

4. The TORONTO GREEN Standard

4.1 Explanation of the Standard

The *Toronto Green Development Standard* provides an integrated set of targets, principles, and practices to guide the development of City-owned facilities and to encourage sustainable development amongst the private sector. The *Toronto Green Development Standard* was created from a review of City guidelines and targets, popular private rating systems and the experiences of cities from around the world.

Structure of the Standard

The Standard is presented in two charts in the following pages.



The first chart is for mid- to high-rise residences, commercial industrial and institutional development.



The second chart is for grade-related residential development.

This Standard is rooted in the key environmental drivers for the City. These are:

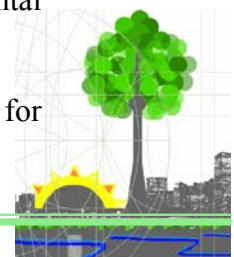
- Better air quality
- Reduced greenhouse gas emissions and urban heat island effects
- Greater energy efficiency
- Improved water quality and water efficiency
- Less solid waste
- Protection of the urban forest and wildlife habitat
- Reduced light pollution

The Standard is based on a number of principles, many of which were identified in consultation with key stakeholders: The principles are that the standard be:

- measurable (e.g. plant shade trees to provide a 20% canopy at maturity);
- performance orientated (e.g. achieve 25% energy savings above the Model National Energy Code) to allow for flexibility such that innovation is encouraged to meet performance targets;
- focused on the design and construction of the built form (not on building operations or workplace programs that could also influence environmental performance);
- user friendly, and
- set high enough to raise the bar on environmental performance but still allow for green competition amongst developers.

Made in Toronto

“Of particular interest to the City of Toronto is that any green development standard it adopts and promotes must address its key environmental drivers. The standard should reflect the City’s climate, geography, urban infrastructure, and legislative context, and help Toronto achieve its own particular environmental “objectives.”
- Green Development Standard Discussion Paper (June 2006)



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The first column in the charts identifies the development features (building and site elements) that can affect Toronto's environmental drivers. Examples include ventilation, energy efficient fixtures and appliances, and building orientation.

The second column identifies existing City standards, targets or guidelines for specific development features. Examples include standards such as the provision of bicycle parking found in the Zoning By-law, the target to increase sustainable tree canopy by 30-40% as identified in *Our Common Grounds*, and guidelines such as the interim Wet Weather Flow Management Guidelines.

In reading the chart, it should be noted that the Ontario Building Code is the existing baseline standard for many of the development features. Recently, the Province proposed changes to the Building Code that raise the bar on energy efficiency and remove barriers to green technologies. Toronto City Council supported the most aggressive of these options at its meeting in April, 2006. The proposed Green Development Standard meets or exceeds the proposed amendments.

The third column identifies the Toronto Standard or level for 'green' for each development feature. The Toronto Green Development Standard is intended to reflect an enhancement over current City requirements and business practices. It is based on input from the stakeholder workshops and consultation with the Green Development Standards Working Group. It is also based on proposed enhanced City guidelines and/or practices and on a comparative analysis with other well known standards such as LEED and Green Globes for each development feature. In other words, each standard has a basis in an existing City guideline or practice, and/or in an existing green building standard such as LEED, Green Globes, and Energy Star.

Within the third column, elements of the Standard marked with the symbol "▶" indicate the core or minimum requirements. The other elements identified in the Standard are considered to be enhancements that would further improve the sustainability of a development beyond the basic Green Standard. Where appropriate, graduated levels of achievement (minimum, preferred, excellent), have been identified.

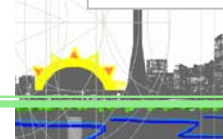
The fourth column of the chart identifies the equivalent or related standard for each development feature set by LEED, Green Globes, Energy Star, and other rating systems.

The fifth column identifies some possible strategies to implement the proposed standard, including technologies and products that have been used in green development in Toronto.

(2003) Toronto Official Plan

"3.4.1 To support strong communities, a competitive economy and a high quality of life, public and private city-building activities and changes to the built environment, including public works, will be environmentally friendly."

"Within the third column, elements of the Standard marked with the symbol "▶" indicate the core or minimum requirements."

