



Green Directions Vaughan Community Engagement 2017-2018



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This document was prepared for the City of Vaughan by IndEco Strategic Consulting Inc.

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Foreward

The project team completed this work with significant input and contributions from residents, businesses, agencies and staff who we wish to acknowledge and thank.

Kailyn Smith, Sustainability Coordinator, and Tony Iacobelli, Manager of Environmental Sustainability, were the project managers from the City of Vaughan and provided ongoing insight and suggestions, as well as logistical support.

Mae Caldarelli (Strategic Planning) was the main liaison for alignment with the City's community engagement approach and provided suggestions on both substance and process, in particular regarding the public workshop.

Carmela Antolino and Thi Nguyen (Corporate Communications) provided assistance in reaching out to Vaughan constituencies through the City's various communications channels.

Christina Bruce (Strategic Planning) helped us understand the broader context within which Green Directions Vaughan is placed, and the history of its development.

We also thank all the individuals who took time to meet with us and share their views and information on Vaughan's needs and strategies to address sustainability, and to reach Vaughan residents and businesses.

The participants at the public workshop brought enthusiasm, energy and ideas to the meeting. Thank you! We also thank Carlo Di Gioacchino and Michael Bonitatibus who spoke about their initiatives and inspired participants with what individuals can do to contribute to the move to sustainability.

Other residents and businesses participated online, through email, and provided feedback through the online survey. Their input is appreciated.

The IndEco project team was David Heeney and Jill Kovacs. The IndEco team was supported by a team at Brickworks Communications led by Cathy Miller and Trevor Lush who did the work on personas, the landing page, and graphic development.

Executive summary

PURPOSE

Green Directions Vaughan is the City of Vaughan's Community Sustainability and Environmental Master Plan. It provides high level policy guidance to the City to facilitate the development and implementation of detailed action plans by the individual operating departments. The Environmental Sustainability team – who manages Green Directions Vaughan – is in the process of renewing the plan and as part of that renewal sought to undertake public and stakeholder engagement. The team wanted to provide an opportunity for as many people as possible to participate in the process. This document reports on that process, findings, conclusions, and resulting recommendations.

SCOPE AND METHOD

Stakeholder and public consultations were undertaken in the fall of 2017, with online consultation continuing through the end of February 2018. Engagement activities included:

- Development of audience 'personas' which are descriptions of major distinct audiences for Environmental Sustainability's messages
- Development of a graphic-rich landing page on the web, promotional graphics for engagement events, and promotion of those events through City online media, paid advertising, and personal invitations, and the creation of new or updated pages on the Environmental Sustainability section of the City's website
- A series of interviews with City Councillors, the City Manager, staff from multiple City departments, external stakeholders including staff of York Region, Alectra, local and regional nongovernmental organizations, the local member of parliament, and others
- A public workshop at which participants were invited to provide ideas on what they imagine a sustainable Vaughan would look like, and actions to realize this vision
- An online survey using a platform called All Our Ideas that invites users to rate and submit ideas.

STATUS OF DATA

The project team addressed a good sample of senior decision-makers, City of Vaughan departments and other external groups through the interviews. Time and resource limitations truncated the business sector consultations within the timeframe of the consulting contract. Business sector consultation will continue through 2018.

Extensive advertising through City channels and paid advertising on Facebook and Twitter resulted in attendance at the public workshop by 21 participants. This participation rate compares favourably with other similar City of Vaughan public information meetings.

The online All Our Ideas survey was launched during the last week of December and ran through the end of February. Taking into consideration the participation rate for All Our Ideas, the scores generated for the ideas that were proposed should be studied within the context of all other data collected.

The scope of Green Directions Vaughan is very broad and consultation did not address individual components or actions in detail.

MAIN FINDINGS

Outreach

Four personas were identified that define the audience for Green Directions Vaughan: “Sustainability Advocates” (10% of the target audience), “Aspiring Sustainers” (30%), “General Public” (40%), and “Indifferents” (20%).

The outreach program reached a large number of Vaughan residents:

- more than 34,000 ad impressions for the public workshop and All Our Ideas survey;
- more than 1,248 views of the registration page for the public workshop, and
- 164 people visited new web pages posted on the Environmental Sustainability area of the City’s website.

Consultation

Twenty-eight meetings were held with stakeholders, involving 69 individuals. Twenty-one individuals attended the public workshop on November 29th. By February 15th 2018, there were 109 All Our Ideas users, and 3,610 votes on ideas.

While the engagement indicated that awareness of Green Directions Vaughan could be improved, many stakeholders are aware of some of the actions that exist within the plan, as well as with the Environmental Sustainability staff.

Many of the areas addressed in Green Directions Vaughan were not discussed in detail throughout the consultation.

Internal and external stakeholders expressed interest in being informed of and involved in the update to Green Directions Vaughan.

Content and implementation

Multiple stakeholders mentioned the importance of developing business plans for the actions in Green Directions Vaughan.

There appears to be some lack of clarity on how responsibilities for Green Directions Vaughan are allocated, and the role of the Environmental Sustainability team.

Multiple stakeholders mentioned the need for setting specific targets and having indicators for tracking progress towards these.

Several stakeholders mentioned a need for more attention to social and economic sustainability, in addition to environmental sustainability.

Several stakeholders, including senior decision-makers, advised it was important that Green Directions Vaughan be developed with an awareness of what other municipalities and cities are doing to address sustainability.

Senior decision-makers emphasized the importance of sustainability considerations being integrated into all City decision-making.

Reporting

Senior decision-makers indicated they had limited awareness of the progress of the plan.

CONCLUSIONS AND RECOMMENDATIONS

Outreach

Personas and decision journeys should be considered a living and breathing entity.

Recommendation 1: The Personas should be proactively reviewed and revised over time based on real-life data gained from the in-market digital campaign.

Many residents and businesses are interested in sustainability issues. Promoting opportunities, reaching and engaging them can be time consuming and expensive.

Recommendation 2: Targeted advertising is more likely to reach interested parties at a modest cost. This could include paid advertising based on the personas, a Twitter account specifically for Green Directions Vaughan, and making use of the digital content developed for this project. For the general public, focus on online communication for resource efficiency. Ensure it includes opportunities for readers or users to provide feedback or their thoughts on the message being provided.

Consultation

There was good representation from internal and external stakeholders. Coordinating consultation with the business stakeholders required greater effort, such that the business consultation was not completed during the duration of the consulting contract. Collaboration with the business community is important to implement components of Green Directions Vaughan and should be explored in conjunction with the City's Corporate Initiatives and Governmental Relations department, including the Economic Development team.

Recommendation 3: Additional outreach, particularly to the business community, should continue in 2018.

It is important that actions be understood as part of a larger initiative of the City, and that individual actions are aimed at a bigger goal relating to sustainability.

Recommendation 4: Put all communications in the context of the plan. For example, Environmental Sustainability should begin every presentation or meeting with a (very short) overview of the plan and how the particular item being discussed relates to the plan; every report on a particular initiative should include a note something like: "This initiative is one of x initiatives in Green Directions Vaughan, the City of Vaughan's Community Sustainability Plan."

Green Directions Vaughan is very broad, covering multiple issues. Particularly given that many stakeholders and individuals have a greater interest in particular aspects of the plan, it is often challenging to discuss the plan in its entirety.

Recommendation 5: Focus direct consultation on smaller, better defined initiatives, in collaboration with the responsible department.

Stakeholders saw the value and importance of Green Directions Vaughan, that it was connected to the work that they do, and that they may be able to make a contribution to its success.

Recommendation 6: Environmental Sustainability should establish two stakeholder groups: an internal one and an external one. The internal one should include representatives from departments, as well as members of Council.

Content and implementation

Developing business plans for the actions can help win support for them, particularly where there are opportunities to leverage funding from sources external to the city.

Recommendation 7: Environmental Sustainability should track and advise departments on opportunities to leverage funding or other resources to advance sustainability, and how these can be integrated into business plans for individual actions.

Departments cannot be expected to buy in fully to actions in Green Directions Vaughan if they see them as primarily the responsibility of

Environmental Sustainability, or not part of their core function but rather an add-on.

Recommendation 8: Green Directions Vaughan should focus on principles and indicators, and ensure that the implementation of actions by others can be tracked to measure progress. While actions in Green Directions Vaughan often reflect policy direction and legislative requirements, they should be articulated to identify the desired sustainability outcome: develop principles; communicate them to staff and the community; research on sustainability progress/issues in cities; milestones to measure progress; and developing and tracking of indicators of sustainability.

Targets are a key way to both demonstrate real commitment, and to help ensure that there is progress towards fulfilling those commitments.

Recommendation 9: Environmental Sustainability should propose short and long-term targets for progress on the key indicators for adoption by Council, and for integration into Green Directions Vaughan.

Vaughan's initiatives on economic and social sustainability are lagging those of other cities. Other cities have developed metrics. There is a common set in ISO 37120 (though some of those are not particularly relevant to Vaughan).

Recommendation 10: Environmental Sustainability should develop principles around social and economic sustainability that help guide other departments in designing and delivering services, and KPIs against which progress towards social and economic sustainability can be measured. To the extent possible, these should be based on globally or nationally recognized indicators.

Awareness of what other cities are doing is not just a source of ideas, but a means of measuring whether Vaughan's progress is leading or lagging.

Recommendation 11: Environmental Sustainability should track and report on sustainability work in neighbouring and leading municipalities, including: initiatives, KPIs, progress, goals and targets, and resources allocated.

The City's Official Plan asserts a commitment to sustainability, and that Green Directions Vaughan should influence all aspects of the City's operational and regulatory activities. Operationally, this would mean having specific criteria for evaluating activities from a sustainability perspective.

Recommendation 12: Environmental Sustainability should develop tools to assist departments in evaluating their initiatives from a sustainability perspective. This could include criteria for rating actions, and elements to be incorporated into business plans or procurement initiatives. For example, this might include the dollar value to attribute to greenhouse gas emissions when evaluating the cost-benefit of energy investments.

Reporting

There are organizational and other obstacles to senior-decision makers staying informed on the progress of the plan, such as the removal of subject area committees involving Councillors.

Recommendation 13: In addition to the stakeholder advisor committee with Council representation, and annual reports on indicators and milestones, Environmental Sustainability should take advantage of opportunities to present to senior decision makers in advance of submitting the new Green Directions Vaughan for Council approval. In addition, Environmental Sustainability should prepare briefings on particular issues on an occasional basis, more frequently than annually. These should be distributed to senior decision-makers, relevant departments, and be made available to the public on the Green Directions Vaughan website.

Introduction

Green Directions Vaughan is the City of Vaughan’s Community Sustainability and Environmental Master Plan. As described in Vaughan’s Official Plan, Green Directions Vaughan (“Green Directions Vaughan”) is intended to:

- Influence all activities of the City, including the Growth Management Strategy
- Establish principles of sustainability, used to guide plans for a healthy natural environment, a vital community, and a strong economy.

Green Directions Vaughan was originally prepared in 2009 and was adopted by Council. The City’s Environmental Sustainability team (“Environmental Sustainability”), which is within the Policy Planning and Environmental Sustainability Department, is updating the plan, and the updated Green Directions Vaughan will support the updated Official Plan.

As part of the process of updating the plan, Environmental Sustainability wished to engage stakeholders and members of the public and sought to acquire input from them into the updated plan.

Over the fall of 2017 and early 2018, Environmental Sustainability, with the support of IndEco Strategic Consulting Inc., undertook a number of initiatives to solicit this input. Brickworks Communications Inc. characterized the audience for Green Directions Vaughan and developed a web landing page and supporting graphics to be used on social media to encourage involvement.

This document describes the process and the findings of that consultation.

Environmental Sustainability plans to have the updated plan approved by Council in early 2019. Additional consultations will occur as work progresses on the plan.

Audience characterization and target personas

The rationale for developing personas

Before launching any consumer-facing initiative, it is integral to know who the target audience is, how they act, and how they arrive at their final decision. As such, customer profiling and decision journey mapping are integral to continued growth in acceptance and brand growth.

As a result, our team developed user personas and journeys for all of the target segments that may be an audience for Green Directions Vaughan. As the foundation of the digital marketing strategy, personas and decision journeys helped guide the website development and will continue to guide content generation, paid online advertising, and proactive social media management.

Four personas were identified to characterize the potential audience for the Green Directions Vaughan. These are summarized in Table 1, and additional details are provided in Appendix A.

Table 1 – Personas for Green Directions Vaughan

Persona	Audience share	Motivator	How to reach them
Sustainability Advocates	10%	Responsibility and guilt	Extremely high web propensity
Aspiring Sustainers	30%	Style and perception	Online and social communities
General Public	40%	Proven performance and ingrained behaviours	Moderate to high web propensity
Indifferents	20%	Convenience	Close personal networks

Source: Brickworks Communications Inc.

In the development of personas, we focused on a user group's primary goals and needs, pain points and concerns, demographics, psychographics, geography, and related online behaviour. Once all user personas were identified and developed, we considered the unique decision journey taken by each persona in its path towards sustainable behaviours.

To optimize user engagement, it is integral to understand the core audience group's needs, concerns, and behavior. By developing user personas and journeys, Green Directions Vaughan was

armed with research-based assumptions to help guide strategies and tactics.

Personas based on internet analytics

Historically, personas were based primarily on demographic and socio-economic characteristics, such as age and income. Now, user personas rely on more than demographics. Internet properties have forever changed the way we understand content, engage with information, and buy products and services.

Consumer needs, pain points, and habits are not dictated by age, gender, and income alone. As an example, a middle-class, 32-year-old male and an upper-class, 48-year-old female can have the same concerns, pain points, desires, and online behaviour towards sustainability initiatives. Targeted marketing to these users becomes much more specific and complex, and thus, defining clear persona types has become integral to the marketing process.

How the Vaughan personas were developed

Personas and online journey maps are constructed through the use of both qualitative and quantitative research. The City of Vaughan personas were developed by leveraging our partnership with Google and other online platforms. Our partners provided us with related research documents that were used to glean user behavioural data. Furthermore, we utilized research tools like Raven and SEMRush to review the performance and audience trends that are related to similar programs and online platforms.¹

The audience development phase of this project was broken into three steps. Firstly, Brickworks performed an analysis of existing platforms, data, and historical assets. Next, they conducted third-party research and stakeholder interviews to help fill in information gaps and validate assumptions. Finally, the base personas and decision journeys were built based on the information gathered from these steps.

How the Vaughan personas were used in this project

The final City of Vaughan personas were used to influence the landing page designs. For example, the results showed that the targeted audience does not favour a specific gender or age. As a result, the landing page content was designed in a bright, visually

¹ Raven Tools (<https://raventools.com>) help to manage, monitor and improve search engine positioning, manage Google advertising and also to manage social media. SEMRush (<https://semrush.com>) is a tool for finding keywords that resonate with target audiences and to improve the audience's web experience.

engaging way to appeal generally to any and all Vaughan residents, not one specific demographic. The initial designs were then revised and finalized based on client and internal commentary.

In addition, the Vaughan personas were used to formulate a customized, targeted digital marketing program designed to intercept and drive awareness amongst all user persona types. The suggested campaign was planned to utilize a mix of paid and organic tactics and focus on both actively and passively browsing users. In addition to driving program awareness and relevant web traffic, the suggested tactics are designed to provide ongoing analytics about user habits and preferences.

How the Vaughan personas should be used in the future

Personas and decision journeys should be considered a living and breathing entity. Based on available metrics, these documents should be continually evolved and updated. Users are constantly evolving, and major behavioural differences can be measured quarterly.

These personas and journeys should be proactively reviewed and revised over time based on real-life data gained from the in-market digital campaign. As such, Environmental Sustainability's online strategy for Green Directions Vaughan will shift with its always-evolving user base. The persona document can be used to implement user outreach strategies and develop the required creative.

Public and stakeholder engagement

Green Directions Vaughan is a comprehensive document, covering actions to be undertaken by all members of the Vaughan community, including employees of the City, residents and businesses. The goals align with the broader City goals as set out in the City's strategic plan, its Official Plan, and numerous other specialized, subject-matter plans. They are all developed with input from members of the community.

The actions set out in the plan involve initiatives on the part of all those members of the community: in many cases executed by those members alone or in partnership with other City departments or Environmental Sustainability. As such, it is essential to ensure that the plan captures their values, takes into account their resources and capabilities, and enhances and develops their understanding of the principles of environmental sustainability.

To address all these issues, the engagement strategy incorporated multiple opportunities for the various parties to become *aware* of the plan and the intent to update it, with their input, and to *contribute* to the updating process.

Measures taken to enhance awareness of and understanding of Green Directions Vaughan, and the intent to update it included:

- Personal invitations extended to key partners and stakeholders;
- Development of a visually-rich online landing page, and enhancements to the sections of the Vaughan city website that address Green Directions Vaughan;
- Promotions of events and opportunities for engagement through the City's social media (Facebook, Twitter, City webpage), paid advertising on social media, the City's digital billboards and Councillor and City newsletters.

Opportunities for contributing that were offered included:

- Personal interviews with existing partners and stakeholders including: members of Council, representatives of City departments, representatives of higher tier governments, environmental and other citizen groups, utilities, and businesses;
- An open invitation workshop for members of the public and others;
- An online survey, using a tool called All Our Ideas, for rating proposed ideas, and suggesting additional ones to make Vaughan more sustainable;²

² This is described in more detail in the "All Our Ideas" section on p.11.

- Invitations on the web and through social media to provide input through other means, e.g. by email or by telephone.

In the sections below, we describe each of these activities, and what we heard from stakeholders.

ENHANCING AWARENESS

Personal invitations

Personal invitations to engage in a discussion around Green Directions Vaughan were extended to the Mayor and all Members of Council, and to representatives from City departments including: the City Manager's Office; Corporate Communications; Economic Development and Culture Services; Environmental Services; Parks Development; Strategic Planning; and Transportation Services, Parks and Forestry Operations. Outside the organization, invitations were extended to the local MP and MPP; the Toronto and Region Conservation Authority; York Region departments dealing with public health, energy efficiency and sustainability, long range planning, asset management, and housing services; the Vaughan Chamber of Commerce; the local electricity utility (Alectra) and natural gas utility (Enbridge); Metrolinx; local environmental groups; and the business community.

Website development and branding

A visually rich landing page for Green Directions Vaughan was developed and launched at greendirections.vaughan.ca, with support from the Office of the Chief Information Officer. A printout of the page (extending over 5 printed pages) is in Appendix B.

Graphics developed for the website were adapted for use in social media campaigns.



In addition, upgrades were made to the Green Directions Vaughan webpages on the vaughan.ca website. Pages updated, and the number of visits to February 15th are shown on Table 2.

Table 2 - Updated webpages and visits to February 15, 2018

Page title	Page visits to Feb 15, 2018
Have your say http://www.vaughan.ca/cityhall/enviornmental_sustainability/GreenDirections/Pages/Have-Your-Say.aspx	164
Our Green Direction http://www.vaughan.ca/cityhall/environmental_sustainability/GreenDirections/Pages/Our-Green-Direction.aspx	122
Resources http://www.vaughan.ca/cityhall/environmental_sustainability/GreenDirections/Pages/resources.aspx	83
GreenDirections Vaughan master plan http://www.vaughan.ca/cityhall/environmental_sustainability/GreenDirections/Pages/Green-Directions-Vaughan-Master-Plan.aspx	49
How do I? http://www.vaughan.ca/cityhall/environmental_sustainability/GreenDirections/Pages/How-Do-I.aspx	26

Source: City of Vaughan

Social media

The public event and All Our Ideas were promoted through social media, both existing Vaughan media (webpage, Facebook and Twitter), and through paid advertising on Facebook and Twitter.

The social media activity involved two campaigns: a campaign in the fall to promote the public workshop, and a campaign in the winter to promote the All Our Ideas online survey.

The fall campaign had notices on the City of Vaughan’s Twitter account (@City_of_Vaughan) on November 17, 19, 24, 25, 27 and 29 that pointed to the EventBrite³ page where interested persons could register for the workshop. Notices were posted on Vaughan’s Facebook page (@thecityofvaughan) on November 15 and 27.

³ EventBrite is an online tool for promoting and registering for events. EventBrite was used by the City to enable people to sign up for the public workshop and to track potential audience attendance.



Figure 1 - Example of Twitter posting to promote public workshop



Figure 2 -- Example of Facebook posting to promote public workshop

Notices were posted about the All Our Ideas survey on the City's Twitter account on Jan 1,2,4,and 8 and February 12, and on the City's Facebook page on February 9th.



Figure 3 -- Example of Twitter promotion of the All Our Ideas platform

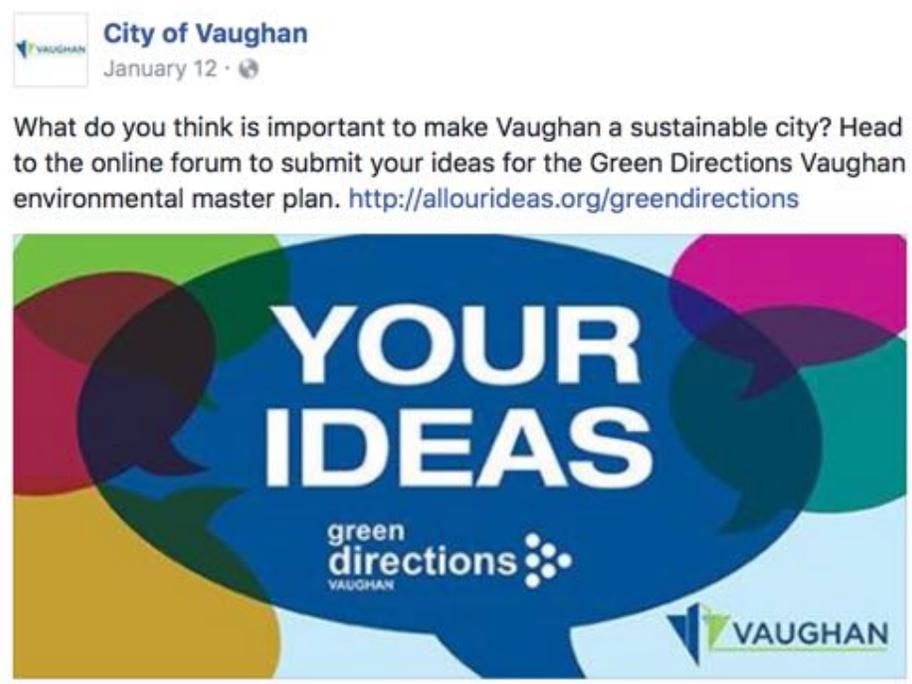


Figure 4 -- An example of a Facebook posting to promote All Our Ideas

A modest budget (\$500 in total) was established for paid advertising on Facebook and Twitter. Ads were targeted at users in the City of Vaughan, and provided broad exposure, as shown in Table 3.

Table 3 -- Effectiveness of paid social media advertising

Campaign	Metric	Facebook	Twitter
Public workshop	# of impressions	14,029	14,837
	# of clicks	139	500
All Our Ideas	# of impressions	23,955	10,192
	# of clicks	115	25

Source: City of Vaughan

Accounting for the promotion on City media, the paid advertising, and third-party encouragement, there were 1,248 page views on the EventBrite website, and 328 page views on the Green Directions Vaughan page on the All Our Ideas site.

STAKEHOLDER AND PUBLIC CONTRIBUTIONS

Meetings/interviews

Environmental Sustainability and the IndEco team held some meetings together with stakeholders and divided up some of the other meetings. In total, 28 meetings were held with stakeholders, involving 69 individuals. Meetings included:

- Meetings with four City councillors
- Meetings with representatives of seven City departments
- A meeting with the MP for Vaughan, and the CEO of the Toronto and Region Conservation Authority
- Meetings with representatives from five York Region departments
- Meetings with representatives of business sectors in real estate and transportation, and
- Meetings with representatives of environmental non-governmental organizations including region-wide and local groups.

Meetings with business sectors will continue in 2018.

Public workshop

A public workshop was held on November 29, 2017. The agenda for the workshop included presentations from two City of Vaughan ‘Green Heroes’ on their work to promote sustainability, and two working

sessions to identify the 'preferred state' for the City of Vaughan, and discuss the actions to get there. Each participant was invited to contribute three characteristics they would like to see of a more 'sustainable' Vaughan. The submitted characteristics were organized into issue areas and groups of participants recommended actions for getting to those ends.

The workshop was attended by 21 of the 29 people who registered (not including the project team), a turnout higher than has been realized by other consultation meetings in the City. Attendees participated in animated discussions. Participants provided eighty suggestions on sticky notes during the first activity, and extensive discussion of these during the second activity.

A survey on the event was provided to participants, and 100% of participants indicated they will definitely, probably or possibly strike up a conversation about sustainability after the event; 94% said they would strike up a conversation about Green Directions Vaughan. Eighty-one percent want to be kept informed about Green Directions Vaughan. Full survey results are in Appendix D.

All Our Ideas

Environmental Sustainability wanted a way of engaging residents and businesses online in addition to the public workshop. The platform chosen for this was "All Our Ideas". All Our Ideas is sometimes referred to as a 'wiki-survey', because participants can comment on what is there, and add information of their own. The 'wiki-survey' is seeded with some ideas, and these are presented to users in pairs that are chosen randomly from the full set of ideas.⁴ The user is asked to choose which of the two ideas presented they prefer. They also have the option of saying they cannot decide or adding an idea of their own. Ideas that are added are shown to other visitors once they have been activated by Environmental Sustainability. All submissions were activated, except when they were comments, rather than ideas. The opening screen with an example of two ideas is shown in Figure 5.

⁴ The exception is that there is a slightly greater probability that a recently added idea will be presented.

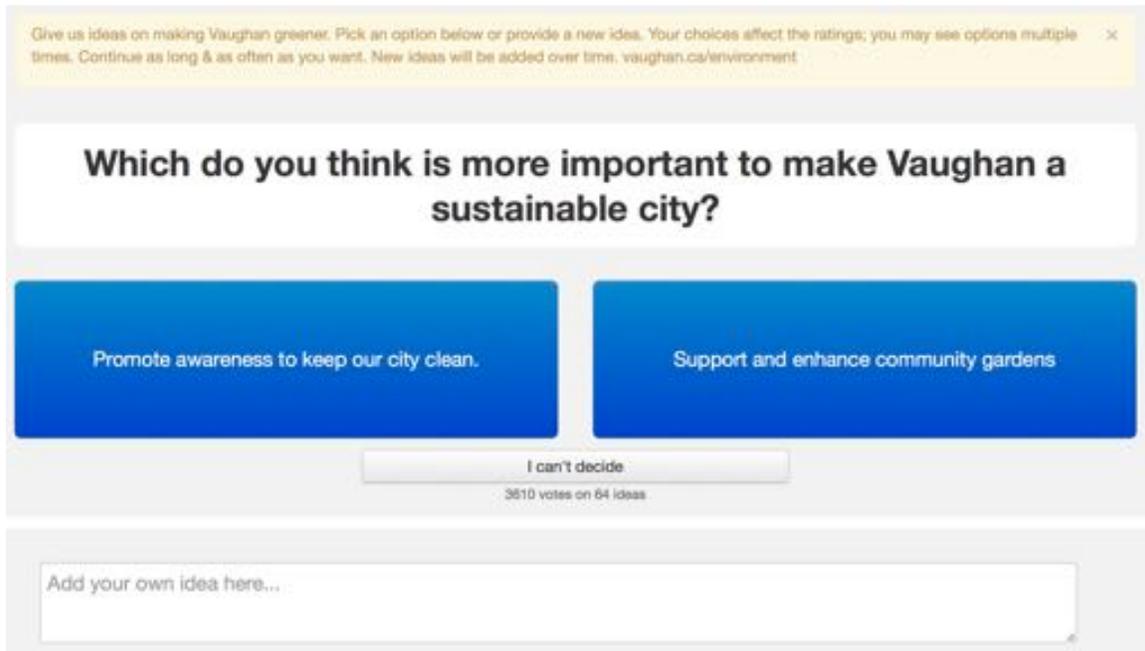


Figure 5 - A typical opening screen for All Our Ideas (a different pair of actions will be presented each time)

The structure of the survey is different from a conventional survey in that there is no clear end to it – users are invited to participate for as long and as often as they wish. Users are invited to submit their own ideas and these are added to the pool of ideas from which pairs are drawn. They are likely to see different pairs than are seen by other users.

A score is generated for each idea that indicates the chance that idea will win against a randomly chosen idea; a score of 100 means the idea is predicted to win every time, and a score of 0 means the idea is predicted to lose every time. Users may look on the ‘results’ page and see the full set of activated ideas, and their scores, though this option was rarely exercised.

All Our Ideas was developed at Princeton University with support from Google, the (US) National Science Foundation and Princeton. There have been more than 12,000 wiki surveys offered with more than 600,000 ideas and more than 18 million votes, including by the United Nations, Wikipedia, the OECD, the Washington Post, The City of Calgary, and New York City Parks. Additional details about the platform, including information about the underlying the statistical theory is available on the website allourideas.org/about.

The Green Directions Vaughan survey was seeded with 38 ideas, users made 42 submissions, and 26 of those were activated.⁵ By February 15, 2018 there were 109 user sessions and 3,610 votes on ideas.

⁵ The sixteen that were not activated were comments, either on the survey process or on other ideas, not ideas.

Email contact

Through the website, in the meetings, and at the public workshop, residents and stakeholders were invited to provide additional thoughts and comments through email to **environment@vaughan.ca**.

What we heard

Through the stakeholder interviews, public workshop and online wiki-survey, we heard suggestions related to ongoing consultation, the content of the plan, and process related issues. Of course, not all participants discussed all these issues, and not all participants had the same opinions about priorities. This section summarizes the key advice that was offered.

ON CONSULTATION

From the interviews with stakeholders

Virtually all the persons who were consulted were interested in being kept informed about Green Directions Vaughan, its components, its progress and its successes, and most were interested in contributing. Most advised that they had limited familiarity with the plan (except those who were involved in the formulation of the original 2009 plan). They often had greater familiarity with some of the specific actions in the plan, and with staff of Environmental Sustainability. Although there was awareness of some of the actions, it was not clear that stakeholders always felt a sense of ownership of the actions; they were sometimes seen as the mandate of Environmental Sustainability.

Almost universally, participants suggested that the City should do more to promote the successes achieved through Vaughan's environmental initiatives. Some of the successes mentioned included the high rate of municipal recycling, the retrofits of municipal buildings, and the reuse of old pavement.

The recommended means for consultation were somewhat different depending on the audience. Four key audiences were identified:

- Staff of the City, representing each of the City departments
- Senior decision-makers within the City including department heads and members of Council
- Representatives of other organizations whose mandates or programs overlap or relate to the elements of Green Directions Vaughan (including the regional government, the Toronto and Region Conservation Authority, environmental groups, utilities, Metrolinx's SmartCommute)
- Residents and businesses.

City staff from many departments have responsibilities for executing or co-executing actions that are part of the plan and should be guided in all their programs and initiatives by the principles of environmental sustainability. One of the City councillors we met with suggested it was essential to push the environment file to every department and have an environment filter on every task. The City Manager emphasized that it

is essential to engage with operational departments to ensure that they can implement the activities from a financial and regulatory perspective. The primary format recommended for City staff communication and participation was through a Technical Advisory Committee. Some spoke of the benefits of promoting enthusiasm by recognizing exemplary performance, or through departmental competitions.

Senior decision-makers acknowledged that there is not a clear mechanism for them to be kept informed about Green Directions Vaughan, or to provide direct input to Environmental Sustainability. Some of the suggestions for addressing this included:

- The Green Directions Vaughan team to give presentations to meetings of the City Manager and department heads at which they review major items before they go to Council
- Creation of a staff *and Councillor* oversight committee for Green Directions Vaughan, possibly like some of the recent task groups that have been established (e.g. the Cycling and Pedestrian Advisory Task Group)
- Providing councillors with articles and blog posts that they could use to engage residents through their newsletters, and discussions with constituents.

Representatives of other organizations indicated an interest in being involved with Green Directions Vaughan. Like staff, they identified the preferred format for this involvement as through a Stakeholder Advisory Committee.

