization of many public spaces. This local knowledge has helped shape a SNAP with an overall focus on creating a sense of community and place-making through key public realm enhancements supported by landowner action on private lands.

Demonstration projects such as the Green Home Makeover have helped build project awareness and profile, engage residents in something they can relate to, and forge relationships with green industry associations and private sector partners. This project is described further below.

Neighbourhood Street Party Aug 2012

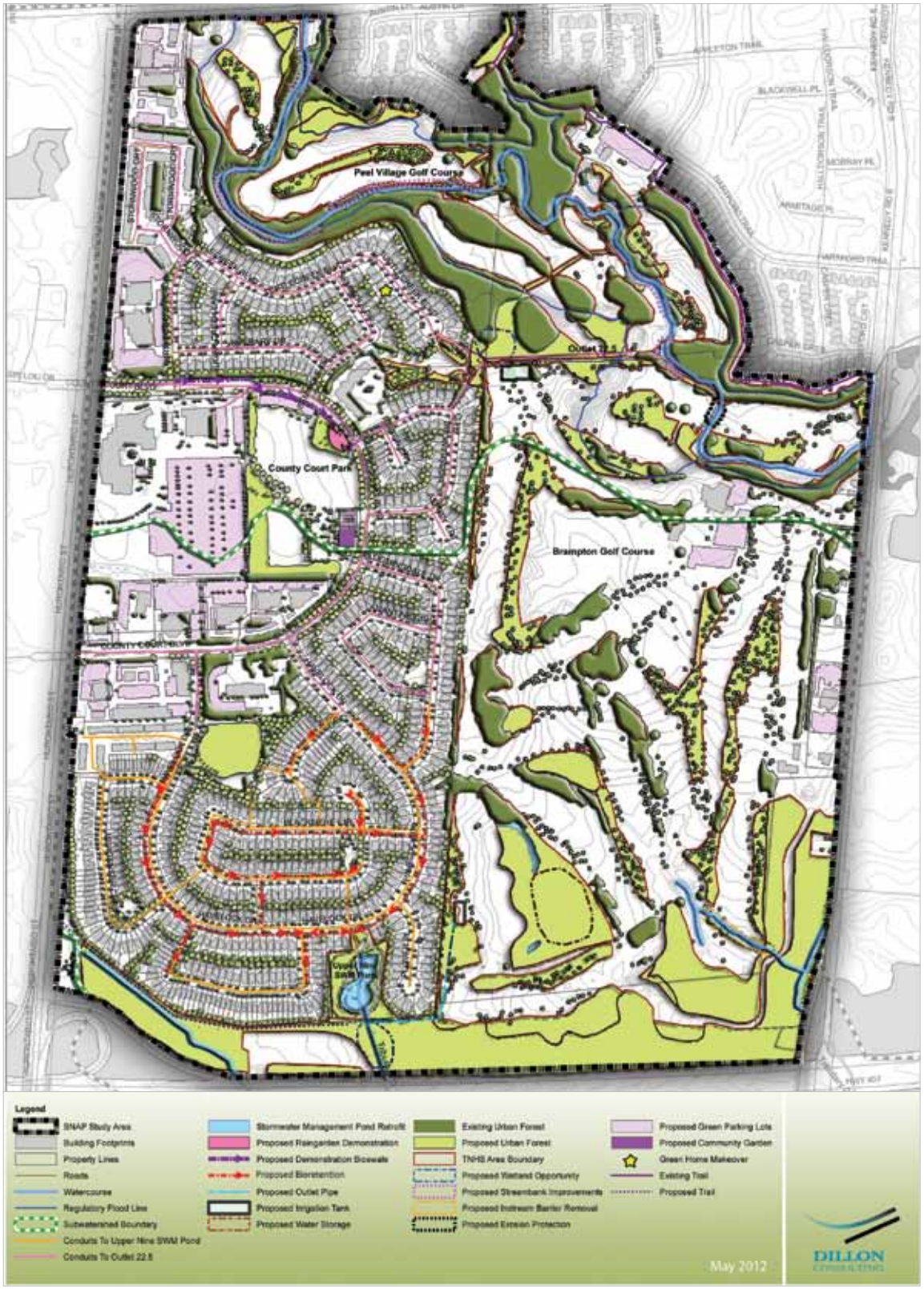


Figure 2: County Court Sustainable Neighbourhood Retrofit Action Plan.

