

SMART CITY TASK FORCE – APRIL 12, 2022**COMMUNICATIONS****Distributed April 5, 2022****Item**

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| C1. | Presentation material titled “ <i>City of Vaughan Strategic Plan (2022-2026) Backgrounder – Smart City Task Force</i> ” | 3 |
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Distributed April 12, 2022

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| C2. | Presentation material titled “ <i>Stormwater Management Pond Automated Monitoring</i> ” | 1 |
| C3. | Presentation material titled “ <i>Smart City Task Force Draft Findings and Recommendations Report</i> ” | 2 |

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Please note there may be further Communications.



Communication : C 1
Smart City Task Force
April 12, 2022
Agenda Item # 3

City of Vaughan Strategic Plan (2022-2026)

Background – Smart City Task Force

April 12th, 2022



●●● Introduction

Project Background

PROJECT CONTEXT

The City of Vaughan has engaged StrategyCorp to support the development of its updated Strategic Plan.

- Vaughan is a fast-growing City, with unique community needs. This Strategic Plan needs to represent those needs and meet the expectations of Council and City leadership.
- The strategic planning process will engage Council, staff, the community, and stakeholders, as well as the City's Task Forces.
- We will be engaging each Task Force to gain a deeper understanding of each priority area, the work the City has done to date, and the opportunities and potential recommendations for the future.

MEETING STRUCTURE

- Our objective is to hear directly from Task Force members.
- We have included an overview of the City's Objectives and Key Activities relating to the Good Governance Strategic Priority Area in the current Strategic Plan.
- The discussion will revolve around the discussion question included in this deck.
- Please note that your input will be synthesized and remain non-attributable in any reports or presentations we may bring forward.
- If you have any additional questions or comments, please send them to Stacy Hushion shushion@strategycorp.com or Reema Bazzi at rbazzi@strategycorp.com.

Smart City Task Force

The City of Vaughan Smart City Task Force has an overall mandate to provide advice to Council and City administration on the development of a Smart City initiative which enhances urban life in terms of people, living, economy, mobility and governance using Smart City technologies, innovation and principles.

- Vaughan is a rapidly growing city that is committed to enhancing the quality of life for its residents
- Information, communication and technology can be utilized to advance accountable governance, efficient service delivery, innovation development and community well-being.
- Economic Prosperity, Investment and Social Capital is a pillar of the Strategic Plan that aims to advance economic opportunities and new investments.

The Task Force serves as a forum of discussion for Smart City concepts and provides research, best practices, and strategic inputs on emerging technology, innovation and IT to enhance urban living and implement solutions.

We are seeking the Task Force's input on economic prosperity, investment and social capital City and to identify economic development opportunities related to Smart City and technology.

●●● The Current Strategic Plan

Current Strategic Plan Framework – Goals and Objectives

Priorities (9)	Transportation and Mobility	City Building	Active, Safe, and Diverse Communities	Environmental Stewardship	Economic Prosperity, Investment in Social Capital	Good Governance	Citizen Experience	Operational Performance	Staff Engagement
Objectives (24)	Improve Local Road Network	Develop the Mackenzie Vaughan Hospital Precinct	Enhance Community Well-Being	Protect and Respect Our Environment	Advance Economic Opportunities	Ensure Transparency and Accountability	Commitment to Citizen Service	Leverage Data-Driven Decision-Making	Empower Staff
	Support Regional Transportation Initiatives	Develop the Vaughan Metropolitan Centre (VMC)	Enrich Our Community	Proactive Environmental Management	Attract New Investments	Commitment to Financial Stewardship and Sustainability (Demonstrate Value for Money)	Transform Services through Technology	Promote Innovation and Continuous Improvement	Develop Leadership
	Advance Active Transportation	Elevate Quality of Life Through City Planning	Maintain Safety in Our Community	Build the Low Carbon Economy and a Resilient City	Enable a Climate for Job Creation				Manage Performance

Economic Prosperity, Investment and Social Capital Strategic Goal Statement: *To ensure Vaughan continues to be the place to be, the City will undertake initiatives to ignite economic prosperity and social capital, and celebrate Vaughan as an entrepreneurial city and the gateway to economic activity in the Greater Toronto Area, Ontario and Canada.*

Summary of Key Activities in Current Strategic Plan

The current Strategic Plan also includes the following key activities that relate to economic prosperity, investment and social capital.