Finally, there was considerable input on how to inform and engage residents and businesses. Key suggestions included:

- Use multiple media (see preferred modes of contact in Table 4) including piggybacking on Facebook, Twitter, Councillor and other City newsletters
- Be aware that, in the absence of a controversy, public meetings are likely less effective than participation at events or pop-ups (i.e. go where the people are, rather than expecting them to come to you)
- Recognize that 'environment' is often not a persuasive motivator for people – connect to other issues, including money saving, time saving, jobs and the economy, and health
- Be careful about over-use of planning or environmental jargon: keep the messages simple
- Ensure communications have a clear connection to interests of the audience and a call to action
- Ensure communications are connected to a specific aim or target.

Interviewees suggested some strategies for reaching out to the community, including promoting environmental initiatives through grocery stores, which are broadly frequented; establishing a green hero award program that might include a natural heritage civic award; and providing a school 'green leadership' award.

Table 4 -- Preferred methods of contact of Vaughan residents

Methods of contact	18-34 year olds	35-54 year olds	over 55 year olds
Newsletters and brochures sent	51%	51%	64%
City website	58%	58%	44%
Enewsletters sent via email from the City	59%	59%	41%
Local newspapers	45%	48%	50%
Enewsletters sent via email from	50%	48%	38%
Social media such as Facebook or	55%	29%	16%
Townhall meetings or public	26%	34%	34%
Telephone	4%	5%	5%
By mail	1%	1%	1%
Other	3%	4%	3%

Source: Ipsos Public Affairs. 2017. 2016 Citizen Satisfaction Survey. P.46

From the public workshop

Participants at the public workshop indicated support for consultation around Green Directions Vaughan. Eight-one percent of the respondents to the post-workshop survey indicated they want to be contacted about opportunities to be involved in Green Directions Vaughan projects. Several suggested that there be more public workshops and hoped that there could be more promotion to encourage a larger turnout.

Participants suggested some specific areas for reaching out:

- Connect with existing programs and resources such as horticultural societies, TRCA, FoodShare and school boards
- Encourage better communication and collaboration between developers, parks and recreation department, other City departments and the public around 'greening' of the city
- Sustainability education through ratepayer groups, organizations, churches and others.

They also suggested some specific forms of communication or consultation:

- Use social media more to reach out and promote greenspaces and community gardens
- Promote greenspaces by holding small events at each space

- Post information on the City's website on an ongoing basis
- Promote events using Facebook (which is where the proponent found out about the November public workshop).

From All Our Ideas

The All Our Ideas wiki-survey was not intended to collect suggestions around consultation, but rather around ideas for the plan itself. A few of these touched on communication or consultation, generally by promoting certain activities. One specific idea that was submitted was to hold 'green' meetings at all libraries to provide a forum for discussions on how to reduce waste.⁶

ON CONTENT

From the interviews with stakeholders

Discussions with stakeholders were wide-ranging, and discussed multiple issues over multiple contexts, including three kinds of actions:

- In-house actions to improve the sustainability of the City's own facilities and operations
- Actions that address the extensive development that is anticipated in the city
- Actions that relate to the existing city (and new development), including communities, streets, natural areas, and activities of residents and businesses.

These actions can be grouped into eight areas, though there is often considerable overlap within these areas:

- Urban design
- Transportation infrastructure, processes and congestion
- Buildings
- Trees, gardens and parks
- Stormwater management
- Social considerations, and
- Food, and agriculture.

The discussion around each of these overlapping areas sometimes focused on specific actions that might be taken, though often the

⁶ Although not ideas, a number of users submitted comments on the All Our Ideas tool, suggesting that it was not working properly because the same options kept being presented. In response to these comments, the welcome message at the top of the page was revised to acknowledge that the same ideas may be seen multiple times. The All Our Ideas survey is a type of survey that is different from conventional surveys where there are a limited number of questions, presented in a pre-determined order.

discussion was more on principles, without great precision on the implication or what action might entail. For example, “ensure that low and moderate income residents have access to transit” is more of a principle than an action, whereas “assess the feasibility of renewable energy generation on City facilities” might be seen as more of an action.

Urban Design: Within urban design, principles and actions identified addressed both the development of new communities, and the adaptation of existing communities. In both cases, much of the attention is around ensuring that intensification leads to designs that are less dependent on the automobile, more amenable to transit, walking and cycling, and consider the distribution of greenspaces. These design features are associated with increased health (by promoting physical activity and reducing air pollution), reduced greenhouse gas emissions, and increased social equity (e.g. by making transit more proximate and accessible). These are seen as being achieved through ‘complete streets’ that accommodate all those uses, and actions such as mid-block collectors (i.e. short-cuts), infill or brownfield development, a review of development charges, co-location of community services, creating gathering places, and considering the distribution of greenspaces, and their connectedness. In realizing these, interviewees pointed out the need to integrate land-use planning and transit planning, to ensure that sprawl was not being subsidized, and to ensure that intensification was benefiting residents and was restricted in ecologically sensitive areas.

Transportation: Transportation suggestions focused primarily around providing additional support and infrastructure for public transit and low carbon transportation systems, including a rapid bus network, micro-transit, and electric vehicle (EV) charging facilities. EV uptake should also be tracked for electricity system impacts. All these are seen as important for reducing carbon emissions. For the transport of goods, modal shifts (e.g. truck to rail) should be considered, as should off-peak deliveries. Further smart city technologies, such as smart parking, e-parking and e-biking might also reduce congestion and environmental impacts.

Buildings: Retrofitting of existing buildings, protection of heritage buildings, and standards for new building development were identified as important. The City has been retrofitting its existing buildings. As this work continues, it was suggested that it be done with a data driven approach, focusing on where the greatest opportunities are for greenhouse gas reductions and energy savings. The City should look at its facilities strategically, and focus on developing ‘types’ for audits, rather than auditing every building. For heritage buildings, more protection is required. The City might consider partnering with McMichael on protecting built heritage, and developing ways of celebrating the history of the land on which Vaughan developed. For the building stock in the community, the City might consider the TRCA Sustainable Neighbourhood Retrofit Action Plan (SNAP), working with the Province to implement Local Improvement Charges (LICs), and

home energy labelling. For new buildings in the community the City might require meeting certain LEED or equivalent standards.

Greenspaces: Interviewees indicated that trees, gardens and parks were a key concern of constituents. There were many actions suggested to increase tree plantings (in particular), to develop additional community gardens, upgrade existing parks and develop new parks. These are seen as ways of promoting health, reducing climate change impacts, creating opportunities for social interaction and improving the aesthetics of the City. Among what might be seen as ‘principles’ were: to increase the urban tree canopy, including with street trees; design parks based on an understanding of what citizens are looking for (e.g. young people want to be where there are wifi signals); ensuring that there is a diversity of uses in parks (not just playgrounds); create parks where there are unique natural features, especially when these are already owned by the City (e.g. black walnut woodlot); and promote programs, greenspaces and natural areas. Some of the other actions suggested were:

- Ensure that trees are planted to replace trees that need to be removed
- Consider making Vaughan a ‘forest city’
- Develop good neighbour planting guidelines
- Develop more community gardens to meet the demand, and promote interaction amongst residents
- Connect community gardens to the City-owned MacMillan farm
- Establish new community gardens in schools and community centres
- Encourage green roofs
- Update older parks, and consider new parks, possibly including a new, large urban park: the Black Creek floodway
- Host bonfires in parks to encourage the exchange of stories and social interaction
- Offer more outdoor recreation programs, in addition to the indoor ones currently offered
- Provide additional opportunities for active play for children
- Create a biodiversity offset program to compensate for biodiversity impacts associated with development
- Draw on citizen scientists and community involvement to maintain habitat conditions
- Host events for education about invasive species as part of Environment Days.

Water: Stormwater management and waterway protection actions are closely connected to trees, gardens and parks, and habitat protection. Some specific suggestions were to use parks for flood protection and

stormwater management, reduce the use of salt (we were told that Vaughan uses more salt than some other municipalities), ensure that watershed planning is appropriately referenced in the Green Directions Vaughan actions, and monitor dewatering and groundwater levels.

Some of the interviewees suggested Green Directions Vaughan should include more consideration of social and/or economic aspects of sustainability. On the social front, suggestions included more consideration of providing affordable housing, and designing and providing services for seniors – a growing segment of the population. Some specific suggestions offered for consideration included: encouraging affordable housing by expediting development approvals or reducing or waiving development charges when affordable housing is included, enabling or facilitating secondary suites and shared housing, integrating affordable housing in new community centres, and providing social enterprise spaces in community centres. The City might follow Markham’s lead and reach out to specific ethnic groups that are not drawing on local community centres.

Food: Some interviewees suggested local food and food security should be part of the Green Directions Vaughan plan, along with increasing awareness of healthy eating (and physical activity) for children, especially. That would include “denormalizing” unhealthy eating, using zoning or other tools to ensure schools are not near fast food outlets, restricting advertising to children, and ensuring municipal facilities do not serve ‘junk’ food. The plan could include mapping “food deserts” in the City where healthy food is difficult to access, and ensuring an appropriate buffer between urban and agriculture fringe lines. The City could convene a roundtable to discuss local food issues.

Many of the areas addressed in Green Directions Vaughan were not discussed in detail throughout the consultations, and there is an opportunity for more focused discussion on individual areas.

Public workshop

At the public workshop, participants were invited to submit ideas for making Vaughan more sustainable. Participants submitted 80 ideas, in many cases more specific than those from the stakeholders interviewed. They are presented in Appendix C.

These were written on sticky notes, then posted on a wall and organized. Three primary areas were identified: green development, transportation, and greenspace and local food production. These areas were discussed in groups, and additional ideas generated.

All Our Ideas

Users submitted a number of ideas that were different than the seed ideas, including:

- Several ideas related to reducing congestion, either through constructing additional roads or through city planning and transit management
- Measures related to making the city more attractive through roadside gardens and litter control programs
- A bylaw to require all new multi-unit buildings to provide capacity for level 2 EV charging at 20-100% of parking spaces
- A prohibition on green infrastructure removal or cutting down mature trees while a development proposal is pending
- Banning the use or sale of non-biodegradable plastic bottles, bags and containers
- Relating development charges to the size of the home
- Allowing for landscaping residential properties with turf or other grass alternatives.

The full set of ideas (seed and user submitted) and their scores are presented in Appendix E. It is important to exercise caution in interpreting these scores. Ideas that are quite similar may have quite different scores (e.g. “Guide the development of compact communities to support transit, walking and cycling options” scored 71 and “Manage and improve the urban forest and increase canopy cover” scored 73, but the idea “Best practices urban planning = no hi-rise ‘ghetto’ developments, pedestrian friendly ‘sidewalks!’shading “trees!” neighbourhoods, citizen” scored 40. Previous implementation of All Our Ideas have found that users are very sensitive to the way things are worded. Further, with 65 ideas, there are 2,080 potential pairs, and we had a respectable 3,610 votes, but that means on average, each pair only appeared about 1.5 times. At least as important as the scores is considering the ideas added by users.

City operations: Ideas to address the City’s own facilities and operations represented 7 of the 64 ideas that were in the survey. Only two of these were rated above 50: both relating to converting streetlights to LEDs. Other ideas concerning a digital strategy to reduce paper use, optimizing the City fleet, designing City parking lots to reduce stormwater runoff, EV charging facilities and seeking ISO certifications were scored below 50.

New development: About 14 of the ideas related primarily to new development, and half of those scored above 50. The top-rated action (score=76) was securing lands for parks and natural heritage, including swaps where green infrastructure removal cannot be avoided. Similarly, prohibiting green infrastructure removal or cutting down mature trees while a development proposal is pending was also rated at 53. Other high scoring ideas related to new development included guiding the development of compact communities to support transit, walking and cycling options; requiring applications for new developments to address sustainability or have community energy plans; road development to lessen congestion; requiring new multi-unit developments to offer their residents EV charging. Ideas scoring lower than 50 included: encouraging net zero or net-zero ready buildings;

ensuring development include a mix of housing types, including affordable housing; promoting green business models to attract new businesses and jobs; development charges should vary with the size of a home; and requiring new homes to be oriented to capture solar energy.

New and existing development: Top rated ideas that apply to both new and existing developments included ideas to protect or enhance natural areas including parks, the urban tree canopy, and water courses; ideas to reduce congestion through transportation demand management, road improvements, and the provision of active transportation facilities; and support for outdoor recreation facilities including trails. Other ideas scoring above 50 included litter control initiatives; education and audits for businesses; and funding the retrofitting of businesses. Actions or ideas related to waste management and recycling; or to food, agriculture and diet did not score as highly as those mentioned above.

ON PROCESS

Interviewees, in particular, made a number of suggestions on process related issues, including:

- The role of the Green Directions Vaughan plan
- Evaluation of actions, and metrics
- Community and stakeholder engagement
- Tactics, and
- Reporting.

The role of Green Directions Vaughan

Senior decision-makers in the City, in particular, spoke to the important role that they attribute to Green Directions Vaughan, and of sustainability to the City. They saw it as important that the City demonstrate leadership in the community and therefore the importance that the City has its own house in order.

Further they saw Green Directions Vaughan as providing principles and guidance to other City departments and the community on what is meant by 'sustainability', and steps for its achievement.

Finally, Green Directions Vaughan was described as a 'report card'; as a measure against which progress towards sustainability by the City and the community can be assessed.

Evaluating actions, and metrics

Interviewees from within and outside the City emphasized the importance of including within Green Directions Vaughan quantitative measures for evaluating progress on actions that are part of the plan.

That includes having ways of putting progress into context, both by comparing it to short- and long-term targets, and in benchmarking Vaughan's situation or performance against that of other cities. Reduction of greenhouse gas emissions was one of the areas for which Vaughan was encouraged to develop specific targets.

It was broadly acknowledged that an important part of winning support for initiatives under the plan will be an assessment of their financial implications as well as their environmental or social ones. To this end, numerous persons suggested that actions be supported by business cases.

Other criteria likely to be important in winning support within the City for actions or initiatives were opportunities to leverage City funding with external funds or other external resources, public acceptance, and the experiences of other municipalities.

Stakeholder and community engagement

Given that responsibility for sustainability is shared across all sectors of the City, it is not surprising that we heard about the need for ongoing communication and consultation. These would include:

- With the Mayor and Members of Council
- With internal departments
- With external stakeholders
- With residents and businesses
- With the City Manager and department heads.

City Councillors spoke of the history of subject area committees that are not used as much now as in the past. Although being cautious that the City of Vaughan not have permanent committees that continue to meet without clear objectives or criteria, a role was seen for an environment committee or 'task force' that could address the sustainability issues that make up Green Directions Vaughan. Such a committee, with representation from members of Council, would provide Council with first-hand insight into some of the challenges and opportunities in making Vaughan more sustainable.

The City Manager emphasized the importance of continuing to consult with internal departments: helping them to understand sustainability issues and, ensuring that Environmental Sustainability is aware of the financial and regulatory constraints that they face. Departmental representatives also indicated a desire for ongoing, regular communication with Environmental Sustainability on Green Directions Vaughan. A technical advisory committee was seen as the preferred mechanism for this ongoing communication. Councillors would like to be members of this committee and this could be the 'environment committee' or task force that Councillors suggested.

A similar committee mechanism was suggested by external stakeholders. Given the different roles and responsibilities of the

internal and external stakeholders, this would most effectively be a separate committee from the internal one.

Although some residents and businesses may be representatives on the external Stakeholder Advisory Committee, Environmental Sustainability will want to continue to making information available and soliciting suggestions from the broader community. As mentioned above, a significant majority of the participants in the public workshop indicated they would like to be invited to other Green Directions Vaughan events. Environmental Sustainability will want to continue to provide updates of progress on its website, through an email mailing list, or through other means. Providing updates through Councillor newsletters provides an opportunity for also providing Councillors with background briefings on items covered in the newsletter.

Finally, before going to Council, major plans and initiatives are reviewed by one of several committees of the senior management team. The City Manager suggested that Environmental Sustainability may wish to make a couple of presentations to a committee of senior management in advance of the updated Green Directions Vaughan going to Council.

Tactics

In addition to the strategic suggestions discussed above, stakeholders made a number of tactical suggestions that Environmental Sustainability may wish to consider as it revises the plan:

- Have specific targets that relate to the plans against which progress can be measured, then
- Focus on the analytics, or key performance indicators (KPIs)
- In formulating specific actions, be sure to address how to change habits in the community by considering: barriers, drivers, and nudges
- Use pilot programs or lead with small actions – these allow actions to be taken that involve less risk, and that can show early successes that can then be built upon
- Work closely with Corporate Communications staff, drawing on their ability to reach out to various constituencies.

Reporting

Stakeholders within the City and other government bodies emphasized the importance of regular reporting to show the progress (or lack thereof) towards targets. This is particularly important, given the role of the Green Directions Vaughan as a ‘report card’ on sustainability.

This reporting could take several forms, possibly including:

- Annual reporting against a key set of indicators, as existed in the past, but less regularly in recent years

- Monthly reporting to the senior management team (and others) with a dashboard of indicators and progress towards milestones
- One-off briefings on particular issues or themes.

As previously discussed, multiple interviewees mentioned successes that the City has already achieved, and that there is not enough reporting on these, including, for example, high levels of recycling of municipal waste, the retrofits completed on municipal buildings, and research into the reuse of old pavement.

Conclusions and recommendations

OUTREACH

Personas and decision journeys should be considered a living and breathing entity.

Recommendation 1: The Personas should be proactively reviewed and revised over time based on real-life data gained from the in-market digital campaign.

Many residents and businesses are interested in sustainability issues. Promote opportunities, reaching and engaging them can be time consuming and expensive.

Recommendation 2: Targeted advertising is more likely to reach interested parties at modest cost. This could include paid advertising based on the personas, a Twitter account specifically for Green Directions Vaughan, and making use of the digital content developed for this project. For the general public, focus on online communication for resource efficiency. Ensure it includes opportunities for readers or users to provide feedback or their thoughts on the message being provided.

CONSULTATION

There was good representation from internal and external stakeholders. Coordinating consultation with the business stakeholders required greater effort such that the business sector consultation was not completed during the duration of the consulting contract.

Collaboration with the business community is important to implement components of Green Directions Vaughan and should be explored in conjunction with the City's Corporate Initiatives and Government Relations department, including the Economic Development team.

Recommendation 3: Additional outreach, particularly to the business community, should continue in 2018.

It is important that actions be understood as part of a larger initiative of the City, and that individual actions are aimed at a bigger goal relating to sustainability.

Recommendation 4: Put all communications in the context of the plan. For example, Environmental Sustainability should begin every presentation or meeting with a (very short) overview of the plan and how the particular item being discussed relates to the plan; every report on a particular initiative should include a note something like: "This initiative is one of x initiatives in Green Directions Vaughan, the City of Vaughan's Community Sustainability Plan."

Green Directions Vaughan is very broad, covering multiple issues. Particularly given that many stakeholders and individuals have a

greater interest in particular aspects of the plan, it is often challenging to discuss the plan in its entirety.

Recommendation 5: Focus direct consultation on smaller, better defined initiatives, in collaboration with the responsible department.

Stakeholders saw the value and importance of Green Directions Vaughan, that it was connected to the work that they do, and that they may be able to make a contribution to its success.

Recommendation 6: Environmental Sustainability should establish two stakeholder groups: an internal one and an external one. The internal one should include representatives from departments, as well as members of Council.

CONTENT AND IMPLEMENTATION

Developing business plans for the actions can help win support for them, particularly where there are opportunities to leverage funding from sources external to the city.

Recommendation 7: Environmental Sustainability should track and advise departments on opportunities to leverage funding or other resources to advance sustainability, and how these can be integrated into business plans for individual actions.

Departments cannot be expected to buy in fully to actions in Green Directions Vaughan if they see them as primarily the responsibility of Environmental Sustainability, or not part of their core function but rather an add-on.

Recommendation 8: Green Directions Vaughan should focus on principles and indicators and ensure that the implementation of actions by others can be tracked to measure progress. While actions in Green Directions Vaughan often reflect policy direction and legislative requirements, they should be articulated to identify the desired sustainability outcome: develop principles, communicate them to staff and the community; research on sustainability progress/issues in cities; developing and tracking of indicators of sustainability.

Targets are a key way to both demonstrate real commitment, and to help ensure that there is progress towards fulfilling those commitments.

Recommendation 9: Environmental Sustainability should propose short and long-term targets for progress on the key indicators for adoption by Council, and for integration into Green Directions Vaughan.

Vaughan's initiatives on economic and social sustainability are lagging those of other cities. Other cities have developed metrics, and there is even a common set in ISO 37120 (though some of those are not particularly relevant to Vaughan).

Recommendation 10: Environmental Sustainability should develop principles around social and economic sustainability that help guide other departments in designing and delivering services, and KPIs

against which progress towards social and economic sustainability can be measured. To the extent possible, these should be based on globally or nationally recognized indicators.

Awareness of what other cities are doing is not just a source of ideas, but a means of measuring whether Vaughan's progress is leading or lagging.

Recommendation 11: Environmental Sustainability should track and report on sustainability work in neighbouring and leading municipalities, including: initiatives, KPIs, progress, goals and targets, and resources allocated.

The City's Official Plan asserts a commitment to sustainability, and that Green Directions Vaughan should influence all aspects of the City's operational and regulatory activities. Operationally, this would mean having specific criteria for evaluating activities from a sustainability perspective.

Recommendation 12: Environmental Sustainability should develop tools to assist departments in evaluating their initiatives from a sustainability perspective. This could include criteria for rating actions, and elements to be incorporated into business plans or procurement initiatives. For example, this might include the dollar value to attribute to greenhouse gas emissions when evaluating the cost-benefit of energy investments.

REPORTING

There are organizational and other obstacles to senior decision-makers getting information on the progress of the plan, such as the removal of subject area committees involving Councillors.

Recommendation 13: In addition to the stakeholder advisor committee with Council representation, and annual reports on indicators and milestones, Environmental Sustainability should take advantage of opportunities to present to senior decision-makers in advance of submitting the new Green Directions Vaughan for Council approval. In addition, Environmental Sustainability should prepare briefings on particular issues on an occasional basis, more frequently than annually. These should be distributed to senior decision-makers, relevant departments, and be made available to the public on the Green Directions Vaughan website.

Appendix A. Vaughan audience personas

PERSONA: SUSTAINABILITY ADVOCATES

Description:

- Smallest audience segment: approximately 10% of the target audience
- Believe they have a responsibility to purchase and behave in a manner that will “help” the environment
- Proactively research and learn about ways to improve their environmental impact and behavior
- Engage in personal, online and social (media) communities: they will proactively influence their personal, social and professional network
- These users will proactively convert others to their preferred lifestyle
- They will proactively “punish” businesses, governments and other organizations for failing to operate in a manner that aligns with their point of view

Demographics

- 48% Male / 52% Female
- Notable younger demographic
 - 40 years and younger
 - 30% - 40% of users have children residing at home
 - 20%+ do not yet have children (or do not plan to)
 - Approximately 10% of segment are retired
- Very little information on ethnicity implications
- Educated, well-read audience: 75%+ have a college or university education

Behaviour and motivators	Description	Detail
Key motivator	Responsibility and guilt	Feel guilty for their own environmental impact. Want to do their part to avoid significant issues in years to come
Core driver	Knowledge of positive impact	Proactive impact, support and conversation is a priority – want to feel like they are driving positive change
General behaviour	Rewarding, judging and punishing	Will proactively provide praise, judgement and ‘punish’ business and government – the communications will be viewed online
Trusted sources	Online/social communities	Use content and tone from other proactive advocates to help formulate a POV

PERSONA: SUSTAINABILITY ADVOCATES (Continued)

Key takeaways:

- Extremely high web propensity
 - Advocates are very active in online and social communities
 - They use online sources as their primary source of research, knowledge and justification
- Extremely high influencer potential
 - These users utilize their social media profiles regularly
 - Posts consist of (negative) judgement, (positive) reinforcement, and proactive engagement in online dialogue
 - Advocates can be used to organically grow impressions, awareness and legitimacy of Green Directions Vaughan initiatives
- Interception Points
 - Opportunity to intercept users as they actively search, and passively utilize other platforms
 - Platforms: *Search, social (organic and paid), display (behavioral targeting and site-specific)*

Source: Brickworks Communications Inc.

PERSONA: ASPIRING SUSTAINERS

Description

- Approximately 30% of the target audience
- Believe that society needs to “change” to improve the environment, but are less likely to change core, personal behaviours: social status and style will often trump sustainable behavior
- Will not proactively search for online information, but will engage with content if intercepted online
- Users are impacted by influencers in their personal, social and professional network(s)
- Social appearance of ‘caring’ will impact behavior (often short-term)
- 85%+ will engage in regular, sustainable behaviors (e.g. recycling)
- Less likely to engage in other, more subtle behaviors

Demographics

- Mirrors the demographics of the advocates
- 49% Male / 51% Female
- Notably younger demographic
 - 40 years and younger
 - 30% - 40% of users have children residing at home
 - 20%+ do not yet have children (or do not plan to)
 - Approximately 10% of segment are retired
- Very little information on ethnicity implications
- Educated, well-read audience: 70%+ have a college or university education

Behaviour and motivators	Description	Detail
Key motivator	Style and perception	Driven by perception (peers and personal) – will modify behaviour based on acceptance and perceived value
Core driver	Image alignment	Ensuring they are viewed optimally within their personal, social and professional network
General behaviour	Sharing & absorbing	Engages in online sharing – primarily socially driven. Social posts often revolve around consumerism, family/friends and ‘active’ lifestyle
Trusted sources	Online/social communities, reviews	Uses opinion, content and tone from others to help form POV

PERSONA: ASPIRING SUSTAINERS (Continued)

Key takeaways:

- Extremely high web propensity
 - Aspiring sustainers are very active in online and social communities
 - They use online sources as their primary source of research, knowledge and justification
- Usually passively engage with sustainability messaging/content
- Extremely high influencer potential
 - These users utilize their social media profiles regularly
 - Posts consist of positive sustainability engagement or negatively commenting on a perceived environmental abuse
 - Aspiring sustainers can be used to organically grow impressions, awareness and legitimacy of Green Directions Vaughan initiatives
 - Interception Points
 - Opportunity to intercept users as they passively utilize other platforms
 - Platforms: *Search, social (organic and paid), display (behavioral targeting and site-specific)*

Source: Brickworks Communications Inc.

PERSONA: GENERAL PUBLIC

Description

- Approximately 40% of the target audience
- This group lags behind in adopting sustainable behavior: includes purchasing, at-home habits, etc.
- Discouraged by perceived effort (and high-prices) associated with sustainable behavior
- Open to sustainable or pro-environmental behavior/messaging: if they feel “rewarded” in some way
- Are not proactively searching/researching sustainability
- Skeptical of sustainability claims/messaging when delivered by commercial brands
- Open to social referrals and governmental messaging

Demographics

- 49% Male // 51% Female
- Slightly Older Demographic
- Slightly older average user
 - fewer millennials
 - more users between ages 35 - 60
 - 30% - 35% of users have children residing at home
 - 10% or less do not yet have children (or do not plan to)
- Very little information on ethnicity implications
- Educated audience, but with a lower percentage of post- secondary graduates: 60%+ have a college or university education

Behaviour and motivators	Description	Detail
Key motivator	Proven performance and ingrained behaviour(s)	Some desire to engage in sustainable action, but only if it aligns with their pre-established norms and is a perceived life improvement
Core driver	Credibility/proof	With any product, service or action, these users need proof of value before engaging fully
General behaviour	Easiest path forward	Will engage with easy options (e.g. recycling) but will withdraw if it becomes ‘too hard’
Trusted sources	Online reviews, referrals/ recommendations, government publications	Uses opinion, content and tone from others to help form POV City of Vaughan website will play a key role in interacting with this group

PERSONA: GENERAL PUBLIC (Continued)

Key takeaways:

- Moderate-to-high web propensity: advocates are active in online and social communities
- Generally not engaged in any sustainability communities/content: they use online sources as their primary source of research, knowledge and justification
- High influencer potential
 - These users utilize their social media profiles regularly (primarily Facebook and Instagram)
 - Advocates can be used to organically grow legitimacy and acceptance of Green Directions Vaughan initiatives (within their own personal/social networks)
 - Willing to provide opinion on governmental matters: persona group that most often engages with the City of Vaughan website
- Interception Points:
 - Feature content on City of Vaughan website entry pages and social platforms
 - Opportunity to intercept users as they passively utilize other platforms
 - Platforms: *search, social (organic and paid), display (behavioral targeting and site-specific)*

Source: Brickworks Communications Inc.

PERSONA: INDIFFERENTS

Description

- Approximately 20% of the target audience
- Very skeptical about the value or legitimacy of sustainable or pro-environmental activities: do not perceive climate change and related issues as real “risks”
- Suggest that these threats have been exaggerated: believe that there’s very little an individual can do to help
- Do not believe the government should play a major role (if any) in pursuing these initiatives: should be up to individual preferences/actions
- Convenience and pre-established habits drive behavior

Demographics

- 56% Male // 44% Female
 - Oldest persona group
 - Majority being 40 years and older
 - 20% - 30% of users have children residing at home
 - 10% do not yet have children (or do not plan to)
- More likely to reside in urban/rural fringe
- Least educated audience: 50%+ have a college or university education
- Lowest average income
- Ethnicity may play a role in this persona group

Behaviour and motivators	Description	Detail
Key motivator	Convenience	Important to ensure all actions, including sustainability, are easiest and work within a pre-established lifestyle
Core driver	Individualism	Focus on their personal day-to-day lifestyle – less regard for people outside of their tight, personal network
General behaviour	Skepticism	Not a firm believer in sustainability initiatives & why they should care/change
Trusted sources	Friends/social network, government sites, local news outlets	Influenced by close, personal network. Will proactively visit and engage with the City of Vaughan website

PERSONA: INDIFFERENTS (CONTINUED)

Key takeaways

- Lowest overall web-propensity
- Moderate social influencer
 - Cannot grow program awareness and impressions
 - Will drive conversion and acceptance within personal networks
- Ethnicity may play a bigger role in this persona group: sub-personas may be required
- Unlikely to provide a lot of meaningful feedback for Green Directions Vaughan
- Interception Points:
 - Feature content on City of Vaughan website entry pages and social platforms
 - Opportunity to intercept users as they passively utilize other platforms
 - Platforms: *search, social (organic and paid), display (behavioral targeting and site-specific)*

Source: Brickworks Communications Inc.

Appendix B. The new Green Directions Vaughan landing page

MAKE A *POSITIVE* IMPACT ON YOUR COMMUNITY

The City of Vaughan is our home — vibrant, diverse and alive. It's up to each of us to be guardians of our community. Our everyday actions go a long way in building an even prouder and more resilient city. Are you ready to make a difference?

THIS WAY



HAVE *YOUR* SAY!

Thanks for stopping by! While you're here, why don't you let us know what sustainability means to you and how we can make our city an even better place together.

[CONTRIBUTE HERE](#)



SUSTAINABILITY *FIRST*

The decisions we make will determine the impact we have on our environment. Together, we can put sustainability first by making sure our actions create a healthy environment, vibrant community, and economic vitality for generations today and tomorrow.

[LEARN MORE](#)





**OUR
SUSTAINABILITY
STORY**

We all know the saying, "what gets measured, gets managed." The Green Directions Vaughan indicators tell us our sustainability story – what's going well and where we need to focus our efforts.

[LEARN MORE](#)

THE MASTER PLAN



What We Use

To significantly reduce our use of natural resources and the amount of waste generated.



How & Where We Grow

To ensure sustainable development and redevelopment.



How We Get Around

To ensure getting around Vaughan is easy and has a low environmental impact.



How We Live

To create a vibrant community for citizens, businesses and visitors.



How We Lead

To be a leader on sustainability issues.



How We Operate

To effectively implement the Community Sustainability and Environmental Master Plan.

