

Toronto Green Standard Review and Update

Date: June 11, 2021

To: Planning and Housing Committee

From: Chief Planner and Executive Director, City Planning

Wards: All

SUMMARY

This report presents the updated Toronto Green Standard Version 4 (TGS v4) 2022 which is proposed to be applied to applications submitted under the *Planning Act* commencing May 1, 2022. The Toronto Green Standard is a critical component of the City's efforts to achieve zero emissions buildings by 2030 and meet 2050 city-wide greenhouse gas reduction targets.

Since 2010 the Toronto Green Standard (TGS) has been required for development applications and per Council direction is to be updated approximately every four years. The objective of the Toronto Green Standard is to influence and support change to achieve more sustainable development in the City. Based on tiers of increasingly sustainable performance the Toronto Green Standard provides a clear understanding of the City's climate change objectives and expectations for future updates. Builders who are market leaders in sustainability are eligible for an incentive under the City's Toronto Green Standard Development Charge Refund Program if constructing at higher tiers.

The Toronto Green Standard performs an important role as a market transformation tool to progressively push development beyond the minimum standards of the Ontario Building Code towards the Toronto's zero-emissions targets as set out in TransformTO, and City Council's 2019 declaration of a climate emergency. It also responds to the Climate Change & Resilience actions to support recover and rebuild set out in the Council adopted Towards Recovery and Rebuilding a Renewed Toronto report (the TORR report).

In May 2018, the City introduced Toronto Green Standard Version 3, including a performance pathway to high performance low emissions new construction by 2030 based on absolute performance targets related to greenhouse gas (GHG) emission limits, energy use intensity and thermal energy demand intensity. The staff report and the City's Zero Emissions Building Framework study that supported this change set out a stepped approach to increasingly higher energy and GHG performance measures with each Toronto Green Standard update for large Part 3 Buildings (which comprise over 85% of projected new construction in Toronto).

The proposed updates to the Toronto Green Standard for Version 4 are based on extensive consultation and collaboration with inter-divisional partners including Environment and Energy Division, Toronto Building, Toronto Water, Parks Forestry and Recreation, Transportation Services, Solid Waste, Corporate Real Estate Management, Engineering and Construction Services, and Legal Services. Staff also consulted with the Toronto and Region Conservation Authority, Waterfront Toronto, Toronto Community Housing Corporation, the Canada Green Building Council, the development industry, industry experts and academics.

The proposed changes are consistent with proposed recommendations in the Building Net Zero Emissions City Buildings: Corporate Real Estate's Net Zero Carbon Plan and the Net Zero Existing Buildings Strategy.

For over ten years, the Toronto Green Standard has been an effective tool for more resilient new development and infrastructure. The Toronto Green Standard Version 4 (TGS v4) looks to advance this further and is designed and structured to meet the City's goals and commitments around climate change. As part of the review and update for TGS v4, staff have focussed on opportunities to support and contribute to realizing a low-carbon and resilient Toronto.

The Toronto Green Standard Version 4 (2022) includes three tiers of performance with a focus on carbon reductions and green infrastructure enhancements. The key changes recommended are:

- Zero Emissions Buildings - Advancing and increasing the next Tier of energy performance on the path to achieve near zero greenhouse gas (GHG) emissions buildings by 2030 for mid-high rise residential and non-residential buildings. As set out in the report approved by Council in 2017, the energy performance of each tier moves up so that Tier 2 becomes the required Tier 1, Tier 3 becomes voluntary Tier 2 and Tier 4 becomes voluntary Tier 3 (the new highest performance level for near-zero emissions).
- Embodied Carbon –A new requirement has been added for Tier 2 and 3 projects to conduct a materials emissions assessment of the upfront embodied carbon of structural and envelope components. This requirement recognizes the importance of the carbon footprint of building materials and the role of the Toronto Green Standard in planning and decision making. A requirement for Tier 2 projects to calculate the embodied carbon and the carbon sequestration within landscape designs has also been added.
- Electric Vehicle Infrastructure - In keeping with the City's Electric Vehicle Strategy, a new requirement for the provision of Level 2 electrical outlets for each new parking space in low rise housing has been added and the current requirements have been increased to 25% in Tier 1 and 100% EV Ready in Tier 2 for large Part 3 Buildings.
- Water and Ecology – The TGS is proposed to be restructured to better align the inter-divisional and inter-disciplinary inputs to prioritize green infrastructure objectives in the Water and Ecology sections including: reducing stormwater runoff and potable water consumption; reducing urban heat island impact; increasing tree

canopy and green roof coverage and enhancing biodiversity. A proposed requirement for new streets is included to capture and control stormwater runoff through green infrastructure.

RECOMMENDATIONS

The Chief Planner and Executive Director, City Planning recommends that:

1. City Council adopt the Toronto Green Standard Version 4 (2022) performance measures as shown in Attachment 3: Mid to High-Rise Residential and All Non-Residential; Attachment 4: Low-Rise Residential; and Attachment 5: City Agency, Corporation and Division-Owned Facilities (Non-Residential Uses), to be applied to new development applications under the Planning Act commencing May 1, 2022.
2. City Council revise performance standard WQ 2.2 Stormwater retention and reuse in the Toronto Green Standard, Version 3, Tier 2 Core requirement, substantially in accordance with Attachment 6 to this report.
3. City Council request the Chief Financial Officer, in collaboration with the Chief Planner and Executive Director, City Planning and the Director, Environment and Energy, to report, as part of the review of Growth Funding Tools, on options to advance higher levels of uptake of Tier 2 and 3 buildings to facilitate transformation to net zero earlier than 2030.
4. City Council request CreateTO to require the application of the Toronto Green Standard Version 4, Tier 2 for all development agreements, including the Housing Now Initiative.
5. City Council direct the Chief Building Official and Executive Director, in consultation with the Chief Planner and Executive Director, City Planning and the Director, Environment & Energy to report to City Council on any proposed updates to the Ontario Building Code related to energy efficiency targets for buildings and on opportunities through the Ontario Building Code to accelerate the zero emissions pathway as set out in this report.

FINANCIAL IMPACT

The City Planning Division confirms that there are no financial implications resulting from the recommendations included in the report in the current budget year or in future years.

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial impact information.

EQUITY IMPACT

The Toronto Green Standard contributes to a number of the City's equity strategy and commitments including: the Resilience Strategy, TransformTO and the HousingTO 2020-2030 Action Plan. The TGS performance requirements result in housing built to the highest standards and qualities with reduced energy, emissions and environmental impacts. The requirements result in new development that is more affordable in the long term due to significantly reduced costs for heating and cooling utility bills, addresses climate change and that provides high quality landscapes and public spaces. High performance buildings are also resilient during extreme weather or power outages allowing home owners to shelter in place and reducing demand on emergency services.