A Closer Look at the County Court SNAP

The County Court SNAP is a comprehensive plan for environmental improvement in stormwater management, natural heritage, energy and water use, and integrates local community interests and ideas for neighbourhood transformation. Recommended projects include:

- Key public realm enhancements including renewal of **County Court Park** to better suit local recreation needs and integrate environmental education features and community gathering space;
- Retrofit of the **Upper Nine SWM Pond** to address water quality and volume objectives and serve as a community amenity and natural area destination;
- Projects for greener streetscapes throughout the neighbourhood including **bioretention within boulevards** to provide stormwater filtration and other benefits, as well as establishment of a healthy **urban forest**;
- **Rainwater storage system for irrigation** of nearby golf clubs;
- **Habitat restoration** along the Creek valley and in the golf courses;
- A template for **green parking lot design** at the Court House, and
- Active promotion of **green home renovation and landscapes** to address residential energy and water conservation.

Other considerations, such as transportation, waste management, urban design, health and wellbeing were found to be adequately addressed by other existing plans and programs or not a top priority in the neighbourhood. A short description of the primary components of the County Court Action Plan is presented here, followed by an overview of next steps to refine the Plan and develop the implementation program.

County Court Park Renewal

Throughout the SNAP engagement process, residents expressed interest and ideas around enhancement of local community spaces, including County Court Park, the central green space in the neighbourhood. Based on this input, as well as opportunities to address SNAP sustainability and place-making themes, a preliminary concept has been developed to inform the City's future park retrofit activities. Currently featuring a number of sport fields, playground and limited tree and shade features, there is great opportunity for a repurposing this park to become a community focal point and a leisure activity hub that will serve not only the local neighbourhood, but fulfill recreational programming for the greater community. Some of the potential park elements include landscape naturalization to improve ecological diversity, added tree planting for shade, use of a rain garden and bio-swales as demonstration sites for sustainability measures, and introduction of other features such as sports meadow, community gardens, extension of the existing pavilion to include an outdoor shade structure, community message board and water-play pad. Already, the City is considering efforts to retrofit the existing pavilions, in partnership with community partners.

Proposed raingarden and educational demonstration, north end of the County Court Park (Dillon Consulting)

Upper Nine SWM Pond Retrofit

Identified as a priority in the *City of Brampton Stormwater Management Retrofit Study (2003*), retrofit of the local Upper Nine SWM pond is a key component of the County Court SNAP. Through neighbourhood or catchment-scale analysis and modelling, the SNAP considered local options for integrating a more natural "treatment train" approach to stormwater management, including lot level and conveyance measures to support the pond's functions. Based on this technical analysis, as well as partner and resident input, a retrofit concept has been developed that transforms the existing fenced-in dry pond to a neighbourhood amenity that achieves the required technical stormwater functions, while providing accessible public space to County Court residents. At the same time, the pond retrofit is supported by other upstream stormwater management measures, including bioretention throughout the pond's catchment and rainwater harvesting for use in golf course irrigation which supports improved stormwater quality, reduced flows, erosion control and overall water balance.

Upper Nine SWM concept design (Dillon Consulting)

The Upper Nine retrofit concept incorporates a wet pond for enhanced water quality treatment (to MOE Level 1 standards) and adequate storage to control peak flows and manage downstream erosion. It supports maintenance access and the collection of rainwater from small storms to an irrigation facility in the adjacent Brampton Golf Club. An improved landscape planting strategy supports the natural system and adds a visual and noise buffer from nearby Highway 407. In addition to these environmental features, the retrofit concept proposes to enhance the stormwater management pond as a local amenity and passive recreation destination within a beautiful park-like tree setting. This includes a community entrance, a boardwalk with meeting area, lookouts to the natural landscape and pond, and interpretive signage that draws on historical and cultural themes of the area, and describes the pond functions. The SNAP project has followed the Environmental Assessment (EA) protocol for stormwater pond retrofits, and the SNAP concept can now inform the future detailed design for the retrofit to be undertaken by City of Brampton.

Proposed neighbourhood perspective at the pond (Dillon Consulting)

Bioretention within Existing Boulevards

To further enhance greener streetscapes and the retrofit of Upper Nine SWM pond, there is an opportunity to incorporate bioretention, a form of low impact development (LID), within existing boulevards in the neighbourhood. Located within the municipal right-of-way, bioretention cells or bioswales will capture and filter stormwater runoff from the road, remove additional sediments to improve water quality, and reduce the cost and frequency of the Upper Nine SWM pond clean out. From a community perspective, bioswales can be designed as roadside gardens and will enhance the aesthetic of neighbourhood streets. Given bioswales can also be built into curb extensions as well as boulevards, the City may determine through neighbourhood traffic studies that traffic calming measures such as curb extensions on busier streets may be warranted. Through strategic site selection, detailed design, construction and testing, the County Court SNAP represents a great opportunity for City of Brampton staff to explore the technical performance and maintenance expectations of bioretention through pilot projects in the neighbourhood in collaboration with partners. An engagement and education program with local residents will be required as boulevard maintenance is generally assumed by the adjacent homeowner.