1. Advance Smart City and technology led economic development opportunities
2. Promote Vaughan's advantages, strategic projects, market opportunities and local businesses in targeted global centers (International Business Development)
3. Invest in the Tourism and Accommodation Industry
4. Engage the Vaughan business community and regional partners; strengthen networks and relationships and make business and labour connections to regional and international networks
5. Build economic resiliency in Vaughan's priority sectors through, for example project and policy development related to key sectors in a post-COVID context
6. Develop Vaughan as an entrepreneurial and small-business and innovation hub
7. Increase Vaughan's Brand Recognition as the place to be (to Think, Start-up, Invest and Visit)
8. Secure Vaughan as the Region's largest employment centre through programs that will help our business owners build resilience into their businesses and adapt to the new normal

Summary of Key Activities in Current Strategic Plan (Cont'd)

9. Promote the Development of Vaughan's Industrial Sectors and Business Parks
10. Contribute to the development of a complete community in the VMC by improving awareness of the VMC as a premier office and retail business location, activating public spaces through signature events, and setting the stage for a creative and cultural hub
11. Attract a post-secondary institution to Vaughan
12. Promote Vaughan's City Building Projects through Mayor and Members of Council attending the 2019 trade mission to Israel organized by the Vaughan Chamber of Commerce

●●● Discussion

Discussion Question

What are some opportunity areas that the City of Vaughan should focus on over the next several years as it relates to Economic prosperity, investment and social capital, and the Smart City Task Force, and why?



Communication : C 2
Smart City Task Force
April 12, 2022
Agenda Item # 1

STORMWATER MANAGEMENT POND **AUTOMATED MONITORING**

SMART CITY TASK FORCE
APRIL 12, 2022



OUR **AGENDA**

01

What were we doing?

Reactionary maintenance strategies based on anecdotal observations

02

What are we doing now?

Automated stormwater management pond monitoring at 10 locations

03

What can we expect?

A shift from reactionary observations to proactive, informed programming

04

Where do we go from here?

Coming soon: A drone litter audit

OUR INFRASTRUCTURE

DID YOU KNOW?

Vaughan's Stormwater Management System



- 150 stormwater management ponds
- Nearly 1,000 km of storm sewers and over 22,000 catch basins

STORMWATER MANAGEMENT

The Role of Stormwater Management Ponds



- Provide water quality improvements and flood mitigation measures in watersheds
- Collect stormwater run-off and contaminants