The TGS is a market transformation tool, readying and supporting the development industry in making positive changes to sustainable development. The impact of this work supports the City's climate action, economic recovery and social resilience goals.

DECISION HISTORY

At its meeting of October 27, 2020 City Council adopted item EX17.1 - Towards Recovery and Building a Renewed Toronto report. The report provided an update on the work undertaken by the Toronto Office of Recovery and Rebuild (TORR) and a roadmap towards recovery and rebuild. The report affirms the importance of building a resilient city that can adapt to various shocks and stressors, especially to the effects of climate change. One of the key City-led Actions for Recovery is Climate Change & Resilience, which identifies the importance that these objectives become City-wide responsibilities including for the City's agencies and corporations. Council directed the review of opportunities to work with the province on net-zero retrofits of Toronto-owned buildings and with Toronto Hydro to implement additional electric vehicle charging stations. The City Council decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.EX17.1>

At its meeting on November 26/27, 2019 City Council adopted MM12.10 - Building Net Zero Building Now to request the DCM, Corporate Services to report on the impact of the Toronto climate emergency direction as it pertains to new buildings in the city construction pipeline. The City Council decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.MM12.10>

At its meeting of October 2, 2019 City Council adopted item MM10.3 - Declaring a Climate Emergency and Accelerating Toronto's Climate Action Plan for the purpose of naming, framing and deepening the City's commitment to protect the economy, ecosystems and the community from climate change and to endorse a net zero greenhouse gas emissions target in line with keeping global average temperature rise below 1.5 degrees Celsius, immediately strengthening Toronto's goal of becoming net zero before 2050...and request the Director, Environment and Energy to report back by the fourth quarter of 2020 on the feasibility of actions that could achieve net zero by 2040. The City Council decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.MM10.3>

At its meeting of December 5, 2017 City Council adopted PG23.9 - Toronto Green Standard Review and Update which presented the Version 3 changes to the Toronto Green Standard to be applied to new development applications commencing May 1, 2018. In adopting the report City Council directed that commencing January 1, 2020 new buildings be designed to meet or exceed the Tier 1 absolute energy performance targets TEUI, TEDI and GHGI by building type and that, commencing January 1, 2020 bird friendly performance measures be applied to all exterior glazing within the first 16 metres of the building above grade; and, where visual markers are utilized the maximum spacing will be 50 mm X 50 mm. Council also directed that commencing January 1, 2022, where visual markers are utilized, all building types apply visual markers to the first surface of glass. The City Council decision can be found at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.PG23.9>

On July 4, 5, 6 and 7, 2017 City Council adopted PE19.4 - TransformTO, a report recommending seven long-term goals to realize a low-carbon Toronto in 2050 that achieves an 80 percent reduction in greenhouse gas emissions against 1990 levels, including 100 percent of new buildings designed and built to be near zero greenhouse gas emissions by 2030; and the design and build of new City-owned facilities to be near zero greenhouse gas emissions by 2026. The City Council decision can be found at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.PE19.4>

On March 28, 2017, City Council directed that the City's agencies, corporations and divisions apply the Toronto Green Standard Tier 2 Core performance measures to all new buildings and additions greater than 100 square metres gross floor area (GFA), where technically practical and financially feasible, commencing in 2018 with the ten year Capital Budget and Plan; and to further aim to achieve a net-zero energy/emissions target for all new buildings and additions greater than 100 square metres GFA where technically practical and financially feasible commencing in 2018, with the ten year capital Budget and Plan within all procurement processes. Council also requested a report on the current practices and feasibility of applying the Toronto Green Standard for all City capital projects that do not require site plan approval. The City Council decision can be found at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.PG18.3>

At its July 2013 meeting, City Council adopted the revised Toronto Green Standard Tier 1 and Tier 2 performance measures and directed that minimum Energy Performance standards for Mid-to-High Rise Residential and Non Residential be revised to design building(s) to exceed the energy efficiency requirements of the current OBC by 15 percent for Tier 1 and to achieve at least 25 percent energy efficiency improvement for Tier 2. Council also directed the development of a comprehensive planning approach to address sustainable energy issues posed by development taking into account: ... Council's GHG reduction targets for 2020 and 2050 and global best practices in energy efficiency standards for buildings, including the use of Energy Use Intensity-based targets. The City Council decision can be found at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2013.PG25.10>

On October 26 and 27, 2009, City Council adopted the two-tier set of performance measures associated with the Toronto Green Standard to be applied to all applications

under the Planning Act, with Tier 1 as mandatory and Tier 2 voluntary stretch targets with a 20% development charge refund. The City Council decision can be found at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2009.PG32.3>

BACKGROUND

History of the Toronto Green Standard

The Toronto Green Standard (TGS) is a critical tool in implementing the Official Plan policies to advance sustainable city building and the climate action agenda. The TGS was introduced as a voluntary measure in 2006, became mandatory in 2010 and was last updated in 2018 (TGS v3). The TGS is comprised of five categories of performance measures for sustainable development: Air Quality; Building Energy, Emissions and Resilience; Water Quality and Efficiency; Ecology and Biodiversity; and Waste and The Circular Economy. Tier 1 of the TGS is mandatory for development applications, while Tier 2 and above are voluntary higher performance levels. A four-tier Energy and Emissions category came into effect in 2018 with TGS v3, putting in place a clear stepped path to achieve near-zero emissions building construction by 2030 (2026 for City Agency, Corporation and Division owned non-residential facilities). The voluntary higher performance levels are supported by a Development Charges Refund program. This program provides an incentive for leading edge developments that have been certified as having met Tier 2 levels of performance or higher.

The TGS is secured via all Site Plan Control applications as embedded conditions of approval. Since 2010, 150 Site Plan Applications (out of approximately 2,100 City-wide) have demonstrated they will achieve TGS Tier 2+ levels in their design, with 60 of those certified as Tier 2 post-construction and profiled on the TGS website: www.toronto.ca/greendevlopment.

Staff continue to monitor implementation to ensure that mandatory performance measures are understood and being implemented by applicants and staff across Divisions.

Policy and Regulatory Context

The Toronto Green Standard supports and implements planning requirements and policy objectives for sustainability and climate action.