[LEARN MORE](#)



Appendix C. Summary of the public workshop and associated infographic

The City of Vaughan is in the process of renewing its sustainability plan, called **Green Directions Vaughan**, and is seeking input and advice from the public and stakeholders on the plan. The revised plan is expected to go to Council for approval in 2018. Input is being gathered in multiple ways:

- Input on the renewal of **Green Directions Vaughan** has been gathered from meetings with representatives of local businesses and organizations, City of Vaughan Councillors, other public representatives, and City of Vaughan staff.
- Members of the public are encouraged to participate and provide their perspective on the online wiki survey found at www.allourideas.org/greendirections or ideas or suggestions may be emailed to environment@vaughan.ca. Please provide all ideas and suggestions by **January 15, 2018**.
- The public was invited to attend a public session on November 29, 2017, from 7pm to 9pm, at City Hall, to create awareness about and interest in **Green Directions Vaughan** and to seek input and ideas for the renewed plan.

Environmental sustainability staff at the City of Vaughan will be reviewing all of the ideas and suggestions from the public session, and other consultations, and determining which should be incorporated in the renewed plan, based on a set of criteria that include:

- Whether the objective of the action is consistent with the City's policies and plans
- Whether the action is within the City's power to implement or to influence
- The relative importance of the action's contribution to sustainability
- The human, organizational or financial resources required to implement the action.

Green Directions Vaughan public session



The public session included presentations from two local Green Heroes who have been recognized by the City of Vaughan for their environmental sustainability efforts. The presentations were followed by a participant brainstorming session and then smaller group discussions on three of the topic areas that were identified in the brainstorming. The session was facilitated by IndEco Strategic Consulting Inc.

We would like to thank everyone for participating and contributing and we would like to thank our Green Heroes for presenting:

- Carlo Di Gioacchino on *Green Building & Lifestyles*
- Michael Bonitatibus on *The Plastic World We Live in*

Input from public session

Below are the ideas and suggestions that participants provided at the public session. Ideas were collected on sticky notes, which have been transcribed below, and additional comments were provided for each of the three smaller group sessions. All ideas generated as part of this brainstorming exercise will be evaluated based on the criteria outlined above. At this time, ideas are expressed as exploratory options for the City's consideration and the City of Vaughan has not formally committed to any of the following suggestions.



Smaller Group Session 1 – Green Development

Participant sticky note ideas on this topic:

- Better use of rooftops for solar and green projects (but not overpaid solar)
- All homes built come with solar panels for heating water / charging electric cars / household use
- Solar panels on at least 50% of all rooftops
- All buildings are eco-friendly and built using green technology
- 5,000 homes have PowerHouse by 2021
- Promote multi-use / modular construction
- Mixed use housing – walk score informs design
- Lower house taxes for homes that are graded as eco-friendly
- Develop net-zero neighbourhoods
- Financial penalties to apply to homes/cars that are not in harmony with our eco-environment
- Education, education, education to all young and old, of all green energy and eco friendly products
- Use / develop demonstration projects
- Home retrofitting programs are offered on an ongoing basis
- Partnering with community groups to educate toward sustainability goals; i.e., tree plantings, weather stripping your house, cycling groups

Discussion on this topic:

- Ontario Building Codes (OBC) need to be higher
- Green building should be a directive from municipalities
- Certifications like LEED should be used to encourage, incentivize, and mandate
- Enforce developers to be more sustainable

- Focus on consumers for existing buildings; for example, provide incentives for retrofits, energy audits, and education to home owners
- Thermal energy for greenfield developments
- Enable secondary suites: more efficient – consider changing codes to allow more than one secondary suite
- Build all new homes to allow for secondary suite
- Allow more density in official plans. More density in certain areas provides opportunity for more greenspace as a “trade-off”.
- Ensure amenities are in walking distance – neighbourhoods should provide for local amenities, especially grocer, bakery, coffee shop
- Neighbourhoods with a community square: should use a zoning approach
- Leverage density to pay for amenities like public squares, greenspaces, etc.
- Building code and zoning issues to allow for vertical farms
- Shared spaces, i.e. different faith groups can use same space
- Provide for home businesses – more permissive uses for home businesses in residential area
- More connected streets
- Build dwellings to be able to retrofit after (i.e., reduce load bearing walls)
- Align property taxes to sustainability
- Retrofitting buildings – enable or encourage by demonstrating financial benefit and educate; use online calculators; identify incentives – identify who is the market
- Curb foreign investment in residential real estate
- Use libraries for education
- Parts of Thornhill built around community hubs – use this model for Vaughan
- Downtown core should be car-free
- Education – create a culture of understanding and encourage more community groups. Engage the community in more activities like tree planting

Smaller Group Session 2 – Transportation

Participant sticky note ideas on this topic:

- Offer more transport options so residents will not rely on driving
- Bikeshare
- Some key north-south and east-west bike lanes
- Cycling
- Dedicated and extensive network of bicycle trails – similar to existing road network
- Expand electric vehicle network
- Hyperloop transportation in Vaughan to reduce pollution / traffic
- Transit
- Access to public transit is no more than a 10 minute walk away
- Compact, walkable, complete communities

- Enhance transit services (faster service) to inspire ridership
- Dedicated bus lanes and light rail transit
- Bicycle superhighways to get wherever you want to go
- Active transportation facilities for cyclists are needed to help ease the congestion
- All kids/students can walk/bike to school (skateboard, scooter) safely
- More PHEV charging stations to influence a greener lifestyle
- Have more cycling paths on roads and outside of roads and make cycling safer and more accessible to everyone
- All vehicles (cars, buses, trucks) to be operated with green technology (i.e., electric solar) – large truck or bus has bio-fuel on roof
- Italy tried with license plates – only odd numbers or even numbers could drive on certain days
- Electric cars and trucks
- All city equipment must be hybrid
- More public transit / encouragement initiatives to use electric vehicles
- Car pool if possible
- Underground transportation subways – an empty field with a subway would be developed overnight (and better for winter country)

Discussion on this topic:

- Convert city fleet to hybrids/EVS by creating a procurement policy and recognize the incentives
- Roll out procurement policies to vendors and contractors to impact supply chain
- Restrict transport/trucking on weekends and peak hours
- Prioritize implementation of the pedestrian and bike master plan with identified budget
- Develop parking strategy that includes parking fees to dis-incentivize car travel
- Analyze transit occupancy rates and downsize larger buses to shuttles where underutilized
- Install more charging stations across city to reduce range anxiety and keep charging costs low to promote uptake
- More electric parking spaces by dedicated signage and enforce unauthorized users through parking tickets
- Intensify urban areas through zoning codes and development standards to promote walkable spaces – make sure transit is within a 10 minute walk from home
- Implement toll booths at city limits to encourage alternate modes
- More frequent transit options (i.e., every 15 minutes) – implement express and non-express buses and optimize timing
- Implement pathways and networks close to schools to discourage vehicle drop offs and encourage safer drop off options
- Plow and provide winter maintenance on all sidewalks and multiuse paths

- Install bike lights at intersections to help facilitate traffic flow with cyclists and cars
- Prioritize roundabouts rather than lights
- Move lights to the other side to reduce 'traffic edging'
- Reduce road width to allow developers more space for parkettes and roundabouts
- Put community gardens in roundabouts
- Utilize hydro pathways for bike paths, multiuse, and transit opportunities
- Build more subways, multi-direction – build them in green fields
- Build transit routes, then communities
- Optimize rapid way transit corridors and dedicated bus lanes
- Add more parking to transit hubs
- Turn extra lanes into transit rights of way

Smaller Group Session 3 – Green Space and Local Food Production

Participant sticky note ideas on this topic:

- Provide more opportunities for local food (i.e., community gardens and farmers markets)
- Universal school food programs
- Lower density – each person has 1 acre to grow food and get rid of personal waste – Canada is a big country that is under-utilized
- Public gardens to produce local food
- Organic community gardens
- People sharing locally grown food and with food banks
- Community 'organic' gardens
- Focus on food production close to population – set aside a % of land within city for agriculture
- Food sustainability throughout – students through to seniors
- More green space geared to all ages (parks, trails, etc.)
- Vibrant public spaces
- Connected, integrated green space
- Connected trail network
- Healthy urban tree canopy from street trees to woodlands
- "Wild" green space – natural, hiking spaces
- More big trees

Discussion on this topic:

- Community gardens are not just about food – they are also gathering places
- Need a process for who to talk to when you want to create a community garden – make sure the process is clear
- Use social media more to reach out and promote green spaces and community gardens

- Toronto has an organic farm in Downsview where students help with garden and sell produce once a week – perhaps this model could be replicated in Vaughan (maybe at North Maple Park)
- There is an opportunity to involve corporations (e.g., grocery stores) with sponsorship and to sell garden produce
- Connect with existing programs and resources such as horticultural societies, TRCA, Foodshare, and School Boards (to get funding and support for school gardens) – Vaughan could be the catalyst to bring organizations together
- Opportunity to leverage passion in Vaughan for backyard gardening and balcony gardening – bring people together to garden together and/or support each other
- Create incentives for residents to have rooftop or courtyard gardens – include this in design
- Have community garden space at development sales centres
- There is currently underutilized space in front of the city building and public library that could be used for community gardens – the city should model the behaviour they are looking for
- Partner with York Region waste (because of linkage with composting, etc.)
- There is currently a good amount of green space in Vaughan
- There are several extensive trails, but not all trails are connected
- Trails are currently not big enough for cyclists so are not safe; and they need to be longer
- It is important to promote that this green space is available
- Garden tours or a ‘garden-hops’ are successful ways to promote green space – perhaps this concept could be used for green space tours for schools and families
- To promote green spaces, there could be small events at each space
- The city should show what can be done in the green spaces such as yoga, etc.
- Events could include ‘seed bombs’ with wild flowers to reduce the need to mow the lawns and reduce watering needs
- Green spaces could be ‘wilder’
- Partner with Kortright Centre for Conservation
- Develop North Maple Park

Additional Ideas

Additional participant ideas provided on sticky notes:

- Donate unwanted items
- Ban plastic bags – the City of Montreal has done it I believe so the City of Vaughan is able to do it too
- Plastic bag tax
- Industry and jobs to provide good livings

- More developments like the Metropolitan Centre that has a clear gathering centre and provides for people's shopping needs (shopping, doctor, library, etc.) within walking distance
- Centres of neighbourhoods where no cars are allowed
- Build capacity: Community Associations for all of Vaughan
- Better communication and collaboration (i.e., greening) between developers, parks and recreation department, between City departments, and public consultations
- Carbon Zero by 2050
- Vaughan to be the most sustainable city in Ontario / Canada – have clear, simple communications plan and plaster it everywhere so we all start speaking the same language and know the goals
- Communicate the key positive messages throughout the city celebrating examples of the city's sustainability initiatives so residents feel good about living here and start a movement. Encouraging them to get motivated and take action.
- Easy access to biodegradable, compostable packing
- All plastic bags should be compostable and made from recycled materials
- Go paperless
- Highway crossings
- Bring your own cup for a coffee in the mornings
- Citizen challenges/competition for waste diversion, energy use, etc.
- Encourage alternative energy systems through grants and incentives
- Promote a sharing economy
- Promote co-generation integration
- Reuse surplus energy
- City to incentivize residents who reduce energy consumption or reduce water usage, carpool, etc.
- City Hall should lead by example in sustainable practices
- Promote financial cost savings from sustainable business / home practices
- Sustainability education through ratepayer groups, organizations, churches, etc.
- Switch to eco-friendly pest control

WHAT WE HEARD

We're updating Green Directions Vaughan – the City's community sustainability and environmental master plan. It sounds long and complicated, but the idea is simple: what can and should we be doing to ensure the health and well-being of our community?

On Nov. 29, 2017, we hosted a workshop to share ideas for making sustainability part of our every day. This is what we heard...

Participants shared 80 ideas for the new **Green Directions Vaughan Master Plan**. Here are some of the ideas we heard:

94%

said they would most likely start a conversation about **GREEN DIRECTIONS VAUGHAN**

81%

said they wanted to be contacted about future opportunities to be involved in Green Directions Vaughan projects.

21 participants attended the **What's Our Green Direction?** workshop.

ENERGY AND BUILDING STANDARDS

- More opportunities for solar generation
- Develop net-zero neighbourhoods
- Promote home retrofit programs
- Integrate green technology into building design
- Increase uptake of Alectra's Powerhouse program

WASTE REDUCTION

- Ban plastic bags
- Go paperless
- Encourage biodegradable and sustainable packaging

TRANSPORTATION OPTIONS

- Provide more bike lanes and bike share opportunities
- Enhance transit services
- Promote electric vehicles and provide more charging stations
- Create "car-free" neighbourhoods
- Encourage carpooling
- Create dedicated bus lanes
- Improve active transportation facilities to promote cycling and walking

COMMUNITY AMENITIES

- Build compact, walkable and complete communities
- Provide more community gardens to produce local food
- Create vibrant public spaces
- Encourage mixed-use housing development

ECONOMIC VITALITY

- Encourage economic and job growth
- Promote a sharing economy
- Promote financial benefits of sustainable practices at home and at work
- Lower taxes for homes that are considered eco-friendly

VIBRANT COMMUNITY

- Foster partnerships to educate all generations on sustainability initiatives
- Communicate positive messages and celebrate sustainability accomplishments to motivate people to take action
- Promote interactions between generations
- Create citizen challenges to achieve sustainability goals

GREEN SPACE AND CONSERVATION

- Protect connected and integrated green spaces
- Encourage a healthy urban tree canopy
- Increase connectivity between trails
- Provide more green space for all ages to enjoy

green
directions
VAUGHAN

Do you have more ideas?
Visit greendirections.vaughan.ca to share your thoughts.

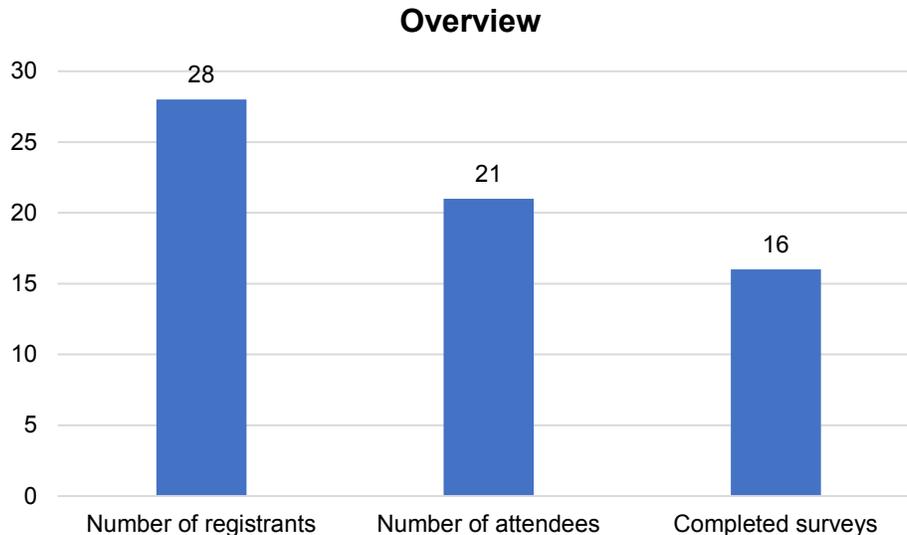
VAUGHAN



Appendix D. Survey of participants at the public workshop

WHAT'S OUR GREEN DIRECTION WORKSHOP SUMMARY OF SURVEY RESULTS

- Attendance overview.** Twenty-eight people registered for the event on Eventbrite. Twenty-one people attended the workshop, of which 16 completed the feedback survey.

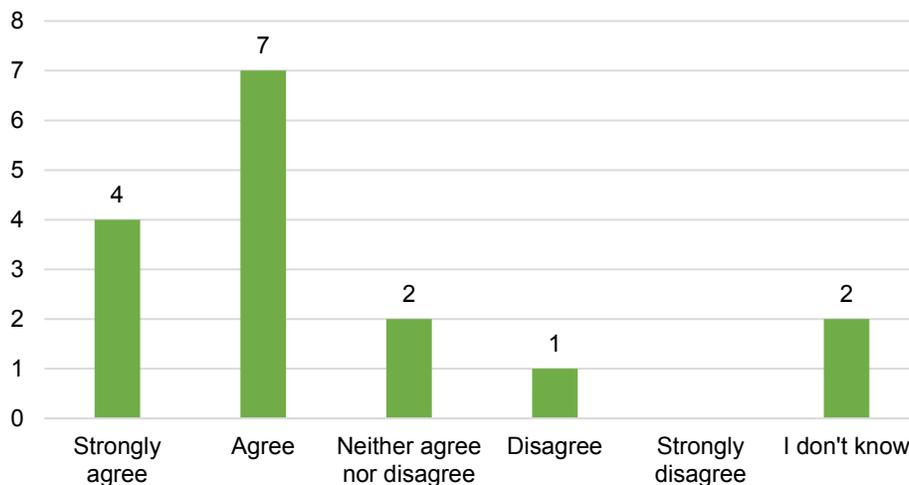


- How would you rate the quality of the workshop?** When asked how they would rate the quality of the workshop, the majority of responses (94%) were positive. Fifty-six per cent of respondents rated the workshop as excellent or above average and 38% rated it average. One respondent indicated they did not know.



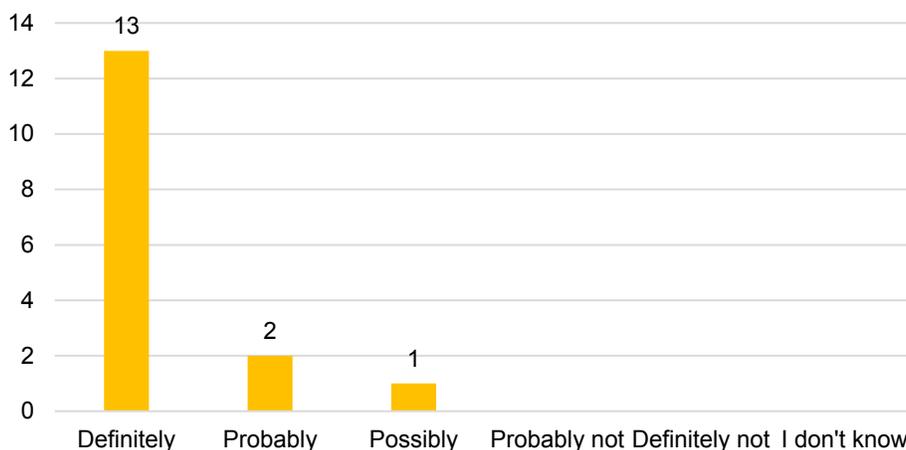
3. I understand the role that Green Directions Vaughan (the City’s sustainability plan) plays in guiding our community to a more sustainable future. Close to 70% of respondents strongly agree or agree with this statement. Two respondents indicated they did not know, with one respondent commenting that this was the first time they had heard of Green Directions Vaughan, even though they were a Vaughan Green Hero in 2012.

Understanding of Green Directions Vaughan



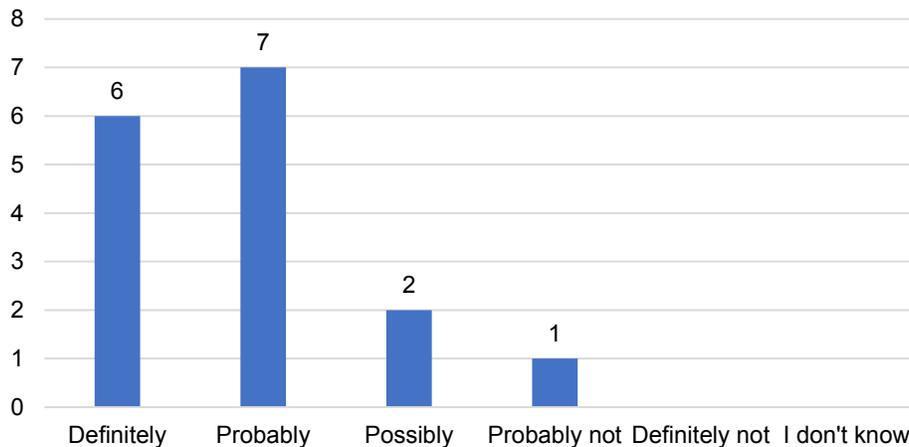
4. Would you strike up a conversation about sustainability with a family member, friend, neighbour, co-worker or schoolmate in the near future as a result of attending tonight’s workshop? All of the respondents (100%) indicated that if not definitely, they would likely generate conversation about sustainability.

Would you strike up a conversation about sustainability?



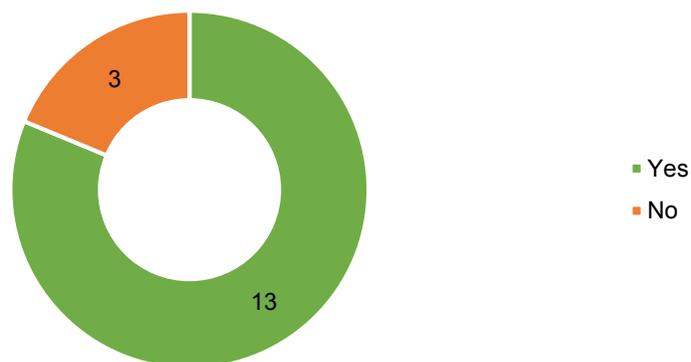
5. **Would you strike up a conversation about Green Directions Vaughan with a family member, friend, neighbour, co-worker or schoolmate in the near future as a result of attending tonight’s workshop?** The majority of respondents (94%) indicated that if not definitely, they would like likely generate a conversation about Green Directions Vaughan. Only one respondent indicated they probably would not.

Would you strike up a conversation about Green Directions Vaughan?

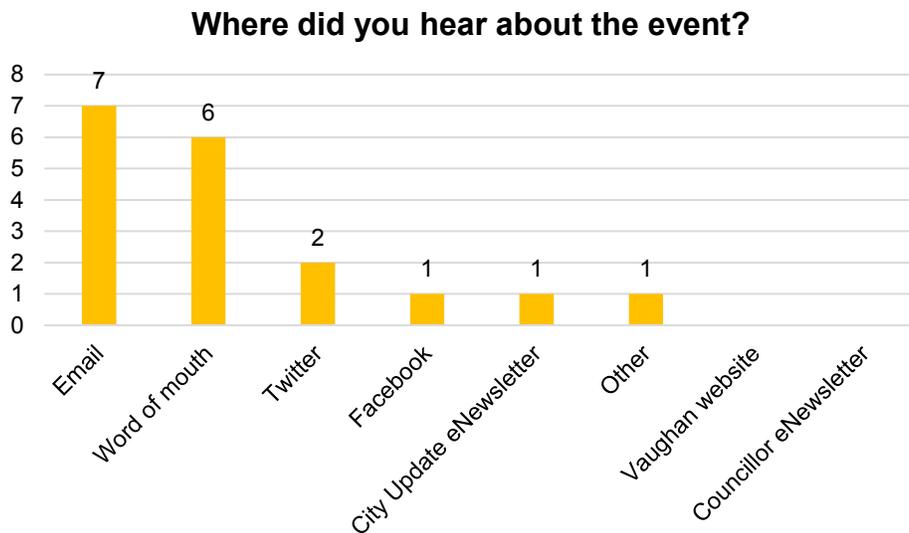


6. **Do you want to hear about future Green Directions Vaughan projects, initiatives or activities after attending tonight’s workshop?** The majority of respondents (81%) want to be contacted about future opportunities to be involved in Green Directions Vaughan projects.

Do you want to hear about future Green Directions Vaughan projects?



7. Where did you hear about this event? The majority of respondents (72%) heard about the event either through email communication or by word of mouth. One of respondents indicated that they received notice about the event through their ratepayer group. None of the respondents heard about the event by visiting the City of Vaughan website or through the Councillors’ eNewsletters.



8. Do you have any additional suggestions for the Green Directions Vaughan sustainability plan?

- Communicate, communicate using simple messages and have all the councillors to repeat the same messages.
- Will do online.
- Have more people invited next time and keep time at the end for closure and clarity of priorities and of discussion in each group.
- I put my name on the bottom corner of each green sticky that was posted on the wall!
- Post information on City’s website ongoing.
- More awareness of this great, informative event.
- Will email to you.
- Reach out more to local businesses to get representatives at these types of meetings – employee relations, community support. Need to build outside champions.
- I don’t know enough about the existing plan to comment (intelligently) 😊.

9. Do you have any comments about Green Directions Vaughan or this event?

- Thank you for the invite and celebrating the great residents who live here.
- Great beginning looking forward for more.
- Sorry for the low turnout with such an important and critical topic of discussion. The Vaughan Citizen and other papers should write up a healthy article on tonight's suggestions. Educate, educate, educate.
- Continue to invite and encourage public to participate.
- Presentations to intermediate students (elementary) and secondary level to start engaging kids early.
- Great event.
- Great work. I hope you get great funding and support.
- Thanks for the opportunity to brainstorm.
- Thanks for posting on Facebook otherwise I would have missed this.

Appendix E. Results from *All Our Ideas* wiki-survey

Note that in most cases, when ideas are added by users, they are not edited before being activated.

Scores indicate the probability that the particular idea would win in a vote between another randomly selected idea. A score of 100 means that it would almost certainly win; a score of 0 means that it would almost certainly lose.

Which do you think is more important to make Vaughan a sustainable city?

Score (0-100)

Secure lands for parks and natural heritage, including swaps where green infrastructure removal cannot be avoided	76
Work with York Region on transportation demand management to reduce congestion and promote transit and active transportation	74
Connect 401,410,427,400, & 404 hwys thru Richmond Hill-Vaughan-Brampton/Caledon-Mississauga for better traffic flow. (GTA West Corridor)	74
Manage and improve the urban forest and increase canopy cover	73
Design & implement 'complete streets' for the safety of motorists, cyclists, pedestrians, & transit riders of varying ages & abilities	72
Make city roads more beautiful with road side gardens. Especially in front of Vaughan subway and Hwy 7.	71
Better city planning and transit management. Having a crowded city and grid lock is not welcoming to anyone.	71
Guide the development of compact communities to support transit, walking and cycling options	71
Promote citizen health by supporting outdoor recreation activities, the development of more greenspaces & options for active transportation	69
Require applications for new developments to address sustainability	66
Convert 30,000 streetlights and park lights in Vaughan to LED technology	66
AND new roads, highways, widening of existing regional roads to lessen congestion.	66
Add newer and better trees in residential streets	63
Enact a bylaw to require all new multi unit buildings to provide capacity for level 2 EV charging at 20-100% of spaces (like Richmond BC)	63
Provide trails for current and future populations	63
Retrofit streetlights to LEDs	62
Incorporate pedestrian and cycling lanes/walkways into all capital road projects	61
Protect watercourses from salinity increases	60
Promote local food production by supporting urban and near-urban agriculture, farmers markets and community gardens	56
Require Community Energy Plans for significant developments	55
Provide recreation programming for youth, including opportunities for fitness, nutrition and connecting with nature	55
Creating a beautiful and sustainable city also requires a clean and litter-free environment, educating people to dispose of trash properly.	55
Improve waste diversion from landfills with programs for textile recycling and e-waste	55
Dedicate more resources to stormwater management to reduce stormwater runoff and protect water quality	54
Facilitate education for smart business operations in support of the low-carbon economy (e.g. reducing energy use, waste, etc.)	53

Which do you think is more important to make Vaughan a sustainable city?

Score (0-100)

Prohibit green infrastructure removal or cutting down mature trees while a development proposal is pending	53
Encourage waste audits and waste reduction work plans for industrial, commercial and institutional waste generators in Vaughan	52
Dedicate funding to increase building retrofits to reduce carbon emissions in the private sector	51
Ban the use/sell of plastic bottles, bags and containers for fruits and vegetables, business should replace them with biodegradable material	51
Promote awareness to keep our city clean.	51
Manage impervious surfaces to maintain water quality	50
Continue to support York Region's water conservation programs (Water for Tomorrow)	49
Encourage agricultural best practices in the Greenbelt Plan and Oak Ridges Moraine Conservation Plan areas	48
Support and enhance community gardens	48
Make playground upgrades more interesting - taller play structures, more 'risky' play. Look to Toronto's upgraded playgrounds as example.	47
Remove City obstacles to alternative energy sources	46
Promote eco-business opportunities such as sharing resources, recycling waste materials, and alternative energy generation and distribution	46
Encourage construction of net zero or net zero ready buildings	46
Implement a digital strategy to reduce paper use in City facilities	45
Have grocery stores stop packaging up fruits and vegetables in plastic!	45
•Spread awareness to keep our city clean.	45
Establish Safe-Routes-To-School programs	44
Ensure development reflects a mix of housing types, including affordable housing	44
Optimize City fleet use and vehicle type to minimize environmental impacts	44
Promote green business models through the City's Employment Sectors Strategy, which focuses on attracting new business and jobs	43
Bike lanes in all major roads; close several roads on Sunday and holidays for residents to walk, jog and bike	43
Keep block lengths short to facilitate movement through neighbourhoods	42
Best practices urban planning = no hi-rise "ghetto" developments, pedestrian friendly "sidewalks!" shading "trees!" neighbourhoods, citizen	40
Development charges are larger for larger homes and a discount is provided for green homes	39
Make sure residents know about the environmental impact of our food choices. Prevent grocery stores from providing plastic bags, packages etc	39

Which do you think is more important to make Vaughan a sustainable city?

Score (0-100)

Design or retrofit City parking facilities to reduce stormwater runoff	38
All new homes must have roof direction and angle optimized for solar PV implementation.	37
Love both ideas, but what about providing rec programs for adults 55 (FIFTY-FIVE) +, as in King Township!!!	36
Bike lanes in all major roads	35
All new homes must incorporate variable speed motors/fans etc. in furnaces, heat pumps, air conditioners.	35
Allow for turf or other grass alternative landscaping on residential properties, to cut down on water use and neonic pesticide use	33
Provide electric vehicle (EV) charging stations at City facilities	33
Require a health assessment as part of development application review	32
Seek International Organization for Standardization (ISO) certifications to verify the City's progress towards sustainability	31
City should practice what they preach and use paper waste bags for yard waste!	29
Reduce the cost of compostable garabage bags!	25
Hold "green" meetings at all libraries. Have forum discussions on how to reduce waste!	24
Promote plant-based eating	16
EV for the rich who can afford the TESLAs and other hybrids NO NO NO	13

Note: The score of an idea is the estimated chance that it will win against a randomly chosen idea. For example, a score of 100 means the idea is predicted to win every time and a score of 0 means the idea is predicted to lose every time.

In general, ideas submitted by users are not edited.



providing environmental and energy consulting
to private, public and non-governmental organizations

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DRAFT

2019 COMMUNITY
SUSTAINABILITY PLAN

**GREEN
DIRECTIONS
VAUGHAN**



Message from the Mayor

Vaughan is proud to be a green city and we are committed to fostering a sustainable community that will continue to enhance the quality of life for all residents, businesses and visitors. We remain focused on a plan that is true to environmental values that respect future generations.

Green Directions Vaughan is the City's environmental sustainability plan. It serves to guide all our city-building efforts toward initiatives that reinforce our commitment to environmental stewardship. This includes goals to reduce greenhouse gas emissions, as well as enhance stormwater management, water conservation systems and waste reduction.

Vaughan's commitment to environmental sustainability is woven into every aspect of city-building from North Maple Regional Park – Vaughan's most ambitious, 900-acre park development – to Edgeley Pond and Park – the largest open space in our emerging downtown, the Vaughan Metropolitan Centre.

We each have a shared responsibility to protect our future. I am proud to continue to work with staff and stakeholders who are dedicated to our world-class city.

Sincerely,



Hon. Maurizio Bevilacqua, P.C.
Mayor

2018-2022 City of Vaughan Members of Council

First row, left to right:

Linda D. Jackson, Regional Councillor;
Gino Rosati, Regional Councillor;
Hon. Maurizio Bevilacqua, P.C., Mayor;
Mario Ferri, Regional Councillor, Deputy Mayor.

Second row, left to right:

Alan Shefman, Ward 5 Councillor;
Sandra Yeung Racco, Ward 4 Councillor;
Rosanna DeFrancesca, Ward 3 Councillor;
Tony Carella, Ward 2 Councillor;
Marilyn Iafrate, Ward 1 Councillor.