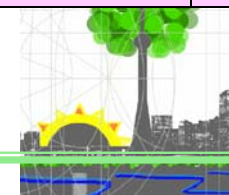


4.2 Toronto Standard for Mid to High Rise Residences, Commercial, Industrial and Institutional Development



	Development Feature	Existing City Standards, Guidelines or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Air Quality O.P., Environmental Plan, Air Quality Strategy	Local Materials Avoid long-distance shipping of building materials	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> ► Minimum: 10% (based on value) of materials to be harvested, manufactured and supplied within 800 km of project. Preferred: 20% of materials to be harvested, manufactured and supplied within 800 km of project. 	<ul style="list-style-type: none"> LEED Materials and Resources (MR) Credits 5.1 and 5.2 satisfy minimum and preferred targets Green Globes Resources E.2 addresses minimum & preferred targets 	<ul style="list-style-type: none"> Identify materials and suppliers that can help to achieve this goal.
	Automobile Infrastructure Discourage single-occupancy automobile use	<ul style="list-style-type: none"> Zoning Bylaw: Studies are currently underway to determine minimum and in some cases maximum parking standards for downtown office and residential buildings. Standards for shared parking to be incorporated into the zoning by-law. 	<ul style="list-style-type: none"> ► Provide the minimum number of parking spaces allowed under the Zoning By-law. Mixed use developments should include shared use of parking among uses that have different peaking characteristics. Dedicated priority parking spaces for carpool ride sharing. Dedicated priority parking spaces for ultra low emission vehicles. 	<ul style="list-style-type: none"> LEED Sustainable Sites (SS) Credit 4.4 satisfies minimum target LEED SS 4.3, 4.4 address enhanced targets Targets addressed by Green Globes Energy C.5 and Canadian Institute of Transportation Engineers (CITE): Promoting Sustainable Transportation Through Site Design Guidelines 	<ul style="list-style-type: none"> Carpool parking spaces, shared parking with adjacent properties.
	Cycling Infrastructure Encourage cycling as a clean air alternative	<ul style="list-style-type: none"> Zoning Bylaw (former City only): provide 0.75 bicycle spaces per unit for buildings with more than 10 units and 1 parking space for every 1250 m² of non-residential floor space (6 spaces minimum). [under review]. 	<ul style="list-style-type: none"> ► Provide at least 0.75 bicycle spaces per unit for buildings with more than 10 units and 1 parking space for every 1250 m² of non-residential floor space (6 spaces minimum) Provide bicycle storage for long term parking, Provide shower and change facilities for workplaces. 	<ul style="list-style-type: none"> LEED SS 4.2 satisfies minimum and enhanced targets. Enhanced targets addressed by Green Globes Energy C.5 and CITE Guidelines 	<ul style="list-style-type: none"> Bicycle racks, secure storage, shower and change facilities
	Public Transit Accessibility Encourage public transit as a clean air alternative	<ul style="list-style-type: none"> O.P. policies encourage transit-oriented development 	<ul style="list-style-type: none"> Where feasible, integrate transit facilities directly into the development or locate major entrance within 200 metres of a transit stop. 	<ul style="list-style-type: none"> Not addressed by LEED Addressed by CITE Guidelines 	<ul style="list-style-type: none"> Integrated design, transit shuttle.

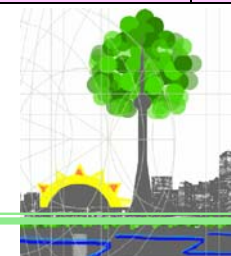
* The symbol “►” identifies the core, minimum requirements of the Toronto Green Standard.



