City of Mississauga Green Development Standard: Summary of Engagement Comments

Throughout the engagement process, the project team engaged with representatives from the development and construction industry, environmental groups, Indigenous Nations, conservation authorities, regional partners, utility providers, municipal staff, staff from other municipalities, and residents (including youth). Feedback was gathered through the following engagement events: workshops, interviews, surveys, and a Konveio report. The following provides a summary of the comments received through these engagement events and, when applicable, details how the project team integrated the feedback into the final Green Development Standard (GDS).

* Refer to page 15 for acronyms

GENERAL FEEDBACK

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
Developers shared feedback on other Green Development Standard (GDS) programs: · One ICI developer workshop participant expressed concern with aligning with Brampton's GDS, this developer used the trees metric as an example. · One residential developer workshop participant shared that Vaughan's metrics have components of positive examples. · Two conservation, regional partners, and utility workshop participants supported alignment between municipalities as a way to establish clear pathways for developers. · Two residential developer workshops supported alignment with the Toronto Green Standard (TGS).	Given the types of development and similar developers, Mississauga's Green Development Standard (GDS) generally aligns with the Toronto Green Standards (TGS) (where applicable), in addition, it includes best-practices from third-party certifications (such as LEED, ENERGY STAR etc.), and internal practices.
Seven youth workshop participants expressed support for continuing to engage with the project team. These comments included examples of education and engagement campaigns and highlighted the value of peer-to-peer engagement.	These comments did not influence the metrics. However, they highlight youth representative's support for the GDS.
Seven youth workshop participants shared how climate change has impacted their health and well-being. These comments included examples of heat stroke, climate anxiety, and asthma due to poor air quality.	These comments did not influence the metrics. However, they highlight youth representative's support for the GDS.
Four youth workshop participants shared how they engage with nature. These comments included support for active transportation networks, open spaces and parks, and engaging with volunteer activities such as park clean ups and invasive species removal.	These comments did not influence the metrics. However, they highlight youth representative's support for the natural system, ecology, and climate impact metrics.

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
Developers recommended alternative compliance pathways and flexibility: · One ICI developer workshop participant recommended having flexibility in all targets. · Four residential developer workshop participants' comments recommended metric exemptions, flexibility, and area-specific approaches. These comments included adjusting parking requirements, providing building-specific targets, and prioritizing metrics to avoid a laundry list of targets.	The GDS Guidebook includes relevant site exemptions and specifications, and all metrics have been differentiated based on four building types, low-rise residential, medium-high-rise residential, institutional and commercial, and industrial buildings. When applicable, a list of required options (e.g. NS1: Heat Island Effect) or alternative compliance pathways have been provided in the submission specifications (e.g. EB1: Energy Performance).
Two residential developer workshop participants recommended prioritizing metrics to avoid a "laundry list" of all targets and metrics.	We agree, and as such, developed a concise GDS with 5 themes and 12 metrics that are targeted toward climate change and building resilience to achieve the City's objectives as outlined in the Climate Change Action Plan.
Workshop participants highlighted the co-benefits of the GDS: · One ICI developer workshop participant highlighted the need to prioritize tenant well-being through amenities and public spaces. · One ICI developer workshop participant highlighted lower operating costs as potential co-benefits for building owners and/or tenants. · One conservation, regional partners, utility workshop participant health co-benefits of urban design. · Two youth workshop participants highlighted the impact of natural systems on their health and well-being.	These comments did not influence the metrics. However, they highlight workshop participant's support for the GDS and the value of implementing the GDS in Mississauga. The project team prepared a co-benefits analysis to demonstrate the mutual benefits a GDS provides.
Developers highlighted challenges of a one-size fits all approach: · Two ICI developer workshop participants recommended developing specific metrics for industrial buildings. · One residential developer workshop participant recommended differentiating between low-rise, medium-rise, and high-rise residential buildings.	The GDS includes site-specific requirements for four building categories: low-rise residential, medium-high-rise residential, institutional and commercial, and industrial.
Workshop participants recommended financial incentives: · Two youth workshop participants recommended carbon credits and incentive programs to encourage high performance metrics. · Five residential developer workshop participants referenced incentives similar to the TGS DC Refunds. · One conservation, regional partners and utility workshop participant recommended celebrating and recognizing high performance buildings and developers.	The City will be investigating incentives including recognition and those financial in nature to support developers in achieving voluntary higher performance metrics.

