Committee of the Whole (2) Report

DATE: Tuesday, December 5, 2023   **WARD(S):** ALL

TITLE: VAUGHAN SMART CITY INITIATIVES – IMPLEMENTATION STATUS UPDATE

FROM:
Nick Spensieri, City Manager

ACTION: FOR INFORMATION

Purpose

This report provides an update on the City's smart city initiatives, including the status of projects recommended by the Smart City Task Force. The report also highlights upcoming smart city initiatives for 2024.

Report Highlights

- Vaughan is a Smart City leader that seeks new and meaningful ways to incorporate innovative solutions into city-building efforts.
- In June 2022, Council endorsed the Smart City Findings and Recommendations Report, outlining eight smart city projects identified by the task force members for the 2022-2026 Term of Council.
- Most of the task force's recommendations are multi-year initiatives that require collaboration with various internal departments and external stakeholders. A status update on each project is provided.
- In 2024, the Smart City unit is expected to launch new initiatives including: a new Vaughan mobile app and a digital wayfinding solution to enhance accessibility at selected city facilities.

Recommendations

1. THAT Council receive this report for information.

Background

The City of Vaughan is a rapidly urbanizing city and recognizes the transformative power of becoming a Smart City, utilizing data and technology to drive positive impacts on social, economic, and environmental outcomes for its entire community.

Digital technologies play a crucial role in the global economy and future economic growth and prosperity. These disruptive digital solutions are increasingly being recognized as powerful and effective tools to address major challenges faced by metropolitan areas. As a result, many cities are embracing these innovations and transforming themselves into "smart cities".

Smart Cities add digital intelligence and leverage data and technology to optimize urban management while improving the quality of life for the people who live and work there. For example, a Smart City has the potential to reduce traffic congestion through real-time traffic monitoring, optimize waste collection routes to minimize environmental impact, increase energy efficiency with intelligent lighting systems and enhance citizen engagement through digital platforms for community participation. Ultimately, the goal of smart cities is to enable cities to accomplish more with fewer resources, and effectively address the evolving needs and desires of their residents.

Council has endorsed the Smart City Vision: Vaughan will become a leading, exciting, and resilient smart city through a collaborative transformation that enhances the quality of life for all residents.

Based on the Smart City Task Force's recommendation, Vaughan adopted a cohesive smart city vision that focuses on its people rather than technology. The recommended vision provides a clear understanding of why, how, what, and for whom the city is undertaking Smart City initiatives. To successfully achieve this transformation, collaboration is key, emphasizing the significance of cooperating among various stakeholders in the Smart City ecosystem, including startups and innovators, residents, researchers and academia, community groups and technology partners.

In June 2022, Council endorsed the Smart City Task Force Findings and Recommendations Report, which outlined a vision for Vaughan's smart city, a set of guiding principles, strategic themes and endorsed 8 Smart City projects for the City to explore during the 2022-2026 Term of Council.

The Smart City Task Force, comprised of appointed industry experts and residents, held virtual meetings from June 2020 to April 2022. The Task Force had an overall mandate

to advance a culture of knowledge and pursue continuous improvement in the city. Additionally, the Task Force provided advice to Council and City administration, incorporated high-level political and community perspectives in the development of Smart City initiatives, and endorsed Smart City technologies.

The 2022 Smart City Task Force Findings and Recommendations Report is the cumulation of extensive citizen engagement, interviews with internal staff, review of best practices, meetings with stakeholders and partners and engagement with the Smart City Task Force. The task force's recommendations have set a solid foundation to ensure Vaughan is well-positioned to meet future needs. This work has also produced a high-level implementation work plan and priorities to deliver for the 2022-2026 Term of Council.

The Strategic Economic Initiatives unit in the Economic Development (ED) department leads the City's Smart City initiatives to drive economic growth.

The ED department continues to play a crucial role in supporting the development of Smart City projects. Staff has dedicated efforts to build partnerships with internal departments across various portfolios, as well as other levels of government and external partners. These collaborations aim to facilitate the implementation of Smart City pilot programs and services to develop new economic assets and provide more opportunities for businesses.

The ED department continues to play a crucial role in supporting the development of Smart City projects. ED works to create an environment that enables innovation, attracts investments, fosters talent and skill development, and engages with stakeholders to ensure the success of these initiatives.

Smart city innovations have the potential to drive economic growth, presenting a key opportunity for economic development and enhancing the vibrancy and competitiveness of the City.

Smart City development acts as a catalyst for economic growth by creating an environment that fosters innovation, improves efficiency, attracts investments, generates employment, promotes sustainable practices, and contributes to the vibrancy of the local economy.

Businesses are drawn to the innovative and technologically advanced environments found in smart cities, where connectivity plays a pivotal role in facilitating seamless operations, faster communication, and improving logistics. As a result, this can lead to reduced operational costs and increased overall efficiency for businesses.