GREEN DIRECTIONS VAUGHAN

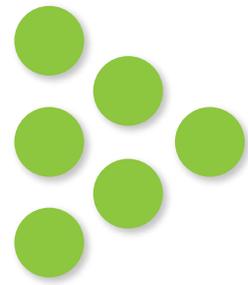


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Appendix C: Glossary	00



Executive Summary

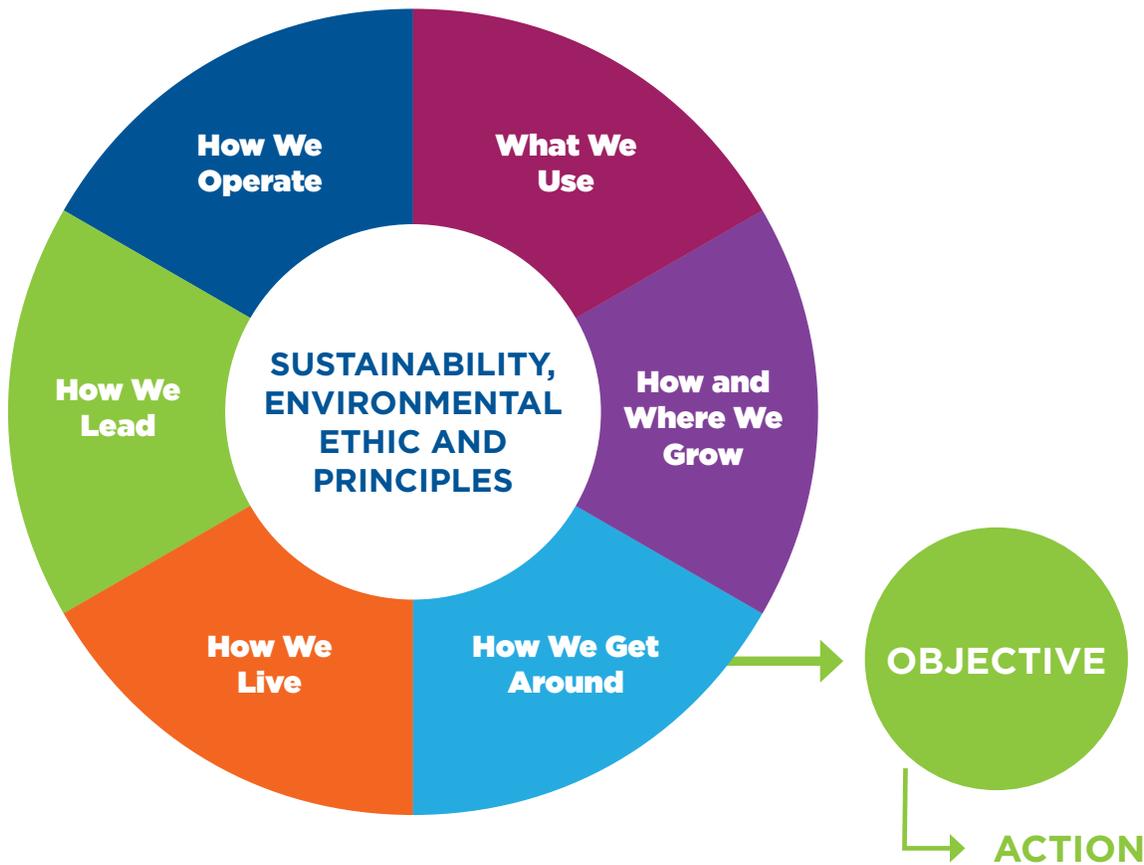
Green Directions Vaughan was first approved by Council in 2009 as the City of Vaughan's (the "City") Community Sustainability and Environmental Master Plan (the "Plan"). This long-term Plan guides the community to a more sustainable future by addressing environmental, cultural, social and economic values. It influences all aspects of the City's operational and regulatory activities. Green Directions Vaughan also serves as an Integrated Community Sustainability Plan and is recognized by the Federation of Canadian Municipalities as a platform to request federal funding.

Guided by a definition of sustainability, environmental ethic and a set of principles, Green Directions Vaughan outlines the City's approach to maintaining a healthy natural environment, vibrant communities and a strong economy by defining six goal areas.

The goal areas are further broken down into objectives and sustainability actions. These sustainability actions enable Vaughan to remain a complete community where the needs for daily living are accessible to people of all ages and abilities.

As a living document, the actions and priorities in Green Directions Vaughan have evolved since 2009. Some of the main changes to the new Plan include :

- Emphasizing community collaboration to achieve sustainability outcomes
- Describing the sustainability actions as outcomes so that the public and stakeholders can more easily gauge how we are doing and find ways to collaborate for success
- Aligning sustainability actions to the United Nations Sustainable Development Goals and the World Council on City Data framework
- Recognizing the importance of the Agricultural System and supporting urban-agriculture and local food opportunities within the City
- More attention to climate change mitigation and adaptation efforts to create a resilient City and low carbon economy
- Developing a milestone approach for the governance of Green Directions Vaughan to measure progress on the sustainability actions laid out in the Plan



To develop new sustainability actions, an engagement strategy was used that included:

- Interviews with partners and stakeholders
- A workshop for members of the public (to imagine what a sustainable Vaughan looks like to them)
- An online survey called “All Our Ideas” for rating ideas and suggesting new ones
- Invitations to provide input through email or phone
- A Technical Advisory Committee made up of staff to review and approve sustainability actions

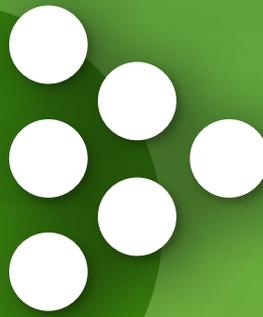
Critical sustainability themes were also used to select and describe actions for the new Plan:

- Climate Resiliency
- Energy
- Mobility
- Green Infrastructure
- Water
- Waste
- Green Economy
- Complete Communities
- Greenspace
- Health
- Diversity
- Governance
- Engagement
- Partnerships

INFOGRAPHICS WILL BE BUILT OUT BASED ON SUMMER ENGAGEMENT + CONSULTATION DATA

The new Plan, Green Directions Vaughan 2019, describes the City’s environmental and sustainable priorities and outlines a new set of sustainability actions that will guide the City of Vaughan to help achieve a healthy natural environment, vibrant communities and a strong economy. Residents and businesses should be able to clearly see the positive impacts of Green Directions Vaughan. We look forward to collaboration in the community on these shared goals.

**GREEN
DIRECTIONS**
VAUGHAN



CHAPTER 2
INTRODUCTION



Integrating Sustainability into City Business

Green Directions Vaughan is the City of Vaughan's (the "City") community sustainability plan (the "Plan"). The sustainability actions in this Plan relate to many operational functions delivered by the City. Green Directions Vaughan recognizes the leadership role of various City departments in building an environmentally sustainable City.

A main rationale of the first iteration of Green Directions Vaughan (GDV 2009) was to integrate sustainability into the core functions of the City under the primary responsibility of City departments. This is being carried over into the revised Plan, Green Directions Vaughan 2019 (GDV 2019), to promote sustainability in the decision-making process as "a matter of doing business". The following two additional motivations guided the revisions of this Plan:

- Describing the sustainability actions as outcomes to better track progress
- Acknowledging the need of community partners to collaborate on sustainability actions

Success of the sustainability actions relies on local collective action that involves residents, community groups, environmental organizations, businesses, industry leaders, and other levels of government. Working together increases the chance to succeed in creating a sustainable Vaughan. The City recognizes that to achieve our goals it will take collaboration and integrated planning, including through participation in individual and neighbourhood-scale actions. The City will continue to form partnerships and build capacity in the local community.



Alignment with City Plans

GDV 2009 was a component of the City's Growth Management Strategy, Vaughan Tomorrow, that included four linked strategic documents: the Strategic Plan (Vaughan Vision 2020), Green Directions Vaughan, the City's Official Plan 2010, and a series of Master Plans. The linkages between these plans are illustrated in Figure 2.1.

Figure 2.1: Master Plan Alignment:

- Transportation Master Plan
- Active Together Master Plan
- Pedestrian and Bicycle Master Plan
- Fire and Rescue Services Master Plan
- Integrated Urban Water Master Plan
- Corporate Asset Management Strategy
- Economic Development and Employment Sectors Study
- Creative Together: Cultural Plan for the City of Vaughan
- Corporate Energy Management Plan
- Municipal Energy Plan
- Long-range Fiscal Planning and Forecast

The Pillars of Sustainability

Some of the current challenges faced by communities are the following:

- native wildlife populations continue to declineⁱ
- climate change impacts have resulted in millions of dollars in clean up and repair for Ontario cities
- declining greenhouse gas emissions are not yet at the pace needed to meet Paris Agreement targets

Let's celebrate some past accomplishments and use this as a springboard for future sustainability action.



Pillars

Vaughan is...

Accomplishments

Social

An engaged and sustainable city



- Approved a Secondary Suites policy as a key part of providing affordable housing options
- Opened five community gardens on City-owned land
- More than 17,000 people participated in the 20-Minute Makeover litter clean-up event each year in 2017 and 2018
- Provide updates, news and events to more than 10,000 followers on Twitter
- Vaughan Earth Hour attracts over 500 residents and contributed to an energy reduction of 3 per cent to 4 per cent in 2017 and 2018
- Opened phase 1 of North Maple Regional Park, part of a 900-acre open space area

Environment

A green city

A low-carbon, resilient city



- Planted 12,000 street trees and park trees in 2017 and 2018, combined
- Revitalizing Edgeley Pond as a key open space area in the Vaughan Metropolitan Centre
- Maintain more than 800 hectares of parks, boulevards and open-spaces
- Identified over 6,000 hectares of natural features in the Natural Heritage Network Study, of which half are secured as publicly-owned lands
- Opened the Vaughan Metropolitan Centre subway station
- Replacing streetlights with LEDs that will save the City about 5,000 megawatt hours of energy annually
- Over 60 energy retrofit projects, including upgrading lights and equipment at community centres and arenas have saved the City more than \$250,000 annually since 2012
- Purchased our first fully electric fleet vehicle and adopted anti-idling technology to reduce pollution and save money
- Maintain more than 250 kilometres of cycling and pedestrian routes
- Introduced a stormwater charge that allows the City to improve stormwater assets and mitigate flooding in response to the impacts of climate change

Pillars

Vaughan is...

Accomplishments

Economic

A prosperous city



- Encourage continued investment in Vaughan by supporting new business opportunities through the Vaughan Business Enterprise Centre
- Commenced construction of the Mackenzie Vaughan hospital
- In 2016, Vaughan was ranked in the top 25 best places for business in Canada by Canadian Business and PROFIT
- Became a founding member of the ClimateWise Business Network to advocate for energy reduction



How Green Directions Vaughan 2019 was Developed

Since the initial Plan was approved in 2009, the City has made a lot of progress thanks to the efforts of City of Vaughan staff, partners, businesses and our citizens. The renewal of Green Directions Vaughan was recognized as a specific initiative in the Term of Council Priority (2014 - 2018), specifically, "To continue to cultivate an environmentally sustainable City". The renewal process has produced this updated document, Green Directions Vaughan 2019, that can be used to inform the Growth Management Strategy, the Official Plan review, and the revision of the long-term strategic plan. This Plan is the result of the following research and consultation effort:

- preliminary revised sustainability actions were drafted from a jurisdictional scan, policy review, and extensive internal departmental consultations
- a community engagement effort, including over 40 stakeholder meetings, a public event held on November 29, 2017, and a "wiki" survey ("All Our Ideas") made available to residents
- the finalization of the sustainability actions was overseen by an internal Technical Advisory Committee

About this Plan

Introduction

These introductory sections of GDV 2019 describe the approaches to sustainability guiding this Plan, with a particular focus on the UN Sustainable Development Goals.

Guiding Principles & Sustainability

Resilience

Models of Sustainability

What we Heard

The community engagement effort informed the revised sustainability actions. Public comments and stakeholder consultation are summarized here.

Sustainability Actions

The “green directions” are listed in the Goals, Objectives, and Actions framework.

Governance

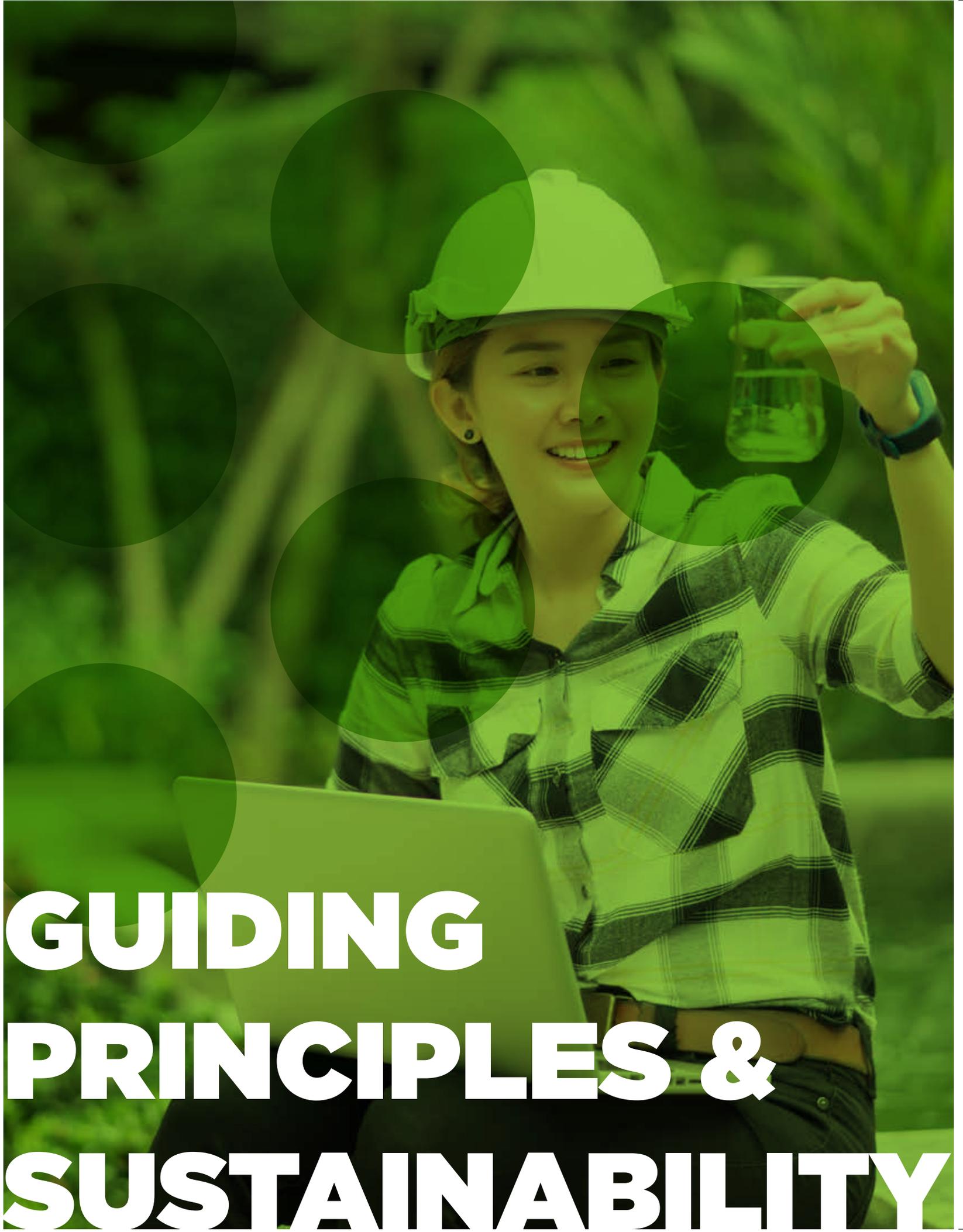
Indicators

Best Practices

Implementing Green Directions Vaughan and tracking progress is described through the governance framework, use of quantitative indicators, and an understanding of relevant best practices.



iii. World Wildlife Fund Canada. 2017. Living Planet Report Canada, 2017. Toronto, Ontario. https://assets.wwf.ca/downloads/WEB_WWF_REPORT.pdf



GUIDING PRINCIPLES & SUSTAINABILITY



Green Directions Vaughan 2009 established a sustainability statement, environmental ethic and governing principles that remain in place today. The definition of sustainability reflects a breadth of municipal responsibilities and sets expectations for City of Vaughan (the “City”) decisions and practices. The sustainability statement, ethic and governing principles are carried forward in the revised community sustainability plan, Green Directions Vaughan 2019 (“GDV 2019” or the “Plan”).

The City leads by the following definition:

Sustainability means we make decisions and take actions that ensure a healthy environment, vibrant communities and economic vitality for current and future generations.

In pursuit of sustainability, the City will be guided by the following ethic:

In Vaughan we lead by example as responsible stewards of our community. Our decisions entail determining the impact of our actions on the environment, weighing the social and cultural consequences and understanding any financial implications. Our actions will enhance both the natural, socio-economic and built environments.

The City will adhere to the following principles in carrying out the sustainability actions:

- 1. Leadership** We act as advocates for a sustainable future and support positive initiatives emerging from all sectors of society.
- 2. Innovation** We build upon best practices to create “Made-in-Vaughan” solutions to guide our operations and shape our plans and policies.
- 3. Transparency** Our actions are open and traceable; we monitor and report on our progress.
- 4. Accountability** We take responsibility for our actions and we build on past experience.

5. Responsibility Everyone in Vaughan has a role to play in the Plan.

6. Engagement We involve our citizens and partners in decision making.

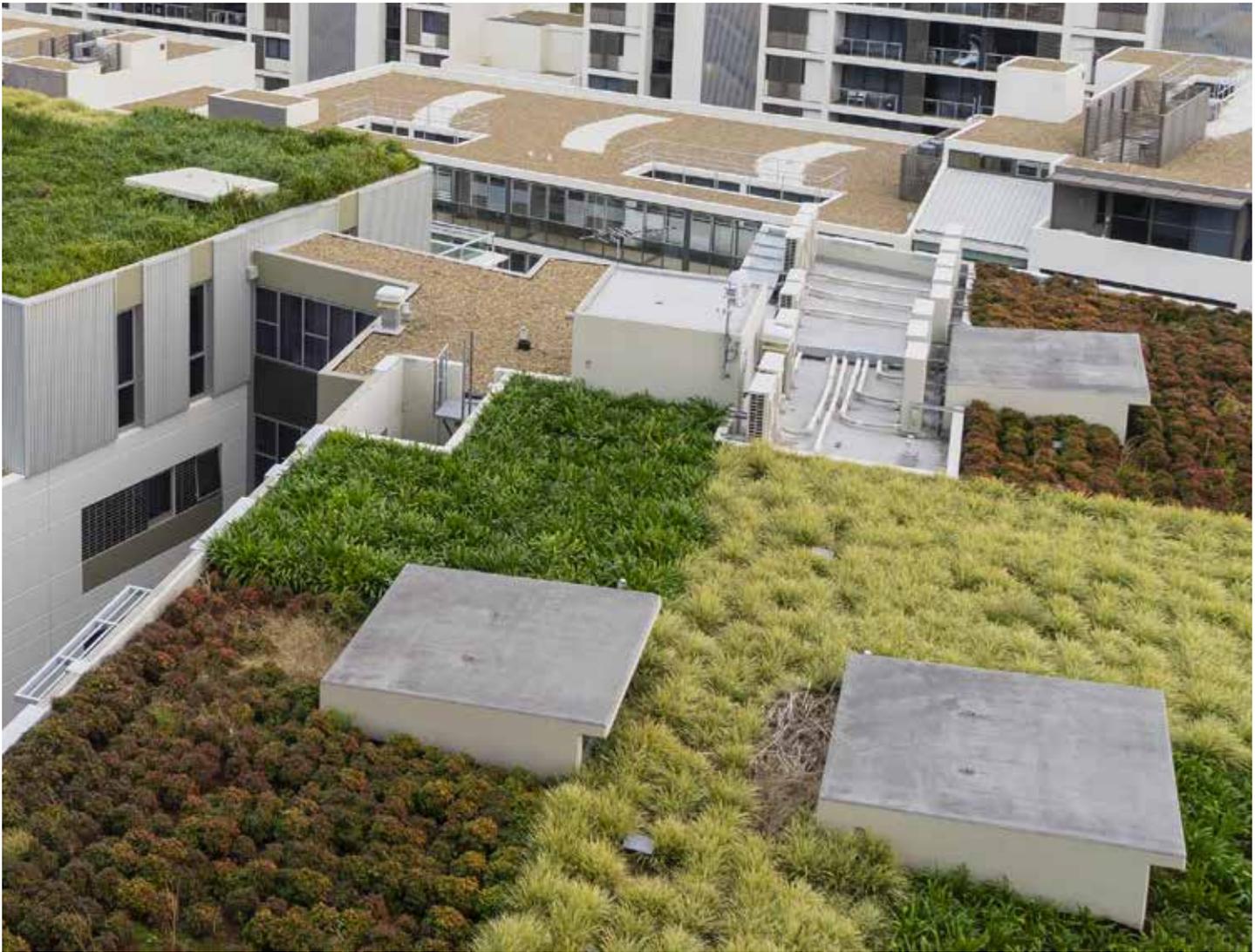
7. Acknowledgment Recognize the traditional territories of the Indigenous peoples who live and have lived in Vaughan.

These principles help achieve a healthy natural environment, vibrant communities and a strong economy. Implementing Green Directions Vaughan is a collective effort by all City departments in collaboration with our citizens and stakeholders. The actions of each department are outlined in a series of six goals, derived from the principles above and can be found in Chapter 6.

Indigenous Land Acknowledgement

We respectfully acknowledge that we are situated on Traditional Territories and Treaty Lands, in particular those of the Mississaugas of the Credit First Nation, as well as the Anishinaabeg of the Williams Treaties First Nations, the Huron-Wendat Nation, and the Métis Nation. As representatives of the people of the City of Vaughan, we are grateful to have the opportunity to work and live in this territory.

At the City we acknowledge the existing treaty rights of the Indigenous peoples of these lands, as we share our air, land and water. We understand the Crown has the Duty to Consult where a decision may adversely impact asserted or established treaty rights. As a lower-tier municipality, we will meet our responsibilities to build and create meaningful relationships and partnerships with Indigenous communities. We acknowledge that the decisions we make today will impact future generations, therefore through Green Directions Vaughan, we will strive to understand Indigenous treaty rights and work together with respect and good faith to protect our natural environment and archaeological resources.ⁱ



Sustainable Development

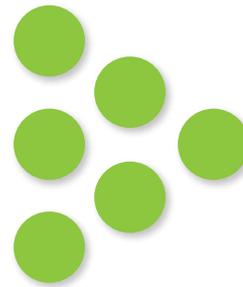
Although the definition of sustainability, environmental ethic and operating principles continue to guide the new Plan, the City has aligned the revision of the sustainability actions in this Plan with the United Nations Sustainable Development Goals and the World Council on City Data. Refer to Appendix A for a description of additional models of sustainability, including the ICLEI Montreal Commitment and Action Plan 2018-2021, Melbourne Principles for Sustainable Cities and The Natural Step, that help guide the actions in this Plan.

United Nations Sustainable Development Goalsⁱⁱ

In 2015, the United Nations (UN) announced the 2030 Agenda for Sustainable Development, which introduced 17 Sustainable Development Goals (SDGs) and 169 targets. The SDGs aim to encourage critical action over a period of 15 years in the three key pillars of sustainable development: economic, social, and environmental.

As the City's community sustainability plan, GDV 2019 establishes principles of sustainability and guides the City towards sustainable decisions and actions. Through the successful implementation of GDV 2019, the City contributes to the achievement of the following SDGs and targets :

GREEN DIRECTIONS VAUGHAN



SDG 2
End hunger



SDG 3
Ensure healthy lives and promote well-being



SDG 6
Sustainable water and sanitation for all



SDG 7
Access to affordable, reliable, sustainable and modern energy for all



SDG 8
Promote sustained, inclusive and sustainable economic growth



SDG 9
Build resilient infrastructure



SDG 11
Sustainable cities and communities



SDG 12
Ensure sustainable consumption and production patterns



SDG 13
Take urgent action to combat climate change



SDG 15
Protect ecosystems and halt biodiversity loss

World Council on City Dataⁱⁱⁱ

The City of Vaughan joined the World Council on City Data (WCCD) in 2011, becoming only the second Canadian city to join. The WCCD provides a global platform for standardized City data and acts as a hub to help strengthen partnerships across cities, international organizations, corporate partners, and academia. Standardized indicators and membership with the WCCD enables the City to assess its performance, measure progress toward the UN SDGs, and draw comparative lessons from other cities both locally and globally.

WCCD was established to globally operationalize ISO 37120 Sustainable Development of Communities: Indicators for City Services and Quality of Life standard

– the first international standard on metrics for sustainable cities and open data. ISO 37120 includes 100 indicators, which are structured around the following 17 themes: economy, education, energy, environment, finance, fire and emergency response, governance, health, recreation, safety, shelter, solid waste, telecommunications, transportation, urban planning, wastewater, and water and sanitation.

The International Organization for Standardization (ISO)^{iv} is a non-governmental organization that publishes international standards and brings together experts to share knowledge and support innovative solutions to global challenges.

Resilience and Smart Cities are described in more detail in Chapter 4.



- i. City of Vaughan. 2017. Aboriginal Territorial Acknowledgement. Item 10, Report No. 21, of the Committee of the Whole, which was adopted without amendment by the Council of the City of Vaughan on June 5, 2017. http://www.vaughan.ca/council/minutes_agendas/AgendaItems/CW0523_17_10.pdf
- ii. United Nations Sustainable Development Goals. <https://sustainabledevelopment.un.org/?menu=1300>
- iii. World Council on City Data. <https://www.dataforcities.org/>





RESILIENCE AND SMART CITIES



RESILIENCE

Ability to:

- absorb change while maintaining function.
- bounce back from shocks and stresses.

CLIMATE CHANGE

MITIGATION

Deals with the **causes** of climate change by reducing GHG emissions.

ADAPTATION

Deals with the **impacts** of climate change; how to absorb changes.

According to the World Economic Forum's 2019 Global Risks Report, extreme weather events, natural disasters and failure of climate mitigation and adaptation appear in the top five for both the most impactful risks and most likely risks.ⁱⁱ

Resilience

Resilience encompasses two important components: first, the ability of a system to absorb changes while maintaining regular function, and second, its ability to recover quickly from shocks or stresses. This term is often used in the context of climate change; cities must become resilient to the impacts of climate changeⁱ.

The local impacts of climate change that will affect Ontario, and may impact Vaughan, includeⁱⁱ:

- More frequent extreme weather events
- More frequent water usage alerts, as summer temperatures and evaporation rates increase
- Greater risks to public health from injury, illness and premature death from climate-related events such as extreme weather, heat waves, smog and the spread of diseases
- Damage to Ontario's ecosystems, through the combined influence of changing climate, human activities and natural disturbances like fire, outbreaks of insects and disease

From a global perspective, floods, hurricanes, tsunamis, extreme heat, drought, rising sea levels and habitat loss are significant impacts of climate change.

Cities are on the frontline when it comes to both contributing to and facing the impacts of climate change. Cities consume over two-thirds of the world's energy and are responsible for over 70 per cent of global CO₂ emissionsⁱⁱⁱ. More than half of the world's population lives in cities, and by 2050 this figure will rise to about 75 per cent. Given the increased population in cities, the impacts of climate change on cities are and will continue to be a key component of any solution to the climate change problem.

Ontario continues to see a rise in climate-related extreme weather events; in 2018 it resulted in over \$1.2 billion in insured losses^{iv}. Climate change impacts put more stress on the health system and municipal infrastructure such as roads, stormwater systems and urban trees. A proactive approach that invests in building a resilient city helps reduce costs in the long-term. Cities can better ensure financial sustainability by integrating resiliency into planning and development.

Green Resilience^v

Green resilience solutions contribute to both mitigation, by reducing greenhouse gas (GHG) emissions, and adaptation, by better protecting against climate change impacts. Such strategies have additional co-benefits to human health, the natural environment, and cost savings. Green resilience projects can be large or small, helping to build momentum for climate action and accelerate implementation and potential for scale-up.

The City, businesses and residents need to ramp up efforts to make Vaughan more resilient to the impacts of climate change. To better understand how Vaughan is becoming resilient, the theme of climate resiliency has been assigned to sustainability actions outlined in Chapter 6.

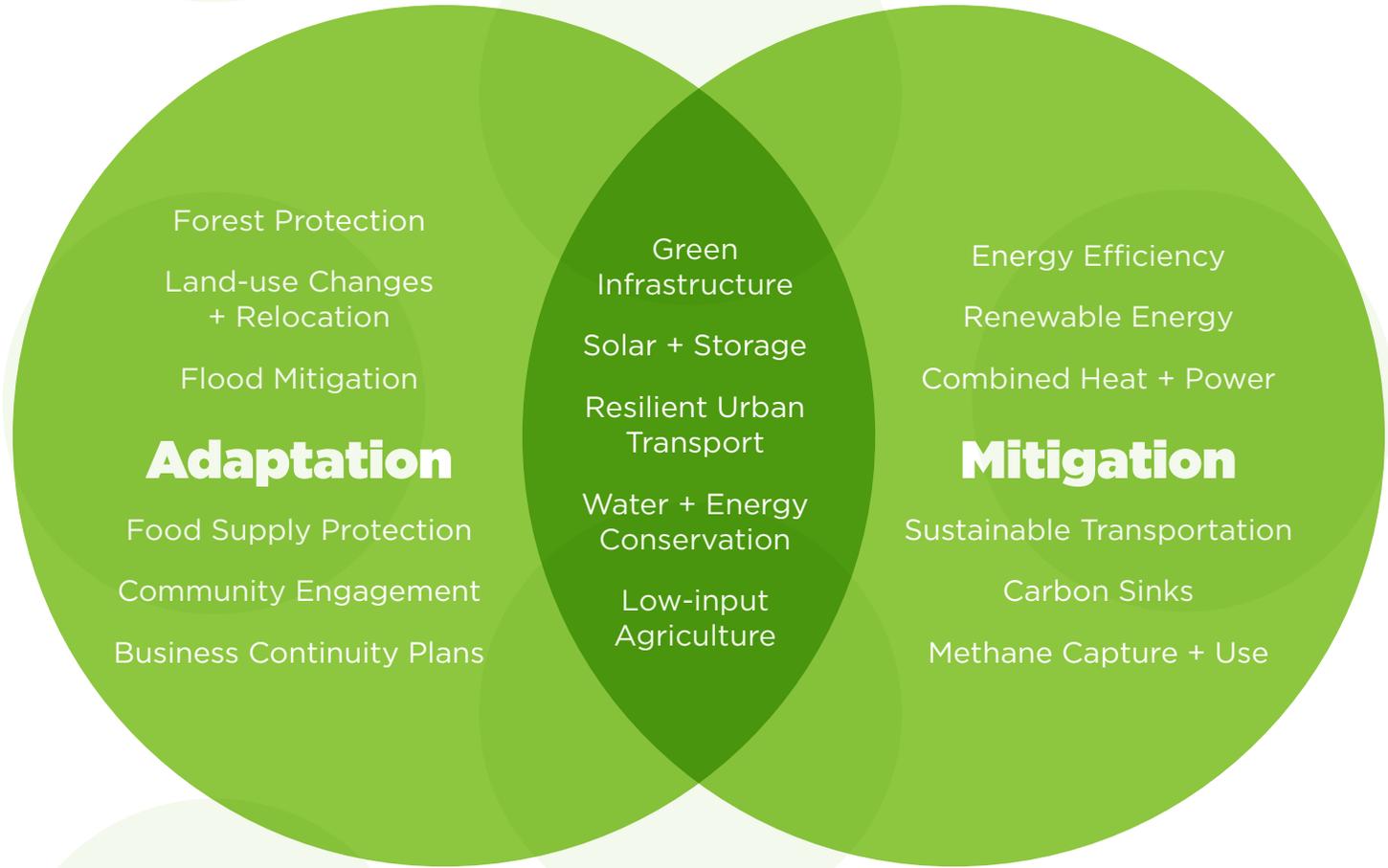


Figure 4.1 highlights green resilience actions compared to adaptation and mitigation only.

Smart Cities

What is a Smart City? While there are numerous definitions, the International Organization for Standardization (ISO) defines a Smart City as one that increases the pace at which it provides social, economic, and environmental sustainability outcomes. A Smart City enhances mobility, safety, communication, economy, the environment, standard of living and governance. Key elements include the use of technology and data, an emphasis on collaboration and partnerships, citizen engagement, sharing and a focus on sustainability and resilience.