TRADITIONAL APPROACHES

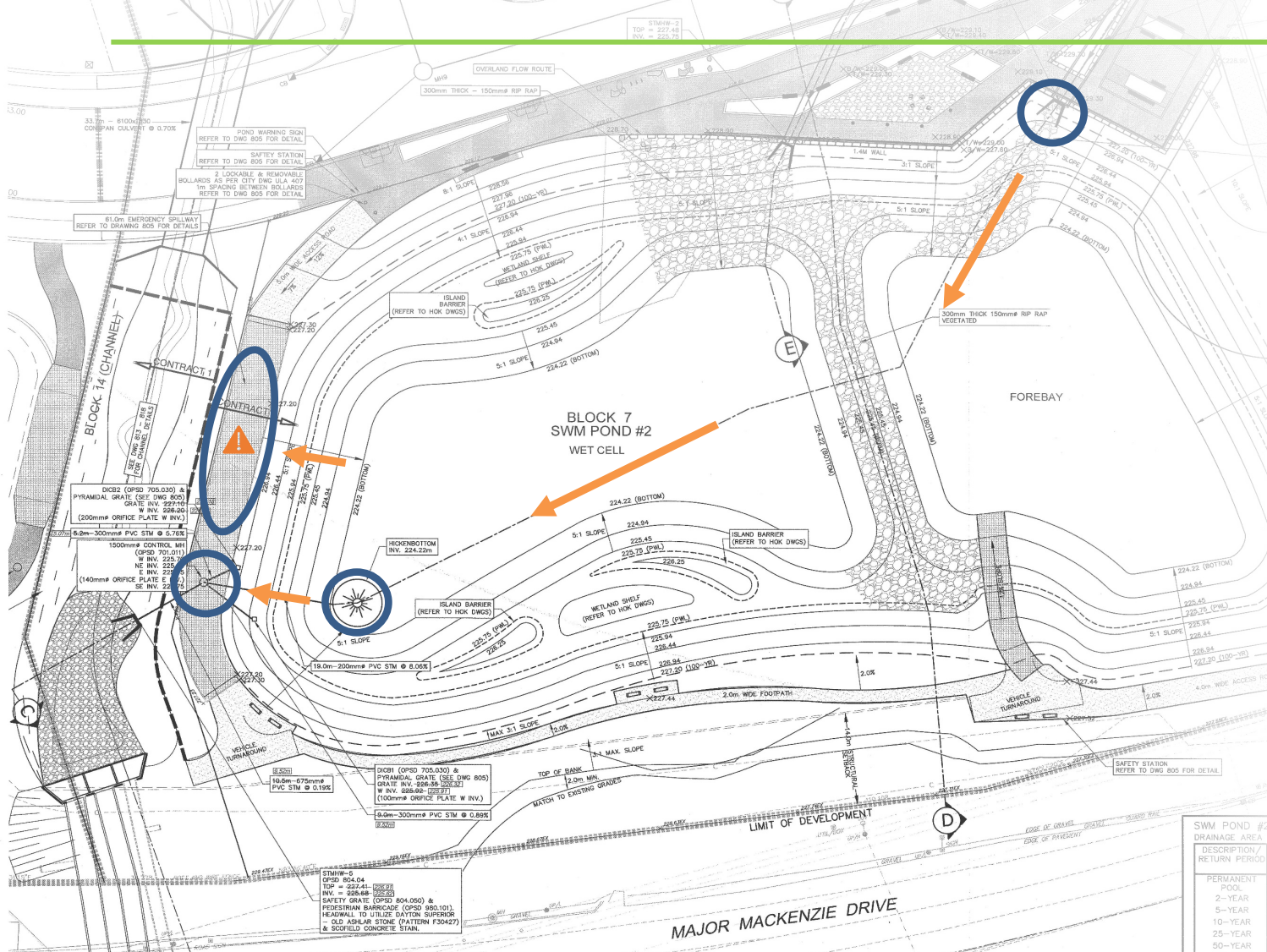
Manual Operational Constraints and Maintenance



- Reactionary during large storm events
- Based on historical anecdotal observations
- Time consuming



OUR INFRASTRUCTURE

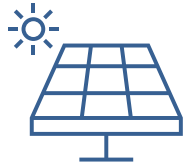


HOW DOES YOUR LOCAL POND WORK?

Cortellucci Vaughan Hospital Pond

- ☒ Inlet
- ☒ Forebay
- ☒ Main cell
- ☒ Quality outlet
- ☒ Quantity outlet
- ☒ Emergency overflow

AUTOMATED MONITORING



ioticity™
The only Industrial IoT Network of its kind

Off-Grid Solar-Ready

Professionally installed, turnkey,
industrial-grade solution to monitor
the quality of your water infrastructure

24/7 - Remote Reporting and Early Warning System

Scientific-Grade Sensors

Connect the dots™

The laptop screen displays the ioticity dashboard for 'POND 6' on Wednesday, Jan 12, 2022, 4:01:23 pm. The dashboard includes a table of sensor data and several line graphs.

Sensor	Unit	Value	High	Low	Alert
Flow	gpm	196	4000	100	OK
PH		3	14.0	7.0	OK
Turbidity	NTU	22	1000	10	OK
Conductivity	µS/cm	1019	10000	100	OK
Depth	ft	37	10	0	OK

The dashboard also features line graphs for Water Temperature, PH, Depth, Dissolved Oxygen, Conductivity, Turbidity, TSS, and Rainfall Accumulated. A map on the right shows the location of Pond 6.