Planning Act

The *Planning Act* governs land use planning in Ontario and establishes the means by which a municipality must implement land use planning decisions. In particular, Section 2 of the *Planning Act* requires that municipalities, when carrying out their responsibility under this Act, have regard for matters of provincial interest including:

- (a) the protection of ecological systems, including natural areas, features and functions;
- (e) the supply, efficient use and conservation of energy and water;

- (q) the promotion of development that is designed to be sustainable, to support public transit and to be oriented to pedestrians; ... and
- (s) the mitigation of greenhouse gas emissions and adaptation to a changing climate.

Provincial Policy Statement (2020)

The Provincial Policy Statement (2020) provides province-wide policy direction on land use planning and development matters to promote strong communities, a strong economy, and a clean and healthy environment. It includes policies on key issues that affect communities, such as promoting development and land use patterns that conserve biodiversity; and preparing for the regional and local impacts of a changing climate. The PPS recognizes and acknowledges the Official Plan as an important document for implementing the policies within the PPS.

The Growth Plan for the Greater Golden Horseshoe (2020)

The Growth Plan provides a strategic framework for managing growth and environmental protection in the Greater Golden Horseshoe region including integrating climate change considerations and planning for more resilient communities and incorporating approaches to reduce greenhouse gas emissions. The Growth Plan directs municipalities to develop official plan policies to reduce greenhouse gas emissions and address climate change adaptation goals that will include: "undertaking stormwater management planning in a manner that assesses the impacts of extreme weather and incorporates appropriate green infrastructure and low impact development"; and "any additional policies to reduce greenhouse gas emissions and build resilience".

City of Toronto Official Plan

The Toronto Green Standard implements the climate mitigation, climate adaptation, resilience and sustainability policies of the Official Plan.

The Official Plan envisions Toronto as "a city with: ... a healthy natural environment including clean air, soil, energy and water; infrastructure and socio-economic systems that are resilient to disruptions and climate change." Policy 3.4.1 specifies that changes to the built environment will be "environmentally friendly, based on:

- b) sustaining, restoring and enhancing the health and integrity of the natural ecosystem;
- c) addressing environmental stresses caused by the consumption of natural resources, by reducing: consumption of water and generation of wastewater; energy consumption and greenhouse gas emissions; and reliance on carbon-based fuels for energy;
- d) preserving and enhancing the urban forest;
- e) considering the potential impacts of climate change that may increase the risk associated with natural hazards;
- f) reducing the adverse effects of stormwater and snow melt;
- g) protecting, improving or restoring the quality and quantity of water and drinking water sources; and
- h) promoting green infrastructure to complement infrastructure."

Policy 3.4.19 supports "sustainable design and construction through a) green roofs and designs that reduce the urban heat island effect and enhance urban ecology; b) innovative methods of stormwater management including use of green infrastructure; c) advanced water conservation and efficiency methods; d) advanced energy conservation and efficiency technologies and processes that contribute towards an energy neutral built environment".

Policy 5.1.3 allows the City, through Site Plan Control, to secure sustainable design features that address exterior building and site matters in Tier 1 of the Toronto Green Standard: a) bicycle and pedestrian-friendly infrastructure; b) high-albedo surface materials, open grid paving, shade trees, green and cool roofs; c) building orientation and energy efficient exterior cladding and window treatments, d) rainwater harvesting facilities, bio-retention swales, permeable paving and water efficient plant material; e) trees and use of native species; f) bird friendly glass treatment; g) energy efficient, shielded exterior lighting; and h) dedicated areas for collection and storage of recycling and organic waste.

Ontario Building Code: Anticipated Changes to Address Net Zero

The Ontario Building Code (OBC) governs construction and renovation of buildings in the Province Ontario. The Code includes specific requirements to support the objectives of resource conservation (water and energy) and environmental integrity. The City of Toronto is prohibited by the Building Code Act, 1992 from setting its own requirements for the construction of buildings.

City Council has previously made requests to the province for changes to the OBC in order to help the City achieve its environmental objectives. In 2011, Council requested the Province allow the City of Toronto to adopt energy efficiency requirements which exceed the OBC provisions.

In 2017, the province proposed changes to the Ontario Building Code, intended to address Greenhouse Gas (GHG) emissions in buildings. Staff supported the proposals which addressed the matter of how the Ontario Building Code can support the City's goal of reducing GHG emissions in the building sector. City Council adopted staff recommendations to request that the province adopt changes which would further expedite the City's objective of new net zero buildings by 2030. These code changes, however, were not adopted.

A revised National Building Code (NBC) is anticipated for release by the federal government by the end of 2021 followed by updates to the OBC (anticipated in mid-2023). It is anticipated that proposed changes to the NBC may include a net zero ready requirement for all new buildings by 2030. Toronto Building, in consultation with partner Divisions will review any proposed code changes and work closely with City Planning to ensure that the TGS appropriately aligns with the any Code references to strengthen the clarity between the City's development and building approvals processes.

COMMENTS

Consultation, Review and Evaluation for Toronto Green Standard Version 4

A number of consultations were held with inter-Divisional partners, industry experts, professionals and the development industry to inform the TGS v4 update. A list of stakeholders consulted is included in Attachment 1 to this report.

Inter-Divisional meetings included numerous consultations with Environment and Energy, Toronto Water, Parks, Forestry and Recreation, Toronto Building, Transportation Services and Solid Waste. Staff also met with the Toronto and Region Conservation Authority (TRCA), Waterfront Toronto and Canada Green Building Council.

Meetings with industry experts and professionals included a series of focussed meetings on specific areas or performance measures, including feedback from consultants that verify Tier 2 projects. These meetings were instrumental in understanding challenges, as well as opportunities to advance higher sustainable performance measures, including energy and emissions, electric vehicles, stormwater balance, green streets, bird friendly glazing and biodiversity.

Two workshops were held with industry experts. A workshop on Water Balance Performance Measures was held on March 5, 2021 with academics, landscape architects and storm water engineers to generate ideas and discuss possible improvements and approaches based on the overall sustainability objectives of the TGS. This meeting helped understand modifications and refinements to performance measures across multiple categories in the TGS to improve alignment and achieve desired objectives.

A bird friendly glass workshop was held on February 12, 2021 with glass manufacturers, the Canadian Window Wall Association, architects and sustainability consultants to discuss how glass manufacturers can meet the upcoming changes, adopted by Council in November 2017, to the Toronto's bird-friendly performance measures. The meeting helped communicate the new standard to the industry and confirmed product availability, warranty and cost. Feedback was provided on improvements to the specifications related to the performance measures.

A meeting was held with the Toronto Chapter of the Building Industry and Land Development Association (BILD) on May 26, 2021 to present the proposed changes in the updated TGS v4. There were a number of questions and comments regarding anticipated cost premiums with advancing the energy performance agenda and targeting 100% electric vehicle readiness, and if the Tier 2 water balance target would be adjusted to better accommodate infill projects to achieve Tier 2. BILD comments have informed the changes made to TGS v4 in Attachment 3.

