

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF MAY 17, 2022

Item 5, Report No. 24, of the Committee of the Whole, which was adopted without amendment by the Council of the City of Vaughan on May 17, 2022.

5. 2021 DELIVERY REPORT – INFRASTRUCTURE DEVELOPMENT

The Committee of the Whole recommends approval of the recommendation contained in the following report of the Deputy City Manager, Infrastructure Development, dated May 10, 2022:

Recommendations

1. That this report be received for information.

Committee of the Whole (2) Report

DATE: Tuesday, May 10, 2022

WARD(S): ALL

TITLE: 2021 DELIVERY REPORT – INFRASTRUCTURE
DEVELOPMENT

FROM:

Vince Musacchio, Deputy City Manager, Infrastructure Development

ACTION: FOR INFORMATION

Purpose

The annual Delivery Report provides Council with the portfolio's 2021 accomplishments, and asset group updates with inventory counts and values, as well as an overview of 2022 Infrastructure Development initiatives.

Report Highlights

- Infrastructure Development Portfolio was established in 2019 and key results were immediately realized as evident in the 2021 delivery achievements
- 311 projects were undertaken in 2021 with an overall expenditure (inclusive of accruals) of more than \$64 million
- The Portfolio achieved a 92% “Burn Rate”, the percentage of actual versus forecasted cash flow
- The Development Engineering department joined the Portfolio in January 2022, allowing for further standardization of City-wide Capital Delivery
- Program delivery is expected to increase with the further refinement of processes and leveraging available technology

Recommendations

1. That this report be received for information.

Background

The Infrastructure Development Portfolio was created on July 1, 2019

Following a corporate re-organization on July 1, 2019, the Infrastructure Development Portfolio was created by consolidating all of the City's capital delivery departments with the mandate to more efficiently deliver on Vaughan's approved and planned capital program. The portfolio oversees the majority of the City's Infrastructure planning and delivery, asset management, facility management and real estate functions.

In support of the City's vision, mission, values and Service Excellence Strategic Plan, the Portfolio developed a purpose statement to provide staff with the "what, how and why" as it relates to their vital roles and functional responsibilities.

"We deliver City spaces through creative and inspired thinking to shape exceptional experiences."

In addition, the Portfolio's supplementary core values and corresponding behaviours help foster a culture of innovation, collaboration, and creativity. These supplementary core values complement the City's values of RESPECT, ACCOUNTABILITY and DEDICATION, further supporting and advancing our purpose.

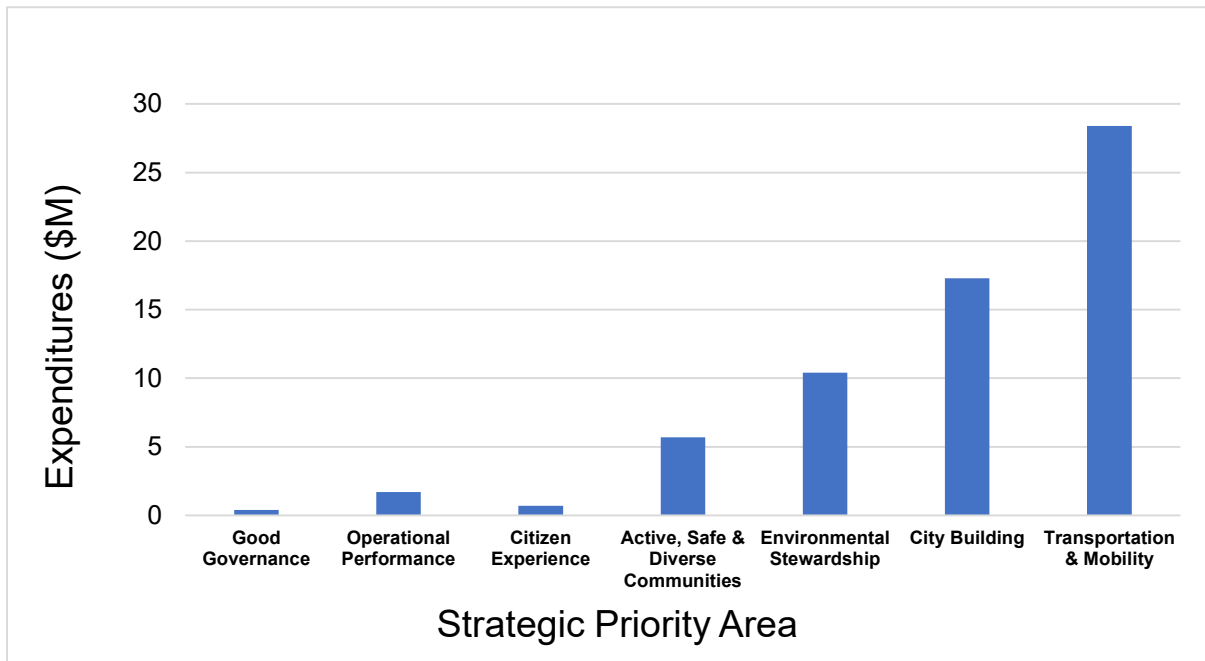
Infrastructure assets are built, owned, operated, and maintained by the City

Assets are essential to provide the necessary services that contribute to the high quality of life enjoyed by City of Vaughan residents. It is imperative to ensure services are delivered in a safe, reliable, and efficient manner, while sustaining a growing community. Important elements of the Asset Management cycle are the acquisition, renewal and replacement of infrastructure that provide these services.

Strong alignment with the 2018-2022 Term of Council Service Excellence Strategic Plan

Infrastructure Development continued to contribute to the City of Vaughan's Strategic Plan by planning, designing, initiating, and completing projects to support Active, Safe and Diverse Communities; City Building; Environmental Stewardship; and Transportation and Mobility. This contribution significantly aids in delivering on the City's vision to become a city of choice that promotes diversity, innovation, and opportunity for all citizens, fostering a vibrant community life that is inclusive, progressive, environmentally responsible, and sustainable.

The following is a summary of the 2021 expenditures (including accruals) by strategic priority:



The introduction of the Program Management Office (PMO) in 2020 has allowed for the development of a new Delivery Approach

The newly established Program Management Process demonstrates how the need for an asset transforms into a project to deliver a new asset or changes to an existing asset. The process ensures that asset and project information is gathered, analyzed, monitored, and shared with appropriate stakeholders to support evidence-based decision-making. In 2020 the Program Management Committee (PMC) was created to govern the Program Management Process. The PMC responsibilities include strategic planning, project prioritization, approval of significant project changes and monthly review of project reports. The PMO introduced standardized processes including monthly reporting, approval of project changes and development of charters to support 2021 budget requests.

Previous Reports/Authority

Not applicable.

Analysis and Options

In 2021, the City invested \$29.8 million in State of Good Repair projects and \$34.8 million in Growth-Related projects, for a total of \$64.6 million in expenditures

The City's capital program can be sub-divided into two categories: State of Good Repair and Growth-Related programs.

State of Good Repair Program

This program is established through a risk-based review of the condition of the City's infrastructure and its ability to provide the Level of Service to Vaughan's Citizens. Each asset class is reviewed and the investment requirements (including rehabilitation and replacement) are determined to ensure that the City achieves maximum Value for Money. Funding sources for this program are generally capital through taxation, infrastructure reserves and Gas Tax.

Growth-Related Program

This program is established to deliver on new infrastructure to support growth. This infrastructure includes community infrastructure (such as community centres, parks, fire stations, etc.), as well as linear infrastructure (such as watermains, sewers, roads, etc.). These programs are typically established through the City's Growth Management Strategy and the corresponding master plans in support of development. The funding sources for this program are primarily Development Charges.

A detailed review of these expenditures, summarized per asset class, are noted below.

In 2021, an investment of \$29.1 million in 80 projects was made to the City's road network

Roads asset class consists of a network of arterial, collector and local roadways and associated assets to provide the safe passage of vehicles throughout the community. The bridges asset class consists of structures which provide a roadway or walkway for the passage of vehicles, pedestrians or cyclists across an obstruction, gap or facility and are greater than or equal to 3 metres in span.

Overall, the road network includes the following assets:

- roadways
- curb and gutters
- barriers
- pedestrian bridges
- roadway bridges

The 80 road network projects were in various phases throughout 2021:

- 20 in the study phase (includes Master Plans, Environmental Assessments, Feasibility Studies, Pre-Design, etc.)

