

# Bayview Glen Sustainable Neighbourhood Retrofit Action Plan



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## Executive Summary

### Purpose of the SNAP

A Sustainable Neighbourhood Retrofit Action Plan (SNAP) is about the future of a neighbourhood – defining how residents and businesses, with leadership from their municipality, government and non-governmental agencies, can take a significant step toward creating a more sustainable, healthier place in which to live, work and play. The Bayview Glen SNAP was initiated as one of five pilot projects in the Greater Toronto Area (GTA) to guide the sustainable transformation of a mature, suburban neighbourhood and to provide input for future decision-making by the City of Markham. The development of the Bayview Glen SNAP was led by Toronto and Region Conservation (TRCA), in collaboration with the City of Markham, following direction from Markham City Council to staff in 2011, with support from other partners, including the Region of York.

Bayview Glen is a beautiful neighbourhood located in the community of Thornhill in the City of Markham and within the Don River Watershed. The neighbourhood residents enjoy access to parks, parkettes, an elementary school, places of worship and nearby commercial and retail services. Like many residential neighbourhoods developed in the 1960s and 1970s, Bayview Glen is characterized primarily by single detached homes built on large lots with green lawns, wide driveways and mature trees. In recent years however, new residents attracted to Bayview Glen’s desirable features and nearby amenities are slowly changing the neighbourhood’s built form and character through infill and new and larger home construction.



Figure 1: The Bayview Glen SNAP neighbourhood

## Bayview Glen SNAP – Phases 2 and 3 Action Plan

Prior to the development of the neighbourhood, a tributary of the East Don River traversed the site in a shallow valley feature. The valley was infilled but the water table remains near the surface in the area where this drainage feature was formerly located. The combination of low permeability soils and shallow groundwater conditions contributes to imperfect drainage conditions in the south and central portions of the Bayview Glen neighbourhood. This has resulted in neighbourhood and basement flooding issues. In addition, water from storm events is discharged directly into the nearby East Don River, carrying surface run-off and accelerating the erosion of the riverbanks. The neighbourhood has one of the highest water and energy use per capita in the province. Greenhouse Gas Emissions produced from electricity double those produced from gas.

The Bayview Glen community was chosen for the SNAP project as scheduled improvements to stormwater management infrastructure in the neighbourhood provided a timely opportunity to promote water, energy and ecosystem retrofits through an integrated approach. In addition to public realm improvements to update local infrastructure, the Bayview Glen SNAP also includes a Residential Retrofit Program to help homeowners make their homes and properties more sustainable, and community cohesion and resilience programs.

SNAPs identify priority actions to accelerate local sustainability while addressing the objectives of multiple partners. Implementing the recommended priority actions included in the Bayview Glen SNAP will improve local quality of life and help achieve the goals outlined in the City of Markham's Community Sustainability Plan, The Greenprint, as well as the West Thornhill Stormwater Remediation Class Environmental Assessment (EA) Study, TRCA's Don River Watershed Plan, York Region's Inflow & Infiltration Reduction and Long Term Water Conservation Strategies, and Enbridge and PowerStream conservation objectives.

The SNAP was prepared using a collaborative, community-based approach. Residents and stakeholders were provided with several meaningful opportunities to contribute to the plan's development (e.g., homeowner survey, feedback opportunities at the Bayview Glen Public School open house and Fun Fair, community meetings, a focus group and key informant interviews). Local knowledge and input revealed important community characteristics not apparent in the neighbourhood's built form that contribute to local culture and values and helped inform the recommended priority actions and the strategies to implement them.

### The Integrated Action Plan

The Bayview Glen SNAP is an integrated action plan to foster local sustainability and wellbeing through recommended improvements in six core areas from Markham's Community Sustainability Plan, The Greenprint: water efficiency; ecosystem integrity; energy and climate; access and mobility; and identity and culture. Recommended priority actions addressing each core area were identified to improve local sustainability within the public realm as were those actions that could be achieved on private residential lots.

Initiatives proposed in the public realm include the following:

## Bayview Glen SNAP – Phases 2 and 3 Action Plan

- Retrofitting Bayview Glen Park, Glencrest Park and Stone Farm Parkette to achieve a range of SNAP objectives;
- Implementing stormwater management initiatives within several cul-de-sacs in the neighbourhood in synergy with the West Thornhill Flood Remediation project;
- Retrofitting some streets that have a “rural” cross-section to improve stormwater management, reduce Inflow & Infiltration, enhance aesthetics, and create a more durable pavement structure;
- Installing sidewalks and bicycle routes to improve walkability and provide active transportation options; and
- Implementing a separate sub-surface drainage system in the road right-of-ways, consisting of perforated pipes within granular trenches to manage stormwater, reduce Inflow & Infiltration and reduce flooding.

Initiatives proposed to enhance the sustainability of residential dwellings through retrofits or new home construction include the following:

- Promoting or increasing energy and water efficiency;
- Managing stormwater on the surrounding property and through evapotranspiration as well as reducing infiltration and inflow to the surrounding sanitary system;
- Encouraging behaviour change for more sustainable choices; and
- Succession planting for aging trees and dying ash trees.

The key components of the Bayview Glen SNAP are illustrated in Figure 2 and described below, followed by an outline of the next steps in the project.





Figure 2: Bayview Glen Integrated Action Plan



## Public Realm Concept Plans

The public realm within the Bayview Glen neighbourhood consists of two parks (Bayview Glen and Glencrest Parks) and one parkette (Stone Farm Parkette), as well as walkways and streets.

Early in the process of developing the SNAP, it was recognized that retrofitting these components of the public realm presented a significant opportunity to achieve the objectives related to each core area, while enhancing valued community spaces and amenities. In response, retrofit concept plans were prepared for each of the parks and the streets throughout the community to provide direction as scheduled upgrades and funding are approved by the City of Markham.

## Glencrest Park Concept Plan

Existing conditions within Glencrest Park provide several opportunities to promote the local sustainability and place-making objectives of the Bayview Glen SNAP. Located in the north end of the neighbourhood, Glencrest Park includes limited recreational facilities that include a playground and a small baseball diamond with a well-worn backstop. The park's topography includes a valley-like landform, created by a small watercourse that once traversed the site. A corrugated steel culvert has replaced the watercourse and is currently in need of repairs. Much of the tree cover within Glencrest Park was destroyed from infestation by the Emerald Ash Borer and removed in Spring 2014. The remainder of the park landscape comprises maintained turf.

The proposed concept plan integrates the core area objectives through improvements to recreational amenities, stormwater management, landscaping and new active transportation infrastructure. The concept includes the following amenities:

- Meditation garden;
- Pollinators garden;
- Labyrinth;
- Open play space;
- Stormwater attenuation/ naturalized area;
- New playground on safety surface;
- Shade structure;
- Picnic area;
- Stone entry sign wall;
- Reforestation area; and
- Pedestrian walkways.

A key component of the concept plan includes preserving the valley land feature, reforesting the former tributary corridor and re-grading the upland area of the park to expand recreational programming. The proposed recreational amenities increase opportunities for year round passive and active recreation to residents of all ages and backgrounds. In addition to a new playground, a new open play area field will provide space for informal play and can also serve as an ice rink during the winter. A new trail system is also proposed within the park to enhance pedestrian connections to the park from the surrounding neighbourhood and to provide opportunities for walking and jogging. The proposed concept plan also includes a meditation garden to accommodate activities such as tai-chi.

The recommended topographical and landscape improvements (e.g., re-creating the valley feature, tree planting, pollinator gardens) will help manage stormwater naturally through evapotranspiration, reducing the volume and improving the quality of water flowing into the sewer system while enhancing

user experience of the park. The same initiatives will also increase the diversity of habitats found within the park and provide shade to park users.

### Bayview Glen Park Concept Plan

Bayview Glen Park presents several opportunities to promote local sustainability while creating a sense of place in the neighbourhood. The park is centrally located and forms a contiguous open space with the Bayview Glen Public School grounds. Recreational amenities in the park include tennis courts, a softball diamond, a playground and a trail that are in need of upgrades or repairs. Topographic and landscape improvements are also needed to address wet, muddy areas caused by poor drainage on the site and a reduced tree canopy. Site assessments also identified the need to enhance safe pedestrian connections to the park from the surrounding neighbourhood.

The proposed concept plan for Bayview Glen Park was also designed with the core objectives of the SNAP in mind and features improvements to recreational amenities, stormwater management, landscaping and new active transportation infrastructure. The concept plan illustrates a reimagined Bayview Glen Park that offers improved recreational amenities, better connectivity to the neighbourhood and a richer, more diverse ecology through the following upgrades:

- New playground and safety surface in a new location;
- Naturalized plantings - rain gardens, bioretention cells and detention swales;
- Shade structure/solar array;
- Solar lighting for proposed trails;
- Stone entry sign wall;
- Paved pedestrian walkways and entry courts;
- Permeable unit paving layby and entry court;
- Enhancements to existing softball field; and
- Bike racks and benches.

Existing recreational amenities like the softball field and tennis courts will be enhanced to improve user experience, while the playground will be replaced with a state of the art structure that adheres to current safety standards. A shade structure with a unique architectural design will be located near the playground and also incorporate photovoltaic panels that will provide a source of power to illuminate the adjacent path. A system of pathways and a new sidewalk are proposed for recreational purposes, to link the park's amenities and enhance connections to nearby residential streets.

Topographical and extensive landscape improvements are also proposed in the concept plan to manage stormwater naturally while enhancing user experience in the park. Topographical improvements include redirecting the flow of stormwater from small storm events into two new wetland areas to collect and store runoff, improve water quality, reduce erosion and promote evapotranspiration. A sub-surface storage system could also be created under the current sports field as an added flood control measure.

Overall the proposed concept plan is intended to establish Bayview Glen as the recreational and social centrepiece of the community.

### Stone Farm Parkette Concept Plan

This small parkette situated in the southeast corner of the neighbourhood encompasses an old hedgerow that once lined a portion of the driveway that led from Steeles Avenue East up to the Stone family farmhouse. The farmhouse was removed when the Bayview Glen neighbourhood was developed but the hedgerow is an important reminder of the site's heritage. While the parkette provides a strategic catchment area to manage stormwater runoff from nearby streets, it is also located in an area of the neighbourhood where the water table is high. A small playground and an open lawn are the parkette's existing amenities.

As with the other neighbourhood parks, the proposed concept plan for the Stone Farm Parkette was designed to fulfill as many of the core SNAP objectives through improvements to recreational amenities, stormwater management and landscaping. The concept plan also identifies improvements for a nearby cul-de-sac that can be implemented on several other cul-de-sacs in the neighbourhood. The concept plan includes the following amenities:

- New playground and safety surface in new location;
- Open play space;
- Naturalized areas;
- Shade structure;
- Rain gardens
- Stone entry sign wall and interpretive signage; and
- Paved pedestrian walkways and entry courts.

A new playground structure will replace the existing play equipment in the southwest corner of the parkette, while a shade structure will serve as a buffer between the parkette and nearby streets and provide architectural interest. A small multi-use field and a trail are proposed to increase amenity space in the parkette and connections to the surrounding neighbourhood.

Initiatives to manage stormwater naturally include the installation of two "rain gardens", retrofitting a nearby cul-de-sac to reduce runoff from storm events and creating a sub-surface storage system below the multi-use field. These initiatives will collectively reduce the volume of runoff from storm events into local sewer infrastructure. In addition to the installation of rain gardens in the parkette, tree planting is also proposed to provide shade, promote rainfall interception and evapotranspiration and increase canopy cover.

The implementation of the proposed concept plans for Bayview Glen Park, Glencrest Park and Stone Farm Parkette will renew aging recreational amenities within the neighbourhood while achieving a range of sustainability objectives.

### Streetscapes and Circulation

The neighbourhood's built form, high water table and outdated infrastructure have presented challenges to local mobility as well as watershed and stormwater management efforts. This is most apparent in the local street fabric, which comprises two types of streets:



- Streets with an urban cross-section (i.e., with curbs, fitted with catchbasin and storm sewers); and
- Streets with a “rural” cross-section (i.e., no curbs, with ditches running parallel to streets).

Within these two street typologies are two subsets, streets with sidewalks and streets without sidewalks. Throughout the community engagement process some residents expressed concern over a lack of sidewalks, trails and bike paths. An assessment of the community revealed that there is a lack of connectivity in the system of sidewalks throughout the neighbourhood, limiting walkability and discouraging active transportation. At the present time, there are no designated bicycle routes within the neighbourhood.

The Bayview Glen SNAP proposes retrofitting road right-of-ways (ROW) throughout the neighbourhood to enhance stormwater management efforts as well as local connectivity. Recommended public realm improvements in the SNAP include retrofitting the rural streets in the southern portion of the study area by reducing the pavement width, adding flush curbs and infiltration/filtration trenches, to reduce runoff volumes and treat the stormwater that is collected.

Retrofitting the urban streets in the study area is more challenging. Sufficient room within the right-of-ways does not exist to replace the storm sewers with the system of trenches and sub-drains proposed for the existing rural areas.

Within the urban areas, there are a number of smaller storm sewer systems that connect to a larger trunk storm sewers on Laureleaf Road and Canadiana Drive. It is proposed to replace the upstream-most section of storm sewer in these systems with an infiltration trench located under the curb. The upstream-most catchbasins would be replaced or retrofit with small oil-grit separators, with connections to the main trench, to provide pre-treatment of road runoff. The proposed trenches could improve water quality and reduce erosion in the East Don River by infiltrating runoff from most storm events.

In combination with the road ROW retrofits, the installation of sidewalks is proposed on several streets to enhance walkability within the neighbourhood. These sidewalks would connect to the trail systems proposed within Bayview Glen Park and Glencrest Park to create a linked system of pedestrian routes that will connect key destinations within the neighbourhood. The implementation of a designated bicycle route along Laureleaf Road is also recommended since this road is a major through street that connects to public transit. Traffic-calming measures such as speed bumps or strategically placed trees were also suggested by residents during engagement activities.

### **Residential Retrofit Program**

Developing a program to encourage residents to retrofit Bayview Glen SNAP homes and properties provides a significant opportunity to contribute to many of the core area objectives. The following provides a description of the recommended Residential Retrofit Program to provide direction as projects and funding are approved by the City of Markham.

## Bayview Glen SNAP – Phases 2 and 3 Action Plan

Bayview Glen is an established residential neighbourhood comprised of 715 dwellings. Single detached homes built on relatively large lots with grass-covered lawns and wide driveways account for approximately 85 percent of the housing types in the neighbourhood. The majority of the neighbourhood's housing stock (53 percent) was built between 1960 and 1980. There has however been a notable increase in the number of new homes being built in the neighbourhood as new homeowners replace the original dwellings they purchased with larger homes. Home ownership in the neighbourhood is nearly universal (96 percent).

Phase 1 of the SNAP process included the development of annual energy and water consumption maps as well as pool locations and program uptake maps and spreadsheets. Recent assessments completed by York Region reveal that there is a concentration of high water users in Bayview Glen compared to other neighbourhoods in the Region. For instance, 30 percent of the homes in the neighbourhood have pools. There are also high levels of electricity and gas consumption in the neighbourhood. Participation in residential energy or water conservation programs and incentives indicate that there was low to moderate participation in the toilet rebate program (approximately 38 homes), and extremely low participation in electricity conservation programs (only one home participated in Peaksaver). These trends were echoed through the community engagement process where residents indicated they did not know about the programs or found the incentive process to be too cumbersome.

The Residential Retrofit Program is designed to provide residents with a one-stop shop approach to upgrading their homes and properties. The proposed Residential Retrofit Program centres on a detailed home audit for each interested homeowner. Many community members have indicated that they believe Bayview Glen and their homes to be outstanding and in no need of improvement. The neighbourhood energy and water consumption data and participation rates in conservation programs tell a different story. The recommended Residential Retrofit Program includes a home audit program conducted at an individual, independent assessment level of the property to provide a baseline of understanding for residents on what their true level of consumption is, and more importantly how to become more efficient. This approach would not only identify key retrofit opportunities but enable a comparison of a homeowner's property with other similar properties, both upgraded and non-upgraded, promoting potential benefits (i.e.: leadership, quality, cost savings, environmental contributions, etc.).

The measures recommended in the retrofit program are outlined below:

Table 1: Recommended Measures for the Residential Retrofit Program

Energy Efficiency
Air Sealing windows & other junctions
High quality, thermally broken triple-pane windows
Insulation
Low energy appliances
High efficiency heating, ventilating and air conditioning and domestic hot water
HVAC maintenance and controls upgrades

Table 1: Recommended Measures for the Residential Retrofit Program

Drain water heat recovery devices
Solar pool pump, heater and blanket
Stepwise retrofit plan/complementary measures
<b>Water Efficiency</b>
Water efficient landscaping
Irrigation system automation / optimization (timers, sensors) + dripping hoses
Rain barrel
Low flow faucets and showerheads
Fix leaky taps and toilets
Low flow toilets
<b>Sustainable Management of Stormwater &amp; Urban Forest</b>
Disconnect downspout from sewer system
Rain gardens to encourage evapotranspiration
Planting of key species (i.e. willows) in areas of high water table (including native species that enhance evapotranspiration or heavy water drinkers where the water table is high)
Treat or replace ash trees
<b>Inflow and Infiltration</b>
Disconnect sump pumps and downspouts from the sanitary system
Connect sump pump to “third pipe” / subdrain system to stormwater system

In order to maximize contact with homeowners, control of the process, adoption rate, and data collection opportunities, it is recommended that a City Champion be fully engaged through a defined audit process, such as the one proposed below:

- Information brochure sent to homeowners - see marketing strategy in Section 4 for more information;
- City Champion contacts interested homeowners to introduce and discuss the program;
- Resource library of reference materials to support both the City Champion and homeowner decision-making. It is recommended that a resource library of vetted materials be developed. These resources would provide information on upgrade measures, requirements, costs, returns, etc.;
- Auditor selected and booked (optional: City Champion to attend audit);
- Audit undertaken and report sent to City Champion (behaviour survey can be undertaken here with the homeowner);
- Post-audit meeting between homeowner and City Champion to discuss results, recommendations, further resources, and contractor options;
- Contractor appointed and retrofit work undertaken;
- Post-retrofit audit booked;

- Post-retrofit audit undertaken and report sent to City Champion for monitoring and reporting purposes; and
- Follow up meeting/interview between homeowner and City Champion to discuss outcomes, program feedback, etc. and close-out survey.

To keep the process simple for both homeowner and City Champion, it is recommended that a single accredited auditor from the private sector provide the entire audit.

In terms of selecting contractors to complete the retrofits, the City of Markham could provide a list of prequalified contractors for homeowners to reference or a roster of qualified candidates. Another alternative would be to provide a list of vetted contractors and general advice on selecting a suitable contractor.

The proposed program has numerous benefits. With specific information about a property, an auditor can provide tailored recommendations to each homeowner. This would enable more informed homeowner decisions, leading to improved selection of measures. Additionally, homeowners would more readily see the direct benefit of specific measures. Lastly, it would catch opportunities that could be missed by a blanket approach that provides generic recommendations. These would all increase likelihood of uptake of the retrofit measures.

In terms of targets, the City of Markham has the most ambitious targets of the jurisdictions surveyed, seeking net zero energy, water, waste and emissions by 2050. In order to meet the Net Zero Energy Target, an average annual reduction in total energy demand (gas and electricity) of 2.3% of current demand, or 3,781 GJ/yr, must be achieved, based on 2011 data (non-normalized).

However, following technical analyses and a review of resident participation in other audit-based programs, it is recommended that the City of Markham consider a target for Bayview Glen of 6% reduction in GHG within 10 years of program. The annual reduction would be 0.6%/yr, or 969 GJ/yr. This translates to an uptake of 2.4% with an average 15% retrofit reduction level. Given the need for substantive reductions, it is recommended this target be adopted for the proposed Residential Retrofit Program.

### **New Home Construction Program**

Like many residential neighbourhoods developed in the 1960s and 1970s, Bayview Glen is slowly being transformed through the cycle of residential turnover. The SNAP recommendations also include a New Home Construction Program, complementing the Residential Retrofit Program, which targets new residents redeveloping homes in the neighbourhood.

New construction provides an ideal opportunity to adopt substantial energy and water efficiency measures on properties. The City Champion would also serve as a resource in this program to discuss and advise homeowners of sustainable building practices. Workshops could be offered and arranged with qualified professionals to groups of homeowners wishing to pursue this further.

To set appropriate targets for new construction, it is beneficial to understand the market impact of voluntary green building programs. Table 8 indicates the uptake and % reduction in energy and water of some prominent programs. Energy Star has the highest uptake at 12.3%. It is important to note also that the Ontario Building Code will be revised in 2017 and is expected to require a 15% improvement. This will lead to tightening requirements for the Energy Star program as well.

**Table 8: Uptake and Reduction of Energy and Water Efficiency Programs**

Standard	% Energy reduction over Code compliant Home	% water reduction over standard new home	% market share (Ontario)
Passive House	65%	0%	< 0.1%
Energy Star	20%	0%	12.3% <sup>1</sup>
R-2000	30%	0%	?
LEED	0-100%	5- 60% <sup>2</sup>	?
Net Zero Energy	100%	0%	< 0.1%
Living Building Challenge	100%	100%	< 0.1%

The City of Markham's target should exceed what the market is currently achieving. As this is an affluent area, homeowners have greater financial resources to invest in improved performance. It is therefore recommended that a target of 20%/yr uptake with a 40% improvement be set for the first five years.

Reaching new build homeowners is more difficult than current residents, since they are potentially not currently living in the neighbourhood. One option to support this is to enlist the support of the City's Building Department to promote the SNAP Residential Program and New Home Construction Program to new homeowners seeking to build in the neighbourhood. The SNAP recommends that the City of Markham discuss opportunities for collaboration with the Building Department.

It is also recommended the City of Markham seek out homeowners willing to achieve Passive House, Net Zero, LEED Platinum, or Living Building Challenge requirements as a showcase for the community. Enthusiastic homeowners could speak about their homes at community events. The City of Markham could also run periodic Open Houses in coordination with the participating homeowners to allow neighbours to tour these properties. Such Open Houses have proven successful in increasing interest in Passive House in other countries, particularly Germany, as well as other SNAP neighbourhoods. Open Houses in other SNAP neighbourhoods have proven to be a successful tool to raise awareness and engage a larger group of neighbours. Geographic distribution of uptake in another SNAP with Open Houses shows a larger cluster of participation in the surroundings of the Pilot House. This increased uptake is likely a result of higher levels of program awareness due to proximity to the Open House.

<sup>1</sup> CaGBC Toronto Green Homes Summit. Also <http://www.energystar.gov/index.cfm?fuseaction=qhmi.showhomesmarketindex>

<sup>2</sup> Approximate figures

Moreover it provided an opportunity to partner with private sector partners, and formed the basis for ongoing partnerships that would be valuable for Bayview Glen SNAP. Open Houses also enabled information sharing on the feasibility of specific technologies in the overall neighbourhood action plan.

### Marketing Strategy

A marketing strategy is included to provide direction to the City of Markham to support the launch and delivery of the Bayview Glen SNAP using Community-Based Social Marketing (CBSM) principles. CBSM is an approach based on research in the social sciences that is effective at promoting behaviour change and maintaining sustainable behaviours over the long-term. CBSM initiatives focus on removing barriers to an activity and promoting the most influential benefits or motivators to the desired behaviour change – in this case, overcoming barriers to residential retrofits. CBSM tools are then employed to reinforce and sustain the behaviours, usually with direct contact at the community level.

The marketing strategy recommends connecting with residents, community groups, businesses and government agencies to encourage the implementation of local actions that promote a stronger community and a more environmentally-friendly neighbourhood through a variety of tools, some of which include: a dedicated webpage, Councillor newsletter, e-mails, posters, road signs, a program brochure, social media and a launch event. Developing a unique brand for SNAP is also recommended to provide visual consistency, enabling residents to distinguish information about the SNAP from other marketing materials.

### Preliminary Implementation Framework

Given the integrated approach of the proposed projects, several pre-implementation tasks are envisioned to facilitate the implementation of the Bayview Glen SNAP. The proposed public realm improvements and retrofits require additional technical and engineering analysis to confirm various SNAP recommendations before functional designs can be completed. Other pre-implementation tasks include prioritizing and aligning proposed retrofits with other municipally planned projects, aligning the SNAP Residential Retrofit Program with the Municipal Energy Plan, securing funding and consultation with approval agencies and community members. Similarly, a list of priority actions is recommended to phase-in the implementation of the Residential Retrofit Program.



## 1. Introduction

### 1.1 Purpose of the SNAP

A Sustainable Neighbourhood Retrofit Action Plan (SNAP) is about the future of a neighbourhood – defining how residents and businesses, with leadership from their municipality and government and non-governmental agencies, can take a significant step toward creating a more sustainable, healthier place in which to live, work and play. SNAPs test innovative, out of the box, approaches for overcoming typical barriers to achieve the sustainable transformation of existing, older neighbourhoods. They document lessons learned and aim to replicate successful approaches in similar neighbourhoods. The Bayview Glen SNAP provides an exciting opportunity to influence the transformation currently taking place in this mature, residential neighbourhood through a lens of sustainability. Scheduled improvements to stormwater management infrastructure in the neighbourhood, as well as incremental changes to the neighbourhood's built form and character, provide a timely opportunity for the Toronto and Region Conservation (TRCA) and the City of Markham to continue to innovate in the realm of neighbourhood-scale sustainability planning. A key component of the SNAP is the development of a Residential Retrofit Program to help homeowners make their homes and properties more sustainable. The SNAP also provides the occasion to update local infrastructure to improve local mobility through active transportation and enhance health and wellbeing, while creating a sense of place around central neighbourhood features.



Figure 3: The Bayview Glen SNAP neighbourhood



The Bayview Glen SNAP was initiated as one of five pilot projects in the Greater Toronto Area (GTA) and is the product of an innovative approach created by the TRCA to guide the sustainable transformation of a mature, suburban neighbourhood and to provide input for future decision-making by the City of Markham. It was developed by the TRCA, in collaboration with the City of Markham, following direction from Markham City Council to staff in 2011, with support from other partners, including the Region of York. This action plan is informed by the City of Markham's Community Sustainability Plan, The Greenprint, as well as the West Thornhill Stormwater Remediation Class EA Study, TRCA's Don River Watershed Plan, and York Region's Inflow & Infiltration Reduction and Long Term Water Conservation Strategies.

### Bayview Glen – A SNAPshot

Bayview Glen is a beautiful neighbourhood located in the community of Thornhill in the City of Markham and within the Don River Watershed (Figure 3). Approximately 2,400 people reside in the neighbourhood, enjoying access to parks, parkettes, an elementary school, places of worship and nearby commercial and retail services. A branch of the East Don River flows through the neighbourhood and is bordered primarily by privately-owned properties.

Like many residential neighbourhoods developed in the 1960s and 1970s, Bayview Glen is characterized primarily by single detached homes built on large lots with green lawns, wide driveways and mature trees. These features, as well as the neighbourhood's proximity to a variety of amenities, make Bayview Glen a highly desirable place to live in the City of Markham and wider GTA. However, as is evident by the sights and sounds of new and infill home construction, the character of the neighbourhood is slowly being transformed through the cycle of residential turnover.

From a physiographic perspective, the neighbourhood is underlain by low permeability soils that are not

conductive to infiltration. The topography of the neighbourhood varies, but generally slopes to the south and west towards the East Don River valley. Prior to the development of the neighbourhood, a second tributary of the East Don River traversed the site in a shallow valley feature. The valley was infilled but the water table remains near the surface in the area where this drainage feature was formerly located. The combination of low permeability soils and shallow groundwater conditions contributes to imperfect drainage conditions in the south and central portions of the Bayview Glen neighbourhood.

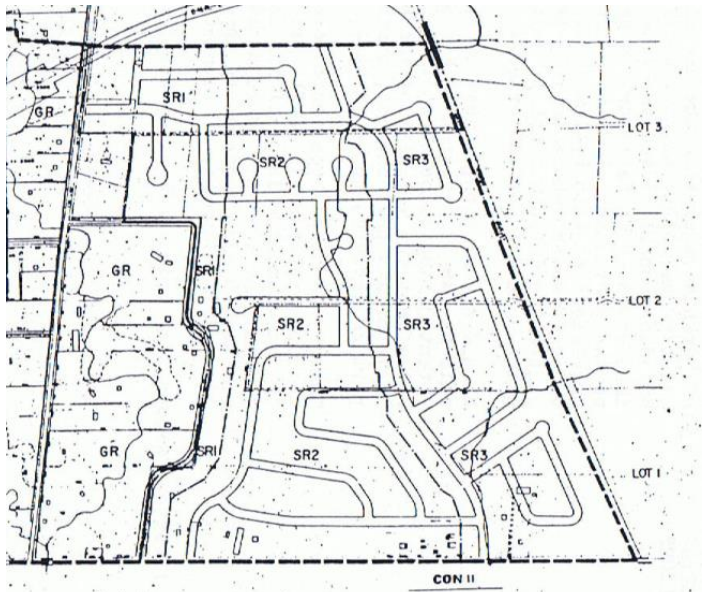


Figure 4: Location of the infilled valley feature.

Over time, the neighbourhood's built form, high water table and outdated infrastructure have presented challenges to local mobility as well as watershed and stormwater management efforts. Based on the conventional wisdom of the time, local streets were designed for use by automobiles; few have sidewalks or bike paths. Road right-of-ways in the neighbourhood were also designed with shallow storm sewers and roadside ditches to address stormwater events but do not have the capacity to convey larger water volumes from more severe and frequent storms. This has resulted in neighbourhood and basement flooding issues. In addition, water from storm events is discharged directly into the nearby East Don River, carrying surface run-off and accelerating the erosion of the riverbanks. The neighbourhood has one of the highest water and energy use per capita in the province. Greenhouse Gas Emissions produced from electricity double those produced from gas.

An implementation strategy to upgrade the neighbourhood's stormwater infrastructure was approved in 2011 by Markham City Council, following the completion of the West Thornhill Stormwater Flood Remediation Class Environmental Assessment (EA) Study. The planned infrastructure improvements also provide an opportunity through the SNAP to create a plan of strategic actions that are aimed at improving the overall quality of life for residents, while meeting broader sustainability priorities and objectives.

## 1.2 Vision and Core Themes

The Bayview Glen SNAP supports the ongoing implementation of other plans and programs, including The Greenprint, the City of Markham's Community Sustainability Plan, by adopting its vision as the starting point for the SNAP's strategic recommendations:

*"Markham: leading the way together to liveable neighbourhoods, healthy people and continuing prosperity"*

Technical analyses completed during the first phase of work on the Bayview Glen SNAP characterized baseline conditions, developed neighbourhood objectives, generated a long list of retrofit options, indicators and targets, and identified six core areas to improve sustainability and quality of life in the neighbourhood: water efficiency; ecosystem integrity; energy and climate; access and mobility; and identity and culture. Each core area is linked to The Greenprint objectives, targets and indicators, further supporting the Sustainability Plan's implementation. Each core area is described below.

- **Water Efficiency** – This objective takes a comprehensive approach to improve local water efficiency by encouraging indoor and outdoor residential water conservation. These goals and strategic actions in the Bayview Glen SNAP correspond to The Greenprint's objective to develop a water systems plan that integrates all water functions.
- **Stormwater Management** – Reduce stormwater runoff and Inflow/Infiltration into the sanitary system to reduce neighbourhood flood risks, while improving the treatment of stormwater runoff to enhance the health of the East Don River.
- **Ecosystem Integrity** – Supporting The Greenprint's target to achieve 30% tree canopy and vegetation coverage and sustain and increase wildlife habitat, the objective for ecological

integrity is to maintain habitats such as urban forests, aquatic areas and meadows in the neighbourhood to increase the local provision of ecological services and resilience to climate change.

- **Energy and Climate** – The SNAP objective is to reduce energy use and adopt renewable energy sources to decrease greenhouse gas emissions, advancing The Greenprint’s goal of net zero energy, water, waste and emissions by 2050.
- **Access and Mobility** – The SNAP aims to promote active transportation by providing a connected system of sidewalks, trails and cycling routes that link the community to local destinations and regional public transit systems. Offering active transportation choices that are safe and designed to avoid conflicts with vehicular traffic will support a shift to a culture of walking, cycling and using transit instead of driving.
- **Identity and Culture** – The SNAP objective is to enhance the quality of life of residents by providing recreational and cultural amenities that support physical, mental and social wellbeing. Retrofit programs and projects will improve local air quality and create amenity spaces as well as opportunities for social interaction and active living. This will support the establishment of a strong neighbourhood identity, while fostering a sense of belonging and promoting civic pride amongst the residents of the Bayview Glen community.

Strategic actions and retrofit options for each core area were identified during phases two and three of the SNAP study process and refined based on feedback provided by residents and stakeholders. The recommended actions and options are presented in Section 2 of the report.

### 1.3 Resident and Stakeholder Feedback

The Bayview Glen SNAP was prepared using a collaborative, community-based approach. Engagement activities included a homeowner survey, feedback opportunities at the Bayview Glen Public School open house and Fun Fair, community meetings, a focus group and key informant interviews. These initiatives provided residents and stakeholders with several meaningful opportunities to contribute to the plan’s development and review process. Participants contributed by proposing strategic actions and retrofit options, while building awareness and support for the plan.

Feedback from engagement activities revealed important community characteristics not apparent in the neighbourhood’s built form that contribute to local culture and values. Bayview Glen residents value the neighbourhood’s location, amenities and defining physical qualities, particularly its natural setting near the Don River, mature tree canopy and greenspaces that create a relaxing and peaceful environment in the context of a dense urban area. Residents also take pride in their homes and properties, maintaining their condition and curb appeal through regular maintenance and upkeep; landscape maintenance contractors are widely used throughout the neighbourhood. While residents value the neighbourhood parks and public spaces and use them for informal uses (e.g., walking and cycling), they primarily tend to socialize and recreate in their backyards. Feedback also indicated that a number of residences in the neighbourhood are corporate, second or seasonal homes that are vacant for long periods of time. Many of these homes are also located in areas of the neighbourhood with a high risk of flooding during storm events. These factors, in addition to local demographic attributes (i.e., age and mother tongue) make it

difficult to engage residents in community initiatives and for residents to establish long-term connections with their neighbours.