Accelerating Toronto's Climate Action Plan, Resiliency and Biodiversity

For over ten years, the Toronto Green Standard (TGS) has been an effective tool to support and facilitate market transformation to provide for more resilient new

development and infrastructure. The Toronto Green Standard Version 4 (TGS v4) looks to advance this further and is designed and structured to meet the City's goals and commitments around climate change. As part of the review and update for TGS v4, staff have focussed on opportunities to support and contribute to realizing a low-carbon and resilient Toronto, addressing the climate and biodiversity emergencies.

Key Changes for TGS Version 4

The proposed Toronto Green Standard Version 4 has been revised and updated to advance Council's priorities for realizing a low-carbon and resilient Toronto.

The four most significant changes in the proposed Toronto Green Standard Version 4 are the following:

1. Advance zero emissions buildings so that Tier 2 energy performance is now Tier 1 (required) and City-owned facilities meet net-zero emissions requirements;
2. Require embodied carbon accounting for Tier 2 and 3;
3. Increase electric vehicle ready provisions and signal the direction for 100% EV ready in Tier 2; and
4. Better integration of the Water and Ecology sections with requirements for green streets and green infrastructure to advance higher stormwater management and resilience.

Some Tier 2 voluntary performance measures have been moved to Tier 1 requirements and Tier 2 has been streamlined to focus on consistent set of core requirements.

The updated TGS v4 is included as the following attachments to this report: Attachment 3: Mid to High-Rise Residential and all Non-Residential; Attachment 4: Low-Rise Residential; and Attachment 5: City agency, corporation and division-owned facilities (Non-Residential Uses). Attachment 2 provides a detailed summary of proposed changes to the TGS for Version 4 by Standard.

1. Zero Emissions: Buildings Energy, Emissions & Resilience Category

A significant shift in the Energy and Emissions Category was incorporated in TGS v3 in 2018 which put the City on a path for new development to be near-zero emissions by 2030, and 2026 for City owned buildings. A review of the potential to advance the TGS Zero Emissions Buildings pathway to set out near zero requirements sooner than 2030 was undertaken. This evaluation included an analysis of energy report data submitted for TGS v2 and TGS v3; consultation with applicants on TGS v3 projects; and consultation with the Energy Modellers Association and Tier 2 project evaluators. The evaluation indicated that the current TGS v3 energy performance targets are set appropriately. Building to Tier 3 levels of performance requires greater attention to high performance building enclosures, high efficiency heating and cooling systems and a switch to low carbon fuel sources.

Based on the evaluation of current projects and consultation with industry experts, it is proposed that the TGS stay on the current zero emissions pathway of 2030. Staff will continue to monitor the uptake of zero emissions developments, any proposed updates

to the Ontario Building Code related to energy efficiency targets, and on industry readiness to build to net-zero sooner than the current timeline.

Note that a "net-zero" emissions building is one that is highly energy-efficient and produces on-site, or procures, carbon-free and or renewable energy in an amount sufficient to offset the annual carbon emissions associated with its operations or simply eliminates carbon emissions altogether. A "near zero" emissions building is designed as a very low energy building with some remaining emissions that need to be offset through the use of carbon free fuel sources. A building constructed to the TGS v4 Tier 3 is considered a near zero emissions building.

Key Change: Based on this review TGS v4 implements the next step in the zero emissions pathway by moving the TGS v3 Tier 2 energy requirements to Tier 1; TGS v3 Tier 3 becomes the new Tier 2 and TGSv3 Tier 4 (near-zero) becomes the new Tier 3. Tier 4 has been removed from the targets framework.

2. Embodied Carbon: Buildings Energy, Emissions & Resilience Category

Embodied carbon has become an area of focus in mitigating climate change with some leading jurisdictions and the federal government moving towards setting performance targets and requirements. As building operational energy performance requirements become more evolved over time, the "upfront" energy and emissions of extraction and processing building materials become more prominent within the buildings' overall emissions profile from "cradle" (materials sourcing) to "grave" (decommissioning).

Studies indicate that embodied emissions in construction materials can account for up to 80% of a large buildings' total emissions from extraction to decommissioning. City Planning engaged in research and discussion with a number of experts to evaluate the merits of incorporating new performance requirements for embodied carbon in the TGS v4. It was agreed that more data was needed on local projects to understand the benchmark level of emissions from typical Toronto region buildings in order to set performance targets. To facilitate this, City Planning is partnering on two studies on 'embodied carbon' funded by The Atmospheric Fund to assess embodied construction materials impacts in the low rise housing sector, working with the Endeavour Centre, and for large residential and non-residential buildings, working with Mantle 314 Developments and University of Toronto Daniels School of Architecture.

These studies will establish benchmarks by building type, in order to share with other GTHA municipalities and to set specific targets for performance within the TGS.

Key Change: It is proposed that the TGS Version 4 include new Tier 2 and Tier 3 requirements for tracking upfront embodied carbon in construction including the requirement to conduct a material emissions assessment on the project's envelope and structural materials and assemblies and set out an optional 20% reduction target. These proposed changes are complemented by updated and enhanced Waste Management performance measures that encourage use of sustainable and ethical sourcing of materials in construction, materials reuse and construction waste diversion found under the Circular Economy and Waste section of TGS v4.

3. Low Emissions Transportation: Air Quality Category

Transform TO (2017) set a goal that 100% of transportation use zero carbon energy by 2050 and the Electric Vehicle Strategy (2020) included an action that all residential parking be 100% electric vehicle-ready. Increasing the adoption of electric vehicles (EVs) is a critical component of transitioning Toronto to a low-carbon city. There is expected to be a significant ramp up over the next 10 years in electric vehicle (EV) ownership and in requirements across other jurisdictions in Canada. Vancouver and Richmond B.C. have already made this leap to 100% EV ready requirements. A Greater Toronto Area (GTA) - wide study by the Clean Air Partnership is underway on the costs and feasibility of implementing EV infrastructure in residential buildings and this work will help prepare builders and municipalities. The proposed update signals to the market that a significant shift is underway, and helps to future proof development for when demand increases. The intention is to phase in higher requirements for multi-unit residential developments in the future, considering market readiness and affordability.

Key Change: It is proposed that all new residential and non-residential parking provide 25% Electric Vehicle-Ready, excluding visitor parking spaces, in Tier 1 and 100% Electric Vehicle-ready in Tier 2, based on load/circuit sharing. A requirement for electric bicycle parking spaces (e-bike parking) has been added for multi-unit residential buildings; the Low-rise standard includes requirement for one EV outlet for each parking space; and full EVSE (charging stations) are required for City-owned new facilities.