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
Workshop participants recommended several different implementation approaches: · ICI developers favoured separate checklists for different development types. · Residential developers recommended absolute targets instead of percentage improvements above Ontario Building Code (OBC). · Conservation, regional partners and utility workshop participants recommended including internal resources and training to assist City staff in reviewing applications. · Conservation, regional partners and utility workshop participants recommended accessible language, resources and developer training.	The project team agrees, a separate industrial building category was developed for the GDS, and the other comments have been integrated into the GDS Guidebook, Implementation Approach, and Developer Checklists.
Three Konveio Report comments recommended including an affordable housing metric and raised concerns about the impact of the GDS on affordable housing in the city.	The affordable housing targets are more appropriately located in the City Official Plan and the Affordable Housing Strategy.
One Konveio Report comment recommended including salt management requirements	Regulating salt on private lands is a maintenance issue which is beyond the scope of the GDS.
One Konveio Report comment recommended including a green infrastructure metric with a minimum green cover target.	The City already encourages maximizing landscape area through site plan review. The GDS encourages landscape areas for roof and non-roof areas.
One Konveio Report comment recommended that the GDS provide flexibility rather than having each field as mandatory.	The City is pursuing a mandatory tiered approach with options for developers to pursue voluntary metrics. This approach ensures that the metrics related to the City's climate goals are implemented.
One Konveio Report comment recommended the City engage a cost consultant to quantify the costs of each of the metrics.	The project team completed a developer impact analysis to understand the costs associated with completing the submission requirements. In our opinion, quantifying the cost of the GDS is of limited value, whereas reviewing the long-term benefits or return on investment (ROI) is a better assessment. Studies on the ROI for green buildings indicate a conservative 10 to 15 year recovery return. In addition, there are other benefits, such as, reduced utility costs, increased building value, resilience to extreme weather (i.e., power outage), occupant comfort and health, better indoor air quality, quieter interior spaces, etc.
One Konveio Report comment supported the GHG reduction strategies and asked if the metrics would achieve the reduction goals approved by City Council in March 2023.	The GDS is one of many initiatives that the City (corporate and community) is undertaking to reduce GHG emission and achieve Council's reduction goals. The City will continue to monitor emissions then determine approach actions.
One Konveio Report comment recommended including a Transportation Demand Management (TDM) metric and include parking for carpool and car-share spaces.	TDM, carpooling and car-share programs are reviewed under an existing separate process and are not part of the GDS.

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
Five Konveio Report comments discussed the impact of parking on GHG emissions or recommended parking minimums be addressed	We agree that reducing parking standards would reduce GHG emissions; however, the parking standards in the Zoning By-law have recently been reviewed and updated in June 2023. There is always the potential for a further review of parking standards.
Two Konveio Report comments referenced the ambitiousness of the targets to meet the City's vision to "inspire the world" and respond to the Canadian data related to improving air quality.	The GDS was developed to align with other GTA municipalities for two reasons. The first, to ensure developers have a consistent set of metrics between GTA municipalities. Second, to move the City and the building industry to a net-zero goal.
One Konveio Report comment asked if the City is prepared to fight any challenges at the Ontario Land Tribunal (OLT).	The project team does not anticipate an OLT challenge as the engagement process was robust and modifications were made where necessary. The approach used to develop the GDS has been thoughtful, informed and prudent.
One Konveio Report comment questioned if the City has the authority to mandate the GDS. Another raised concerns about infringement on the OBC as the OBC would supersede the Planning Act.	Based on various legal opinions the project team strongly believes that the City has the authority to implement the GDS. In fact, revisions to Bill 23 and the letter from the Minister of Municipal Affairs and Housing, says, cities can continue to use site plan control to address green standards. The GDS does not over rule or dictate construction or building practices and therefore does not infringe on the OBC.
One developer asked if Mississauga's GDS will follow the same time lines for submission requirements as the TGS in terms of documentation.	Developers will be required to submit the GDS documentation as part of a complete application for site plan approval. The GDS Guidebook provides additional details for submission requirements.

THEME 1: ENERGY AND BUILDING PERFORMANCE

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
EB1: ENERGY PERFORMANCE	
Two residential developer workshop participants were concerned that the energy performance requirements would require additional time to complete an application. These participants recommended the City include staff resources and training materials to assist in review process.	The GDS will form part a complete application for site plan approval, and as such, the City will provide the necessary application resources. The City will assess the impact on staff resources during the one year trail period.