Urban Forest Establishment and Expansion

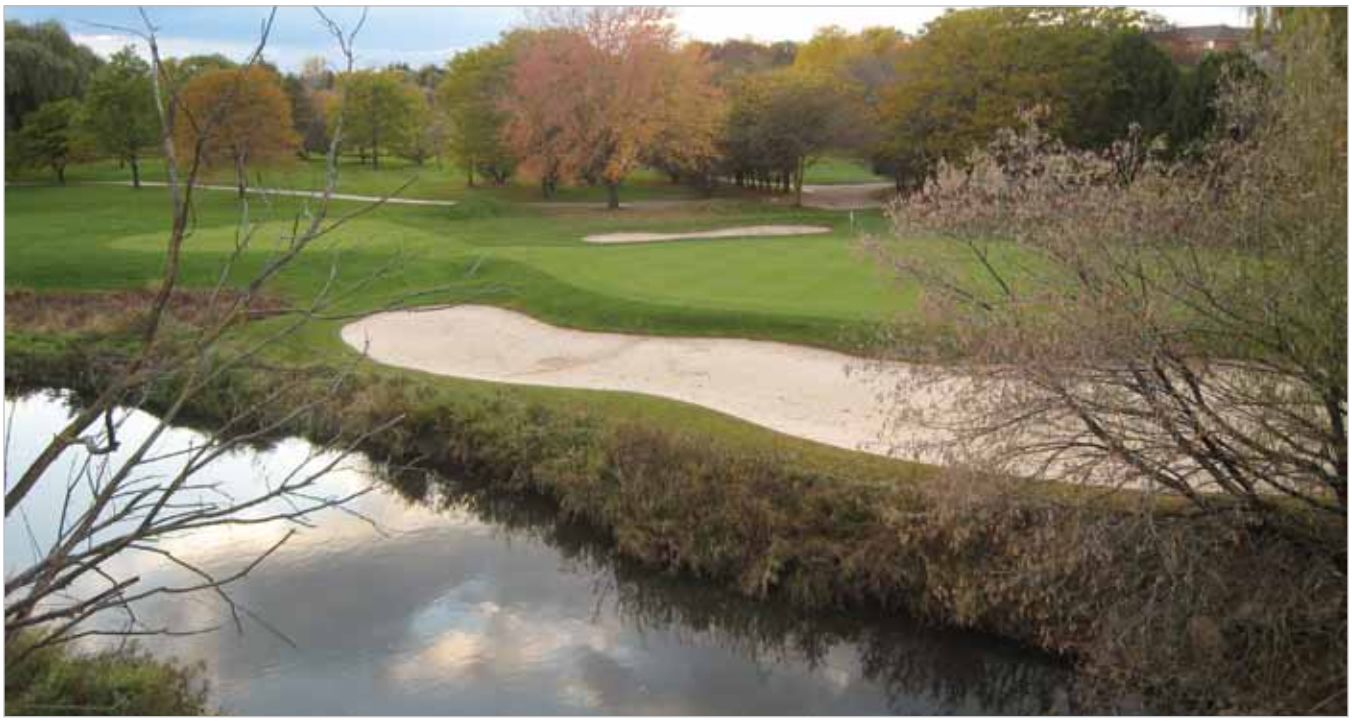
The Urban Forest within the County Court neighbourhood is relatively young (15-20 years old) and comprised mostly of Ash trees (Fraxinus spp.) which are susceptible to Emerald Ash Borer (*Agrilus planipennis*). Active management of tree loss as a result of Emerald Ash Borer and establishment of a healthy and diverse urban forest is a critical action for the City of Brampton and local residents. There are multiple ecological and community benefits to the urban forest, including increased biodiversity and habitat, improved resilience to pests , localized shading and reduced heat island effect as well as and increased aesthetic and property value through greener streetscapes. Public and private investment in establishing healthy trees supports the larger system of green infrastructure, strengthening nearby natural systems, and is recommended across all lands. In addition to management of existing trees, the SNAP identifies space for over **1600 trees** to be established in residential backyards, boulevard inter-plantings between existing street trees, across parking lots, and expansion within parks including County Court and Havelock Park. The SNAP includes a business case for tree establishment to help inform public leadership, and is complemented by strategies to make it easy for residents to participate.