AUTOMATED MONITORING

INITIAL DEPLOYMENT

10 Locations City-wide



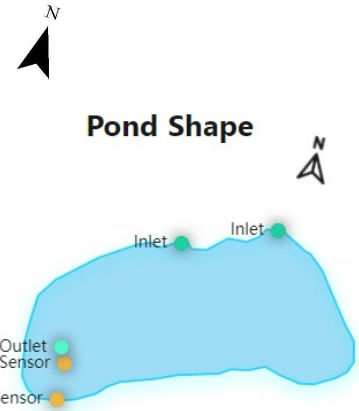
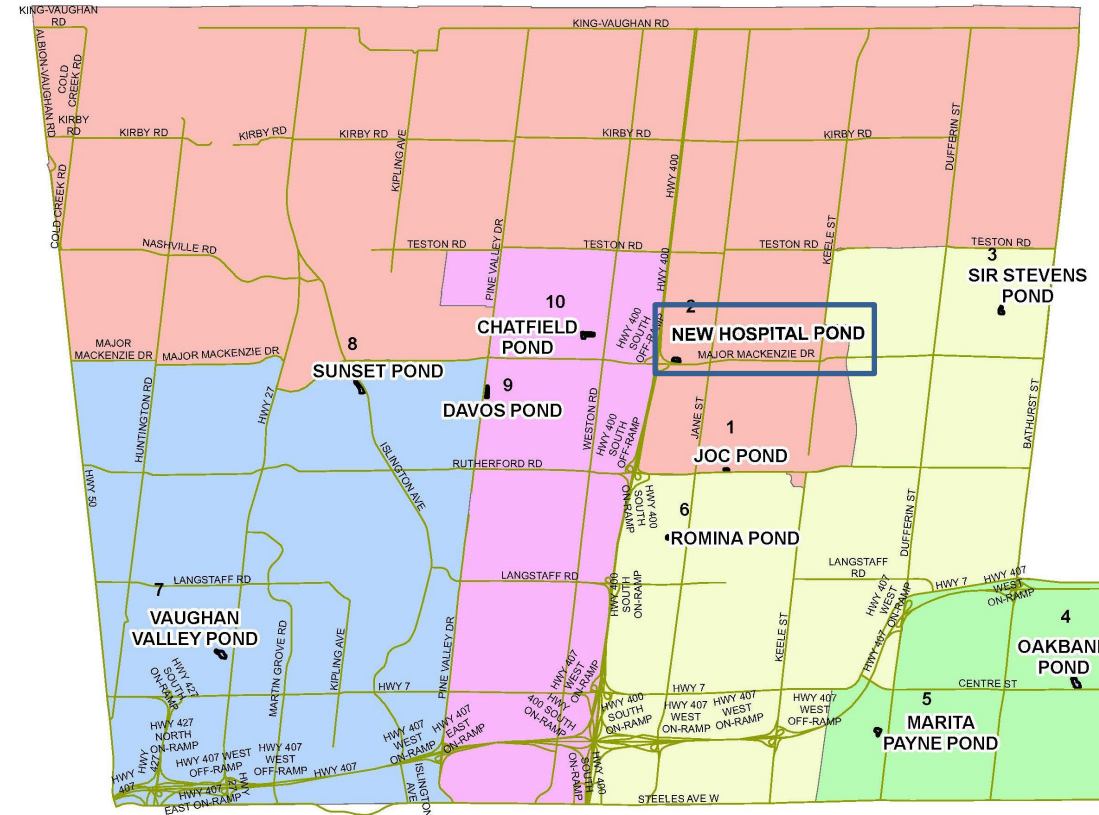
- Tributary land use
- Tributary road network
- Date of construction
- Type of pond