Data is integral to Smart Cities. As a member of the World Council on City Data (WCCD), the City of Vaughan is helping to spearhead and lead the efforts on open data. The City of Vaughan has engaged in international benchmarking to identify common issues and themes, to learn and share best practices with cities globally and to increase economic development.

The City of Vaughan is planning to launch a Smart City Office and Task Force that will foster and develop key relationships with Smart City leaders in Canada and abroad. Their mandate will focus on increasing awareness internally and externally and developing strategic Smart City opportunities and partnerships. The office will work to realize business development and City service opportunities benefitting customers, the performance of the City, and the community and economy at-large. The Mayor of Vaughan and Members of Council will continue to engage, collaborate and co-create with the community through the Smart City Advisory Task Force^{vii}.

- i. World Economic Forum. 2019. Global Risks Report 2019 Executive Summary. <http://reports.weforum.org/global-risks-2019/executive-summary/>
- ii. Environmental Commissioner of Ontario. 2018. Climate Action in Ontario: What's Next. 2018 Greenhouse Gas Progress Report. <https://eco.auditor.on.ca/our-reports/climate-change/>
- iii. C40 Cities. <https://www.c40.org/>
- iv. Insurance Bureau of Canada. November 2018. Press Release. <https://www.newswire.ca/news-releases/insurance-bureau-of-canada-supports-ontario-governments-environment-plan-701634532.html>
- v. Winkelman, S., Nichol, E., and Harford, D. 2017. Taking Action on Green Resilience: Climate Change Adaptation and Mitigation Synergies. Workshop Conclusions: Livable Cities Forum Pre-Event. http://act-adapt.org/wp-content/uploads/2017/11/ACT_ALTGR_Web4.pdf
- vi. World Council on City Data. <https://www.dataforcities.org/>
- vii. City of Vaughan. 2016. Creating a Smart City of Excellence. Item 21, Report No. 24, of the Committee of the Whole, which was adopted, as amended, by the Council of the City of Vaughan on June 7, 2016. http://www.vaughan.ca/council/minutes_agendas/Extracts/24cw0531_16ex_21.pdf

The WCCD's Global City Registry for ISO 37122 Sustainable Development of Communities: Indicators for Smart Cities, is the first international standard for cities on open data. Under this standard, the City of Vaughan has been a Platinum certified city since 2015, meaning we report on over 90 indicators. This demonstrates our commitment to global efforts for standardized open data.^{vi}

Becoming a recognized Smart City would make Vaughan a more resilient City by being better prepared to respond to the challenges of climate change, population growth, and political and economic trends. As a Smart City, Vaughan can improve how we engage society, collaborate for shared goals, work across disciplines and city systems, and use data information and modern technologies to deliver better services and quality of life.



WHAT WE HEARD





What We Heard

As part of the renewal process to update Green Directions Vaughan, the City undertook a public engagement process to collect feedback from citizens and stakeholders. Over the fall of 2017 and early 2018, IndEco Strategic Consulting Inc. (IndEco) undertook several initiatives to solicit input, including:

- Personal interviews were conducted with existing partners and stakeholders, including Members of Council, representatives from City departments, representatives of higher-tier governments, environmental and other citizen groups, the local regional utility and businesses.
- An open invitation workshop took place on Nov. 29, 2017 at Vaughan City Hall for the public to provide ideas on what they imagine a sustainable Vaughan would look like and proposed actions to bring this vision to reality.
- An online survey, using a tool called All Our Ideas, allowed the public to propose ideas and vote on other submitted ideas to make Vaughan more sustainable. Users were also asked to prioritize various lists of ideas.
- Invitations were posted on the web and through social media to invite the public to provide input through other means, such as by email or telephone.

Metrics :

34,000 online ad impressions for the public workshop and **All Our Ideas** campaign

More than 63,000 social media impressions for the public workshop and **All Our Ideas** campaign

More than 1,200 views on the registration page for the public workshop

More than 100 people visited, the “Have your say” webpage posted on the Environmental Sustainability website

28 meetings with about

70 participants

21 attendees to the

public workshop on Nov. 29, 2017

109

All Our Ideas users on the platform and more than **3,600** votes on ideas



So, what did we hear?

Both internal and external stakeholders expressed interest in continuing to be informed of and involved in the update of Green Directions Vaughan. Some common suggestions to improve communication and education were to:

- Develop internal business plans for the sustainability actions to facilitate a corporate culture of environmental stewardship at the City of Vaughan
- Clearly define how staff responsibilities are allocated and clarify the role of the City's Environmental Sustainability team
- Set specific targets and create indicators to track progress
- Develop Green Directions Vaughan 2019 (the "Plan") with an awareness of what other municipalities are doing to address sustainability
- Establish an internal stakeholder group and a separate external stakeholder group to both inform and implement aspects of the new Plan.

Through the workshop and All Our Ideas platform, IndEco collected suggestions for what to include in the new Plan. One main observation was the need for more education, better communication and increased collaboration and partnerships with community



groups. The preliminary ideas at the public workshop resulted in break-out groups discussing three main themes: transportation, green development, and greenspace and local food. The chart on the following page outlines some of the ideas that we heard to help to create a sustainable Vaughan.

The conclusions and recommendations resulting from the internal and external engagement process were utilized to write a new set of sustainability actions that can be found in Chapter 6.

Category

What We Heard

Energy and Building Standards

- More opportunities for solar generation
- Develop net-zero neighbourhoods
- Promote home retrofit programs
- Integrate green technology into building design

Waste Reduction

- Ban plastic bags
- Go paperless
- Encourage biodegradable and sustainable packaging

Transportation Options

- Provide more bike lanes and bike share opportunities
- Enhance transit services
- Promote electric vehicles and provide more charging stations
- Create “car-free” neighbourhoods
- Encourage carpooling
- Create dedicated bus lanes
- Improve active transportation facilities to promote cycling and walking

Community Amenities

- Build compact, walkable and complete communities
- Provide more community gardens to promote local food
- Create vibrant public spaces
- Encourage a variety of housing types (mixed-use, affordable, secondary suites)

Economic Vitality

- Encourage economic and job growth
- Promote a sharing economy
- Promote financial benefits of sustainable best practices at home and at work
- Lower taxes for homes that are considered eco-friendly

Vibrant Community

- Foster partnerships to educate all generations on sustainability initiatives
- Communicate positive messages and celebrate sustainability accomplishments to motivate people to take action
- Promote inter-generational interaction and engagement
- Create citizen opportunities to achieve sustainability goals

Greenspace and Conservation

- Protect connected and integrated green spaces
- Encourage a healthy urban tree canopy
- Increase connectivity between trails
- Secure land for parks and provide more greenspace for all ages to enjoy



SUSTAINABILITY ACTIONS





Goals – correspond to one of the aspects of a complete city. Goals are general statements of desired achievements, are a more specific expression of Vaughan’s definition of sustainability and guide the direction for the plan. Objectives – describe how the Goals will be achieved. There can be multiple Objectives associated with each Goal. Actions – refer to a task that needs to be completed to achieve the Objective. There can be multiple actions associated with each objective.

Sustainability Actions

The sustainability actions implement the objectives of Green Directions Vaughan 2019 and are described as specific outcomes to be achieved in under five years. A governance framework and a financial framework for each action will track progress. Each action is derived from a goal and a set of objectives identified by City staff, the community and stakeholders. These are shown schematically in Figure 6.1.

What We Use: Goal 1 – To significantly reduce waste and the use of our natural resources.

How and Where We Grow: Goal 2 – To ensure sustainable development and redevelopment.

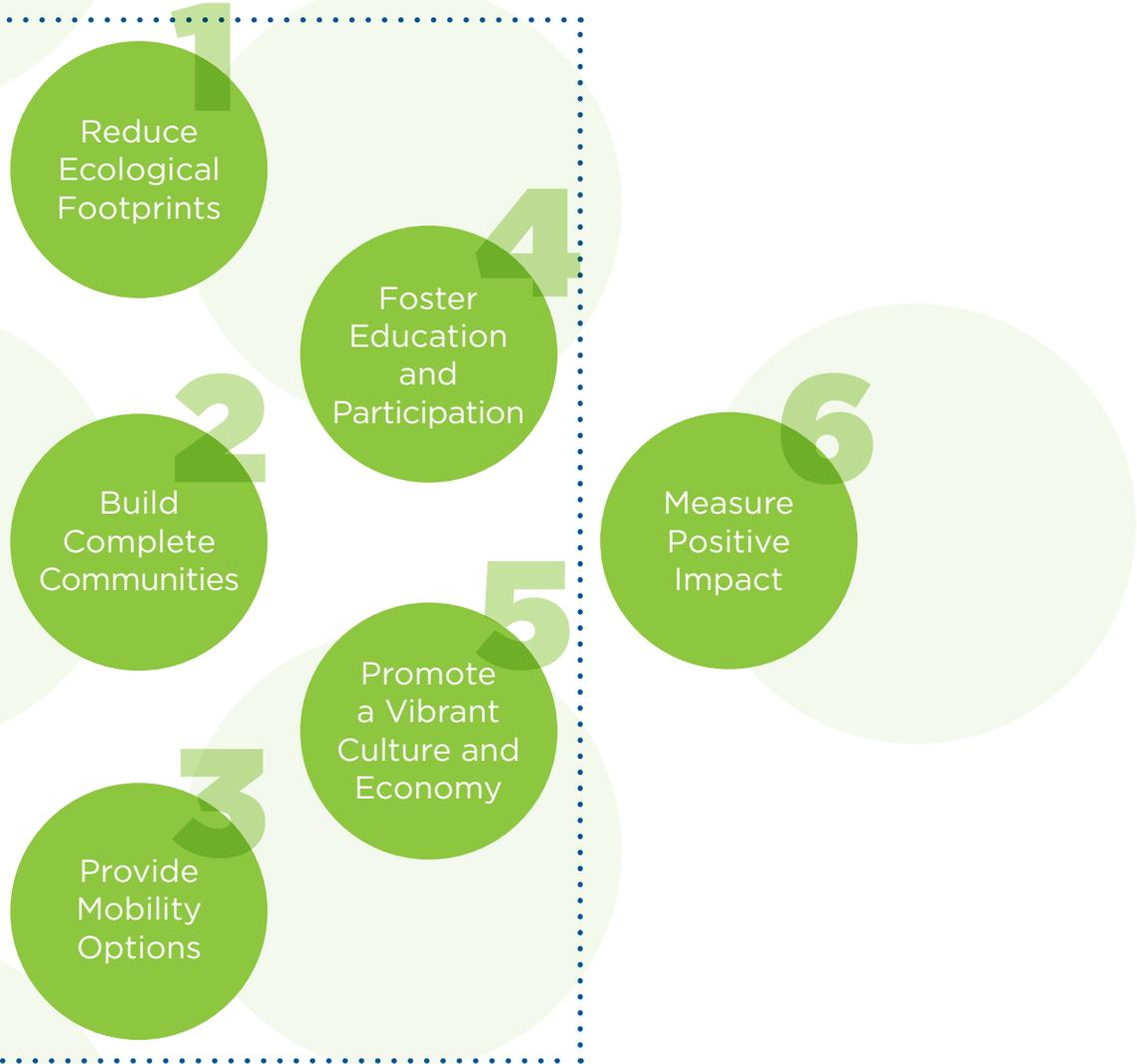
How We Get Around: Goal 3 – To ensure that the City is easy to get around with a low environmental impact.

How We Live: Goal 4 – To create a vibrant community where citizens, businesses and visitors thrive.

How We Lead: Goal 5 – To be leaders in advocacy and education on sustainability issues.

How We Operate: Goal 6 – To ensure a supportive system for the implementation of Green Directions Vaughan.

INDICATORS



The sustainability actions move the City in the direction of the overall vision established through citizen and stakeholder consultation in Green Directions Vaughan 2009. The vision is for the City of Vaughan to be a complete community that meets peoples' needs for daily living throughout an entire lifetime by providing:

- A healthy natural environment, with ample greenspace
- Convenient access to an appropriate mix of jobs and local services and a full range of housing
- Community infrastructure including educational opportunities at all levels, healthcare, socio-cultural activities, recreation and open space
- Mobility, with convenient access to public transit and the opportunity to walk and bike
- An attractive built environment
- Safety and security

Quantitative indicators also assist in tracking progress on the sustainability actions. The image above represents the goal areas of Green Directions Vaughan and demonstrates the five goal areas in which quantitative indicators have been established. For more information on Indicators refer to Chapter 8.





What We Use

Goal 1 To significantly reduce waste and the use of our natural resources

Objective 1.1



To reduce greenhouse gas emissions and move towards carbon neutrality for the City of Vaughan’s facilities and infrastructure

Achievements

Energy efficiency of City assets, and consequent reduced greenhouse gas emissions, is a "leading by example" initiative. Progress to reduce facility energy consumption and the LED streetlight retrofit project follow program efforts in joining Partners for Climate Protection, developing the Corporate Energy Management Plan in accordance with Ontario regulations and implementing an Energy Manager Agreement with Alectra. This objective remains highly relevant considering the latest reports from the Intergovernmental Panel on Climate Change and the Paris Agreement on Climate Change ratified by the federal government.

No.	Department Lead	Sustainability Action	Theme
1.1.1	<ul style="list-style-type: none"> Facility Services Infrastructure Delivery 	Develop an energy conservation fund to verify energy and cost savings from management of corporate assets. Leverage the conservation fund to seek external grants for corporate energy savings and greenhouse gas (GHG) emissions reductions for City facilities, street lights and fleet.	Energy Climate Resiliency
1.1.2	<ul style="list-style-type: none"> Infrastructure Delivery 	Contribute to Ontario’s transformation to clean energy and low carbon communities by implementing the LED street light retrofit project and leverage the experience to evaluate alternative financing of innovative technologies in City facilities and other assets.	Energy Climate Resiliency
1.1.3	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	Implement, maintain and update the Corporate Energy Management Plan as required by regulation and ensure annual energy reporting is publicly available. Updates include: <ul style="list-style-type: none"> Improve City operations in part by improving data tracking to include measures for fleet and water Evaluate the use of energy audits as a tool for tracking and verifying energy consumption and cost savings Evaluate opportunities for external benchmarking, to promote peer-to-peer learning and improve operations 	Energy Climate Resiliency

No.	Department Lead	Sustainability Action	Theme
1.1.4	• Policy Planning and Environmental Sustainability	Implement an electric vehicle (EV) charging policy for City facilities and encourage infrastructure throughout the City to support EVs, alternative fuel vehicles and low-carbon mobility.	Energy Mobility Climate Resiliency
1.1.5	• Fleet Services	Update and implement the “Green Fleet Strategy” to optimize fleet use and vehicle type, identify fuel switching for low carbon mobility and minimize environmental impacts.	Energy Climate Resiliency

Objective 1.2 To promote the reduction of community greenhouse gas emissions in the City of Vaughan.



Achievements

Changes to Provincial legislation and policy direction make climate change a matter of Provincial interest. While approval of the Municipal Energy Plan in 2016 is a key accomplishment in support of the Province’s direction towards low carbon communities, actual outcomes in the community require additional effort. The City of Vaughan is a founding member of the ClimateWise Business Network, an agency working with individual businesses in York Region to implement greenhouse gas reduction plans.

No.	Department Lead	Sustainability Action	Theme
1.2.1	• Policy Planning and Environmental Sustainability	Encourage alternative energy generation and distributed energy (community-based energy solutions) by businesses and citizens, by: <ul style="list-style-type: none"> identifying partnership opportunities with business, industry, utilities and agencies to reduce carbon emissions and/or reduce peak electricity loads, reviewing City by-laws to minimize, where appropriate, obstacles to the development of alternative energy sources and, where regulation is necessary, develop the necessary standards, and providing access to education about alternative financing mechanisms and grants to support community-based energy solutions. 	Energy Climate Resiliency Green Economy
1.2.2	• Policy Planning and Environmental Sustainability	Examine the feasibility of requiring Community Energy Plans for all major developments and redevelopment projects, including Secondary Plans, Block Plans and applications for significant development (as defined in the VOP 2010). Identify ways that Community Energy Plans can focus on implementation issues such as agency approvals, regulatory requirements and financing mechanisms.	Energy Climate Resiliency

No.	Department Lead	Sustainability Action	Theme
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1.2.3 • Policy Planning and Environmental Sustainability

In support of the Municipal Energy Plan, identify and work with partners to evaluate the community's greenhouse gas emissions and establish Vaughan as a smart energy community.

Energy
Climate Resiliency
Governance

Report on progress to implement the Vaughan Municipal Energy Plan, including:

- reporting on program actions and indicators, including appropriate third-party verification,
- highlighting key achievements,
- revising the Municipal Energy Plan, as needed, to achieve GHG reductions to reflect climate targets, policy changes, technological developments, and the role of carbon offsetting, and
- promoting utility-sponsored energy efficiency and conservation programs.

1.2.4 • Policy Planning and Environmental Sustainability

Undertake a feasibility study for the program administration of Local Improvement Charges to support energy conservation retrofits and/or renewable energy generation in private buildings.

Energy
Climate Resiliency



Objective 1.3



To support enhanced standards of stormwater management and water conservation at City facilities, and work with others to care for Vaughan's watersheds.

Achievements

The Stormwater Charge is a key accomplishment to promote appropriate maintenance of stormwater assets. Watershed planning has more prominence in the Growth Plan 2017. In addition, the Province's stormwater management guidelines place more emphasis on a treatment train approach to managing stormwater through measures such as low impact development and other forms of green infrastructure.

No.	Department Lead	Sustainability Action	Theme
1.3.1	<ul style="list-style-type: none"> Transportation Services, Parks and Forestry Operations 	Identify best management practices to minimize salt use on hard surfaces and protect receiving watercourses from salinity increases.	<p>Water</p> <p>Green Infrastructure</p>
1.3.2	<ul style="list-style-type: none"> Environmental Services Bylaw and Compliance, Licensing and Permit Services 	In support of water quality objectives, establish a water quality monitoring program for stormwater management assets.	<p>Water</p> <p>Green Infrastructure</p>
1.3.3	<ul style="list-style-type: none"> Infrastructure Planning and Corporate Asset Management; Policy Planning and Environmental Sustainability 	Identify stormwater management initiatives to protect and regenerate key watershed functions including the regulation of water quantity, the regulation of water quality and temperature, sediment and erosion control, hydrologic connectivity and habitat provision. Stormwater management will be informed by watershed planning and long-term land use planning and development forecasts.	<p>Water</p> <p>Green Infrastructure</p>
1.3.4	<ul style="list-style-type: none"> Development Engineering 	<p>Integrate climate change considerations into guidelines for flood control and stormwater management by:</p> <ul style="list-style-type: none"> Revising the Engineering Design Standards to incorporate low impact development and a treatment train approach to stormwater management. Incorporating Provincial requirements to have regard for climate change in Environmental Assessments. 	<p>Water</p> <p>Green Infrastructure</p> <p>Climate resiliency</p>

No.	Department Lead	Sustainability Action	Theme
1.3.5	• Environmental Services	<p>Continue to work with York Region in support of water conservation (Water for Tomorrow program), including:</p> <ul style="list-style-type: none"> • Optimizing water, sewer and stormwater infrastructure, • undertaking life cycle assessment of infrastructure, and • promoting specific measurable actions such as water-efficient landscaping and rainwater harvesting. 	<p>Water Green Infrastructure</p>
1.3.6	<ul style="list-style-type: none"> • Environmental Services • Development Engineering 	<p>Encourage low impact development and a treatment train approach to stormwater management through the development review process and by implementing and monitoring a stormwater rate program, including the technical and community engagement aspects and innovative pilot initiatives.</p>	<p>Water Green Infrastructure Climate resiliency</p>
1.3.7	• Facility Services	<p>Improve tracking of potable water use at City facilities to identify conservation opportunities and best practices, and in conjunction with the corporate energy management strategy.</p>	<p>Water Energy</p>



Objective 1.4

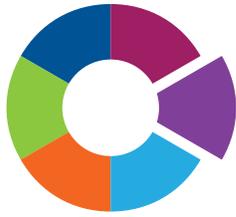


To reduce the amount of waste generated in City owned facilities and by Vaughan citizens, business and institutions, and procure sustainable products for the City's use.

Achievements

While waste diversion at City facilities has improved, it lags behind the waste diversion efforts in the broader community. Exploring changes to the City's procurement approach can promote a variety of key sustainability initiatives by including requirements of bids and proposals, such as improved waste diversion and attention to recycled and reclaimed content guidelines.

No.	Department Lead	Sustainability Action	Theme
1.4.1	<ul style="list-style-type: none"> Facility Services 	Improve waste diversion at City facilities by undertaking waste audits and waste reduction work plans in conformity with provincial legislation.	Waste
1.4.2	<ul style="list-style-type: none"> Facility Services Recreation Services 	Promote specific waste diversion initiatives in City facilities through staff education and engagement as informed by waste audits. Evaluate specific waste reduction measures in contracts, vendor agreements, and through a digital strategy to reduce paper use.	Waste Engagement Climate Resiliency
1.4.3	<ul style="list-style-type: none"> Facility Services 	Report annually on the amount of waste generated at City assets and track progress in achieving waste reduction and/or diversion such as through a review and improvement of waste management contracts.	Waste Governance
1.4.4	<ul style="list-style-type: none"> Procurement 	As a component of procurement modernization, develop green procurement guidelines that departments must consider when developing Bid documents.	Waste Governance Green Economy
1.4.5	<ul style="list-style-type: none"> Environmental Services 	Explore innovative community programs to further improve waste diversion from landfills, such as textile recycling.	Waste Climate Resiliency
1.4.6	<ul style="list-style-type: none"> Development Engineering 	Address Provincial policies regarding excess soil management and fill placement.	Waste
1.4.7	<ul style="list-style-type: none"> Infrastructure Planning and Corporate Asset Management 	Review and implement selected best practices for transportation infrastructure construction and maintenance to reduce material use, improve material re-use and recycling, improve energy efficiency, reduce greenhouse gas emissions and improve life cycle costs among other sustainability performance objectives.	Waste Climate Resiliency



How and Where We Grow

Goal 2 To ensure sustainable development and redevelopment

Objective 2.1



To ensure a climate resilient City and build capacity for local action on climate change

Achievements

This new objective has a focus to develop a City-wide climate adaptation plan. The effort will align with corporate asset management and build on the completion of a vulnerability and risk assessment of the City's stormwater assets.

No.	Department Lead	Sustainability Action	Theme
2.1.1	<ul style="list-style-type: none"> Infrastructure Planning and Corporate Asset Management Policy Planning and Environmental Sustainability 	Build on the climate change risk assessment of stormwater assets to undertake a climate change adaptation and risk assessment for all City assets. Ensure existing risk assessment frameworks are considered, such as for water operations. Incorporate the climate adaptation assessment into all City master plans to inform life cycle assessment, engineering design standards, asset management and financial planning.	Climate Resiliency
2.1.2	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	Promote green infrastructure (e.g., street trees, storm ponds, LIDs, woodlands, pollinator habitat, etc.) to build resilience and mitigate the effects of climate change. Revise green infrastructure design standards, as needed, for climate adaptation.	Climate Resiliency Green Infrastructure Greenspace
2.1.3	<ul style="list-style-type: none"> Emergency Planning 	Continue to investigate climate change risk to citizen health and review the Hazard Identification Risk Assessment and its impact on the community.	Climate Resiliency Health



Objective 2.2



To develop Vaughan as a complete community with maximum greenspace and urban form that supports our expected population growth.

Achievements

The launch of the North Maple Regional Park, the Humber Walk, the Service Excellence Strategy initiative to re-establish the urban tree canopy, and the City's community gardens represent City achievements in support of this objective. Issues such as complete streets, alignment with the objectives of health agencies around the theme of "ecohealth", and attention to green infrastructure asset management are elements of this objective.

No.	Department Lead	Sustainability Action	Theme
2.2.1	<ul style="list-style-type: none"> Transportation Services, Parks and Forestry Operations 	Manage and improve the urban forest, including increasing overall canopy cover, as an important element of green infrastructure and a critical asset of the City that is a community amenity, improves the health of residents, and provides ecosystem services.	Greenspace Green Infrastructure Health
2.2.2	<ul style="list-style-type: none"> Parks Development Real Estate Services Legal Services Policy Planning and Environmental Sustainability 	Develop and implement a land securement strategy for parks, trails, natural heritage, stormwater management ponds, low impact development installations, and community facilities. Inventory the achievements as green infrastructure assets, as appropriate.	Greenspace Green Infrastructure Health
2.2.3	<ul style="list-style-type: none"> Transportation Services, Parks and Forestry Operations 	Develop a natural heritage stewardship and restoration strategy that seeks to improve greenspace as community amenities, ecological connectivity, habitat condition for wildlife (including through invasive species management) and ecosystem services.	Greenspace



Objective 2.3



To create a city with sustainable built form that is compact, resilient and designed to promote citizen health.

Achievements

The City-wide Streetscape Implementation Manual, Secondary Suites policy and Sustainability Performance Metrics are accomplishments in support of sustainable built form. Changes to the Municipal Act and Ontario Building Code point to a more integrated approach to resilient infrastructure and urban development with lower ecological footprints.

Vaughan participated in Enbridge's Savings by Design program for two New Community Areas - Blocks 27 and 41, with the aim to reduce greenhouse gas emissions and achieve energy efficiency.

No.	Department Lead	Sustainability Action	Theme
2.3.1	• Development Planning	Implement the Sustainability Metrics as a component of the development review process to measure incremental sustainability improvements with each development application.	Complete Communities Green Economy
2.3.2	• Policy Planning and Environmental Sustainability	Ensure that a mix of housing types and tenures are provided in Vaughan and that housing affordability is a consideration in planning consistent with Section 7.5 Housing Options of VOP 2010 and York Region's Housing Strategy. Consider implementation of the incentives identified in the York Region Rental Housing Incentives Guideline.	Complete Communities
2.3.3	• Building Standards	Develop policies, guidelines, by-laws or other implementation tools that support the construction of net zero carbon buildings.	Energy Climate Resiliency
2.3.4	• Facility Services • Infrastructure Delivery	Implement a corporate green building policy to ensure LEED certification and to achieve specific performance standards for energy conservation, water conservation, commissioning and electric vehicle support, including training for operations and maintenance to ensure ongoing high performance.	Energy Water Climate Resiliency
2.3.5	• Development Planning	Evaluate the use of a development application submission related to health and community wellbeing.	Health Complete Communities
2.3.6	• Environmental Services	Implement inflow and infiltration (I&I) reduction actions to preserve City assets and reduce wastewater and consequent energy consumption.	Water Energy
2.3.7	• Infrastructure Delivery	As a "leading by example" initiative, support a treatment train approach to stormwater management and low impact development at an overall site scale, including through a parking strategy and green parking lot design for City facilities.	Green Infrastructure Water



How We Get Around

Goal 3 To ensure that the City is easy to get around with a low environmental impact

Objective 3.1



To develop and sustain a network of sidewalks, paths and trails that supports all modes of non-vehicular transportation.

Achievements

The City has made progress in the creation of off-road paths and trails and the Pedestrian and Cycling Strategy update is underway. Active transportation is highlighted in the Growth Plan 2017 and has important co-benefits related to improving health and social cohesion.

No.	Department Lead	Sustainability Action	Theme
3.1.1	<ul style="list-style-type: none"> Infrastructure Planning and Corporate Asset Management Parks Development 	Undertake the Pedestrian and Cycling Strategy to update the Pedestrian and Bicycle Master Plan, identify priority initiatives and set out a 5-year implementation framework.	Mobility Complete Communities
3.1.2	<ul style="list-style-type: none"> Development Planning; Infrastructure Planning and Corporate Asset Management Infrastructure Delivery 	Plan and implement a complete streets framework and guidelines to create a safe and attractive environment for all modes of transportation.	Mobility Complete Communities
3.1.3	<ul style="list-style-type: none"> Transportation Services, Parks and Forestry Operations 	Maintain non-vehicular networks, such as pedestrian and cycling pathways to support active transportation and enhance safety, accessibility and adaptability.	Mobility Complete Communities Health
3.1.4	<ul style="list-style-type: none"> Parks Development Development Planning 	Plan and implement a recreational trail network in proximity to residential communities that is accessible, desirable, safe, and which promotes outdoor active lifestyles for current and future populations.	Mobility Complete Communities Health

Objective 3.2



To develop and sustain a network of roads that supports efficient and accessible public and private transit.

Achievements

The Province has made significant investments in transit infrastructure in Vaughan that will continue for several more years. The transit hierarchy in the Growth Plan 2017 creates the opportunity for more transit-supportive development, complete streets and compact communities.

No.	Department Lead	Sustainability Action	Theme
3.2.1	<ul style="list-style-type: none"> Infrastructure Planning and Corporate Asset Management 	Develop a framework for first-mile, last-mile initiatives to promote transit use.	Mobility Complete Communities
3.2.2	<ul style="list-style-type: none"> Development Engineering Development Planning Infrastructure Delivery 	Implement a fine grain network of streets and block lengths to allow pedestrians, cyclists, transit vehicles, automobiles and goods and services vehicles to move efficiently, in accordance with City Official Plan and Master Plans.	Mobility Complete Communities

Objective 3.3



Reduce single occupant vehicle (SOV) trips by supporting active transportation, car pooling and public transit.

Achievements

The revised Transportation Master Plan has integrated options for transportation demand management and reduced parking rates are in effect in the VMC, reflecting City efforts under this objective. Reducing single occupancy vehicles remains an important outcome to improve commuter mobility and goods movement. Shared mobility options, micro-transit and driverless vehicles are not specifically noted in the action plans in Green Directions Vaughan 2019, but are being evaluated as part of the Transportation Master Plan update.

No.	Department Lead	Sustainability Action	Theme
3.3.1	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	Review and revise an Employee Trip Reduction/Active Transportation Strategy for City staff.	Engagement Climate Resiliency
3.3.2	<ul style="list-style-type: none"> Infrastructure Planning and Corporate Asset Management 	Collaborate with York Region and seek community partners to implement transportation demand management initiatives to reduce traffic congestion and promote transit and active transportation.	Mobility Climate Resiliency
3.3.3	<ul style="list-style-type: none"> Transportation Services, Parks and Forestry Operations 	Collaborate with the School Boards and York Region Public Health to engage schools to participate in the Active School Travel Program.	Mobility Health



How We Live

Goal 4 To create a vibrant community where citizens, businesses and visitors thrive

Objective 4.1



To foster a city with strong social cohesion, an engaging arts scene, and a clear sense of its culture and heritage.

Achievements

The YMCA joint venture, the VMC Culture and Public Art Strategy and City-wide Public Art Policy implemented through specific programs and events, the development of the City-wide Urban Design Guidelines and the Older Adult Strategy represent progress towards this objective.

No.	Department Lead	Sustainability Action	Theme
4.1.1	• Recreation Services	Implement the Active Together Master Plan to address and promote health and wellness.	Health Greenspace Complete Communities
4.1.2	• Economic & Cultural Development	Develop a public art advisory panel with the mandate to increase support and promote arts and culture in Vaughan during the 2018-2022 Term of Council.	Diversity Complete Communities
4.1.3	• Development Planning	Prioritize maintenance and conservation of cultural heritage resources including archaeological sites, cultural heritage landscapes, built heritage resources and unique assets. Consider an engagement strategy to educate staff and residents on heritage resources in the City.	Green Infrastructure Complete Communities
4.1.4	• Development Planning	Prioritize placemaking and promote social cohesion through creating a well scaled, well connected city with a focus on fostering public art and culture.	Diversity Complete Communities
4.1.5	• Recreation Services	Track and increase partnership opportunities for non-profit and volunteer groups to meet the community's social and recreational needs and evaluate City facilities as community hubs.	Complete Communities
4.1.6	• Strategic Planning	Develop a civic engagement strategy to help citizens (including youth and newcomers) become aware of, and participate in, municipal processes and community volunteer opportunities.	Engagement Diversity

No.	Department Lead	Sustainability Action	Theme
4.1.7	<ul style="list-style-type: none"> Economic & Cultural Development 	Complete the Opportunities/Feasibility Study on Economic Development Priorities in the Mackenzie Vaughan Hospital Precinct and present findings to the Mackenzie Vaughan Hospital Precinct Task Force during the 2018-2022 Term of Council.	Green Economy Complete Communities
4.1.8	<ul style="list-style-type: none"> Facility Services Office of the Chief Human Resources Officer 	Explore opportunities for collaboration on accessibility and sustainability related initiatives.	Diversity

Objective 4.2



Ensure that the City attracts businesses and investment that will result in well-paying jobs for citizens, and contributes to a green, low carbon economy for ongoing economic growth.

