



City of Toronto

# Green Bond Newsletter

July 2022





# A message from Chief Financial Officer and Treasurer



Welcome to the City of Toronto's Green Bond Newsletter - your source for information about the City's Green Bond Program.

The City has made a bold but necessary commitment to taking action on climate change by working to reduce local greenhouse gas (GHG) emissions and transforming Toronto into a low-carbon city. In December 2021, Toronto City Council adopted the

TransformTO Net Zero Strategy, setting the course to achieve net zero GHG emissions by 2040 – 10 years earlier than originally planned. The strategy triggers new and accelerated actions to reduce community-wide emissions and establish the trajectory needed to reach net zero by 2040. It also sets an interim GHG emissions reduction target of 45 per cent from 1990 levels by 2025.

More than two years into the COVID-19 pandemic, it is more apparent than ever that climate action, economic recovery and equity are intertwined and we cannot effectively achieve one without consideration and action on all.

That is why the City is committed to integrating Environmental, Social and Governance (ESG) factors throughout the entire organization. Since 2020, all City decisions, including financial decisions, are considered through a climate lens and an equity lens to deliver outcomes to all Torontonians in alignment with the corporate strategic priorities and the City's commitment to reach net-zero emissions.

In late 2021, the global emergence of the Omicron variant, increased COVID-19 cases and rising inflation triggered market volatility and investor

caution. Conventional debt financings from other issuers were slow to gather the necessary investor demand, however, the demand for green bonds remained very strong. The ESG nature of the City's 2021 green bond issuance was the key differentiating reason why the City was able to have a successful transaction in a very challenging market with heightened market volatility and a cautionary stance by investors.

The domestic and global demand for environmental and socially responsible investment options endures and the City is determined to continue to be a leader in this field to support Toronto's economic recovery while improving health and social equity for all Torontonians.

Sincerely,

Heather Taylor  
Chief Financial Officer and Treasurer  
City of Toronto

To learn more about the City's Green Bond Program, visit:

<https://www.toronto.ca/city-government/budget-finance/city-finance/investor-relations/green-debenture-program/>



# City of Toronto Green Bonds

## Assurances

Sustainalytics, an independent sustainability rating firm, reviewed the City of Toronto's Green Bond Framework and provided an assessment of the City's environmental credentials as it relates to the Green Bond Principles.

## Alignment with Green Bond principles

Sustainalytics is of the opinion that the City's Green Bond Framework is credible and impactful, and aligns with the four pillars of the Green Bond Principles, 2017.

## Impact reporting

The City will use the best available methodologies to select and report on project indicators.

## Key features

- Rank *pari passu* with conventional City bonds, payable without preference or priority
- Carry the full faith and credit of the City
- Investors do not assume any project-related risks
- Complies with the City's Green Bond Framework
- City green bonds align with the Green Bond Principles, which promote integrity in the market through transparency, disclosure and reporting

## Future issuances

The City plans to have regular green bond issuances, with the next offering expected in 2022.





# 2018 Green Bond

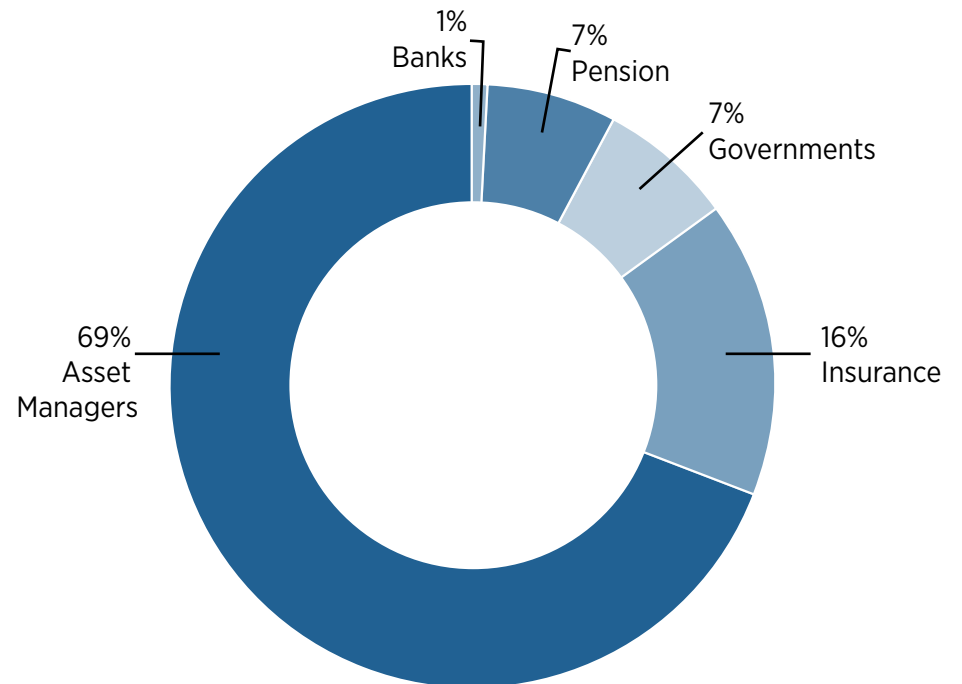
**As a part of the City's (AA/Aa1/AA) overall capital borrowing program, the City initiated a Green Bond Program in 2018. Under the Program, net proceeds from bonds are used to fund Council approved capital projects that align with TransformTO, Toronto's Climate Action Strategy.**