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
Developers shared feedback on capital costs and incentives: · One residential developer workshop participant shared feedback on the Development Charge refund for TGS' Tier 2. This participant felt that the DC refunds have not kept pace with construction costs to meet the requirements. · Three ICI developer workshop participants' comments expressed concern for the high cost to implement higher tier TEDI requirements. · Five residential developer workshop participants' comments expressed concerns for increased capital costs to implement TGS energy performance metrics.	The City will be investigating recognition and financial incentives to support developers in achieving higher performance metrics.
One conservation authority, regional partners, and utility workshop participant expressed concern about the feasibility of new technology and metrics that require developers to eliminate natural gas.	The Energy Performance (and Resilience) requirements do not reference natural gas but does encourage the adoption of new technology and GHG reductions through the emissions energy and energy performance targets.
Developers recommended building and site-specific energy performance requirements: · One ICI developer workshop participant shared that TEDI target may be easier to achieve for a commercial building than a residential building. · Two residential developer workshop participants recommended providing development and site-specific energy performance targets.	The Energy Performance metric requirements have been specifically designed for the four building types low-rise residential, medium-high-rise residential, and IC and industrial buildings. These targets take into consideration the different designs and technical requirements of these building types.
Workshop participants expressed support towards aligning with the TGS: · Four conservation authority, regional partners, and utility workshop participants' comments supported alignment. These comments included support for the robustness and ambitiousness of the TGS, and the consistency it provides for developers working across jurisdictions. · Four ICI developer workshop participants' comments supported alignment with TGS, and one participant supported alignment with the City of Vancouver. These comments included reference to clear guidance and ease in following, a clear performance pathway for each Tier and the TGS version, and an fair standard for developers to follow. · Sixteen residential developer workshop participants' comments supported alignment. These comments included reference to clear objectives, ease in implementation, ambitiousness, and clear performance pathways.	We agree with regard to consistency across the various provincial municipalities, as such, Mississauga's GDS will generally align with the Toronto Green Standards (TGS), and in particular, the Mississauga's Energy Performance requirements align with TGS' targets for TEUI, TEDI, and GHGI.

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
Workshop participants recommended performance pathways to reach net-zero ready standards: · One conservation authority, regional partners, and utility workshop participant recommended developing a clear performance pathway to reach net-zero and net-zero ready buildings. · Two residential developer workshop participants recommended including clear guidelines and specifications and performance pathways for high performance tiers. · Four residential developer workshop participants expressed concern for the industry's ability to implement net-zero ready requirements. These comments included recommendations to grandfather energy performance requirements and to be adaptable to changing technology.	The Energy Performance targets include a performance pathway to reach net-zero ready buildings beginning in 2030. In addition, the GDS Review Cycle allows metrics to be re-evaluated based on technological changes.
Workshop participants recommended alternative compliance pathways and flexibility: · One conservation authority, regional partners, and utility workshop participant recommended providing alternative compliance pathways or flexibility in the energy performance targets. · Two ICI developer workshop comments recommended allowing for flexibility and less prescriptive approaches in meeting the trade-off between GHGI and TEDI. · Four residential developer workshop participants expressed concern for using prescriptive energy performance requirements in the TGS and recommended providing more flexibility.	The Energy Performance targets align with the best industry practices and the TGS which is a proven and successful program, in addition to other GDS programs in the GTA. The City plans to monitor the industry's advancement and will review the Tier 2 and Tier 3 performance requirements before they become mandatory in 2028.
Two ICI developer workshop participants shared the relationship between architectural design and TEDI. Their comments specifically referenced window to wall ratios and the impact on the design as well as the additional cost requirements to install triple glazing windows to meet TEDI requirements.	These comments did not influence the metrics. The intent of the GDS is not to influence building design as this is responsibility of the developer and their consultants. The GDS establishes metrics for building efficiency and resiliency.
Two residential developer workshop participants recommended prioritizing metrics. These comments raised concerns about the trade-off between operational and embodied carbon and the difficulty in meeting green standard programs with comprehensive metrics.	The project team selected the mandatory requirements to align with the City's vision and Climate Change Action Plan, while aligning with best industry practices and other GDS programs.
One ICI developer workshop participant provided an example for how their development sites are achieving net-zero ready design standards. The developer shared the mechanical demands for net-zero design have different cost and performance impacts.	This comment did not influence the metric requirements. However, it did provide insight into the feasibility of energy performance requirements in ICI development sites. In addition, the voluntary high-performance metrics will be re-evaluated in the future based on industry practices and technological advancements.