- 15 in the detailed design phase
- 8 in the construction phase
- 37 were completed

Some of the key projects include:

- Canada Drive – America Avenue Bridge
- King Vaughan Road Bridge
- Kirby Road Extension – Dufferin Street to Bathurst Street
- LED Streetlight Retrofit Program – Phase 2
- Pavement Management Program
- Woodbridge Avenue Improvements – Design Phase Complete

An investment of \$7.6 million in 38 projects was made to the City’s water, wastewater, and stormwater network

The water, wastewater and stormwater asset class consist of a network of water and sewer mains and associated assets to provide the safe conveyance of drinking water, sanitary and storm water. This asset class also includes residential and commercial service connections, maintenance holes, and storm water management ponds.

Overall, the water network includes the following assets:

- Watermains
- Chambers
- Hydrants
- Junctions
- Service connections
- Valves
- Water Booster Stations

Overall, the wastewater network includes the following assets:

- Sanitary sewer mains
- Maintenance Holes
- Pump Stations
- Service Connections

Overall, the stormwater network includes the following assets:

- Stormwater mains
- Catch basins
- Inlet/Outlet Structures
- Maintenance Holes
- Management Ponds
- Service Connections

The 38 water, wastewater and stormwater network projects were in various phases throughout 2021:

- 4 in the study phase (includes Master Plans, Environmental Assessments, Feasibility Studies, Pre-Design, etc.)
- 11 in the detailed design phase
- 8 in the construction phase
- 15 were completed

Some of the key projects include:

- Black Creek Renewal, Edgeley Park and Pond
- Block 20 Sanitary Sewer Diversion
- Kleinburg Village Improvements
- Old Maple Area Infrastructure Improvements
- Stormwater Management Facility Improvements (SWMF)
 - Blackburn, Franklin and Pondview Ponds
 - Fieldstone and Ashbridge Circle Ponds
 - Gallanough Park SWMF
- Watermain Replacement Program

An investment of \$15.6 million in 86 projects was made to the City's facilities assets

Facilities asset class consists of all buildings owned by the City of Vaughan to serve citizens, businesses, and City staff.

Overall, the facilities network includes the following assets:

- Administration Buildings
- Community Centres
- Fire Stations
- Heritage Buildings
- Libraries
- Operations Yards
- Sport/Senior Clubs/Other

The 86 facilities projects were in various phases throughout 2020:

- 2 in the study phase (includes Master Plans, Environmental Assessments, Feasibility Studies, Pre-Design, etc.)
- 18 in the detailed design phase
- 38 in the construction phase
- 28 were completed

Some of the key projects include:

- Accessibility for Ontarians with Disabilities Act (AODA) Program Plan
- New! Carrville Community Centre, Library and District Park

- Energy Management Program
- Facility and Energy Renewal of Fire Station 7-1 – advancing through the design phase
- New! Fire Station 7-12 – advancing through design phase
- Garnet A. Williams Community Centre major renovation
- Installation of Ultra Violet filtration units at all City facilities as well as retrofit to ultra-high efficiency Merv 13 filtration systems
- Maple Bowling Alley revitalization
- Maple Library and Community Centre renovation
- Roof Replacement Program
- Upgraded 35 Closed Circuit Television (CCTV) systems with new Internet Protocol (IP) recorders and IP cameras at various parks, installed new CCTV and Access Control systems at seven Fire Stations and 11 Wastewater Stations

An investment of \$10.5 million in 89 projects was made to the City’s Parks and Open Spaces Assets

The parks and open space asset class consist of play spaces and amenities for residents as well as linear open spaces that either expand on the park system or create enhanced linkages between the system of parks and open spaces.

Overall, Parks and Open Space includes the following assets:

- Playgrounds
- Skate areas
- Soccer and Baseball fields
- Splash Pads/Waterplay areas
- Tennis and Basketball courts

The 89 parks and open space projects were in various phases throughout 2021:

- 28 in the study phase (includes Master Plans, Environmental Assessments, Feasibility Studies, Pre-Design, etc.)
- 7 in the detailed design phase
- 9 in the construction phase
- 45 were completed

Some of the key projects include:

- Block 18 District Park Engagement and Final Concept
- North Maple Regional Park – Initiated trail improvements and Phase 2 Design Build contract
- Local Off-leash Dog Park Strategy
- Glen Shields Park Redevelopment design and tender award
- Playground Renewal and Surfacing Improvements
- Park Improvement Projects
- Playground Rubberized Resurfacing at North Thornhill District Park

- Summit Park Completion in Block 55 (Kleinburg Summit Way)

An investment of \$1.8 million in 18 projects was made to the City's Active Transportation network

The Active Transportation asset class consists of walking and cycling infrastructure and facilities offering residents recreational transportation and feasible transportation alternatives to the automobile.

Overall, the active transportation network includes the following assets:

- Sidewalks
- Multi-Use Pathways
- Cycle Tracks
- Bike Lanes
- Multi-use Recreational Trails
- Pathways

The 18 Active Transportation network projects were in various phases throughout 2021:

- 3 in the study phase (includes Master Plans, Environmental Assessments, Feasibility Studies, Pre-Design, etc.)
- 4 in the detailed design phase
- 7 in the construction phase
- 4 were completed

Some of the key projects include:

- First Annual Active Transportation Program Council [Report](#) brought to Council in February 2021 and 2021 Annual Update in February 2022
- Humber Trail Feasibility Study
- Jane Street (Portage Parkway to Teston Road) Functional Design completed
- Pedestrian Cross-over (Type B) at York Hill Boulevard construction completed
- Riverwalk Phase 2A – Doctors McLean District Park construction completed
- Bartley Smith Greenway – Langstaff Road underpass design
- 60% increase in cycling along Clark Avenue in 2021 following installation of cycle tracks
- 10-year cycling and trails capital programs developed
- 120+ kilometres of cycling facilities, multi-use pathways, and recreational trails were advanced through municipal, regional and partner projects

The Infrastructure Development portfolio continues to develop long-range infrastructure planning studies to support future growth

The portfolio works closely with the Planning and Growth Management portfolio to develop important infrastructure plans to help support and guide future growth within the City. Infrastructure Development oversees a number of long-range master plans, strategies and studies, which integrate infrastructure requirements with environmental assessments and planning principles.

The team is committed to protecting the City's interests and needs as it oversees third party projects, plans and initiatives which may impact Vaughan's linear infrastructure. Some of the key projects include:

- Highway 427 Expansion Project – Highway 7 to Major Mackenzie Drive | Ministry of Transportation
- John Lawrie Overpass | Ministry of Transportation
- Core Asset Management Plan
- Integrated Urban Water Master Plan
- Vaughan Transportation Plan
- Kirby Road Widening Environmental Assessment – Dufferin Street to Jane Street
- Bass Pro Mills Drive Extension Environmental Assessment
- Teston Road Operational Environmental Assessment

The Real Estate Department continues to support the Growth-Related Projects, ensuring the timely delivery of infrastructure

The Real Estate team supports city-wide initiatives by securing property rights such as Permissions to Enter, Temporary Easements and, where required, securing and/or disposing of land. In 2021, non-tax revenue of more than \$37.2 million was generated from the sale of surplus City lands and/or easements. More than 120 Development applications were reviewed and commented on, resulting in more than \$32.8 million cash-in-lieu of parkland revenue.

In 2021, real estate services contributed to the advancement of the following:

- Black Creek Channel
- Kirby Road Extension (from Dufferin Street to Bathurst Street)
- Metrolinx Initiatives
- Portage Parkway
- Block 59 District Park land dedication and acquisition
- Vaughan Metropolitan Centre Initiatives

Development Engineering joined the Infrastructure Development portfolio in January 2022, further standardizing City-wide Capital Delivery

With the City of Vaughan's new Organizational Structure introduced in January 2022, the portfolio welcomed the Development Engineering department. The team is responsible for the expeditious review, approval, inspection and processing of municipal services for land development. The addition of the department to the Infrastructure Development portfolio will help ensure that the vast majority of infrastructure is delivered in a standardized manner. Synergies between the infrastructure planning and delivery groups will allow for a coordinated and efficient approach to growth-related infrastructure projects.