On July 18, 2018, the City successfully issued a C\$300 million green bond. The bond was priced to yield 3.21 per cent with an August 2048 maturity. The offering marked the City's first-ever green bond issue and the largest municipal green bond in Canada.

Net proceeds from the 2018 green bond issue are funding eligible projects for sustainable clean transportation, including the purchase of subway cars, renewal of core and supporting electric rail infrastructure, building the Scarborough Subway extension, revitalizing Union Station and making Leslie Barns more energy efficient and resilient to climate change.

The issue was over-subscribed with orders from 36 domestic investors.

## 2018 Investor Type



# 2019 Green Bond

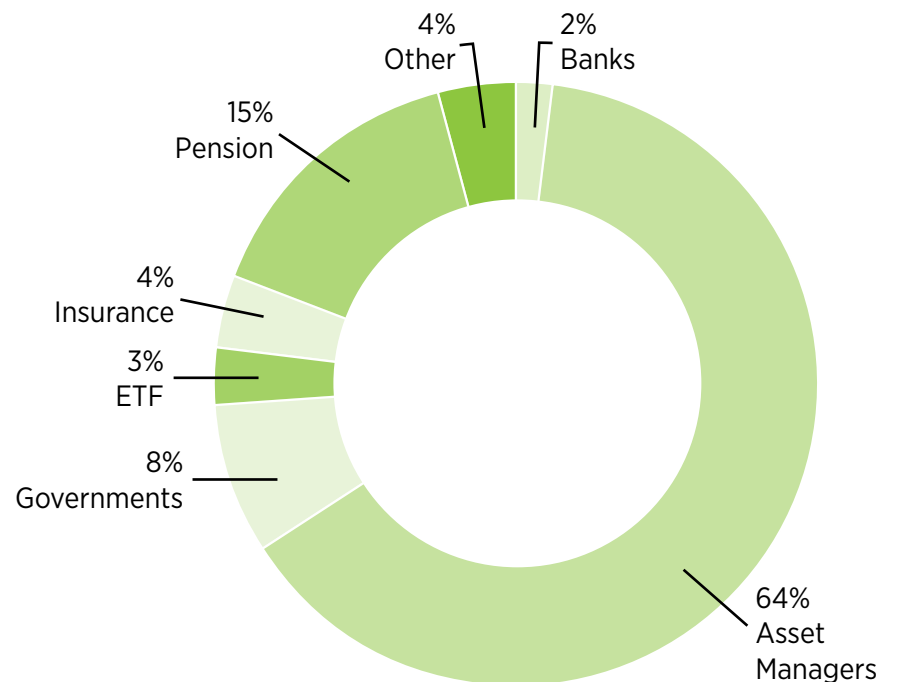
On September 9, 2019, the City successfully issued another C\$200 million green bond. The bond was priced to yield 2.646 per cent with a September 2039 maturity.

Net proceeds from the 2019 green bond issuance are funding eligible projects for Toronto Community Housing energy retrofits, energy efficiency projects financed by the Sustainable Energy Plan Financing program, arena lighting retrofits, Port Lands flood protection, cycling infrastructure, renewal of electric rail infrastructure, and solar photovoltaic projects.

The issue was over-subscribed with orders from 53 domestic and international investors.