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
Three Konveio Report comments recommended adjusted the Tier 3 GHGI target to align with the TGS target of 5 CO2e/m2/yr.	The Tier 3 metric has been updated to align with the TGS requirements of GHGI = 5 CO2e/m2/yr (Tier 3).
Workshop and interview participants expressed concern for the Tier 3 Energy Performance targets for GHGI and TEDI.	The Energy Performance targets align with best practices from other GDS programs in the GTA. The City plans to continue to monitor the industry's progress towards these metrics and will review the Tier 2 and Tier 3 performance requirements before they become mandatory.
EB2: AIR TIGHTNESS TESTING	
Two Konveio Report comments flagged the inconsistency between air tightness testing requirements and the CHBA Net-Zero Ready Certification.	The metric has been updated to provide specifications for air tightness testing and CHBA and Passive House. If a project is certified as either CHBA or Passive House they are allowed to complete air tightness testing to these standards and provide the City of Mississauga with the air tightness report converted to L/s/m2.
Two Konveio Report comments recommended the air tightness testing requirements be shifted to Tier 1 to establish a benchmarking for Tier 2 and Tier 3.	Tier 2 for air tightness testing and benchmarking and commissioning align with the TGS Tier 2 requirements. Shifting these targets to Tier 1 would result in an additional cost to the developer which Mississauga's project team felt would be better applied to the embodied carbon, resilience, and energy performance targets. The City is investigating financial incentives to off-set the costs of Tier 2 and Tier 3 requirements.
Three Konveio Report comments raised concerns regarding the cost to complete air tightness testing and questioned the benefit of completing a whole building air leakage test. One additional comment recommended the targets be re-evaluated once there is data from the GTA.	Mississauga's GDS were updated to provide specifications for whole-building air leakage testing is preferred. If the testing plan identifies that whole- building testing is not feasible, guarded testing is permitted. The air leakage testing requirements align with the TGS and recommendations based on best practices from City of Vancouver and BC. The Implementation Approach includes recommendations to re-evaluate air leakage testing requirements based on updated standards in Ontario.
EB3: BENCHMARKING AND COMMISSIONING	
One Konveio Report comment recommended that Tier 1 should state that buildings above a certain size must enroll in Energy Star.	Tier 2 requires all buildings to provide proof of enrolment in the ENERGY STAR (R) Portfolio Manager program whereas Tier 1 for low-rise energy performance requires the submission of ENERGY STAR (R) report.

THEME 2: CLIMATE IMPACTS

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
CI1: EMBODIED CARBON	
One ICI developer workshop participant provided an example of design features to reduce carbon footprint in buildings.	This comment did not influence the metric requirements. However, it did provide insight into the feasibility of embodied carbon requirements.