The following is a summary of municipal infrastructure delivered through the development approval process and growth-related projects that were assumed by the City of Vaughan:

2021 Assumption Summary

- 13 Land Development projects with a value of \$35.8M
 - 13 lane kilometres of road
 - 10.4 kilometres of watermain
 - 6.2 kilometres of sanitary sewer
 - 4.8 kilometres of sidewalk
 - 4.0 kilometres of storm sewers
 - 248 streetlights
 - 4 stormwater management ponds
 - 1 wastewater pumping station

A consolidated delivery approach was developed in 2021 to ensure effective and efficient capital delivery

Following a rigorous review of the capital delivery approach (from project initiation to project completion), a delivery approach was developed to ensure that capital delivery was standardized. The Delivery Approach is guided by the Program Management Process (PMP), governance, and reporting, coupled with resources, procedures, tools and templates.

Program Management Office (PMO)

The PMO is responsible for overseeing the entire Program Management Process. The PMO oversees selection of delivery approach, charter development and prioritization; facilitates monthly reporting and project change approvals; provides staff with the methodology, tools and systems needed to support the Program Management Process; performs quality checks on project artifacts; and applies a gated approach to ensure compliance to the methodology.

Program Management Process Governance and Oversight

Program management process governance is provided through the Program Management Committee. The committee is made up of all of the Senior leadership members of the Infrastructure Development team. The committee is responsible for:

- Aligning projects with the 2018-2022 Term of Council Strategic Plan
- Prioritizing capital project funding submissions
- Approving project changes
- Providing oversight on all delivery projects and programs.

Communications for all projects were significantly enhanced in 2021

Throughout 2021, Infrastructure Development — in collaboration with City departments, consultants and our partners in Corporate and Strategic Communications – developed and executed comprehensive communications strategies to promote awareness and support vital connections with clients, stakeholders, City Council, staff and the community. The following is a summary of the communications through a variety of tactics.

- 55 Internal Project Updates/Memos
- 50 Newsletters and Notices
- 64 Public Service Announcements and News Releases

Financial Impact

There are no immediate financial impacts associated with this report.

Broader Regional Impacts/Considerations

There are no broader regional impacts associated with this report.

Conclusion

The significant achievements, as identified within this report, demonstrates that the portfolio remains focus on Capital Delivery. Advancing project management processes and technology has allowed the portfolio to achieve over \$64M in Capital Delivery with a 92% “burn rate”, the percentage of actual vs. forecasted cashflow. The framework has been developed to undertake larger more complex City Building projects in all asset classes.

For more information, please contact: Vince Musacchio, Deputy City Manager, Infrastructure Development, 8311

Attachments

1. Infrastructure Development 2021 Delivery Report

Prepared by

Vince Musacchio, Deputy City Manager, Infrastructure Development

Approved by



Vince Musacchio,
Deputy City Manager, Infrastructure
Development

Reviewed by




Nick Spensieri, City Manager



INFRASTRUCTURE
DEVELOPMENT

2021 Delivery Report



In 2021, the City of Vaughan effectively progressed the 2018-2022 Term of Council Service Excellence Strategic Plan, delivering many city-building milestones. Major strides continue to be made to help improve the flow of traffic around the city. Some of these initiatives include the completed widening of Major Mackenzie Drive, the construction of the Highway 427 extension and the construction of Clark Avenue, including Vaughan's first cycle tracks. The City continues to move important Environmental Assessment (EA) studies forward, such as the Bass Pro Mills Drive EA and the Kirby Road Widening EA. Also, work continues on the Kirby Road Extension, the Canada Drive-American Avenue Bridge and the advancement of active transportation infrastructure.





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MESSAGE FROM THE Mayor



As one of Canada's fastest-growing municipalities, preserving corporate assets, preparing for exponential growth and advancing a

connected and integrated transportation system are critical components of the City of Vaughan's ongoing success. Well-managed infrastructure fosters prosperity and contributes to the overall quality of life for residents, businesses and visitors.

The City's Infrastructure Development portfolio is essential to driving forward-looking, prudent and strategic investments in Vaughan's current and future infrastructure projects. The portfolio plays an important role in implementing many of the strategic priorities outlined in the Council-approved 2018-2022 Term of Council Service Excellence Strategic Plan, including



City Building, Transportation and Mobility, and Active, Safe and Diverse Communities.

With a transit system anchored by the subway that offers seamless connectivity throughout the GTA, the Vaughan Metropolitan Centre (VMC) is a dynamic and vibrant city centre. The heart of our downtown core houses the VMC Subway, SmartCentres Place Bus Terminal and the vivaNext rapidway transit system — all just steps away from Niagara University's Vaughan campus and a short commute to Cortellucci Vaughan Hospital— Canada's first smart technology hospital — as well as the 900-acre North Maple Regional Park. These and other significant city-building initiatives help actualize the full potential of Vaughan as a world-class city.

I want to extend my warmest and sincerest gratitude to the City's Infrastructure Development team for continuing to undertake initiatives to improve the municipal road network, support transit development, and increase cycling and pedestrian infrastructure. Together, we will continue to advance Vaughan as a fully connected and integrated community.

Hon. Maurizio Bevilacqua, P.C.
Mayor



MESSAGE FROM THE City Manager



I would like to take a moment to extend my appreciation to each team within the Infrastructure Development portfolio, which has come

together to deliver critical City infrastructure. This includes parks and trails, renovated libraries and community centres, roads, bridges and the things we cannot see but are critical, like underground pipelines and so much more.

This past year, like 2020, was full of change and uncertainty due to the ongoing global COVID-19 pandemic. City staff continuously rose to the occasion and pivoted, ensuring exceptional customer service and consistent delivery of municipal facilities,

amenities and infrastructure that all contribute to the well-being of the community.

On behalf of the Senior Leadership Team – Executive, I thank the Infrastructure Development team for the hard work, dedication and resilience shown during another challenging year. I also want to offer sincere congratulations on the many well-deserved awards that have been won. Together, this work reflects a strong commitment to the community and supports Council-approved priorities through the 2018-2022 Term of Council Service Excellence Strategic Plan.

Thank you,

Nick Spensieri
City Manager



Garnet A. Williams Community Centre and York Hill District Park rendering



MESSAGE FROM THE Deputy City Manager, Infrastructure Development



2021 was a year marked by strong growth and revitalization, moving well beyond the challenges we worked to overcome in 2020.

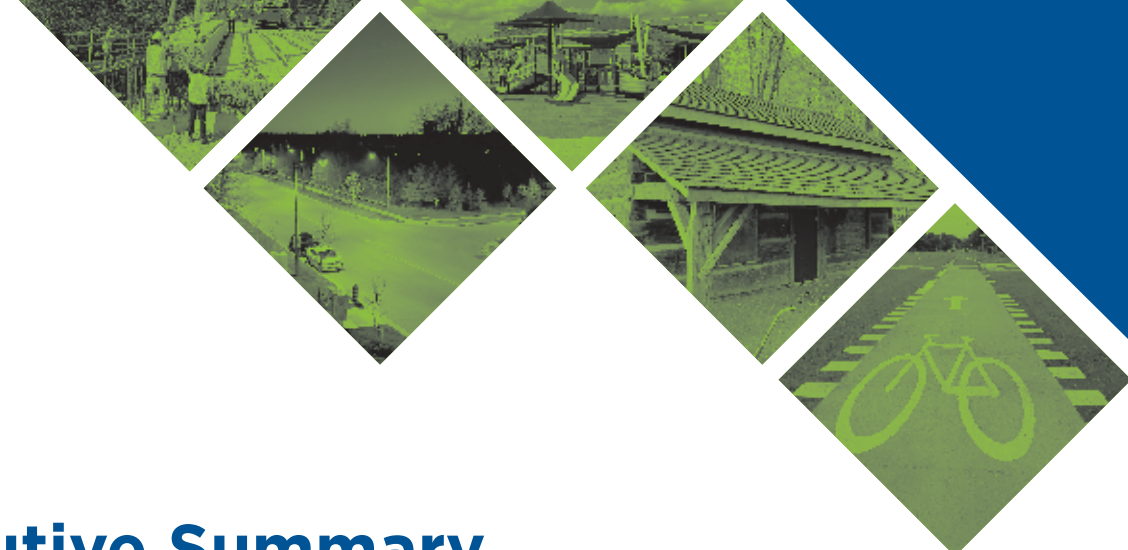
As infrastructure projects advanced, we were able to realize a significant increase in delivery across all asset groups. The team's ability to leverage progress alongside high profile projects such as North Maple Regional Park, Kirby Road Extension and Canada Drive-America Avenue Bridge reflects the portfolio's proficiency in applying a strategic approach to infrastructure delivery and thereby fostering a positive outlook for 2022 and beyond.