Residents voiced concerns about local issues related to flooding and erosion on private and public properties, congestion and safety on local streets, particularly near Bayview Glen Public School and maintaining the neighbourhood's defining physical assets (i.e., natural heritage, trees and greenspaces). They supported proposed improvements to local parks and expressed interest in upgrades to street infrastructure and neighbourhood circulation and safety as well as protecting and replacing neighbourhood trees (especially ash trees). Feedback from residents also revealed a desire to create a sense of place and improve public amenities within the neighbourhood to increase opportunities for social interaction. Residents also supported the concept of a Residential Retrofit Program that provides additional value to their homes.

A complete summary of the community engagement process and results is found in Appendix A.

## **1.4 Report Contents**

Section 2 of this report provides an overview of the evaluation criteria used to develop the Bayview Glen SNAP. Section 3 summarizes the steps that were followed to develop the SNAP and the recommended public realm, residential retrofit and new construction concept plans. The proposed approach to marketing is presented in Section 4. Recommendations for implementation, including measures of success, estimated costs, and a monitoring framework are outlined in Section 5.

## **2. Preliminary Evaluation of Retrofit Options**

### **2.1 Evaluation Criteria**

In the process of developing the Bayview Glen SNAP, a long list of sustainability options was explored. This long list included initiatives that could be implemented on private residential lots as well as those that could be implemented within the public realm. Eleven criteria were used to evaluate the various measures including:

- Environmental impact – both positive and negative;
- Homeowner acceptance – interest and likely uptake based on the findings of the surveys and community engagement process;
- Alignment with municipal and agency objectives;
- Availability of programs, including incentives and compatibility with existing programs offered by others;
- Return on investment – in consideration of both short-term and life-cycle benefits;
- Cost – in consideration of initial capital cost and long-term maintenance and replacement investment;
- Homeowner effort – initial and ongoing effort to implement and operate the initiative. Effort could relate to both physical effort or time / complexity associated with adopting the initiative;

- Improvement to health and comfort – this criterion relates primarily to initiatives that are proposed on private lots but could include public realm initiatives that enhance user safety, walkability or sense of well-being;
- Increased durability in terms of longevity of the initiative and long-term performance;
- Potential to complement the City of Markham’s flood remediation strategy, by adding storm water quality and erosion control objectives; and
- Potential to help York Region achieve its inflow and infiltration reduction (I/I) objectives.

## **2.2. Proposed Public Realm Initiatives**

Based upon the outcomes of the evaluation process, which was largely driven by input from community engagement as well as input from municipal staff, a number of priority actions were identified to provide direction as scheduled upgrades and funding are approved by the City of Markham. Initiatives proposed in the public realm include the following:

- Retrofitting Glencrest Park, Bayview Glen Park and Stone Farm Parkette to achieve a range of SNAP objectives;
- Implementing stormwater management initiatives within several cul-de-sacs in the neighbourhood;
- Retrofitting streets that have a “rural” cross-section to improve stormwater management, enhance aesthetics and create a more durable pavement structure;
- Installing sidewalks and bicycle routes to improve walkability and afford active transportation options; and
- Implementing a separate sub-surface drainage system in the road right-of-ways, consisting of perforated pipes within granular trenches. This system can reduce nuisance flooding from roadside swales, and serve as an effective collector for sump pump discharge, directing the clean excess surface water to the East Don River, and reducing pressure on the sanitary system. During dry summer conditions, the system can reduce flooding and erosion and improve water quality in the East Don River by infiltrating storm runoff from frequent storm events.

## **2.3. Proposed Residential Initiatives**

Initiatives proposed to provide direction to the City of Markham to enhance the sustainability of residential dwellings by retrofitting existing homes or guiding the design and construction of new homes include:

- Promoting or increasing energy and water efficiency;
- Managing stormwater on the surrounding property enhancing evapotranspiration and reducing Inflow/Infiltration to the sanitary system (i.e., sump pumps and foundation drain connections); and
- Succession planting for aging trees and dying ash trees.

### **3. Concept Plans and Action Plan Themes**

#### **3.1 Methodology Applied to Develop Concept Plans and Residential Retrofit Program**

The concept plans for the proposed park and streetscape retrofits were generated through a process that entailed site assessment, technical analysis, community engagement and design. Background technical data and maps were reviewed to gain understanding of the characteristics of the sites and identify, at a preliminary level, the core and complementary theme objectives that could potentially be achieved by retrofitting the sites. Field work was then completed to gain an understanding of the context of the sites within the neighbourhood and the physical and biophysical attributes of each site. A review of existing subsurface storm sewer infrastructure was completed, along with an assessment of improvements to municipal infrastructure that are planned to be implemented by the City of Markham. Using this information as a foundation, preliminary concept plans were generated for each of the three parks, the school yard and the streets. Each of the concept plans was designed to achieve objectives related to water efficiency, ecosystem integrity, energy and climate, access and mobility, and identity and culture. The concept plans were presented to the Project Management Team (PMT) and at City of Markham Divisional Meetings for comment and were refined in response. The concept plans were then presented to the community for consideration and were then further refined to address the feedback received. The refined concept plans were assessed in relation to cost and efficacy in achieving SNAP objectives. The concept plans were submitted to the City of Markham in order to confirm their acceptability in view of operations and maintenance requirements and consistency with planned infrastructure improvements, as well as to confirm compatibility with the City of Markham's process for planning and implementing park and streetscape retrofit projects.

A similar approach was used to develop the residential retrofit and new construction programs. Census information and energy and water consumption data were reviewed to gain a better understanding of current conditions and resource consumption patterns in the neighbourhood. Based on this analysis and the long list of measures identified in phase 1, an initial list of measures considered for inclusion in the program was developed in conjunction with the PMT. This list was subsequently shortlisted using a detailed assessment matrix and tested with residents through various community and stakeholder engagement activities (e.g., community meetings, homeowner survey, and focus group). The short list was further reviewed and revised to reflect feedback from residents and to ensure the resulting programs continue to support the SNAP objectives. The Residential Retrofit Program concept was assessed in relation to cost and efficacy in achieving SNAP objectives.

#### **3.2 Public Realm Concept Plans**

The public realm within the Bayview Glen neighbourhood consists of two parks (Bayview Glen and Glencrest Parks) and one parkette (Stone Farm Parkette), as well as walkways and streets. For the purposes of the SNAP, Bayview Glen Public School and the lands associated with it were considered to be part of the "public realm", notwithstanding the fact that the school property falls under the jurisdiction of the York Region District School Board.

## Bayview Glen SNAP – Phases 2 and 3 Action Plan

Early in the process of developing the SNAP, it was recognized that retrofitting these components of the public realm presented a significant opportunity to achieve the objectives related to each core area. In response, retrofit concept plans were prepared for each of the parks and the streets throughout the community. The following provides a description of each of the proposed retrofit concept plans, while Figure 5 provides an integrated visual of the concept plans.





Figure 5: Bayview Glen Integrated Action Plan



## Glencrest Park Concept Plan



Figure 6: Glencrest Park

**Existing Conditions:** Glencrest Park is located on the east end of Lady Slipper Court and is bounded on the east by the Railway Corridor and on its north, south and west sides by residential properties. An easement links the park to the intersection of Laureleaf Road and Multiflora Place. However there is no defined walkway into the park from this intersection. Existing recreational facilities in Glencrest Park include a playground and a small baseball diamond with a well-worn backstop. The topography of the park slopes sharply to the south and rises again to meet the rear yards of the residential lots that abut the south property line of the park. Running

east to west within this valley-like landform is a corrugated steel culvert that replaced a small watercourse that once traversed the site. The culvert is shallow and is broken and exposed at one location near the southwest corner of the park. The City of Markham has earmarked funding to replace this storm sewer as part of the overall flood reduction program for the area. Much of the tree cover within Glencrest Park was recently lost due to damage resulting from infestation by the Emerald Ash Borer. Many of the deceased ash trees were removed in the spring of 2014. The remainder of the park landscape comprises maintained turf.

**Proposed Concept Plan:** The regeneration concept plan was designed to achieve the following core and complementary theme objectives:

- Improve stormwater management;
- Complement the proposed flood control plan;
- Enhance urban tree canopy cover;
- Enhance habitat and ecological functions
- Provide opportunities for recreation and socialization;
- Improve walkability; and
- Reinforce community identity.

The concept includes the following amenities:

- Meditation garden;
- Pollinators garden;
- Labyrinth;
- Open play space;
- Stormwater attenuation/ naturalized area;
- New playground on safety surface;
- Shade structure;
- Picnic area;
- Stone entry sign wall;
- Reforestation area; and
- Pedestrian walkways.

This proposal would include re-creating the “lost valley”, reforesting the former tributary corridor and re-grading the upland area of the park to afford the opportunity to expand recreational programming. The various components that comprise the concept plan are described below.

### **Recreational Amenities**

The existing substandard baseball diamond and existing playground are proposed to be removed. A new playground is proposed to be constructed near the entrance to the park at Ladyslipper Court. A pergola is envisioned to be located adjacent to the playground to provide shade and serve as an architectural element that will enhance the character of the park. The playground is intended to be accessible and will meet current safety requirements and could potentially be designed as a natural playground. The playground will be connected to a proposed entry court at Ladyslipper Court. An open play space is proposed east of the playground. This field will not be of sufficient size to accommodate a regulation soccer pitch but it will be suitable for informal play. The field is proposed to be graded flat and fitted with an operable sub-drain system that will enable it to be flooded in the winter to create a natural ice rink. Picnic areas are proposed around the open play space. A new trail is proposed that will provide a connection between the entrance to the park at Ladyslipper Court and a new entrance at the intersection of Laureleaf Road and Multiflora Place. The trail connection to Laureleaf Road is proposed to be sinuous and enhanced with plantings. A looped trail approximately 600 m in length is proposed to be created within the valley and a meditation garden is proposed on the edge of the valley feature for contemplation and to accommodate activities such as tai-chi.

### **Stormwater Management Initiatives**

The re-creation of the valley feature affords the opportunity to accommodate the attenuation of stormwater. The stormwater system could be reconstructed west of the CNR tracks and flow through a series of rain gardens before discharging at controlled rates to the reconstructed storm sewer system at the south-west corner of the park. The design of the system will include the protection of the sanitary sewer that runs parallel to the stormwater sewer from direct impacts as well as additional inflow or infiltration. The emphasis would be on the attenuation of more frequent storm events and local runoff to provide opportunities for:

- A reduction in runoff volume to the conventional storm sewer system due to increased evapotranspiration and stormwater infiltration into rain garden media and underlying native soil when groundwater conditions allow;
- Improved runoff quality through physical and biological removal of stormwater contaminants during stormwater filtration/infiltration through rain garden systems;
- The creation of attractive gardens with colorful flowers;
- The establishment of habitat and food for wildlife, primarily songbirds and butterflies.

### **Walkability**

The proposed trail system will connect key features within the park but also, and more importantly, will provide an off-street pedestrian linkage between Laureleaf Road and Ladyslipper Court. The looped trail system within the park will afford opportunities for walking and jogging within a naturalized landscape setting. The trail is envisioned to be a narrow trail to complement the natural aesthetic of the park.

### **Landscape Enhancement**

The re-creation of the valley feature will transform the landscape within Glencrest Park from maintained turf to a rich mosaic of ecotones, creating approximately 7,100 m<sup>2</sup> of naturalized landscape. Tree planting is proposed extensively throughout the park with the intent of expanding the tree canopy and promoting evapotranspiration. Amenities such as benches, recycling stations and bicycle racks are proposed to accommodate user needs. The shade structure and playground are envisioned to be a focal point within the park, conveying a unique character and aesthetic that will be complementary to the shade structure that is proposed in Bayview Glen Park. Interpretive signage is also proposed to express the narrative about the re-creation of the valley landform associated with the former East Don River tributary that once flowed through the Glencrest Park site.

## Bayview Glen SNAP – Phases 2 and 3 Action Plan



Figure 7: Glencrest Park Retrofit Concept Plan



## Bayview Glen Park Concept Plan



**Figure 8: Bayview Glen Park**

**Existing Conditions:** Bayview Glen Park is located centrally in the neighbourhood and is adjacent to Bayview Glen School. The school grounds and the park share a common property line that is not well-defined and, therefore, the park and the school site form one contiguous open space that fronts on Limcombe Drive. Walkways connect the site to Daffodil Avenue and Viburnum Place. The landscape of both the park and school yard comprises maintained turf. Trees are generally located around the perimeter of the park. The school yard is largely devoid of trees. The topography of both the school yard and the park is relatively flat. The site drains to the south and surface runoff discharges into a culvert

inlet that is located on the north side of Limcombe Drive. The site is poorly drained, with wet, muddy areas located within the school yard and at the eastern edge of the park. Recreational facilities contained within the park include:

- Tennis courts – non-illuminated asphalt surfaced courts in relatively good condition;
- A softball diamond – non-regulation size with a skinned infield;
- A playground structure – located on the shared property line with the school. This facility is sub-standard in terms of meeting current standards for both the structure and the underlying safety surface; and
- A granular trail – unmaintained with rills and surface depressions.

A number of ash trees that were aligned along the south frontage of the park had been removed. Limcombe Drive includes a granular shoulder that serves as an informal lay-by lane used by parents who are dropping off or picking up children at the school. The sidewalk along Limcombe Drive is discontinuous, presenting an unsafe condition for pedestrians.

**Proposed Concept Plan:** The concept plan for Bayview Glen Park was designed to achieve a number of objectives that relate to core and complementary SNAP themes, including the following:

- Improve stormwater management in terms of quality enhancement and erosion quantity control;
- Expand urban tree canopy cover;
- Improve walkability;
- Promote energy conservation;
- Provide opportunities for recreation and socialization;
- Enhance public safety;
- Reinforce community identity;

- Mitigate flooding;
- Reduce Inflow /Infiltration into the sanitary system through localized runoff attenuation; and
- Enhance urban forest/ succession planting for aging trees and dying ash trees.

The concept plan illustrates a re-imagined Bayview Glen Park that offers improved recreational amenities, better connectivity to the neighbourhood and a richer and more diverse ecology. Proposed amenities include:

- New playground and safety surface in a new location;
- Naturalized plantings - rain gardens, bioretention cells and detention swales;
- Shade structure/ solar array;
- Solar lighting for proposed trail;
- Stone entry sign wall;
- Paved pedestrian walkways and entry courts;
- Permeable unit paving layby and entry court;
- Enhancements to existing softball field; and
- Bike racks and benches.

The park, school yard and adjacent streets are addressed as an integrated whole in order to optimize the ability to achieve the objectives set out above. The key components of the Concept Plan are described below:

### **Recreational Amenities**

- The existing softball diamond is proposed to be retained and improved with the addition of a new infield and players benches.
- The existing playground is proposed to be removed and replaced by a new playground that is located more prominently along the Limcombe Drive frontage of the park. The playground is proposed to be state-of-the-art in terms of play value and adherence to current safety and accessibility standards. A shade structure is proposed along the south side of the playground. The shade structure is envisioned to have a unique architectural signature with complementary signage. The shade structure is also intended to incorporate photovoltaic panels that will provide a source of power to illuminate the proposed new trail.
- The existing tennis courts are proposed to be retained.
- Defined access paths are proposed to connect the tennis courts to the pathway system within the park.
- The ball diamond and sports field within the school yard are proposed to be regraded to promote positive drainage and improve their usability.
- A system of pathways is proposed to link Limcombe Drive to Daffodil Avenue and provide improved access to the school. A looped trail is proposed for recreational purposes as well as to provide an improved linkage to the softball diamond infield. A total of 704 linear meters of new walkways are proposed.



- **Stormwater Management Initiatives**

Currently, surface water from a large upstream drainage area collects at a low area at the intersection of Daffodil Avenue and Viburnum Place, and is piped from the intersection westward to the East Don River. It is proposed to divert a portion of the surface drainage from Viburnum Place and surrounding areas that currently drain into a tributary to this system to a swale flowing south and east through Bayview Glen Park. The swale would direct the flow to two wetland areas – one in the vicinity of the existing playground and one south of the proposed playground. Both of these wetlands are intended to collect and store runoff, improve water quality, reduce erosion and promote evapotranspiration. The diverted runoff will be controlled such that no increase in flow or volume will be experienced downstream, particularly at Steeles Avenue where agreements restrict the amount of water crossing Steeles Avenue into the City of Toronto.

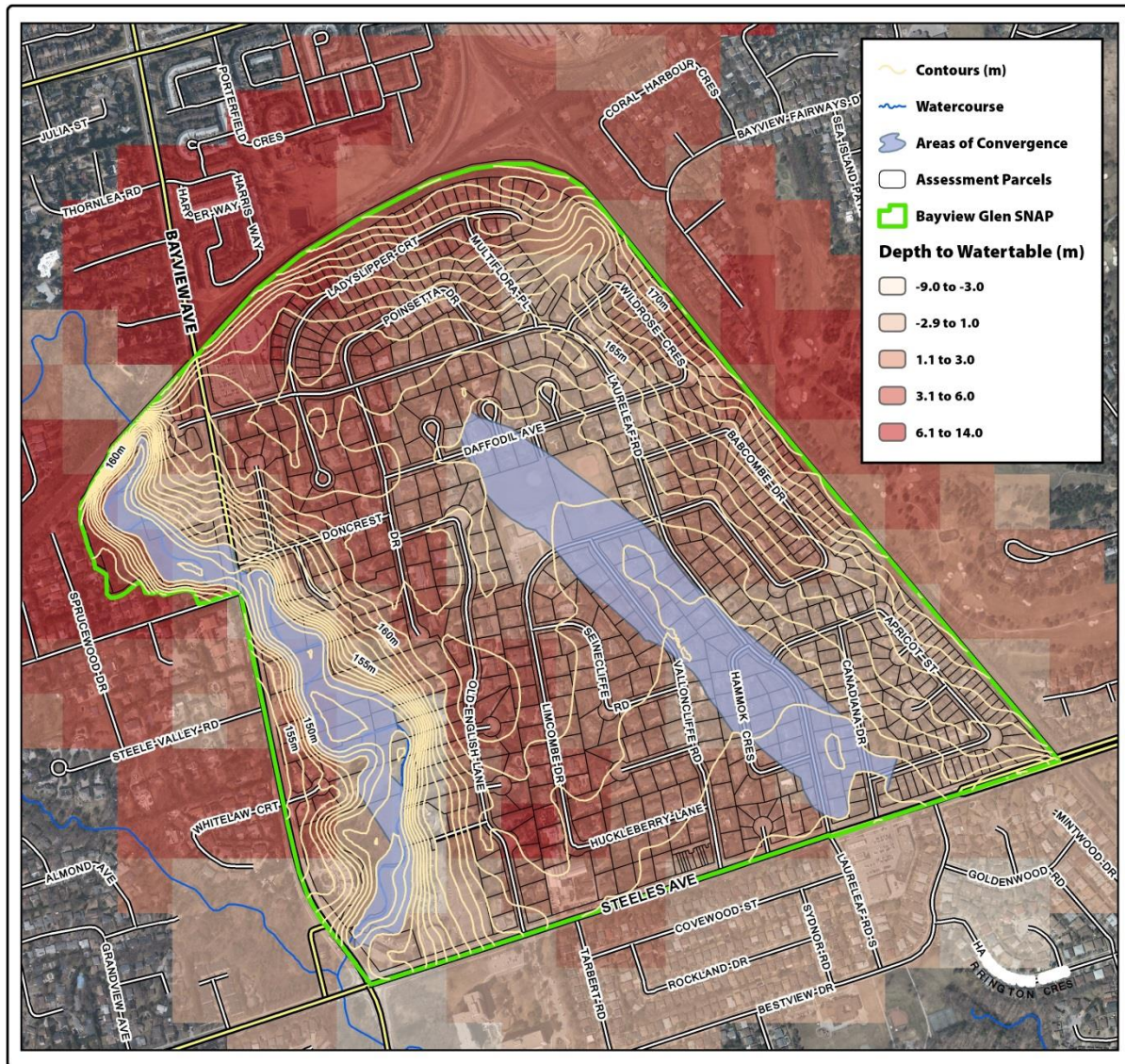


Figure 9: Bayview Glen depth of water table

The design of the systems would be integrated with the existing subsurface tile drainage system. During detailed design, the existing 250 mm diameter sanitary sewer traversing the park will be protected from direct impacts and from increased inflow and infiltration from the bioretention systems. Controlled discharge from the system of wetlands would be directed into the storm sewer on Limcombe Drive opposite Valloncliffe Road that currently services the school and park.

Viburnum Place is proposed to be converted into an entry court into the park. The existing road is intended to remain accessible by vehicles only to the point at which access to the existing driveway is required. From this point southward, the road is proposed to be converted to a pedestrian courtyard. The road surface is proposed to be replaced with permeable pavement and bioretention cells on one or both sides of the entry court. Surface drainage from the remaining Viburnum Place and potentially some surface drainage from Daffodil Avenue would be directed to the bioretention cells.

### **Walkability and Public Safety**

In addition to the new trails that are proposed within the park, a new sidewalk is envisioned to be constructed on the north side of Limcombe Drive extending from the school to Laureleaf Road. Adjacent to the south side of the sidewalk, a new parking lay-by is proposed to accommodate student pick-up and drop-off traffic. The layby is proposed to be paved using permeable pavement, facilitating conveyance of runoff from Limcombe Drive to the adjacent proposed bioretention feature.

### **Landscape Enhancements**

Extensive tree planting is proposed within the park along with the creation of wetlands and meadows. The proposed area of naturalization is approximately 3,165 m<sup>2</sup>. The installation of benches, recycling stations and bicycle racks is also proposed. The shade structure and entry court are intended to be constructed with durable, high quality materials that will be beautiful yet resistant to weather and vandalism in order to achieve a long service life with a minimum of maintenance.

The sanitary sewer that crosses through the middle of the park will also be considered when planning the landscape corridor, to allow for future sanitary operation and maintenance requirements.

Overall, the concept plan is intended to establish Bayview Glen Park as the recreational and social centrepiece of the community.





Figure 10: Bayview Glen (Current Conditions)



Figure 11: Bayview Glen Park (Proposed Concept)



## Bayview Glen SNAP – Phases 2 and 3 Action Plan

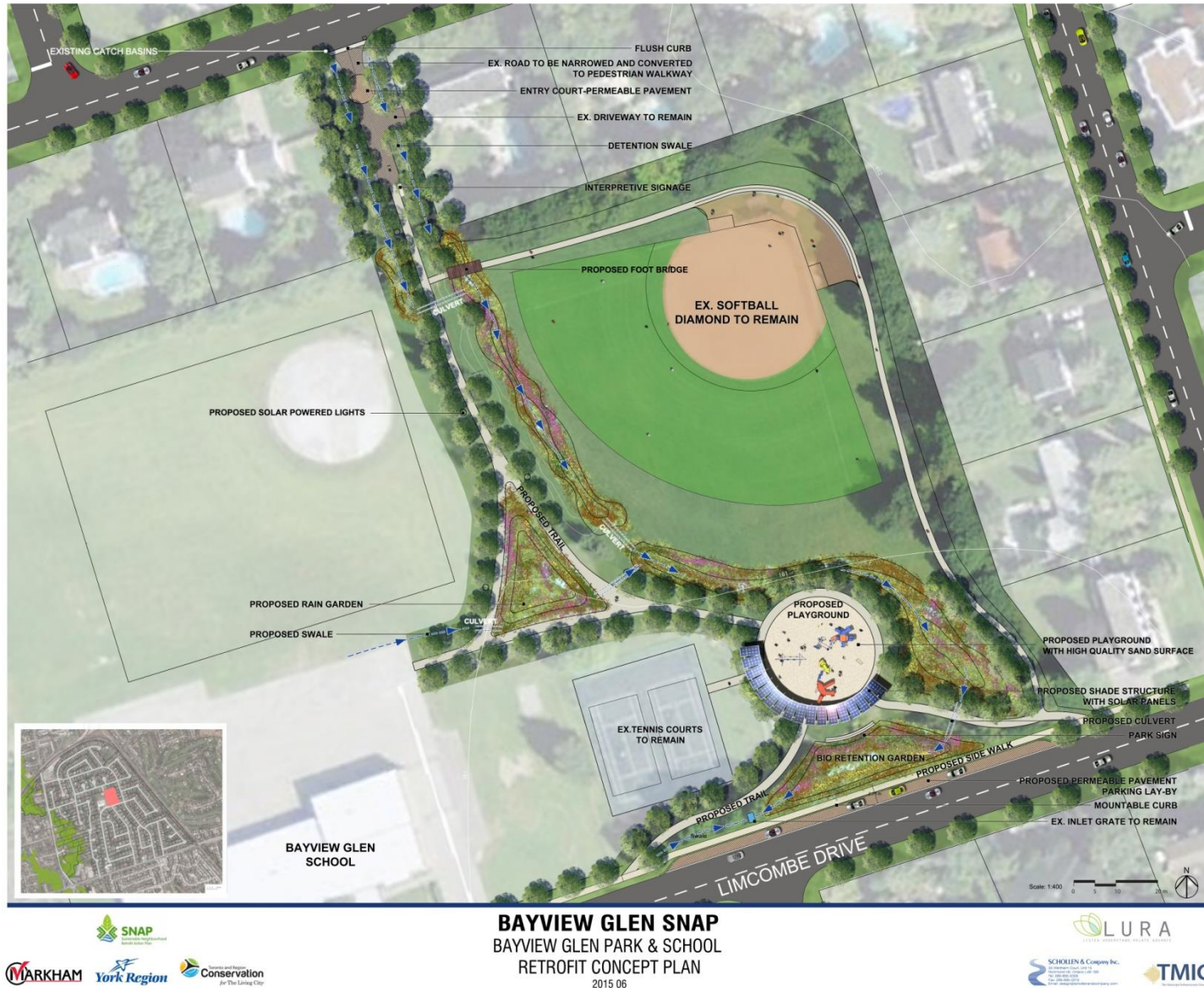


Figure 12: Bayview Glen Park & School Retrofit Concept Plan

## Stone Farm Parkette Concept Plan



**Figure 13: Stone Farm Parkette**

**Existing Conditions:** Stone Farm Parkette is located at the northeast corner of the intersection of Apricot Street and Canadiana Drive in the southeast corner of the Bayview Glen neighbourhood. This small parkette encompasses an old hedgerow that once lined a portion of the driveway that led from Steeles Avenue East up to the Stone family farmhouse. The farmhouse was removed when the Bayview Glen neighbourhood was developed but the hedgerow is an important reminder of the heritage of the site. The parkette is somewhat strategic from a stormwater management

perspective in that it is situated at a relative low point in the topography of the area. Storm runoff from both Apricot Street and Canadiana Drive flows adjacent to the parkette, and a storm sewer conveys storm drainage from Stoneybrook Court through the parkette to the Canadiana Drive storm sewer system. In response, the concept plan for Stone Farm Parkette was generated with regard for the streets within the catchment area.

Existing recreational amenities within the parkette include a small playground and an open lawn. The parkette is located in an area of the neighbourhood where the water table is high. During the winter of 2014, an embedded waste container had been displaced by water and ice pressure and was lying on its side next to the playground. The high water table presents some challenges that were considered in the process of generating the concept plan.

**Proposed Concept Plan:** The proposed concept plan for Stone Farm Parkette addresses the parkette as well as Stoneybrook Court, the cul-de-sac that is located northeast of the parkette. It is important to note that the retrofit initiative proposed for Stoneybrook Court can also be implemented on Spinningwheel Court, as well as several other cul-de-sacs in the neighbourhood. The concept plan for Stone Farm Parkette was developed to achieve the following core and complementary theme objectives:

- Improve stormwater management;
- Complement the proposed flood control plan;
- Provide opportunities for recreational and socialization; and
- Reinforce community identity.

The initiative proposed within the parkette and cul-de-sac is envisioned to create an integrated system to achieve the City of Markham's stormwater management objectives. The concept includes the following amenities:

- New playground and safety surface in new location;
- Open play space;
- Naturalized areas;
- Shade structure;
- Rain gardens;

- Stone entry sign wall and interpretive signage; and
- Paved pedestrian walkways and entry courts.

### **Recreational Amenities**

The existing playground is proposed to be removed and replaced with a new creative playground that complies with current safety and accessibility standards. Additional natural play elements are also proposed including boulders and logs. The new playground is envisioned to be located in the southwest corner of the parkette. Relocating the playground at the terminus of the hedgerow will enhance visibility and accentuate the presence of the remnant hedgerow. A shelter structure / pavilion is proposed to separate the playground from the intersection of the streets as well as to create an architectural feature at this prominent location. A small multi-use field is proposed to accommodate open play space. A trail is proposed to connect Canadiana Drive to Apricot Street, providing access to the playground. Approximately 150 linear metres of new walkways are proposed throughout the park.

### **Stormwater Management Initiatives**

A number of improvements are proposed to capture and attenuate stormwater runoff and to contribute to water quality improvement and erosion mitigation. These improvements include:

- The installation of two “rain gardens” in Stone Farm Parkette, one along the Apricot Street frontage of the parkette and one along the Canadiana Drive frontage. Currently, surface drainage from these roadways is captured in catchbasins to the east and north of the intersection. The catchbasins would be replaced with curb inlets to the rain gardens, where storm runoff would be attenuated, filtered by vegetation and attenuated in the rain gardens for evapotranspiration. Any overflow from the rain gardens would be directed back into the storm sewer system.
- The Stoneybrook Court cul-de-sac would be retrofitted to significantly reduce storm runoff. The paved street width from Apricot Street could be reduced, with additional tree plantings in the widened boulevard areas. In addition, the cul-de-sac bulb would be regraded to drain to an infiltration gallery at the centre of the bulb. The infiltration gallery would consist of a column of granular materials, with a sub-drain and overflow to convey any excess water to the existing storm sewer system. The infiltration gallery would be surfaced with permeable pavement to safely direct water into the infiltration column. The detailed design for the cul-de-sac will need to be generated with regard for the implication of snow removal and may include a supplementary catchbasin to ensure that icing of the road surface is addressed.
- Any excess runoff from Stoneybrook Court will be conveyed through the existing storm sewer system and overland flow path to the parkette. At the parkette, the storm sewer system will be modified to direct a portion of the flow to a sub-surface storage system located under the multi-play field. The sub-surface storage system, consisting of a number of perforated pipes within a granular storage layer, would attenuate peak flows and provide further opportunities for infiltration when groundwater conditions are favourable. The underground storage system would include an overflow to either the Canadiana Drive or Apricot Street storm sewer. The system of



perforated pipes would also alleviate some of the groundwater pressure in the spring and fall months, which is capable of pushing the embedded waste containers out of the ground.

Combined, the infiltration gallery in the cul-de-sac and the system below the sports field create approximately 320 m<sup>3</sup> of sub-surface storage. This is approximately equivalent to the runoff from a 2 year storm over the 1.5 ha area draining to this system. The rain gardens will provide further attenuation and reduction in runoff volumes from Canadiana Drive and Apricot Street.

As this facility is on City of Markham property, it may fall under Schedule A+ of the Municipal Class EA and therefore the affected public is to be advised prior to implementation (i.e., no requirement for alternative screening). Functional design of the facility is required and feasibility of infiltration must be determined as the park has chronically high groundwater. The design should consider that storm sewer upgrades on Canadiana Drive as identified in the Storm Flood Remediation Class EA are currently being re-evaluated with the City of Toronto based on updated modelling.

### **Landscape Enhancement**

Additional tree planting is proposed within the parkette to provide shade, promote rainfall interception and evapotranspiration and increase canopy cover. The use of species such as willow and silver maple should be considered in order to maximize water uptake and promote evapotranspiration. Approximately 850 m<sup>2</sup> of naturalized plantings are proposed within the parkette. Additional street tree planting is also proposed within the widened boulevards at Stoneybrook Court. Within the parkette, the pavilion / shade structure is envisioned to have a unique architectural signature in order to serve as a focal point at this prominent intersection within the community. Amenities such as benches are proposed to be provided along with an interpretive sign that conveys the heritage of the site and tells the story of the Stone family farm.

## Bayview Glen SNAP – Phases 2 and 3 Action Plan



Figure 14: Stone Farm Parkette Retrofit Concept Plan

The implementation of the concept plans for Glencrest Park, Bayview Glen Park and Stone Farm Parkette will facilitate the renewal of the aging recreational amenities within the neighbourhood while at the same time achieving a range of sustainability objectives.

### **Streetscapes and Circulation**

The street fabric within the Bayview Glen community comprises two types of streets:

- Streets with an “urban” cross-section; and
- Streets with a “rural” cross-section.



**Figure 15: Streets with an “urban” cross-section (pictured left) and streets with a “rural” cross-section (pictured right).**

Streets with an “urban” cross-section are characterized by curbs and are fitted with catchbasin and storm sewers. Storm runoff flows on the road surface toward the curbs and into the catchbasins, where they are conveyed to an outlet via the storm sewer system. Rural streets do not have curbs, and instead runoff from the road surface flows to ditches on either side of the road. The ditches eventually discharge to larger watercourses or enter downstream storm sewer systems.

The majority of the streets within the Bayview Glen community have urban cross sections. However, a number of streets in the area generally bounded by and including Limcombe Drive and Laureleaf Road have rural sections. The roadside ditches in these areas range from shallow grassed depressions to manicured landscape features and many sections have been piped between adjacent driveway culverts.

Within these two street typologies there are two subsets, streets with sidewalks and streets without sidewalks. Throughout the community engagement process some residents expressed concern over a lack of sidewalks, trails and bike paths. An assessment of the study area revealed that there is a lack of connectivity in the system of sidewalks throughout the neighbourhood, limiting walkability and discouraging active transportation. Figure 16 (next page) illustrates where sidewalks are presently located within the Bayview Glen neighbourhood. The total length of existing sidewalks is 4,045 m. At the present time there are no designated bicycle routes within the neighbourhood.