**Bonds included in the index are independently evaluated and meet established Green Bond Principles. Indices include the S&P Green Bond, Solactive Green, and Bloomberg Barclays MSCI Green Bond Indices.**

## 2019 Investor Type



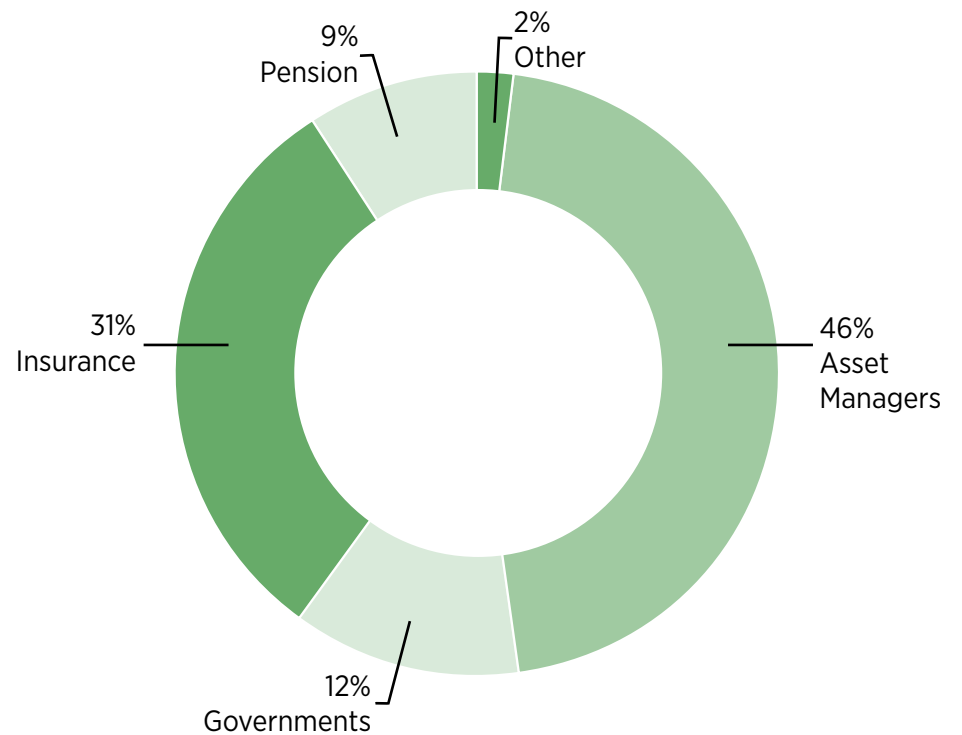
# 2020 Green Bond

On December 1, 2020, the City successfully issued another C\$130 million green bond by re-opening its September 24, 2039 green bond. This additional issue brings the total outstanding to \$330 million. The bond was priced to yield 2.14 per cent.

Net proceeds from the 2020 green bond issuance are funding eligible projects for Toronto Community Housing energy retrofits, Port Lands flood protection, and renewal of core and supporting electric rail infrastructure.

The issue was over-subscribed with orders from 36 domestic and international investors.