In 2021, we were honoured to receive provincial and international accolades and recognition — our award-winning 2021 initiatives include the LED Streetlight Retrofit Program and the Dorengate Stairs Project. These projects support the City's commitment to reducing energy consumption and enhancing sustainability, as well as incorporating accessible active transportation features. As well, 12 City of Vaughan facilities received accessibility certification from the Rick Hansen Foundation, of which three received gold certification.

In addition, numerous Infrastructure Development projects have progressed with the support of grants, reflecting our continued commitment to exploring alternate funding opportunities, with a focus on good governance and accountability. In 2021, grants contributed to several of the City's strategic priorities including the creation of five outdoor rinks, North Maple Regional Park trail development and various accessibility and environmental stewardship initiatives.

The 2021 Delivery Report showcases the vast capital programs and projects that advanced throughout the year to effectively manage and maintain roads, buildings, parks and more. The team pushed forward with all opportunities to build, revitalize and enhance municipal infrastructure, so citizens can continue to access world-class amenities and receive high-quality public services for years to come.

Vince Musacchio
Deputy City Manager
Infrastructure Development



Executive Summary

The annual Infrastructure Delivery Report provides Council with the portfolio's 2021 accomplishments, and asset group updates with inventory counts and values, as well as an overview of 2022 Infrastructure Development initiatives.

The Infrastructure Development portfolio was created on July 1, 2019.

By consolidating the City's capital delivery departments with the mandate to more efficiently deliver on Vaughan's approved and planned capital program, the Infrastructure Development portfolio oversees the majority of the City's infrastructure planning and delivery, asset management, facility management and real estate functions.

In support of the City's vision, mission, values and Strategic Plan, Infrastructure Development developed a purpose statement to provide staff with the "what, how and why" as it relates to their vital roles and functional responsibilities.

"We deliver City spaces through creative and inspired thinking to shape exceptional experiences."

In addition, the portfolio's supplementary core values and behaviours help foster a culture of innovation, collaboration, and creativity and complement the City's values of Respect, Accountability and Dedication, further supporting and advancing our purpose.

Infrastructure assets are built, owned, operated, and maintained by the City.

Assets are essential to provide the necessary services that contribute to the high quality of life enjoyed by City of Vaughan residents. Services must be delivered in a safe, reliable and efficient manner while sustaining a growing community.

The portfolio is strongly aligned with the Strategic Plan.

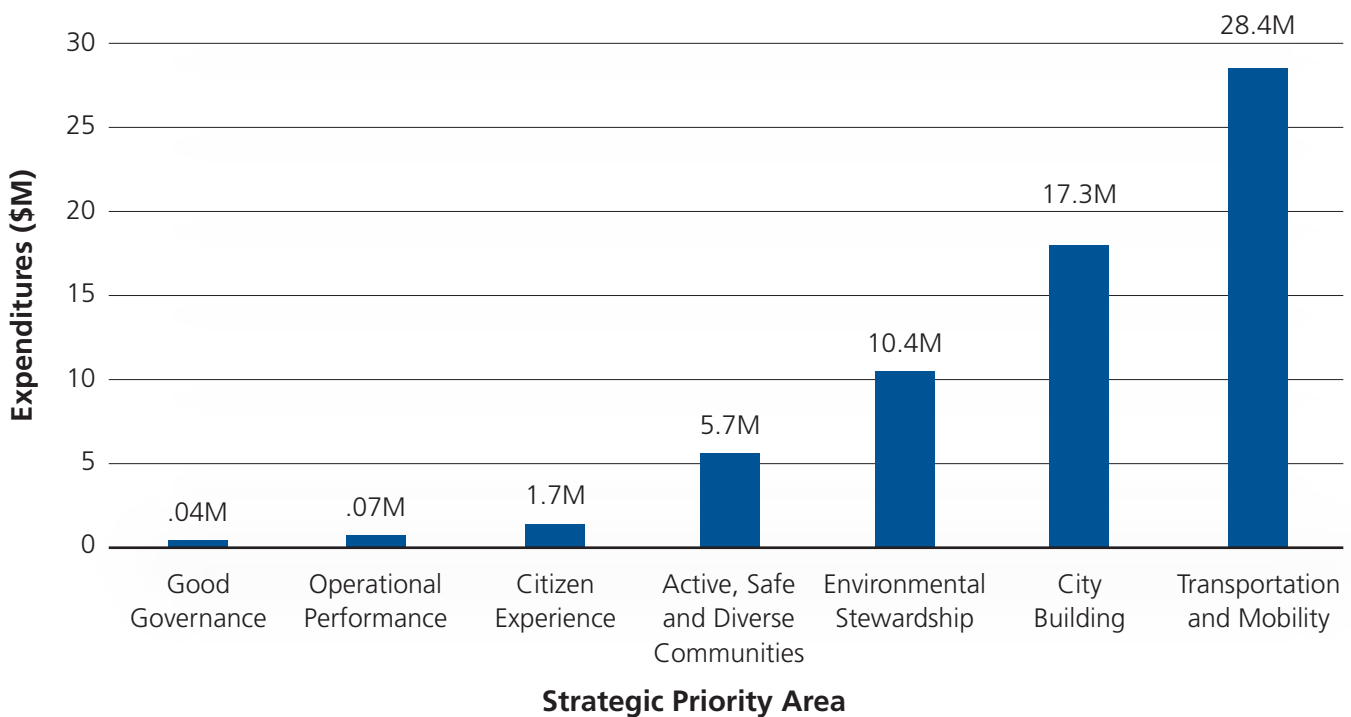
Infrastructure Development continued to contribute to the City of Vaughan's Strategic Plan by designing, planning, initiating and completing projects to support Active, Safe and Diverse Communities; City Building; Environmental Stewardship; and Transportation and Mobility. This contribution significantly aids in delivering on the City's vision to become a city of choice that promotes diversity, innovation and opportunity for all citizens, fostering a vibrant community life that is inclusive, progressive, environmentally responsible and sustainable.



Maple Library reading garden (in progress)



The following is a summary of the 2021 expenditures (including accruals) by strategic priority:



The City’s capital program can be sub-divided into two categories: State of Good Repair and Growth-Related programs.

State of Good Repair Program: This program is established through a risk-based review of the condition of the City’s infrastructure and its ability to provide the Level of Service to Vaughan’s Citizens. Each asset class is reviewed, and the investment requirements (including rehabilitation and replacement) are determined to ensure that the City achieves maximum Value for Money. Funding sources for this program are generally capital through taxation, infrastructure reserves and Gas Tax.

Growth-related Program: This program is established to deliver on new infrastructure to support growth. This infrastructure includes community infrastructure (such as community centres, parks, fire stations, etc.), as well as linear infrastructure (such as watermains, sewers, roads, etc.). These programs are typically established through the City’s Growth Management Strategy and the corresponding master plans in support of development. The funding sources for this program are primarily Development Charges.



The City made significant investments in state of good repair and growth-related projects in 2021.

State of Good Repair: \$29.8 million

Growth-related: \$34.8 million

Total: 311 projects for a total of \$64.6 million in expenditures

- 80 road network projects: \$29.1 million*
- 38 water, wastewater and stormwater network projects: \$7.6 million
- 86 facilities projects: \$15.6 million
- 89 park and open space projects: \$10.5 million
- 18 active transportation network projects: \$1.8 million
- Breakdown of 2021 projects by phase:
 - Study phase: 57
 - Detailed design phase: 55
 - Construction phase: 70
 - Completed: 129

**Where Active Transportation is being delivered with road works, the expenditures will be reflected in the road network project.*



King-Vaughan Bridge construction

The Infrastructure Development portfolio continues to develop long-range infrastructure planning studies to support future growth.

Working closely with Planning and Growth Management to develop important infrastructure plans that help support and guide future growth within the City, Infrastructure Development oversees a number of long-range master plans, strategies and studies that integrate infrastructure requirements with environmental assessments and planning principles.

Staff also work closely with other government agencies to ensure that the City's future infrastructure interests are protected in larger regional and provincial projects.



Kleinburg Village improvements



The Real Estate department continues to support Growth-Related projects, ensuring the timely delivery of infrastructure.

The team secures property rights, such as Permissions to Enter, Temporary Easements and, where required, securing and/or disposing of land. In 2021, non-tax revenue of more than \$37.2 million was generated from the sale of surplus City lands and/or easements. More than 120 development applications were reviewed and commented on, resulting in more than \$32.8 million cash-in-lieu of parkland revenue.