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
Developers expressed modelling concerns for life cycle assessment (LCA): · One residential developer workshop participant shared concerns related to accuracy of modelling outputs and the use of percent reduction targets for embodied carbon. · One residential developer workshop participant recommended alignment standards with LCA and Zero Carbon Building Standards.	Methodologies and specifications for completing an LCA are based on best industry practices and are provided in the GDS Guidebook.
One residential developer workshop participant recommended reducing the parking requirements to assist with the embodied carbon metric.	This comment did not influence the metrics. We agree that reducing parking standards would reduce GHG emissions. However, the parking standards in the Zoning Bylaw have recently been reviewed and updated in June 2023. There is always the potential for a further review of parking standards.
Two Konveio Report comments recommended aligning the embodied carbon targets with TGS and Caledon's requirements.	The embodied carbon (EC) targets will be mandatory in Tier 2 (2028-2029) because this is an evolving field. The Tier 1 EC information will benchmark targets for the future Tier 2 EC targets. The City will review the Tier 2 and Tier 3 targets before they become mandatory.
One residential developer requested clarity on the embodied carbon definitions, including what is within scope for calculations and if underground parking is included.	Mississauga's GDS for mid-high-rise multi-unit residential buildings (MURB) aligns with the TGS' requirements for A1-A5 and uses the CAGBC standard's object of assessment, as such parking structures are included in the calculations, however, surface parking lots are excluded.
CI2: ELECTRIC VEHICLE CHARGING INFRASTRUCTURE	
One Konveio Report comment highlighted the potential cost implications of EV charging infrastructure.	EV purchases are growing yearly through personal choice and by future federal government regulations. As such, the City and developers have an obligation to plan for EV infrastructure to support anticipated future demand.
One Konveio Report comment recommended shifting electric vehicle (EV) charging infrastructure to a Tier 1 requirement.	The City has implemented a minimum EV parking by-law requirement in June 2023. Given the Council approved standards, the GDS will increase the EV rate in Tier 2 (2028 -2029).
Three residential developer workshop participants raised concerns related to EV charging infrastructure's impact on transformer sizes and local grid capacities.	This comment did not influence the inclusion of EV metrics in the final GDS as EV purchases are growing yearly through personal choice and by federal government future regulations, as such the City and developers have an obligation to plan for EV infrastructure to support anticipated future demand.
Four ICI developer workshop participants indicated a preference for site-specific requirements for EV parking to meet the different parking demands in ICI developments.	The GDS has requirements base on four building types, low-rise residential, medium-high-rise residential, and IC and industrial developments. In addition, the metric requirements for IC and industrial developments provides two pathways to install EV chargers. The first, a percentage of all parking spaces are to be energized with Level 2 charging or higher, and the second, allows a combination of energized outlets, Level 2 EVSE, and Level 3 EVSE.

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
One ICI developer workshop participant supported the installation of EV parking areas outside as it was easy to place cables below grade.	This comment shows support for EV charging infrastructure.
CI3: CONSTRUCTION WASTE	
Three Konveio Report comments recommended aligning with Caledon's GDS metrics by shifting the Construction Waste requirements from Tier 2 to Tier 3.	The construction waste requirements align with best practices in LEED. TGS' Tier 1 requires developers to align with O. Reg. 103/94, as amended: Industrial, Commercial and Institutional Source Separation Programs and Tier 2 aligns with Mississauga's Tier 2 requirements. Caledon is considering a single tier GDS, this means all metrics are grouped into the first tier whereas Mississauga's GDS has been designed as a three tier system which provides performance improvements and voluntary metrics to increase the building performance to 2030. Mississauga's Tier 1 requirements focus on reducing GHG emissions, building resilience, and protecting natural environment/systems.
One Konveio Report comment raised concern that incorporating the waste management practice will require additional bins on site which will require additional lane and sidewalk occupancies during construction.	This is an important waste management (WM) metric and although the project team understands the challenge of limited space, this priority must be balanced with the other priorities. The WM metric will be mandatory in Tier 2 (2028- 2029) with the knowledge that there will be technological improvements.
CI4: WASTE INFRASTRUCTURE	
Three Konveio Report comments recommended shifting the residential waste infrastructure requirements to Tier 1.	Mississauga's GDS have been designed as a three tier system which provides performance improvements and voluntary metrics to increase the building performance to 2030. Mississauga's Tier 1 requirements focus on reducing GHG emissions, building resilience, and protecting natural environment/systems. While the project team agrees with requiring waste management as a mandatory metric. However, before this can happen, the industry (public and private) must evolve to accept, separate and properly reuse and/or dispose of the different streams of waste. As the industry evolves, the City will review the waste management metric in the future.
Two Konveio Report comments raised concerns about the impact of waste infrastructure on storage space.	Mississauga's waste specifications have been updated to better align with the TGS requirements. This is an important WM metric and although the project team understands the challenge of limited space this priority must be balanced with the other priorities. The WM metric will be mandatory in Tier 2 (2028- 2029) with the knowledge that there will be technological improvements.