## 2020 Investor Type



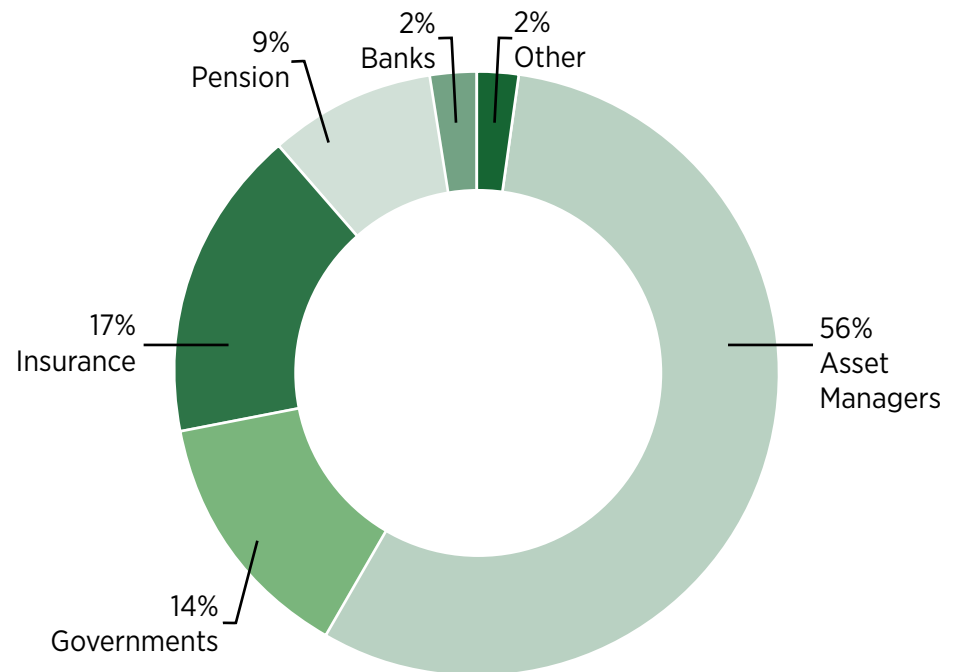
# 2021 Green Bond

On December 2, 2021, the City successfully issued another C\$150 million green bond. The bond was priced to yield 2.238 per cent with a December 21, 2031 maturity.

Net proceeds from the 2021 green bond issuance are funding eligible projects for Toronto Community Housing multi-year retrofits, Port Lands flood protection, Dufferin organics processing facility, and TTC purchase of electric buses and renewal of electric rail supporting infrastructure.

The issue was over-subscribed with orders from 29 domestic and international investors.

## 2021 Investor Type





# Use of proceeds – 2018 Green Bond

All bond proceeds have been disbursed for the 2018 green bond. Proceeds from green bonds are assigned to specific projects at the time of issuance and listed in the debenture by-law #1059-2018.

Project name	Total allocation (\$000s)	Funds disbursed (\$000s)	% disbursed
<b>Sustainable clean transportation</b>			
<b>Supporting infrastructure</b>			
Bridges and tunnels	36,733	36,733	100%
Subway track	42,173	42,173	100%
Leslie Barns LRT maintenance and storage facility	42,000	42,000	100%
Scarborough subway extension	35,099	35,099	100%
Union Station revitalization	117,295	117,295	100%
<b>Fleet</b>			
Purchase of subway cars	26,700	26,700	100%
<b>Total</b>	<u>300,000</u>	<u>300,000</u>	<u>100%</u>





# Use of proceeds – 2019 Green Bond

All bond proceeds have been disbursed for the 2019 green bond. Proceeds from green bonds are assigned to specific projects at the time of issuance and listed in the debenture by-law #1297-2019.

Project name	Total allocation (\$'000s)	Funds disbursed (\$'000s)	% disbursed
<b>Sustainable clean transportation</b>			
<b>Supporting infrastructure</b>			
Cycling infrastructure	24,353	24,353	100%
Surface track	4,694	4,694	100%
<b>Energy efficiency retrofits</b>			
Social housing revitalization and retrofit	111,961	111,961	100%
Community energy efficiency projects	14,884	14,884	100%
<b>Climate change adaptation &amp; resilience</b>			
Port Lands flood protection	44,108	44,108	100%
<b>Total</b>	<u>200,000</u>	<u>200,000</u>	<u>100%</u>



# Use of proceeds – 2020 Green Bond

All bond proceeds have been disbursed for the 2020 green bond. Proceeds from green bonds are assigned to specific projects at the time of issuance and listed in the debenture by-law #449-2020.

Project name	Total allocation (\$000s)	Funds disbursed (\$000s)	% disbursed
<b>Sustainable clean transportation</b>			
Subway track	8,773	8,773	100%
<b>Energy efficiency retrofits</b>			
TCHC multi-year retrofit	9,239	9,239	100%
<b>Climate change adaptation &amp; resilience</b>			
Port Lands flood protection	111,988	111,988	100%
<b>Total</b>	<u>130,000</u>	<u>130,000</u>	<u>100%</u>



# Use of proceeds - 2021 Green Bond

All bond proceeds have been disbursed for the 2021 green bond. Proceeds from green bonds are assigned to specific projects at the time of issuance and listed in the debenture by-law #1028-2021.