Development Engineering joined Infrastructure Development in January 2022, further standardizing City-wide capital delivery projects.

The team is responsible for the review, approval and inspection and processing of municipal services for land development. Synergies between the infrastructure planning and delivery groups allow for a coordinated and efficient approach to growth-related infrastructure projects.

A consolidated delivery approach was developed in 2021 to ensure effective and efficient capital delivery.

Following a rigorous review of the capital delivery approach (from project initiation to project completion), a delivery approach was developed to ensure that capital delivery was standardized, and is guided by the Program Management Process, governance and reporting, coupled with resources, procedures, tools and templates.





Maple Community Centre bowling alley revitalization

The Project Management Office (PMO) is responsible for overseeing the entire project management process.

This includes selecting a delivery approach, charter development and prioritization; facilitating monthly reporting and project change approvals; providing staff with the methodology, tools and systems needed to support the process; performing quality checks on project artifacts; and applying a gated approach to ensure compliance to the methodology. The PMO also introduced standardized processes including monthly reporting, approval of project changes and development of charters to support 2021 budget requests.



North Maple Regional Park field

Program Management Process governance is provided through the Program Management Committee.

The committee is made up of the senior leadership members of the Infrastructure Development team. The committee is responsible for:

- Aligning projects with to the 2018-2022 Term of Council Strategic Plan
- Prioritizing capital project funding submissions
- Approving project changes
- Providing oversight on all delivery projects and programs

Communications for all projects were significantly enhanced in 2021.

Throughout 2021, Infrastructure Development — in collaboration with City departments, consultants and our partners in Corporate and Strategic Communications – developed and executed comprehensive communications strategies to promote awareness and support vital connections with clients, stakeholders, City Council, staff and the community.



Strategic Alignment

Throughout its planning and completion of various projects, in 2021 the Infrastructure Development portfolio contributed to the City of Vaughan’s 2018-2022 Term of Council Service Excellence Strategic Plan by achieving objectives under the Active, Safe and Diverse Communities; Citizen Experience; City Building; Good Governance; Environmental Stewardship; Operational Performance; and Transportation and Mobility strategic priorities.

2021 Expenditures by Strategic Priority

- 
Active, Safe and Diverse Communities
\$5.7M
- 
Citizen Experience
\$0.7M
- 
City Building
\$17.3M
- 
Environmental Stewardship
\$10.4M
- 
Good Governance
\$0.4M
- 
Operational Performance
\$1.7M
- 
Transportation and Mobility
\$28.4M

Our Purpose and Values

In support of the City’s vision, mission, values and Service Excellence Strategic Priorities, the Infrastructure Development portfolio’s purpose statement provides staff with the “what, how and why” as it relates to their vital roles and functional responsibilities.

“We deliver City spaces through creative and inspired thinking to shape exceptional experiences.”

In addition, the portfolio’s supplementary core values and corresponding behaviours help foster a culture of innovation, collaboration and creativity. These supplementary core values complement the City’s values of RESPECT, ACCOUNTABILITY and DEDICATION and further support and advance our purpose.

Portfolio Core Values

We are a **TEAM**

We treat everyone with dignity, value their contributions and help one another succeed.

We build **COMMUNITY**

We plan, design, deliver and maintain infrastructure that improves quality of life for citizens.

We are **INNOVATIVE**

We explore creative solutions that keep ourselves and the organization relevant.

2021 Delivery Updates by Asset Group

ROADS AND BRIDGES

The **roads asset group** consists of a network of arterial, collector and local roadways and associated assets to provide the safe passage of vehicles throughout the community.

The **bridges asset group** consists of structures that provide a roadway or walkway for the passage of vehicles, pedestrians or cyclists across an obstruction, gap or facility and are greater than or equal to three metres in span.

Types of Assets

- Concrete and steel bridges and culverts
- Pedestrian and vehicular bridges and culverts
- Roadways, concrete curbs and roadway safety barriers
- Guiderails and timber bridges
- Streetlights, traffic signals and pedestrian signals

2021 Project Highlights

- Canada Drive-America Avenue Bridge
- King Vaughan Road Bridge
- Kirby Road extension - Dufferin to Bathurst
- LED Streetlight Retrofit Program: Phase 2
- Pavement Management Program
- Woodbridge Avenue improvements: design phase complete

Inventory of Assets and Overall Value

	Total Amount	Overall Value
All road assets	2,300 lane kilometres	\$2.0B+
Inventory Breakdown		
Bridges and major culverts	193 units	
Roadside curbs	2,700 kilometres	
Roadside barriers	22 kilometres	
Streetlights	29,000 units	
Traffic signals	96 units	



80

Total number of projects



\$29.1M

Total 2021 expenditures

Breakdown by Project Phase

Phase	Number of Projects per Phase
Study	20
Design	15
Construction	8
Complete	37



WATER, WASTEWATER AND STORMWATER

The **water asset group** consists of linear and non-linear assets throughout the community that enable the delivery of safe drinking water.

The **wastewater asset group** consists of linear and non-linear assets throughout the community that enable the collection and conveyance of wastewater to regional trunk sewers and treatment facilities.

The **stormwater asset group** consists of linear and non-linear assets throughout the community that manage the stormwater runoff that occurs due to rain and snow.

Types of Assets

- Water assets include watermains, valves, chambers, hydrants, etc.
- Wastewater assets include sanitary sewers, maintenance access holes, pump stations, etc.
- Stormwater assets include storm sewers, catch basins, stormwater management ponds, etc.

WATER

Inventory of Assets and Overall Value

	Total Amount	Overall Value
All watermains	1,200 kilometres	\$1.6B
Inventory Breakdown		Amount
Chambers	10,645	
Hydrants	10,600	
Junctions	30,500	
Service connections (commercial)	3,700	
Service connections (residential)	90,000	
Valves	54,000	
Water booster stations	2	





WASTEWATER

Inventory of Assets and Overall Value

	Total Amount	Overall Value
All wastewater assets	1,010 kilometres	\$1.0B
Inventory Breakdown	Amount	
Mains (sanitary sewers)	1,010 kilometres	
Maintenance access holes	16,520	
Pump stations	11	
Service connections	88,000	

STORMWATER

Inventory of Assets and Overall Value

	Total Amount	Overall Value
All stormwater assets	1,000 kilometres	\$2.0B
Inventory Breakdown	Amount	
Catch basins	26,800	
Inlet/outlet structures	810	
Mains (storm sewers)	1,000 kilometres	
Maintenance holes	16,300	
Management ponds	168	
Service connections	88,000	



38

Total number of projects



\$7.6M

Total 2021 expenditures

Breakdown by Project Phase

Phase	Number of Projects per Phase
Study	4
Design	11
Construction	8
Complete	15

2021 Project Highlights

- Black Creek renewal, Edgeley Pond and Park
- Block 20 sanitary sewer diversion
- Kleinburg Village improvements
- Old Maple Area infrastructure improvements
- Stormwater Management Facility (SWMF) improvements*
 - Blackburn, Franklin and Pondview Ponds
 - Fieldstone and Ashbridge Circle Ponds
 - Gallanough Park SWMF
- Watermain Replacement Program

*partially funded by the federal government's Disaster Mitigation and Adaptation Fund



FACILITIES

The **facilities asset group** consists of all buildings owned by the City of Vaughan to serve citizens, businesses and City staff.

Types of Assets

- Administration buildings
- Community centres
- Fire stations
- Heritage buildings
- Libraries
- Operations yards
- Sport/senior clubs/other



Maple Log Cabin renewal



Baker Homestead roof replacement

Inventory of Assets and Overall Value

	Total Amount	Overall Value
All facilities	96 buildings; more than 2.2M square feet	\$650M
Inventory Breakdown	Total	Total Area (square feet)
Administration buildings	2	414,500
Community centres	10	1,110,000
Fire stations	10	98,600
Heritage buildings	18	59,000
Libraries	10	172,000
Operations yards	3	27,000
Sport/senior clubs/other	43	350,000



86

Total number of projects



\$15.6M

Total 2021 expenditures

Breakdown by Project Phase

Phase	Number of Projects per Phase
Study	2
Design	18
Construction	38
Complete	28

2021 Project Highlights

- Accessibility for Ontarians with Disabilities Act (AODA) program plan
- **NEW** Carrville Community Centre, Library and District Park
- Energy Management Program
- Facility and energy renewal of Fire Station 7-1: design phase
- **NEW** Fire Station 7-12: design phase
- Garnet A. Williams Community Centre major renovation
- Installation of Ultra Violet filtration units at all City facilities as well as retrofit to ultra-high efficiency Merv 13 filtration systems
- Maple Bowling Alley revitalization
- Maple Library and Community Centre renovation
- Roof replacement program
- Upgraded 35 Closed Circuit Television (CCTV) systems with new Internet Protocol (IP) recorders and IP cameras at various parks, installed new CCTV and Access Control systems at seven Fire Stations and 11 Wastewater Stations



Garnet A. Williams Community Centre main entrance rendering



PARKS AND OPEN SPACES

The **parks and open space asset group** consists of play spaces and amenities for residents as well as linear open spaces that either expand on the park system or create enhanced linkages between the system of parks and open spaces in the city.