DATA METRICS

Water Quality and Quantity Indicators



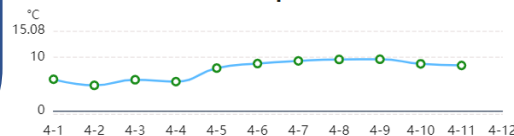
- Temperature
- Specific conductivity
- Salinity
- pH
- Turbidity
- Water depth
- Oxidation reduction potential
- Dissolved oxygen
- Total dissolved solids
- Total suspended solids



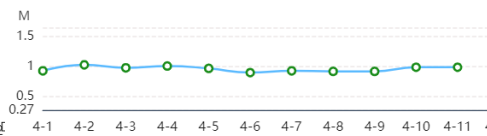
Air Metrics

Temp: 7.6 °C
Rainfall (24h): 0 mm
Air Pressure: 987.0 hPa
Humidity: 64.1 % RH

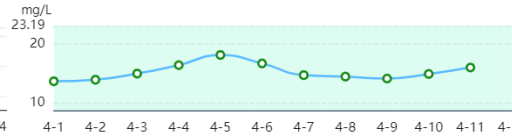
Water Temperature



Depth



Dissolved Oxygen



OUR ADVANTAGE

Reactive → Proactive

- + Data-driven decision making
- + Predictive analytics
- + Early warnings
- + Historical data
- + Quick detection of pollutants
- + Strategic resource deployment



OUR FUTURE



- ✓ Joint collaboration with Innovation York, Mitacs and Public Works
- ✓ Study to commence in 2022 using a data-driven approach via drones to conduct a litter audit
- ✓ Intelligence will help inform future programming and communication efforts