Achievements

The City's support for the Innovation Park at Kortright Centre and partnership with the ClimateWise Business Network reflect progress in encouraging the green economy. The City will identify opportunities to promote businesses that demonstrate tangible sustainability successes.

No.	Department Lead	Sustainability Action	Theme
4.2.1	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	Work with partners to facilitate educational opportunities for smart business (i.e., cost savings) in support of the low-carbon economy.	Green Economy
4.2.2	<ul style="list-style-type: none"> Economic & Cultural Development 	Complete relevant economic development action plans and present findings and recommendations to the Economic Prosperity Task Force during the 2018-2022 Term of Council.	Green Economy
4.2.2	<ul style="list-style-type: none"> Economic & Cultural Development 	Continue membership in Partners in Project Green and ClimateWise Business Network to leverage opportunities such as sharing resources, networks and promote cost-saving efficiency programs with the desired outcome to support the growth and expansion of local companies in Vaughan's employment areas.	Green Economy

Objective 4.3



Improve community well-being through support of local food, the Agricultural System and the Agri-Food Network.

Achievements

The prominence of the Agricultural System and Agri-Food Network in the Growth Plan 2017 supports creating this new objective in Green Directions Vaughan 2019. Action plans will promote agricultural viability in the Provincial Plan areas, local food, promotion of the food processing sector, and urban agriculture initiatives including community gardens.

No.	Department Lead	Sustainability Action	Theme
4.3.1	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	Promote agricultural viability in the Provincial Plan areas and other countryside areas in Vaughan by recognizing and encouraging land stewardship options (e.g., Environmental Farms Plans), implementing Agricultural Impact Assessments, and identifying other tools to reduce conflicts between adjacent urban and agricultural land uses.	<p>Health</p> <p>Green Economy</p>
4.3.2	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	<p>Implement actions from the York Region Agriculture and Agri-Food Strategy, such as:</p> <ul style="list-style-type: none"> co-operating with York Region on a Food Processing Action Plan, evaluating the feasibility of an Agricultural Community Improvement Plan (CIP) to incentivize on-farm diversification and value-added operations, and identifying specific actions to support the York Farm Fresh Organization. 	<p>Health</p> <p>Green Economy</p>
4.3.3	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	<p>Promote local food and encourage urban agriculture by supporting initiatives such as:</p> <ul style="list-style-type: none"> establishing community gardens and revising the Community Garden Policy, promoting plant-based eating, and investigating the support of a local food charter. 	<p>Health</p>





How We Lead

Goal 5 To be leaders in advocacy and education on sustainability issues

Objective 5.1 To share sustainable best practices and strengthen community engagement.

Achievements

Developing engaging communications will be a future effort to promote Green Directions Vaughan 2019 that promotes efforts of residents and businesses. Citizen attendance at events such as the 20-Minute Makeover and Earth Hour are evidence of the interest and motivation that can be harnessed for meaningful action.

No.	Department Lead	Sustainability Action	Theme
5.1.1	<ul style="list-style-type: none"> Strategic Planning Policy Planning and Environmental Sustainability 	Continue to seek the advice and opinion of our citizens, businesses and partners on significant policies, plans and programs (for example, Official Plan review, Municipal Energy Plan update, citizen survey). Demonstrate leadership by hosting events and facilitating knowledge sharing workshops.	Engagement Partnerships
5.1.2	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	Build capacity and partnerships in the local community to facilitate greater uptake of sustainability actions and provide updates on City initiatives and achievements.	Engagement
5.1.1	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	Undertake a feasibility study to implement a Sustainable Neighborhood Retrofit Action Plan (SNAP) in Vaughan to improve placemaking, contribute to a healthy environment, and promote a strong community. Consider the opportunity to work on neighborhood resilience as a response to climate change through a potential SNAP project.	Engagement Complete Communities



Objective 5.2 To strengthen the staff role as subject matter experts on sustainability matters.

Achievements

City progress is reflected in the collaboration with Partners in Project Green (funding for EV chargers and installation at JOC), the ClimateWise Business Network, Smart Commute and membership in the Clean Air Council. Strategic partnerships are required to implement and demonstrate progress on many sustainability initiatives.

No.	Department Lead	Sustainability Action	Theme
5.2.1	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	Engage in inter-government relations to ensure that the City of Vaughan participates in provincial, national and international forums and consultations, as appropriate, and collaborates with neighbouring municipalities to share best practices.	Engagement Partnerships
5.2.2	<ul style="list-style-type: none"> Economic & Cultural Development; Policy Planning and Environmental Sustainability 	Explore opportunities for partnerships and collaboration in order to advance the City mandate and to improve external funding opportunities to allow staff to execute strategic projects.	Partnerships Governance
5.2.3	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	Develop an environmental education strategy to familiarize staff with the provisions of Green Directions Vaughan 2019, expanding into an on-going education program.	Engagement





How We Operate

Goal 6 To ensure a supportive system for the implementation of Green Directions Vaughan

Objective 6.1 To fully support the implementation of Green Directions Vaughan at all levels of City operations.

Achievements

Governance considerations include department roles in accounting for actions and measuring progress, in addition to connections to over-arching corporate strategy and Service Excellence initiatives. The revised action plans in Green Directions Vaughan 2019 make it easier to report on progress and less onerous on the part of the responsible City department while improving progress reporting for stakeholders and residents.

No.	Department Lead	Sustainability Action	Theme
6.1.1	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	Evaluate working groups and/or a task force structure to implement Green Directions Vaughan 2019, including assessing the role of a Citizen Advisory Committee.	Governance Engagement
6.1.2	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	Integrate sustainability into everyday business operations by demonstrating the contribution to Green Directions Vaughan 2019 in departmental budget plans and/or Master Plans across the organization. Showcase specific initiatives highlighting the alignment of financial sustainability and environmental sustainability.	Governance Engagement
6.1.3	<ul style="list-style-type: none"> Policy Planning and Environmental Sustainability 	Demonstrate accountability by preparing an annual report to Council for the purpose of monitoring the implementation of Green Directions Vaughan 2019, including: the status of existing programs (milestones), accomplishments, trends in select quantitative indicators, new initiatives, and further opportunities.	Governance
6.1.4	<ul style="list-style-type: none"> Strategic Planning 	Continue the City's ISO 37120 certification process and explore other Environment Management System or third-party verification, such as ISO 14001 (environmental management) and ISO 50001 (energy management).	Governance Engagement



GOVERNANCE FRAMEWORK AND IMPLEMENTATION



Responsibilities

Environmental Sustainability team (ES team):

The ES team is part of the Policy Planning and Environmental Sustainability department and works to encourage City leadership on environmental sustainability. While every Portfolio in the City is responsible for implementation of the sustainability actions, the ES team monitors progress through the implementation process.

Technical Advisory Committee (TAC): The TAC is made up of City staff and was formed to offer guidance and provide input on the sustainability actions, structure and content during the renewal of Green Directions Vaughan.

There are a number of departments responsible for implementing the sustainability actions in Green Directions Vaughan 2019 :

- Building Standards (Planning and Growth Management)
- Development Engineering (Planning and Growth Management)
- Development Planning (Planning and Growth Management)
- Economic and Cultural Development (Corporate Initiatives and Intergovernmental Relations)
- Fire and Rescue Services (Community Services)
- Environmental Services (Public Works)
- Fleet Management Services (Public Works)
- Facility Services (Community Services)
- Infrastructure Delivery (Public Works)
- Infrastructure Planning and Corporate Asset Management (Public Works)
- Financial Planning and Development Finance (Office of the Chief Financial Officer and City Treasurer)
- Human Resources Office (Corporate Services)
- Parks Development (Planning and Growth Management)
- Policy Planning and Environmental Sustainability (Planning and Growth Management)
- Recreation Services (Community Services)
- Strategic Planning (Transformation and Strategy)
- Transportation Services, Parks and Forestry Operations (Public Works)



COMMUNITY



CITY STAFF



MONITORING

Community: The sustainability actions in Goal 5 and Goal 6 ensure ongoing education and feedback of residents, businesses and other stakeholders. Implementation of the sustainability actions in Green Directions Vaughan 2019 requires collaboration from all members of the Vaughan community. Collective action will help achieve maximum impact at a local level.

Governance Framework

Monitoring progress of the sustainability actions demonstrates the City is accountable to maintaining Vaughan as a complete community, with a healthy natural environment, vibrant communities and a strong economy. It supports integration of sustainability into departmental business plans and

helps to define responsibility. The City's primary role in tracking effectiveness of sustainability actions under the governance framework includes:

- Monitoring progress on sustainability actions through milestones
- Tracking results using quantitative indicators

Progress on Actions

A governance framework that uses milestones is developed for each sustainability action as shown in the example in Table 7.1 below. Milestones are key achievements to deliver project outcomes. The milestone framework is an internal gauge allowing departments to keep track of the progress of the sustainability actions assigned to them, and to simplify annual reporting to Council in a dashboard style.

EXAMPLE

Action	Milestone 1	Milestone 2	Milestone 3	Milestone 4
Update and implement the "Green Fleet Strategy" to optimize fleet use and vehicle type, identify fuel switching for low carbon mobility and minimize environmental impacts.	Complete baseline (instrumentation) and municipal benchmarking or jurisdictional scan (best practices).	Evaluation of options to optimize fleet use, reduce fuel consumption and reduce GHG emissions.	Proposed Strategy approved by Council and integrated into budgets.	Acquisition and maintenance underway (Fleet Services) and tracked as part of Corporate Asset Management. Progress tracked by existing departmental performance measures, including vehicle asset type and fleet fuel use.

Table 7.1. Governance framework, utilizing a milestone framework, to monitor progress of the sustainability Actions.

Indicators

The City recognizes the importance of making information available to the public in a meaningful way and that high-quality data informs effective decision making. Therefore, the 24 indicators developed in 2012, used to track progress of Green Directions Vaughan 2009, have also been updated. The new indicators tell the City's sustainability story, demonstrating what is going well and where efforts need to be focused. Progress on the indicators will be made available to the public. Refer to Chapter 8 for a full description of the indicators, which are aligned with five of the six Goal areas as shown in Figure 7.1

Integration and Financial Framework

As proposed in Goal 6, departments will strive to integrate sustainability into everyday business operations by demonstrating the contribution to Green Directions Vaughan 2019 in departmental budget plans and Master Plans across the organization. This includes showcasing specific initiatives that demonstrate the alignment of financial sustainability and environmental sustainability.

The ES team will work with colleagues in other departments on the financial framework for each sustainability action, as needed, to track the incorporation of the actions into City budget processes. The financial framework will consider items such as:

- Existing and amended operating/maintenance budgets
- Existing and amended capital budgets
- Employee workload/hours
- Anticipated cost savings
- Revenue generation potential
- Return on investment
- Grant/funding opportunities

Many of the sustainability actions in Green Directions Vaughan 2019 align with goals and initiatives set out in other Master Plans. This integration is financially efficient, as implementation of the actions will already be included in business plans. It also permits easier endorsement of the actions by lead departments.

INDICATORS

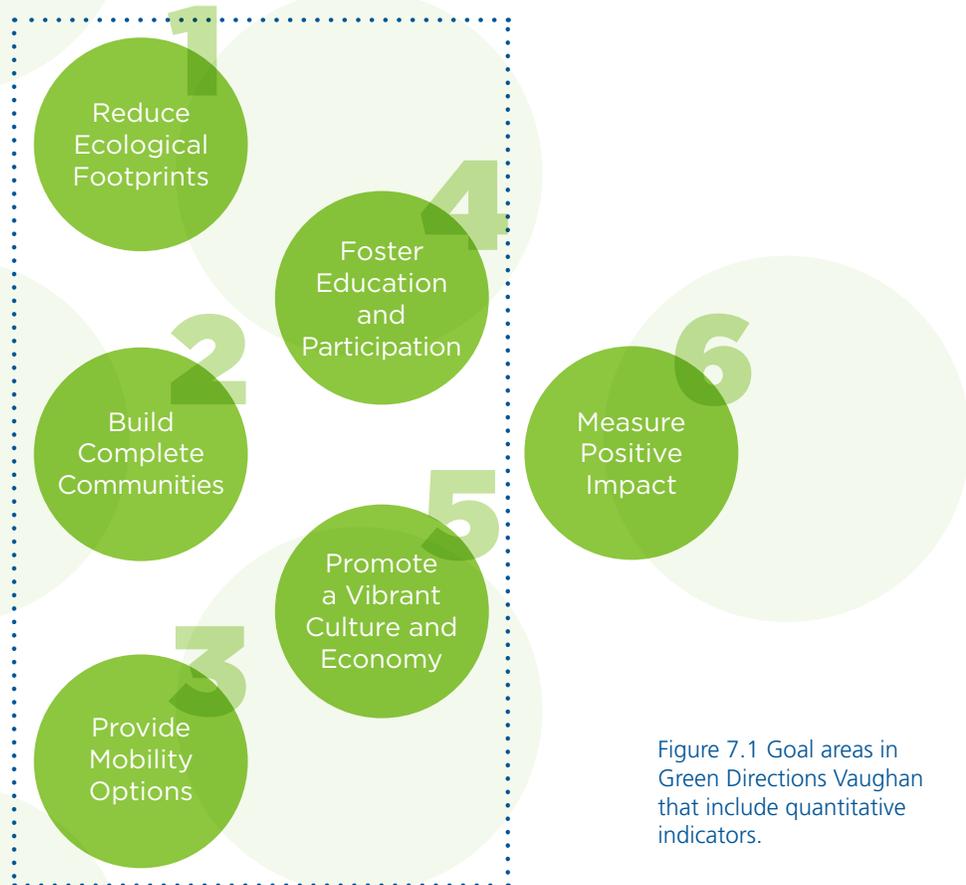


Figure 7.1 Goal areas in Green Directions Vaughan that include quantitative indicators.



GREEN DIRECTIONS VAUGHAN INDICATORS



Green Directions Vaughan Indicators

The ability to measure progress on key indicators is critical to improving environmental outcomes and quality of life. High quality data informs effective decision-making in cities. Making such information available to the public in a meaningful way and using the findings to modify City programs supports citizen involvement in sustainability actions. GDV 2019 indicators are aligned with global and regional efforts to measure progress on sustainability.

World Council on City Dataⁱ

The World Council on City Data (WCCD), of which the City of Vaughan is a member, is leading the implementation of ISO 37120: Sustainable Development of Communities – Indicators for City Services and Quality of Life. The standard is a set of 100 globally comparative indicators designed to aid City officials and City managers in tracking performance and benchmarking data across 17 quality of life themes. ISO 37120 is expanding to measure elements of resilience and ‘smart’ cities.

The Living City Report Cardⁱⁱ

The Toronto and Region Conservation Authority recently published an update of the Living City Report Card for 2016 to track progress of the following goals: reduced carbon, clean air, clean water, reduction of waste, sustainable land use and expanded greenspace, and healthy biodiversity. The Living City is a regional initiative and provides an opportunity for the City of Vaughan to join a regional alliance for collective action.

Aligning the Green Directions Vaughan 2019 indicators to the Living City Report Card and WCCD provides for benchmarking with other municipalities, understanding where the City of Vaughan can inform other municipalities and identifying areas of improvement for the City to contribute to regional sustainability performance.



The Indicators

In 2012, City of Vaughan Council approved 24 quantitative indicators to track progress on the implementation of Green Directions Vaughan. The indicators are grouped into 14 categories shown below (Figure 8.1) in relation to the Goals in Green Directions Vaughan.

Figure 8.1 Categories of quantitative indicators in relation to the six Goal areas of Green Directions Vaughan. Only one indicator is assigned to Goal 5 and no indicators assigned to Goal 6. The sustainability actions in these Goal areas have few indicators as they are more supportive of community and corporate outcomes, rather than directing specific outcomes.



During the GDV renewal process, three indicators were revised to allow for more accurate annual measurements. The following revisions were made:

- The percentage of low emission vehicles in the City's fleet was changed to measure actual fossil fuel consumption and consequent greenhouse gas emissions
- Proportion of the City with stormwater controls was changed to measure water quality of receiving streams from stormwater ponds

- Tree canopy cover as a proportion of urban area, generally only measured every 5 to 10 years, was changed to track the number of trees being planted annually.

The indicators are intended to be updated on an annual basis. The table on the following pages identifies the individual indicators in relation to the WCCD indicators required for reporting in accordance with the ISO 37120 standards, as well as the alignment with the United Nations Sustainable Development Goals (SDGs).



INDICATOR	Units of Measure	WCCD Indicators (ISO 37120)	Data Sources
ENERGY			
1. Total residential electricity use per capita	Kilowatt hours per person (kWh/person)	<ul style="list-style-type: none"> SDG 7 Total residential electricity energy use per capita (kWh/year) Total electricity energy use per capita (kWh/year) 	Alectra Utilities (formerly PowerStream) for community electricity consumption
2. City of Vaughan buildings energy use	Kilowatt hours per 1,000 square feet (kWh/1,000 ft ²) or Kilowatt hours per square metre (kWh/m ²)	<ul style="list-style-type: none"> SDG 7 Energy consumption of public buildings per year (kWh/m²) 	Alectra Utilities for corporate electricity consumption
CLIMATE CHANGE			
3. Total community greenhouse gas emissions	Tonnes of equivalent carbon dioxide emissions per year and per capita (tonnes eCO ₂ /year and tonnes eCO ₂ /person/year)	<ul style="list-style-type: none"> SDG 13 Greenhouse gas emissions measured in tonnes per capita Percentage of total energy derived from renewable sources, as a share of the City's total energy consumption Percentage of commuters using a travel mode to work other than a personal vehicle 	Alectra Utilities for electricity consumption; Enbridge for natural gas consumption; Kent Fuels for transportation fuel consumption.
4. Corporate Greenhouse gas emissions per resident served	Tonnes of equivalent carbon dioxide emissions per person per year (tonnes eCO ₂ /person/year)	<ul style="list-style-type: none"> SDG 7 Energy consumption of public buildings per year (kWh/m²) 	Alectra Utilities for electricity consumption by asset class; Enbridge for natural gas consumption by asset class; City Fleet Services for vehicle fuel consumption.



INDICATOR	Units of Measure	WCCD Indicators (ISO 37120)	Data Sources
AIR QUALITY			
5. Particulate matter (PM2.5)	Particulate matter measured in micrograms per cubic metre (PM2.5) ($\mu\text{g}/\text{m}^3$)	<ul style="list-style-type: none"> SDG 11 Fine particulate matter (PM2.5) concentration 	Annual air quality reports from the Ontario Ministry of the Environment, Conservation and Parks
6. City fleet vehicles fuel consumption and greenhouse gas emissions	Litres of fossil fuel consumed and calculated equivalent greenhouse gas emissions (litres/year and eCO_2 /year)		City Fleet Services for vehicle fuel consumption
7. Number of days when the Air Quality Index (AQI) is poor (AQI > 49 or AQHI > 6)	The Air Quality Index is the number of days in which air quality is measured as "poor" for at least one hour AQI > 49 before 2015 or AQHI > 6 from 2015 to present	<ul style="list-style-type: none"> SDG 11 Fine particulate matter (PM2.5) concentration 	Annual air quality reports from the Ontario Ministry of the Environment, Conservation and Parks
WATER USE			
8. Daily volume of water used per person in York Region	Litres per person per day (litres/person/day)	<ul style="list-style-type: none"> SDG 6 Total domestic water consumption per capita (litres/day) Total water consumption per capita (litres/day) 	York Region Environmental Services department, Water Conservation and Efficiency division
STORMWATER MANAGEMENT			
9. Water Quality	Total Suspended Solids, Number of SWM Ponds Cleaned, Catch Basin Cleanouts, SWM Ponds Inspected		City of Vaughan Water Quality Monitoring Program



INDICATOR	Units of Measure	WCCD Indicators (ISO 37120)	Data Sources
SOLID WASTE			
10. Residential waste diverted from landfill	Proportion of waste diverted from landfill (%)	<ul style="list-style-type: none"> SDG 12 Percentage of the City's solid waste that is recycled Percentage of the City's hazardous waste that is recycled Total collected municipal solid waste per capita 	Data provided by the City's Environmental Services department and verified by Waste Diversion Ontario
11. Waste diverted from landfill in City facilities	Proportion of waste diverted from landfill (%)		Data provided by Facility Services based on the weights provided by the contractor for corporate waste services.
LAND USE			
12. Greenspace (Greenspace defined as publicly owned and publicly accessible)	Hectares per 1,000 people (ha/1,000 people)	<ul style="list-style-type: none"> SDG 11 Green areas (hectares) per 100,000 population 	Analysis of GIS data provided by multiple City departments regarding parks and open space.
URBAN FOREST			
13. Number of trees planted annually by the City and through City-sponsored public events	Number of trees planted annually (#)	<ul style="list-style-type: none"> SDG 15 	Numbers of trees planted monitored by the City's department of Transportation Services, Parks and Forestry Operations.
SUSTAINABLE BUILT FORM			
14. Building floor area certified under recognized green building programs	Floor space (square feet) of buildings certified to LEED for New Construction standards and to BOMA BEST (annual certification) (ft ²)		LEED data available online from the Canada Green Building Council. BOMA data available by request to BOMA Canada.





INDICATOR	Units of Measure	WCCD Indicators (ISO 37120)	Data Sources
WALKING AND CYCLING PATHS			
15. Length of walkways and cycling paths	Kilometres (km)	<ul style="list-style-type: none"> SDG 11 Percentage of commuters using a travel mode other than a personal vehicle 	Data provided by the department of Infrastructure Planning and Corporate Asset Management
16. Percentage of walkways and paths which are linked	Proportion (%)		Data provided by the department of Infrastructure Planning and Corporate Asset Management
TRANSIT			
17. Transit passenger trips per person in York Region	Number of trips per person per year (Number/person/year)	<ul style="list-style-type: none"> SDG 11 Annual numbers of public transport trips per capita Kilometers of high capacity public transport system per 100,000 population Kilometers of light passenger public transport system per 100,000 population 	York Region Transit Canadian Urban Transit Association (CUTA) fact book

INDICATOR	Units of Measure	WCCD Indicators (ISO 37120)	Data Sources
ECONOMIC ACTIVITY			
18. Level of construction activity	Value of building permits in millions of dollars (\$ millions)	<ul style="list-style-type: none"> • SDG 8 • Number of businesses per 100,000 population 	Data provided by the Building Standards department
19. Ratio of population to jobs	Number of jobs	<ul style="list-style-type: none"> • SDG 8 • Percentage of persons in full-time employment • City's unemployment rate • Youth unemployment rate 	Data provided by the department of Economic and Cultural Development
20. Number of jobs provided by Vaughan businesses	Number of jobs	<ul style="list-style-type: none"> • SDG 8 • Percentage of persons in full-time employment • City's unemployment rate • Youth unemployment rate 	Data provided by the department of Economic and Cultural Development
21. Total participant hours for recreation programs	Number of hours		Data provided by the department of Recreation Services
22. Number of stakeholders involved in different community engagements	Count of interactions for social media, website and online newsletters		Data provided by Corporate and Strategic Communications and the Office of the Chief Information Officer
CREATIVE COMMUNITY			
23. Number of cultural initiatives supported, endorsed by the City	Number of events and initiatives		Data provided by Economic and Cultural Development



INDICATOR	Units of Measure	WCCD Indicators (ISO 37120)	Data Sources
ENGAGEMENT			
24a. Number of environmentally related public outreach events held by the City of Vaughan	Number of environmental events		Data provided by the departments of Environmental Services and Policy Planning & Environmental Sustainability
24b. Number of attendees at environmental events	Number of attendees at environmental events		Data provided by the departments of Environmental Services and Policy Planning & Environmental Sustainability



New Indicators for Consideration

To track progress on the implementation of two new Objectives, that address climate change adaptation and the agricultural system in Vaughan, the indicators listed below are recommended. These indicators will undergo review to determine effectiveness and data reliability.



Recommended Indicator

Intent

Proportion of agricultural land in active production (hectares and %)

In support of SDG 2.4 (Ensure sustainable food production) to understand constraints to agricultural production

Gross farm sales and gross farm sales per hectare (\$ and \$/hectare)

In support of SDG 2.4 (Ensure sustainable food production) to evaluate the viability of the agriculture sector. Based on York Region Agriculture and Agri-Food Update and Strategy.ⁱⁱⁱ

Percentage of agricultural land in active food production (hectares and %)

In support of SDG 2.4 (Ensure sustainable food production) to promote agriculture viability with an emphasis on food production. Based on Metro Vancouver, Progress toward Shaping Our Future: Baseline Annual Report.^{iv}

Percentage of properties located in high risk zones

In support of SDG 13.1 (Strengthen resilience and adaptive capacity to climate-related hazards). Based on WCCD City Data for the United Nations Sustainable Development Goals 2017.

Percentage of people at high risk to natural hazards

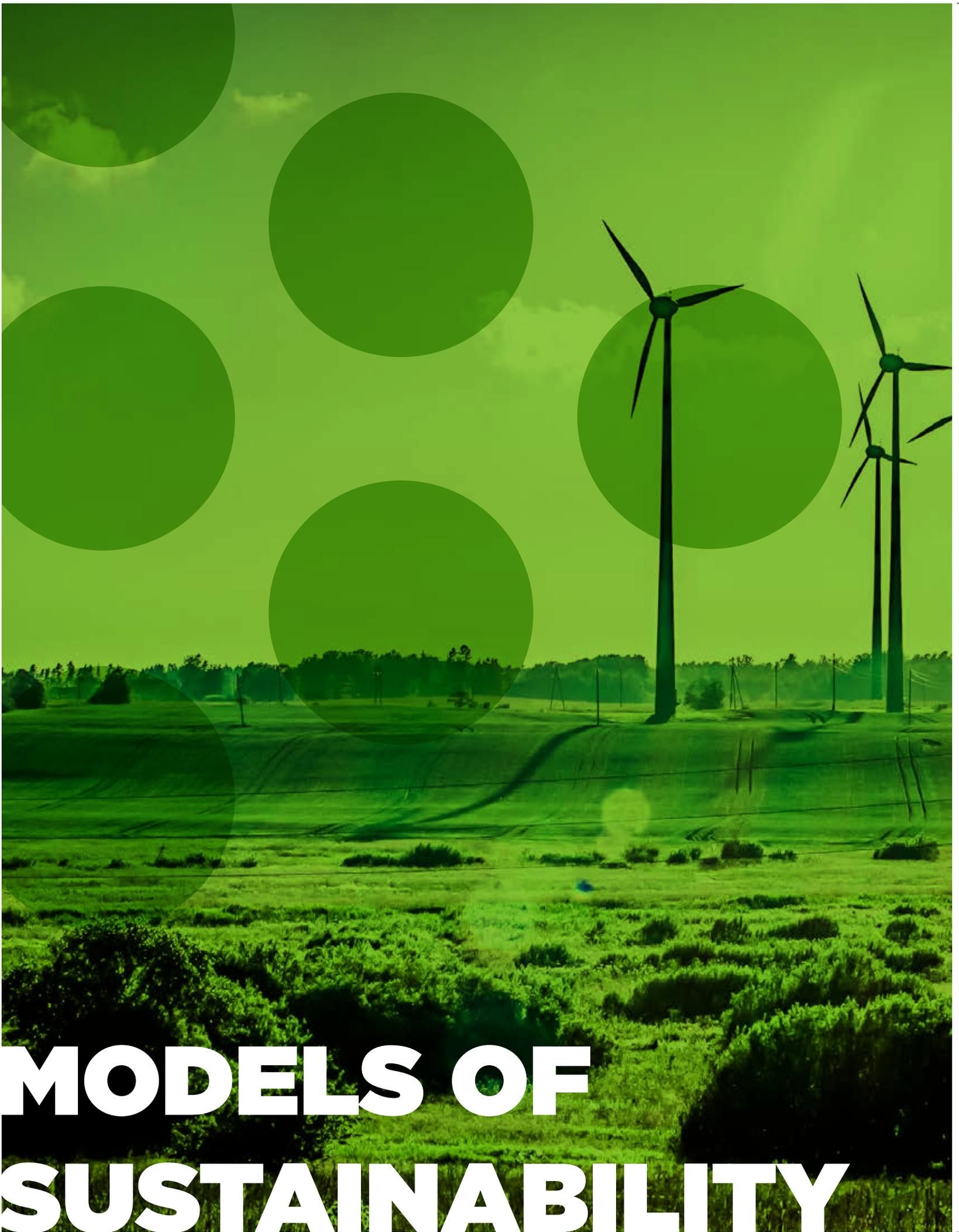
In support of SDG 13.1 (Strengthen resilience and adaptive capacity to climate-related hazards). Based on WCCD City Data for the United Nations Sustainable Development Goals 2017.

i. World Council on City Data. <https://www.dataforcities.org/>

ii. Toronto and Region Conservation Authority. 2016. Living City Report Card. <https://trca.ca/app/uploads/2017/02/3058-LCRC-2016-Final-WEB.pdf>

iii. The Regional Municipality of York. 2017. Agriculture and Agri-Food Sector Strategy. <https://www.york.ca/wps/wcm/connect/yorkpublic/46f81f67-26da-470d-879f-15c846daddfc/agri-strategy.pdf?MOD=AJPERES>

iv. Metro Vancouver. 2013. Shaping Our Future: Baseline Annual Report 2011-2013. <http://www.metrovancouver.org/services/regional-planning/PlanningPublications/Progress-toward-Shaping-our-Future-Baseline-Annual-Report-min.pdf>



MODELS OF SUSTAINABILITY



SUSTAINABILITY FIRST

Sustainability means we make decisions and take actions that ensure a healthy environment, vibrant communities and economic vitality for current and future generations.

ENVIRONMENTAL ETHIC

In Vaughan we lead by example as responsible stewards of our community. Our decisions entail determining the impact of our actions on the environment, weighing the social and cultural consequences and understanding any financial implications. Our actions will enhance both the natural, socio-economic and built environments.

Models of Sustainability

Public and stakeholder consultation undertaken for the approval of Green Directions Vaughan (GDV) in 2009 established a sustainability statement, environmental ethic and operating principles. These sustainability concepts continue to guide the sustainability actions of the City.

Other models of sustainability were used to inform the revision of Green Directions Vaughan, both in the selection of sustainability actions and in the way the actions are described to generate outcomes.



GUIDING PRINCIPLES

LEADERSHIP

We act as advocates for a sustainable future and support positive initiatives emerging from all sectors of society.

INNOVATION

We build upon best practices to create “Made-in-Vaughan” solutions to guide our operations and shape our plans and policies.

TRANSPARENCY

Our actions are open and traceable; we monitor and report on our progress.

ACCOUNTABILITY

We take responsibility for our actions and we build on past experience.

RESPONSIBILITY

Everyone in Vaughan has a role to play in the plan.