Types of Assets

- Playgrounds
- Skate areas
- Soccer and baseball fields
- Splash pads and waterplay areas
- Tennis and basketball courts

Inventory of Assets and Overall Value

	Total Amount	Overall Value
Parks	225	\$242M*
<i>*excludes land value</i>		
Inventory Breakdown	Amount	
Baseball fields	58	
Basketball courts	73	
Tennis court play surfaces	134	
Playgrounds	272	
Soccer fields	150	
Splashpads and waterplay areas	20	



North Thornhill District Park



89
Total number of projects



\$10.5M
Total 2021 expenditures

Breakdown by Project Phase

Phase	Number of Projects per Phase
Study	28
Design	7
Construction	9
Complete	45



2021 Project Highlights

- Block 18 District Park public engagement and final concept
- Glen Shields Park redevelopment advances
- North Maple Regional Park: initiated trail improvements and Phase 2 Design Build contract
 - Completion of Enabling Works Reference Concept Design and award of Enabling Works Design-Build (\$24.7M)
 - Design and 40 per cent construction completion of trail improvements
- Off-leash Dog Area Strategy
- Park improvement projects including tennis and basketball court replacements and new playground components at Wade Gate Park, Napa Valley Park and Kiloran Park
- Playground renewal and surfacing improvements at Oakhurst Park, Reeves Park, West Crossroads Park, Sherwood Parkette and Pierre Elliott Trudeau Park
- Playground rubberized resurfacing at North Thornhill District Park
- Summit Park completion in Block 55



North Maple Regional Park



ACTIVE TRANSPORTATION

Active Transportation is using “human-power” to get from one place to another primarily by walking, using a mobility device or riding a bike. The Active Transportation asset group consists of walking and cycling infrastructure and facilities which offer residents sustainable transportation options and recreational opportunities. There are two types of Active Transportation assets: ones that are located within the road allowance and ones that are located within the City’s open spaces and parks. Assets within the road allowance are primarily sidewalks, in-boulevard multi-use pathways, cycle tracks and bike lanes. Assets within the City’s open spaces are primarily multi-use recreational trails and park pathways.



Types of Assets

- **Bike Lanes** (on-road pavement) – dedicated space for cycling, physically separated from pedestrians but not physically separated from motorists, delineated using pavement markings on the roadway
- **Cycle Tracks** (in-boulevard within road allowance) – designated space for cycling, physically separated from pedestrians and motorists in the boulevard either adjacent to the sidewalk or adjacent to the curb in asphalt
- **Multi-Use Pathways** (in-boulevard within road allowance) – shared space for walking, cycling and other forms of active transportation in the boulevard generally constructed out of asphalt
- **Multi-Use Recreational Trails** (within open spaces) – shared space for walking, cycling and other forms of active transportation within open spaces, made of various materials including asphalt, gravel, dirt, pebble, etc.
- **Pathways** (shared space within parks and around civic buildings) – shared space for walking, cycling and other forms of active transportation within parks and around civic buildings in either asphalt or concrete
- **Sidewalks** (in-boulevard within road allowance) – dedicated space for walking in the boulevard generally constructed out of concrete



Inventory of Assets and Overall Value

	Overall Value
All Active Transportation	\$90M
Inventory Breakdown	Amount
Bike lanes and cycle tracks	25 kilometres
Multi-use pathways (in-boulevard)	31 kilometres
Multi-use recreational trails	92 kilometres
Pathways	103 kilometres
Sidewalks	1,104 kilometres



18

Total number of projects



\$1.8M

Total 2021 expenditures

For a comprehensive list of both standalone active transportation projects as well as active transportation assets routinely accommodated as part of other capital projects (i.e. sidewalks or cycle tracks advanced as part of road projects), see the [2021 Active Transportation Capital Infrastructure Projects List](#) (PDF) from the Active Transportation Programs Second Annual Update brought to Council in February 2022.

Breakdown by Project Phase

Phase	Number of Projects per Phase
Study	3
Design	4
Construction	7
Complete	4

2021 Project Highlights

- [First Annual Active Transportation Program Council Report](#) (PDF) brought to Council in February 2021 and 2021 Annual Update in February 2022
- Humber Trail Feasibility Study
- Jane Street (Portage Parkway to Teston Road) Functional Design completed
- Pedestrian Crossover (Type B) at York Hill Boulevard construction completed
- Riverwalk Phase 2A – Doctors McLean District Park construction completed
- 60 per cent increase in cycling along Clark Avenue in 2021 following installation of cycle tracks
- 10-year cycling and trails capital programs developed
- More than 120 kilometres of cycling facilities, multi-use pathways and recreational trails were advanced through municipal, regional and partner projects



Infrastructure Planning Studies and Third-Party Projects

Infrastructure Development oversees a number of long-range master plans, strategies and studies, which integrate infrastructure requirements with environmental assessment and planning principles.

The team is committed to protecting the City's interests and needs as it oversees third-party projects, plans and initiatives which may impact Vaughan's linear infrastructure.

2021 Project Highlights

- Bass Pro Mills Drive Extension Environmental Assessment
- Core Asset Management Plan
- Highway 427 Expansion Project: Highway 7 to Major Mackenzie Drive | Ministry of Transportation
- Infrastructure Systems Optimization Program/Study
- Integrated Urban Water Master Plan
- John Lawrie Overpass | Ministry of Transportation
- Kirby Road Widening: Dufferin Street to Jane Street
- Teston Road Operational Environmental Assessment
- Vaughan Transportation Plan



Real Estate Services

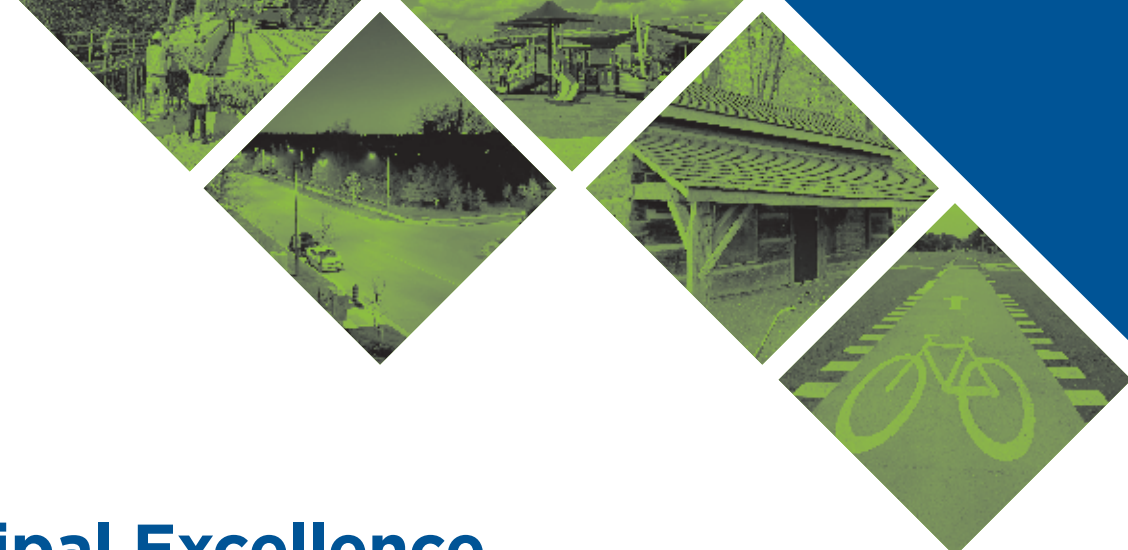
The Real Estate team supports city-wide initiatives by securing property rights such as Permissions to Enter, Temporary Easements and, where required, securing and/or disposing of land. In 2021, non-tax revenue of more than \$37.2 million was generated from the sale of surplus City lands and/or easements. More than 120 Development Applications were reviewed and commented on, resulting in more than \$32.8 million cash-in-lieu of parkland revenue.