Bayview Glen SNAP – Phases 2 and 3 Action Plan



Figure 16: Existing Sidewalks and Trails





In order to enhance walkability within the neighbourhood, the installation of sidewalks on several streets is proposed (see Figure 18, below). These sidewalks would connect to the trail systems proposed within Bayview Glen Park and Glencrest Park to create a linked system of pedestrian routes that will connect key destinations within neighbourhood. The implementation of a designated bicycle route along Laureleaf Road is also recommended since this road is a major through street that connects to public transit.

Figure 17: Example of designated bicycle routes

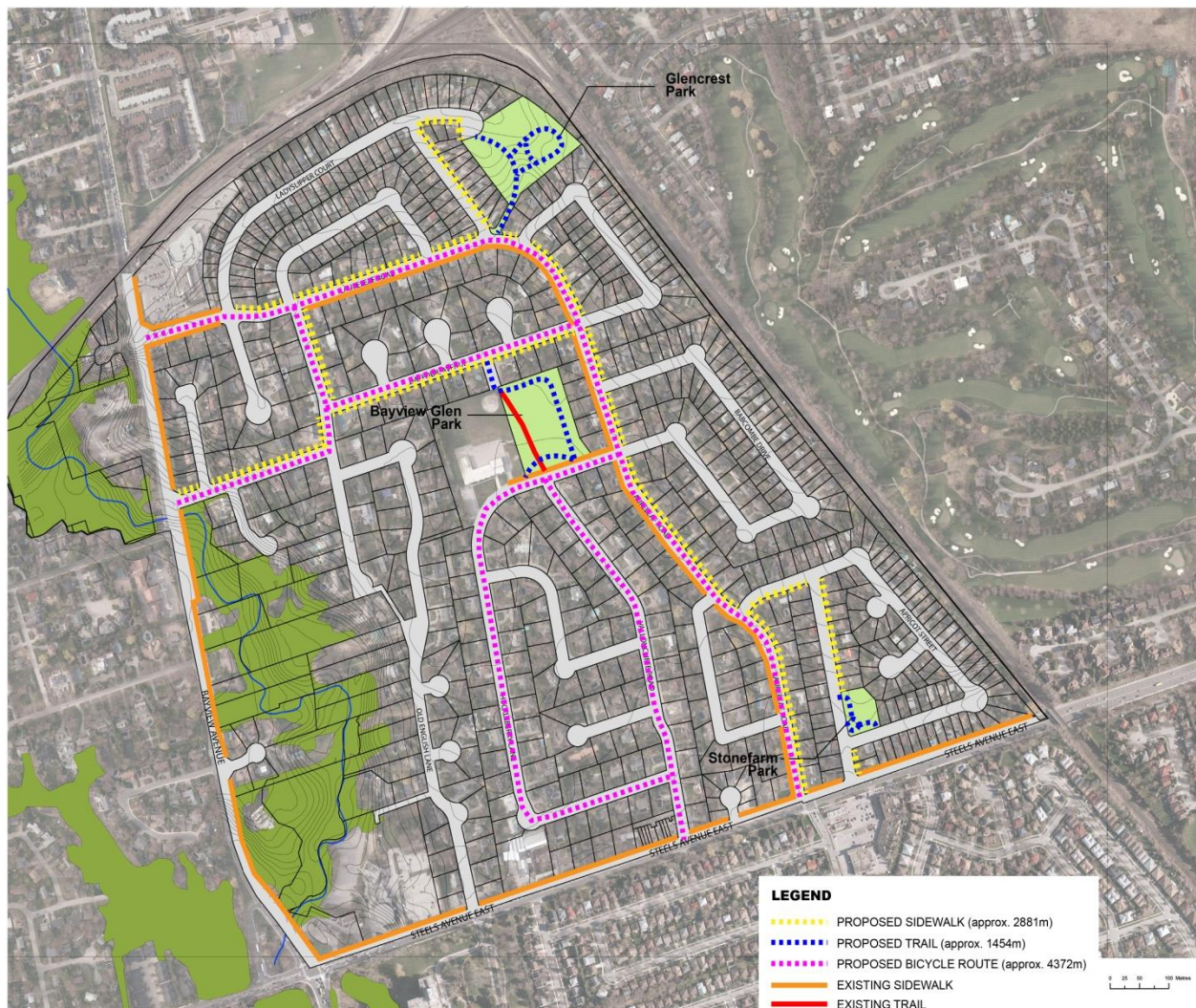


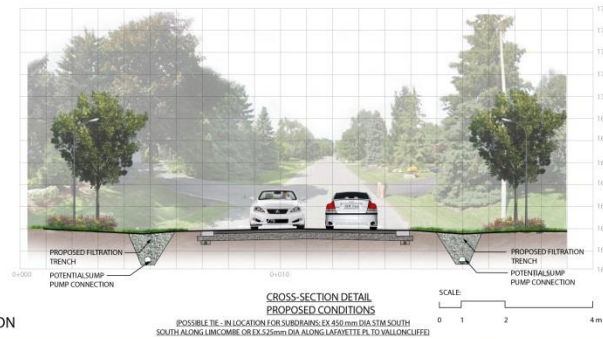
Figure 18: Proposed Sidewalks, Trails and Bicycle Routes

## Bayview Glen SNAP – Phases 2 and 3 Action Plan

The concept of “traffic-calming” through the installation of speed bumps was also raised through the community engagement process. It was also noted that strategically placed trees can also have a traffic calming effect. Short-cutting traffic has been problematic on Laureleaf Road and Canadiana Drive. Although enhancing public safety is an objective of the SNAP, additional analysis will be required by the City of Markham to determine if the implementation of traffic-calming initiatives is warranted.



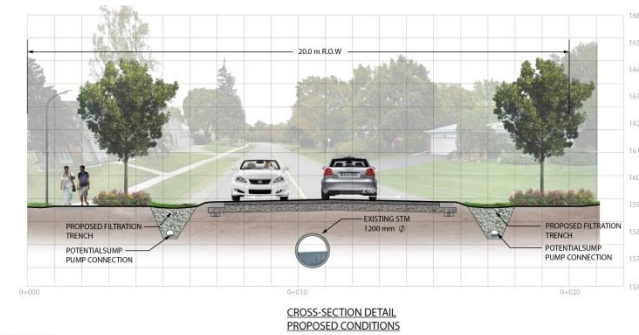
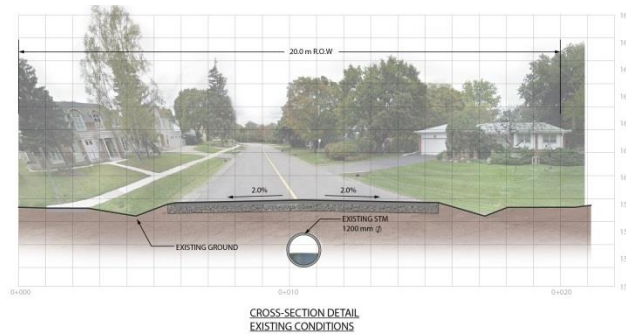
## Bayview Glen SNAP – Phases 2 and 3 Action Plan



LIMCOMBE DRIVE - TYPICAL CROSS-SECTION



**BAYVIEW GLEN SNAP**  
TYPICAL RURAL CROSS SECTION  
2014 06



LAURELEAF AVENUE - TYPICAL CROSS-SECTION



**BAYVIEW GLEN SNAP**  
TYPICAL RURAL CROSS SECTION  
2014 06



## Bayview Glen SNAP – Phases 2 and 3 Action Plan

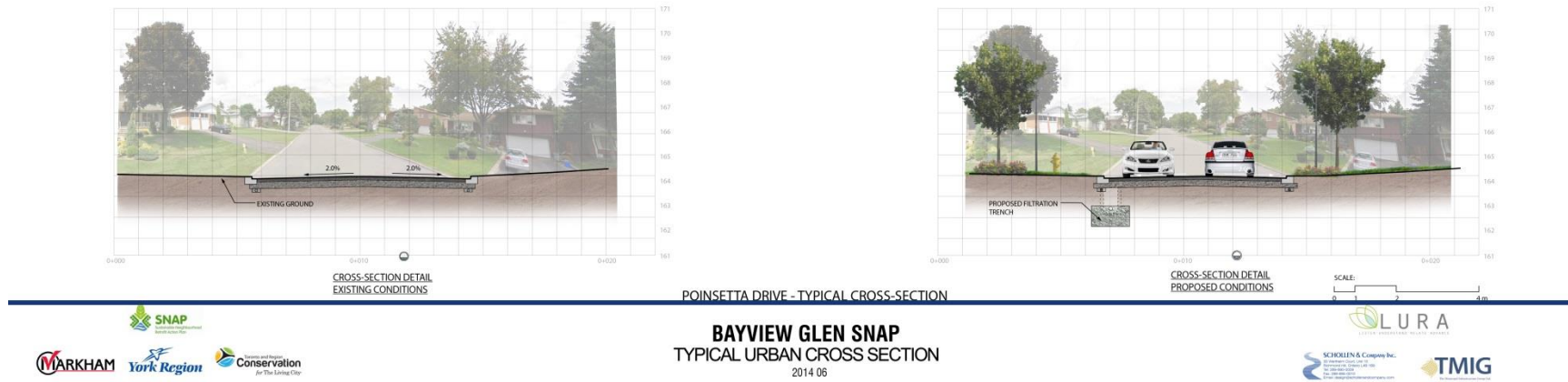


Figure 19: Typical Rural and Urban Cross-Sections

The existing road right-of-ways through the Bayview Glen neighbourhood represent an opportunity to implement significant stormwater management enhancements.

It is proposed to reconstruct the rural streets in the southern portion of the study area with a reduced pavement width, which will in turn reduce runoff volumes. Further, the existing shoulders and swales would be replaced with flush curbs and infiltration/filtration trenches. The trenches would consist of granular material to at least the minimum frost depth (1.2 m), and would include a perforated pipe above the base of the trench to drain water during large storm events and when groundwater levels are high. A number of storm sewer systems are available within the areas with rural street sections to accept water from the sub-drains. The perforated pipes within the trenches could also accept connections from residential sump-pumps, potentially reducing inflow to the sanitary sewer system (where sump pumps connect to the sanitary system) and reducing nuisance flooding from surface sump pump discharges. As infiltration trenches would likely be accommodated on City of Markham property, these works may fall under Schedule A+ of the Municipal Class EA (i.e., no requirement for alternative screening). However, the areas of proposed modifications would have to be identified and the affected public is to be advised prior to implementation. This would be confirmed during functional design which would also identify and mitigate any impacts to major drainage conveyance capacity associated with ditch modifications (i.e., to manage overflows to private property and mitigate ponding over sanitary manholes), and identify suitable outlets for sump-pump drains and infiltration trenches that collect and ultimately discharge runoff or groundwater (e.g., downstream storm sewer systems). Integration with road base drainage must also be identified to prevent any impacts to the structural integrity of the road base. A plan showing modifications would also identify features for regular inspection and maintenance of the drain/trench system (e.g., access for CCTV inspection and flushing/cleaning), and interaction with existing driveway culverts (i.e., reduced swale requirements and landscaping considerations).

When groundwater conditions allow, the trenches could improve water quality and reduce erosion in the East Don River by infiltrating runoff from the streets for most storm events. When groundwater conditions make infiltration impossible, there will continue to be benefits to water quality and erosion through the filtering and attenuation of storm runoff within the granular soils in the trenches.

Retrofitting the urban streets in the study area is more challenging. Sufficient room within the right-of-ways does not exist to replace the storm sewers with the system of trenches and sub-drains proposed for the existing rural areas.

Within the urban areas, there are a number of smaller storm sewer systems that connect to the larger trunk storm sewers. It would be possible to replace the upstream-most section of storm sewer in these systems with an infiltration trench. The trench would be located under the existing curb, and would consist of a granular trench extending to a depth of approximately 1 m below the minimum frost depth. The upstream-most catchbasins would be replaced with small oil-grit separators to provide pre-treatment of road runoff. These are required, as there are no opportunities to filter runoff through a topsoil and vegetation layer upstream of the infiltration trenches. The retrofit catchbasins would connect to a perforated pipe installed near the surface of the trench. Runoff would flow out of the perforated pipe and into the trench where it would be allowed to infiltrate, where and when

groundwater conditions allow. The trenches could improve water quality and reduce erosion in the East Don River by infiltrating runoff from most storm events.

As infiltration trenches would likely be developed on City of Markham property, these interventions may fall under Schedule A+ of the Municipal Class EA process (i.e., no requirement for alternative screening). Whether an EA is required or not, the streets that will be affected by the construction of the infiltration trench should be identified and communicated to residents. This will be confirmed during the functional design phase, in addition to identifying and mitigating any impacts to major drainage conveyance capacity associated with ditch modifications, as well as suitable outlets for the infiltration trenches that collect and ultimately discharge runoff or groundwater (e.g., downstream storm sewer systems). As with rural sections, a plan showing modifications would also identify features for regular inspection and maintenance of the drain/trench system (e.g., access for CCTV inspection and flushing/cleaning).

Any implementation of the infiltration trenches on rural and urban roadways should be coordinated and integrated with construction of the remaining projects recommended in the West Thornhill Stormwater Flood Control Implementation Strategy.

For rural streets, where infiltration trenches could be installed on both sides of the road, the trenches could store and infiltrate the runoff from a 15 mm storm event (when not restricted by high groundwater levels). For urban streets, with a single infiltration trench, the trench could store and infiltrate the runoff from a 10 mm storm for the length of street served. In general, the groundwater pressure will be reduced as a result of the infiltration trenches and potentially reduce the inflow and infiltration to the sanitary system during high groundwater levels.



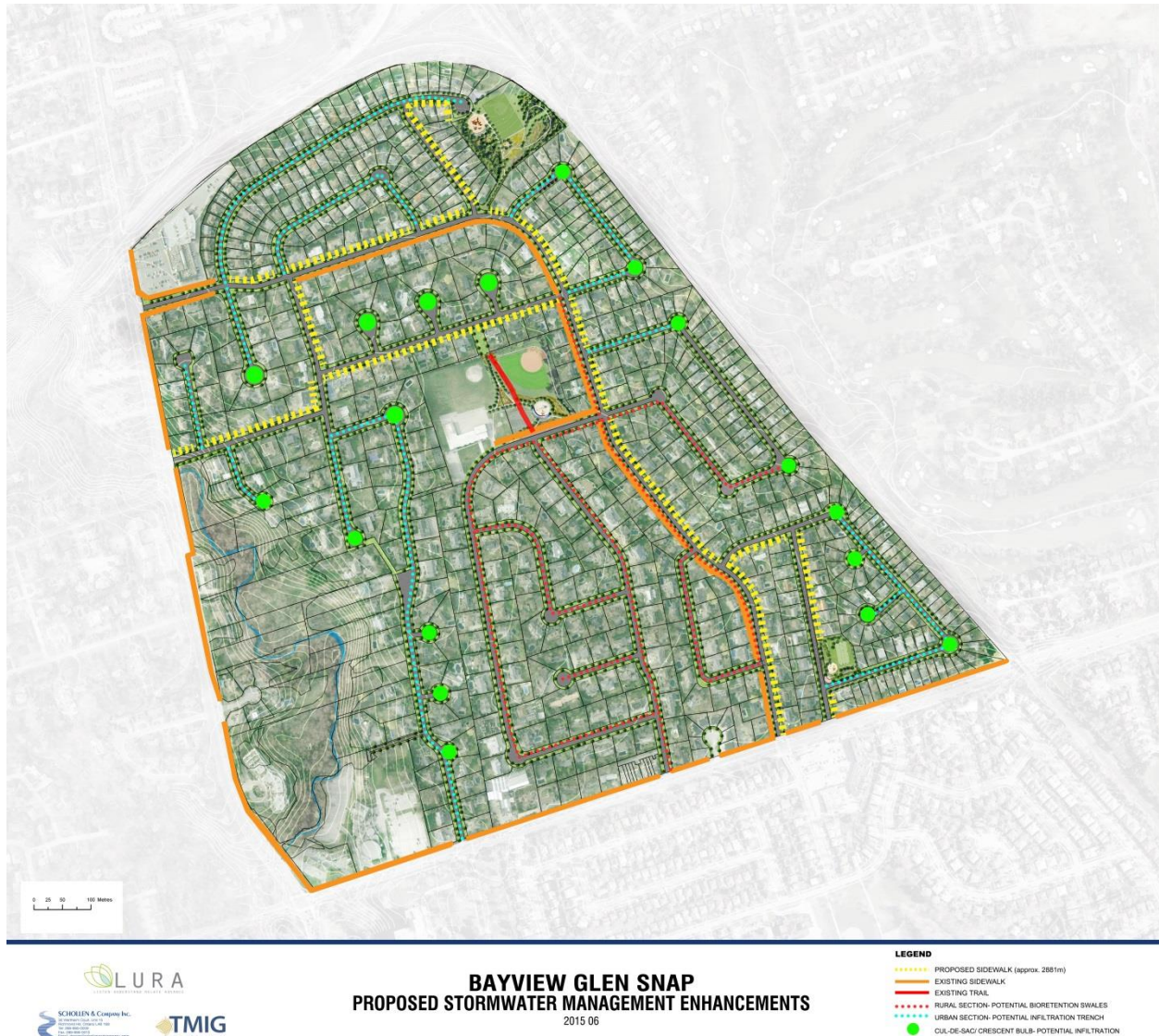


Figure 20: Proposed Stormwater Management Enhancements in Road Right-of-Ways

### 3.3 Residential Retrofit Program

Developing a program to encourage residents to retrofit their homes and properties provides a significant opportunity to contribute to many of the core area objectives. The following provides a description of the Residential Retrofit Program to provide input for future decision-making at the City of Markham.

**Existing Conditions:** Bayview Glen is an established residential neighbourhood comprised of 715 dwellings. Single detached homes built on relatively large lots with grass-covered lawns and wide driveways account for approximately 85 percent of the housing types in the neighbourhood. The majority of the neighbourhood’s housing stock (53 percent) was built between 1960-1980. There has

however been a notable increase in the number of new homes being developed in the neighbourhood as new homeowners replace the original dwellings they purchased with larger homes.

Home ownership in the neighbourhood is nearly universal (96 percent). This is not surprising given that the average neighbourhood household income is \$294,552. Data analysis performed by Environics indicates that residents in the neighbourhood can be identified in two lifestyle clusters – “urbane villagers (wealthy, middle-aged urban sophisticates)” and “cosmopolitan elite (very wealthy middle-aged and older families and couples).” The Environics research findings were used to inform the residential retrofit and new home construction programs.

Technical work completed during Phase 1 of the SNAP process included the development of maps visualizing annual energy and water consumption and other data (included in Appendix B), and informed the work completed in Phases 2 and 3. The visualized results indicated that:

- There is a concentration of high water users in Bayview Glen compared to other neighbourhoods in York Region. For instance, nearly one third (30 percent) of the homes in the neighbourhood have pools.
- There is a high level of electricity and gas consumption in the neighbourhood.
- There was low to moderate participation in water and energy conservation programs such as the toilet rebate program (approximately 38 homes), and extremely low participation in electricity conservation programs (only one home participated in Peaksaver). These trends were echoed through the community engagement process where residents indicated they did not know about the programs or found the incentive process to be too cumbersome.
- There is a history of flood events in the neighbourhood.
- There are opportunities to reduce the risk of flooding in certain areas of the neighbourhood through the City of Markham’s Sanitary Sewer Downspout Disconnection Program.

**Proposed Retrofit Program:** The Residential Retrofit Program is designed to provide residents with a one-stop shop approach to upgrading their homes and properties. It is proposed that the Residential Retrofit Program centre on a detailed home audit for each interested homeowner. The goal of the retrofit program is to make the process as simple and comprehensive as possible for the homeowner to foster greater uptake levels. Many community members have indicated that they believe Bayview Glen and their homes to be outstanding and in no need of improvement. The neighbourhood energy and water consumption data and participation rates in conservation programs tell a different story. The home audit program conducted at an individual, independent assessment level of the property would provide a baseline of understanding for residents on what their true level of consumption is, and more importantly how they can improve outcomes. This approach would not only identify key retrofit opportunities but enable a comparison of a homeowner’s property with other similar properties, both upgraded and non-upgraded, and promote potential benefits (i.e.: leadership, quality, cost savings, environmental contributions, etc.).

Under this model the retrofit program will contribute to a number of the objectives that relate to core and complementary SNAP themes including:

- Reduce electricity, gas, and potable water consumption (indoor and outdoor) through efficiency and conservation measures;
- Foster sustainable behaviours (e.g., active transportation, reduced vehicle fuel, energy and water consumption);
- Increase use of alternative water sources to match quality of water supply with needs of desired end use (e.g. rainwater for outdoor irrigation);
- Adopt renewable energy sources;
- Reduce GHG emissions;
- Reduce stormwater runoff from private property primarily through evapotranspiration as infiltration is in most cases not an option;
- Reduce sanitary sewer inflows by eliminating downspout and sump pump connections to the sanitary sewer;
- Contribute to ecological integrity objectives by promoting native species, naturalization and tree planting on private properties;
- Promote healthy living through the inclusion of backyard gardening and local food; and
- Contribute to a strong and sustainable neighbourhood identity that instills a sense of belonging and civic pride amongst the residents.

### **Target Audiences**

While the Residential Retrofit program applies to all property owners within the overall SNAP neighbourhood, individuals that can be categorized into one or more of the following groups that are of particular interest:

- Plans for renovations (retrofits) in the next couple of years;
- Completed few or no energy or water efficiency upgrades;
- High total electricity and/or gas consumption;
- High water consumption;
- Own pools; and
- Irrigation system present.

### **Recommended Measures**

Based on the evaluation criteria identified in Section 2.1 as well as the feedback from residents through the homeowner survey, community meetings and focus group, the list of measures was revised to reflect which measures would be best included in an audit. The measures and criteria were entered into a scoring matrix. For each measure, points were assigned under each criterion based on the relative benefit of the measure (3 = maximum benefit, 0 = no benefit). Points assigned under the main criteria were given double the weighting of the secondary criteria to reflect their higher priority. The points were then totalled and the measures ranked according to total

#### **Residential Retrofit Program**

##### **Name (Options)**

- **The Great Home Makeover Project** – building on the perception in the neighbourhood that their homes and yards can move from good to great. It plays on the desire for high quality and prestige as well as a sense of belonging to a larger neighbourhood initiative.
- **Home Improvement: Bayview Glen Edition** – playing on the popularity of home improvement programs, this peaks interest in what defines the Bayview Glen edition.

score. The rank determines whether a measure has been recommended for inclusion in the residential program. Notable additions include the stepwise retrofit plan<sup>3</sup> and deep energy retrofits, as the audit provides an ideal opportunity to identify both homeowners and properties suited for such approaches. The City of Markham also requested the inclusion of a measure to **treat or replace ash trees**, which has been identified a key issue in the neighbourhood. The comprehensive audit approach was supported by the PMT.

The following measures are recommended for inclusion in the retrofit program:

Table 1: Recommended Measures for the Residential Retrofit Program

<b>Energy Efficiency</b>
Air Sealing windows & other junctions
High quality, thermally broken triple-pane windows
Insulation
Low energy appliances
High efficiency heating, ventilating and air conditioning and domestic hot water
HVAC maintenance and controls upgrades
Drain water heat recovery devices
Solar pool pump, heater and blanket
Stepwise retrofit plan/complementary measures
<b>Water Efficiency</b>
Water efficient landscaping
Irrigation system automation / optimization (timers, sensors) + dripping hoses
Rain barrel
Low flow faucets and showerheads
Fix leaky taps and toilets
Low flow toilets
<b>Sustainable Management of Stormwater &amp; Urban Forest</b>
Disconnect downspout from sewer system
Rain gardens to encourage evapotranspiration
Planting of key species (i.e. willows) in areas of high water table (including native species that enhance evapotranspiration or heavy water drinkers where the water

<sup>3</sup> A step-wise retrofit plan is a comprehensive plan to retrofit all elements of a home (building assemblies, windows, HVAC etc.) in a phased approach in order to optimize the home's overall performance. The plan outlines:

- the sequencing of retrofit measures;
- how the measures interact with and impact each other;
- risks and risk mitigation strategies;
- approaches to synergizing the performance of multiple measures.

Without such a plan, a measure implemented today may cause issues or compromise the performance or benefits of future measures. For instance, if new windows are installed and sealed airtight to the envelope, insufficient air exchange may no longer be achieved without an active ventilation system.



Table 1: Recommended Measures for the Residential Retrofit Program

table is high)
Treat or replace ash trees
<b>Inflow and Infiltration</b>
Disconnect sump pumps and downspouts from the sanitary system
Connect sump pump to “third pipe” / subdrain system to stormwater system

Solar energy systems have been excluded except for solar pool systems, as resident feedback indicated an unwillingness to install these systems in their homes. They are also substantially more expensive on a cost per kWh basis than home energy efficiency measures [LTEP p.22]. Furthermore, solar PV systems are more cost effective when implemented at a larger scale (e.g. community). Lastly, the impact of energy efficiency upgrades generally lasts longer (the life of the building in some cases).

As discussed in Section 2.1, sanitary system infiltration and inflow have been identified as priority issues for the Bayview Glen neighbourhood. Inflow and infiltration (I&I) reduction measures on private properties including downspout disconnection and sump pump disconnection can contribute to the outlined I&I objectives. To identify sump pump connections requires entering into resident’s home with homeowner’s consent. However, the audit provides an ideal opportunity to identify properties that could implement these measures<sup>4</sup>.

During the Residential Retrofit Program process, there is an opportunity to promote existing City of Markham programs, such as the Organic Home Gardens workshops, Markham Grows Seed Library as well as those programs of partner organizations and community groups.

### **Audit Process**

In order to maximize contact with homeowners, control of the process, adoption rate, and data collection opportunities, it is recommended that a City Champion be fully engaged during the entire audit process.

The audit process would work as follows:

- Information brochure sent to homeowners - see marketing strategy in Section 4 for more information;
- Homeowner contacts City Champion to introduce and discuss the program; opening survey
- Resource library of reference materials be developed - To support both the City Champion and homeowner decision-making, it is recommended that a resource library of vetted materials be developed. These resources would provide information on upgrade measures, requirements, costs, returns, etc.;

<sup>4</sup> Windfall Ecology Centre has developed a stormwater management program and has applied for funding to administer it. They expect to start the program in spring 2015. Windfall should be contacted to understand how its program could interact with this program.

- Auditor selected and booked (optional: City Champion to attend audit);
- Audit undertaken and report sent to City Champion (behaviour survey can be undertaken here with the homeowner);
- Post-audit meeting between homeowner and City Champion to discuss results, recommendations, further resources, and contractor options;
- Contractor appointed and retrofit work undertaken;
- Post-retrofit audit booked;
- Post-retrofit audit undertaken and report sent to City Champion; and
- Follow up meeting/interview between homeowner and City Champion to discuss outcomes, program feedback, etc. and close-out survey.

### **Auditor Capabilities**

A survey of local audit companies was performed to understand whether the expertise existed to assess each of the proposed retrofit measures during an audit. This was to avoid including measures that could not feasibly be assessed by local companies. One company, Clearsphere, confirmed that they could cover all the measures. A second organization, Windfall Ecology Centre, confirmed that only HVAC maintenance was not currently covered by their audits but could be if sufficient demand existed. Two other companies, EnerTest Corporation and Trillium Home Inspection, indicated that several measures were not covered but could either easily be included or developed if sufficient demand existed. The latter two companies indicated the least experience with measures relating to I&I. A few other companies stated that they only undertake energy audits and were not interested in providing other services.

There is sufficient local expertise to cover all proposed elements of the detailed audit.

### **Appointing Auditors**

There are numerous organizations that provide energy audits, but only two were identified that they could currently cover all of the non-energy measures identified in the proposed program. To provide more flexibility, the audit could be undertaken by more than one auditor. The following options can be considered:

- Single auditor from private sector;
- 1 energy auditor , 1 non-energy auditor - both from private sector;
- 1 internal auditor, 1 external auditor - both from private sector;
- 1 energy auditor from private sector, City Champion as non-energy auditor; and
- 1 internal auditor from private sector, City Champion as external auditor.

The table on the next page describes the benefits and drawbacks of each option.

**Table 2: Auditor Options**

Option	Benefit	Drawback
1	Simplest to manage Least expensive	Longest audit time (inconvenience to homeowner)
2-5	Reduced audit time	More complicated to manage More expensive audit (more people, multiple reports) Homeowner may be uncomfortable allowing two auditors onto the property at once, as they are more difficult to observe
2		Would require both auditors to enter house
3	Only one auditor would enter house	Energy audit companies would need to upgrade skills to cover sump pump element (if included in program)
4	More interaction between City Champion	Would require both auditors to enter house
5	Only one auditor would enter house	Energy audit companies would need to upgrade skills to cover sump pump element (if included in program)

To keep the process simple for both homeowner and City Champion, it is recommended that a single auditor from the private sector provide the entire audit. However, additional feedback from homeowners should be sought to understand their preferences in terms of audit process, number of auditors and visits to the home, among other considerations.

There may be opportunities to align the City Champion function with that of the Embedded Energy Manager, or to replicate the funding model. An embedded energy manager is an on-site, full-time staff member responsible for promoting energy efficiency through a variety of initiatives including monitoring and reporting, leading awareness programs, identifying opportunities to save energy, and spearheading large upgrade projects. To finalize the appropriate staffing for the audit function, the City will need to consider the following:

- The competence to undertake audits that already exist in the market;
- Competitiveness of the City offering;
- Training required to become qualified as a comprehensive auditor; and
- Any liability for providing the service.

The following options (in order of City preference) have been identified for the appointment of external auditors:

**Table 3: Options for External Auditors**

Option	Benefit	Drawback
i. Homeowner contracts auditor directly	More control and flexibility for homeowner	Additional effort for homeowner, which may reduce uptake.
ii. The City contracts the auditor directly	Low effort for homeowner City establishes direct relationship with auditor	Additional liability for City for providing service

### **Auditor Qualifications**

An accredited auditor must be employed to undertake the actual audits. Both NRCan<sup>5</sup> and Enbridge<sup>6</sup> maintain a list of accredited energy auditors. However not all organizations appear on both lists, as Enbridge's requirements differ slightly from NRCan's. For instance, ClearSphere, one of the companies that could cover all the proposed audit elements as noted above, does not appear on the list provided by Enbridge. Given that Enbridge has incentive programs to offset the cost of gas reduction measures, it is advisable to contact Enbridge to understand what these differences are and how they can be addressed.

No similar auditor accreditation programs exist for the other program elements in the residential sector. However, there is a commercial irrigation standard, WaterSmart Irrigation Professionals, managed by Landscape Ontario, that could most likely be adapted for residential use. Landscape Ontario should be contacted to explore this possibility.

As mentioned above, Windfall Energy Centre has developed a stormwater and infiltration program. It is recommended to discuss with Windfall what training or qualifications their assessors will require.

### **Contractor Selection**

For legal reasons, the City of Markham should not directly engage contractors on behalf of the homeowners. Instead, the City of Markham could provide a list of prequalified contractors for homeowners to reference that is established through a Request for Quote or a roster of qualified candidates. Another alternative would be to provide a list of vetted contractors and general advice on selecting a suitable contractor. A set of criteria would be developed for this purpose. Any contractor wishing to be listed would need to apply and successfully complete the vetting process. No contractor would be refused for undue cause.

Under this approach, homeowner enrolment in the program would not be contingent on appointing a vetted contractor; they would be free to choose any contractor of their choice.<sup>7</sup>

### **Benefits of Proposed Comprehensive Residential Retrofit Audit Approach**

The proposed program has numerous benefits. With specific information about a property, an auditor can provide tailored recommendations to each homeowner. This would enable more informed homeowner decisions, leading to improved selection of measures. Additionally, homeowners would more readily see the direct benefit of specific measures. Lastly, it would catch opportunities that could be missed by a blanket approach that provides generic recommendations. These would all increase likelihood of uptake of the retrofit measures.

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<sup>5</sup> <http://www2.nrcan.gc.ca/oe/nh-mn/f-t/index.cfm?fuseaction=s.ssf&language=eng>

<sup>6</sup> <http://knowyourenergyscore.ca/community-energy-conservation/energy-auditors>

<sup>7</sup> For reference, Enbridge does not stipulate the appointment of particular contractors.



A detailed audit also facilitates easier data collection on property baselines, measure adoption rate, costs and other useful metrics.

The proposed face-to-face meetings with homeowners would provide the City of Markham with the opportunity to:

- Discuss the program in detail;
- Directly interview homeowners to further understand their motives, barriers, views on the program etc.;
- Provide information on other existing programs (e.g., peaksaver plus); and
- Promote other SNAP/municipal/regional activities (as noted above).

The collected data would be invaluable in assessing the impact and success of the program, identifying its shortcomings, and continually improving and refining it.

### **Program Targets**

To help develop appropriate targets for the program, a review of targets from local, regional, and provincial organizations/programs were examined and are presented in the following table:

**Table 4: Review of Local, Regional and Provincial Targets**

Organization	Target	Baseline
City of Markham	a. 6% of GHG reduction in Bayview Glen within 10 years of program commencement b. Net Zero energy, water, waste and emissions by 2050 <sup>8</sup> c. Increase active transportation and reduce the number of trips by automobile. d. Maintain urban matrix forest cover: <ul style="list-style-type: none"> <li>• Replace all ash trees removed as a results of EAB infestation on both public and private land.</li> <li>• Increase the number of street trees along Bayview Ave.</li> </ul>	
TRCA	Reduce energy demand and increase non-fossil fuel alternatives	
Ontario Long Term Energy Plan	a. 16% of demand covered by conservation by 2032 b. 46% Renewable electricity capacity	a. 5% (2013) b. 28% (2013)
Phase 1 proposals - Energy	10% reduction in annual community GHG emissions by 2015 No specific gas or electricity target identified	15,868 tonnes eGHG (2010) <sup>9</sup> 2,990,103 m <sup>3</sup> gas (2010) <sup>10</sup> 11,831,513 kWh 10 (2010-

<sup>8</sup> City of Markham's The Greenprint objective.