Vaughan's Information & Communications Technology (ICT) sector is home to over 1,200 companies and employs more than 6,400 people. As technology continues to evolve, a robust ICT sector not only positions the City at the forefront of global competitiveness but also contributes to the development of a skilled workforce. The ED department fosters strategic partnerships and promotes a collaborative environment, demonstrating a commitment to cultivating an ecosystem where emerging sectors can thrive.

Vaughan is a Smart City leader, earning recognition through various awards and certifications.

In recent years, the City of Vaughan has gained recognition for its Smart City efforts. Selected awards and certifications include:
- [Smart Cities Early Adopter International Organization of Standardization (ISO) 37122 certifications](#) from the World Council on City Data.
- [Activate!Vaughan Smart City Challenge](#) won a Gold Award from the Economic Development Council of Ontario (EDCO) in 2022.
- Two-time recipient of the [2021 Smart50 Awards](#) for the Winter Maintenance Artificial Intelligence System and the LED Streetlight Retrofit Program.
- The Smart Cities Road Patrol Solution received the [2023 Peter J. Marshall Municipal Innovation Award](#) and [Project of the Year Award](#) from the Ontario Public Works Association (OPWA).

Previous Reports/Authority

[Smart City Task Force – Findings and Recommendations Report, Committee of the Whole (2), June 21, 2022](#)

[Economic Development Strategic Economic Initiatives – 2022 Year in Review, Committee of the Whole (2), February 14, 2023](#)

Analysis and Options

Vaughan continues to take a Smart City approach to deliver efficient, reliable and innovative city-building.

As one of Canada's fastest-growing and most diverse municipalities, advancing Vaughan's Smart City initiatives are crucial to the City's ongoing success. From improving infrastructure and roads to recreation and healthcare, this strategy is fundamental to delivering a high standard of living and exceptional quality of life.

Key projects are highlighted below on how the City is improving the quality of life for residents and businesses, organized by the Smart City strategic themes include:

Smart Mobility	**Mobility Demonstration Zone** $2.5M funding from Ontario Vehicle Innovation Network (OVIN) to create a new testbed for smart mobility solutions. Led by the Office of the City Manager and Infrastructure Development	**Rutherford and Maple GO Mobility-On-Request Pilot** Piloted new ways for residents to get to/from the GO train by requesting service on a mobile app, eliminating the need for driving and parking. Led by Infrastructure Development
Smart Economy	**Start(up) in Vaughan** Collaboration with York University's YSpace to empower and train aspiring entrepreneurs. Led by the Office of the City Manager	**MedTech Lab in Vaughan** $2.5 million in a ventureLAB partnership with Sterling Industries to open a first-of-its-kind MedTech Lab for health-tech entrepreneurs. Led by the Office of the City Manager
Smart Community	**SmartParks** Scan a QR code on a smartphone to access amenity bookings, report issues, and make service requests at selected parks. Led by Public Works	**Memory Lab** Help residents transform memories stored on old technology into digital format for preservation on a computer or mobile device. Led by Vaughan Public Libraries

Smart Sustainability	**Stormwater Pond Monitoring System** Proactive approach to stormwater pond monitoring with an innovative technology that automatically monitors the quantity and quality of stormwater in select City ponds, 24 hours a day, seven days a week. Led by Public Works	**EV Charging Infrastructure at City Facilities** The City continues to expand EV charging infrastructure at city facilities. In 2023, the City has been awarded funding through the Government of Canada's Zero Emission Vehicle Infrastructure Program (ZEVIP), offering a 50% reimbursement of up to $230,000 for 23 dual-head charging stations with 46 EV connections. Led by Infrastructure Development
Smart Government	**Smart Cities Road Patrol Solution** Installed on City vehicles to seamlessly detect potholes, road cracks, faulty streetlights, and graffiti and automatically opens work orders in the City's system. Led by Public Works	**Online Advance Vote Platform** Provided residents with online voting during the Advance Vote period for the City's 2022 Municipal Election. Led by Legal and Administrative Services and City Solicitor

In June 2022, Council endorsed the Smart City Task Force Findings and Recommendations Report which identified 8 new smart city projects for staff to implement during the 2022-2026 Term of Council.

Planning for implementation for each of the recommended initiatives is ongoing and requires input and collaboration from multiple internal and external stakeholders. Some of the projects are already underway and new initiatives will be brought forward to Council or through the City's business case and budget submission process for consideration.

The 8 recommended projects, description, target and status update from the June 2022 Findings and Recommendations report, are summarized below.