In 2021, real estate services contributed to the advancement of the following:

- Black Creek channel
- Block 59 District Park land dedication and acquisition
- Kirby Road extension (from Dufferin Street to Bathurst Street)
- Metrolinx initiatives
- Portage Parkway
- Vaughan Metropolitan Centre initiatives



Vaughan Metropolitan Centre construction



Municipal Excellence

Awards and Accolades

Ontario Good Roads Association (OGRA) Municipal Concrete Award: Dorengate Stairs Project

The City's Dorengate Drive Stairs Project received the Municipal Concrete Award from the OGRA. The honour was presented during OGRA's 2021 virtual conference which took place from Feb. 22-25, 2021.

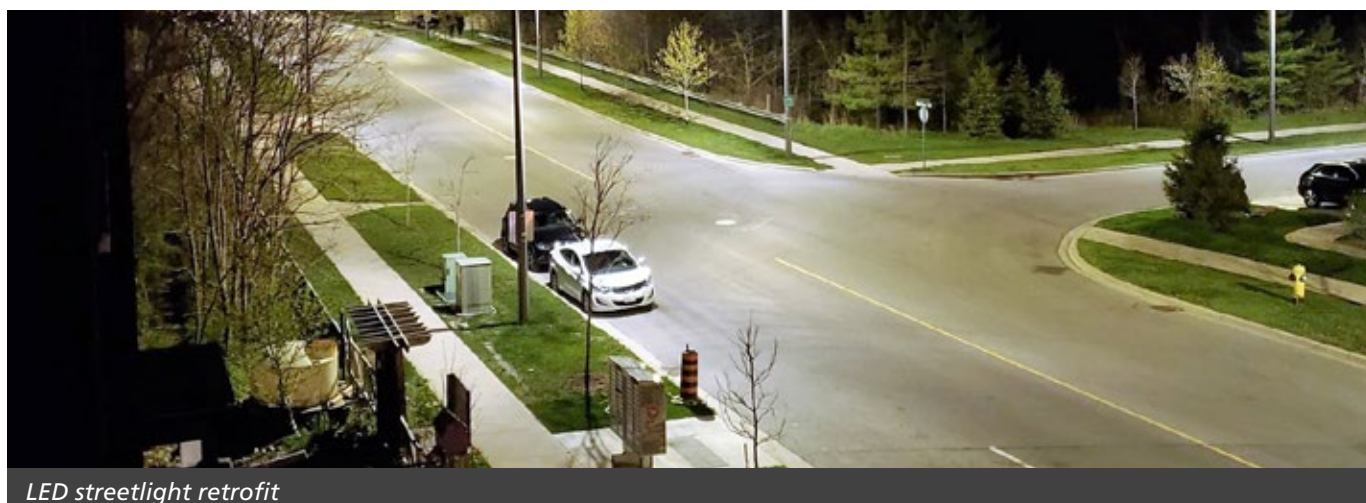
OGRA recognized the recently completed suspended slab stair project – an important pedestrian access connecting the Pine Grove Community to Islington Avenue via Dorengate Drive.

This project used innovative concrete construction to overcome poor soil stability and utility conflicts while also incorporating AODA and active transportation features.

2021 Smart 50 Award: LED Streetlight Retrofit Program

The LED Streetlight Retrofit Program provides a safer, more sustainable and brighter environment for citizens. As part of the City of Vaughan's commitment to protecting the environment and fostering a green community, more than 24,000 new LED lights have been installed as part of a city-wide streetlight retrofit program – and more are on the way.

This program received a **2021 Smart 50 Award** – an award created in partnership with Smart Cities Connect, Smart Cities Connect Foundation and US Ignite to honour the 50 most innovative and transformative municipal-scale Smart Cities projects globally. This award reaffirms Vaughan's commitment to reducing energy consumption and taking a Smart City approach to deliver efficient, reliable and innovative city-building.



LED streetlight retrofit



Certifications

Rick Hansen Foundation Accessibility Certifications (RHFAC)

The City of Vaughan facilities listed below received Accessibility Certification (RHFAC) and Accessibility Gold Certification (RHFAC Gold) in 2021.

Facilities are awarded RHFAC by meeting a minimum score of 60 per cent on the rating survey and **RHFAC Gold by achieving a minimum score of 80 per cent.**



Carrville Community Centre rendering



Pierre Berton Resource Library

Site	RHFAC	RHFAC Gold
Carrville Community Centre, Library and District Park (Pre-Construction)		•
Chancellor Community Centre and Ansley Grove Library	•	
Dufferin Clark Community Centre and Dufferin Clark Library	•	
Fire Station 7-1	•	
Fire Station 7-3		•
Fire Station 7-5	•	
Fire Station 7-8	•	
Fire Station 7-9		•
Joint Operations Centre	•	
Pierre Berton Resource Library	•	
Woodbridge Pool and Memorial Arena	•	



Grant Funding

Grant Funding Secured to Advance Municipal Infrastructure

Numerous Infrastructure Development projects have progressed with the support of grants, reflecting our continued commitment to exploring alternate funding opportunities, with a focus on good governance and accountability.

In 2021, grants contributed to several of the City's strategic priorities including the creation of five outdoor rinks, North Maple Regional Park trail development, Maple Library and Community Centre

renovations and various renewal, accessibility and environmental stewardship initiatives.

- Total Grant Funding awarded in 2021: \$16,002,956 (Capital)
- An additional \$50,000 of grant funding (operational) was awarded to support the renewal of the City's Asset Management Plans for core assets related to: the water distribution system; wastewater collection system; stormwater collection system; roads; and bridges and culverts

Grant Name	Organization/Agency	Amount Awarded	Description
Canada Community Revitalization Fund	FedDev Ontario	\$2,231,250	<ul style="list-style-type: none"> • Pierre Berton Heritage Centre parking lot: \$375,000 • Parks and sensory gardens: \$375,000 • North Maple Regional Park gateway: \$750,000 • Woodbridge Library entrance reno: \$731,250
Invest in Canada Infrastructure Program COVID Resiliency Stream	Government of Ontario	\$9,039,028	Maple Community Centre and Library, roofs and skating rinks
		\$1,100,000	Fire Station-1
		\$2,632,678	UV HVACs and Fire Stations (3)
		\$1,000,000	North Maple Regional Park trail redevelopment



Project Communications

Enhancing Communications

Throughout 2021, Infrastructure Development – in collaboration with City departments, consultants and our partners in Corporate and Strategic Communications – developed and executed comprehensive communications strategies to promote awareness and support vital connections with clients, stakeholders, City Council, staff and the community.