<sup>9</sup> Residential household natural gas and electricity consumption

## Bayview Glen SNAP – Phases 2 and 3 Action Plan

Organization	Target	Baseline
		2011 avg)
Phase 1 proposals – Water	Reduce homes with downspout connections to the storm sewer to 25% Eliminate all downspout and sump pump connections to the sanitary sewer Increase use of rainwater for non-potable purposes	
Enbridge Incentive	Tier 1: 25-49% gas reduction per property Tier 2: >= 50%	
CMHC (2004)	35% energy reduction per property	
York Region	Reduce residential water use to 150 L per capita per day Reduce peak and average day demand by at least 10% of projected levels	252 L/per/day (York Region) 467 L/per/day (Bayview Glen)

The City of Markham has the most ambitious targets, seeking net zero energy, water, waste and emissions by 2050. In order to achieve these, the energy and water demand of all homes in the neighbourhood must be reduced to zero (a reduction of 161,454 GJ/yr) and 356,562 m<sup>3</sup>/yr, respectively. However, not all existing homes in the neighbourhood will still exist in 2050. Assuming existing houses are replaced at the national rate of 0.6%/year, by 2050, 22% of existing houses in the neighbourhood (181 total) will be replaced, representing 34,932 GJ/yr and 78,444 m<sup>3</sup>/yr, collectively.

It should be noted that the Phase 1 report also recommended targets for achieving flood protection for up to the 100 year return period storm, and for reducing peak flows to the sanitary sewers. Flood protection for up to the 100 year storm has been addressed through the West Thornhill Flood Control Study. Construction of many of the recommended flood reduction projects identified in the study has already been completed. The stormwater management initiatives proposed for the residential retrofits and public realm primarily address water quality and erosion from smaller storm events, with limited reductions in peak flow rates for severe storm events. There are many factors that contribute to high peak flows in the sanitary sewer system, including water entering through pipe joints or cracks, cross connections with storm sewers, ponding over manholes during storm events, etc. Many of these potential sources cannot be mitigated through the recommended public realm and residential retrofits. Targets for sanitary sewer inflows are therefore limited to eliminating downspout and sump pump connections to the sanitary sewer.

New houses are more efficient than existing ones. The Ontario Building Code (OBC) currently requires an EnerGuide rating of 80. There is no direct correlation between EnerGuide rating and annual energy demand, however 150 GJ/home/year is reasonable estimate. The OBC requirements will continue to tighten over the coming decades. While there is no firm target for Net Zero Energy homes (NZEH), to

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<sup>10</sup> Not normalized

simplify the analysis, it is assumed that the NZEH standard will be required starting in 2030 (aspirations of the 2030 challenge). If the OBC requirements are assumed to improve linearly between now and 2030, the average new home built between these years will demand 75 GJ/home/yr. Beyond 2030, new homes would demand no new net energy. At a replacement rate of 0.6%/yr, by 2030, 78 new houses will have been built and demand an additional 5,821 GJ/yr collectively by 2030. Thus, by 2050, the neighbourhood would demand 132,342 GJ/yr, if no retrofits are undertaken.

Performing a similar analysis for water demand is more difficult, since there are no new build requirement restricting total water demand, and, therefore, no baseline for new builds. For this purposes of this analysis, it is assumed a new build demand the same amount of as an existing home (426 m<sup>3</sup>/household/yr in Bayview Glen). If the same energy reduction rate assumed above is to applied to water reduction, the average new home built between now [2014] and 2030 will demand 213 m<sup>3</sup>/household/yr.

**Table 5: Annual Energy Requirements**

	Energy demand [GJ/yr]	Water demand [m <sup>3</sup> /yr]
OBC requirement per home (estimated)	150	N/A
Average demand/house for new houses built 2015-2030	75	213
Total demand (2011 non normalized) <sup>11</sup>	161,454	356, 562
reduction from demolition of 22% of stock	34,932	78,439
increase from new builds 2015-2030	5,821	33,266
Total predicted demand (2050)	132,342	323,316

In order to meet the Net Zero Energy Target, an average annual reduction in total energy demand (gas and electricity) of 2.3% of current demand, or 3,781 GJ/yr, must be achieved. Note that energy demand data is based on 2011 (non-normalized). More recent data from the utility companies should be obtained to provide more accurate figures. Likewise, an average annual reduction in total water demand of 2.5%, or 8,981 m<sup>3</sup>/yr, must be achieved.

The number of households that must be retrofitted per year to achieve this target will depend on the performance level to which homes are retrofitted. Table 6 shows the annual number of homes requiring retrofits and % housing stock this represents for 4 different retrofit performance targets.

Henderson has demonstrated that through envelope and monitoring and evaluation upgrades alone (i.e., no renewable technologies), close to 80% reduction in total energy demand in a typical Toronto house is technically and economically feasible. This is approximately equivalent to a retrofit to the Passive House standard. To achieve Net Zero House performance would require solar energy systems. For reference, average savings of 22% were achieved under the EcoEnergy program.

<sup>11</sup> Based on 2011 consumption data [Phase 1 report]

**Table 6: Performance Targets to Achieve NZE Target**

Retrofit Performance Target	# homes retrofitted/yr	% housing stock	# years to retrofit entire neighbourhood
NZEH (100% reduction)	20	2.3%	43
Passive House (80% reduction)	25	2.9%	35
50% reduction	39	4.7%	22
25% reduction	78	9.4%	11

For perspective, a 25% performance target would mean that every house would have to be retrofitted to reduce its energy demand by 25% in less than 11 years. With a 50% performance target, this increased to 22 years. Under either of these scenarios, houses would need to be retrofitted more than once up to 2050. With the Passive House and NZEH standard, each house would need only one retrofit between 2015 and 2050. The NZEH cannot, however, be feasibly achieved on all properties.

To determine a feasible target, the participation rates of other audit-based programs (locally, provincially, and internationally) were examined (Table 7). Although not audit-based, the PeakSaver program was examined since statistics were available for the Bayview Glen neighbourhood. It is clear that uptake is generally very low. The higher uptake at Lake Wilcox was for minor upgrades, which produce minor reductions.

**Table 7: Participation Rate in other Programs**

Program	Geographic Area	Annual Participation Rate	Time Frame
PowerStream PeakSaver	Bayview Glen	1 house total (<0.1%)	
Federal EcoEnergy Grants	Canada	0.6% <sup>12</sup>	2003-2011
UK Green Deal Retrofits	UK	a. 0.9% b. 0.015% <sup>13</sup>	2013-2014
a. assessments b. signed contracts			

There is a large discrepancy between the required uptake rate to achieve the net zero targets and the likely uptake. This demonstrates the challenge of the net zero target.

If instead the City of Markham's target for Bayview Glen of 6% reduction in GHG within 10 years of program is considered<sup>14</sup>, the annual reduction would be 0.6%/yr, or 969 GJ/yr. This translates to an uptake of 2.4% with an average 25% retrofit reduction level. Given the need for substantive reductions, it is recommended this target be adopted for the first five years of the program, both for energy and water. This strikes a balance between required energy reductions and the likely participation rate. It should be noted that setting concrete targets is difficult without a firm understanding of expected

<sup>12</sup> <http://greencommunitiescanada.org/programs/home-energy-solutions/>

<sup>13</sup> Green Deal and Energy Company Obligation (ECO): monthly statistics.

<https://www.gov.uk/government/statistics/green-deal-and-energy-company-obligation-eco-monthly-statistics-january-2015>

<sup>14</sup> Partners for Climate Protection Program recommended community target.



neighborhood uptake based on past outcomes, which are not available for this neighbourhood. Experience gained during the first five years will inform target setting for subsequent milestones.

To achieve this advanced target, deep energy retrofits (>50%) should be heavily promoted and encouraged. Residents showing initial interest in undertaking these retrofits should be recruited for demonstration projects.

A 25% reduction leaves substantial room for improvement, meaning future upgrades will be required. To ensure initial upgrades are compatible with and complementary to future upgrades, the City of Markham should actively encourage stepwise retrofits plans.

### 3.4 New Home Construction Program

**Existing Conditions:** Like many residential neighbourhoods developed in the 1960s and 1970s, Bayview Glen is slowly being transformed through the cycle of residential turnover.

**Proposed New Home Construction Program:** New construction provides an ideal opportunity to adopt substantial energy and water efficiency measures in properties. To support this, it is recommended that the City Champion (or alternatively a Building department staff person) undergo training, where required, to increase their understanding of sustainable design and construction methods. This should encompass prominent green building standards (Passive House, R2000, Energy Star, Net Zero Energy, LEED, and current programs offered to homeowners, etc.). Additionally, they would be provided with reliable resources (reference material, websites etc.) on these methods and standards. This would provide the City Champion / Building department staff person the necessary tools to competently discuss sustainable building practices with homeowners during the initial meetings. Workshops could be offered and arranged with qualified professionals to groups of homeowners wishing to pursue this further. Where required, these workshops could be subsidized by the City of Markham.

To set appropriate targets for new construction, it is beneficial to understand the market impact of voluntary green building programs. Table 8 indicates the uptake and % reduction in energy and water of some prominent programs. Energy Star has the highest uptake at 12.3%. It is important to note also that the Ontario Building Code will be revised in 2017 and is expected to require a 15% improvement. This will lead to tightening requirements for the Energy Star program as well.

**Table 8: Uptake and Reduction of Energy and Water Efficiency Programs**

Standard	% Energy reduction over Code compliant Home	% water reduction over standard new home	% market share (Ontario)
Passive House	65%	0%	< 0.1%
Energy Star	20%	0%	12.3% <sup>15</sup>

<sup>15</sup> CaGBC Toronto Green Homes Summit. Also <http://www.energystar.gov/index.cfm?fuseaction=qhmi.showhomesmarketindex>

Standard	% Energy reduction over Code compliant Home	% water reduction over standard new home	% market share (Ontario)
R-2000	30%	0%	?
LEED	0-100%	5- 60% <sup>16</sup>	?
Net Zero Energy	100%	0%	< 0.1%
Living Building Challenge	100%	100%	< 0.1%

The City of Markham's target should exceed what the market is currently achieving. As this is an affluent area, homeowners have greater financial resources to invest in improved performance. It is therefore recommended that a target of 20%/yr uptake with a 40% improvement be set for the first five years.

Reaching new build homeowners is more difficult than current residents, since they are not currently living in the neighbourhood. One option to support this is to enlist the support of the Building Department to promote the SNAP Residential Program to homeowners seeking to build. The City of Markham should discuss collaboration opportunities with the Building Department.

It is also recommended the City of Markham seek out homeowners willing to achieve the Passive House, Net Zero, LEED Platinum, or Living Building Challenge requirements as a showcase for the community. Enthusiastic homeowners could speak about their homes at community events. The City of Markham could also run periodic Open Houses in coordination with the homeowners to allow neighbours to tour these properties. Such Open Houses have proven successful in increasing interest in Passive House in other countries, particularly Germany, as well as in other SNAP neighbourhoods. Open Houses in other SNAPs have been proven to be a successful tool to raise awareness and engage a larger group of neighbours. Geographic distribution of uptake in another SNAP with Open Houses shows a larger cluster of participation in the surroundings of the Pilot House. This increased uptake is likely a result of higher levels of program awareness due to proximity to the Open House. Moreover it provided an opportunity to partner with private sector partners, and formed the basis for ongoing partnerships that would be valuable for Bayview Glen SNAP. Open Houses also allowed the sharing of information regarding the feasibility of specific technologies in the overall neighbourhood action plan.

#### 4. Marketing Strategy

The marketing strategy and materials presented here will support the launch and delivery of the SNAP using Community-Based Social Marketing (CBSM) principles and tools. CBSM is an approach based on research in the social sciences that is effective at promoting behaviour change and maintaining sustainable behaviours over the long term. CBSM initiatives focus on removing barriers to an activity and promoting the most influential benefits or motivators to the desired behaviour change. CBSM tools

<sup>16</sup> Approximate figures

are then employed to reinforce and sustain the behaviours, usually with direct contact at the community level.

Within the SNAP process, this marketing strategy should be used to:

- Increase resident knowledge, understanding and participation in changes to public spaces, including parks and road right-of-ways;
- Raise residents' awareness of the benefits of sustainable homes/properties;
- Facilitate residents' uptake of sustainable retrofits on individual properties through the Residential Retrofit Program;
- Provide property owners with access to sustainable home construction guidance;
- Provide residents with a sense of belonging to a bigger program and community objectives; and
- Further SNAP core area objectives and targets.

This process involves connecting with residents, community groups, businesses and government agencies to encourage the implementation of local actions that promote a stronger community and a more environmentally friendly neighbourhood.

### **Target Audiences**

While all property owners will be encouraged to participate in the SNAP, both in terms of finalizing the public realm improvements as well as participating in the Residential Retrofit Program, the marketing approach targets specific groups within the neighbourhood, as described in Section 3.3.

### **Barriers to Change**

Many of the targets identified to move sustainability forward for the residential program are based on beliefs, knowledge and behaviour to be successfully implemented. Through the marketing strategy, the project team can address both accuracy of information and behaviours. By adopting simple behaviours first, those with the fewest barriers attached to them, more people are likely to become engaged in the behaviour. Once people have started engaging in one behaviour, they will start seeing themselves as someone who supports the overall objectives and will be more likely to carry out the other activities desired of them.

A key component to the success of the SNAP, particularly the Residential Retrofit Program, is to design a strategy that removes barriers while promoting the benefits of adopting certain behaviours. Barriers may be:

- Internal to an individual, such as lack of knowledge, non-supportive attitudes, absence of motivation; or
- External to the individual, such as changes that need to be made in order for the behaviour to be more convenient (e.g., providing accessible expertise or education) or affordable (e.g., subsidizing training sessions).

Barriers are specific to each desired behaviour and vary from community to community. Barriers to the desired behaviours of the public realm and Residential Retrofit Program have been identified specifically for the SNAP target audience. The process for uncovering barriers draws on the research and engagement activities conducted as part of the SNAP. A summary of the barriers is presented in the table below, along with the strategies aimed to address each one.

**Table 9: Barriers and Strategies to Address Them**

Barriers/Issues	Strategies
Perception that there is no need for improvement/retrofit. (Self-awareness)	<ul style="list-style-type: none"> <li>• Provide each household with information*</li> <li>• Host interactive events to showcase improvements to move neighbourhood from good to great*</li> <li>• Promote audits to identify areas for further improvement</li> <li>• Use social media to engage residents and promote program events</li> </ul>
Knowledge of Programs, Incentives	<ul style="list-style-type: none"> <li>• Information brochure about program and event(s)* Markham.ca web page with links to utility programs</li> <li>• Personalized interactions with property owners on their properties</li> <li>• Completion of voluntary home visit</li> <li>• Seek verbal and written commitments to reinforce knowledge*</li> <li>• Demonstrate commitment to SNAP (TBD)*</li> </ul>
Use of Contractors Who May Not Know About SNAP Objectives	<ul style="list-style-type: none"> <li>• Seek commitments to "Call before your Contract"</li> <li>• Use Landscape Ontario Irrigation Certification professionals</li> <li>• Provision of program information/brochures to contractors*</li> </ul>
Knowledge of Appropriate Measures	<ul style="list-style-type: none"> <li>• Provide brochure highlighting "door opener" actions</li> <li>• Educate Conservation Officer with full package of program information including incentives, benefits*</li> <li>• Personalized interactions with property owners on their properties</li> <li>• Promote commitment to SNAP program*</li> </ul>

\* Applicable to household and public realm components of the SNAP.

### Target Behaviour Change and Overcoming Barriers to Residential Retrofits

Through applied research in the field of psychology, a number of tools and strategies have been demonstrated to effectively promote behaviour change. These tools and strategies are often most effective when they are used in combination and are explained in the table below:

**Table 10: Application of CBSM Tools**

Tools Description	Application in Bayview Glen
Developing Community Norms: People often mirror their attitudes and behaviour by observing individuals around them (family, co- workers, neighbours). As an example, feedback from focus group participants revealed that Bayview Glen residents attend open houses in the neighbourhood to see what their neighbours have done in their homes, suggesting that some	<p>Community beliefs within the Bayview Glen neighbourhood:</p> <ul style="list-style-type: none"> <li>• Pride and care for their homes</li> <li>• Pride for the neighbourhood as a great place to live*</li> <li>• A sense that their yards are an extension of their homes</li> <li>• A priority on privacy and safety</li> </ul>



## Bayview Glen SNAP – Phases 2 and 3 Action Plan

Tools Description	Application in Bayview Glen
<p>level of conformity matters to them. Establishing new social norms supported by the community can promote desired behaviour changes in a wider audience.</p> <p>The ultimate goal of the SNAP is to normalize behaviours and actions that result in environmental improvements and urban renewal.</p>	<ul style="list-style-type: none"> <li>• A sense of belonging to an upscale/elite group*</li> </ul> <p>CBSM tools will be used to help make efforts people take more visible to the rest of the community, such as demonstrating participation and asking residents to make commitments to sustainable actions.</p>
<p>Direct and Personal Contact: Achieving behaviour change is most effective when initiatives are delivered in a personalized way, tailoring the approach and specific information to each person or community. Social research has determined that people are more willing to engage in behaviours in response to direct appeals to change, and when there is evidence of social support for that change. People also often respond best to information received from people they interact with in their communities and whom they trust. This means that promoting desired behaviours, illustrating why they are important and removing barriers works best in face-to face encounters.</p>	<p>For Bayview Glen residents, this means:</p> <ul style="list-style-type: none"> <li>• Tapping into the organizations (and people) they trust – the City of Markham, utilities and contractors;*</li> <li>• Integrating personal contact and discussion through events similar to the Bayview Glen P.S. Fun Fair;*</li> <li>• Tapping into informal peer associations; and *</li> <li>• Respecting that residents want to be able to access programs and information on their own terms.*</li> </ul>
<p>Commitments: Research has found that once people make a commitment such as a pledge or agreement to one activity they are not only more likely to follow through with it but also more likely to agree to more demanding commitments in the future. Common forms of commitment can take written or verbal forms. Research indicates that the probability that someone will carry out an activity increases with a written commitment and becomes even more likely with a public commitment.</p>	<ul style="list-style-type: none"> <li>• Seek verbal and written commitments to participate in actions.*</li> </ul>
<p>Prompts: Prompts are a visual or auditory aid that reminds people to perform a particular action and are often used to support commitments. The prompts may be in the form of a sticker, memo card, or tag in appropriate locations that provide a visual reminder to engage in certain behaviour. Prompts work best if they are located close to where a behaviour takes place.</p>	<p>A prompt placed near the phone (e.g. phone area, as cellphone contact, in contacts, or other convenient location) to remind residents to “Call the SNAP Champion” before calling their contractor for any renovations.</p>

## Bayview Glen SNAP – Phases 2 and 3 Action Plan

Tools Description	Application in Bayview Glen
Feedback: People are more likely to stick with a behaviour change for a longer period of time (and potentially motivate others to change) if they see that they are making a difference in their community, their health or the environment.	<ul style="list-style-type: none"> <li>Property visits allow for feedback on actions people have taken or are planning to take right on the spot.</li> <li>Offer a follow-up opportunity to provide feedback to residents after they have a property visit.</li> <li>During the follow-up feedback can be provided on progress and positive actions reinforced.</li> </ul>
Incentives and Awards: Incentives are particularly effective when motivation to engage in action is low or where people are not doing the activity as effectively as they could be. Incentives include discounts or rebates that entice people by rewarding them for taking action. Awards provide social recognition to people about their efforts towards positive change. Even small incentives and rewards are effective at motivating action.	The program will provide an opportunity for participants to capitalize on existing program incentives (e.g.: PowerStream, Enbridge and other programs) as well as explore opportunities to develop new incentives for uptake of key measures.

\* Applicable to household and public realm components of the SNAP.

### Recommended Marketing Strategies and Tools

The following marketing strategies and tools are recommended to support the launch and implementation of the SNAP.

### Some Thoughts on Brand

#### **Brand Identity (Options):**

- **Beautiful Bayview Glen** – This brand identifier focuses on neighbourhood pride. ‘Beautiful’ is the key word that resonated through all the community engagement activities. The reasons cited to support the neighbourhood’s claim to beauty ranged from parks, trees, natural setting to homes and backyards.
- **Inspiring Green Living** – This option focuses on two key concepts: “inspiration” and “green”. This brand identifier relates to the opportunity the City and neighbourhood have to collectively inspire and demonstrate green living. This provides an avenue to position the neighbourhood as a model for other neighbourhoods in the City. The second key element is “green”. It provides a variety of meaning for individuals (e.g.: naturalization, monetary or sustainability) and aligns the program with The Greenprint.
- **Greening Bayview Glen** – Similarly to “Inspiring Green Living” this focuses on the variety of meaning of greening with the neighbourhood.
- **Smart Bayview Glen** – This suggestion focuses on the innovative and intelligent new and retrofit interventions being proposed in the neighbourhood.
- **Bayview Glen Proud/Pride** – Bayview Glen residents are proud of where they live; this brand identifier leverages neighbourhood pride to inspire sustainable living.

#### **Strengths:**

Each of these brand options are:

- **Scalable:** Each brand option is applicable for both public realm and residential and individual action. They can be used in concert with the suggested names for the residential retrofit program.
- **Descriptive:** They can embody multiple narratives, and invite the neighbourhood to construct its own meaning based on individual context, stories, and experiences.
- **Accessible:** It is both simple and comprehensive, allowing space for interpretation and for a diversity of approaches to neighbourhood transformation.

**Imagery:** Trees and leaves that convey that the SNAP is a multifaceted approach. It is holistic and healthy. Each leaf could reflect the various core and complementary themes.

**Colours:** Greens, blues – alignment visually with The Greenprint, TRCA, and SNAP logos.

**Font style selection:** Selection should convey prestige, uniqueness and high caliber.

### Look and Feel

Feedback provided by residents indicated a preference for marketing materials that increase their awareness of the SNAP but do not pressure them to participate – they value the ability to make informed decisions on their own. Residents also stated a preference for simple, attention grabbing

marketing materials from reliable sources (i.e., distinguishable from junk mail advertising) with a recognizable logo or brand image that resonates with the community (e.g., trees, greenspace). Participants in the focus group also noted interest in branding that reflects that they are part of a “bigger SNAP movement” in the GTA. The strategies and tools identified below provide residents with the flexibility to access information independently, but also prompt and encourage participation in the SNAP using customizable platforms.

#### **Webpage on City of Markham Website**

It is recommended that the webpage currently hosted on the City of Markham’s website continue to serve as a portal for information about the Bayview Glen SNAP. The webpage includes a comprehensive overview of the study, relevant documents and resources, information about upcoming and past neighbourhood events, contact information and a link to the TRCA SNAP website. The webpage should be updated regularly to include details about implementation as they become available, perhaps under a new “What’s New?” category.

Feedback from focus group participants in particular indicated that residents are more likely to visit the City of Markham’s website for further information about the SNAP as it is already a landing spot for information relating to household and neighbourhood matters of interest. Maintaining a dedicated SNAP webpage also allows residents to access information when and as they need it while providing the PMT with a tool that can be leveraged through other complementary print and online marketing materials (e.g., brochures, posters, social media, etc.).

#### **Councillor Newsletter**

A newsletter from Councillor Valerie Burke was circulated to Bayview Glen residents to introduce the SNAP program and encourage them to participate in its development. Regular updates about the Bayview Glen SNAP (e.g., program updates, upcoming neighbourhood events, resources and incentives, etc.) in scheduled newsletters from the Councillor’s office are recommended. Receiving information about the SNAP from an elected official (a trusted and recognizable source) conveys its long-term importance to the community. It will also maintain residents’ awareness of the program as it is one of several different channels through which the project team can circulate information about the SNAP. As with other marketing tools, the newsletter should direct residents to the SNAP webpage on the City of Markham’s website.

#### **Email Distribution List**

Emails are another tool that the project team can use to inform residents about opportunities to participate in the SNAP without pressuring them to do so. Emails should be sent from a trusted and recognizable source to ensure they are viewed by residents.

An email distribution list was created at the onset of the project to keep interested residents and stakeholders up to date of the Bayview Glen SNAP’s development. The distribution list should be maintained and used to support the launch and implementation of the SNAP. As an example, campaigns



about program updates, upcoming neighbourhood events (e.g., launch event), resources and incentives (e.g., coupons), etc. could be circulated by email. Emails should also direct recipients to the SNAP webpage on the City of Markham's website using direct links. The email distribution list can also be used as a benchmarking tool to monitor engagement.

### **Posters**

Posters were used during the development of the Bayview Glen SNAP to notify residents of upcoming neighbourhood events. The project team should continue to use simple, attention grabbing posters to advertise and promote future neighbourhood events (e.g., Bayview Glen SNAP launch) and key implementation milestones. The posters should direct residents to the SNAP webpage to find more information about specific components of the program (e.g., concept plans, resources, incentives, etc.) and encourage participation.

Hard copies of the poster should be distributed in high traffic areas throughout the neighbourhood and community and via the SNAP webpage and social media. Possible locations include: Thornhill Community Centre and Library, Bayview Glen Public School, Longo's, Starbucks, Woodhill Garden Centre, Councillor's Office and local places of worship.

The poster from the Bayview Glen SNAP Community Gathering Poster can be used as a template.

### **Road Signage**

Roadside signs are encouraged throughout the neighbourhood to inform residents and visitors that they are entering a SNAP neighbourhood or as way-finding tools in the neighbourhood's parks and greenspaces. The signs serve as a visual cue that contribute to the neighbourhood's identity as a sustainable community, while conveying the neighbourhood's unique character to non-residents. Depending on the type of road sign used (e.g., electronic or programmable), they could be updated to provide real-time information about upcoming events or simply inform passers-by where to find more information about the SNAP.

### **Existing Channels and Local Businesses**

Partnerships with local businesses and organizations should be initiated or strengthened to make use of existing marketing and communication channels to distribute information about the Residential Retrofit Program and the SNAP in general. Providing content about the Residential Retrofit and SNAP program partner community organizations to share via their established communication channels is another means to increase awareness and encourage participation. The Thornhill Garden & Horticultural Society



**Figure 21: Bayview Glen SNAP Community Gathering Poster**

and Markham Garden Society both also publish newsletters that can also be used to spread news and share information about the SNAP.

Establishing partnerships and informing local real estate professionals, interior designers, and hardware and building suppliers about the SNAP is also recommended as these individuals are likely to come into contact with Bayview Glen residents, or potential residents, who are contemplating renovations or new home construction in the neighbourhood.

### **Launch Event**

A launch event is recommended to kick-off the implementation phase of the SNAP, generating awareness and enthusiasm for the program as well as showcasing improvements to the neighbourhood's public realm and residential demonstration projects. The launch event will also provide residents with opportunities to socialize and interact with each other and to establish a relationship with the City Champion. The launch event also provides an ideal opportunity to distribute other marketing materials (e.g., program brochure and fridge magnets).

### **Program Brochure**

A program brochure, modeled after the Black Creek SNAP booklet, should be mailed out to each home in the neighbourhood by the City of Markham to launch the SNAP, particularly the residential retrofit component of the plan. As the minimum takeaway for residents, the brochure should include an overview of the SNAP to increase awareness about the program as well as information about energy and water efficiency measures and actions with quick paybacks. The brochure should also include information about how to sign-up for energy audits (e.g., direct homeowners to the SNAP webpage for more information).

### **Social Media (Complementary Tactic)**

Twitter was used as a promotional tactic to increase awareness and broad participation during the SNAP's development. The project team should continue using Twitter as a complementary marketing tool to promote various aspects of the project (e.g., program updates, upcoming neighbourhood events, resources and incentives, etc.) and encourage involvement, directing residents to the SNAP webpage through tweets for more detailed information. Dialogue with residents outside scheduled events can also be encouraged through social media. As an example, residents could be encouraged to tweet images of retrofits to their homes. This tool provides residents with up to date information and a strategy that enables the project team to nurture and build the relationship that was established during the SNAP's development. A dedicated project hashtag (e.g., #bayviewglenSNAP) serves as an easily recognizable marker that can be included in other print and online marketing materials. Other social media platforms such as Facebook and Pinterest could also be used in the same capacity as or to complement Twitter.

**Videos:** a quick and interesting take away for residents rather than reading a brochure or webpage. The videos can be low cost (cartoons) or a high cost (better production with a local celebrity).

## 5. Preliminary Implementation Framework

### 5.1 Program Recommendation Rationale

A number of pre-implementation tasks will need to be completed prior to finalizing the implementation plan. In addition to discussions about funding, and aligning program objectives with other planned projects, a description of the supplementary studies and tasks required is provided below for each component of the SNAP.

#### **Park Retrofits**

The proposed concept plans generally received support from the community. The concepts were also vetted with staff from the City of Markham and were viewed in a positive light. However, the Bayview Glen SNAP was undertaken independently of the City of Markham's Park Renewal program and therefore additional community engagement and consideration from City of Markham staff will be required to finalize and implement the concept plans. Stormwater management alternatives not requiring additional property may fall under Schedule A+ requirements of the Municipal Class EA process, while those requiring property would require Schedule B alternative screening.

Once these initiatives are completed, a detailed soils / geotechnical engineering analysis and stormwater services plan should be prepared for each park and functional design should be completed. The soils report will determine the relative permeability of the underlying soil environment and propensity for conveyance or infiltration of runoff. This data will help confirm the proposed stormwater concept and support Ministry of Environment and Climate Change (MOECC) environmental compliance approvals or amendments to existing certificates of authorization. Consultation with MOECC should confirm where infiltration measures under high groundwater conditions would be supported as current guidelines require clearance from seasonally high groundwater levels. The stormwater engineering report should identify each sub-catchment area, calculate existing runoff volumes and rates at different times of the year and comment on the condition of the existing sewer and pipe conveyance system. The combined information from the reports will determine the ratio of impervious cover-to-infiltration area within each catchment which will in turn help determine site detention and release rate targets for runoff. After completion of the functional design that can support any required public consultation, a detailed design brief (including drawings) is required to support MOECC applications and City of Markham review.

#### **Sidewalks and Bicycle Routes**

Implementation of the proposed sidewalk improvements and bicycle routes will require further technical analysis by the City of Markham to rationalize the proposed locations of sidewalks and bicycle routes. Once the preferred locations for sidewalks and bicycle routes are assessed from a technical perspective, the community will need to be consulted to provide input to select the final alignment. Where possible, the implementation of proposed sidewalks and bicycle routes should be integrated with road improvements and storm sewer infrastructure works.

### **Road Cross-Section Alternatives and Drainage Improvements**

Implementing the proposed retrofits to the existing streets including the bioswales and related drainage improvements will include the following key tasks:

- Detailed technical evaluation (functional analysis and design, incorporation of operation and maintenance features, etc.);
- Cost estimation;
- Planning to integrate the proposed works with other required capital improvements;
- Consultation with the community with a specific focus on homeowners that have sump pumps that they would like to have connected into the system;
- Detailed design;
- Approval from the MOECC, City of Markham and potentially the Region of York; and
- Development of a detailed implementation staging plan.

Implementation of road alterations and drainage improvements should be completed in conjunction with other planned road and infrastructure reconstruction initiatives. As with park concepts, consultation with MOECC should confirm where infiltration measures under high groundwater conditions would be supported as current guidelines require clearance from seasonally high groundwater levels. As noted in the report, modifications are expected to fall under Schedule A+ of the Municipal Class EA process and therefore the public is to be advised of proposed work.

### **Prioritization of Public Realm Retrofits**

Park improvements and the full complement of stormwater management initiatives should be implemented in a sequence of prioritized stages over 1-8 years from the time of completion of the pre-implementation tasks identified above. The timeframe will ultimately be affected by annual capital budgets and availability of ancillary funding (i.e. grants). Public realm retrofits should leverage opportunities through life cycle plans to upgrade or replace equipment (e.g., playground equipment). It is important to note that an adequate commitment of funding is required not only to construct the proposed facilities and environmental enhancements, but also to maintain, monitor and manage the facilities after they are constructed. Given the fact that the availability of funding cannot be determined at this time, the implementation strategy for the SNAP is focused on establishing priorities and then categorizing initiatives based on the assigned priority.

#### **A. High Priority Public Realm Initiatives**

- a. The initiatives identified in bullet point 'b' below should be implemented on a priority basis to address stormwater enhancements within the park system and comprise the areas characterized on the concept plans as "permeable paved" and "naturalized."
- b. These initiatives include vegetation removal, temporary erosion controls, site grading, temporary site rainwater detention and naturalization planting.
- c. The timeframe for implementation for these initiatives is 1-4 years at a cost of:



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- i. Stormwater – \$211,313 (Bayview Glen), \$246,911 (Glencrest Park), \$111,462 (Stone Farm Parkette)
- ii. Naturalization - \$57,792 (Bayview Glen), \$142,450 (Glencrest Park), \$34,682 (Stone Farm Parkette)

### **B. Moderate Priority Public Realm Initiatives**

- a. These initiatives are aimed at expanding and connecting the pathway system through the parks improving accessibility and addressing public safety.
- b. Ancillary initiatives include lighting and improvements to multi-use playing fields. These initiatives include vegetation removal, temporary erosion controls, site grading / fill, underground drainage system and sodding / seeding.
- c. The timeframe for implementation for these initiatives is 2-4 years at a cost of:
  - i. Park Pathways & Entry Courts – \$134,980 (Bayview Glen), \$240,200 (Glencrest Park), \$34,200 (Stone Farm Parkette)
  - ii. Multi-use Sportsfield Facility Improvements - \$65,328 (Bayview Glen), \$33,325 (Glencrest Park), \$47,705 (Stone Farm Parkette)
  - iii. 50% of site preparation and site works costs for “recreation” components (25% for a. and 25% b.) are factored into these subtotals.