Project name	Total allocation (\$000s)	Funds disbursed (\$000s)	% disbursed
<b>Sustainable clean transportation</b>			
Purchase of buses	50,807	50,807	100%
Surface track	12,496	12,496	100%
Traction power - various	18,805	18,805	100%
Bridges and tunnels - various	20,420	20,420	100%
<b>Energy efficiency retrofits</b>			
TCHC multi-year retrofit	9,200	9,200	100%
<b>Climate change adaptation &amp; resilience</b>			
Port Lands flood protection	5,781	5,781	100%
<b>Pollution prevention and using waste as a resource</b>			
Dufferin SSO facility	32,491	32,491	100%
<b>Total</b>	<u>150,000</u>	<u>150,000</u>	<u>100%</u>



# TransformTO - Toronto's climate action strategy

TransformTO is the City's ambitious climate action strategy. TransformTO seeks to reduce greenhouse gas (GHG) emissions community-wide and increase climate resilience while improving social equity, health and economic prosperity.

In October 2019, Toronto Council declared a climate emergency, deepening the City's commitment to addressing climate change. In December 2021, Council adopted the TransformTO Net Zero Strategy

which revised Toronto's long-term GHG emissions target to achieving net zero emissions by 2040 or sooner.

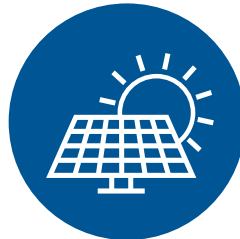
Achieving net zero emissions will require transformational changes in how we live, work, build and commute. Everyone will have a role in making Toronto a low-carbon city. To reduce the worst impacts of climate change, TransformTO has set the following goals for 2030.



## Home and Buildings

All new homes and buildings will be designed and built to be near zero greenhouse gas emissions

Greenhouse gas emissions from existing buildings will be cut in half, from 2008 levels



## Energy

50 per cent of community-wide energy comes from renewable or low-carbon sources

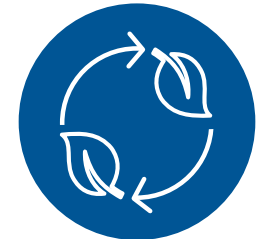
25 per cent of commercial and industrial floor area is connected to low carbon thermal energy sources



## Transportation

30 per cent of registered vehicles in Toronto are electric

75 per cent of school/work trips under 5km are walked, biked or by transit



## Waste Diversion

70 per cent residential waste diversion from the City's waste management system

Identify pathways to more sustainable consumption in City operations and in Toronto's economy

# Project eligibility and selection

The selection of eligible projects is the responsibility of the City’s Corporate Finance Division in consultation with internal and external expert stakeholders. Eligible projects are selected in accordance with City guidelines for use of proceeds, which includes financing or re-financing of new and/or existing capital projects that meet the City’s environmental objectives, in addition to other criteria described in the City’s Green Bond Framework.

Following the identification of eligible projects, the Corporate Finance and Energy and Environment divisions verify the suitability of projects by reviewing the expected climate and resilience impacts.

After the projects have been verified, the City follows its current debt issuance procedure with the Mayor, or the Mayor’s Alternate and the Chief Financial Officer authorizing the issuance of debt.

In 2021, seven projects received funding across four of the seven eligible categories. The table presents the program areas that received funding from green bonds since 2018.

Eligible Categories	2018 issuance	2019 issuance	2020 issuance	2021 issuance
Sustainable clean transportation	✓	✓	✓	✓
Renewable energy		✓		
Energy efficiency		✓	✓	✓
Pollution prevention and using waste as a resource				✓
Sustainable water and wastewater management				
Climate change adaptation and resilience		✓	✓	✓
Eco-efficient and/or circular economy principles integration				
Green buildings				



# Sustainable clean transportation

In Toronto's 2019 GHG emissions inventory, 36 per cent of GHG emissions were generated by transportation, with 73 per cent of those emissions attributed to personal vehicles. Investments in core and supporting infrastructure such as public transit and cycling systems will positively contribute to GHG reduction targets while improving the health, economic and social equity outcomes.

## The City's Green Bond program funded six sustainable transportation programs:

### 2018:

- Union Station revitalization
- Scarborough subway extension
- Leslie Barns
- TTC fleet and infrastructure renewal and upgrades

### 2019:

- Cycling infrastructure
- TTC Infrastructure renewal and upgrades

### 2020:

- Cycling infrastructure
- TTC Infrastructure renewal and upgrades

### 2021:

- Purchase of buses
- Surface track
- Traction power - various
- Bridges and tunnels - various

Profiles for each of the six program areas are outlined in the subsequent pages.