Communication Tactics: By the Numbers

55

Internal Project Updates/Memos

50

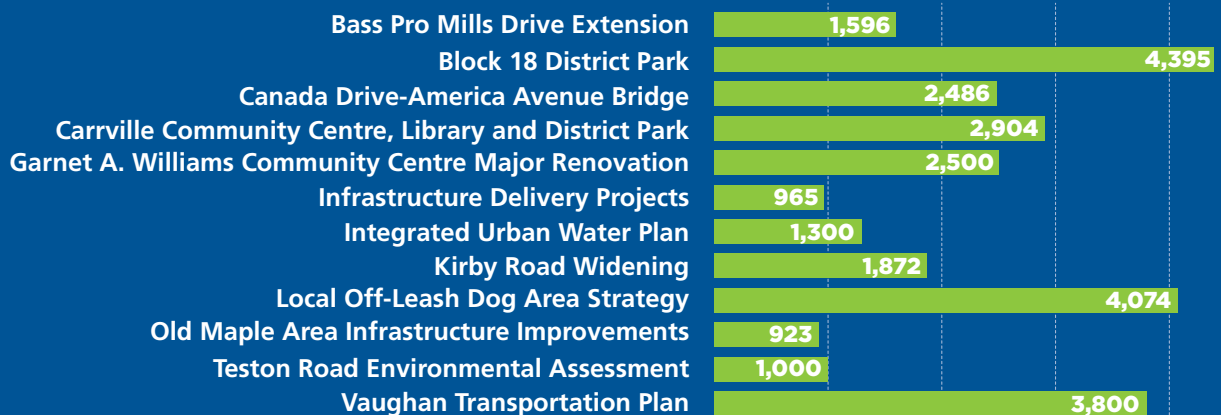
Newsletters/Notices

64

Public Service Announcements



Page Views by Project Webpage: 2021





2022 Outlook*

PROJECTED EXPENDITURES

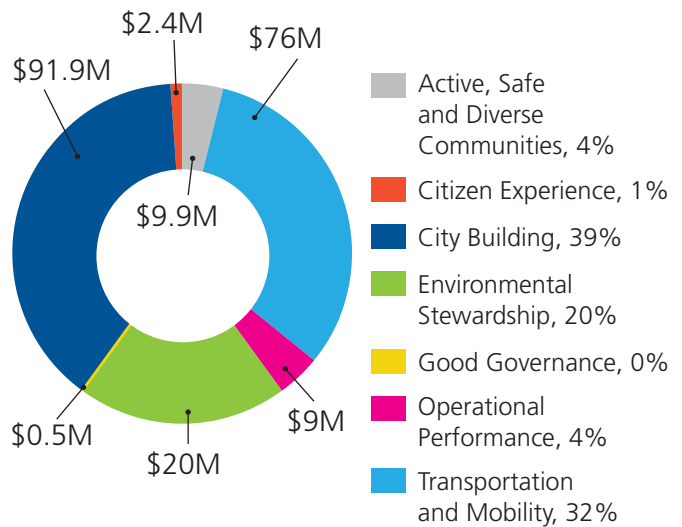
Breakdown by Strategic Priority

Strategic Priority	Projected Expenditure**
Active, Safe and Diverse Communities	\$9.9M
Citizen Experience	\$2.4M
City Building	\$91.9M
Environmental Stewardship	\$45.8M
Good Governance	\$0.5M
Operational Performance	\$9M
Transportation and Mobility	\$76M
TOTAL:	\$235.6M

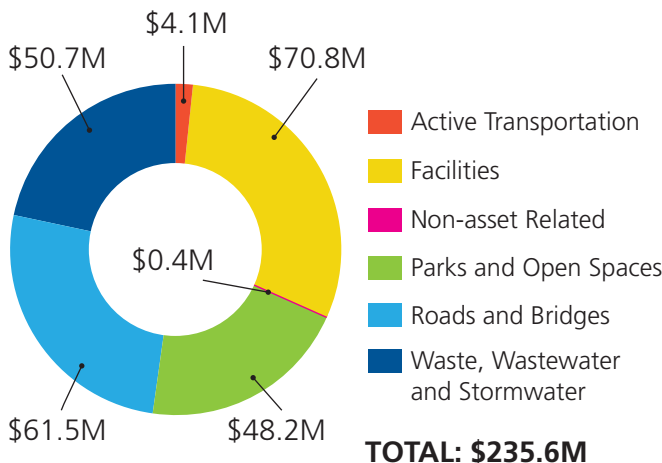
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PROJECTED CASH FLOW

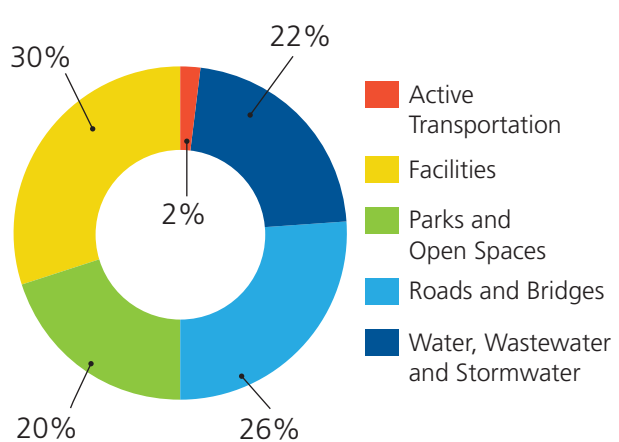
Breakdown by Strategic Priority



Breakdown by Asset Group



Breakdown by Asset Group



* Scheduled annual review of 2022 cash flow forecast versus actual expenditures conducted in Q2

Development Engineering

With the City of Vaughan's new organizational structure introduced in January 2022, the portfolio welcomed the Development Engineering department. The team is responsible for the expeditious review, approval, inspection and processing of municipal services for land development.

2021 Intake Summary



729
Pool permits processed



1,213
Grading permits processed



8,302
Inspections performed



Vaughan Metropolitan Centre



Pavement Management Program

2021 Assumption Summary

Municipal infrastructure delivered through the development approval process and 13 growth-related land development projects with a value of \$35.8M that were assumed by the City of Vaughan:

- 13 lane kilometres of road
- 10.4 kilometres of watermain
- 6.2 kilometres of sanitary sewer
- 4.8 kilometres of sidewalk
- 4.0 kilometres of storm sewers
- 248 streetlights
- 4 stormwater management ponds
- 1 wastewater pumping station



2021 Development Services



36

Agreements prepared



300

Committee of Adjustment files processed



18

Fully executed agreements processed

2021-2022 Active and New Projects

Development Engineering is overseeing 54 active projects, with four new projects in 2022.

Project highlights:

- North South Collector Road Works (Block 34) | \$7.4M
- John Lawrie (Block 59) - Two Crossings | \$3.0M
- Street F - Construction and Design (Block 59) | \$3.3M
- Street G - Construction and Design (Block 59) | \$1.0M

In addition, the city-wide Noise Policy and Guidelines project will advance in 2022.



Bass Pro Mills Drive



Appendix

DELIVERY APPROACH

The Delivery Approach is guided by the Program Management Process (PMP), governance, and reporting – coupled with resources, procedures, tools and templates.

Project Management Process (PMP)



The PMP demonstrates how the need for an asset transforms into a project to deliver a new asset or changes to an existing asset. The process ensures that asset and project information is gathered, analyzed, monitored and shared with appropriate stakeholders to support evidence-based decision-making.

Program Management Process Governance and Oversight

PMP governance is provided through the Program Management Committee. The committee is responsible for: aligning projects to the 2018-2022 Term of Council Strategic Plan, prioritizing capital project funding submissions, approving project changes and providing oversight on all delivery projects and programs.

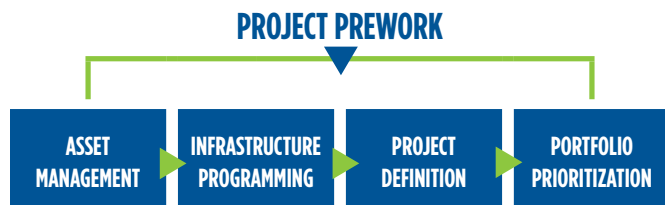
Program Management Office (PMO)

The **PMO** oversees the entire PMP. It manages selection of the delivery approach, charter development and prioritization; facilitates monthly reporting and project change approvals; provides staff with the methodology, tools and systems needed to support the PMP; performs quality checks on project artifacts; and applies a gated approach to ensure compliance to the methodology.



Project Prework

Within the **Project Prework Phase**, assets are selected to move forward for replacement or refurbishment, including new growth-related assets. Selected assets are bundled into projects using draft charters and further defined with information to support prioritization and capital funding requests. The Program Management Committee governs the prioritization of draft charters and decides via a valuation exercise which charters will move forward into the Capital Budgeting Process.



Project Approval

Within the **Project Approval Phase**, selected draft project charters inform the capital funding submissions. The Financial Planning and Development Finance team manage the Project Approval Phase and facilitate the creation of the City's annual capital



budget approval. Draft charters provide information to support this decision-making process.

Project Management

The **Project Management Phase** ensures that the infrastructure capital plan is baselined and delivers assets in a consistent and accountable manner. Project scope, schedule, budget, risks and issues are monitored through monthly reporting. Requested changes to baselined scope, schedule and budget are authorized through a project change approval process. Projects are closed out and assets can then be used by the public. City staff will continue to maintain these assets over time. Revised or new asset information is fed back into corporate asset management systems.





**Investing in infrastructure
is ultimately about investing in people:**

- ◆ helping to ease the flow of people and goods
- ◆ delivering parks, sports and leisure spaces for families to play and stay healthy
- ◆ upholding water and wastewater systems for the community to enjoy clean water and pristine environments
- ◆ preserving, protecting and promoting environmental values for future generations
- ◆ contributing to social inclusivity and promoting accessibility for Canadians of all backgrounds



City of Vaughan
Infrastructure Development
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