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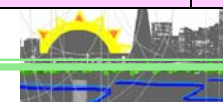
	Development Feature	Existing City Standards, Guidelines or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Air Quality O.P., Environmental Plan, Air Quality Strategy	Pedestrian Infrastructure Encourage walking as a clean air alternative	<ul style="list-style-type: none"> • O.P. policies promote a beautiful, comfortable and safe public realm with accessible streets, parks and open spaces. • Urban Design Guidelines: Provide guidelines for orienting buildings and improving the public realm. • Draft Toronto Streetscape Manual • Toronto Accessibility Design Guidelines 	<ul style="list-style-type: none"> • ► Provide opportunities for shade, reduced ultra-violet exposure and protection from inclement weather • ► Provide direct integration with existing pedestrian routes • ► Provide appropriate grading and surface treatment, in accordance with the Toronto Accessibility Design Guidelines and the Draft Toronto Streetscape Manual as applicable • Provide clear and sufficient signage • Provide sufficient and appropriate lighting • Avoid conflicts between pedestrian and vehicular routes • Avoid conflicts between pedestrian routes and air exhaust and intake systems. 	<ul style="list-style-type: none"> • CITE Guidelines partially address minimum and enhanced targets • Not addressed by LEED or Green Globes 	<ul style="list-style-type: none"> • Pedestrian-scaled building design, landscaping, lighting and signage.
	Construction Activity Minimize air pollution from construction and demolition	<ul style="list-style-type: none"> • City Building Permit Construction and Demolition, Article 363 By-law 598-2005: requires identification of method for handling air and dust emissions, recognizing on-site resources, in compliance with sections 6 and 11 of regulation 346 made under the EPA. 	<ul style="list-style-type: none"> • ► For construction and demolition, identify method for minimizing air emissions and dust. • For construction and demolition, identify method for minimizing Volatile Organic Compound (VOC) emissions. 	<ul style="list-style-type: none"> • LEED SS Prerequisite 1 satisfies minimum target 	<ul style="list-style-type: none"> • Air and Dust Emissions Control Plan
	Ozone Protection Minimize contributions to ozone depletion from HVAC&R Equipment	<ul style="list-style-type: none"> • Toronto Atmospheric Fund: Zero use of CFC-based refrigerants and zero use of halons in fire suppression. 	<ul style="list-style-type: none"> • ► Eliminate use of CFC-based refrigerants and Halons in fire suppression 	<ul style="list-style-type: none"> • Satisfied by LEED EA Prerequisite 3 • Satisfied by Green Globes Emissions, Effluents and Other Impacts F.2 	<ul style="list-style-type: none"> • Install HVAC equipment that uses no CFC refrigerants



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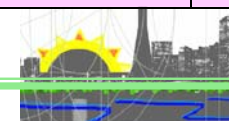
	Development Feature	Existing City Standards, Guidelines or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Air Quality O.P., Environmental Plan, Air Quality Strategy	Urban Heat Island Reduction: Roof Reduce ambient surface temperatures	<ul style="list-style-type: none"> Green Roof Strategy, adopted by City Council in 2006. Green Roof Performance Criteria: 6 inch depth, 50% coverage, non-monoculture. 	<ul style="list-style-type: none"> ► Minimum: Do one of the following: Public Buildings: install a green roof with 50% minimum coverage. The remainder of the available roof (not covered by green roof, other environmental technologies or mechanical equipment) must be covered with light coloured materials* OR Commercial Properties with a Gross Floor Area (GFA) > 10,000 m² and Residential Properties with a GFA > 20,000 m²: Install a green roof with 50% minimum coverage. The remainder of the available roof must be covered with light coloured materials* OR For all other development, install a green roof with 50% minimum coverage OR Install light coloured roofing materials* for 75% of the roof OR Install a combination of both for 75% of the roof. ► Design the green roof to meet the City's performance criteria (6 inch depth, non-monoculture) • Preferred: Install a green roof with at least 50% coverage of the roof. The rest of available roof space must be covered with light coloured materials* • Excellent: Install a green roof with at least 75% coverage of the roof. The rest of available roof space must be covered with light coloured materials.* <p><i>*Light coloured materials must have an Surface Reflectivity Index greater than 78 and emissivity greater than 0.9 according to ASTM Standard 408</i></p>	<ul style="list-style-type: none"> Addressed by LEED SS 7.2 Addressed by Green Globes Site B.2 	<ul style="list-style-type: none"> Green roofs, energy star light-coloured reflective roofing.