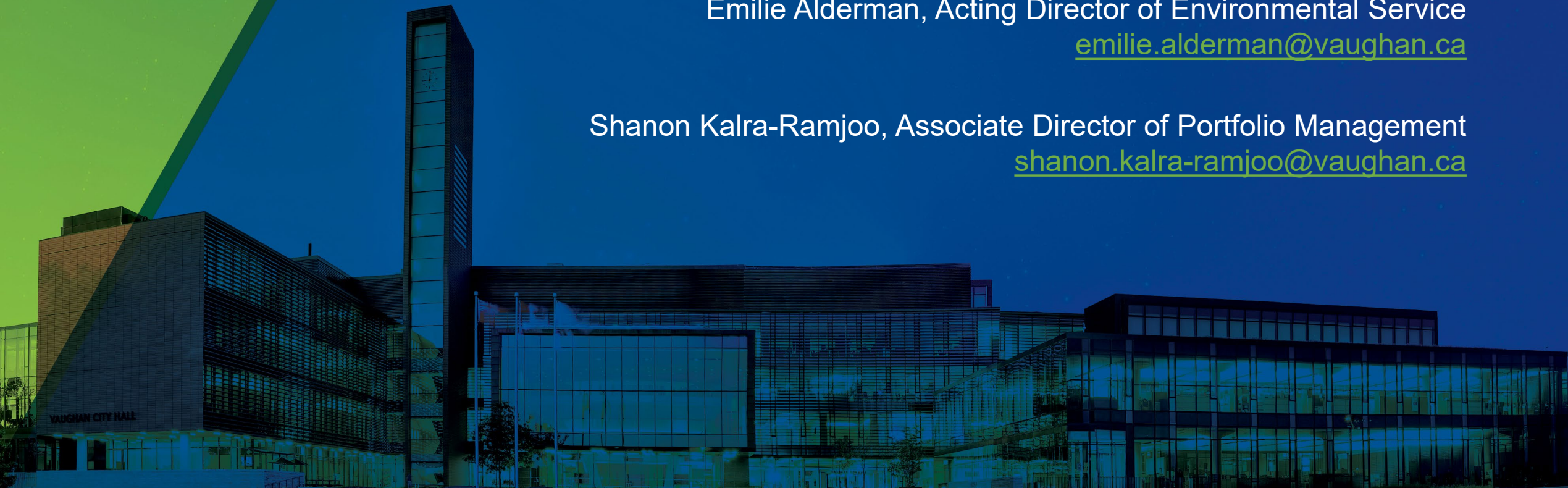




THANK YOU

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Smart City Task Force

Draft Findings and Recommendations Report

Vaughan Smart City – The Way Forward

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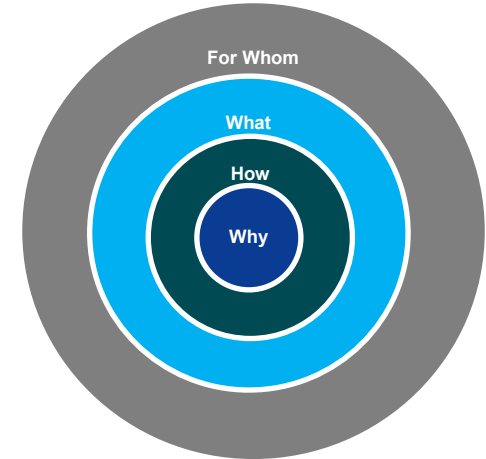
Findings and Recommendations Recap

1. Vaughan Smart City Vision Statement
2. Eight Guiding Principles
3. Four Strategic Objectives
4. 2022-2026 Term of Council Smart City Advisory Committee

Vision Statement

Page 4 of 16

*Vaughan will become a
**leading, exciting and
resilient** smart city
through **collaborative
transformation** that
enhances quality of life
for all residents.*



8 Guiding Principles

Page 5 of 16

People-first	Accountable and transparent	Collaborative	Connected
Equitable, inclusive and accessible	Security and privacy- focused	Reliable	Future-Ready

5 Smart City Themes



Smart Mobility

Safe movement of people, goods and services



Smart Economy

Driving opportunity and productivity



Smart Community

Engaged and Connected Community



Smart Sustainability

Safeguarding our future



Smart Government

Providing Services, Better

4 Strategic Objectives

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1. **Develop infrastructure** to enable smart technology
2. **Build buy-in** with residents, businesses and stakeholders
3. **Grow the Smart City Ecosystem:**
Explore opportunities for external collaboration
4. **Develop strong governance** with a new Smart City Policy

Objective #1:

Develop infrastructure to enable smart technology

What we heard:

Infrastructure is at the core of a smart city. This includes physical and digital systems that connect various IT systems and streamline the flow of information.

Suggested actions include:

1. Build and advance capacity for technology and digital infrastructure foundations (physical structures, cabling, and network systems, software systems, data analysis and standards, security)
2. Be future-ready for new opportunities (e.g. 5G)

Objective #2

Build buy-in with residents, businesses and stakeholders

What we heard:

In order for smart cities to be effective, it is important to communicate and involve Vaughan residents, businesses and stakeholders.

Suggested actions include:

1. Storytelling: Revamp the smart city website to share stories to highlight how citizens are benefiting from innovation, every day. Use various communication channels to share upcoming and current initiatives.
2. Educate: Involve residents in programs and communicate smart city projects to the community
3. Inclusive: Ensure that all resident considerations are included
4. Leverage the future Smart City Advisory Committee to identify future smart city opportunities and use cases

Objective #3

Grow the Smart
City Ecosystem:
Explore
opportunities for
external
collaboration

What we heard:

Success in smart cities is built on collaboration. Vaughan should continue to embrace a culture of working with external stakeholders.

Suggested actions include:

1. Develop channels for citizen co-creation like hackathons for entrepreneurs and small businesses
2. Review existing policies and develop programming to make it easier for R&D innovations and smart city pilots

Objective #4

Develop a strong governance with a new Smart City Policy

What we heard:

The City needs a policy to guide the ethical and responsive use of smart technologies to support Vaughan's smart city vision and to safeguard residents' data and privacy.