4. Water and Ecology Categories

Controlling water on-site, when considered cumulatively across the City, is an important consideration in supporting a culture of resiliency and sustainability in development. Landscape based approaches to stormwater management complement requirements of the Wet Weather Flow Management Guidelines (WWFMG) while providing opportunities to further grow the tree canopy, improve water quality, reduce urban heat island impacts, support biodiversity and provide high quality/multifunctional public spaces. A landscape approach also helps to address the progressive increase in impervious land cover as identified in the 2018 Urban Canopy Study.

To better align and integrate objectives for site and building design that support resilience and mitigate climate change, an analysis of the Ecology, Air Quality (Urban Heat Island), and Water Balance, Quality and Efficiency categories was undertaken by City Planning and Toronto Water. This analysis included a facilitated workshop on water balance with academics and industry experts. The TGS v3 Tier 2 water balance requirement in particular, was identified as challenging for developments to achieve on constrained sites and often resulted in engineered solutions that did not achieve other resilience and site greening objectives. The proposed new performance measure for Green Streets was reviewed and endorsed by the Green Streets Steering Committee and is consistent with the Committee's work to establish consistent, scalable processes to implement Green Infrastructure across the City. The Bird Friendly glass workshop and additional research confirmed industry preparedness to meet the requirements adopted by Council in November 2017 to come into effect in 2022, for visual markers to be provided on the 1st surface of glass.

Key Changes: TGS v4 provides a stronger integration of the Ecology and Water and Urban Heat Island performance measures to reinforce the collaboration required between the disciplines of landscape architecture and stormwater engineering to achieve multiple sustainability benefits. A new performance measure 'on-site green infrastructure' is proposed to replace the previous Tier 2 water balance core requirement of retaining 10 mm from each small rainfall event, and this new requirement is proposed to be moved to Tier 1. It is further recommended that the this new performance measure for on-site green infrastructure (WQ 1.3) be added as an option for meeting the TGS v3 Tier 2 core requirement for stormwater retention and reuse (WQ 2.2). This pathway is outlined in Attachment 6 of this report.

In addition, a new performance measure that would require the use of green infrastructure to capture and control runoff for new public and private streets 'Green Streets' in new developments has been added, and under Tier 2, there is a new requirement to address embodied carbon through choice of materials and sequestration offsets in landscape design.

Further changes include moving the Urban Heat Island section to the Ecology category and requiring regionally appropriate seed sources for sites within natural heritage and ravine protected areas. System. There are new provisions for visual markers to be provided on the first surface of glass to increase the effectiveness of deterring bird collisions and enhanced treatment in areas with higher collision risk.

Toronto Green Standard Development Charge Refund Program

The TGS Tier 2 Development Charge Refund program has been highly successful in transforming the building industry in Toronto over the past 10 years with over 150 projects demonstrating they will achieve TGS Tier 2+ levels in their design and construction. The program has been instrumental in showcasing what leading edge developments can achieve, setting a higher bar for future requirements, and has helped to influence higher energy performance requirements in the Ontario Building Code. A review of the Development Charge Refund program indicates a drop in participation by about half in comparison to participation under previous TGS versions, which was approximately 15% per year of residential projects for TGS v2. Developers have indicated that they are choosing not to participate in the program as the DC cap for Tier 2 has not increased to reflect the increased cost premiums required to meet higher performance measures. To date, there has been no uptake to achieve near or net zero emissions in new buildings by the private multi-unit residential sector. An evaluation by staff of the cost premium to construct a net zero residential building indicates that the DC cap would have to be increased substantively to encourage developers to meet Tier 3 near zero emissions target with an emphasis on support for the large residential building sector.

Based on several costing studies undertaken between 2016 and 2020, the capital cost premium to construct a net zero emissions building falls within a range of 5 to 10%, including cost escalation. The range varies depending on the building type, the chosen baseline, and the extent of on-site renewable energy generation. This cost premium range is consistent for most Part 3 Building types across the various studies, which were undertaken in support of the City of Toronto Zero Emissions Buildings Framework,

The Canada Green Building Council cost of carbon report, the Housing Now Initiative, Waterfront Toronto's Green Building Requirements, and new City building projects.

Given Council's direction to strive for net zero city-wide emissions sooner than 2040 it is important to encourage as many new developments as possible to meet the Tier3 TGS v4 emissions target. It is anticipated that proposed changes to the National Building Code (anticipated fall 2021) may include a net zero ready requirement for all new buildings by 2030, and that this may be reflected in an updated OBC (anticipated in 2023). If this happens the Code requirements will line up with the TGS requirements in 2030. In other words there is a short window to potentially invest in achieving net zero buildings sooner to meet our climate change targets through a short term increase to the current DC refund cap.

The City is currently undertaking a review of Growth Funding tools, which includes the DC Bylaw. It is proposed that, as part of this review, options to increase the uptake of higher energy and emissions performance developments be explored to facilitate transformation to net zero earlier than 2030 be explored.

City Leadership in Sustainable Development

In March 2017 City Council directed that the City's agencies, corporations and divisions apply the Toronto Green Standard Tier 2 Core performance measures to all new buildings and additions greater than 100 square metres gross floor area. This directive commenced in 2018 with the ten year Capital Budget and Plan with the aim to achieve a net-zero energy emissions target in all City buildings where technically practical and feasible. This direction was reaffirmed in Council's adoption of the TransformTO report in July 2017 recommending the design and build of new City-owned facilities to be near zero greenhouse gas emissions by 2026. In 2019 Council also requested Corporate Services to report on the impact of the Toronto climate emergency direction as it pertains to new buildings in the city construction pipeline, and that report is anticipated to be considered by Committee and Council at the July meeting.

Since this direction, City-owned buildings that began design or Site Plan applications are seeking to achieve higher performance levels of sustainable design. The wide range of development projects led by the City's Agencies, Corporations, and Divisions help to demonstrate opportunities for other developers to integrate high levels of sustainable design in new buildings. Currently there are 15 City-owned development projects in the Site Plan Approval process that are seeking to achieve high performance levels of the TGS v3, along with projects that have begun construction. The breadth of these buildings demonstrates that high performance sustainable design can be achieved across the City in a variety of site conditions and the examples outlined in Attachment 7 illustrate the City's commitment to reducing greenhouse gas emissions and leadership in green buildings.

Related Strategies and Initiatives

The following strategies and initiatives have been addressed in the preparation of TGS v4.