# DON'T YOU JUST LOVE THAT NEW BUS SMELL?





# TTC Green Bus program and track maintenance and repair initiatives

## Electrifying the TTC bus fleet

TTC's Green Fleet Plan provides a road map for the TTC to achieve TransformTO's target of reducing greenhouse gas emissions to net zero. The Green Fleet Plan includes the procurement of only zero emission buses starting in 2024 and the electrification of the Wheel-Trans bus and Operational Support Vehicle fleets.

The TTC procured a total of 60 battery electric buses in 2019 and 2020 (eBuses), all of which are now in service. The TTC eBus fleet has accumulated more than 2.85M in-service kilometers, provided more than 145,000 in-service hours, and avoided 3.76M kg of CO2 emissions.

The TTC plans to procure an additional 336 hybrid-electric buses for the fleet; 268 will be 40 foot buses and 68 will be 60 foot buses. Deliveries will begin to arrive in Q4 2022 with the remainder arriving Q1 to Q3 2023.

Given Ontario's relatively low-carbon electricity grid, electrifying TTC buses brings almost all of the TTC's operational emissions close to zero carbon emissions while providing safe, affordable transportation across Toronto and keeping the Toronto's air clean.

## Maintaining tracks for TTC's electric subway and streetcar vehicles

To support access to transit and TTC operations, the TTC works year-round to maintain and improve bridges, tunnels and rail tracks for subways and streetcars.

Since 2021, TTC's Track Capital Program has replaced approximately 22,830 feet of rail, 2,100 ties and 3,800 ft of cover board replacement. In addition, seven full turnout replacements were performed as part of TTC's Special Trackwork Rehabilitation Program.

To date, more than 19,488 feet of surface track has also been overhauled through the Streetcar Track Plan, which uses a new construction method that is expected to provide 25 years of service, an increase of 10 years over prior track overhaul methods.

# Greenhouse gas reductions

## Annual emissions avoided by public transit vehicle type\*

	2016 CO <sub>2</sub> reduced* (tonnes)	2018 CO <sub>2</sub> reduced* (tonnes)	2019 CO <sub>2</sub> reduced* (tonnes)	2020 CO <sub>2</sub> reduced* (tonnes)	2021 CO <sub>2</sub> reduced** (tonnes)	% change or reductions from 2020 to 2021	% change over baseline***
Streetcar	61,063	41,373	104,833	28,601	25,870	-10%	-58%
Subway	390,455	533,474	616,304	238,448	189,415	-21%	-51%
Total	451,518	574,847	721,137	267,049	215,285	-19%	-52%

\*The GHG reductions are estimated by calculating per passenger emissions for each transit vehicle type and comparing it to the emissions from a typical single- occupant passenger vehicle.

\*\*2021 emissions uses the 2020 emissions factor for electricity from Canada's National Inventory Report.

\*\*\*Gains in emissions reductions from 2016 to 2019 were reduced during 2020 and 2021 due to the impacts of COVID-19 pandemic on transit use.



Electric Bus





# Energy efficiency - 2019, 2020 and 2021 Green Bond

Retrofits to buildings can save energy and make buildings more efficient and resilient to adverse climate events. Substantial cost savings and GHG reductions can also be realized, while providing community benefits and increased local economic and job opportunities.



## Energy efficiency project profiles

### Toronto Community Housing energy retrofits

Toronto Community Housing Corporation (TCHC) is transforming its aging public housing infrastructure to build better homes and neighbourhoods. These efforts will create a resilient network of sustainable buildings that will act as a safe haven for residents, as well as offer shelter to the local community during power outages.

TCHC is committed to reducing energy consumption by 25 per cent by December 2028. In 2021, TCHC achieved a 10.2 per cent reduction in energy consumption from energy conservation measures implemented over the last four years, including:

- LED lighting retrofits including garage lighting sensors at 144 sites
- Elevator retrofits at 58 buildings
- Building Automation System upgrades at 58 buildings
- New booster VFD pumps at 40 buildings
- Makeup Air Unit upgrades at 21 buildings
- Chiller replacement with high efficiency at three buildings
- Replacement of approximately 111 heating and domestic hot water boiler plants
- Ventilation upgrades at approximately 51 buildings, including make-up air unit replacement and heat recovery
- Re-commissioning at approximately 28 buildings