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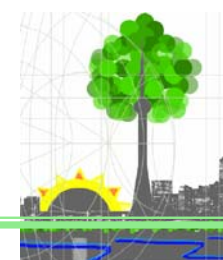
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Air Quality O.P., Environmental Plan, Air Quality Strategy	Urban Heat Island Reduction: At Grade Reduce ambient surface temperatures	•	<ul style="list-style-type: none"> ▶ Do one of the following: Provide cover, including trees, that shades at least 30% of hardscape, including surface parking areas, walkways and other hard surfaces OR Use light coloured materials* for 50% of hardscape, including surface parking areas, walkways and other hard surfaces OR Use a combination of shading and light coloured materials* for 50% of hardscape, including surface parking areas, walkways and other hard surfaces <p><i>* Light coloured materials must have a reflectance of 0.3</i></p>	<ul style="list-style-type: none"> Addressed by LEED SS 7.1 Addressed by Green Globes Site B.2 	<ul style="list-style-type: none"> Soft landscaping, natural shading, light-coloured materials
	Indoor Temperature Ensure a comfortable indoor climate	<ul style="list-style-type: none"> Compliance to ASHRAE 55-2004 Thermal Comfort standards for City-owned and leased buildings. 	<ul style="list-style-type: none"> ▶ Comply to ASHRAE 55-2004 Thermal Comfort standards. 	<ul style="list-style-type: none"> Satisfied by LEED Indoor Environmental Quality (EQ) Credit 7.1 Satisfied by Green Globes Indoor Environment G.4 	<ul style="list-style-type: none"> Design envelope and HVAC system to maintain specified comfort ranges
	Indoor Ventilation and Filtration Ensure clean and fresh indoor air	<ul style="list-style-type: none"> Compliance to ASHRAE 62-2004 Ventilation standard for City-owned and leased buildings. Smoke Free Bylaw 	<ul style="list-style-type: none"> ▶ <u>Minimum</u>: Comply to ASHRAE 62-2004 Ventilation standards <u>Preferred</u>: Achieve outdoor ventilation rates 30% above minimum required by ASHRAE 62.1-2004. 	<ul style="list-style-type: none"> Minimum satisfied by LEED EQ Prerequisite 1 and Green Globes G.1 Preferred satisfied by LEED for Existing Buildings IEQ Credit 2 	<ul style="list-style-type: none"> Design according to ASHRAE specifications, Bio-walls (e.g. Guelph-Humber Building, Etobicoke campus)
	Indoor Low-Emitting Materials Minimize sources of air contaminants	• None.	<ul style="list-style-type: none"> ▶ Control fungus, mould and bacteria. ▶ Ensure that at least 45% of materials are low-emitting, including adhesives and sealants, paints and coatings, carpet systems, composite wood and agrifiber products: <u>Preferred</u>: 75% low-emitting <u>Excellent</u>: 90% low-emitting 	<ul style="list-style-type: none"> Addressed by LEED EQ Credit 4.1 – 4.4 but additional fungus, mold and bacteria control required Addressed by Green Globes Indoor Environment G.2 	<ul style="list-style-type: none"> Specify low-VOC materials in construction documents, provide manufacturer literature identifying emissions



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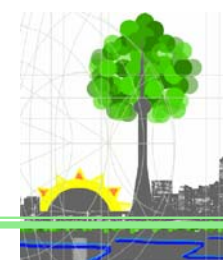
	Development Feature	Existing City Standards, Guidelines or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Greenhouse Gas Emissions / Energy Efficiency O.P., Environmental Plan, Energy Plan, Air Quality Strategy	Minimum Energy Performance Minimize demand for energy through efficient building design	<ul style="list-style-type: none"> • Toronto Energy Efficiency Office Better Buildings Partnership: target for a minimum of 25% savings above Model National Energy Code for Buildings (MNECB). 	New construction: <ul style="list-style-type: none"> • ► <u>Minimum:</u> Design building to achieve a 25% efficiency improvement over the MNECB. • <u>Preferred:</u> 40% improvement • <u>Excellent:</u> 60% improvement Retrofits: <ul style="list-style-type: none"> • ► <u>Minimum:</u> 10% improvement over the MNECB. 	<ul style="list-style-type: none"> • Minimum satisfied by LEED EA Prerequisite 2 and Green Globes C.1 • Preferred and Excellent targets addressed by LEED Credit 1 (5 points for 40% target and 10 points for 64%) • Preferred target addressed by Green Globes Energy C.1 (50% target) 	<ul style="list-style-type: none"> • Use computer modeling to determine most energy efficient design solutions.
	Energy Efficient Fixtures and Appliances Minimize appliance and fixture energy demands	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • ► Ensure 70% of fixtures are Energy Star compliant. • ► Where supplied, ensure that 70% of appliances are Energy Star compliant. 	<ul style="list-style-type: none"> • Not addressed by LEED Canada-NC but satisfied by LEED for Commercial Interiors EA Credit 1.4 • Addressed by Green Globes Credit C.3 	<ul style="list-style-type: none"> • Energy Star appliances • Lighting controls, motion sensor lighting
	Green Energy Reduce demand for energy from the grid and encourage renewable energy production	<ul style="list-style-type: none"> • Environmental Plan: Purchase 25% of energy needs for City buildings through green power (and encourage same of ABCs) 	<ul style="list-style-type: none"> • Where feasible, provide on-site renewable energy to self-supply 5% -10% of a project's energy needs. • Where feasible, purchase 25% of energy needs through grid-source renewable energy. 	<ul style="list-style-type: none"> • Satisfied by LEED EA Credits 2.1, 2.2 and 6 • On-site generation target addressed in Green Globes Energy C.4 	<ul style="list-style-type: none"> • Wind turbines, photo-voltaics, solar thermal technologies, geothermal, deep lake water cooling biogas, green power purchase.