Declaration of a Climate Emergency and Accelerating Toronto's Climate Action Plan

In October 2019, the City of Toronto declared a climate emergency and endorsed a target of net zero greenhouse gas emissions by 2050 or sooner. In response to City Council's declaration of a Climate Emergency in 2019 and interest in the potential to achieve net zero by 2040, the Environment and Energy Division (EED) is currently undertaking modelling work to identify what changes and modifications may be required to realize a low-carbon Toronto by both 2040 and 2050. This work spans a number of sectors including new and existing buildings, transportation and waste. City Planning staff have reviewed 'preliminary modelling results'. The proposed updates to the TGSv4 and the recommendations of this report to accelerate and implement the TGS are aligned with the updated modelling. The Transform TO Net Zero Climate Action Strategy report is anticipated in Q4 2021.

The reports on Net Zero Existing Buildings Strategy and the Building Net Zero Emissions City Buildings: Corporate Real Estate's Net Zero Carbon Plan, anticipated to be considered by Committee and Council at the July meeting, also respond to the Climate Emergency Declaration. The Net Zero Existing Buildings Strategy proposes requiring, by 2050, that all existing buildings be retrofitted to meet high performance standards to address the goal of net zero by 2050. This proposed requirement supports the need to advance the proposed TGS v4 higher energy performance for new buildings.

TransformTO: Toronto's Climate Action Plan

TransformTO (2017) provided a comprehensive approach to achieving Toronto's goal of reducing greenhouse gas emissions by 80% of 1990 levels by 2050. The report set out the need for bold action to transform the City's urban systems - buildings, energy, transportation and waste - to meet the 2050 target. The TransformTO modelling noted that without immediate action the City can expect to fall short of its 2050 GHG reduction goal by 8.7 million tonnes and that 53% of GHG emissions in Toronto can be attributed to buildings. To address this gap in part, the TGS Version 3 sets out a stepped path to require new buildings to achieve near-zero emissions by 2030.

Resilience Strategy

Toronto's Resilience Strategy (2019) sets out a vision, goals, and actions to help Toronto survive, adapt and thrive in the face of any challenge, particularly climate change and growing inequities. The Strategy outlined why resilience is important and what we need to be thinking about in Toronto. Goal B2, that 'infrastructure and buildings are resilient to a changing climate and reduce greenhouse gas emissions' aims to ensure that the infrastructure the City owns, maintains, and builds is resilient to a changing climate; and that buildings built in Toronto are resilient.

Biodiversity Strategy

Toronto's first Biodiversity Strategy was adopted by Council in 2019. The Strategy aims to support healthier, more robust biodiversity and increased awareness of nature in Toronto. The twenty three actions outlined in the Strategy will help to enhance the quality and quantity of biodiversity, and increase awareness of nature in Toronto. The TGS implements a number of these actions to enhance biodiversity in the City.

Wet Weather Flow Management Guidelines (WWFMG)

The TGS water balance requirements are based on and reinforce the City's WWFMG which contains water management control targets – water balance, water quality and water quantity. The minimum 5 mm water balance target aims to retain at-source the most frequent, low-intensity rainfall events and represents the retention of 50% of the average rainfall amount the City experiences annually.

In addition to the TGS performance requirements, the WWFMG's water quantity target is required to be met through the development application review and approval process. New development is typically required to provide on-site detention storage to capture the 100 year design storm event, while slowly releasing to the municipal storm sewer at no greater than the 2 year design storm peak rate (assuming pre-development conditions). This target aims to provide flood control and resilience for the overall drainage system under less frequent, high-intensity storm events, where rainfall retention can no longer be practical.

Other relevant strategies reviewed in preparation of the TGS v4 update include the Electric Vehicle Strategy and the Long Term Waste Strategy (Circular Economy).

Conclusion and Next Steps

The Toronto Green Standard is a critical component of the City's commitment to achieve zero emissions buildings by 2030 and meet 2050 city-wide greenhouse gas reduction targets. The update to the Toronto Green Standard Version 4 advances the near zero emissions requirements for new development, enhances requirements for green infrastructure and biodiversity, introduces accounting of embodied carbon for both buildings and landscapes, increases electric vehicle ready provisions and sets out new requirements for green streets and green infrastructure to advance higher stormwater management and resilience. The report recommends exploring incentive options to advance uptake of Tier 2 and 3 buildings to facilitate transformation to net zero earlier than 2030 and lays the groundwork for consideration of requirements for embodied carbon and 100% Electric Vehicle ready parking.

City Planning will continue to partner and collaborate with Environment and Energy, Toronto Water, Parks, Forestry and Recreation, Solid Waste, City Real Estate Management, Toronto Building, and Transportation Services to monitor outcomes, share data and analysis and work together to achieve net zero and resilient new development.

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ATTACHMENTS

Attachment 1: List of Stakeholders Consulted on Toronto Green Standard Version 4
Attachment 2: Summary of Changes by Standard
Attachment 3: Mid to High-Rise Residential and All Non-Residential
Attachment 4: Low-Rise Residential
Attachment 5: City Agency, Corporation and Division-Owned Facilities (Non-Residential Uses)
Attachment 6: Revision to Toronto Green Standard Version 3 Tier 2 and Tier 3 Storm Water Balance
Attachment 7: City Leadership in Sustainable Development; Tier 2+ City Agency Corporation and Division owned projects

Attachment 1: List of Stakeholders Consulted on Toronto Green Standard Version 4 (2022) update

Phase 1: Technical Update Consultation (March 2020 – March 2021)

During this phase, individuals and organizations with subject matter expertise or strong working knowledge of the implementation of Toronto Green Standard v3 were consulted on the five priority areas: air quality, energy & resilience, water quality & efficiency, ecology, and solid waste.

Phase 2: Targeted Outreach and Consultation (February 2021 – May 2021)

During this phase, individuals and organizations were consulted for specific feedback on draft Performance Measures. Technical and industry expertise was sought out to ensure updates would be consistent with existing sustainable building standards (e.g. Waterfront Toronto's Green Building Requirements, and CaGBC Zero Carbon Building Standard). A presentation was delivered to the 75 members of the Building Industry and Land Development Association (BILD).