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
CI5: BICYCLE PARKING AND AMENITIES	
One ICI developer workshop participant recommended focusing on proximity to transit instead of bike parking and bike infrastructure.	As identified in Mississauga's Official Plan, the majority of new developments will be concentrated in the City's strategic growth areas known as the Urban Growth Centres, Major Nodes, Community Nodes, and Major Transit Station Areas. Mississauga's GDS does not include transit-related metrics, as these strategic growth areas will support mixed-use and transit-supportive communities.
One residential developer workshop participant shared that shower facilities in residential buildings are not used often.	The residential bicycle parking and amenities metrics were updated to focus on electric bicycle charging infrastructure and bike repair stations. The metric does not include bicycle parking minimums or shower and change facilities.
Two youth workshop participants were supportive of metrics to enhance low carbon travel.	These comments show support for bicycle parking and amenities.
One Konveio Report comment raised concern that the current bicycle parking Zoning By-law requirements are demanding and rates should not increase with Tier 2 and Tier 3.	The Tier 2 and Tier 3 requirements do not increase parking minimums as parking, loading, stacking lanes and bicycle parking in Mississauga's Zoning By-law includes parking minimums per each building type. The metrics related to bicycle amenities instead focus on providing facilities such as e-bike charging, changing rooms and showers, and repair stations.

THEME 3: RESILIENCE

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
R1: EMISSIONS FREE ENERGY AND STORAGE	
One ICI developer workshop participant provided the following design considerations for installing rooftop solar: · Design for weight (6lbs) ballast system; · Increase electrical panel size; · Conduit in ceiling (e.g., EV and solar from 800 amp/600 volt system to 3000 amp)	This comment did not influence the metric requirements. However, it provided insight into the feasibility of renewable energy in ICI development sites.
One ICI developer workshop participant referenced Vancouver's renewable energy strategy as a best practice.	This comment did not influence the metric requirements. However, it did provide insight into the feasibility of renewable energy in ICI development sites.

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
Developers raised concerns about the capital costs for different renewable energy systems: · One ICI developer workshop participant raised concerns with the capital costs of district energy systems. They referenced the challenge associated with not having development grouped together in a sequential manner. · One ICI developer workshop participant raised concern for the capital cost of battery storage. · One residential developer workshop participant raised concern for the additional consulting costs to hire solar consultants.	These metrics are based on the best industry practices and latest technologies, the City is investigating financial incentives to off-set the additional costs of Tier 2 and Tier 3 metrics.
Seven Konveio Report comments raised concern about achieving the Tier 2 and Tier 3 requirements for renewable energy. Specifically, these comments suggested that high-rise MURB's have limited space for on-site solar, the feasibility of geoexchange, and urban shading reduces the solar photovoltaic (PV) performance.	Based on follow up consultation with developers, the project team heard that the Tier 3 requirements are achievable with geoexchange. As there are multiple pathways to achieve the renewable energy generation requirements, developers will not be restricted to achieving it through one mechanism but instead could employ geoexchange, wind, DE, solar etc. Net-zero ready buildings and net-zero building design typically requires a combination of energy efficiency measures identified in the TEUI, TEDI, and GHGI targets, and on-site renewable energy generation. The common guideline for renewable energy generation for a net-zero building is for it to meet a minimum of 50% of the building's energy consumption be provided through on-site renewable energy generation, as defined in Tier 3.
One Konveio Report comment recommended requiring solar ready as part of Tier 1.	Solar-ready building design refers to designing and constructing a building in a way that facilitates and optimizes the installation of a rooftop solar photovoltaic (PV) system after the building has been constructed. Solar-ready design can make future PV system installation more cost-effective by reducing the need for infrastructure upgrades, ensuring solar technical feasibility, and planning for PV system optimization. The Tier 1 metric for low-rise residential buildings has been updated to include solar ready.
R2: REFUGE AREA AND BACK UP POWER GENERATION	
Three Konveio Report comments and one residential developer indicated that 48 hours of back up power generation from a non-fossil fuel source is not feasible.	Mississauga's GDS updated the requirements to be less prescriptive and instead focus on back-up power with preference towards non-fossil fuel. Our implementation approach includes a recommendation to explore non-fossil fuel back-up during the next version of the GDS. Our specifications align with the TGS for refuge area and back-up power.
One Konveio Report comment requested the inclusion of resilience measures for low-rise residential homes.	Mississauga's GDS requires low-rise MURB's to submit a Resilience Planning Checklist, the checklist. The checklist includes similar content to the Durham Region Climate Resilient Standard and City of Toronto Resilience Planning Checklist.

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
One Konveio Report commented on if the refuge space could count toward amenity space.	Mississauga's GDS allows refuge areas to be used as amenity spaces during normal operations.
One Konveio Report comment recommended that refuge areas should be applicable to residential and certain municipal buildings only.	As climate change emergencies increase, refuge areas will be important in all building types, as such, the refuge areas are applicable to medium and high-rise MURBs and ICI buildings.