Habitat Restoration and Naturalization

A series of habitat restoration and naturalization projects are recommended as part of the public realm enhancements and broader effort to improve natural system health and increase local resilience to climate change. Led by the City, TRCA and golf courses, these projects will reintroduce natural habitat features and increase biodiversity, thereby restoring and enhancing overall quality, quantity and ecosystem connections.

Specific habitat restoration projects include large patches of naturalization planting and tree establishment in County Court Park, Havelock Park, and the Peel Village and Brampton Golf Courses to enhance natural vegetated connections and support the natural features of the Etobicoke Creek system. In partnership with the golf courses, restoration along the Etobicoke Creek and Tributary 2 will include bank stabilization, erosion protection, wetland and water storage, barrier removal, infill planting and no-mow buffers. There are also significant enhancement opportunities as part of the Upper Nine SWM pond retrofit including plantings across numerous moisture zones, from deep water to upland areas. The retrofit opportunities for the Upper Nine SWM Pond will also include the construction of a treatment wetland to complement the pond functions, and enhance the local vegetation communities and wildlife habitat. Working collaboratively with 407 ETR, infill planting in the nearby highway corridor will also improve natural cover quality.

Residential tree planting initiative Oct 2011



Rainwater Storage for Golf Course Irrigation

The Peel Village Golf Course and Brampton Golf Club are currently dependent on the Etobicoke Creek and municipal water supply to irrigate their courses, respectively. The SNAP demonstrates how neighbourhood stormwater runoff can be a resource for irrigating these two local golf courses. As part of their overall irrigation planning, both golf courses are interested in considering this opportunity as they develop comprehensive irrigation strategies for stormwater management, water collection, irrigation, and golf course vegetation. To service the municipal Peel Village Golf Course, stormwater runoff from the northern part of the neighbourhood can be directed to a new underground storage tank to be located upstream of Outlet 22.5 near Turtlecreek Park. This tank has also been designed to meet the water quality retrofit objectives set out in the *City of Brampton Stormwater Management Facilities Retrofit Study*. To service the private Brampton Golf Club, treated flows from the Upper Nine SWM Pond can be directed to a second irrigation tank to support irrigation of the course. Further detailed planning led by the golf courses and supported by SNAP partners will confirm how these storage facilities can play a role in overall irrigation and stormwater management planning.

Green Parking Lots

As part of the sustainable transformation of existing landscapes, County Court SNAP recommends the retrofitting of parking lots across the neighbourhood. Green parking lots support better on-site stormwater management and shading, which helps reduce excessive local heat and improve air quality, and improves neighbourhood aesthetics. In partnership with Infrastructure Ontario, TRCA's Partners in Project Green, and University of Toronto Centre for Landscape Research, a green parking lot design was developed for the A. Grenville & William Davis Courthouse lands. The proposed design introduces on-site stormwater storage for quantity control, and gravel filter curb, a Jellyfish® catch-basin filter for quality control, and recommends planting of one (1) tree for every ten (10) parking spaces. The design also considers potential for future sustainable infill on this large provincially owned property. The green parking lot design will fulfill short to mid-term SNAP objectives for stormwater management, enhanced plantings and improved parking capacity, and also act as a example for other interested building owners in the area.

Green Home Renovation and Landscapes

A central objective of the County Court SNAP is to increase building owner participation in water and energy conservation programs and actions in support of reduced resource consumption, savings and overall environmental benefit. Given the predominance of low density residential housing and the opportunity to achieve greater water and energy reductions, the County Court SNAP recommends a targeted program to promote residential participation in indoor and outdoor green home renovation. This program is informed by local community-based social marketing (CBSM) research undertaken as part of the SNAP to identify local barriers to action, and customize strategies to motivate behaviour changes through local demonstrations, commitments and recognition.

Construction of the demonstration raingarden at the Green Home Makeover at 71 Turtlecreek Blvd Brampton

The **Green Home Makeover** is a key demonstration project to show residents how they can "go green" when it comes to renovating. In collaboration with SNAP partners, associations and private sector suppliers, one older home was selected to showcase a total green home transformation of water and energy systems and outdoor landscapes. Located at 71 Turtlecreek Blvd in the County Court neighbourhood, this Green Home is meant to showcase green home improvements, educate residents and the renovation industry and monitor energy and water savings.

Following renovations and a ribbon cutting celebration to officially kick-off the program, the homeowners will act as local champions to share their experience and learning with others interested in undertaking similar projects. Monitoring of hydro, natural gas and water as well as a series of tours will be ongoing from spring of 2012 to the fall of 2013.