### **C. Low Priority Public Realm Initiatives**

- a. Primary recreational amenities including removal and replacement playgrounds and sports facilities,
- b. Ancillary entry features, signage and park furniture.
- c. The timeframe for implementation for these initiatives is 4-8 years at a cost of:
  - i. Park Playgrounds & Sports Facilities – \$116,953 (Bayview Glen), \$118,985 (Glencrest Park), \$83,003 (Stone Farm Parkette)
  - ii. Ancillary Features - \$183,376 (Bayview Glen), \$185,919 (Glencrest Park), \$85,100 (Stone Farm Parkette)
  - iii. 50% of site preparation and site works costs for “recreation” components (25% for a. and 25% b.) are factored into these subtotals.

### **D. Implement Public Realm Initiatives Contingent on Actions by Others**

In some instances, the implementation of initiatives will be undertaken in conjunction with stormwater management initiatives and other amenities or improvements to roads and other infrastructure planned for the future. The implementation of these components will be coincident with the timing of these actions by others.

## **Phasing of Residential Retrofit Program Implementation**

The following actions are recommended to support the Residential Retrofit Program’s implementation. The Residential Retrofit Program should be reviewed as part of the Municipal Energy Plan development process to look for synergies and enhancements to maximize the information acquired through both

projects. The implementation of the recommended residential program will need the approval of the City of Markham. The suggested phasing of the Residential Retrofit Program is as follows:

**A. Immediate Priority Initiatives (2015)**

- a. Identify and address any legal issues that may arise as result of City of Markham involvement home audits;
- b. Decide on best Audit Model;
- c. Advance partnership with auditors and utilities to finalize audit design;
- d. Assign budget for Audit Admin, and, if possible audit incentives;
- e. Establish a City Champion to act as a program liaison with residents and coordinate the home audit process. Identify whether the City of Markham's Embedded Energy Manager can assume this role and explore funding opportunities with existing partners (e.g., Powerstream);
- f. Provide training to City Champion (where required);
- g. Collect reference materials for City Champion and homeowners;
- h. Develop standardized questionnaires for initial homeowner meeting and post interview;
- i. Obtain feedback from homeowners to understand whether they would prefer a single auditor or multiple auditors undertaking the audit;
- j. Contact Enbridge to discuss differences between their and NRCan's auditor accreditation requirements;
- k. Develop list of criteria and process to vet contractors;
- l. Discuss funding of I&I measures with York Region; and
- m. Build an effective monitoring and reporting framework.

**B. Mid-Term Priorities (2016)**

- a. Invite contractors to complete vetting process;
- b. Contact a few contractors to obtain cost estimates (range) for proposed measures;
- c. Contact Windfall Energy Centre to understand how its stormwater and infiltration program could interact with this program;
- d. Investigate potential to adapt Landscape Ontario's WaterSmart Irrigation program for residential properties;
- e. Collect utility data for each property for more recent years and revise targets as appropriate (data provided to PMT only went up to 2011); and
- f. Collect data from audits and interviews to establish accurate baselines and revise targets accordingly.

**C. Longer-Term Priorities (2016+)**

- a. Implement full program roll-out; and
- b. Evaluate program uptake, delivery, and targets (1-2 years)

### **New Construction Program Implementation**

Since the new construction program is based on the provision of existing information, there is no ideal timing relating to this aspect of the SNAP. New construction program implementation can align with the Residential Retrofit Program delivery if delivered by the City champion as recommended.

### **5.2 Estimated Program Costs**

#### **Public Realm**

An order of magnitude cost estimate was prepared for the various components that comprise the plan. The costs were further broken down into categories that reflect the relative costs for naturalization, recreation and stormwater management-based initiatives.

# Bayview Glen SNAP – Phases 2 and 3 Action Plan

## Table 11: Glencrest Park Retrofit Concept Plan Cost Estimate

Item	Description	Est. Qty	Unit	Unit Price	Subtotal	Stormwater		
						Naturalization	Recreation	Management
<b>1.0</b>	<b>Site Preparation, Demolition &amp; Silt Control</b>							
1.1	Mobilization	1	ls	\$5,000.00	\$ 5,000.00	\$ 1,000.00	\$ 500.00	\$ 3,500.00
1.2	Tree protection fence	320	lm	\$15.00	\$ 4,800.00	\$ 1,680.00	\$ 1,440.00	\$ 1,680.00
1.3	Silt control fencing	400	lm	\$18.00	\$ 7,200.00	\$ -	\$ 1,440.00	\$ 5,760.00
1.4	Removal of playground	1	ls	\$5,500.00	\$ 5,500.00	\$ -	\$ 5,500.00	\$ -
1.5	Removal of chain link backstop	1	ls	\$1,100.00	\$ 900.00	\$ -	\$ 900.00	\$ -
1.6	Removal of trees	15	ea	\$500.00	\$ 7,500.00	\$ -	\$ 1,500.00	\$ 6,000.00
	<b>Subtotal 1.0</b>				<b>\$ 30,900.00</b>			
<b>2.0</b>	<b>Site Works</b>							
2.1	Strip and stockpile topsoil	19,100	m <sup>2</sup>	\$2.25	\$ 42,975.00	\$ -	\$ 12,892.50	\$ 30,082.50
2.2	Screen, amend and mix with imported topsoil and spread to 300mm depth over sportsfield, reforestation and naturalization	16,450	m <sup>2</sup>	\$4.00	\$ 65,800.00	\$ -	\$ 26,320.00	\$ 39,480.00
2.3	Rough grading	8,500	m <sup>3</sup>	\$6.00	\$ 51,000.00	\$ -	\$ 17,850.00	\$ 33,150.00
2.4	Biotechnical stabilization	1640	m <sup>2</sup>	\$40.00	\$ 65,600.00	\$ -	\$ -	\$ 65,600.00
	<b>Subtotal 2.0</b>				<b>\$ 225,375.00</b>			
<b>3.0</b>	<b>Paving</b>							
3.1	Unit paving at Meditation Garden	80	m <sup>2</sup>	\$135.00	\$ 10,800.00	\$ -	\$ 10,800.00	\$ -
3.2	Permeable paving Trail	150	m <sup>2</sup>	\$135.00	\$ 20,250.00	\$ -	\$ 20,250.00	\$ -
3.3	Paving at Pedestrian Walkway	1,810	m <sup>2</sup>	\$100.00	\$ 181,000.00	\$ -	\$ 144,800.00	\$ 36,200.00
3.4	Paving at Entry Court	35	m <sup>2</sup>	\$120.00	\$ 4,200.00	\$ -	\$ 4,200.00	\$ -
3.5	Sand at Playground	570	m <sup>2</sup>	\$30.00	\$ 17,100.00	\$ -	\$ 17,100.00	\$ -
	<b>Subtotal 3.0</b>				<b>\$ 233,350.00</b>			
<b>4.0</b>	<b>Drainage Works</b>							
4.1	Weir and Storm Sewer Inlet	1	ls	\$2,500.00	\$ 2,500.00	\$ -	\$ -	\$ 2,500.00
4.2	Stonework for Creation of Tributary	1	ls	\$12,000.00	\$ 12,000.00	\$ -	\$ -	\$ 12,000.00
4.3	Culvert	5	lm	\$450.00	\$ 2,250.00	\$ -	\$ -	\$ 2,250.00
	<b>Subtotal 4.0</b>				<b>\$ 16,750.00</b>			
<b>5.0</b>	<b>Site Furnishings</b>							
5.1	Benches	6	ea	\$2,000.00	\$ 12,000.00	\$ -	\$ 12,000.00	\$ -
5.2	Play Structure	1	ls	\$80,000.00	\$ 80,000.00	\$ -	\$ 80,000.00	\$ -
5.3	Bollards	6	ea	\$750.00	\$ 4,500.00	\$ -	\$ 4,500.00	\$ -
5.4	Bicycle Rack	8	ea	\$500.00	\$ 4,000.00	\$ -	\$ 4,000.00	\$ -
5.5	Picnic Tables	5	ea	\$2,500.00	\$ 12,500.00	\$ -	\$ 12,500.00	\$ -
	<b>Subtotal 5.0</b>				<b>\$ 100,500.00</b>			
<b>6.0</b>	<b>Structures and Signage</b>							
6.1	Shade Structure	1	ls	\$50,000.00	\$ 50,000.00	\$ -	\$ 50,000.00	\$ -
6.2	Cantilevered Boardwalk Interpretive Outlook	1	ls	\$12,000.00	\$ 12,000.00	\$ -	\$ 12,000.00	\$ -
6.3	Entry Sign Walls	1	ea	\$7,500.00	\$ 7,500.00	\$ -	\$ 7,500.00	\$ -
6.4	Interpretive Sign	3	ea	\$1,850.00	\$ 5,550.00	\$ -	\$ 5,550.00	\$ -
	<b>Subtotal 6.0</b>				<b>\$ 75,050.00</b>			
<b>7.0</b>	<b>Junior Soccer Field</b>							
7.1	Junior Soccer goal posts, including anchors and net (Det 4/LD 2)	2	sets	\$2,900.00	\$5,800.00	\$ -	\$ 5,800.00	\$ -
7.2	Drainage System/Ice Rink	1	ls	\$15,000.00	\$15,000.00	\$ -	\$ -	\$15,000.00
	<b>Subtotal 7.0</b>				<b>\$ 20,800.00</b>			
<b>8.0</b>	<b>Soft Landscaping</b>							
<b>8.1 TREES</b>								
8.1.1	Deciduous tree (70mm dia.) W.B.	200	ea	\$450.00	\$ 90,000.00	\$ 72,000.00	\$ -	\$ 18,000.00
8.1.2	Coniferous tree (2.0 m ht.) W.B.	100	ea	\$375.00	\$ 37,500.00	\$ 30,000.00	\$ -	\$ 7,500.00
<b>8.2 SHRUBS</b>								
8.2.1	Deciduous shrub (3 gal) POT	150	ea	\$40.00	\$ 6,000.00	\$ 4,800.00	\$ -	\$ 1,200.00
8.2.2	Coniferous shrub (3 gal) POT	150	ea	\$40.00	\$ 6,000.00	\$ 4,800.00	\$ -	\$ 1,200.00
8.2.3	Perennial Planting in Pollinators Garden	1,200	ea	\$15.00	\$ 18,000.00	\$ 18,000.00	\$ -	\$ -
<b>8.3 AQUATICS/EMERGENTS</b>								
8.3.1	Aquatic/ Emergent (1 gal) POT	300	ea	\$8.00	\$ 2,400.00	\$ 1,920.00	\$ -	\$ 480.00
<b>8.4 SEED MIXES AND SODDING</b>								
8.4.1	Seeding	6,000	m <sup>2</sup>	\$2.75	\$ 16,500.00	\$ 8,250.00	\$ -	\$ 8,250.00
8.4.2	Soccer Field Sodding	3,010	m <sup>2</sup>	\$4.00	\$ 12,040.00	\$ -	\$ 12,040.00	\$ -
	<b>Subtotal 8.0</b>				<b>\$ 188,440.00</b>			
<b>9.0</b>	<b>Labyrinth Garden</b>							
9.1	Paving	120	m <sup>2</sup>	\$135.00	\$ 16,200.00	\$ -	\$ 16,200.00	\$ -
9.2	Coniferous shrub (3 gal) POT	150	ea	\$40.00	\$ 6,000.00	\$ -	\$ 6,000.00	\$ -
	<b>Subtotal 9.0</b>				<b>\$ 22,200.00</b>			
<b>Summary</b>						<b>Subtotal</b>	<b>\$142,450.00</b>	<b>\$471,382.50</b>
Item 1.0: Site Preparation, Municipal R.O.W. Work & Silt Control					\$ 30,900.00			
Item 2.0: Site Works					\$ 225,375.00			
Item 3.0: Paving					\$ 233,350.00			
Item 4.0: Drainage Works					\$ 16,750.00			
Item 5.0: Site Furnishings					\$ 100,500.00			
Item 6.0: Structures and Signage					\$ 75,050.00			
Item 7.0: Junior Soccer Field					\$ 20,800.00			
Item 8.0: Soft Landscaping					\$ 188,440.00			
Item 9.0: Labyrinth Garden					\$ 22,200.00			
<b>Subtotal Items 1.0 - 8.0</b>					<b>\$ 913,365.00</b>			
<b>H.S.T. rate</b>					<b>\$ 118,737.45</b>			
<b>Grand Total</b>					<b>\$1,032,102.45</b>			



## Bayview Glen SNAP – Phases 2 and 3 Action Plan

**Table 12: Bayview Glen Park Retrofit Concept Plan Cost Estimate**

						Stormwater			
Item	Description	Est.Qty	Unit	Unit Price	Subtotal	Naturalization	Recreation	Management	
1.0 Site Preparation, Demolition & Silt Control									
1.1	Mobilization	1	ls	\$5,000.00	\$ 5,000.00	\$ 1,000.00	\$ 500.00	\$ 3,500.00	
1.2	Tree protection fence	260	lm	\$15.00	\$ 3,900.00	\$ 1,365.00	\$ 1,170.00	\$ 1,365.00	
1.3	Removal of trees	27	ea	\$500.00	\$ 13,500.00	\$ -	\$ 2,700.00	\$ 10,800.00	
1.4	Removal of playground	1	ls	\$7,500.00	\$ 7,500.00	\$ -	\$ 7,500.00	\$ -	
1.5	Silt Control Fencing	400	lm	\$18.00	\$ 7,200.00	\$ -	\$ 7,200.00	\$ -	
Subtotal 1.0					\$ 37,100.00				
2.0 Site Works									
2.1	Strip and stockpile topsoil	7,560	m²	\$2.25	\$ 17,010.00	\$ 5,103.00	\$ 6,804.00	\$ 5,103.00	
2.2	Screen, amend, spread and fine grade existing topsoil	6,150	m²	\$4.00	\$ 24,600.00	\$ 7,380.00	\$ 9,840.00	\$ 7,380.00	
2.3	Prepare and place skinned infield mix to expanded infield area	1,600	m²	\$8.75	\$ 14,000.00	\$ 4,200.00	\$ 5,600.00	\$ 4,200.00	
2.4	Rough grading - rain garden, bioretention and detention swales	3165	m²	\$6.00	\$ 18,990.00	\$ -	\$ -	\$ 18,990.00	
Subtotal 2.0					\$ 74,600.00				
3.0 Paving and Curbs									
3.1	Permeable Unit Paving (Entry Court and Driveway)	235	m²	\$135.00	\$ 31,725.00	\$ -	\$ -	\$ 31,725.00	
3.2	Permeable Unit Paving (Parking Layby)	230	m²	\$135.00	\$ 31,050.00	\$ -	\$ -	\$ 31,050.00	
3.3	Paving for Pedestrain Walkways	1410	m²	\$85.00	\$ 119,850.00	\$ -	\$ 119,850.00	\$ -	
3.4	Proposed Sidewalk	178	m²	\$85.00	\$ 15,130.00	\$ -	\$ 15,130.00	\$ -	
3.5	Sand at Playground	560	m²	\$30.00	\$ 16,800.00	\$ -	\$ 16,800.00	\$ -	
3.6	Flush Concrete Curb	11	lm	\$60.00	\$ 660.00	\$ -	\$ -	\$ 660.00	
3.7	Mountable Concrete Curb	105	lm	\$65.00	\$ 6,825.00	\$ -	\$ -	\$ 6,825.00	
Subtotal 3.0					\$ 222,040.00				
4.0 Drainage Works									
4.1	Controlled outlet/ inlet	3	ea	\$1,950.00	\$ 5,850.00	\$ -	\$ -	\$ 5,850.00	
4.2	Culverts (6)	50	lm	\$450.00	\$ 22,500.00	\$ -	\$ -	\$ 22,500.00	
Subtotal 4.0					\$ 28,350.00				
5.0 Site Furnishings and Lighting									
5.1	Benches	4	ea	\$2,000.00	\$ 8,000.00	\$ -	\$ 8,000.00	\$ -	
5.2	Play Structure	1	ls	\$80,000.00	\$ 80,000.00	\$ -	\$ 80,000.00	\$ -	
5.3	Bollards	7	ea	\$750.00	\$ 5,250.00	\$ -	\$ 5,250.00	\$ -	
5.4	Bicycle Rack	4	ea	\$500.00	\$ 2,000.00	\$ -	\$ 2,000.00	\$ -	
5.5	Solar LED Lighting Including Hook Up	4	ea	\$9,500.00	\$ 38,000.00	\$ -	\$ 38,000.00	\$ -	
Subtotal 5.0					\$ 133,250.00				
6.0 Structures and Signage									
6.1	Shade Structure/ Solar Array	1	ls	\$95,000.00	\$ 95,000.00	\$ -	\$ 95,000.00	\$ -	
6.2	Entry Sign Wall (12.5m length)	1	ls	\$28,000.00	\$ 28,000.00	\$ -	\$ 28,000.00	\$ -	
6.3	Interpretive Sign	1	ls	\$1,850.00	\$ 1,850.00	\$ -	\$ 1,850.00	\$ -	
6.4	Signage Lettering	1	ls	\$2,600.00	\$ 2,600.00	\$ -	\$ 2,600.00	\$ -	
6.5	Pedestrain Bridge	1	ea	\$40,000.00	\$ 40,000.00	\$ -	\$ 40,000.00	\$ -	
Subtotal 6.0					\$ 127,450.00				
7.0 Soft Landscaping									
7.1 TREES									
7.1.1	Deciduous tree (70mm dia.) W.B. (park)	35	ea	\$450.00	\$ 15,750.00	\$ 9,450.00	\$ 3,150.00	\$ 3,150.00	
7.1.2	Deciduous tree (70mm dia.) W.B. (Stoneybrook Ct)	26	ea	\$450.00	\$ 11,700.00	\$ 11,700.00	\$ -	\$ -	
7.1.3	Coniferous tree (2.0 m ht.) W.B.	18	ea	\$375.00	\$ 6,750.00	\$ 5,400.00	\$ -	\$ 1,350.00	
7.2 SHRUBS									
7.2.1	Deciduous shrub (3 gal) POT	350	ea	\$40.00	\$ 14,000.00	\$ 4,200.00	\$ -	\$ 9,800.00	
7.2.2	Coniferous shrub (3 gal) POT	20	ea	\$40.00	\$ 800.00	\$ 240.00	\$ -	\$ 560.00	
7.3 SEED MIXES AND SODDING									
7.3.1	Sodding (to blend trails to grade)	1400	m²	\$4.00	\$ 5,600.00	\$ -	\$ 5,600.00	\$ -	
7.3.2	Wet Meadow Seed Mix (Rain Gardens/ Bioretention Garden)	2550	m²	\$3.50	\$ 8,925.00	\$ 6,247.50	\$ -	\$ 2,677.50	
7.3.3	Wet Meadow Seed Mix (Detention Swales)	615	m²	\$3.50	\$ 2,152.50	\$ 1,506.75	\$ -	\$ 645.75	
Subtotal 7.0					\$ 65,677.50				
Summary						Subtotal	\$ 57,792.25	\$ 462,544.00	\$ 168,131.25
Item 1.0: Site Preparation, Demolition and Preservation					\$ 37,100.00				
Item 2.0: Site Works					\$ 74,600.00				
Item 3.0: Paving and Curbs					\$ 222,040.00				
Item 4.0: Drainage Works					\$ 28,350.00				
Item 5.0: Site Furnishing					\$ 133,250.00				
Item 6.0: Structures and Signage					\$ 127,450.00				
Item 7.0: Soft Landscaping					\$ 65,677.50				
Subtotal Items 1.0 - 7.0					\$ 688,467.50				
H.S.T.					\$ 89,500.78				
Grand Total					\$ 777,968.28				

# Bayview Glen SNAP – Phases 2 and 3 Action Plan

## Table 13: Stone Farm Parkette Retrofit Concept Plan Cost Estimate

Item	Description	Est. Qty	Unit	Unit Price	Subtotal	Stormwater		
						Naturalization	Recreation	Management
<b>1.0</b>	<b>Site Preparation, Demolition &amp; Silt Control</b>							
1.1	Mobilization	1	ls	\$5,000.00	\$ 5,000.00	\$ 1,000.00	\$ 500.00	\$ 3,500.00
1.2	Tree protection fence	125	lm	\$15.00	\$ 1,875.00	\$ 656.25	\$ 562.50	\$ 656.25
1.3	Removal of trees	16	ea	\$500.00	\$ 8,000.00	\$ -	\$ 1,600.00	\$ 6,400.00
1.4	Removal of playground	1	ls	\$7,500.00	\$ 7,500.00	\$ -	\$ 7,500.00	\$ -
1.5	Silt Control Fencing	240	lm	\$18.00	\$ 4,320.00	\$ -	\$ 4,320.00	\$ -
	<b>Subtotal 1.0</b>				<b>\$ 26,695.00</b>			
<b>2.0</b>	<b>Site Works</b>							
2.1	Strip and stockpile topsoil	4,510	m <sup>2</sup>	\$2.25	\$ 10,147.50	\$ 3,044.25	\$ 4,059.00	\$ 3,044.25
2.2	Screen, amend, spread and fine grade existing topsoil	3,985	m <sup>2</sup>	\$4.00	\$ 15,940.00	\$ 4,782.00	\$ 6,376.00	\$ 4,782.00
2.3	Rough grading - site	3,910	m <sup>2</sup>	\$6.00	\$ 23,460.00	\$ -	\$ 17,595.00	\$ 5,865.00
2.4	Rough grading - rain garden	600	m <sup>2</sup>	\$12.00	\$ 7,200.00	\$ -	\$ -	\$ 7,200.00
	<b>Subtotal 2.0</b>				<b>\$ 56,747.50</b>			
<b>3.0</b>	<b>Paving and Curbs</b>							
3.1	Permeable Unit Paving (Roundabout)	130	m <sup>2</sup>	\$135.00	\$ 17,550.00	\$ -	\$ -	\$ 17,550.00
3.2	Paving for Pedestrian Walkways	210	m <sup>2</sup>	\$100.00	\$ 21,000.00	\$ -	\$ 21,000.00	\$ -
3.3	Paving at Entry Court	110	m <sup>2</sup>	\$120.00	\$ 13,200.00	\$ -	\$ 13,200.00	\$ -
3.4	Sand at Playground	225	m <sup>2</sup>	\$30.00	\$ 6,750.00	\$ -	\$ 6,750.00	\$ -
3.5	Flush Curb (roundabout in Stoneybrook Ct)	50	ls	\$60.00	\$ 3,000.00	\$ -	\$ -	\$ 3,000.00
3.6	Barrier Curb (entry court at Canadiana Ct and along Stoneybrook Ct)	112	ls	\$65.00	\$ 7,280.00	\$ -	\$ 7,280.00	\$ -
	<b>Subtotal 3.0</b>				<b>\$ 68,780.00</b>			
<b>4.0</b>	<b>Drainage Works</b>							
4.1	200mm PVC Storm Sewer Pipe	50	lm	\$130.00	\$ 6,500.00	\$ -	\$ -	\$ 6,500.00
4.2	Sewer Pipe 400mm, PVC collector storm sewer (header for rainwater storage system)	20	lm	\$145.00	\$ 2,900.00	\$ -	\$ -	\$ 2,900.00
4.3	Landscaped swale	110	lm	\$55.00	\$ 6,050.00	\$ -	\$ -	\$ 6,050.00
4.4	150mm subdrain pipe for permeable pavement to DCB	30	lm	\$30.00	\$ 900.00	\$ -	\$ -	\$ 900.00
4.5	Controlled outlet/ inlet	3	ea	\$1,950.00	\$ 5,850.00	\$ -	\$ -	\$ 5,850.00
4.6	Subsurface rainwater storage system (series of clearstone trenches wrapped in 270R Terrafix Filter Fabric)	144	lm	\$95.00	\$ 13,680.00	\$ -	\$ -	\$ 13,680.00
4.7	Subsurface attenuation gallery (clearstone wrapped in 270R Terrafix Filter Fabric)	130	m <sup>3</sup>	\$65.00	\$ 8,450.00	\$ -	\$ -	\$ 8,450.00
4.8	Culvert	4.5	lm	\$450.00	\$ 2,025.00	\$ -	\$ -	\$ 2,025.00
	<b>Subtotal 4.0</b>				<b>\$ 46,355.00</b>			
<b>5.0</b>	<b>Site Furnishings</b>							
5.1	Benches	4	ea	\$2,000.00	\$ 8,000.00	\$ -	\$ 8,000.00	\$ -
5.2	Play Structure	1	ls	\$60,000.00	\$ 60,000.00	\$ -	\$ 60,000.00	\$ -
5.3	Bollards	5	ea	\$750.00	\$ 3,750.00	\$ -	\$ 3,750.00	\$ -
5.4	Bicycle Rack	4	ea	\$500.00	\$ 2,000.00	\$ -	\$ 2,000.00	\$ -
	<b>Subtotal 5.0</b>				<b>\$ 73,750.00</b>			
<b>6.0</b>	<b>Structures and Signage</b>							
6.1	Shade Structure	1	ls	\$55,000.00	\$ 55,000.00	\$ -	\$ 55,000.00	\$ -
6.2	Interpretive Sign	1	ls	\$1,850.00	\$ 1,850.00	\$ -	\$ 1,850.00	\$ -
6.3	Entry Sign Wall and Lettering	1	ls	\$14,500.00	\$ 14,500.00	\$ -	\$ 14,500.00	\$ -
	<b>Subtotal 6.0</b>				<b>\$ 71,350.00</b>			
<b>7.0</b>	<b>Multi Play Field</b>							
7.1	Soccer goal posts, including anchors and net )	2	sets	\$2,900.00	\$ 5,800.00	\$ -	\$ 5,800.00	\$ -
	<b>Subtotal 7.0</b>				<b>\$ 5,800.00</b>			
<b>8.0</b>	<b>Soft Landscaping</b>							
<b>8.1 TREES</b>								
8.1.1	Deciduous tree (70mm dia.) W.B. (park)	26	ea	\$450.00	\$ 11,700.00	\$ 9,360.00	\$ -	\$ 2,340.00
8.1.2	Deciduous tree (70mm dia.) W.B. (Stoneybrook Ct)	20	ea	\$450.00	\$ 9,000.00	\$ 9,000.00	\$ -	\$ -
8.1.3	Coniferous tree (2.0 m ht.) W.B.	14	ea	\$375.00	\$ 5,250.00	\$ 4,200.00	\$ -	\$ 1,050.00
<b>8.2 SHRUBS</b>								
8.2.1	Deciduous shrub (3 gal) POT (park areas and median)	200	ea	\$40.00	\$ 8,000.00	\$ 2,400.00	\$ -	\$ 5,600.00
8.2.2	Coniferous shrub (3 gal) POT (park areas and median)	20	ea	\$40.00	\$ 800.00	\$ 240.00	\$ -	\$ 560.00
8.2.3	Perennial Planting in Rain Garden	200	ea	\$15.00	\$ 3,000.00	\$ -	\$ -	\$ 3,000.00
<b>8.3 SEED MIXES AND SODDING</b>								
8.3.1	Seeding (lawn area)	1878	m <sup>2</sup>	\$2.75	\$ 5,164.50	\$ -	\$ 5,164.50	\$ -
8.3.2	Multi Play Field Sodding	800	m <sup>2</sup>	\$4.00	\$ 3,200.00	\$ -	\$ 3,200.00	\$ -
8.3.3	Boulevard Sodding (Stoneybrook Ct)	140	m <sup>2</sup>	\$4.00	\$ 560.00	\$ -	\$ -	\$ 560.00
	<b>Subtotal 8.0</b>				<b>\$ 46,674.50</b>			
<b>Summary</b>						<b>Subtotal</b>	<b>\$ 34,682.50</b>	<b>\$ 250,007.00</b>
Item 1.0: Site Preparation, Demolition and Preservation					\$ 26,695.00			
Item 2.0: Site Works					\$ 56,747.50			
Item 3.0: Paving and Curbs					\$ 68,780.00			
Item 4.0: Drainage Works					\$ 46,355.00			
Item 5.0: Site Furnishing					\$ 73,750.00			
Item 6.0: Structures and Signage					\$ 71,350.00			
Item 7.0: Multi Play Field					\$ 5,800.00			
Item 8.0: Soft Landscaping					\$ 46,674.50			
<b>Subtotal Items 1.0 - 8.0</b>								
<b>H.S.T.</b>								
<b>Grand Total</b>								

**Table 14: Proposed Sidewalks, Trails and Bicycle Routes Cost Estimate**

Item	Description	Est. Qty	Unit	Unit Price	Subtotal
<b>1.0</b>	<b>Concrete Sidewalk</b>				
1.1	Concrete Sidewalk 1.5m wide and 160mm thick including preparation	4,320	m <sup>2</sup>	\$100.00	\$ 432,000.00
				<b>Subtotal 1.0</b>	<b>\$ 432,000.00</b>
<b>2.0</b>	<b>Bike Routes</b>				
2.1	Linemarking/ pavement marking	4372	lm	\$50.00	\$ 218,600.00
2.2	Bike Route signage every 250m and at intersections	20	ea	\$250.00	\$ 5,000.00
				<b>Subtotal 2.0</b>	<b>\$ 223,600.00</b>
	<b>Summary</b>				
	Item 1.0: Concrete Sidewalk				\$ 432,000.00
	Item 2.0: Bike Routes				\$ 223,600.00
				<b>Subtotal Items 1.0 - 2.0</b>	<b>\$ 655,600.00</b>
				<b>H.S.T.</b>	<b>\$ 85,228.00</b>
				<b>Grand Total</b>	<b>\$ 740,828.00</b>

This estimate does not include the sidewalk installation at Bayview Glen Park (included in park estimate above).

### Residential Retrofit Program

The cost to administer the program with a fully engaged City Champion (as described in Section 3.3) is mainly the time required to complete his/her responsibilities. These include:

- Manage brochure mail out;
- Organize and hold meetings with homeowners (initial, post-audit, post-retrofit);
- Answer enquiries (phone, email, in person);
- Manage audit appointments;
- Review audit reports;
- Collect and analyse data; and
- Undertake periodic program reviews.

A new hire or existing City of Markham staff (e.g., Building Department representative) could serve as the City Champion. Alternatively the City Champion may be outsourced to PowerStream or others if appropriate. Finalizing who will take this key role, will determine cost impacts for the City of Markham.

The costs of the implementation of measures themselves would not require financial support from the City of Markham. These costs will be borne by the homeowner, who benefit directly from the measures. Residents have indicated a willingness to invest in measures, where there is a strong case for them (financial or otherwise). Additionally, incentive programs offered by utility companies (e.g. SaveONEnergy) are available to homeowner to improve returns on investment.

Funding may be required to motivate homeowners to undertake the I&I measures. However, as this is a regional priority and the Region may still have a program, funding from the Region may be available.

## **New Construction Program**

The cost to administer the program with a fully engaged City Champion (as described in Section 3.3) is mainly the time required to complete his/her responsibilities as defined above.

The costs of the implementation of new construction measures themselves would not require financial support from the City of Markham. These costs will be borne by the homeowner, who benefit directly from the measures. Residents have indicated a willingness to invest in measures, where there is a strong case for them (financial or otherwise). Additionally, incentive programs offered by utility companies (e.g. SaveONEnergy) are available to homeowner to improve returns on investment.

## **5.3 Program Measures of Success**

### **Public Realm**

A key component of the monitoring program should include an assessment of the qualitative and quantitative data collected by the City Champion. The program should evaluate the effectiveness of meeting municipal stormwater management runoff and flood flow criteria by using a combination of Low Impact Development (LID) practices as an alternative to sole reliance on traditional structured stormwater detention facilities. The following methods which are based upon the Sustainable Technologies Evaluation Program (STEP) developed by the TRCA, should be considered as part of the monitoring program:

- A combination of field monitoring and hydrologic modeling to be used to evaluate the stormwater management benefits of the innovative approach used in the parks and boulevards. Monitoring of each park and boulevard site should occur in spring-fall for two calendar years from the time the system is operational. Flow rates and volumes should be monitored using area-velocity probes at the outlets from each of the systems. Water levels in the biofilters and rain gardens should be monitored using pressure transducers in standpipes located in each of the catchments. A tamper-proof tipping bucket rain gauge should be installed in a discreet location within each park to measure rainfall. A second back-up rain gauge should also be located within 10 km of the park sites. The purpose of the second gauge is to pick up anomalies in data as compared with annual rainfall data for the area.
- Modelling should be conducted using Storm Water Management Model (SWMM) software used throughout the world for planning, analysis and design related to stormwater runoff and drainage systems in urban areas. Toronto Region Conservation uses this software which was developed by the US Environmental Protection Agency. Several models, of varying complexity, can be developed and analyzed against observed data to provide improved guidance on the efficacy of different LID modelling approaches. The models provide the basis for assessment of how the stormwater management system would function for events larger than those observed during the monitoring period, and enables performance to be compared to the original hydrologic targets for the site. The site targets need to be established prior to initiating the monitoring program and should be determined by a stormwater engineer. A runoff reduction target quantified in mm water per storm event 'lost' to infiltration, evapotranspiration and

rainwater harvesting should be established. The 5 mm runoff reduction criteria from the TRCA Stormwater Criteria Document (and also established in the City of Toronto Wet Weather Flow Management Guidelines) should be considered a minimum target for the study area.

- The quantitative data from the models can be useful in explaining the differences in the catchment impervious cover-to-infiltration area ratios that should be recorded for each park site prior to initiating the monitoring program. The ratio needs to be established in a stormwater management report prepared by a stormwater engineer and could be summarized in a table similar to the one presented below.

**Table 15: Summary of sub-catchment pervious and impervious areas**

Parameter	Bayview Glen Park	Glencrest Park	Stone Farm Parkette
Impervious area			
Infiltration area (m <sup>2</sup> )			
Cistern/ substorage re-use volume (m <sup>3</sup> )			
Ratio of infiltration area to impervious area			

## Monitoring and Reporting Framework

### *Frequency of Analysis*

Analysis of monitoring data should be conducted for each rainfall event between April-November for two calendar years. Winter data (December to March) should not be included in the analysis as snowfall and melt do not occur at the same time, making it difficult to evaluate performance on an event basis.