THEME 4: ECOLOGY

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
E1: BIRD FRIENDLY GLAZING AND DESIGN	
One residential developer workshop participant raised concern for bird-friendly design guidelines and the necessity for including them in locations not near parks.	This comment did not influence the inclusion of bird friendly glazing and design requirements as the CSA standards for bird friendly design have been proven to reduce bird collisions and mortality in urban spaces.
Two ICI developer workshop participants highlighted the benefits of bird friendly design and glazing and were supportive of the inclusion of this metric.	These comments show support for bird friendly glazing and design requirements.
Developers raised concern for market availability and costs: · One residential developer workshop participant expressed that glazing can be costly to install., · One ICI developer workshop participant felt that contractors were taking advantage of the market demand and were raising the costs. · One ICI developer workshop shared that the market is not competitive enough.	These comments did not influence the inclusion of bird friendly glazing and design requirements and the metrics are based on best industry practices and the latest technology.
One Konveio Report comment stated that bird friendly glazing should not be placed on the retail level glazing.	Aligning the GDS with the CSA standards allows for a consistent methodology in applying the bird-friendly design standards. The bird friendly standard state that 90% of the glass should be treated, therefore the retail elevation, if 10% or less would not need the bird-friendly treatment.
E2: EXTERIOR LIGHTING	
One Konveio Report comment requested clarification on how the DarkSky compliant light fixtures be reviewed and verified on-site. A third party to verify the on-site and installed lighting is very onerous.	The International DarkSky Association's Fixture Seal of Approval program certifies exterior lighting fixtures are DarkSky compliant, this should be shown on the site plan drawing. The installed light fixtures must be inspected and verified by a certified engineer as part of a complete site plan application process. The submission requirements state how the process will be reviewed and the necessary documentation provided.

THEME 5: NATURAL SYSTEMS

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
NS1: HEAT ISLAND EFFECT	
One youth workshop participant supported reflective paintings and coatings on buildings to reduce heat island effect.	This comment shows support for heat island effect requirements.
One residential developer workshop participant recommended balancing porous and non-porous pavement requirements in infill sites.	The GDS was developed with site-specific requirements for non-roof hardscaping. The metric provides flexibility by providing multiple treatment options for achieving the heat island metric requirements.
NS2: TREE GROWTH	
One ICI developer workshop participant supported the inclusion of minimum soil volumes and shared that their sites already implement best-practices for minimum soil depth and volume that support tree growth.	This comment shows support for soil volume requirements, and highlights the feasibility of implementing these metrics in ICI development.
Developers supported flexibility: · Two ICI developer workshop participants recommended providing flexibility for meeting soil volume requirements and tree planting requirements. · Two residential developer workshop participants shared that landscape architects and arborists can justify lower soil volumes for different tree species.	The GDS Guidebook provides an option to use Silva cell and other technologies to achieve the soil volume requirements. During the pre-application meeting with City staff, developers may discuss site-specific exemptions such as soil volume.
Three Konveio Report comments recommended flexibility: · Two comments were related to soil volume requirements. · One comment asked if tree requirements could be achieved on adjacent sites.	The metric does not require a minimum number of trees planted on each site. However, for trees planted on the site, the City does require that they should spaced along the frontage, meet shade canopy standards and soil volume requirements. A developer can choose to use a silva cell or other approved methods to achieve the soil volume requirements. All GDS metrics must be incorporated onto the specific site are and should not be placed on other site.
NS3: CLIMATE RESILIENT LANDSCAPES	
One Konveio Report comment recommended including concessions for irrigation and drought-tolerant species.	The GDS includes a preference for drought-tolerant species and a water consumption target. The first step in achieving the target is done through the selection of plant types.