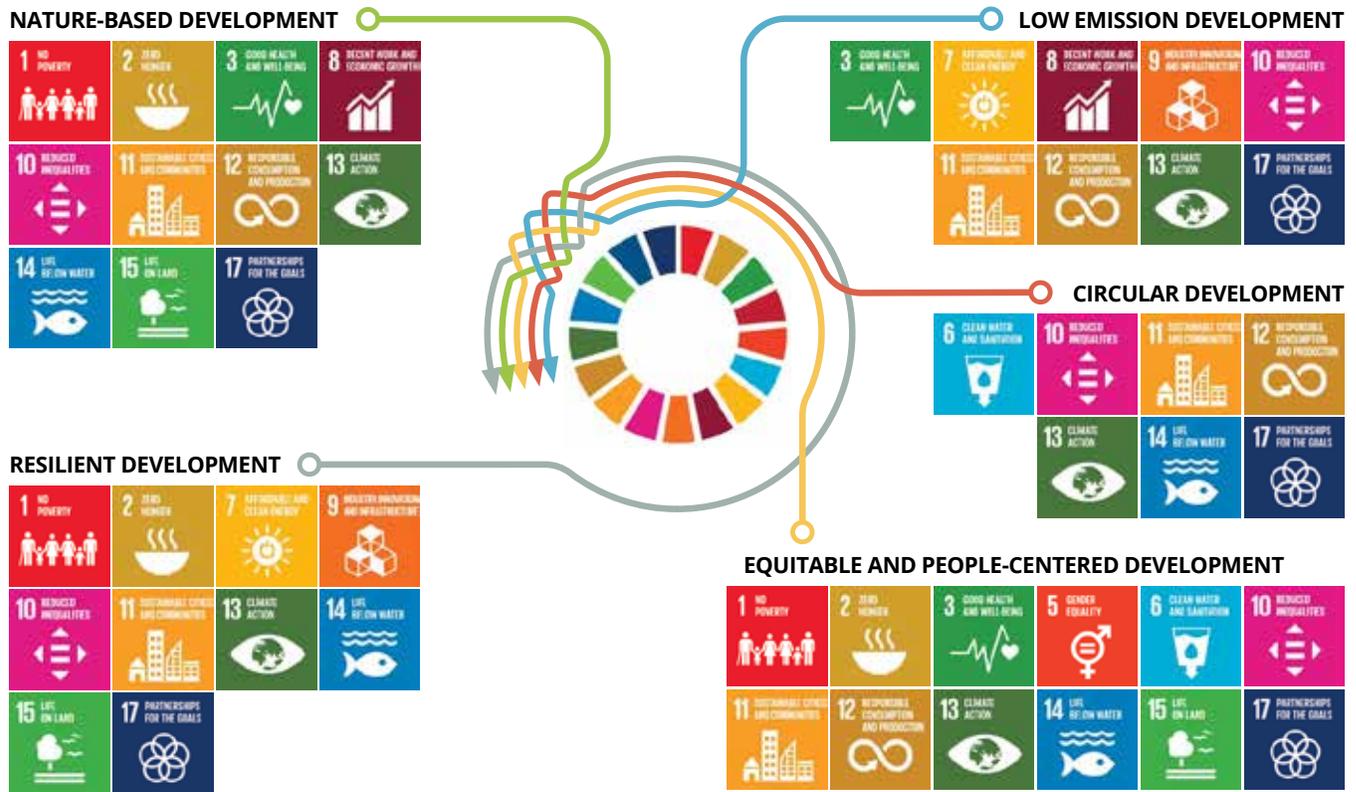
ENGAGEMENT

We involve our citizens and partners in decision making.

ACKNOWLEDGMENT

Recognize the traditional territories of the Indigenous peoples who live and have lived in Vaughan.

In Canada, disclosure of sustainability issues and performance among the 200 most publicly traded companies grew by 40% between 2011 and 2012, with 122 companies (61%) reporting on sustainability in 2012.ⁱ



Foundational Sustainability Themes

The United Nations Sustainable Development Goals (UN SDGs), the ICLEI Montreal Commitment and Action Plan 2018-2021 and the Melbourne Principles for Sustainable Cities are foundational models of sustainability. These frameworks informed the selection of sustainability actions in GDV 2019 to ensure alignment with broader regional, national and global initiatives.

United Nations Sustainable Development Goalsⁱⁱ

The SDGs are the latest UN iteration to frame global cooperation to improve the health of people and the planet and “to promote prosperity while protecting the environment”. Aligning GDV 2019 with the UN SDGs reflects a global movement and has the advantage of leveraging the World Council on City Data to measure progress. Refer to Chapter 3 for more discussion on the UN SDGs.

The ICLEI Montreal Commitment and Action Plan 2018-2021ⁱⁱⁱ

ICLEI-Local Governments for Sustainability describes five strategic pathways in the Montreal Commitment and Action Plan 2018-2021 to implement their vision “to make sustainability a fundamental and inextricable part of all local and global development.”

To achieve a sustainable world through five strategic pathways:

- Low emission development
- Nature-based development
- Circular development
- Resilient development
- Equitable and people-centered development.



Melbourne Principles for Sustainable Cities^{iv}

The Melbourne Principles for Sustainable Cities provide a strategic framework for action in transforming cities to sustainability. The Principles provide a foundation for the integration of international, national and local programs. The Principles were developed at an International Charrette held in Melbourne (Australia)

in April 2002, organized by the United Nations Environment Programme International Environmental Technology Centre, and the Environment Protection Authority Victoria. More than 40 experts from around the world contributed to the preparation of the Principles.

- PRINCIPLE 1** Provide a long term vision for cities based on: sustainability; intergenerational, social, economic and political equity; and their individuality.

- PRINCIPLE 2** Achieve long term economic and social security.

- PRINCIPLE 3** Recognize the intrinsic value of biodiversity and natural ecosystems and their protection and restoration.

- PRINCIPLE 4** Enable communities to minimize their ecological footprint.

- PRINCIPLE 5** Build on the characteristics of ecosystems in the development and nurturing of healthy and sustainable cities.

- PRINCIPLE 6** Recognize and build on the characteristics of cities including their human and cultural values, history and natural systems.

- PRINCIPLE 7** Empower people and foster participation.

- PRINCIPLE 8** Expand and enable cooperative networks to work towards a common sustainable future.

- PRINCIPLE 9** Promote sustainable production and consumption, through appropriate use of environmentally sound technologies and effective demand management.

- PRINCIPLE 10** Enable continual improvement, based on accountability, transparency and good governance.

Operational Sustainability Approaches

The sustainability approach defined by The Natural Step informed the revision of specific GDV actions and to ensure that sustainability actions in GDV 2019:

- Identify outcomes
- Move the City in the direction of a future desired state
- Integrate easily into departmental business plans

The Natural Step^v

The Natural Step defines a sustainability approach based on the work of a network of international scientists that identified three environmental conditions needed for continuation of natural systems that sustain human society, and a fourth system condition related to social and economic considerations that drive human action.

The Four System Conditions...

In a sustainable society, nature is not subject to systematically increasing:

1. concentrations of substances extracted from the earth's crust
2. concentrations of substances produced by society
3. degradation by physical means
4. and, in that society, people are not subject to conditions that systematically undermine their capacity to meet their needs

...Reworded as The Four Sustainability Principles

To become a sustainable society, we must eliminate our contributions to...

1. the systematic increase of concentrations of substances extracted from the Earth's crust (for example, heavy metals and fossil fuels)
2. the systematic increase of concentrations of substances produced by society (for example, plastics, dioxins, PCBs and DDT)
3. the systematic physical degradation of nature and natural processes (for example, over harvesting forests, destroying habitat and overfishing); and...
4. conditions that systematically undermine people's capacity to meet their basic human needs (for example, unsafe working conditions and not enough pay to live on).

Guided by the four sustainability principles, and using the framework of the basic system conditions, the Natural Step advocates for a 'backcasting' approach that involves describing a desired future state (e.g. zero poverty, carbon-free energy) and then identifying short-term steps that will move an organization or society in the direction of the desired outcome. "Whole-systems" thinking is central to this approach and reflects the idea that it is important to take into account all of the components of the system, how they interact and have a cause-and-effect relationship among them. This includes thinking through potential unintended consequences of actions.

Additional Sustainability Reporting Frameworks

Other sustainability reporting frameworks, as described in the Chartered Professional Accountants Canada starter guide, were consulted by City staff and include the:

- Global Reporting Initiative
- UN Global Compact
- Carbon Disclosure Project
- Integrated International Reporting Council^{vi}
- Sustainability Accounting Standards Board^{vii}

- i. Chartered Professional Accountants Canada. 2013. Starter's Guide to Sustainability Reporting. <https://www.cpacanada.ca/en/business-and-accounting-resources/financial-and-non-financial-reporting/sustainability-environmental-and-social-reporting/publications/a-starters-guide-to-sustainability-reporting>
- ii. United Nations Sustainable Development Goals. <https://sustainabledevelopment.un.org/?menu=1300>
- iii. ICLEI -Local Governments for Sustainability. 2018. The ICLEI Montreal Commitment and Strategic Vision 2018-2024. Bonn, Germany. <https://worldcongress2018.iclei.org/wp-content/uploads/The%20ICLEI%20Montr%C3%A9al%20Commitment.pdf>
- iv. Melbourne Principles for Sustainable Cities. UNEP International Environment Technology Centre (<http://www.unep.or.jp/ietc/focus/melbourneprinciples/english.pdf>)
- v. Natural Step. <http://naturalstep.ca/sustainability>
- vi. International Integrated Reporting Council. <http://integratedreporting.org/the-iirc-2/>
- vii. Sustainability Accounting Standards Board. <https://www.sasb.org/>



SUSTAINABILITY BEST PRACTICES





Sustainability Best Practices

Green Directions Vaughan 2019 (GDV 2019) uses the framework of goals, objectives and actions to direct specific efforts to achieve sustainability outcomes. Quantitative indicators were also approved in 2012 as a management tool to measure progress towards the Goals.

As with Green Directions Vaughan 2009, it was determined not to specify measurable and time-bound targets in GDV 2019. Nevertheless, some quantitative targets do exist in Council-endorsed plans, such as the Municipal Energy Plan (e.g., 22 per cent decrease in CO₂ emissions from the 2013 baseline by 2031) and Vaughan Official Plan 2010

(e.g., “at least 35 per cent of housing units in the Vaughan Metropolitan Centre satisfy the criteria for affordable housing”; by 2031, “an overall transit modal split of 30 per cent during peak periods is targeted for the City as a whole”).

The sustainability best practices compiled here represent recommended or endorsed targets in both the public and private sectors. This will inform ongoing implementation of the sustainability actions in GDV 2019 and can inform the revision of related City plans, such as the strategic plan, Vaughan Official Plan 2010 and various infrastructure master plan documents.

Sustainability Best Practices Related to Goal 1 - What we use

Climate Mitigation

More than 180 governments have ratified the Paris Agreement on Climate Change 2015. The Pan-Canadian Framework on Clean Growth and Climate Change (Government of Canada 2016) is Canada's response to the obligations of the Paris Agreement and climate challenge.



Select Greenhouse Gas (GHG) Emission Reduction Best Practices

Global GHG emissions in 2030 need to be approximately 25 per cent and 55 per cent lower than in 2017 (global emissions were 53.5 GtCO₂e in 2017) to put the world on a least-cost pathway to limiting global warming to 2°C and 1.5°C respectively.

[UNEP Emissions Gap Report 2018](#)

In model pathways with no or limited overshoot of 1.5°C, global net anthropogenic CO₂ emissions decline by about 45 per cent from 2010 levels by 2030, reaching net zero around 2050.

[Intergovernmental Panel on Climate Change 2018](#)

Canada's "Nationally Determined Contribution" submission to the Paris Accord sets a goal "to achieve an economy-wide target to reduce its greenhouse gas emissions by 30 per cent below 2005 levels by 2030."

[UN Paris Agreement on Climate Change](#)

Canadian GHG emissions are projected to be 742 Mt in 2030 under the December 2016 emissions projections (Environment and Climate Change Canada). Canada's target is 523 Mt.

[Pan-Canadian Framework on Clean Growth and Climate Change](#)

GHG emissions reduction targets: 15 per cent below 1990 levels by 2020; 37 per cent below 1990 levels by 2030; 80 per cent below 1990 levels by 2050.

[2016 Ontario Government Climate Change Action Plan](#)

Reduce greenhouse gas emissions by 30 per cent below 2005 levels by 2030

[2018 Made-in-Ontario Environment Plan](#)

Interpretation for the City of Vaughan

The City of Vaughan's Municipal Energy Plan identifies a target to reduce GHG emissions by 22 per cent below 2013 levels by 2031, or from about five tonnes of carbon dioxide equivalent (CO₂e) emissions per person per year in 2013 to four tonnes CO₂e emissions per person per year by 2031. An interpretation of the more ambitious targets in the 2016 Ontario Climate Change Action Plan and UNEP Emissions Gap Report 2018, which is the low-risk scenario from a climate and environmental perspective, suggests a CO₂e emissions target of below two tonnes per person per year by 2030 for the City of Vaughan.

Municipal Commitments

Renewable Cities, a program of the Simon Fraser University's Morris J. Wosk Centre for Dialogue in Vancouver, Canada, tracks Canadian cities with a 100 per cent renewable energy commitment. The following municipalities are identified by Renewable Cities:

British Columbia - Vancouver (2015),
Victoria (2016), Saanich (2017), Nelson
(2018); Ontario - Oxford County (2015).

The Sierra Club 100 per cent Commitments identifies over 90 US cities, counties and states that have made commitments to transition to 100% clean, renewable energy.

Non-government Sector Commitments

The RE100 is a global initiative of The Climate Group, an international not-for-profit organization based in England, and CDP (formally known as the Carbon Disclosure Project), a not-for-profit charity that runs a disclosure system for organizations to manage their environmental impacts. Companies joining RE100 set a public goal to source 100 per cent of their global electricity consumption from renewable sources by a specified year. They disclose their electricity data annually, and RE100 reports on their progress. Globally, over 150 companies have committed to 100% renewable energy.

Stormwater Management

Stormwater management, how rainfall is directed to safeguard health and property, is primarily the responsibility of municipalitiesⁱ. In urban areas, precipitation falling on hard surfaces create more and faster moving runoff, which can cause several issues, including:

- flooding during rain storms and snow melt
- erosion and sedimentation, which can damage a stream's ecosystem and is expensive to manage
- pollutants to be carried into nearby lakes, rivers and streamsⁱⁱ

The wide range of social and environmental benefits related to stormwater management include:

- ensuring safety of residents through flood control and protecting drinking water sources
- protecting groundwater quality to support watershed functions
- reducing pollution entering streams
- restoring natural variation in stream flows
- promoting the use of surface and ground waters for both human and ecological needs

The stormwater best practices compiled below pertain to only a narrow function of the overall stormwater management responsibilities in urban areas.

Between 2009 and 2016, 48 Canadian municipalities reported 671 floods that resulted in damage, with over 66,000 private properties affected

Select Stormwater Management Best Practices

The Runoff Volume Control Target (RVCT) for Ontario be based on the management of the geographically specific 90th percentile event. The 90th percentile event is the rainfall event whose precipitation total is less than or equal to 90 percent of all daily rainfall events on an annual basis.

For both the Humber River and Don River, control post-development peak flows to pre-development levels for all storms up to and including the 100-year storm (i.e. 2, 5, 10, 25, 50 and 100-year storms).

Draft Runoff Volume Control Targets. Recommendations prepared for the Ontario government.

TRCA Stormwater Management Criteria

Interpretation for the City of Vaughan

The City's stormwater system currently includes more than 1,000 kilometres of pipes, more than 18,000 catch basins and 143 stormwater ponds. The City is taking steps to lessen the impacts of climate change with a long-term plan for managing the potentially damaging effects of stormwater. The City's review of the Integrated Urban Water Master Plan will evaluate best practices to manage stormwater runoff as close to the source as possible through techniques such as infiltration, evapotranspiration, harvesting, filtration and detention of stormwater.

Municipal Commitments

The City of Philadelphia, Pennsylvania, is a recognized leader in promoting green infrastructure for stormwater management as part of the city's 25-year, \$2.5 billion Green City, Clean Waters plan to manage stormwater and protect watersheds. The goal of Philadelphia's Green City, Clean Waters plan is to reduce runoff and overflow pollution volume by 80 per cent by 2036. The city uses the revenue generated from a stormwater rate to fund a variety of activities including maintaining pipes and inlets. The revenue is also used to implement stormwater management and stream restoration projects. Philadelphia created two stormwater grant programs that provide funding or rebates to property owners or contractors: The Stormwater Management Incentives Program and the Greened Acre Retrofit Program. The city has also created two online apps: The Stormwater Parcel Viewer lets users explore land parcels on an interactive map to determine impervious area; and the Credits Explorer lets users install virtual stormwater management practices to see how much stormwater fees can be reduced on non-residential properties (Environmental Commissioner of Ontario 2016).

As of June 2016, the City of Philadelphia has more than doubled its five-year pollution reduction targets. It has also established more than 837 "greened acres," which represents a more than 5.7 billion litre reduction in stormwater runoff and combined sewer overflows during a typical year of rainfall. "Greened acres" use tools like rain gardens and stormwater tree planters to manage runoff from hard surfaces (Environmental Commissioner of Ontario 2016).



In addition to the City of Vaughan, it is reported in Water Canada (Tovilla 2017) that nine Ontario municipalities have implemented a stormwater rate to fund the municipal stormwater conveyance, quality, and flow control services, including the building of reserves for future infrastructure: Aurora, Kitchener, London, Markham, Mississauga, Ottawa, Richmond Hill, St. Thomas and Waterloo.

Non-government Sector Commitments

Green Roofs for Healthy Cities, through their Awards of Excellence program, recognizes leading development projects that integrate green infrastructure, such as: Bridgepoint Active Healthcare (Toronto) that incorporates a green roof for patient recovery; Mountain Equipment Coop head office (Vancouver) which re-uses rainwater through a green roof and treats stormwater through rain gardens; and Trent University for their rooftop urban farm.

Water Conservation

The Great Lakes holds around twenty per cent of the world's surface freshwater supply (Sterner et al. 2017). With such abundance, it may be difficult to see the urgency in water conservation in Ontario. In addition to direct demand for potable water, however, land use development and climate change are impacting Ontario's freshwater resources.

Municipalities save both money and energy when their water customers, such as households and

businesses, use water efficiently. It is especially important to reduce outdoor water use, e.g., lawn watering, which creates a large summer peak in municipal water demand. This peak demand from urban areas usually occurs at the same time as peak agricultural water demand, and when streamflow rates and soil moisture levels are at their lowest (Environmental Commissioner of Ontario 2017).

Select Water Conservation Best Practices

The residential water consumption rate is 150 litres per capita per day (LCD) by 2051.

York Region Long Term Water Conservation Strategy, 2011

Interpretation for the City of Vaughan

Vaughan's water consumption is around 200 litres per person per day. The City will continue to support York Region's Long-Term Water Conservation Strategy towards a residential water consumption rate of 150 litres/capita/day. For example, the City's water meter replacement project will improve customer service, support the City's "Smart City" initiative, and support water conservation efforts.

Municipal Commitments

The report of the Environmental Commissioner of Ontario on the water-energy nexus (ECO 2017) identifies best-practice water usage in select municipalities, including Copenhagen, Denmark (108 litres/capita/day in 2010), Hamburg, Germany (110 litres/capita/day in 2006), and Nantes, France (122 litres/capita/day in 2008). By comparison, average Ontario residential water use is about 200 litres/capita/day.

The City of Guelph relies 100% on groundwater supply for municipal water. Water conservation programs have helped to reduce residential water consumption to about 140 litres/capita/day (ECO 2017).



Non-government Sector Commitments

The Coca Cola Company (TCCC) has set a target to improve water efficiency by 25% over 2010 levels by 2020. TCCC was using 2.7 litres of water to make 1 litre of product in 2004. At the end of 2017, TCCC was using 1.92 litres of water to make 1 litre of product, with the goal to reduce it to 1.7 litres of water by 2020.

Waste Reduction and Landfill Diversion

The City of Vaughan provides recycling and waste services to residential properties across the City, including the collection of blue box recycling, green bin organics, garbage (known as residual waste), leaf and yard waste (including Christmas trees), and appliance and metal recovery items.



Select Waste Reduction and Landfill Diversion Best Practices

Ontario-wide 30 per cent waste diversion rate by 2020, 50 per cent diversion rate by 2030, and 80% diversion rate by 2050

Strategy for a Waste-Free Ontario, 2017, Government of Ontario

166,000 estimated tonnes of waste reduced by 2031.

York Region SM4RT Living, 2013

28 kilogram per capita waste generation rate reduction per person

Interpretation for the City of Vaughan

The City supports York Region's SM4RT Living Plan (Integrated Waste Management Master Plan), and the goals of the Reuse, Repair and Repurpose Strategy, November 2013. Landfill diversion rates have increased from 55% in 2011 to 66% in 2016 and additional programs are planned to continue the diversion rate improvements. The Waste-Free Ontario Act, proclaimed in 2016, will result in further changes to practices to promote the circular economy and landfill diversion.

Several US cities have declared zero waste goals. For example, Fort Collins, Colorado has set a 75% diversion rate by 2020 and a 90% diversion rate by 2025.

The Zero Waste International Alliance definition has been adopted by: Arkadelphia, AR; Austin, TX; Burbank, CA; Glendale, CA; Oakland, CA; Oceanside, CA; Palo Alto, CA; and Telluride, CO.

Municipal Commitments

Nearly 400 European cities have taken on the challenge of the Zero Waste Master Plan, joining a movement initiated and supported by Zero Waste Europe member organizations. The Zero Waste Cities program is supported by a network of zero waste non-governmental organizations (NGO's) working on all aspects of zero waste practice, including covering the implementation of separate collection and reuse centres, to the pay-as-you-throw (PAYT) collection mechanisms and deposit return schemes, with a range of specializations in between.

Non-government Sector Commitments

CBCI Canada is a joint venture of Green Business Certification Inc. (GBCI) and the Canada Green Building Council (CaGBC) to administer environmental certifications. One such accreditation is the TRUE Zero Waste certification system, which enables facilities to define, pursue and achieve their zero waste goals. Riverside Natural Foods in Vaughan and Cintas Distribution Centre in Mississauga are TRUE certified facilities.

Subaru Indiana became the first auto plant in the United States to become a zero waste facility. The facility found markets for all but about 5 per cent of their waste by-products, the remaining (e.g., dashboards and carpet) being incinerated by Covanta Energy Solutions (Guynup 2017).

Sustainability Best Practices Related to Goal 2 – How we grow

Compact and Complete Communities

The Province's Growth Plan for the Greater Golden Horseshoe ("Growth Plan") (2017) addresses urban sprawl. It promotes the achievement of complete communities, where people of all ages and abilities can conveniently access most of the necessities for daily living and prioritizes intensification to make efficient use of land. Building compact neighbourhoods provides for housing options and ensures amenities are close while allowing natural areas and agricultural lands to be conserved.

Select Built Form Best Practices for Urban Areas

Density in Urban Growth Centres - 200 people and jobs per hectare. The Vaughan Metropolitan Centre is Vaughan's urban growth centre.

Growth Plan for the
Greater Golden Horseshoe
2017

Density in Major Transit Station Areas - Major Transit Station Areas on priority transit corridors or subway lines will be planned for a minimum density target of:

Growth Plan for the
Greater Golden Horseshoe
2017

1. 200 residents and jobs combined per hectare for those that are served by subways;
2. 160 residents and jobs combined per hectare for those that are served by light rail transit or bus rapid transit; or
3. 150 residents and jobs combined per hectare for those that are served by the GO Transit rail network.

Affordable Housing

That a minimum 25 per cent of new housing units across the Region be affordable.

York Region Official Plan,
Policies 3.5.6 and 3.5.7

A minimum of 35 per cent of new housing units in Regional Centres and key development areas is to be affordable, offering a range of affordability for low- and moderate-income households.



Interpretation for the City of Vaughan

The City's official plan, Vaughan Official Plan 2010 (VOP 2010) directs the development of compact and complete communities and VOP 2010 must conform to the York Region Official Plan and Provincial policies. The Region and Provincial direction regarding urban growth and environmental protection are considered minimum standards.

VOP 2010 meets the targets identified above for the Urban Growth Centre densities and affordable housing:

- "growth within the Provincially-designated Urban Growth Centre area shall be planned to meet or exceed the requirement for a density of 200 people and jobs per hectare" (Policy 2.2.5.2)
- 25% of all new housing units in Vaughan, 35 per cent in Key Development Areas, are required to be affordable (Policy 7.5.1.2 a. and b.)
- at least 35 per cent of housing units in the Vaughan Metropolitan Centre (Policy 2.2.5.4) and Concord GO Centre – Secondary Plan (Part B - Policy 3.1.3) satisfy the criteria for affordable housing

Municipal Commitments

The Regional Municipality of York is the provincially designated Housing Service Manager in York Region and supports affordable housing through the local planning policy framework and assisted housing programs.

The Federation of Canadian Municipalities (FCM) has been a leader in advocating for affordable housing nation-wide. FCM played an important role in the development of the Federal government's National Housing Strategy (CMHC) released in November 2017.

Non-government Sector Commitments

Habitat for Humanity Canada ("Habitat") is one of the most recognized non-government organizations providing affordable housing across the country. Habitat coordinates volunteers to help build and rehabilitate safe, decent and affordable homes, including single-family and multi-unit houses. The families who partner with Habitat pay an interest-free mortgage geared to their income and volunteer 500 hours with Habitat. As Habitat homeowners pay off their mortgage, the funds are invested into a revolving fund, which is used by the local Habitat to build more homes for low-income families in the community.

York Region supports additional affordable housing providers in the City of Vaughan, including the Hesperus Fellowship Village, Reena, Friuli Benevolent Corporation, and St. Peter's Seniors Residence Woodbridge Inc., Branch 414 Legion Village Non-Profit Housing and OHR Somayach Residential Centre Inc. (cited in the Report to Council of June 27, 2017, Item 1, Report No. 24, of the Committee of the Whole, Working Session, which was adopted without amendment by the Council of the City of Vaughan on June 27, 2017).



Biodiversity

Biodiversity is not just associated with wildlife habitat. Natural and semi-natural places in cities improve people's health (EcoHealth Ontario 2017) and is a sought-after community amenity. Urban ecosystems also provide billions of dollars' worth of ecological services to cities. Implementing new green infrastructure and restoring natural spaces within urban areas has a clear economic return on investment for municipalities (ICLEI Canada and Toronto and Region Conservation Authority 2014).



Select Biodiversity Best Practices

By 2020, at least 17 per cent of terrestrial and inland water, and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes

Target 11 of the Aichi Biodiversity Targets, UN Convention on Biological Diversity

By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Target 15 of the Aichi Biodiversity Targets, UN Convention on Biological Diversity

By 2020, at least 17 per cent of terrestrial areas and inland water and 10 per cent of marine and coastal areas of Canada are conserved through networks of protected areas and other effective area-based measures.

2020 Biodiversity Goals and Targets for Canada

By 2020, at least 17 per cent terrestrial and aquatic systems are conserved through well-connected networks of protected areas and other effective area-based conservation measures.

Ontario Biodiversity Strategy



WWF-Canada's Living Planet Report 2017. From 1970 to 2014, half (451 of 903) of monitored wildlife species in Canada declined in abundance. This is true for all wildlife groups: Approximately half of the mammals (54 per cent), fish (51 per cent), birds (48 per cent), and amphibians and reptiles (50 per cent) included in the analysis exhibited declining trends during this time (Figure 2).

For the half of monitored species with declining trends, the Living Planet Index shows, on average, a decline of 83 per cent, from 1970 to 2014.

Interpretation for the City of Vaughan

Natural areas in Vaughan are mapped in VOP 2010 as the Natural Heritage Network and includes woodlands, wetlands and valleylands. These natural areas cover over 6,000 hectares, about 20 per cent of Vaughan's land area, and half of which are secured as publicly-owned lands by the City or the TRCA.

However, only 11 per cent of Vaughan's land area comprises woodlands and only about 1 per cent are wetlands. This means that over half of the lands identified in the Natural Heritage Network are sites such as open fields, meadows and successional habitat. Many of these areas are located in valleys or small streams that occur on agricultural lands and represent an opportunity for ecological restoration and habitat enhancement. There are also City-owned lands not recognized as part of the Natural Heritage Network, such as North Maple Regional Park, that provide opportunities for targeted natural areas restoration that is aligned with passive recreational uses, such as hiking and cycling.

Municipal Commitments

The Town of Aurora in York Region assessed the value of environmental features (natural assets) in a 2013 study (Town of Aurora 2013). This provides a baseline database for the Town to help inform and understand the potential cost of land use decisions in terms of ecosystem services.

The Town of Gibsons, British Columbia, has prepared a sophisticated natural capital evaluation as part of their asset management plan. The Town has four main objectives in considering natural as well as engineered assets:

1. Managing risk by ensuring that Gibsons has a clear understanding of what services they receive from natural assets, such as flood prevention, provision of drinking water and rain water management, and what it would cost to replace the natural asset with an engineered alternative if the assets were degraded or destroyed.
2. Saving costs by managing natural assets in a way that will provide services at lower cost and in perpetuity.
3. Maintaining healthy ecosystems as a result of sound asset management strategies.
4. Managing the asset to provide services for future development without degrading the condition.

Non-government Sector Commitments

A 2018 paper in the peer-reviewed journal, Conservation Biology, provides the findings of evaluating sustainability reports of the top 100 of Fortune 500 companies for biodiversity accountability (Addison et al. 2018). While 31 companies made clear biodiversity commitments, only five were specific, measurable and time bound. Nine companies provided quantitative indicators to verify the magnitude of their activities (e.g., area of habitat restored). No companies reported quantitative outcomes, making it difficult to evaluate actual progress on any biodiversity achievements.



Urban Forest and Tree Canopy

The ecosystem services and health benefits provided by trees and forests have been well-documented and include oxygen production, pollutant removal, shade provision and cooling effects through evapotranspiration. A Special Report by TD Economics (2014) calculated the value of the City of Toronto's urban forest to be about \$7 billion (\$700 per tree) and provides \$8 per tree in environmental benefits. This works out to about \$125 in household savings per year.

A Vaughan Term of Council Priority (2014-2018) was to "re-establish the urban tree canopy"

Forest or woodland cover refers to canopy cover provided by stands of trees that are greater than 0.2 hectares in size. Overall tree canopy cover includes forests and individual trees that may occur in boulevards, parks and private lots.

Select Forest and Tree Canopy Best Practices

30 per cent forest cover at the watershed scale is the minimum forest cover threshold. This equates to a high-risk approach that may only support less than one half of the potential species richness, and marginally healthy aquatic systems.

[Environment Canada, How Much Habitat is Enough?](#)

40 per cent forest cover at the watershed scale equates to a medium-risk approach that is likely to support more than one half of the potential species richness, and moderately healthy aquatic systems.

50 per cent forest cover or more at the watershed scale equates to a low-risk approach that is likely to support most of the potential species, and healthy aquatic systems.

The proportion of the watershed that is forest cover and 100 metres or further from the forest edge should be greater than 10 per cent.

[Environment Canada, How Much Habitat is Enough?](#)

For York Region:

- recommended range of woodland cover is 25 per cent by 2031;
- recommended range of total canopy cover is 35 per cent by 2031 and 40 per cent by 2051.

[York Region Forest Management Plan 2016](#)

For Vaughan:

- recommended range of woodland cover is 14 per cent to 17 per cent;
- recommended range of total canopy cover is 25 per cent to 35 per cent.

According to a national analysis by U.S. Forest Service researchers David Nowak and Eric Greenfield, a 40 to 60 per cent urban tree canopy is attainable under ideal conditions in forested states. Twenty per cent in grassland cities and fifteen per cent in desert cities are realistic baseline targets, with higher percentages possible through greater investment and prioritization.

[American Forests](#)



Interpretation for the City of Vaughan

At 11 per cent woodland cover currently in Vaughan, meeting York Region’s recommended best practice for Vaughan of 14 per cent to 17 per cent woodland cover is achievable but will require a concerted effort. This is equivalent to planting trees on about 800 hectares to 1,600 hectares of land and much of this restoration can be located in parts of existing valleys that are currently open fields, meadows and successional habitat.

The City’s recent tree canopy inventory will set a baseline for targeted improvements in street tree and other small-scale planting projects. Total tree canopy cover is about 17 per cent and has been impacted by the last ice storm and tree deaths from the invasive Emerald Ash Borer. Individual tree and small-stand tree planting can emphasize boulevard planting for “green streets”, provide shade in parks, and reduce the urban heat island effect in heavily built-up areas.

Municipal Commitments

A sample of Ontario municipalities illustrates similar tree canopy cover targets to those recommended in the York Region Forest Management Plan 2016:

- Guelph – 40 per cent
- London - achieve tree canopy targets of 28 per cent by 2035 and 34 per cent by 2065 subject to annual budget approval
- Markham – 30 per cent tree canopy and vegetation coverage City-wide
- Ottawa – 30 per cent
- Toronto – 40 per cent within 50 years

Non-government Sector Commitments

Forests Ontario helped over 4,000 landowners with woodland restoration projects under the 50 Million Tree program.