### *Methodology of Analysis*

The performance of LIDs should be assessed relative to a conventional catchment without stormwater management by comparing a 'no LID' control scenario with monitored data. The 'no LID' flow volumes should be estimated using two methods. The first method determined runoff rates and volumes from a version of the calibrated SWMM model without the LID features (referred to as the calibrated model with no LID). The second method can be simpler, and not based on the hydrologic model. Instead, estimates of storm event volumes should be calculated using the runoff coefficients documented in a design report prepared by a stormwater engineer for each of the catchments. Both 'no LID' scenarios should maintain the same surface features currently on each park site and boulevard, where runoff is routed directly to sewers rather than the LID stormwater management improvements. Using these methods, event based runoff reduction rates can be estimated for each of the catchments, and for the project as a whole.



**Table 16: Hydrological and Runoff Coefficient Models for Investigating Sub-Catchment Drainage Improvements**

<b>Method 1: Hydrological Model</b>	<b>Bayview Glen Park</b>	<b>Glencrest Park</b>	<b>Stone Farm Parkette</b>
No LID total runoff volume (m <sup>3</sup> )			
Observed runoff volume (m <sup>3</sup> )			
Runoff Reduction (%)			
<b>Method 2: Calculated from runoff coefficients</b>			
No LID total runoff volume (m <sup>3</sup> )			
Observed runoff volume (m <sup>3</sup> )			
Runoff Reduction (%)			

### **Analysis of Initiatives or Elements That Succeed/Fail**

An engineering report should be completed at the end of the monitoring program to summarize the data and findings and draw conclusions from the results. For example, the monitoring program could show how peak flows were reduced and a water budget analysis could show how the LID initiatives altered the proportion of runoff versus evapotranspiration by summarizing flow results.

**Table 17: Summary of flow results**

<b>Area</b>	<b>Monitoring Analyses</b>
Bayview Glen Park	
Glencrest Park	
Stone Farm Parkette	

Apart from quantifying and analyzing the hard data, the report should also illustrate how each initiative met determined design objectives/ targets. If it did not reach the target a description of the rationale for this should be made. The report should also summarize other challenges that the LID stormwater system as a whole had encountered during the monitoring period and any anomalies in the weather pattern or other external influences i.e. contamination or siltation within the system that may affect the data. By contrast the visual appeal and reduced impacts on downstream infrastructure and receiving water systems should be considered as part of the overall benefit.

It would also be useful to translate the financial implications of the system to the municipality to use in future marketing material and case studies for future projects. In generating an assessment of the overall success of the initiatives it is important to quantify the life cycle costs as well as the initial capital costs of implementation. Maintenance costs, replacement, repair and restoration costs should be considered.

### **Residential Retrofit Program**

The following metrics are proposed to assess the impact and success of the program:

## Bayview Glen SNAP – Phases 2 and 3 Action Plan

1. City Champion's activities (these will provide insight into where and how well the City Champion's time is utilized)
  - Number of phone calls
  - Number and length of meetings with homeowners.
  - Time spent on each area of responsibility.
2. Number of initial meetings with unique households. This is important to identify how many households were reached.
3. Participation rate: # audits, # households implementing audit recommendations (annual, cumulative).
4. Expected and actual annual and cumulative savings per household (avg.) and for neighbourhood.
5. Average \$/kWh and kWh/m<sup>3</sup> saved for each measure.
6. Surveys
  - Homeowner views on program, City Champion
  - City Champion assessment of program.
7. Cost to City of Markham to administer the program (\$/kWh saved). This will reflect how effective the City's expenditures are in achieving savings in the neighbourhood.

The following are potential sources of data to help evaluate the success of the program and identify potential improvements.

1. Records kept by City Champion.
2. City Champion interviews with homeowners
  - This will provide qualitative feedback on their views on the program, barriers to participation etc.
  - Those meeting with the City Champion but not joining the program solicited for feedback on why they declined to join.
3. Audit Reports
  - Collect audit reports from auditors to track measures identified (pre-audit) and implemented (post audit).
4. Cost data
  - Collect data from homeowners/contractors on actual costs of measures (to establish benchmarks, calculate returns etc.).
5. Utility Bills
  - Utility bills for as many previous years as feasible from resident move-in date, minimum 5 years where possible. Periods before current occupants moved in are irrelevant, as their energy demand profile will vary. This is to establish more accurate baselines.
  - Monthly energy and water consumption figures post implementation to determine actual annual reduction, cumulative reduction (per project, per household (avg), and neighbourhood total). It will likely prove difficult to obtain future energy bills from homeowners without substantial effort. Instead, it is recommended that the City of Markham access the data directly from the utility company. This will require

homeowner permission, which could either be a) a condition of taking part in the program or b) an optional opt-out.

In order to collect the above data, homeowners would need to agree to the following on enrolling in the program:

- Grant permission for the auditor to submit audit reports and recommendations to City Champion;
- Grant permission to the City of Markham to collect from the utility companies consumption data on their property;
- Submit information on the cost of retrofit measures implemented; and
- Be interviewed after the post-work audit.

Some of these requirements may prove to be a barrier to program participation. Should this be the case, the requirements can be adapted or removed as required.

A mechanism for homeowners to provide feedback on the City Champion should also be provided to evaluate the effectiveness of the appointed person. The City Champion would be required to explain this mechanism to homeowners during the initial meeting.

### **New Home Construction Program**

The following metrics are proposed to assess the impact and success of the program:

- Number of homes opting for improved performance;
- Number of homes achieving each standard;
- Average % reduction per house, for neighbourhood;
- Total energy and water saved, annual and cumulative;
- Data from the following organizations on the number of properties in the neighbourhood achieving a standard or rating;
- NRCan for Energy Star, R-2000, and EnerGuide rating;
- CaGBC for LEED;
- Canadian Passive House Institute;
- Living Future Institute for LBC;
- Net Zero Energy Coalition;
- City of Markham permitting office;
- Interviews with City of Markham permitting officers on homeowner interest; and
- Interviews with homeowners on their views on program and green building standards.

### **5.4 Reporting Framework**

The following tables could provide an effective tool to link the monitoring program to the SNAP objectives and targets as defined in Phase 1 and above.

**Table 18: Recommended Reporting Framework**

<b>Theme: Water Efficiency*</b>	<b>Bayview Glen Park</b>	<b>Glencrest Park</b>	<b>Stone Farm Parkette</b>
Observed runoff volume (m3)			
Runoff reduction (%)			
Cistern/ sub-storage re-use volume (m3)			
Overflow volume (m3)			
Site detention volume (m3)			
Transpiration (%)			
Water quality (ppm reduction salt % chlorides)			

*\*measured for various storm events*

<b>Theme: Ecosystem Integrity*</b>	<b>Bayview Glen Park</b>			<b>Glencrest Park</b>			<b>Stone Farm Parkette</b>		
	<b>M</b>	<b>A</b>	<b>N</b>	<b>M</b>	<b>A</b>	<b>N</b>	<b>M</b>	<b>A</b>	<b>N</b>
Plant establishment (first two years only)									
Selective pruning or removals depending on established conditions									
Weed removal (on-going)									
Discourage access to naturalization areas									
Supplemental native plantings									
Volunteer/ outreach									

*\*measured three times annually in spring, summer and autumn*

<b>Theme: Energy and Climate*</b>	<b>Bayview Glen Park</b>	<b>Glencrest Park</b>	<b>Stone Farm Parkette</b>
Increase in patronage to park (user count)			
Increase in bicycle use in park (user count)			
Quantify solar energy harvesting/ use			
Quantify energy reduction as ongoing % conservation measures			

*\*quantified once annually*

<b>Theme: Access and Mobility*</b>	<b>Bayview Glen Park</b>	<b>Glencrest Park</b>	<b>Stone Farm Parkette</b>
Increase in patronage to park (user count)			
Increase in bicycle use in park (user count)			

*\*quantified once annually*

## **Appendix A**

### **Community and Stakeholder Engagement Summary**



# Bayview Glen Sustainable Neighbourhood Retrofit Action Plan



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Appendix A: Home Owner Survey Results Report

Appendix B: Fun Fair Feedback Summary Report

Appendix C: Community Gathering Summary Report

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## 1. Introduction

The City of Markham and the Toronto Regional Conservation Authority (TRCA) with the support of The Municipal Region of York are leading the development of a unique Sustainable Neighbourhood Retrofit Action Plan (SNAP) for the Bayview Glen community in Markham, Ontario. The Bayview Glen SNAP is an action-oriented plan building on Markham's Greenprint, helping to transform the neighbourhood to improve sustainability and the overall quality of life.

This Engagement Summary Report outlines the engagement and outreach tools used and lessons learned to support the development of the Bayview Glen SNAP. Development of the SNAP was supported by a consulting team led by Lura Consulting and Schollen and Company with support from The Municipal Infrastructure Group (TMIG) and Beyond Energy Code Consulting (BECC).

The SNAP Action Plan was prepared using a collaborative, community based approach. Engagement activities provided residents meaningful opportunities to contribute to the Plan's development. The planning framework, guiding principles and goals of the SNAP reflect the valuable ideas and aspirations of local residents, government organizations, and stakeholders.

The objectives of the engagement process included:

- To provide interesting and constructive formats, which enabled everyone to be engaged in meaningful discussion about the development of the SNAP Action Plan;
- To actively engage and inspire key audiences in the creation of the SNAP through the use of innovative engagement tools and techniques;
- To ensure that participants were informed and kept up-to-date on the development and progress of the SNAP; and
- To inform the development of the SNAP through a collaborative and participatory process.

## 2. Engagement Activities

The following provides an overview of the activities that took place as part of the neighbourhood engagement process.

A series of conversations were held throughout the course of the project to inform residents of Bayview Glen about the project and to obtain ideas and input from the public on the SNAP. Activities included a homeowner survey, key informant interviews, municipal staff and agency sessions, a Fun Fair, community meetings and a focus group.

### Homeowner Survey:

A homeowner survey was conducted and ran from the end February to the beginning of May 2014. The objective of the homeowner survey was to collect information on homeowner perspectives about the neighbourhood and potential sustainability retrofits, as well as fill gaps on the physical attributes of homes and the neighbourhood. The survey was mailed directly to each of the 715 households in the

neighbourhood with a letter from the Mayor and local Councillor to encourage participation. Lura, City of Markham and TRCA further solicited feedback through conducting intercept surveys at the local shopping plaza. Feedback was collected via online and hard copy surveys resulting in 46 fully completed surveys and 27 partially completed surveys. See **Section 3** for **What We Heard** and **Appendix A** for the complete survey findings summary.

### **Key Informant Interviews**

Interviews were held to seek input from community leaders in March 2014. The interviews were designed to define ways to engage local residents, to understand local values, and to identify the improvements that the residents and stakeholders feel are most important. Interviews were conducted with: Councillor Valerie Burke, Longo's, Thornhill Community Centre and Library, Bayview Glen Residents Association, Thornhill Horticulture and Garden Society, Woodhill Garden Centre and the Bayview Glen Public School Principal.

### **Municipal and Agency Staff Meetings:**

Three municipal and agency staff introductory meetings were held in the spring of 2014 with City of Markham, TRCA, and York Region staff. These meetings were an opportunity to discuss opportunities and objectives of staff as they relate to the project, gather insights to shape public realm, retrofit options for parks, open space and present next steps. Subsequent meetings were held with various department representatives to ensure that the recommendations coming forward in the Action Plan align with current City of Markham strategic directions, initiatives and address constraints.

### **West Thornhill Stormwater Remediation Phase I and II Implementation - Community Meeting**

A community workshop was held with residents to discuss the upcoming stormwater management upgrades in the neighbourhood on May 7, 2014. The SNAP project was introduced and participants were invited to complete a survey and/or participate in the upcoming community meetings relating specifically to the SNAP event.

### **Bayview Glen Public School Open House**

Members of the TRCA and City of Markham staff attended the Bayview Glen Public School Open House in Spring 2014 to introduce participants to the project, invite them to complete a survey and/or participate in the upcoming community meetings relating specifically to the SNAP project.

### **Bayview Glen Public School Fun Fair**

The Fun Fair was held on June 13, 2014 at Bayview Glen Public School. Of the families attending the event over 100 participated in the discussions relating to the SNAP project. The Fun Fair provided the SNAP team to have informal conversations with residents about the project and to solicit specific feedback on three preliminary concepts for the parks in Bayview Glen. Participants also had an opportunity to identify actions they would be interested in or willing to perform on their own property and learn about road right-of-way improvement options. See **Section 3** for **What We Heard** and **Appendix B** for the complete Fun Fair feedback summary.

### **Community Gathering**

The Community Gathering was held on June 26, 2014 at Thornhill Community Centre. A total of 20 residents attended. The purpose of the Community Gathering was to provide an overview of the project to community members and to obtain feedback on options toward the creation of programs for public realm and home retrofits. See **Section 3** for **What We Heard** and **Appendix C** for the complete Community Gathering summary.

### **Focus Group**

The Focus Group was held on October 8<sup>th</sup> 2014. Twelve (12) participants were randomly selected of which 8 attended. The purpose of the focus group was to explore elements of the residential retrofit program to encourage residents to make sustainable improvements to their homes and properties and to explore actions that people are willing to take, motivators and barriers to participation, methods to communicate with residents and brand elements. Participants wrote down their answers to key questions before sharing their responses in an interactive discussion approach. See **Section 3** for **What We Heard** and **Appendix D** for the complete focus group summary.

## **3. What We Heard**

Over 220 people participated in sharing their ideas to help shape the residential retrofit program and public realm park and road right-of-way improvements.

### ***About The Community Culture and Engagement***

Key Informant Interviews revealed that:

- Many residences are corporate homes, second or seasonal homes;
- Landscapers are widely used;
- Many residents are older, non-English speaking;
- The area has high turnover in high flood risk areas;
- Residents are not always engaged locally;
- Residents love the green neighbourhood, established tree canopy, natural setting including the Don River, and that Bayview Glen is a quiet community, established community with large lots;
- Residents are concerned most about flooding, erosion, traffic, and noise. They are interested in tree protection and replacement, park upgrades, walkability, and neighbourhood safety;
- Engagement activities that include door-to-door flyers, face-to-face interactions, email lists, online surveys, and focus groups should provide good avenues for participation; and
- Events host in the park or at the school that are designed for families with food should solicit the most participation.

### ***About Values***

Key Informant Interviews, home owner survey and focus group revealed that:

- This is an upscale community where people want to live here;
- The neighbourhood is centrally located, convenient and close to transit and amenities;
- The homes have large property sizes;
- It's a peaceful/relaxing and safe neighbourhood with good people;



- There are good schools;
- There are lots of green space creating a picturesque neighbourhood; and
- People are extremely proud of their home and grounds/ flowers.

#### **About Priorities**

- Creating a walkable neighbourhood is important;
- Retaining nature and greenspace (including parks) is a priority and defining feature of the neighbourhood;
- Improving street infrastructure is needed;
- Protecting and replacing street trees (particularly Ash) is needed;
- Maintaining home and public area appearance is a priority;
- Reducing flooding is the biggest concern residents shared;
- Improved sidewalks and trails and their connection to parks is desired;
- Improving school grounds is desired; and
- Improving parks and the parkette is desired.

#### **About Challenges**

Through the focus group we learned some participants felt that the neighbourhood is losing its character because they don't see people in the neighbourhood. They see a key challenge being that people or households tend to be self-contained and using backyards rather than community spaces. They have noticed that kids aren't out playing in the street or public spaces because there is a lack of sidewalks and there is significant traffic around the school and cutting through the neighbourhood. Some noted that streets are also not well lit. From an environmental perspective, flooding is a key concern as well as loss of ash trees.

#### **About Parks**

The homeowner survey responses show that:

- Parks are used frequently by the neighbourhood for informal uses (walking, sitting, and socializing) as well as by some recreational baseball groups; and
- Residents feel that playgrounds, natural landscapes, shade and shelter structures, and active and passive recreational facilities are important for their parks.

All three draft park concepts were well received by participants at the Bayview Glen Public School Fun Fair and Community Gathering. Residents were supportive of the overall elements proposed. Feedback provided included:

#### **All Parks**

- Participants showed support for:
  - Management of water and flooding mitigation
  - Shelter for shade structures
  - Existing trees and more plantings
- Consider the following enhancements:
  - Adding drinking fountains
  - Adding an off leash dog area in a park

- Adding a splash pad
- Addressing sidewalks, bike lanes to connect the parks and speed bumps for safety
- Adding a community garden
- Integrating water reuse opportunities (i.e. splash pad)
- Defining mitigation options to address standing water in rain gardens and daylighted stream
- Ensuring new playgrounds are accessible;

#### Glen Crest Park

- Participants showed support for:
  - The skating rink
  - Formalizing the trail
  - The mediation space
  - The natural feel
- Participants suggested ensuring current recreation opportunities are not impacted (e.g., tobogganing)

#### Bayview Glen Park

- Participants showed support for keeping the baseball diamond
- Participants suggested:
  - Considering moving the proposed location of the Bayview Glen playground closer to the school
  - Clarifying if/how the park retrofit plans will impact/improve the baseball diamond and soccer field west of the park (on the school property);
  - Including options to address parking and turning issues (on and in front of the school)

#### Stonefarm Parkette

- Consider enhancing safety in location of the playground
- Consider structural options that emulate the cultural heritage of the neighbourhood and/or site (e.g., Old Stone Farm for Stonefarm).

#### **About Road-Right-Of-Ways**

- The homeowner survey responses show that residents feel that pavement quality, drainage, landscaping/street trees, sidewalks are important factors to improving road right-of-ways; and
- The Community Gathering feedback suggested that concepts for street right-of-way cross sections were positively received. Particular support was expressed for preserving the rural look and feel of the neighbourhood with the proposed road right-of-way layouts and measures to calm traffic (e.g. bump outs and narrowing).

#### **About Connectivity**

Connectivity within the neighbourhood was discussed at the Community Gathering and the following feedback provided:

- There is support for improved connectivity within and between the three neighbourhood parks;
- More sidewalks and trails are needed with consideration to increasing walking options and safety for young families in balance with interests to preserve rural character in parts of the neighbourhood; and
- Maintain Laureleaf Road as a local road (within the Official Plan designation).

### ***About the Residential Retrofit Program***

The homeowner survey and key informant interview responses showed that:

- Residents feel that safety, the outside appearance of their home, privacy, maintaining the structure and mechanical workings of their home are important;
- Many residents rely on landscaping companies to maintain properties;
- Residents are willing to explore water efficient landscaping and somewhat willingness to replace hard surfaced with vegetation;
- Residents have limited knowledge of energy and water conservation programs; and
- Residents are aware of some flood proofing measures and some have undertaken some activities (half have disconnected downspouts), but not all have taken action.

The homeowner survey asked residents which measures they had already completed, would consider or were not interested in pursuing. Highlights of responses included the following:

Already Underway	Opportunities	Low Interest
Disconnecting downspouts	Sump pumps	Solar
Managing drainage flow	Water efficient landscaping	Geothermal heating
Automated irrigation systems	Mechanical	Electric vehicles
Efficient lighting	Insulation	
Efficient appliances	Weather stripping	
Programmable thermostats	Windows	

Further refinement of the residential retrofit program came through participant feedback at the Fun Fair Community Gathering and focus group.

Participants were most interested in the following retrofit measures on their property:

- Install a rain garden;
- Watering less;
- Planting trees;
- Installing a solar powered pool pump;
- Install permeable driveway and walkways;
- Planting water efficient and water absorbing trees and shrubs;
- Improving or optimizing irrigation systems; and
- There was also some interest in retrofit options for backyard pools.

Participants were most interested in the following retrofit measures in their homes:

- Assess and increase the energy efficiency of their homes (i.e.: conduct an energy audit);
- Install energy efficient windows and doors;
- Increase home insulation;
- Detect & seal air leaks and install weather stripping;
- Purchase energy efficient appliances;
- Install low flow toilet;
- Perform furnace and AC maintenance;
- Fix leaky taps;
- Explore options for solar pool heaters;
- Install behavioural devices (e.g. whole house monitors, energy displays, etc.);
- Use a guide for sustainable renovation; and
- Commit to behavioural changes (e.g. turning off the lights when leaving a room, power down device, unplug items when not in use, take shorter showers, etc.)

In addition:

- Many people in the neighbourhood are already growing vegetables (and interested in continuing); and
- A suggestion was made to include sump pumps as a requirement in sustainable building guidelines and consider offering a subsidy for sump pumps (similar to City of Toronto program).

### ***About Marketing SNAP***

#### **Decision Making**

The majority of focus group participants noted they discuss home and property renovations with their partner or family and decide together whether the benefits outweigh the constraints.

They make decisions based on cost effectiveness and re-sale value and select the top of the line that they can afford. Residents believe that a product or service that has environmental benefits is a bonus. Residents are willing to spend money upfront for long-term payback.

The focus group discussed how to get beyond information to be able to measure change and success. They don't want to feel they are being pushed into participating. They want to be able to make informed decisions on their own.

#### **Key Influencers**

Through the focus group, we heard that residents:

- Are influenced by their friends, as well as hear about ideas from dog walking group, parents groups, informal channels;
- Are not influenced by their children, neighbours, branding, home hardware stores big box, (although they have higher trust with local suppliers);
- Do their own researching online;
- Ask trusted contractors (interior designer, contractor, or plumber) on what needs to be done and how much it will cost; and
- Check out open houses in the neighbourhood to gather ideas.

### Trusted Information Sources

Through the focus group we heard that residents get information primarily from the City of Markham (incl. tax bills), Powerstream, and Enbridge. They recommended having a central webpage on the City of Markham site to provide more information about the SNAP project. They do read Liberal newspaper, school newsletters, and Councillor's emails. Social media is not widely used and door-to-door canvassers are not well received. They recommended events like Fun Fair at school where there is a sense of community could bring people together to learn about the program and new technologies.

## 4. Communication & Outreach Tools

The following communication and outreach tools were used to raise awareness to the Bayview Glen residents of the Sustainable Neighbourhood Retrofit Action Plan and encourage community participation in its development:

- **TRCA and City Project webpages** - The SNAP framework is available on the TRCA's website for residents.
- **Introductory Letter from Councillor** - Residents in the Bayview Glen neighbourhood were mailed letters of invitation to participate in the consultations for SNAP from their local councillor Valerie Burke.
- **SNAP Neighbourhood Posters** - Posters were placed around the community to notify residents of the upcoming participatory meetings and community workshops.
- **Horticulture Society article** - An article was published in the newspaper to help outreach to residents.

## 5. Lessons Learned

The lessons learned following the various community engagement strategies will help to move the SNAP forward in Bayview Glen. There was community support for the development of the SNAP. The value of the Bayview Glen neighbourhood within the City of Markham was expressed by many residents and there was much excitement in the formalization of the SNAP during the community workshops. Several engagement activities proved very beneficial in discovering community interests for the project:

- The *Homeowner Survey* provided common community activities, goals, values, perspectives and priorities.
- The *Key Informant Interviews* allowed the understanding of the local values and identified the improvements that the community organizations and stakeholders felt were most important in the neighbourhood.
- The *Fun Fair* provided informal conversations to educate residents and to provide their feedback on the concepts presented to obtain input on options toward the creation of programs for public realm and home retrofits. The fun fair had the highest participation and response rates of the community events.
- The *Community Gathering* provided an overview of the project to community residents and helped to obtain feedback on options toward the creation of programs for public realm and



home retrofits. It reached far fewer residents than the Fun Fair, but provided an opportunity for more in-depth conversation.

- The *Focus Group* explored elements of the program to encourage residents to make sustainable improvements to their homes and to explore actions that people are willing to take. It also explored the motivators and barriers to participation, methods to communicate with residents and brand elements. The focus group fostered the greatest level of discussion and dialogue of the community workshops. A key challenge was recruitment. A total of 966 phone calls were made to recruit 12 participants – of which 8 participated. This impacted the diversity of age and gender in participant perspectives.
- The *Municipal and Agency Staff Meetings* provided a discussion of opportunities and objectives of staff as they relate to the project, gather insights to shape public realm, retrofit options for parks, open space and present next steps and were critical to overall acceptance of the proposed concepts and program.

The objectives of the SNAP engagement program were achieved as many residents participated, gave feedback, expressed concerns, opportunities, constraints and were provided multiple avenues to become informed about the sustainable neighbourhood plan. The target groups participated in the community engagement thoroughly, although some residents did not fully complete their surveys. In most cases residents in this community highly value their neighbourhood and have pride in their homes and properties and that passion and care was expressed in the community consultation meetings. The target groups provided value to the community consultation process as they gave a valuable perspective of the residents that the residents may not think or see themselves. All participants' views, values, and concerns in the neighbourhood were adequately recorded and are influential and valuable to the development of the Bayview Glen Sustainable Neighbourhood Retrofit Action Plan.

## **Appendix A**

### **SNAP Residents Survey Results**

Appendix A  
SNAP Resident Survey Results

## SNAP Resident Survey Results

*64 surveys entered by May 5<sup>th</sup>, 2014 (53 complete, Completion rate: 82.81%)*

**1. Given your experience living in this neighbourhood, please rate how important each of the following attributes of the community are to you.**

	<b>1 (NOT Important)</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5 (VERY Important)</b>	<b>Don't know</b>	<b>Total</b>
Friendliness of neighbours and sense of community	1 (1.8%)	4 (7.0%)	9 (15.8%)	15 (26.3%)	28 (49.1%)	0 (0.0%)	57
Nature and green space including parks and parkettes	0 (0.0%)	2 (3.5%)	6 (10.5%)	9 (15.8%)	40 (70.2%)	0 (0.0%)	57
Street trees	0 (0.0%)	1 (1.8%)	6 (10.5%)	13 (22.8%)	37 (64.9%)	0 (0.0%)	57
Walkability (how friendly an area is for walking)	2 (3.5%)	1 (1.8%)	3 (5.3%)	6 (10.5%)	45 (78.9%)	0 (0.0%)	57
Cyclability (how friendly an area is for cycling)	4 (7.0%)	4 (7.0%)	11 (19.3%)	14 (24.6%)	21 (36.8%)	3 (5.3%)	57
Recreational opportunities (e.g. sports, community centres)	2 (3.5%)	2 (3.5%)	7 (12.3%)	23 (40.4%)	23 (40.4%)	0 (0.0%)	57
Street infrastructure (e.g. roads, pipes)	2 (3.5%)	0 (0.0%)	4 (7.0%)	9 (15.8%)	41 (71.9%)	1 (1.8%)	57
Prestigious neighbourhood	2 (3.5%)	0 (0.0%)	8 (14.0%)	17 (29.8%)	30 (52.6%)	0 (0.0%)	57
Being "green"	1 (1.8%)	3 (5.3%)	8 (14.0%)	17 (29.8%)	26 (45.6%)	2 (3.5%)	57
Appearance of homes	1 (1.8%)	1 (1.8%)	2 (3.5%)	11 (19.3%)	41 (71.9%)	1 (1.8%)	57
Appearance of public areas (e.g. roadways and parks)	1 (1.8%)	1 (1.8%)	2 (3.5%)	13 (22.8%)	39 (68.4%)	1 (1.8%)	57

Appendix A  
SNAP Resident Survey Results

	1 (NOT Important)	2	3	4	5 (VERY Important)	Don't know	Total
Ease of access to amenities (shopping centres, transit, recreational activities, golf courses, etc.)	1 (1.8%)	1 (1.8%)	12 (21.1%)	17 (29.8%)	25 (43.9%)	1 (1.8%)	57
Ease of access to local school, shopping and places of worship	1 (1.8%)	3 (5.3%)	10 (17.5%)	17 (29.8%)	25 (43.9%)	1 (1.8%)	57
Ease of access to transit and/or work	3 (5.3%)	2 (3.5%)	10 (17.5%)	14 (24.6%)	26 (45.6%)	2 (3.5%)	57

**Other, please specify...**

#	Response
1.	Houses that are set back from the street and have a lot of space on either side of the lot lines. Houses too large for the lots takes away from the neighbourhood.
2.	Removal of the Bell Cell phone towers. The effects on the population have not been proven yet scientifically, but there is definite health hazards.
3.	Municipal Services
4.	It is very important for the safety of this neighbourhood to have either speed bumps or some sort of speed calming device. I don't think the occasional speed meter on Laureleaf was helpful. Any people who don't live in this area use Laureleaf and Doncrest and especially Daffodil Avenue to take as short cuts. Everyday there are cars who drive by our street like they are in a race. It is very scary. I take walks with my dogs through out the day and my children walk to bus stops and to school bus stops and so on where they almost been hit by cars driving by carelessly. It is very dangerous for people to walk around because there are no sidewalk on the side streets but people have to and want to be able to enjoy walking in their own neighbourhood. It is not right when careless drivers who live in the neighbourhood and off the main streets and just some random people driving through the streets like they are in a race. I did address this to some p
5.	Multi-use community locations - e.g. schools used also for community events (school as a hub) or parks having both areas for free play and for structured play (e.g. baseball, soccer).
6.	The noise from the CN railway is important as well, can you please make a note of it.

## Appendix A SNAP Resident Survey Results

### 2. How often do you participate in community events or participate in activities offered at the following community facilities?

	Never	Rarely	Yearly	Monthly	Daily	Don't know	Total Responses
Thornhill Public Library	8 (14.0%)	18 (31.6%)	9 (15.8%)	18 (31.6%)	3 (5.3%)	1 (1.8%)	57
Thornhill Community Centre	4 (7.0%)	20 (35.1%)	11 (19.3%)	14 (24.6%)	7 (12.3%)	1 (1.8%)	57
Thornhill Secondary School	40 (70.2%)	10 (17.5%)	1 (1.8%)	2 (3.5%)	1 (1.8%)	3 (5.3%)	57
Bayview Glen Public School	23 (40.4%)	12 (21.1%)	9 (15.8%)	4 (7.0%)	6 (10.5%)	3 (5.3%)	57
Doncrest Early Learning Centre	47 (82.5%)	4 (7.0%)	3 (5.3%)	0 (0.0%)	0 (0.0%)	3 (5.3%)	57
Bayview Golf & Country Club	36 (63.2%)	12 (21.1%)	6 (10.5%)	1 (1.8%)	1 (1.8%)	1 (1.8%)	57
Bayview Glen Alliance Church	48 (84.2%)	5 (8.8%)	1 (1.8%)	1 (1.8%)	0 (0.0%)	2 (3.5%)	57
Temple Har Zion	43 (75.4%)	6 (10.5%)	3 (5.3%)	2 (3.5%)	0 (0.0%)	3 (5.3%)	57
Cham Shan Temple	51 (89.5%)	3 (5.3%)	1 (1.8%)	0 (0.0%)	0 (0.0%)	2 (3.5%)	57

### Other, please specify...

#### Response

- Thorn hill fitness visited daily (1 of 4)
- Use TCC several times per week from Sept through April (1 of 4)
- Baseball program - yearly (weekly in-season) at local parks (1 of 4)
- Imam Mahdi Islamic Centre - there are lot of cars parking at the illegal area when there is an event in this Islamic Centre. Also, they do not stop at the All Way stop sign at Laureleaf, and over the speeding limit of 40km. These people don't follow the traffic rules and I have called City of Markham to give parking tickets. They do not respect the community, and the Laureleaf neighbourhood. (1 of 4)



Appendix A  
SNAP Resident Survey Results

**3. Considering what you know about the neighbourhood, what would you consider to be the top priorities for the future improvement of the Bayview Glen community?**

	<b>1 (LOW Priority)</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5 (HIGH Priority)</b>	<b>Don't know</b>	<b>Total Responses</b>
Reduce the risk of flooding	0 (0.0%)	3 (5.3%)	5 (8.8%)	10 (17.5%)	38 (66.7%)	1 (1.8%)	57
Plant more trees	3 (5.3%)	7 (12.3%)	12 (21.1%)	24 (42.1%)	11 (19.3%)	0 (0.0%)	57
Improve parks and parkettes	1 (1.8%)	2 (3.5%)	15 (26.3%)	21 (36.8%)	18 (31.6%)	0 (0.0%)	57
Improve school grounds	4 (7.0%)	8 (14.0%)	14 (24.6%)	13 (22.8%)	17 (29.8%)	1 (1.8%)	57
Improve natural areas, ravines, and rivers	3 (5.3%)	5 (8.8%)	15 (26.3%)	19 (33.3%)	15 (26.3%)	0 (0.0%)	57
Improve sidewalks and trails	2 (3.5%)	7 (12.3%)	15 (26.3%)	14 (24.6%)	19 (33.3%)	0 (0.0%)	57
Reduce garbage dumping/litter	1 (1.8%)	5 (8.8%)	15 (26.3%)	21 (36.8%)	14 (24.6%)	1 (1.8%)	57
Increase the sense of community	0 (0.0%)	8 (14.0%)	14 (24.6%)	24 (42.1%)	11 (19.3%)	0 (0.0%)	57
Increase energy conservation and efficiency	4 (7.0%)	4 (7.0%)	14 (24.6%)	18 (31.6%)	17 (29.8%)	0 (0.0%)	57
Increase water conservation and efficiency	4 (7.0%)	5 (8.8%)	12 (21.1%)	19 (33.3%)	16 (28.1%)	1 (1.8%)	57
Improve transit	5 (8.8%)	12 (21.1%)	12 (21.1%)	14 (24.6%)	13 (22.8%)	1 (1.8%)	57

**Other, please specify...**

#	Response
1.	move the C.N. rail line to the hydro corridor and convert the land to greenbelt/nature trail
2.	Plant flowers and remove weeds from road divider on Limcombe and Steels
3.	Enact and enforce bylaw prohibiting pet owners from walking their pets on private properties where posted.
4.	Please limit the parking authority for Imam Mahdi Islamic Centre. They should not park at the Laureleaf neighbour.