To further support transformation of other homes across the neighbourhood, a targeted **residential retrofit program** is being lead by TRCA in partnership with the Green Home Makeover sponsor suppliers and local utilities including Enbridge Gas and Hydro One Brampton. The program, called the "Green Home Discount Package", will coordinate a one-window approach to promoting strategic indoor and outdoor improvements, identifying incentives and providing support for homeowners considering renovation. Although the program is being led by TRCA on a one-year pilot basis, a broad range of public and private partners are involved in implementation, tracking and measurement of success.

Marisa and Paul, Green Home Makeover homeowners and community champions (Chalkboard Media)

Box 5: Key outcomes over the long term

The SNAP seeks to document current conditions and set a framework of long term sustainability targets so that change and the benefits of local actions can be tracked over time. Long term timeline is 20 years unless otherwise indicated.

Urban forest

Exceed watershed targets by expanding existing cover from 7.7% to 18.4% within the neighbourhood, and from 16.7% to 40.4% across study area

Stormwater management for southern catchment (Upper Nine SWM Pond)

Achieve municipal objectives for MOE Enhanced Level quality control (80% TSS Removal) and quantity control (post to pre attenuation), reduce erosion and improve water balance (reduce downstream runoff from 9.7 mm events through diversion to golf course irrigation facility)

Stormwater management for northern catchment (Outlet 22.5)

Achieve municipal objectives for quality control (MOE Enhanced Level 80% TSS Removal for 12.5 ha, 60% overall), reduce erosion and improve water balance (reduce downstream runoff from 4.8 mm events through diversion to golf course irrigation facility), infiltration and evapotranspiration, increased re-use and attenuation.

Water consumption

Achieve Region of Peel water efficiency target by shifting from moderate to high efficiency and reducing existing residential consumption 202 LCD (all housing types) to 144 LCD (31%), and reducing commercial by 46% including rainwater use for golf course irrigation

Energy consumption

Move existing annual residential consumption (103.8GJ) from average to high efficiency to achieve reduction of 39%, and reduce commercial by 53%

Greenhouse gas (GHG)

Reduce water and energy-related GHGs from 34,567t CO2e (2009) to 28,236t CO2e (18%)

EcoServices

By 2061 generate an annual 570t carbon storage ($13K market value), 214t carbon sequestration ($5K), pollution removal 11t ($100K opportunity cost), and increase value of natural system from $450K to $1.5M value

Next Steps

With the strategic planning phases complete and key projects and outcomes identified in an integrated SNAP Action Plan, the next step is implementation and monitoring. Given the integrated nature of the recommended projects and the diversity and responsibilities of the partners involved, an implementation framework has been developed to guide both the partners and projects. This framework identifies a leader for each project, a basic work plan and key collaborators. To support the implementation framework, detailed business cases have been developed for select projects to provide a preliminary analysis of costs and greater benefits need to be considered in detail. Business cases were developed for (1) Urban Forest Establishment and Expansion, (2) Upper Nine SWM Pond Retrofit, and (3) Bioretention within boulevards. Each provide an analysis of financial implications, returns and benefits for the local community, and potential partners and funding sources related to each action.

Key components of a successful implementation of County Court SNAP include:

- Creation of a City-led SNAP Implementation Team and community County Court Green Team
- Capital budget allocation for individual projects as appropriate
- Detailed planning, design and implementation of individual projects
- Ongoing community outreach to build capacity for neighbourhood leadership, and to continue to inform future local SNAP direction
- Ongoing coordination between local projects to streamline required community engagement points, and realize implementation and construction efficiencies
- Development of Performance Monitoring Plan and ongoing monitoring

Green Home Makeover information session for residents Feb 2011

The partners wish to acknowledge the consulting team led by Dillon Consulting Limited with urbanMetrics and Aquafor Beech for their contribution to the County Court SNAP Action Plan (Phase 3). We also wish to acknowledge the team led by planningAlliance and LURA Consulting as well as CHI Ltd for contribution earlier in the project (Phases 1 and 2).

SNAP
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Sustainable Neighbourhood Retrofit Action Plan (SNAP) projects develop an environmental improvement plan for existing urban neighbourhoods. The projects aim to accelerate implementation of sustainable practices through: (1) An integrated approach to urban retrofits that addresses a broad range of objectives (e.g., natural water cycle, water and energy conservation, urban forest, green building, community interests); and (2) Innovative stakeholder engagement and social marketing to increase the rate of private landowner uptake and secure local partnerships for implementation.

The preparation of this sustainable community plan was carried out with assistance from the Green Municipal Fund, a Fund financed by the Government of Canada and administered by the Federation of Canadian Municipalities. Notwithstanding this support, the views expressed are the personal views of the authors, and the Federation of Canadian Municipalities and the Government of Canada accept no responsibility for them.

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