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
NS4: SUSTAINABLE ROOFS	
Developers recommended flexibility in the sustainable roofs metric: · Three ICI developer workshop participants recommended allowing for a combination of cool roofs and green roofs. · One residential developer workshop participant shared that their sites include amenity spaces on roof tops in their rental buildings and that 100% green roof requirements would limit access to amenities for building occupants. · Two residential developer workshop participants shared that 100% green roofs would be a challenge due to mechanical systems and roof constraints.	The sustainable roof metric was updated to provide flexibility. As such developers may choose to install a cool roof, green roof, blue roof, or a combination of the three strategies to achieve the metric.
One ICI developer workshop participant recommended including a maintenance plan for green roofs as part of the submission requirements.	The submission requirements were updated to include a maintenance plan for green roofs.
One residential developer workshop participant asked the project team to define available roof space.	The available roof space is the total roof area of the building excluding areas designated for renewable energy, mechanical equipment and common amenity areas. The GDS Guidebook provides specifications for calculating available roof space.
One Konveio Report comment recommended adjusting the metric based on building heights as green roof do not work on all towers due to wind and exposure.	Green roofs serve many functions and are typically part of a residential outdoor amenity area, and as such, wind impacts and mitigation measures are reviewed. There is flexibility in how developers achieve the sustainable roofs metrics. Mississauga's GDS provides design specifications for types of green roofs and blue roofs - however, a developer could opt to pursue cool roofs and solar panels if they have structural loading restrictions.
NS5: STORMWATER MANAGEMENT	
Two conservation, regional partners and utility workshop participant supported alignment with other municipalities and recommended including stormwater management as a metric requirement.	During this workshop the project team did not present all preliminary metrics and as a result, stormwater management was not presented. However, following the workshop, stormwater management was added to the GDS as a high performance Tier 2 and Tier 3 metric.
Developers raised concern for the difficulty of implementing stormwater management requirements: · Two ICI developer workshop participants shared that stormwater management is site-specific and dependent on soil conditions. · Two residential developer workshop participants shared that LID are costly to implement.	The City will be investigating financial incentives to support developers to achievie higher performance metrics. As a Tier 2 and Tier 3 metric, developers may be eligible to receive financial incentives to implement the stormwater management requirements.

ANALYSIS	RESPONSE AND/OR PROJECT IMPACT
Three Konveio Report comments expressed that stormwater management requirements would be difficult to achieve and recommended revisiting to align with the TGS.	The City of Mississauga stormwater program is a leader among municipalities. The Tier 2 stormwater metrics will push the industry further and progress will take time.
One Konveio Report comment recommended shifting the stormwater management metric to Tier 1.	The City of Mississauga stormwater program is a leader among municipalities. The Tier 2 stormwater metrics will push the industry further and progress will take time.
NS6: WATER CONSUMPTION	
One Konveio Report comment recommended including smart technologies and a water smart irrigation professional to manage the irrigation system.	The irrigation maintenance plans in the Climate-Resilient Landscape metric and Water Consumption metric were updated to require certified professionals.
Two Konveio Report comments recommended to increase the performance requirements as a 20% reduction is readily achievable in most developments.	The performance requirements for the Water Consumption metric were updated to require further reductions.
GENERAL NATURAL SYSTEMS FEEDBACK	
Four conservation authority, regional partners and utility workshop participants recommended considering the health co-benefits of implementing the GDS, including the impacts of climate change on health, the benefits of active transportation, and the benefits of access to nature.	These comments did not directly influence the natural systems metrics. However, the project team prepared a co-benefits analysis for the metrics.
Two conservation, regional partners and utility workshop participants highlighted the need for simplified internal processes for reviewing the metrics related to natural systems.	The project team prepared an implementation approach to guide city staff in reviewing applications and the GDS Guidebook provides additional specifications and submission requirement details to assist applicants in preparing their submission.

Acronyms:

CAGBC - Canadian Green Building Council
CO2 - Carbon Dioxide
CHBA - Canadian Home Builders Association
CSA- Canadian Standards Association
DC - Development Charge
DE - District Energy
EV - Electric Vehicle
EVSE - Electric Vehicle Supply Equipment
GDS - Green Development Standards
GHGI - Greenhouse Gas Intensity
GTA - Greater Toronto Area
IC - Institutional and Commercial buildings
ICI - Institutional, Commercial and Industrial buildings
LCA - Life Cycle Assessment
LEED - Leadership in Energy and Environmental Design
MURB - Multi-unit Residential Building
OBC - Ontario Building Code
OLT - Ontario Land Tribunal
PV - Photovoltaic
ROI - Return On Ivestment
SPA - Site Plan Approval
TEDI - Thermal Energy Demand Intensity
TEUI - Total Energy Use Intensity
TGS - Toronto Green Standards
WM - Waste Management