## Appendix A SNAP Resident Survey Results

### 4. How often do you use the parks and parkettes in your neighbourhood?

Response	Chart	Percentage	Count
Never/rarely		8.8%	5
Yearly		12.3%	7
Monthly		26.3%	15
Weekly		26.3%	15
Daily		26.3%	15
		<b>Total Responses</b>	<b>57</b>

### 5. What are the main activities that you undertake within the parks and parkettes? (Select all that apply)

Response	Chart	Percentage	Count
Walking/running recreationally		76.4%	42
Walking/cycling to get somewhere		32.7%	18
Sit/relax		45.5%	25
Informal recreational activities (e.g. meet ups, frisbee, kites)		34.5%	19
Organized recreational activities (e.g. baseball, soccer)		7.3%	4
Other, please specify...		27.3%	15
		<b>Total Responses</b>	<b>55</b>

### 5. What are the main activities that you undertake within the parks and parkettes? (Other)

Response
<ul style="list-style-type: none"> <li>Kids playground (6 of 15)</li> <li>kids playing (2 of 15)</li> <li>Cross country skiing in the winter (1 of 15)</li> <li>Geocaching (1 of 15)</li> <li>Walk the dog ( 4 of 15)</li> <li>An offleash dog area would be great as there are many dog owners in the area (1 of 15)</li> <li>Tennis (1 of 15)</li> </ul>

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**6. Thinking about the parks and parkettes in your neighbourhood, please rate how important each of the following factors are to you:**

	<b>1 (NOT Impt)</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5 (VERY Impt)</b>	<b>Don't know</b>	<b>Total</b>
Active recreational facilities (e.g. sports fields)	8 (14.0%)	7 (12.3%)	14 (24.6%)	12 (21.1%)	16 (28.1%)	0 (0.0%)	57
Trails	5 (8.8%)	6 (10.5%)	8 (14.0%)	20 (35.1%)	17 (29.8%)	1 (1.8%)	57
Passive recreational spaces (e.g. open fields)	0 (0.0%)	4 (7.0%)	23 (40.4%)	20 (35.1%)	10 (17.5%)	0 (0.0%)	57
Playgrounds	3 (5.3%)	6 (10.5%)	9 (15.8%)	18 (31.6%)	21 (36.8%)	0 (0.0%)	57
Natural landscapes	0 (0.0%)	3 (5.3%)	8 (14.0%)	22 (38.6%)	24 (42.1%)	0 (0.0%)	57
Community gardens	7 (12.3%)	4 (7.0%)	19 (33.3%)	12 (21.1%)	15 (26.3%)	0 (0.0%)	57
Youth oriented recreational facilities (e.g. skateboard/BMX parks)	17 (29.8%)	12 (21.1%)	18 (31.6%)	4 (7.0%)	6 (10.5%)	0 (0.0%)	57
Social spaces	8 (14.0%)	7 (12.3%)	22 (38.6%)	13 (22.8%)	6 (10.5%)	1 (1.8%)	57
Meditation areas (e.g. Tai-chi areas)	18 (31.6%)	10 (17.5%)	17 (29.8%)	8 (14.0%)	4 (7.0%)	0 (0.0%)	57
Shade and shelter structures	7 (12.3%)	6 (10.5%)	11 (19.3%)	24 (42.1%)	9 (15.8%)	0 (0.0%)	57
Water play facilities (e.g. splashpad)	12 (21.1%)	15 (26.3%)	13 (22.8%)	6 (10.5%)	10 (17.5%)	1 (1.8%)	57
Winter recreation facilities (e.g. skating rink, toboggan hill)	8 (14.0%)	11 (19.3%)	10 (17.5%)	14 (24.6%)	14 (24.6%)	0 (0.0%)	57

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SNAP Resident Survey Results

**7. Thinking about the roads and boulevards in your neighbourhood, please rate how important each of the following factors are to you:**

	<b>1 (NOT Important)</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5 (VERY Important)</b>	<b>Total Responses</b>
Landscaping/street trees	0 (0.0%)	2 (3.5%)	12 (21.1%)	16 (28.1%)	27 (47.4%)	57
Sidewalks	5 (8.8%)	6 (10.5%)	11 (19.3%)	12 (21.1%)	23 (40.4%)	57
Large pavement width	6 (10.5%)	9 (15.8%)	17 (29.8%)	8 (14.0%)	17 (29.8%)	57
Pavement quality (free of large cracks/potholes)	0 (0.0%)	1 (1.8%)	7 (12.3%)	16 (28.1%)	33 (57.9%)	57
Drainage (i.e. how often there is water in the ditches/gutters)	0 (0.0%)	2 (3.5%)	7 (12.3%)	13 (22.8%)	35 (61.4%)	57

**8. Considering your own home, please rate how important each of the following factors are to you:**

	<b>1 (NOT Impt)</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5 (VERY Impt)</b>	<b>Total</b>
Appearance of your home (i.e. curb appeal)	0 (0.0%)	1 (1.8%)	1 (1.8%)	13 (22.8%)	42 (73.7%)	57
Appearance and use of front yard	0 (0.0%)	0 (0.0%)	4 (7.0%)	16 (28.1%)	37 (64.9%)	57
Appearance and use of back yard	1 (1.8%)	0 (0.0%)	9 (15.8%)	14 (24.6%)	33 (57.9%)	57
Interior appearance	0 (0.0%)	3 (5.3%)	3 (5.3%)	20 (35.1%)	31 (54.4%)	57
Privacy	0 (0.0%)	0 (0.0%)	5 (8.8%)	15 (26.3%)	37 (64.9%)	57
Security and safety	0 (0.0%)	0 (0.0%)	3 (5.3%)	5 (8.8%)	49 (86.0%)	57
Structure and roof	0 (0.0%)	0 (0.0%)	1 (1.8%)	13 (22.8%)	43 (75.4%)	57
Mechanical (e.g. heating, electrical, plumbing)	0 (0.0%)	0 (0.0%)	1 (1.8%)	16 (28.1%)	40 (70.2%)	57
Energy and water efficiency	0 (0.0%)	1 (1.8%)	6 (10.5%)	15 (26.3%)	35 (61.4%)	57
Shade	0 (0.0%)	1 (1.8%)	15 (26.3%)	14 (24.6%)	27 (47.4%)	57

**Other, please specify...**

**Response**

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SNAP Resident Survey Results

- Open space on either side of my house. The houses on either side are not built right to the edge of the lot line giving the impression of larger space..
- Special inclosed safe play areas for dogs.
- Enforced no pet walking bylaws on private properties where signs are posted.
- environmental friendliness of home (energy efficiency, waste management, cleaning products)
- There are lot of people speeding at the Laureleaf Road, making the road not safety ....

**9. Please select which of the following you have in your home and the approximate age:**

	Do not have	Less than 5 years	5 - 15 years	More than 15 years	Don't know	Total
Furnace	1 (1.8%)	21 (37.5%)	25 (44.6%)	8 (14.3%)	1 (1.8%)	56
Air conditioner	0 (0.0%)	24 (42.9%)	23 (41.1%)	8 (14.3%)	1 (1.8%)	56
Programmable thermostat	2 (3.6%)	30 (53.6%)	20 (35.7%)	3 (5.4%)	1 (1.8%)	56
Heated flooring	48 (85.7%)	5 (8.9%)	2 (3.6%)	1 (1.8%)	0 (0.0%)	56
Roof or driveway defrost system	47 (83.9%)	6 (10.7%)	2 (3.6%)	0 (0.0%)	1 (1.8%)	56
Swimming pool	28 (50.0%)	2 (3.6%)	4 (7.1%)	21 (37.5%)	1 (1.8%)	56
Gas pool heating system	32 (57.1%)	10 (17.9%)	8 (14.3%)	6 (10.7%)	0 (0.0%)	56
Electric pool heating system	54 (96.4%)	0 (0.0%)	2 (3.6%)	0 (0.0%)	0 (0.0%)	56
Hot tub	51 (91.1%)	1 (1.8%)	1 (1.8%)	3 (5.4%)	0 (0.0%)	56
Sauna	38 (67.9%)	3 (5.4%)	7 (12.5%)	8 (14.3%)	0 (0.0%)	56
Fridge	0 (0.0%)	20 (35.7%)	29 (51.8%)	7 (12.5%)	0 (0.0%)	56
Gas stove	29 (51.8%)	12 (21.4%)	15 (26.8%)	0 (0.0%)	0 (0.0%)	56
Electric stove	21 (37.5%)	12 (21.4%)	20 (35.7%)	3 (5.4%)	0 (0.0%)	56
Dishwasher	6 (10.7%)	18 (32.1%)	30 (53.6%)	2 (3.6%)	0 (0.0%)	56
Washing machine	0 (0.0%)	26 (46.4%)	22 (39.3%)	7 (12.5%)	1 (1.8%)	56
Clothes Dryer	0 (0.0%)	22 (39.3%)	23 (41.1%)	10 (17.9%)	1 (1.8%)	56
Sump pump	40 (71.4%)	5 (8.9%)	5 (8.9%)	3 (5.4%)	3 (5.4%)	56



Appendix A  
SNAP Resident Survey Results

**10. Have you undertaken any of the following energy efficiency upgrades in your home?:**

	No	Yes - within the last 5 years	Yes - more than 5 years ago	Don't know	Total
Low energy lighting/replacement bulbs	4 (7.3%)	45 (81.8%)	6 (10.9%)	0 (0.0%)	55
Programmable thermostat	5 (9.1%)	37 (67.3%)	13 (23.6%)	0 (0.0%)	55
Energy Star rated appliances (dishwasher, fridge, washing machine, dryer, TV, computer or other A/V device)	5 (9.1%)	37 (67.3%)	13 (23.6%)	0 (0.0%)	55
Energy Star rated furnace	6 (10.9%)	24 (43.6%)	22 (40.0%)	3 (5.5%)	55
Energy Star rated air conditioner	9 (16.4%)	29 (52.7%)	12 (21.8%)	5 (9.1%)	55
Replacing hot water system with more efficient one	18 (32.7%)	30 (54.5%)	4 (7.3%)	3 (5.5%)	55
Weather stripping	17 (30.9%)	20 (36.4%)	12 (21.8%)	6 (10.9%)	55
Insulation in roof	15 (27.3%)	19 (34.5%)	19 (34.5%)	2 (3.6%)	55
Insulation under floor	36 (65.5%)	7 (12.7%)	4 (7.3%)	8 (14.5%)	55
Insulation in walls	29 (52.7%)	8 (14.5%)	13 (23.6%)	5 (9.1%)	55
Replacement windows and doors (double/triple glazed)	16 (29.6%)	22 (40.7%)	15 (27.8%)	1 (1.9%)	54
Renewable energy system (e.g. solar panels)	49 (89.1%)	3 (5.5%)	0 (0.0%)	3 (5.5%)	55

**Renewable energy system, please specify type...**

There are no responses to this question.

Appendix A  
SNAP Resident Survey Results

**11. If the SNAP project explored energy efficiency measures for homes, how interested would you be in each of the following on a scale of 1 to 5?**

	1 (NOT Interested )	2	3 (SOMEWH AT Interested )	4	5 (VERY Interested )	Total
Changing lighting to low energy/LED bulbs	10 (18.9%)	4 (7.5%)	11 (20.8%)	9 (17.0%)	19 (35.8%)	53
Installing light dimmers	12 (22.6%)	5 (9.4%)	18 (34.0%)	6 (11.3%)	12 (22.6%)	53
Installing motion sensors to control when lights come on	7 (13.2%)	6 (11.3%)	20 (37.7%)	6 (11.3%)	14 (26.4%)	53
Installing a programmable thermostat to control the temperature and time your home is heated	24 (45.3%)	2 (3.8%)	7 (13.2%)	7 (13.2%)	13 (24.5%)	53
Lowering your home's temperature by 2 or 3 oC	18 (34.0%)	6 (11.3%)	13 (24.5%)	7 (13.2%)	9 (17.0%)	53
Changing to Energy Star rated appliances (dishwasher, fridge, washing machine or dryer, TV, computer or other A/V device)	19 (35.8%)	6 (11.3%)	9 (17.0%)	9 (17.0%)	10 (18.9%)	53
Replacing your hot water system with a more efficient one	21 (39.6%)	3 (5.7%)	6 (11.3%)	9 (17.0%)	14 (26.4%)	53
Upgrading your furnace to an Energy Star rated one	27 (50.9%)	2 (3.8%)	8 (15.1%)	7 (13.2%)	9 (17.0%)	53
Upgrading your air conditioning unit to an Energy Star rated one	28 (52.8%)	2 (3.8%)	10 (18.9%)	7 (13.2%)	6 (11.3%)	53
Installing weather stripping	17 (32.1%)	5 (9.4%)	10 (18.9%)	10 (18.9%)	11 (20.8%)	53
Adding insulation to your home	14 (26.4%)	2 (3.8%)	16 (30.2%)	13 (24.5%)	8 (15.1%)	53
Replacing existing windows and doors with more efficient ones	18 (34.0%)	5 (9.4%)	11 (20.8%)	10 (18.9%)	9 (17.0%)	53
Installing a geothermal heating system	23 (43.4%)	6 (11.3%)	13 (24.5%)	3 (5.7%)	8 (15.1%)	53

Appendix A  
SNAP Resident Survey Results

	1 (NOT Interested )	2	3 (SOMEWHAT Interested )	4	5 (VERY Interested )	Total
Installing solar panels on your home	23 (43.4%)	4 (7.5%)	15 (28.3%)	8 (15.1%)	3 (5.7%)	53
Heating your pool with solar energy	30 (56.6%)	3 (5.7%)	10 (18.9%)	5 (9.4%)	5 (9.4%)	53
Investing in a community based renewable energy installations with your neighbours	21 (39.6%)	4 (7.5%)	14 (26.4%)	7 (13.2%)	7 (13.2%)	53
Having more control over the operation of your home through the internet	14 (26.9%)	4 (7.7%)	14 (26.9%)	8 (15.4%)	12 (23.1%)	52
Having an electric vehicle	26 (49.1%)	4 (7.5%)	7 (13.2%)	9 (17.0%)	7 (13.2%)	53


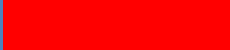

**12. On a scale of 1 to 5, how concerned are you with the amount of energy you use in your home?**

	1 (NOT Concerned)	2	3	4	5 (VERY Concerned)	Total
Electricity	6 (11.3%)	5 (9.4%)	9 (17.0%)	13 (24.5%)	20 (37.7%)	53
Gas	7 (13.5%)	6 (11.5%)	8 (15.4%)	18 (34.6%)	13 (25.0%)	52

**13. On a scale of 1 to 5, how concerned are you with the amount of water you use in your home?**






	1 (NOT Concerned)	2	3	4	5 (VERY Concerned)	Total
	6 (11.3%)	6 (11.3%)	10 (18.9%)	18 (34.0%)	13 (24.5%)	53

**14. Do you have a sump pump?**

Response	Chart	Percentage	Count
Yes		22.6%	12
No		66.0%	35
Don't know		11.3%	6
<b>Total Responses</b>			<b>53</b>

Appendix A  
SNAP Resident Survey Results






**15. How often does it operate/run? (Select one)**

Response	Chart	Percentage	Count
All the time		16.7%	2
Only when it rains		16.7%	2
Regularly in the spring		0.0%	0
Don't know		33.3%	4
Other, please specify...		33.3%	4
		<b>Total Responses</b>	<b>12</b>

**15. How often does it operate/run? (Select one) (Other, please specify...)**











Response
<ul style="list-style-type: none"> <li>• Very rarely</li> <li>• also quite regularly in the fall, and late summer</li> <li>• We just installed one because of the flood we had during thaw and rain this spring</li> <li>• spring melt and rain</li> </ul>

**16. Where does your sump pump discharge? (Select one)**

Response	Chart	Percentage	Count
To your lawn		36.4%	4
To a road ditch		18.2%	2
To a valley		0.0%	0
Other, please specify...		9.1%	1
Don't know		36.4%	4
		<b>Total Responses</b>	<b>11</b>

Appendix A  
SNAP Resident Survey Results






**17. What type of landscaping features or amenities do you have in your front and back yards? (Select all that apply)**

Response	Chart	Percentage	Count
Grass		100.0%	53
Trees		96.2%	51
Shrubs		84.9%	45
Flower gardens		88.7%	47
Vegetable gardens		26.4%	14
Naturalized areas		20.8%	11
Paved/patio		77.4%	41
Deck		47.2%	25
Pool or hot tub		41.5%	22
Other, please specify...		7.5%	4
<b>Total Responses</b>			<b>53</b>

**17. What type of landscaping features or amenities do you have in your front and back yards? (Other)**

Response
<ul style="list-style-type: none"> <li>• 2 ponds</li> <li>• vegetable and flower gardens are being put in this summer</li> <li>• TOO MANY SQUIRRELS DESTROYING PLANTS</li> <li>• pond</li> </ul>





**18. On a scale of 1 to 5, how willing are you to plant more vegetation (e.g. trees, shrubs) in place of grass or hard surfaces on your property?**

Response	Chart	Percentage	Count
1 (NOT willing)		20.8%	11
2		7.5%	4
3		35.8%	19
4		18.9%	10
5 (VERY willing)		17.0%	9
<b>Total Responses</b>			<b>53</b>



Appendix A  
SNAP Resident Survey Results






**19. Who maintains the outside landscape of your home?**

Response	Chart	Percentage	Count
I do		35.8%	19
Someone else in the household does		9.4%	5
A landscape company		39.6%	21
Other, please specify...		15.1%	8
		<b>Total Responses</b>	<b>53</b>

**19. Who maintains the outside landscape of your home? (Other, please specify...)**


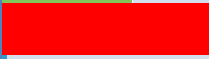

Response
<ul style="list-style-type: none"> <li>• combination of landscape company and myself (2 of 8)</li> <li>• My husband and I (2 of 8)</li> <li>• All of the above</li> <li>• both a landscaping company (basic cutting) and the entire family</li> <li>• Both adults</li> <li>• Gardener</li> </ul>

**20. On a scale of 1 to 5, how willing are you to explore more water efficient landscaping on your property?**





Response	Chart	Percentage	Count
1 (NOT willing)		15.4%	8
2		3.8%	2
3		26.9%	14
4		25.0%	13
5 (VERY willing)		28.8%	15
		<b>Total Responses</b>	<b>52</b>

Appendix A  
SNAP Resident Survey Results

**21. Do you have an outdoor irrigation system, such as an underground sprinkler?**

Response	Chart	Percentage	Count
Yes		37.7%	20
No		60.4%	32
Don't know		1.9%	1
		<b>Total Responses</b>	<b>53</b>







**22. How do you determine when your irrigation system waters your lawn or garden?**

Response	Chart	Percentage	Count
Automatic time – waters at pre-set time		70.0%	14
Moisture sensor – waters when dried out		0.0%	0
Manual – water when needed		5.0%	1
Other, please specify...		25.0%	5
		<b>Total Responses</b>	<b>20</b>

**22. How do you determine when your irrigation system waters your lawn or garden? (Other)**

Response
<ul style="list-style-type: none"> <li>Not in use. Rain is sufficient to keep grass green.</li> <li>Auto sprinkler with rain sensor (3 of 5)</li> <li>All three of the above</li> </ul>

**23. How frequently does your irrigation system run?**




Response	Chart	Percentage	Count
Daily		10.0%	2
2 – 3 times per week		55.0%	11
Weekly		10.0%	2
When needed		15.0%	3
Don't know		5.0%	1
Other, please specify...		5.0%	1
		<b>Total Responses</b>	<b>20</b>

## Appendix A SNAP Resident Survey Results




### 23. How frequently does your irrigation system run? (Other, please specify...)

#	Response
1.	Haven't used it in 2+ yrs

### 24. Is your irrigation system equipped with a rain sensor (e.g. irrigation system will automatically turn off when it rains)?

Response	Chart	Percentage	Count
Yes		80.0%	16
No		10.0%	2
Don't know		10.0%	2
<b>Total Responses</b>			<b>20</b>

### 25. Are you planning any sort of home renovations within the next five years?

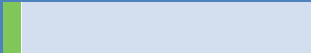





Response	Chart	Percentage	Count
Yes		37.3%	19
No		33.3%	17
Don't know		29.4%	15
<b>Total Responses</b>			<b>51</b>

### 26. What type of renovations are you planning and when?

Response	
<ul style="list-style-type: none"> <li>Bathroom(s) (6 of 20)</li> <li>New roof (5 of 20)</li> <li>Window replacement (5 of 20)</li> <li>Front enclosure/fence (2 of 20)</li> <li>Landscaping (2 of 20)</li> <li>Basement (2 of 20)</li> <li>Office (1 of 20)</li> <li>Fireplaces (1 of 20)</li> <li>Humidifiers (1 of 20)</li> <li>New sump pump (1 of 20)</li> </ul>	<ul style="list-style-type: none"> <li>Kitchen (1 of 20)</li> <li>Gutter replacement (1 of 20)</li> <li>Interior renovation (1 of 20)</li> <li>Possible reconstruction (1 of 20)</li> <li>Update the family room (1 of 20)</li> <li>New flooring (2 of 20)</li> <li>Entry door (1 of 20)</li> <li>Patio (1 of 20)</li> <li>Underground pipes replacement (1 of 20)</li> <li>Automation of various sorts (1 of 20)</li> </ul>

Appendix A  
SNAP Resident Survey Results




**27. York Region offers residential water conservation and efficiency programs in Markham. What has or would prevent you from taking advantage of any of the programs? (Select all that apply)**

Response	Chart	Percentage	Count
N/A – have participated		5.8%	3
Did not know about them		69.2%	36
Not concerned about water conservation		3.8%	2
Already very water conscious/use very little water		32.7%	17
Too much hassle for the benefit		9.6%	5
Other, please specify...		3.8%	2
<b>Total Responses</b>			<b>52</b>

**27. York Region offers residential water conservation and efficiency programs in Markham. What has or would prevent you from taking advantage of any of the programs? (Select all that apply) (Other, please specify...)**

Response
<ul style="list-style-type: none"> <li>Smart meters proved ineffective and did not lower bills therefore do not see benefit of smart water meters</li> <li>Worry that it would cost too much money to change and too much hassle.</li> </ul>

**28. Have you had a home energy audit done?**






Response	Chart	Percentage	Count
Yes		30.2%	16
No		62.3%	33
Don't know		7.5%	4
<b>Total Responses</b>			<b>53</b>

Appendix A  
SNAP Resident Survey Results

**29. Enbridge, PowerStream the provincial and federal government have offered a number of residential energy conservation and efficiency programs in Markham. Are you aware of/participated in any of the following:**

	Never Heard Of	Aware Of - Never Participated	Aware Of - Participated In	Total Responses
EcoEnergy (Federal/Provincial Gov't)	30 (56.6%)	14 (26.4%)	9 (17.0%)	53
Community Energy Conservation Program (Enbridge)	44 (83.0%)	7 (13.2%)	2 (3.8%)	53
Home Weatherization Program (Enbridge)	44 (83.0%)	7 (13.2%)	2 (3.8%)	53
MicroFIT (Provincial and PowerStream)	47 (88.7%)	5 (9.4%)	1 (1.9%)	53
SaveONenergy programs - Heating & Cooling Incentive, Coupon, Fridge and Freezer pickup (PowerStream)	33 (62.3%)	15 (28.3%)	5 (9.4%)	53
peaksaver PLUS® (PowerStream)	20 (37.7%)	19 (35.8%)	14 (26.4%)	53
Home Assistance Program (PowerStream)	47 (88.7%)	6 (11.3%)	0 (0.0%)	53

**30. What has or would prevent you from taking part in any of the energy efficiency and conservation programs? (Select all that apply)**






Response	Chart	Percentage	Count
I did not know about them		60.4%	32
I am not concerned about energy conservation		1.9%	1
I am already very energy conscious/use very little energy		41.5%	22
Too much hassle for the benefit		17.0%	9
Other, please specify...		7.5%	4
<b>Total Responses</b>			<b>53</b>

**30. What has or would prevent you from taking part in any of the energy efficiency and conservation programs? (Select all that apply) (Other, please specify...)**

Response	
<ul style="list-style-type: none"> <li>Moving in one year</li> <li>high cost of LED bulbs</li> <li>Did EnerGuide for houses in 2004</li> </ul>	<ul style="list-style-type: none"> <li>Utilities should lower rates instead of wasting money on conservation grants. If energy efficient stuff makes sense people will do it without rebates.</li> </ul>

Appendix A  
SNAP Resident Survey Results



**31. Which of the following flood proofing activities have you completed on your property? (Select all that apply)**

Response	Chart	Percentage	Count
Disconnected downspout		48.9%	23
Installed back-flow prevention valve		14.9%	7
Protected basement window wells or basement doors from water entry		36.2%	17
Ensured water drains away from foundation walls by improving slope of land		59.6%	28
Kept drainage ditches and rear yard catchbasins free of debris/blockage		51.1%	24
<b>Total Responses</b>			<b>47</b>

**32. Please indicate the number of people in your household in each of the following age categories (including yourself):**

	0	1	2	3	4	5+	Total
Less than 18	8 (29.6%)	3 (11.1%)	9 (33.3%)	7 (25.9%)	0 (0.0%)	0 (0.0%)	27
18-25	4 (21.1%)	10 (52.6%)	5 (26.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	19
26-35	7 (53.8%)	4 (30.8%)	2 (15.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	13
36-45	5 (27.8%)	4 (22.2%)	9 (50.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	18
46-55	3 (16.7%)	6 (33.3%)	9 (50.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	18
56-65	4 (22.2%)	4 (22.2%)	10 (55.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	18
66 or older	3 (12.5%)	7 (29.2%)	11 (45.8%)	2 (8.3%)	0 (0.0%)	1 (4.2%)	24

**Would you like your name added to the project contact list to be kept up to date on what is happening?**

Response	Chart	Percentage	Count
Yes		62.0%	31
No		38.0%	19
<b>Total Responses</b>			<b>50</b>



## **Appendix B**

### **Fun Fair Feedback Summary Report**

# Bayview Glen SNAP

## Bayview Glen P.S. Fun Fair

### Feedback

### Summary Report



June 13, 2014  
Bayview Glen Public School  
5:00 pm – 8:00 pm



This report was prepared by Lura Consulting for the Bayview Glen Sustainable Neighbourhood Retrofit Action Plan (SNAP) in Markham. If you have any questions or comments regarding this report, please contact:

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## Bayview Glen SNAP – Bayview Glen P.S. Fun Fair Summary

### Event Overview

The Bayview Glen SNAP Project was presented during the Bayview Glen P.S. Fun Fair on June 13, 2014. Community members who attended the event were primarily residents within the SNAP boundary.

Informal conversations took place and a series of display boards were available to educate residents and obtain input on options toward the creation of programs for public realm and home retrofits. Over 100 participants were engaged during the event and provided their feedback on the concepts presented.

### Summary of Participant Feedback

A summary of the key feedback captured during the discussion is summarized below and presented in the maps in the appendix.

#### ***Bayview Glen Park Draft Concept***

The Bayview Glen Park draft concept was well received by participants. They were supportive of the overall elements proposed. Feedback provided included:

- Support for management of water and flooding mitigation
- Support for baseball diamond being kept
- Support for solar panels
- Ensure there are drinking fountains in all parks
- Add benches or picnic tables
- Consider adding basketball, soccer, or a skate park
- Biggest common concern was the location of the playground. Participants felt that it should stay closer to the school

#### ***Glencrest Park Draft Concept***

The draft concept for Glencrest Park was well received by participants. Additional feedback provided included:

- Consider an off leash dog park
- Consider adding a splash pad for kids or outdoor pool
- Support for the naturalized feel of this park
- Support for shelter for shade/rain
- Support for the skating rink and shelter
- Support for formalizing the trail
- Support for the mediation space
- Support for benches to sit
- Need to consider sidewalks or bike lanes to connect to the park. Support for connection through to the south.

## Bayview Glen SNAP – Bayview Glen P.S. Fun Fair Summary

### **Stonefarm Parkette Draft Concept**

The draft concept for Stonefarm Parkette was well received by participants. Feedback provided included:

- Support for water management and flooding mitigation
- Biggest concern is related to safety
- Consider adding speed bumps and bike lanes
- Some concern about the proximity of the playground to the road
- Support for keeping existing trees (and increasing plantings in the neighbourhood)
- Consider a dog park (fenced)
- Consider a community garden
- Reuse water if storage option (i.e. splash pad)
- Engage Bayview Glen PS students in tree plantings
- In ground garbage container in Stonefarm Parkette, improve aesthetics, it pops out because of water table, fills with water and smells

### **Right-of-Way Cross Section Draft Concepts**

Concepts for street right-of-way cross sections were presented to provide participants with an opportunity to review options and provide comment. No direct comments were received.

### **Potential Residential Retrofits**

Community members provided feedback through interactive “dotmocracy” and post-it note exercises designed to gauge their preferences about potential retrofit opportunities. Some of the participants had already completed the retrofit options mentioned and therefore did not identify preferences.

### **Retrofit Opportunities – Opportunities on Your Property**

	Total
<b>Landscaping</b>	
Plant water efficient species such as Black-eyed Susan	9
Water my garden less	7
Capture rain water in a rain barrel	5
Capture and use rain water in a cistern	5
Install a rain garden	8
Replace lawn areas with native plantings	3
<b>Irrigation Systems</b>	
Use an irrigation system that has a timer	5
Use an irrigation system that has a rain sensor	3
Retrofit my irrigation system to use drip/trickle and micro spray irrigation	3
I don't have an irrigation system	7
<b>Pools</b>	
Install a solar powered pool pump	8
Install a solar pool heater	3
Convert to salt water pool system that is healthier for me and the environment	3

## Bayview Glen SNAP – Bayview Glen P.S. Fun Fair Summary

	Total
Drain my pool into the sanitary sewer and not the stormwater sewer	1
I don't have a pool	9
<b>Trees</b>	
Plant a tree to provide shade over my home	7
Plant trees and shrubs that absorb a lot of water such as Willows and Dogwoods	9

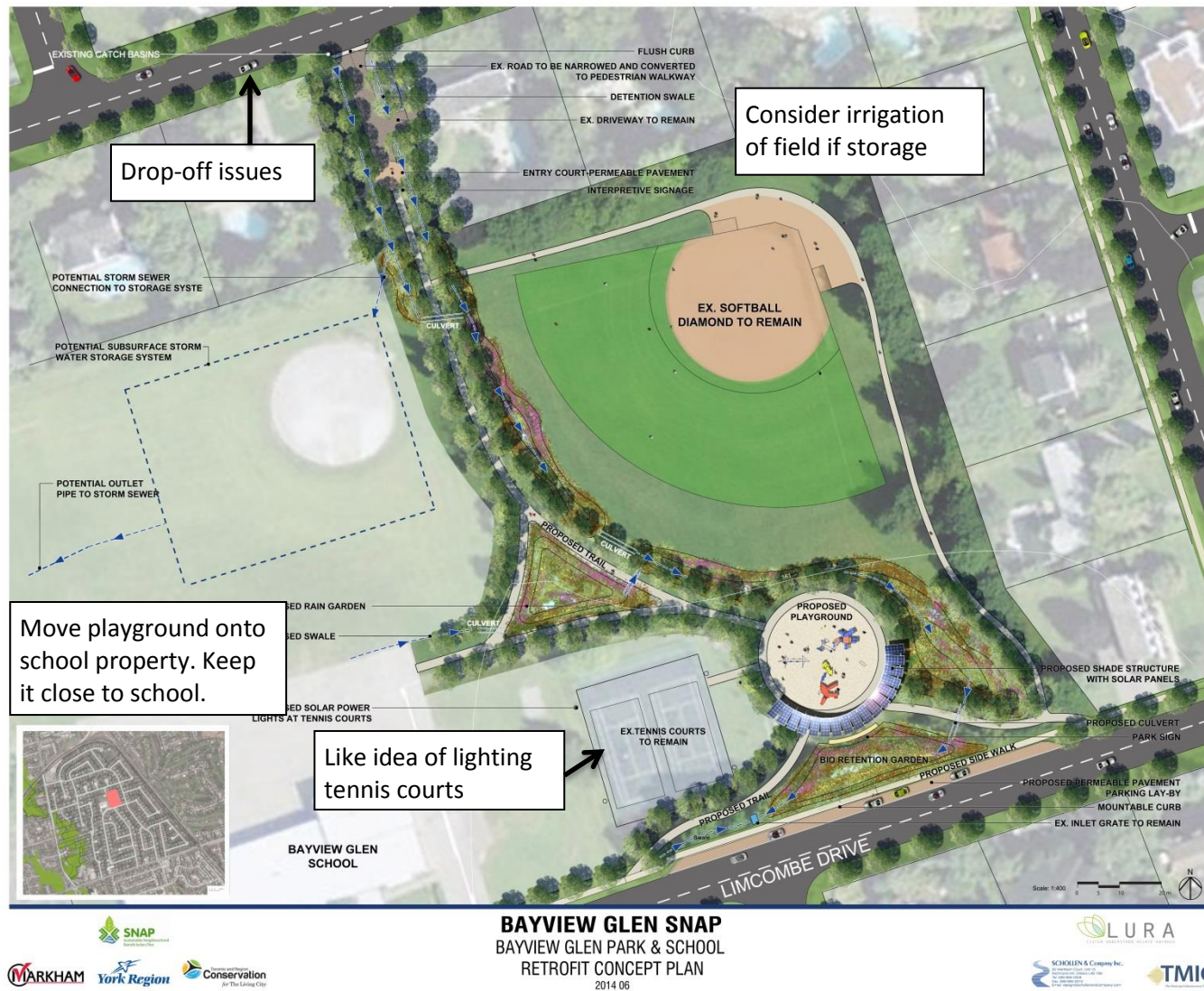
### *Retrofit Opportunities – Opportunities in Your Home*

	Total
<b>Energy Efficiency</b>	
Participant in Know Your Score	2
Install Energy Efficient Windows and Doors	16
Increase home insulation	12
Replace hot water system with more efficient one	7
Install weather stripping	10
Upgrade to a high efficiency HVAC system	5
Purchase energy efficient appliances	9
<b>Water Conservation</b>	
Install low flow toilet	10
Install low flow faucets and showerheads	6
Install permeable driveway and walkways	8
Install a rain barrel	7
<b>Sump Pump Connection</b>	
I would be interested in having an additional pipe in the road right-of-way that my sump pump could discharge into	0
I don't have a sump pump	6
<b>Home Renovations</b>	
Use a guide for sustainable renovation	7



## Bayview Glen SNAP – Bayview Glen P.S. Fun Fair Summary

### Appendix A – Annotated Renderings with Participant Feedback





## Bayview Glen SNAP – Bayview Glen P.S. Fun Fair Summary





## Bayview Glen SNAP – Bayview Glen P.S. Fun Fair Summary



## **Appendix C**

### **Community Gathering Summary Report**

# Bayview Glen SNAP Community Gathering Summary Report



Thursday, June 26, 2014  
Thornhill Community Centre, 7755 Bayview Avenue  
6:30 – 9:00 pm



This report was prepared by Lura Consulting for the Bayview Glen Sustainable Neighbourhood Retrofit Action Plan (SNAP) in Markham. If you have any questions or comments regarding this report, please contact:

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## Bayview Glen SNAP - Community Gathering Summary

### Welcome and Opening Remarks

Graham Seaman, City of Markham, welcomed community members to the meeting and informed them that the purpose of the Bayview Glen SNAP is to collaboratively improve sustainability and wellbeing in the neighbourhood while completing scheduled stormwater management upgrades.