No.	Project Name and Department Lead	Description	Target	Status Update
1.	**Mobility Demonstration zone** (Previously named Innovation Challenges) *Infrastructure Planning and Corporate Asset Management and Economic Development*	Using the City of Vaughan as a test bed/living lab to demonstrate smart mobility innovation.	2023	Launched a Demonstration Zone which supports small and medium-sized enterprises in advancing automotive and smart mobility innovation. Council endorsed in June 2023.
2.	**Vaughan Mobile App** (Previously named Smart Residents Platform) *Office of Communications and Economic Development (OCED)*	The Vaughan mobile app will seamlessly connect residents and visitors to essential city services, events, and real-time updates, enhancing the overall urban experience.	2024	2024 business case submitted and included as part of the budget process.
3.	**3D Mapping / Digital Twin** *Development Planning*	Utilizing a digital 3D view or Digital Twin as a visualization tool to model scenarios and understand the impact when strategizing for growth and infrastructure development.	2024-2025	In progress. Exploratory discussion to develop a project scope for a pilot.

4.	**Smart Kiosk** *Economic Development*	A smart kiosk is an interactive screen typically installed in a public space that provides users or visitors with essential information and services. The kiosk will also feature sensors or other data collection elements such as cameras, environmental sensors, motion detectors, people counting, etc.	Under reassess ment	Feasibility and project scope completed. However, the project is on hold for staff will reassess based on current technological trends.
5.	**Smart City Incubator and Accelerator** *Economic Development*	Attract a key smart city community asset to support the creation and growth of innovators and start-ups in the emerging technology industry.	2025-2026	In progress. Connected YSpace, York University's entrepreneurship & innovation hub to various landowners and upcoming opportunities in the VMC. [YSpace Vaughan – Vision]().
6.	**Sustainability Metrics Program Expansion** (Previously named Learning Neighbourhoods) *Economic Development and*	City of Vaughan aims to build complete and connected neighbourhoods for future intensification areas. City staff is exploring opportunities to collaborate and partner with the real estate development industry and key	2025	In Progress. Exploratory discussion to expand the existing Sustainability Metrics Program (SMP) to incorporate smart city related metrics.

		stakeholders to incorporate smart city technology integration within a neighbourhood.		Article: How Vaughan is Creating an Interconnected Smart City of the Future
7.	**Digital Infrastructure Platform** *Economic Development*	The city should implement digital infrastructure that enables future-ready, widely adopted, interoperable, standards-based technology to power digital services that encourage diverse economic participation to deliver value to the community.	2025	Have not started. The project is anticipated to begin in 2025.
8.	**Smart City enabled, purpose-driven civic engagement** *Corporate & Strategic Communications, Office of the City Clerk*	Civic engagement is a key part of a smart city's evolution. Interconnected relationships between people, places and organizations create a dynamic city. Vaughan can develop new methods to capture civic feedback and allow Vaughan to centralize and analyze all the data collection to link the feedback to innovations and improvements. Online platforms could allow the voting of ideas.	2020-Ongoing	In progress. Completed actions include: City of Vaughan Engagement Strategy Vaughan Online Engagement Platform Virtual attendance option for Committee and Council Meetings

Two key projects are expected to be launched in 2024 in collaboration with internal departments.

These projects include:

1. **Digital Wayfinding App Pilot in City Facilities**
   Partnering with the Office of the Chief Human Resource Officer and Facility Management to roll out a two-year accessibility technology pilot to help the visually impaired or blind navigate independently in select City facilities. The City of Vaughan is exploring a partnership with the Canadian National Institute for the Blind (CNIB) to pilot an indoor navigation technology solution through a downloaded mobile app. The goal is to enhance accessibility for all, including people who are blind or have low vision, deaf or hard of hearing, or mobility impaired.

2. **Vaughan Mobile App** (Pending budget approval)
   A new mobile app for residents to conveniently access important City information and services. By using the app, residents can quickly and easily access information about news and events, road closures and roadwork, council, committees and task forces, garbage and recycling, transit and parking, public notices, jobs and other business resources, parks and recreation and more.

Financial Impact

There are no direct financial impacts from this report. Some initiatives in this report may require additional funding, which will be outlined in separate reports to Council or through the City's business case submission process.

Operational Impact

The Lead Departments noted above were consulted in the preparation of this report. To mitigate operational impact, an internal Smart City working group, with members from each portfolio, will be formed to advance Smart City initiatives and Smart City Task Force's recommendations. The objective of this internal working group is to explore the feasibility of newly proposed ideas and develop a detailed scope to pilot and implement projects.

Broader Regional Impacts/Considerations

Many smart city initiatives will require collaboration between partners such as the York Region government, businesses, and the community to create an interconnected urban environment. By uniting these stakeholders in a shared vision, Smart Cities can catalyze positive transformations across the entire regional ecosystem, creating a dynamic, adaptive, and sustainable city.

Conclusion

The City of Vaughan continues to be a city in demand for both residents and businesses to invest in and grow. The recommendations of the Smart City Task Force are a foundational element of the city's smart city initiatives. The report highlights key initiatives showcasing the City's smart city successes, an implementation update on the Smart City Task Force's recommendations and upcoming 2024 initiatives.

For more information, please contact: Raphael Costa, Director, Economic Development, ext. 8891.

Attachments

N/A

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