Summary of organizations consulted during phase 1 & 2:

11 City of Toronto Divisions, Agencies and Corporations	2 External Government Agencies	6 Developers
22 Consultant and Architectural Firms	4 NGOs	4 Energy Authorities or Energy producers
14 Manufacturers (including Green roofs and glass)	4 Academic Institutions	4 Industry Associations

Stakeholder and Subject Matter Experts were consulted from the following organizations:

AES Engineering	AGC Inc.	Alexander Budrevics + Associates
Antamex Industries ASG Glass	BDP Quadrangle Architects	BILD
Building Knowledge Canada	BVGlazing Systems	Canada Green Building Council
Canadian Home Builders' Association	Canadian National Window Wall Association	Clean Air Partnership
Cricket Energy	D.D. Mac Electric	Daniels Corp
Daniels School, University of Toronto	Electrical Safety Authority	Endeavour Centre
EnerQuality	EQ Building	Ferris + Associates
FORREC	Goldray Glass	Guardian Industries
Integro Building Systems	Janet Rosenberg & Studio Inc.	Mantle Developments
Mark Schollen & Associates	MASS Design Group	MCW Consultants

Minto Urban Communities	Moriyama & Teshima Architects	Morrison Hershfield
NAK Design Group	Next Level Stormwater Management	NSG Group
Ontario Home Builders Association	Passive House Canada	ProTemp Glass
PUBLIC WORK	Purpose Building	R-Hauz Solutions Inc.
RDH Building Science	RWDI	Ryerson Urban Water, Ryerson University
Saand	Sustainable Buildings Canada	Switch Energy
TMIG	Toronto and Region Conservation Authority	Toronto Hydro
Tridel	Trulite Glass and Aluminum Solutions	Urban Equation
Urban Strategies	Walker Glass	Waterfront Toronto
WSP Canada	Vinyl Window Designs	Vitro

City of Toronto Divisions, Agencies and Corporations consulted:

City Planning	Corporate Real Estate Management	CreateTO
Engineering and Construction Services	Environment and Energy Division	Parks, Forestry and Recreation
Solid Waste Management	Toronto Building	Toronto Community Housing Corporation
Toronto Water	Transportation Services	

Attachment 2: Summary of Proposed Changes by Performance Standard

The following document provides a summary of proposed updates in the Toronto Green Standard Version 4. The major updates from TGS v3 for all three standards: Mid to High-Rise Residential and Non-Residential (MHR); Low-Rise Residential (LR); and City Agency, Corporation and Division-Owned Facilities (City ACD), have been noted below.

Tier 1 and City ACD: New or Enhanced Requirements

TGS v4 has increased the performance levels compared with TGS v3 for the following Tier 1 measures:

Air Quality

Single-Occupant Auto Vehicle Trips

AQ 1.1 (MHR & City ACD): requirement to reduce single occupancy vehicle trips increased from 20% to 25%

Electric Vehicle Infrastructure

AQ 1.2 (MHR, City ACD): requirement to provide Electric Vehicle Supply Equipment (EVSE) increased from 20% to 25% of parking spaces

AQ 1.1 (LR): requirement for all residential parking spaces to provide EVSE

Electric bicycle Infrastructure

AQ 2.4 (MHR & City ACD): new requirement to provide energized outlets to at least 15% of long term bicycle parking spaces in residential uses

Publicly Assessable Bicycle Parking

AQ 2.6 (MHR & City ACD): requirement added to provide at least an additional 10 publically accessible bicycle parking spaces for all developments within 500m of a transit station entrance

Building Energy, Emissions & Resilience

Greenhouse Gas Emissions Limits

GHG 1.1 (MHR): Greenhouse Gas Intensity targets have followed the stepped path set out in the Zero Emissions Buildings Framework. TGS v4's Tier 1 levels are equal to TGS v3's Tier 2 level

GHG 1.1 (City ACD): Greenhouse Gas Intensity, Energy Use Intensity (EUI) and Thermal Energy Demand Intensity (TEDI) targets have followed the stepped path set out in the Zero Emissions Buildings Framework.

Embodied Emissions in Materials

GHG 2.1, GHG 2.2 (City ACD): New requirement for City ACDs will require analysis of the building's embodied carbon in the structure and envelope

Energy Performance

GHG 3.1 (MHR): Energy Use Intensity (EUI) and Thermal Energy Demand Intensity (TEDI) targets have followed the stepped path set out in the Zero Emissions Buildings Framework. TGS v4's Tier 1 levels are equal to TGS v3's Tier 2 level

Water Quality & Efficiency

Green Streets

WQ 1.2 (MHR, City ACD, LR): New requirement to capture stormwater runoff and use Green Infrastructure where new streets are proposed

On-site Green Infrastructure

WQ 1.3 (MHR, City ACD, LR): New requirement to ensure landscaped areas include enhanced Green Infrastructure elements

Ecology & Biodiversity

Watering Program

EC 1.4 (MHR, City ACD, LR): Updated requirement to ensure watering program increased from two to four years

Green & Cool Paving

EC 2.1 (MHR, City ACD, LR): requirement for treated area increased from 50% to 75% for residential-uses, and added soft landscape coverage option for non-residential (Urban Heat Island requirements moved from AQ in TGS v3)

Climate Positive Landscapes

EC 4.1 (City ACD): New requirement to enroll the project in the Climate Positive Design Challenge

Bird Friendly Glazing

EC 5.1 (MHR, City ACD, LR): Updated requirement to ensure visual markers are applied to the first surface of glass at a maximum spacing of 50mm x 50mm to further reduce bird collision

Exterior Lighting

EC 5.4 (MHR): Updated requirement for all exterior fixtures to be directed downwards and turned off overnight, TGS v4 Tier 1 levels are equal to TGS v3 Tier 2

Waste & the Circular Economy

Household Hazardous Waste

SW 1.5 (MHR): Updated requirement includes a size requirement of to a minimum of 1m² for every 100 units to be provided for household hazardous waste.

Building and Material Reuse

SW 2.1 (City ACD): Updated requirement to ensure consistency with LEED v4.1

Sourcing of Raw Materials

SW 3.1 (City ACD): Updated requirement to ensure consistency with LEED v4.1, includes more options for sustainable materials

Construction Waste Diversion

SW 4.2 (City ACD): Updated requirement to ensure consistency with LEED v4.1, with modified targets for Toronto

Tier 2 & 3: New or Enhanced Requirements

The standards which have increased in performance level in TGS v4 Tier 2 include the following measures:

Air Quality

Electric Vehicle Infrastructure

AQ 1.3 (MHR): Updated requirement for all residential parking spaces to provide Energized Outlet capable of Level 2 charging or higher

Building Energy, Emissions & Resilience

Greenhouse Gas Emissions Limits

GHG 1.1 (MHR): Updated requirement for Greenhouse Gas Intensity targets have followed the stepped path set out in the Zero Emissions Buildings Framework. TGS v4's Tier 2&3 levels are equal to TGS v3's Tier 3&4 level

Embodied Emissions in Materials

GHG 2.1, GHG 2.2 (MHR): New Tier 2 and Tier 3 requirements have been included that will require analysis of the building's embodied carbon in the structure and envelope