The TD Forests program, an initiative of the TD Bank group, was launched in 2012 to help conserve critical forest habitats. Since then, the program has helped the Nature Conservancy Canada protect more than 15,000 hectares of forest land in southern Canada.

Tree Canada and the Canadian National Railway Company (“CN”) partner to deliver over a half million dollars every year to fund community greening projects. In 2018, 25 communities were awarded grants of up to \$25,000 each.



Green Building

The green construction sector continues to grow in expertise and influence in order to reduce the environmental footprint of buildings. This is a response to the known impacts of building construction and operations on the environment and

people. The Whole Building Design Group (WBDG) provides a useful list of available sustainable product and green building standards and certifications



Select Green Building Best Practices

Federal, provincial, and territorial governments will work to develop and adopt increasingly stringent model building codes, starting in 2020, with the goal that provinces and territories adopt a “net-zero energy ready” model building code by 2030.

Require that the majority of new buildings in Vancouver have no operational greenhouse gas emissions by 2025 and that all new buildings have no greenhouse gas emissions by 2030.

Pan-Canadian Framework on Clean Growth and Climate Change

City of Vancouver Zero Emissions Building Plan



Interpretation for the City of Vaughan

Vaughan’s Sustainability Performance Metrics (the “Metrics”) measures the sustainability contribution of every development application. Exterior design elements such as landscaping, pedestrian connections, lighting and solar orientation are the focus of the Metrics. Energy efficiency and water conservation are recognized in the Metrics and the City is evaluating incentives to emphasize these performance goals in green building projects.

compared to 2015 and (2) reducing the amount of municipal solid waste disposed to landfill and incineration by at least 50 per cent by 2030 compared to 2015 and increase the diversion rate away from landfill and incineration to at least 70% by 2030.

- enacting regulations and/or planning policy to ensure new buildings operate at net zero carbon by 2030 and all buildings by 2050

Municipal Commitments

C40 is a network of the world’s megacities committed to addressing climate change. Among other commitments, sustainable community design and green building declarations of C40 cities include fossil-fuel-free streets, advancing towards zero waste and net zero carbon buildings. The C40 pledges include:

- transitioning to Fossil-Fuel-Free Streets by procuring only zero-emission buses from 2025 and ensuring a major area of the city is zero emission by 2030
- advancing towards zero waste cities by (1) reducing the municipal solid waste generation per capita by at least 15 per cent by 2030

Non-government Sector Commitments

Leadership in Energy and Environmental Design (LEED) is one of the most recognized green building certifications. There are over 3,600 LEED certified buildings in Canada.

The World Green Building Council established the Net Zero Carbon Buildings Commitment in 2018. The goal of the Commitment is for businesses and organizations across the world that have signed the commitment “to take advanced climate action by setting ambitious targets to eliminate operational carbon emissions from their building portfolios by 2030”.



Sustainability Best Practices Related to Goal 3 – How we get around

Sustainable Transportation

The City of Vaughan's Transportation Master Plan, A New Path, describes sustainable transportation as an approach emphasizing the "promotion of public transit and alternative modes of travel, optimization of existing roads and overall reduction in the need to travel." Low emission vehicles, including electric vehicles, can be a form of sustainable transportation, but does not necessarily address traffic congestion.

A sustainable transportation system is described more broadly in the Metrolinx 2041 Regional Transportation Plan that:

- is aligned with land use, and supports healthy and complete communities
- will provide safe, convenient and reliable connections, and support a high quality of life, a prosperous and competitive economy, and a protected environment

Select Transit and Active Transportation Best Practices

The Region will plan to provide transit service so that the distance to a transit stop in the Urban Area is within 500 metres of 90 per cent of residents, and within 200 metres of 50 per cent of residents

York Region Official Plan,
Policy 7.2.25

Achieve an overall transit modal split of 30 per cent during peak periods in the Urban Area, and 50 per cent in the Regional Centres and Corridors by 2031

York Region Official Plan,
Policy 7.2.26

Overall transit modal split of 30 per cent during peak periods is targeted for the City as a whole and a transit modal split of 50 per cent is targeted for the Vaughan Metropolitan Centre and the Regional Intensification Corridors by 2031. A 40 per cent transit modal split during peak periods is targeted for all other Intensification Areas by 2031.

Vaughan Official Plan
2010, Policy 4.1.1.2

To encourage the provision of transit service within 500 metres of at least 90 per cent of residences and the majority of jobs, and consistent with approved York Region Transit service standards and guidelines, and within 200 metres of at least 50% of residents in the Urban Area.

Vaughan Official Plan
2010, Policy 4.2.2.14

Increase the sustainable mode share to 50 per cent

Region of Peel Sustainable
Transportation Strategy

Increase the 2011 AM peak walking trips from 50,000 to 90,000 by 2041

Region of Peel Sustainable
Transportation Strategy

Increase the 2011 AM peak cycling trips from 2,000 to 20,000 by 2041

Federal, provincial and territorial governments will work with industry and stakeholders to develop a Canada-wide zero-emission vehicles strategy

Pan-Canadian Framework
on Clean Growth and
Climate Change



Interpretation for the City of Vaughan

The 2011 Transportation Tomorrow survey data for the City of Vaughan indicated that approximately 14 per cent of all trips by Vaughan residents were made by sustainable modes. Based on the 2016 Transportation Tomorrow survey data, the proportion of sustainable trips increased to approximately 16 per cent.

Municipal Commitments

The City of Vaughan's Transportation Master Plan and VOP2010 identify a city-wide transit modal split target of 30 per cent by 2031.

Non-government Sector Commitments

The Smart Commute workplace program of Metrolinx helps inform employers and commuters about their commute choice and encourages them to try more efficient options. In 2014, Smart Commute worked with 340 workplaces employing more than 730,000 commuters in the region. Smart Commute offices (Transportation Management Associations or TMAs) work with employers to develop tailored employee travel programs. TMAs offer a range of commute services to support carpooling, shuttles, alternative work arrangements (e.g., telework, compressed work week, flex hours etc.), walking, cycling programs and transit use (Metrolinx 2015).

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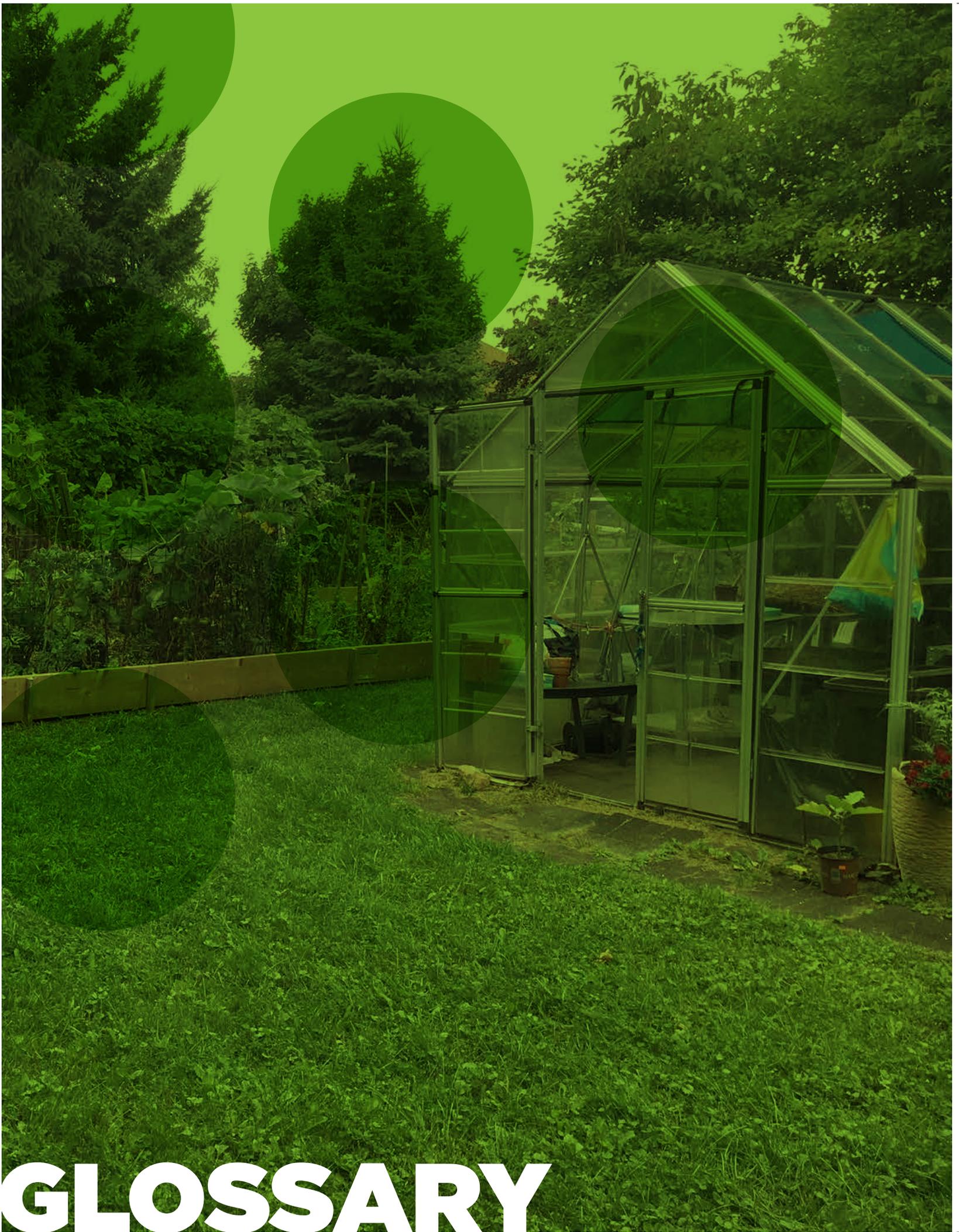
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GLOSSARY



Glossary

The following themes are assigned to each sustainability action to help identify and describe the outcome. Sustainability actions may incorporate more than one theme, demonstrating the alignment within and between environmental, social and economic sustainability actions.

Themes	Definition
Climate Resiliency	Climate Resiliency is assigned to sustainability actions that address climate mitigation (reducing greenhouse gas emissions) and/or climate adaptation (better protecting against climate change impacts).
Energy	Energy is assigned to sustainability actions that indicate measures to reduce energy consumption, support energy conservation and encourage alternative energy generation.
Mobility	Mobility is assigned to sustainability actions to improve how citizens and goods move around in the City of Vaughan, including public transit and modes of active transportation.
Green Infrastructure	Green Infrastructure is assigned to sustainability actions that enhance living green infrastructure, such as street trees, bioswales, woodlands, wildlife habitat and parks.
Water	Water is assigned to sustainability actions that indicate measures to conserve water, reduce runoff, and enhance the standards of stormwater management.
Waste	Waste is assigned to sustainability actions that aim to reduce the amount of waste generated and improve diversion from landfills.
Green Economy	Green Economy is assigned to sustainability actions that move the City toward becoming low carbon, resource efficient and socially inclusive while maintaining a strong economy.
Complete Communities	Complete Communities is assigned to sustainability actions that improve the accessibility of homes, jobs, schools, community services, parks and recreation facilities.
Greenspace	Greenspace is assigned to sustainability actions that maximize tree canopy, parks, trails, wildlife habitat, woodlots and open spaces.
Health	Health is assigned to sustainability actions that aim to improve the health of residents, including physical and mental well-being.
Diversity	Diversity is assigned to sustainability actions that support and improve art, culture and social cohesion.
Governance	Governance is assigned to sustainability actions that include a measure of accountability, reporting and tracking progress by the Corporation of the City of Vaughan.

Glossary

Themes

Definition

Engagement

Engagement is assigned to sustainability actions that encourage staff and citizen education and involvement in initiatives.

Partnerships

Partnerships is assigned to sustainability actions that build collaboration in the community and with businesses and stakeholders to achieve a common goal.

Terms

Definition

Active Transportation

Active transportation is any form of human-powered transportation. It includes walking, cycling, wheeling, in-line skating, skateboarding, ice skating, etc. It can also involve combining modes such as walking/cycling with public transit.

Source: Vaughan Transportation Master Plan 2013 , “A New Path”.

Built Environment

Built environment refers to anything in the physical environment that is human-created. It includes buildings, parks, neighbourhoods, transportation systems, energy systems, agricultural lands and street design.

Sources : <https://opha.on.ca/What-We-Do/Workgroups/Built-Environment.aspx>

<https://www.toronto.ca/city-government/data-research-maps/research-reports/public-health-past-significant-reports/reports-on-built-environment-human-health>

Carbon Neutrality

Carbon neutrality refers to achieving net-zero carbon emissions by balancing a measured amount of carbon released with an equivalent amount sequestered or offset. The best practice(s) for organizations and individuals seeking carbon neutral status are to avoid creating carbon emissions first, so that only the unavoidable emissions are offset.

Glossary

Terms

Definition

Climate Change

Climate change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use. Note that the Framework Convention on Climate Change (UNFCCC), in its Article 1, defines climate change as: ‘a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.’ The UNFCCC thus makes a distinction between climate change attributable to human activities altering the atmospheric composition and climate variability attributable to natural causes.

Source: IPCC, 2018: Annex I: Glossary [Matthews, J.B.R. (ed.)]. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press

CO₂

Carbon Dioxide. While it does occur naturally, it is the most prominent greenhouse gas in the atmosphere and is released as a result of the burning of fossil fuels, such as coal, oil and natural gas.

Complete Communities

A community where residents, businesses and visitors thrive and homes, jobs, schools, community services, parks and recreation facilities are easily accessible. Complete communities provide:

- A healthy natural environment, with ample greenspace
- Convenient access to an appropriate mix of jobs and local services and a full range of housing
- Community infrastructure including educational opportunities at all levels, healthcare, socio-cultural activities, recreation and open space
- Mobility, with convenient access to public transit and the opportunity to walk and bike
- An attractive built environment
- Safety and security

Glossary

Terms

Definition

Green Procurement

The act or process of acquiring goods and services in an environmentally and socially sustainable manner that benefits local economies, the environment and communities. Goods and services obtained in this manner minimize their impact upon the environment and promote local community and economic development.

Greenhouse Gas (GHG)

Gas that contributes to the capture of heat in the Earth's atmosphere. Carbon dioxide is the most prominent GHG. It is released into the earth's atmosphere as a result of the burning of fossil fuels such as coal, oil or natural gas. GHGs are widely acknowledged as contributing to climate change.

Source: Achieving Balance: Ontario's Long-Term Energy Plan. 2013)

Integrated Community Sustainability Plan

A long-term plan, developed in consultation with community members, that provides direction for the community to realize sustainability objectives, including environment, culture, social and economic.

Leadership in Energy and Environmental Design (LEED)

LEED is a rating system which uses specific energy, environmental design and sustainable development criteria to assign points to buildings that demonstrate vision and innovation in environmental friendly design features and development processes. The rating system was created by the World Green Building Council and is currently administered in Canada by the Canadian Green Building Council. The ratings include: LEED certified, LEED Silver, Gold and Platinum

Local Improvement Charge

Municipalities, through local improvement charges, have the ability to recover the costs of capital improvements made on public or privately owned land from property owners who will benefit from the improvement. O. Reg. 586/06 (Local Improvement Charges (Priority Lien Status) made under the Municipal Act, 2001, was amended by O. Reg. 322/12, and O. Reg. 596/06 (Local Improvement Charges (Priority Lien Status) made under the City of Toronto Act, 2006, was amended by O. Reg. 323/12. These amendments address:

- municipal flexibility to undertake different types of capital works as a local improvement, including, but not limited to renewable energy, energy efficiency and water conservation capital works;
- flexibility for municipalities to enter into agreements with willing private land owners to undertake local improvements on private property and recover the cost from owners; and,
- alternative methods of apportioning the costs of local improvements on private property beyond a charge based on frontage.

Source: Vaughan Municipal Energy Plan: Plug into a Smart Energy Future.

Glossary

Terms	Definition
Master Plan	Long range plan that determines community goals and guides how the City of Vaughan will meet these goals.
The “Plan”	Green Directions Vaughan, the City’s community sustainability plan. The new Plan refers to Green Directions Vaughan 2019.
Principles of Reconciliation	Treaties, agreements and other constructive arrangements between Indigenous peoples and the Crown intended to be acts of reconciliation based on mutual recognition and respect and a starting point or the Crown to engage in partnership
Renewable Energy	Energy derived from sources that do not deplete natural resources. Examples include solar, wind and geothermal.
Single Occupancy Vehicle (SOV)	A motor vehicle occupied by only one person.
Stormwater Management	The process of using technologies and techniques, including ecological restoration and volume control, to reduce flooding and minimize hazards under major storm events and reduce pollution loading and runoff into water bodies. Stormwater management ensures that harmful chemicals and pollutants do not end up in Vaughan’s drinking water supply and do not harm fish, animals, insects and natural areas.
Sustainability	In Vaughan, sustainability means we make decisions and take actions that ensure a healthy environment, vibrant communities and economic vitality for current and future generations.
Transportation Demand Management	An umbrella term that includes many different ways of managing traffic demands, especially those methods that allow a transportation system to meet the demands of traffic or reduce the actual demand itself, whether the demand is from automobiles, pedestrians, cyclists, etc., by the introduction of one or more transportation services and/or programs. This may include, rideshare programs, tele-commuting, bike/transit integration, public bike systems and transit improvements. Source: Vaughan Transportation Master Plan 2013 , “A New Path”.
Tree Canopy	The total area of trees to where the leaves or outermost branches extend. It typically refers to the upper layer or habitat zone of a tree(s).





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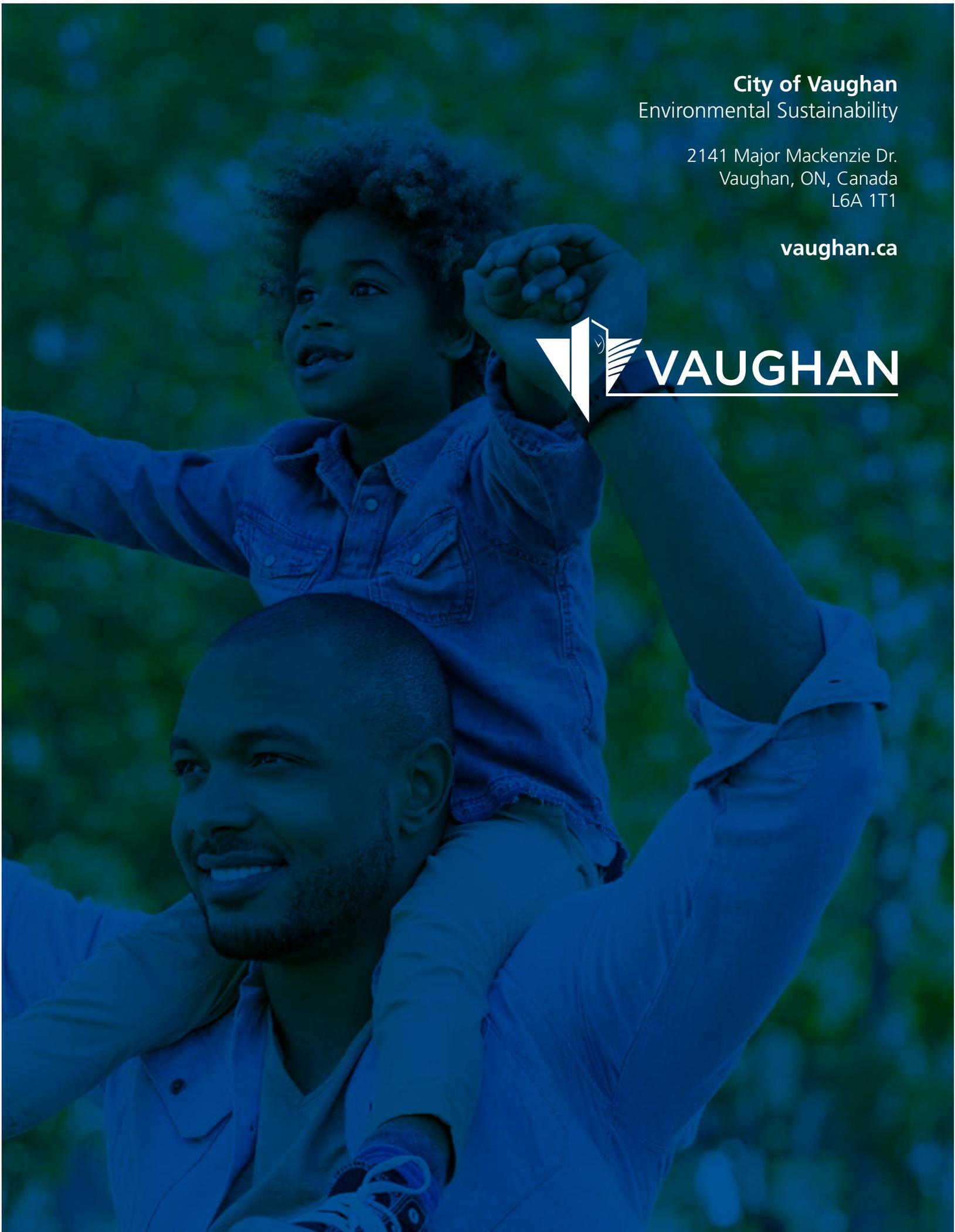
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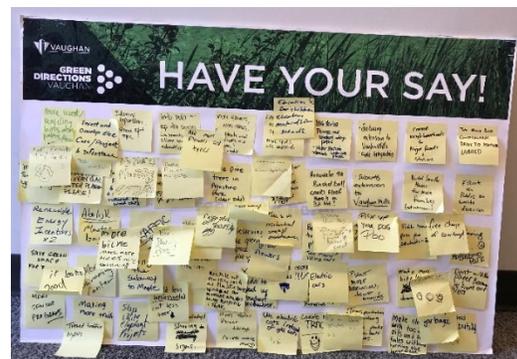
Draft Green Directions Vaughan 2019 Summary Results of Community Engagement in 2019

Public consultation is a vital part of the city-building process. City of Vaughan staff planned and undertook a comprehensive community engagement effort from June 2019 to August 2019 on the draft Green Directions Vaughan 2019 (the 'Plan'). The main objectives were to generate awareness of Green Directions Vaughan (GDV) and validate that the City is moving in the right direction in relation to how the community imagines a sustainable Vaughan. The community engagement effort was a partnership between the Policy Planning and Environmental Sustainability department and the Corporate and Strategic Communications department and included a wide variety of engagement techniques. City staff capitalized on the summer season and endeavoured to reach a wide range of citizens and stakeholders with a “go-to-where-the-people-are” approach. The City of Vaughan undertook the engagement process completely in-house — work which would have been valued at approximately \$50,000 in the private sector.

The community engagement effort is summarized below into four categories:

- GDV pop-up booths at community events
- Pop-ups at retail locations
- Facilitated outreach sessions
- External communications and engagement

Two feedback boards (displayed below) were utilized for the various pop-up events in the community and retail locations and at select outreach sessions. The boards engaged residents on the goals and content of GDV to seek support for and/or feedback on the draft Plan. One of the boards displayed the six goal areas and its objectives, providing residents an opportunity to give their “thumbs up” of approval by stamping the board. The second board allowed for residents to write feedback or share what is most important to them in the Plan.



Feedback Boards utilized for GDV engagement in 2019

Community Events Pop-up Booth

Background:

City staff representing Green Directions Vaughan (GDV) attended five Concerts in the Park events, the Canada Day event, the Agostino Park expansion official opening and one Music in the Square event in the Vaughan Metropolitan Centre for a total of eight pop-up booths.

A total of 167 stamps of approval and 73 comments were received on the feedback boards.

Overall Observations:

While most residents were not aware of GDV, they were pleased to know there is an updated draft sustainability plan and this prompted them to voice their support. The feedback boards made it easy to engage directly with residents about the Plan and individuals responded positively to the concepts included in GDV, as well as the City's effort to engage. The following table provides the breakdown of metrics for each event:

Event (2019)	Number of Approval Stamps	Number of Feedback Comments
Concerts in the Park – June 19	8	6
Agostino Park – June 25	14	10
Concerts in the Park – June 26	15	8
Canada Day Event – July 1	47	26
Concerts in the Park – July 10	19	5
Concerts in the Park – July 17	27	5
Music in the Square – July 25	4	1
Concerts in the Park – July 31	33	12
TOTAL	167	73

Verbatims:

The following are a selection of verbatim comments that were received on the feedback boards or spoken directly to City staff:

- *“Involve schools in projects”*
- *“Preservation of green space along Pine Valley and Major Mac”*
- *“Education on waste diversion in condos”*

Pictures:



Concerts in the Park 07-10-19



Canada Day 07-01-19

Retail Pop-up Booths

Background:

Two prominent retail locations in Vaughan, Promenade Mall and Vaughan Mills, were selected for pop-ups to complement the GDV pop-up booth at community events.

A total of 28 approval stamps and 5 comments on the feedback boards were received.

Overall Observations:

The pop-up booths allowed staff to engage with residents outside of city-led events. Though Vaughan Mills had more pedestrian traffic, most of the feedback was collected at Promenade Mall, as Vaughan residents were more likely to stop at or approach the booth and provide their feedback. Many shoppers at Vaughan Mills were not residents of Vaughan and unable to contribute. The following table provides the metrics for each event:

Event (2019)	Number of Approval Stamps	Number of Feedback Comments
Vaughan Mills - Aug 17	7	1
Promenade Mall – Aug 18	21	4
TOTAL	28	5

Verbatims:

The following are a selection of verbatim comments that were received on the feedback boards or spoken directly to City staff:

- *“Keep more green space”*
- *“Ban single use plastics”*

Facilitated Outreach Sessions

Background:

City staff representing Green Directions Vaughan (GDV) facilitated four outreach sessions with targeted audiences. These included students and parents from Thornhill Woods Public School, the Accessibility Advisory Committee, youth Earth Rangers participants at Pleasant Ridge Library and invitees to an informal community meeting garden social. These sessions provided a more intimate opportunity to connect with residents, deliver personalized presentations on GDV, allow for more in-depth two-way conversation and focused question-and-answer, and collect detailed feedback on the Plan.

The City of Vaughan recognizes the importance of including the voice of the youth population in the discussion on environmental sustainability. The sessions with students from Thornhill Woods Public School eco club, following their presentation to Council on climate change, and the Earth Rangers provided the opportunity to gain insight into how the City’s youth imagine a sustainable Vaughan. Earth Rangers is a youth-focused environmental education and conservation organization. The students were asked why the protection of the environment is important to them and what actions could be taken to make Vaughan more sustainable. Responses were written down or drawn on paper leaves that have been used to create a tree mural in the City Hall atrium.

Staff attended a meeting of the Accessibility Advisory Committee. A brief presentation was given that outlined the work of the Environmental Sustainability team and described Green Directions Vaughan. The following two questions were posed to the group:

1. What does sustainability mean to you?
2. How can we incorporate accessibility into sustainability?

The garden social was designed to gain valuable insights from stakeholders into how to socialize GDV with the very audience it impacts: Vaughan citizens. During an interactive workshop, participants were asked to break down the meaning behind a selection of environmental buzz words to help the City understand how the public perceives these

buzz words and what comes to mind. Workshop participants also provided feedback on whether the images used in the updated draft plan resonate with them. They also reviewed key outcomes and themes of public feedback collected in 2017 and prioritized three main areas of focus.

Overall Observations:

The small-group consultations were effective as they allowed for open discussion and thorough responses of which components of the Plan are priority to Vaughan residents. The following table provides the metrics for each event:

Session (2019)	Number of Participants
Thornhill Woods Public School – June 4	11
Accessibility Advisory Committee – June 29	9
Earth Rangers - July 20	12
Garden Social – August 27	23

Garden social observations

Participants at the garden social were asked to fill out a satisfaction survey. Results indicate that the event was well received, as all respondents answered either four or five when asked to rate the quality of the event on a scale of one to five. Majority of respondents (77 per cent) understand the role that Green Directions Vaughan plays in guiding Vaughan to a more sustainable future and 55 per cent said they would strike up a conversation about GDV after the event. Ward 3 had largest number of representatives (27.8 per cent), followed by ward 1 (22.2 per cent), ward 2 (22.2 per cent) and ward 4 (11 per cent). Respondents were between the ages of 30 to 60+ and 50% of respondents were 60+ years old.

Participants were led through two activities, one before and one after the interactive workshop component, that encouraged them to think about sustainability in different ways and demonstrated that GDV also addresses health and wellness. Participants crafted dream pillows filled with lavender, chamomile and sage. Lavender and sage were harvested from pollinator gardens at the City Hall and Vellore Heritage Square community gardens. Staff explained that community gardens are a source of sustainable food and help to improve health by reducing the production of stress hormones and blood pressure and boosting mood. The event ended with a meditation session where participants were guided through techniques to relax and focus on breathing.

The garden social event was zero waste; the workshop was facilitated through tablets and laptops, reusable plates, bowls and utensils were provided for food and any waste generated could be composted in the green bin program.

Verbatims:

The following are a selection of comments that were received on the paper leaves or spoken directly to City staff.

- *“Encourage builders to create green, energy efficient buildings and communities”* (Thornhill Woods Public School)
- *“Green space and trees are to be protected”* (Accessibility Advisory Committee)
- *“Nature is as special as us”* (Earth Rangers)

Pictures:



Earth Rangers



Thornhill Woods PS



City Hall Atrium tree



Garden Social

External Communications and Engagement

Background:

City of Vaughan staff utilized website, social media, corporate and Council eNewsletters and a telephone survey conducted through Access Vaughan to enhance promotion of the draft Plan. The GDV website was updated to give residents a chance to review the draft Plan in full, provide comments via an online feedback form and give their “thumbs up” on it. Social media messaging was also utilized to raise awareness of the draft Plan and bring residents to the website to provide feedback. Emails were sent to stakeholders who were initially consulted in the 2017 engagement effort and as well as others that represent important community groups. Effort was also made to contact registered ratepayer groups and seniors’ groups. The emails informed the stakeholders of the draft 2019 Plan and provided them with an opportunity to review and submit feedback. Access Vaughan deployed a short telephone survey for a two-week period starting August 26, 2019. Residents calling into Access Vaughan were asked to complete a short survey on the phone with the citizen service representative, consisting of four key questions:

1. Would you consider the City of Vaughan to be a sustainable city?
2. Are you aware that the City of Vaughan has a sustainability plan called Green Directions Vaughan?
3. Which action is most important to you? Reducing waste, saving energy, conserving water, or adopting technologies?
4. Personally, when you think of “climate change” which of the following comes to mind first? Day-to-day weather, extreme weather events or nothing, because climate change does not affect you?

Overall Observations:

The Access Vaughan survey results demonstrate that awareness of Green Directions Vaughan is more mixed than the observations at the pop-up booths, with 38 percent of respondents knowing about Green Directions Vaughan compared with 45 percent that are not aware of the Plan. However, a majority of respondents believe Vaughan is a sustainable City. The survey results also indicate that reducing waste is a priority for residents. In total, 269 responses were collected between August 26, 2019 to September 6, 2019. The data also indicates that approximately 25 per cent of phone survey respondents were aged 55 and up, approximately 50 per cent were between the ages of 35 and 54 and approximately 25 per cent were between the ages of 18 and 34.

Analysis, Recommendations and Next Steps:

The GDV pop-up booth at community events was an effective way to engage directly with Vaughan residents about the Plan, allowing them to ask questions and provide feedback. The City has found it imperative to set up booths at events that are frequented by the public to ensure every opportunity to submit feedback is offered. Once the Plan is approved, it is recommended that the GDV booth be present at future community events.

Promenade Mall is a preferred retail location for direct engagement with Vaughan residents, while a different communications approach can be taken at Vaughan Mills given the high exposure.

As student education is a crucial component of GDV, continued outreach sessions with elementary and secondary schools is suggested to ensure GDV is communicated to youth residents.

Feedback from the engagement effort will be used to shape continued education and promotion of the updated Plan and assist in making decisions about which available communications platforms should be utilized in the future.