Councillor Valerie Burke, City of Markham, also welcomed community members. Councillor Burke noted the project represents an exciting opportunity for the Bayview Glen neighbourhood and thanked the project partners and consultants.

A total of 20 residents attended the community gathering.

### Project Overview

The purpose of the Bayview Glen Community Gathering was to provide an overview of the project to community members and to obtain feedback on options toward the creation of programs for public realm and home retrofits.

An overview presentation by Jennifer Wong, City of Markham and Andrew Marshall, TRCA included:

- An introduction to Sustainable Neighbourhood Action Plans (SNAPs);
- The goals and objectives of the Bayview Glen SNAP, and;
- A review of existing plans and strategies applicable to the neighbourhood.

Susan Hall, Lura Consulting, provided an overview of the SNAP process as well as the completed consultation activities designed to engage residents in the process (e.g., survey, stakeholder meetings and Fun Fair).

### Summary of Participant Feedback

Following the project overview, community members participated in a facilitated discussion about the potential sites and options for the public realm and home retrofit programs highlighted by Mark Schollen, Schollen & Company.

A summary of the key feedback captured during the discussion is summarized below.

#### ***Bayview Glen Park Draft Concept***

The Bayview Glen Park draft concept was well received by meeting participants. They were supportive of the overall elements proposed. Feedback provided included:

- Clarify if/how the park retrofit plans will impact the baseball diamond and soccer field west of the park (on the school property)
- Improve the park land owned by the school (e.g., raise it to improve water flow while improving the surface condition)
- Include options to address parking and turning issues (on and in front of the school)
- Concern expressed about mosquito breeding in rain gardens. Consider mitigation options to address standing water in rain gardens (if applicable)

## **Bayview Glen SNAP - Community Gathering Summary**

- Ensure the new playground is accessible

### ***Glencrest Park Draft Concept***

The draft concept for Glencrest Park was well received by meeting participants. Particular support was expressed for the proposed trail to connect pathways at the back of the park. Additional feedback provided included:

- Ensure current recreation opportunities are not impacted (e.g., tobogganing)
- Concern expressed about mosquito breeding in daylighted waterway. Consider mitigation options to address standing water (if applicable)

### ***Stonefarm Parkette Draft Concept***

The draft concept for Stonefarm Parkette was well received by meeting participants. Feedback provided included to consider structural options that emulate the cultural heritage of the neighbourhood and/or site (e.g., Old Stone Farm).

### ***Right-of-Way Cross Section Draft Concepts***

Concepts for street right-of-way cross sections were positively received by meeting participants. Particular support was expressed for preserving the rural look and feel of the neighbourhood with the proposed road right-of-way layouts and measures to calm traffic (e.g. bump outs and narrowing). Additional feedback included:

- Consider a by-law (new residences only) to encourage residents to connect sump pumps, irrigation systems and drain pools properly
- Clearly identify where snow should be stored during the winter months (currently stored in cul-de-sac areas proposed for infiltration)
- Consider burying electricity lines
- Work with utilities to ensure trees are trimmed every 3 years instead of 5 years to avoid power outages

### ***Discussion about Neighbourhood Connectivity***

Connectivity within the neighbourhood was discussed and the following feedback provided:

- There is support for improved connectivity within and between the three neighbourhood parks (Bayview Glen Park, Glencrest Park, and Stonefarm Parkette)
- More sidewalks and trails are needed (suggestions included Laureleaf Road and access to Bayview Glen Public School), with consideration to increasing walking options and safety for young families in balance with interests to preserve rural character in some portions of the neighbourhood
- Maintain Laureleaf Road should be retained as a local road (within the Official Plan designation)

### ***Potential Residential Retrofits***

Residential retrofits options were discussed and the following feedback provided:

- There is mixed support for growing food on people properties due to the amount of wildlife in the neighbourhood
- There was support for the irrigation system improvements

## Bayview Glen SNAP - Community Gathering Summary

- Interest was expressed for energy efficiency options; many participants noting that a lot of things have already been done to their homes
- A suggestion was made to include sump pumps as a requirement in sustainable building guidelines
- A suggestion was made to explore offering a subsidy for sump pumps (similar to City of Toronto program)

Community members also provided feedback through interactive “dotmocracy” and post-it note exercises designed to gauge their preferences about potential retrofit opportunities (see Appendix A for the full results).

### ***Retrofit Opportunities – Opportunities on Your Property***

- Community members expressed interest primarily in retrofit opportunities created through improvements to landscaping (e.g., planting water efficient and native species and using rain barrels) and planting trees
- There was also some interest in retrofit options for backyard pools

### ***Retrofit Opportunities – Opportunities in Your Home***

- Several community members indicated they do not have a sump pump in their homes
- Community members also expressed some interest in assessing and increasing the energy efficiency of their homes (e.g., replacing windows & doors, increasing insulation and purchasing energy efficient appliances)
- There was also some interest in guides to renovate home sustainably

## Next Steps

Ms. Wong encouraged community members to tell their neighbours about the project and its goals and to consider volunteering as a block captain to conduct workshops with residents.

Councillor Burke thanked community members for attending the meeting and commended the Bayview Glen Resident’s Association for its ongoing hard work in the neighbourhood.

## Bayview Glen SNAP - Community Gathering Summary

### Appendix A – Additional Feedback

Community members also provided feedback through interactive “dotmocracy” exercises designed to gauge their preferences about potential residential retrofit opportunities. The results are captured in the tables below (the number in brackets indicates the number of “votes” for each option). Some of the participants had already completed the retrofit options mentioned and therefore did not cast a vote.

Opportunities on Your Property			
Landscaping	Irrigation Systems	Pools	Trees
<ul style="list-style-type: none"> <li>▪ Capture rain water in a rain barrel (x4)</li> <li>▪ Plant water efficient species such as Black-eyed Susan (x2)</li> <li>▪ Water my garden less (x2)</li> <li>▪ Replace lawn areas with native plantings (x2)</li> <li>▪ Capture and use rain water in a cistern</li> <li>▪ Install a rain garden</li> </ul>	<ul style="list-style-type: none"> <li>▪ Retrofit my irrigation system to use drip/trickle and micro spray irrigation (x1)</li> <li>▪ I don't have an irrigation system (x1)</li> <li>▪ Use an irrigation system that has a timer</li> <li>▪ Use an irrigation system that has a rain sensor</li> </ul>	<ul style="list-style-type: none"> <li>▪ Install a solar powered pool pump (x1)</li> <li>▪ Convert to salt water pool system that is healthier for me and the environment (x1)</li> <li>▪ Install a solar pool heater</li> <li>▪ I don't have a pool (x1)</li> <li>▪ Drain my pool into the sanitary sewer and not the stormwater sewer</li> </ul>	<ul style="list-style-type: none"> <li>▪ Plant a tree to provide shade over my home (x2)</li> <li>▪ Plant trees and shrubs that absorb a lot of water such as Willow and Dogwood (x2)</li> </ul>
			Growing Food
			<ul style="list-style-type: none"> <li>▪ Grow vegetables in your backyard (x2)</li> <li>▪ Grow fruit in your backyard</li> </ul>

Opportunities in Your Home	
Energy Efficiency	Water Conservation
<ul style="list-style-type: none"> <li>▪ Assess energy use and opportunities for improvement (x2)</li> <li>▪ Install energy efficient windows &amp; doors (x2)</li> <li>▪ Purchase energy efficient appliances (x1)</li> <li>▪ Increase home insulation (x1)</li> <li>▪ Participate in Know Your Energy Score</li> <li>▪ Install weather stripping and seal other air leaks</li> <li>▪ Replace hot water system with more efficient one</li> <li>▪ Upgrade to a high efficiency HVAC system</li> <li>▪ High efficiency HRV (provided sufficient airtightness is achieved)</li> <li>▪ Install drainwater heat recovery device</li> </ul>	<ul style="list-style-type: none"> <li>▪ Install a rain barrel (x2)</li> <li>▪ Install low flow toilets (x1)</li> <li>▪ Install low flow faucets and showerheads (x1)</li> <li>▪ Install permeable driveway and walkways</li> </ul>
	Sump Pump Connection
	<ul style="list-style-type: none"> <li>▪ I don't have a sump pump (x5)</li> <li>▪ I would be interested in having additional pipe in the road right-of-way that my sump pump could discharge into</li> </ul>
	Home Renovations
	<ul style="list-style-type: none"> <li>▪ Use a guide for sustainable renovation (x1)</li> <li>▪ Other</li> </ul>

## Bayview Glen SNAP - Community Gathering Summary

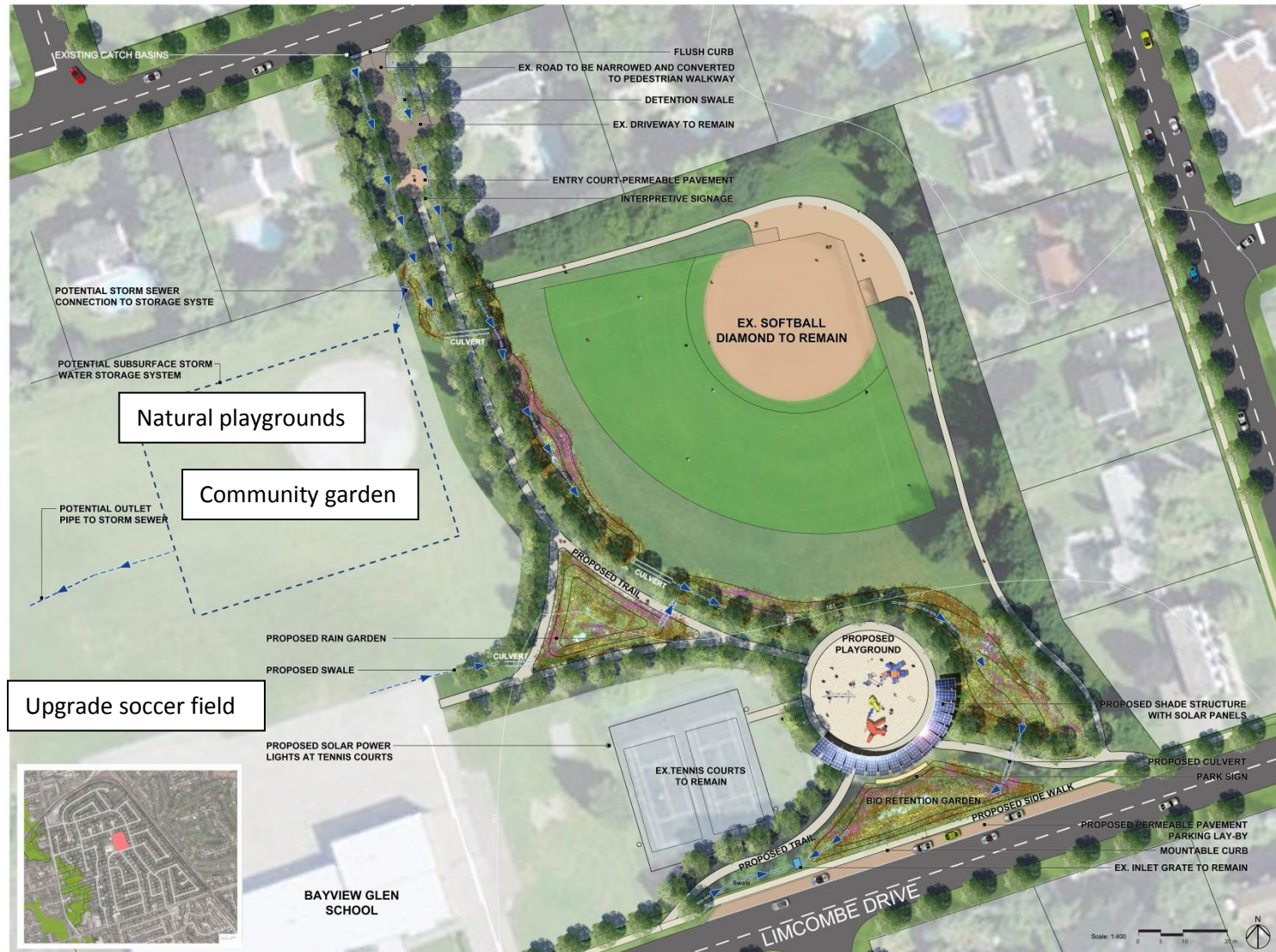
### Other Comments (provided on post-it notes)

- Include a natural playground in one of the parks
- Include options for parking/turning near Bayview Glen Park and Bayview Glen P.S.
- Maintain rural character of Valloncliffe Road (e.g., no sidewalks)
- Include recreational pathways for walking and cycling



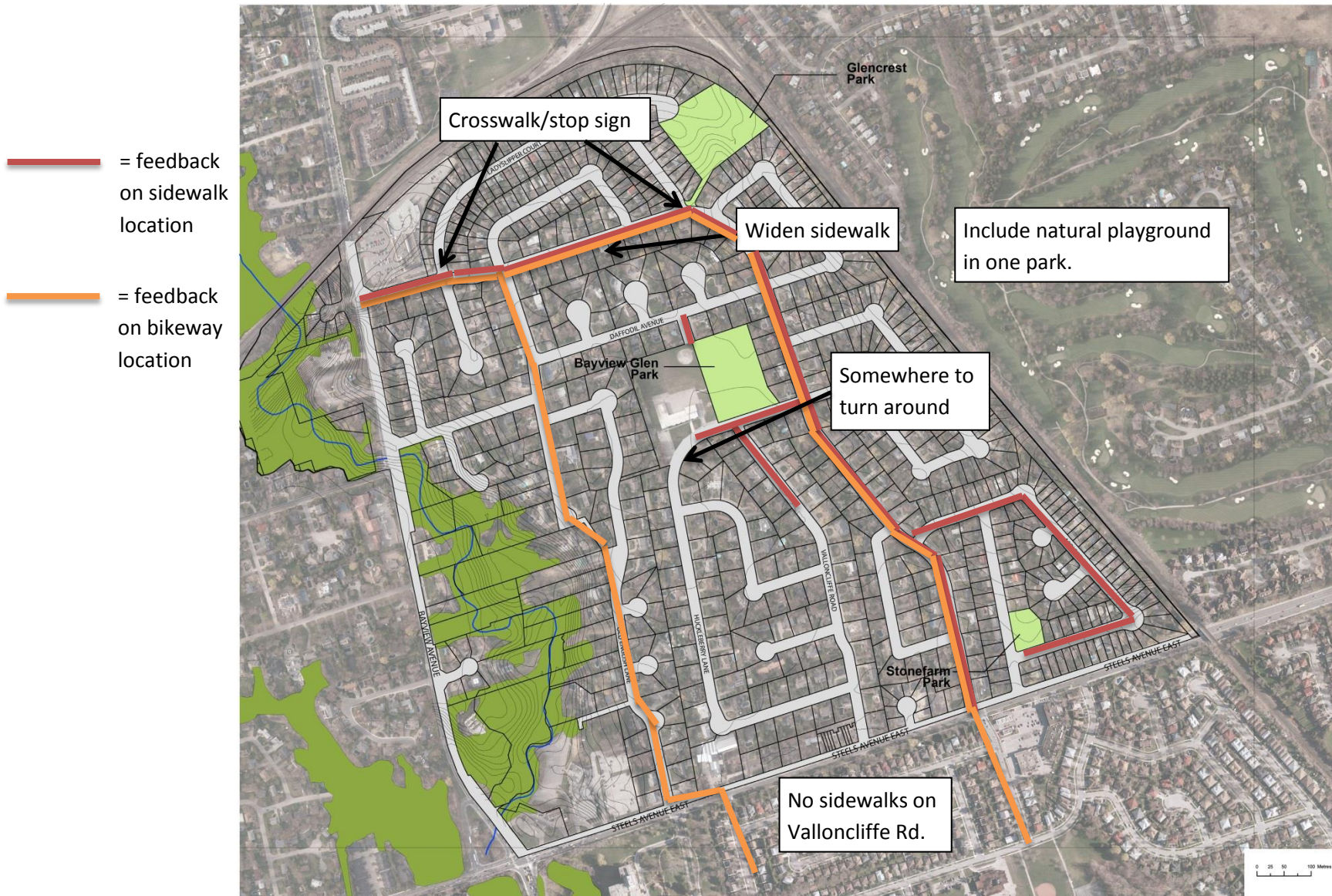
## Bayview Glen SNAP - Community Gathering Summary

Community members also provided feedback by writing comments directly on the renderings and maps provided. Feedback is shown below.





## Bayview Glen SNAP - Community Gathering Summary



## **Appendix D**

### **Focus Group Summary Report**

**Phases 2 and 3 of the Bayview Glen SNAP, Markham  
Focus Group Summary Report**

October 8, 2014  
7:00 pm – 9:00 pm  
Thornhill Community Centre

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## Purpose

- Explore elements of a program to encourage residents to make sustainable improvements to their homes and properties as part of the overall Bayview Glen SNAP
- Explore four (4) key components:
  - actions that people are willing to take
  - motivators and barriers to participation
  - methods to communicate with residents
  - brand elements

## Summary

The following summary highlights the feedback received by the eight (8) participants from the focus group discussion held on October 8, 2014.

Participants were randomly selected by telephone. A total of 966 phone calls were made to recruit 12 participants. Eight of those recruited participated, representing a mix of ages. Seven were female, one male. 4/8 participants had lived in the neighbourhood for over 35 years. 3/8 had been in the neighbourhood for approximately 10 years or more, and 1/8 was a newer home owner. Participants were offered a stipend of \$75 to ensure an appropriate level of participation and to help reduce bias towards participants with an interest in the subject matter.

The focus group took an interactive discussion approach. Participants were asked to write down their answers to key questions before sharing their responses. A summary of participant feedback is included below.

## Knowledge / Current Practices

- 1) What do you love about your neighbourhood?
- 2) What key words would you use to describe their neighbourhood?

Common key words residents used:

- |   |                        |
|---|------------------------|
| • Upscale community                         | • Large property sizes |
| • People want to live here                  | • Peaceful/relaxing    |
| • Central location                          | • Green space          |
| • Proximity (walk-able, transit, amenities) | • Good schools         |
| • Convenient                                | • Good people          |

- Safe
- Healthy
- “Picturesque”

### 3) In 10/20 years from now what words would you use to describe your neighbourhood?

- Houses will be bigger. One participant noted that bigger is better, while others disagreed.
- Some said that bigger houses depends on the lot size
- Some participants felt that the neighbourhood is losing its character
  - We don't see people in the neighbourhood.
  - A bigger home means that people use the backyard, are self-contained
- Kids aren't out playing in the street or public spaces b/c of lack of sidewalks
- One participant said they don't use the front yard b/c they are close to the school
  - Too much traffic
  - School doesn't have a proper drop off area
- Streets are also not well lit
- See people driving their kids from house to house

### 4) Did you know about the SNAP project before being asked to participate today?

- 5/8 participants did not know about the SNAP project
- 3/8 found out from a flyer in the mail
- 1/8 participants heard about it from a local councilor and by email
- 1/8 participants had participated in the Bayview Glen PS Fun Fair

### 5) What are you most proud of in your home?

- Most participants were extremely proud of their home
- Most said the grounds/ flowers
- One participant said growing vegetables
- Homes have been renovated and re-done
- Property sizes for space and entertaining

### 6) What improvements (if any) have you made to your home/property in the past year?

- |   |                    |
|---|--------------------|
| • New appliances (1)                          | • Driveway (1)     |
| • New furnace and high efficiency furnace (2) | • Tree removal (2) |
| • Tankless hot water (1)                      | • Kitchen (1)      |
| • Landscaping (2)                             | • Bar              |
| • Pool (1)                                    |                    |

Most people said they made the improvements because they needed to (i.e.: furnace broke).

### 7) What improvements (if any) have you always wanted to make in your home or on your property but haven't and why?

- |  |  |
|--|--|
| • Solarium/ Green House for vegetables (2) | • Change lights to LED (expensive) (1) |
|  | • Remove old trees (2)                 |



## Home Improvement / Maintenance:

### 8) Who makes the decisions about property and home improvements and renovations?

- The majority of residents discuss with their partner or family and decide together whether the benefits outweigh the constraints
- One participant resides with her parents and her children, they decide together

### 9) Who would you say has an influence on your decisions about home/property maintenance or improvements?

- The residents are influenced by their friends, and did say they hear about ideas from dog walking group, parents groups, informal channels
- Not influenced by their children (although one participant had children research efficiency and rebate programs)
- Not influenced by their neighbours in regards to home improvements, they don't believe in "keeping up with the Jones"
- Not influenced by branding
- Not influenced by home hardware stores big box, although higher trust with local suppliers
- They do their own researching online (Houzz.com in particular)
- They ask trusted contractors (interior designer, contractor, or plumber) on what needs to be done and how much it will cost
- They check out open houses in the neighbourhood

### 10) What are the most important considerations when making a decision about home/property maintenance? Why?

- Same considerations inside or outside the home.
- Initial costs – although "it's not about the cost, if we want it, we buy it"
- Cost effectiveness (initial and lifetime costs)
- Re-sale value
- Top of the line I can afford
- Aesthetics
- Efficiency and environmental benefits (if reduces costs)
- Willing to spend money upfront for long-term payback
- Ensure quality workmanship and efficiency

"I think Bayview Glen is a good neighbourhood for this sustainability project. We have higher income and probably education and the people here are willing to spend the money upfront for long-term payback on environmental benefits".

### 11) What is most important to you when considering home/property improvements? And why?

- Same considerations inside or outside the home
- They see their yards and community as an extension of their home (Take pride in homes)
- Some participants focus more on the inside of the home
- Timing
- Cost

## Potential Actions to be Included in the Program

12) The following are the actions we are considering including in the program (reviewing each on a sheet of paper in front of them that has measure/me/my neighbour columns).

- Which ones would you do if you had all the resources needed and why? Which ones do you think your neighbours would do and why?
- Which ones would you not do even if you had all the resources needed and why? Which ones would you do and why? Which ones do you think your neighbours would do and why?

### Residential Measures in Your Home

The following shows the number of participants who would be willing to participate in this action if offered for their own home and their 'best guess' on how willing their neighbour would be in participating. A number of participants had already done some of the actions (marked with 'D'). Note all 8 participants completed the "My Family" responses, while only 5 provided answers to some of the "My Neighbour" responses.

Legend:

W – Willing to consider this measure  
 UW – Strongly unwilling to consider this measure  
 D – Already done the measure

N/A – Did not provide a response  
 DK – Don't know  
 DH – Don't have

Residential Measures in Your Home	My Family	My Neighbour
Undertake energy audit (self, professional)	W - 6/8 D - 2/8	W - 5/5
Detect & seal air leaks	W - 6/8 D - 3/8	W - 4/5 D - 1/5
Install high efficiency furnace, air conditioner, domestic hot water	W - 3/8 D - 4/8	W - 4/5 D - 1/5
Purchase low energy appliance (e.g. refrigerator, stove, etc.)	W - 4/8 D - 3/8 N/A - 1/8	W - 4/5 D - 1/5
Install high efficiency quality windows	W - 4/8 D - 4/8	W - 4/5 D - 1/5
Install drain water heat recovery device (captures heat from water going down the shower drain to warm water going into the water tank)	W - 4/8 UW - 4/8	W - 3/5 UW - 1/5 N/A - 1/5
Install insulation	W - 3/8 UW - 1/8 D - 4/8	W - 3/5 UW - 1/5 N/A - 1/5
Install external blinds	W - 1/8 UW - 7/8	W - 1/5 UW - 3/5 N/A - 1/5
Install solar panels and energy systems	W - 4/8 UW - 4/8	W - 2/5 UW - 1/5



Residential Measures in Your Home	My Family	My Neighbour
		D – 1/5 N/A – 1/5
Perform furnace and AC maintenance	W – 5/8 D – 3/8	W – 4/5 D – 1/5
Install behavioural devices (e.g. whole house monitors, energy displays, etc.)	W – 5/8 UW – 2/8 D – 1/8	W – 3/5 UW – 1/5 N/A – 1/5
Enroll in energy or water conservation programs	W – 3/8 UW – 4/8 D – 1/8	W – 3/5 UW – 1/5 N/A – 1/5
Install low flow toilets, showerhead and faucets	W – 4/8 D – 3/8 N/A – 1/8	W – 4/5 N/A – 1/5
Consider connecting sump pump to additional pipe in the road right of ways to discharge	W – 2/8 UW – 4/8 DK – 1/8 DH – 1/8	W – 1/5 UW – 1/5 DK – 1/5 N/A – 2/5
Fix leaky taps	W – 5/8 D – 3/8	W – 4/5 N/A – 1/5
Commit to behavioural changes (e.g. turning off the lights when leaving a room, power down devise, unplug items when not in use, take shorter showers, etc.)	W – 5/8 D – 3/8	W – 3/5 D – 1/5 N/A – 1/5

A few important notes about the responses provided:

- Many felt they had already done a number of these activities in their homes as they have re-done or renovated over the years
- There was interest in efficient windows
- The response to installing heat recovery was 50:50 because the measure is not well understood in terms of application, cost or payback
- External blinds were not favoured as they were viewed as aesthetically unpleasing
- The response to install solar panels and energy systems above reflect an interest specifically in exploring option for solar pool heaters. Solar panels on roofs or ground-mounted versions for homes were less appealing to the group because they are not seen as attractive or are too expensive
- Only 1/8 participants knew that they had a sump pump, therefore the number of unwilling participants in this question is over inflated

### Residential Measures on Your Property

The following shows the number of participants who would be willing to participate in this action if offered for their own property and their 'best guess' on how willing their neighbour would be in participating. A number of participants had already done some of the actions (marked with 'D'). Note all 8 participants completed the "My Family" responses, while only 3 provided answers to some of the "My Neighbour" responses.

Legend:

W – Willing to consider this measure

UW – Strongly unwilling to consider this measure  
D – Already done the measure

N/A – Did not provide a response  
DK – Don't know  
DH – Don't have

Residential Measures on Your Property	My Family	My Neighbour
Use/optimize timer on sprinkler OR Use/optimize rain sensor on irrigation system OR Retrofit irrigation to use drip/ trickle and micro spray irrigation	W – 3/8 UW – 1/8 DH - 4/8	W – 3/3
Plant water efficient species	W - 4/8 UW – 3/8 D – 1/8	W – 3/3
Plant trees and shrubs that absorb a lot of water	W - 4/8 UW – 2/8 D – 2/8	W – 3/3
Plant a tree to provide shade over my home	W - 3/8 UW – 3/8 D – 2/8	W – 2/3
Replace lawn areas with native plantings	W - 4/8 UW – 3/8 N/A – 1/8	W - 2/3
Grow vegetables in back yard	UW – 2/8 D – 5/8	W - 2/3
Drain pool into sanitary sewer	W - 0/8 UW – 1/8 DH – 4/8 N/A – 2/8 DK – 1/8	DK – 1/3
Install permeable driveway and walkways	W - 3/8 UW – 3/8 D – 2/8	W – 1/3 UW – 1/3 N/A – 1/3
Install a rain garden	W - 3/8 UW – 4/8 N/A – 1/8	W - 2/3
Water less	W - 4/8 UW – 1/8 N/A – 1/8 D – 2/8	W - 2/3
Collect rain water	W - 4/8 UW – 3/8 N/A – 1/8 DK – 1/8	W - 2/3
Disconnect downspout	W - 2/8 UW – 3/8 D – 3/8	W - 2/3

A few important notes about the responses provided:

- Half of the participants noted they do not have a sprinkler system. Only 1/8 has a sprinkler system that is on a timer
- There is interest in learning more about efficient species and native plantings
- 5/8 of the participants are already growing vegetables (and interested in continuing)
- Half of participants have pools but responses suggest they are not sure where its draining
- They are not interested in planting trees for shade
- Half are not interested in planting a rain garden. The response may be over inflated due to lack of understanding of what a rain garden is and how they function
- 2/8 have rain barrels and most are interested in collecting rain water
- Participants expressed concerns about weeds for the permeable pavement
- 3/8 are unwilling to disconnect their downspout The response may be over inflated due to lack of understanding of what disconnection means and where water goes

### 13) What would it take to get you to do these actions?

- The residents are happy where they are and are motivated for what makes economic sense. (solar panels to expensive)

### 14) Are there any others we should be including? Anything that should be dropped from the list?

- Consider adding internal film as an option

### 15) Which of the following programs are you aware of? Which ones have you participated in? Why or why not? What are the barriers to accessing these programs?

	Aware of	Participated In
York Region Water for Tomorrow	3/7	2/7
Natural Resources Canada Eco-energy	3/7	2/7
Enbridge Programs	2/7	2/7
Ontario Power Authority	0/7	1/7
Power Stream SaveONenergy	5/7	3/7

- Some participants were aware of some programs like the Water for Tomorrow, NRCan, PowerStream, Toilet Leak, Fridge and Freezer Pickup, Exchange Event, Home Assistance Program and Peak Saver Plus
- Some were not aware of many programs including MicroFIT or Exchange events
- The main barrier to participation was not being aware of the programs and/or the associated rebates. Some noted that the rebate programs are a bit onerous

## Communication Channels

### 16) I am going to show you how we think we should organize the information or streams of activity. Think about them and tell me what you think.

- N/A directly to this question. Their feedback was integrated into the other questions below.

**17) Where do you get information on programs, initiatives, or things happening in your neighbourhood now?**

- People got the information primarily from the City of Markham (incl. tax bills), Powerstream, and Enbridge
- They recommended having a central website – ideally on the City of Markham site to provide more information
- They do read Liberal newspaper, school newsletters (although only reaches a segment of the population), and Councillor emails
- No information from social media
- Participants noted that the materials need to get people's attention; keep them simple; tie to money; and easy access that directs to more information (e.g., website/rebates)

**18) How would you like to receive information?**

- Participants provided responses in the previous question
- They don't want information that looks like junk mail or advertising
- They did really like the Black Creek SNAP fold out booklet
- They did not like newsletters, door-to-door canvassers, social media

**19) We are considering including a neighbourhood champion to deliver the residential retrofit program (Provide details about the SNAP captain – note that there can be more than one avenue). What do you think about this approach?**

- Participants did not want a neighbourhood champion w if people knock on doors
- Participants said they would like to receive information from
  - Mailed flyers
  - Events like Fun Fair at school where there is a sense of community
  - However there are challenges for families that do not have children in school
  - Local exchanges and fundraises would help as well
  - Information through informal networks (i.e.: dog walkers, parents, etc.)
  - Some prefer to research online themselves

**20) Who do you trust to provide you with the best advice on choices for home maintenance or improvements?**

- Covered through earlier discussion. City and utilities are the primary sources.

**21) What else should we include in the campaign to help residents beyond receiving information about programs? How do we catch your attention? Encourage participation? How do we get you to take action not simply receive information?**

- The group discussed how to get beyond information to be able to measure change and success. They suggested that we need to let people decide for themselves. They don't want to feel they are being pushed into participating. They want to be able to make informed decisions on their own

- One participant noted that there is a percentage of the neighbourhood that isn't doing anything intentionally because they think their house will be knocked down by the next owner
- One participant suggested could measure success through sales – e.g.: number of rain barrels, number of coupons redeemed, etc.

## Branding Elements

### **22) We have been referring to the project as SNAP (Sustainable Neighbourhood Retrofit Action Plan). What does that mean to you?**

- Participants said SNAP didn't resonate with them
- One participant noted it reminded them of the SNAP photo newspaper
- Another said they thought of the grease removing hand cleaner SNAP
- None equated it with a sustainable neighbourhood

### **23) What do you call your neighbourhood when you describe it to others?**

- 8/8 said they call the neighbourhood Bayview Glen

### **24) If we were to create branding, say a logo, what colours do you think reflect your vision for your neighbourhood given what you love now and want in the future?**

- One participant strongly recommended there is a common SNAP logo for all SNAPs across the GTA, then an element to distinguish that its Bayview Glen so they can feel like they are part of a bigger initiative
- When looking at other SNAP materials, they indicated that Green home program more relatable
- Images:
  - Trains
  - Big houses
  - Green space
  - Trees
  - Parks

### **25) If we created a recognition program (e.g.: list of participating residents posted somewhere, decal for windows, lawn sign, decal for recycling bin, etc. NOTE these would have examples so people can visualize them), would you participate in it? Would you post one of these items visibly on your property? What might that look like? Do you think your neighbours would do it as well?**

- Participants were not very interested in having a recognition program
- Participants strongly disliked lawn signs or window stickers
- Participants indicated they would be willing to put a sticker on the green bin or recycling bin if recognition was integrated