Energy Performance

GHG 3.1 (MHR, LR) Energy Use Intensity (EUI) and Thermal Energy Demand Intensity (TEDI) targets have followed the stepped path set out in the Zero Emissions Buildings Framework. TGS v4's Tier 2&3 levels are equal to TGS v3's Tier 3&4 level

Benchmarking and Reporting

GHG 4.1 (MHR): Updated requirement for private buildings to provide the City with read-only access to ENERGYSTAR® Portfolio Manager

Enhanced Commissioning

GHG 4.2 (MHR): Updated requirement to require enhanced commissioning activities

Ecology & Biodiversity

Climate Positive Landscapes

EC 4.1 (MHR, LR): New requirement to enroll the project in the Climate Positive Design Challenge

Waste & the Circular Economy

Building and Material Reuse

SW 2.1 (MHR, LR): Updated requirement to ensure consistency with LEED v4.1

Sourcing of Raw Materials

SW 3.1 (MHR, LR): Updated requirement to ensure consistency with LEED v4.1, includes more options for sustainable materials

Construction Waste Diversion

SW 4.2 (MHR, LR): Updated requirement to ensure consistency with LEED v4.1, with modified targets for Toronto

The following TGS v3 requirements have been removed from TGS v4 (MHR, City ACD):

Removed from Tier 1:

AQ 1.2 LEV and Sustainable Mobility Spaces

Removed from Tier 2 or Tier 3 (Voluntary):

AQ 2.5 Enhanced Bicycle Parking Rates

GHG 1.3 Energy Efficient Appliances (Low-rise residential only)

GHG 2.1 Solar Readiness

GHG 2.2 On-Site Renewable Energy

GHG 3.1 District Energy Connection

GHG 4.4 Thermal Submetering

GHG 5.1 Resilience Planning Checklist

WQ 2.2 Stormwater Retention and Reuse

EC 1.5 Trees in Parking Lots

EC 1.6 Enhanced Tree Planting and Soil Volume

EC 1.7 Enhanced Tree Protection During Construction

EC 4.4 Enhanced Bird-Friendly Glazing
EC 5.3 Lighting Controls/Shielding

Removed from Tier 3

WQ 2.3 Enhanced Stormwater Retention and Reuse
WQ 4.4 Enhanced Water Efficient Fixtures
SW 3.3 Construction Waste (95% diversion)

Attachment 3: Mid to High Rise Residential and Non-residential Version 4

Submitted as a separate attachment.

Attachment 4: Low-rise Residential

Submitted as a separate attachment.

**Attachment 5: City Agency Corporation and Division Owned Facilities
Version 4**

Submitted as a separate attachment.

Attachment 6: Revision to Toronto Green Standard Version 3 Tier 2 and Tier 3 Storm Water Balance

Revise the performance measure WQ 2.2 Stormwater retention and reuse in the Toronto Green Standard, Version 3, Tier 2 Core requirement, to add the following to the Mid to High-rise Residential & Non-Residential; Low-Rise and City Agency, Corporation & Divisions Owned Facilities Standards:

"OR

Ensure that the total landscaped site area, located at and above grade, includes at least one of the following features:

- A Green Roof covering at least 80% of Available Roof Space;
- An Intensive Green Roof for 80% of the Green Roof Area provided;
- Biodiverse green roof to support pollinator species covering a minimum of 50% Green Roof Area;
- 25% of the Lot Area at or above-grade, planted with native flowering/pollinator species;
- At-grade Bioretention facilities provided to capture and control 75% of runoff from on-site hardscape surfaces; or,
- Reforestation of a portion of the site (beyond the limit of a stewardship plan).

So that the section reads:

Water Balance (Stormwater Retention)

Tier 1

WQ 2.1 Stormwater Retention and Reuse

Retain runoff generated from a minimum of 5 mm depth of rainfall from all site surfaces through infiltration, evapotranspiration, water harvesting and reuse.

Tier 2

WQ 2.2 Stormwater Retention and Reuse (Core)

Retain runoff generated from a minimum of 10 mm depth of rainfall from all site surfaces through infiltration, evapotranspiration, water harvesting and reuse; or

Ensure that the total landscaped site area, located at and above grade, includes at least one of the following features:

- A Green Roof covering at least 80% of Available Roof Space;
- An Intensive Green Roof for 80% of the Green Roof Area provided;
- Biodiverse green roof to support pollinator species covering a minimum of 50% Green Roof Area;
- 25% of the Lot Area at or above-grade, planted with native flowering/pollinator species;
- At-grade Bioretention facilities provided to capture and control 75% of runoff from on-site hardscape surfaces; or,
- Reforestation of a portion of the site (beyond the limit of a stewardship plan).

Tier 3

WQ 2.3 Stormwater Retention & Reuse (Core)

Retain runoff generated from a minimum of 25 mm depth of rainfall from all site surfaces through infiltration, evapotranspiration, water harvesting and reuse.

Attachment 7: City Leadership in Sustainable Development; Tier 2+ City Agency, Corporation and Division Projects

Mount Dennis Child Care (1234 Weston Rd., Etobicoke North) is the City's first net zero energy building. This institutional building is designed to meet all core TGS Tier 2 performance measures, and the highest tier for both the Total Energy Use Intensity and Greenhouse Gas Intensity. The project is currently under construction.

Alexandra Park Revitalization Block 13, 14 & 15 (80 Vanauley St., Spadina-Fort York) has been certified as a TGS Tier 2 project. This site is a combination of both a market-owned condo tower and two blocks of Toronto Community Housing Corporation units. The entire site has met Tier 2 standards, including energy efficiency performance better than 25% compared to Ontario Building Code requirements. Moving the needle even further, future phases (Sites 3 & 16) of the Alexandra Park Revitalization (currently under review) are aiming to meet TGS v3 Tier 4 and Passive House standards for low-rise developments.

All Phase 2 modular housing Initiatives in development will be built to Tier 2 of the TGS. The energy efficiency of these buildings are exceeding Tier 2 levels and are close to Tier 4 in terms of Greenhouse Gas Intensity levels as the heat source will be electric.

Northeast Scarborough Community Centre (8450 Sheppard Ave. E., Scarborough Rouge Park) is planned to meet all core TGS Version 3's Tier 2 performance measures, including pursuing the Zero Carbon Building Certification through the Canada Green Building Council. The project is set to begin construction in the fall of 2021.

Dufferin Waste Management Facility (75 Vanley Cres., York Centre) is a 5-storey office building designed to meet net zero carbon emissions and relevant TGS Tier 2 performance measures. Site Plan Application is currently under review.