Apartment Building -  
2180 Ellesmere Avenue

- Installation of in-suite temperature controls (thermostats, control valves) at approximately 26 buildings; and building envelope upgrades at approximately 70 buildings, including replacement of cladding, windows and roofs, as well as air sealing
- In-services of Combined Heat and Power systems at 27 buildings
- Social Housing Apartment Retrofit Program (SHARP) deep energy retrofits (windows, boilers, ventilation) in nine communities
- Social Housing Apartment Improvement Program (SHAIP) deep energy retrofits (over cladding, windows, roof, HVAC, heat recovery) in 12 communities

### Toronto Community Housing – Greenhouse Gas profile

Year	Project-wide energy reduced from baseline (GJ)	Project-wide emissions reduction (tonnes CO <sub>2</sub> e)	Emissions reduction attributed to green bond (tonnes CO <sub>2</sub> e)
2019	331,128	13,933	1,955
2020	362,873	15,663	1,522
2021	487,435	20,481	1,654

\*\*The baseline is calculated based on the 2013 to 2017 five-year monthly energy usage. As TCHC has a diverse building portfolio, a five-year data set can produce a more accurate regression equation for the baseline.

Building at Regent Park





# Climate change adaptation and resilience

The Port Lands is currently home to a variety of industrial, port, film and creative sector businesses. Adjacent to downtown Toronto, intensification pressures have been inhibited by flood risk and soil contamination. Flood management and protection can enhance Toronto's resilience and help mitigate the impact of climate change on the city through the creation of new mixed-use communities, featuring naturalized areas and served by transit.

## Resilience project profile

### Port Lands Flood Protection project – 2019, 2020 and 2021 green bond

The Port Lands Flood Protection project is about taking action to protect Toronto's southeastern downtown area. Right now, in an extreme weather event, floodwaters from the Don River would overwhelm portions of the Port Lands, South Riverdale and Leslieville. Toronto's Port Lands is considered one of the largest underdeveloped stretches of downtown waterfront in North America. Until now this industrial area has not become a thriving part of the city because portions are at risk of flooding and the soil is contaminated.

Port Lands Flood Protection will create two new outlets for the existing river so that floodwaters can run off into the inner harbour instead of damaging the surrounding neighbourhoods. This work involves digging a kilometer-long river valley, which ends in a new mouth for the Don River and cleaning up polluted land. It creates new roads, bridges, utilities and public trails, plus 25 hectares of publicly accessible greenspace and parkland.

Construction site



## Progress in 2021:

- Completed construction of piers and abutments for River Valley and Wetland pedestrian bridges
- Commenced construction on Cousins Quay dock wall
- Completed east dock wall removal in Polson Slip and began dock wall removal and excavation in Canoe Cove
- Relocated Fire Hall 30
- Completed modifications to Jarvis off ramp from the Gardiner Expressway
- Closed Gardiner Expressway ramps to Logan Avenue and completed demolition
- Completed fabrication of east half of Commissioners Street bridge and delivered to the site
- Completed fabrication of Cherry Street South bridge and delivered to the site
- Commenced installation of river finishes (including crib walls and fibre-encapsulated soil lifts) in the central river valley

Aerial view of the project site



# Pollution prevention and using waste as a resource

## Dufferin Organics Processing Facility expansion

The Dufferin Organics Processing Facility now has an additional 25,000 tonnes of processing capacity, allowing for it to process a total of 55,000 tonnes of organic materials from the City's Green Bin program per year. Additional capacity leads to an increased quantity of methane biogas that can be converted into renewable natural gas (RNG). The RNG is consumed in City operations, displacing the consumption of fossil natural gas which results in lower greenhouse gas emissions. The capacity expansion also produces more organic material for compost.

Dufferin Renewable Natural Gas facility which converts the methane from the Dufferin Organics Processing facility to RNG

The project's estimated annual impact based on full use of additional production capacity is:

Methane captured from biogas	RNG produced (created)	Project-related emissions reduction (tonnes CO <sub>2</sub> e)	Emissions reduction attributed to green bond (tonnes CO <sub>2</sub> e)
1,650,000 m <sup>3</sup>	1,536,480 m <sup>3</sup> or 59,523 GJ	2,935 tCO <sub>2</sub> e	1,202 tCO <sub>2</sub> e



Dufferin Organics Processing facility



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