The future Smart City policy should include the following:

- 1. Privacy:** There is a need to balance privacy with potential operational improvements. The city will provide assurance to residents about the privacy of the data collected with clear communication and transparency
- 2. Data and security:** Increase transparency in government data and ensure that systems protect personal and sensitive information
- 3. City Data sharing:** Vaughan should work towards accessible and open data. A starting point would be to explore a data-sharing agreement with key stakeholders

Objective #4 (Cont'd)

Develop a strong governance with a new Smart City Policy

Smart City Policy (cont'd):

4. **Data ownership:** The City should start by owning all data collected and it should be stored on the cloud in Canada
5. **Governance:** The City cannot run a smart city alone. Vaughan should design a collaborative model on how to decide which smart technology to implement
6. **Funding and partnership:** Think outside the box and design alternative approaches to traditional financing models. For example: develop pilot fund accounts like the City's innovation reserve, revenue sharing agreements, and other public-private partnerships

Smart City Initiatives Underway

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**MoveSmart
Mobility
Management**

Digital Strategy

**Winter
Maintenance
Artificial
Intelligence
Program**

**LED Streetlight
Retrofit Program**

**WCCD – ISO
Certifications**

**Smart Technology
and AI Integration
in Public Works**

New Recommended Projects and Priorities

**2022-2026
Term of Council**

Smart Kiosks

**Smart Residents
Platform**

**Learning
Neighbourhoods
(Densification
Nodes)**

**City Innovation
Challenges**

**Digital
Infrastructure
Platform**

**Digital 3D View of
a City**

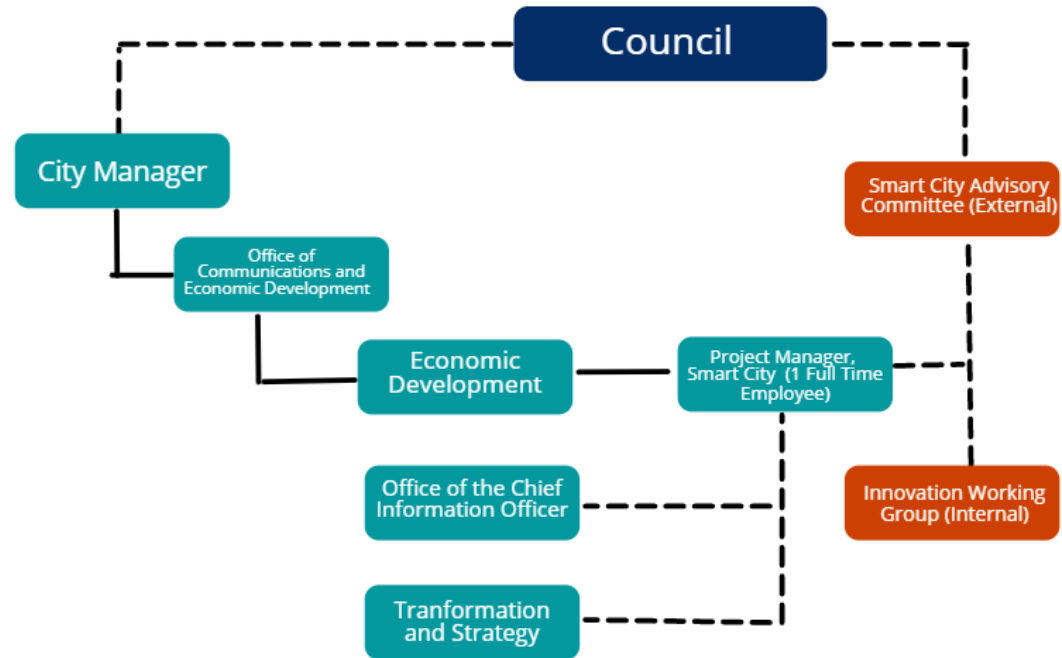
**Smart City
Incubator and
Accelerator**

**Smart City
Enabled, Purpose-
Driven Civic
Engagement**

2022-2026 Term of Council

Smart City Advisory Committee

Mandate: Smart City Advisory Committee will provide guidance and insights to staff on new and ongoing smart city projects



Next Steps

- April 12-26, Task Force members can comment
- April 29, deliver a final draft to Chair and Vice-Chair including task force comments
- May 6, receive final approval from Chair and Vice-Chair
- June 7, final findings report in Committee of Whole