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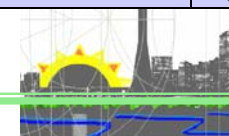
	Development Feature	Existing City Standards, Guidelines or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Greenhouse Gas Emissions / Energy Efficiency O.P., Environmental Plan, Energy Plan, Air Quality Strategy	Daylighting / Building Orientation Minimize energy demand through passive solar heating and lighting	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Orient and design the building to take advantage of passive solar heating and shading for cooling. Orient and design the building to take advantage of natural lighting so that ambient daylight in 75% of the internal space is 250 Lux. 	<ul style="list-style-type: none"> Addressed by LEED EQ Credit 8.1 Addressed by Green Globes Indoor Quality G.3 and C.2 Daylighting target met by Illuminating Engineering Society of North America (IESNA) Lighting Handbook, 2000. 	<ul style="list-style-type: none"> Shallow floor plates, permanent shading devices, high performance glazing (e.g. SAS , 280 King St E)
	Systems Commissioning Ensure building systems function properly	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> ► Ensure the building's energy related systems are installed, calibrated and perform according to the owner's project requirements, based on design and construction documents 	<ul style="list-style-type: none"> Satisfied by LEED EA Prerequisite 1 Satisfied by Green Globes Project Management A.3 	<ul style="list-style-type: none"> Engage a 3rd party commissioning authority.



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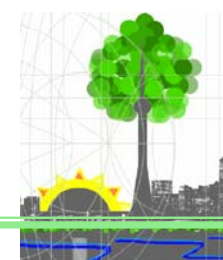
	Development Feature	Existing City Standards, Guidelines or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Water Quality O.P., Environmental Plan, Wet Weather Flow Management Plan, Toronto Region Conservation Authority	Construction Activity Ensure protection of water quality during construction and demolition	<ul style="list-style-type: none"> • [Draft] WWF Interim Stormwater Management Guidelines: Adherence to Greater Toronto Area Conservation Authorities on-site Erosion and Sediment Control Guidelines during construction and demolition. 	<ul style="list-style-type: none"> • ► Adhere to Greater Toronto Area Conservation Authorities on-site Erosion and Sediment Control Guidelines during construction and demolition activities. 	<ul style="list-style-type: none"> • Addressed by LEED Sustainable Sites (SS) Prerequisite 1 • Addressed by Green Globes Site Credit B.2 and Emissions, Effluents and Other Impacts Credits F.3 and F.4 	<ul style="list-style-type: none"> • Erosion and sediment control plan, silt fencing, sediment traps, sediment basins
	Stormwater Run-Off Manage and clean stormwater that leaves the site	<ul style="list-style-type: none"> • [Draft] WWF Suspended Solids Removal: Remove 80% of total suspended solids on an annual loading basis from all runoff leaving the site 	<ul style="list-style-type: none"> • ► Remove 80% of total suspended solids on an annual loading basis from all runoff leaving the site. 	<ul style="list-style-type: none"> • Satisfied by LEED SS Credit 6.2 	<ul style="list-style-type: none"> • Mechanical or natural treatment systems such as constructed, vegetated filter strips, bio- swales. sediment traps, oil/grit separators
		<ul style="list-style-type: none"> • [Draft] WWF Disinfection: Disinfect runoff from the site which discharges directly into Lake Ontario or Waterfront areas 	<ul style="list-style-type: none"> • ► Disinfect runoff from the site which discharges directly into Lake Ontario or Waterfront areas. 	<ul style="list-style-type: none"> • Addressed by LEED SS Credit 6.2 • Addressed by Green Globes Water Credit D.3 and Emissions and Effluents Credits F.3 and F.4 	
			<ul style="list-style-type: none"> • [Draft] WWF Erosion Control: Adherence to TRCA erosion control criteria for individual sites which discharge directly or are in close proximity to natural watercourses 	<ul style="list-style-type: none"> • ► Adhere to TRCA erosion control criteria for individual sites which discharge directly or are in close proximity to natural watercourses. 	<ul style="list-style-type: none"> • Addressed by LEED Sustainable Sites (SS) Prerequisite 1
	Stormwater Retention (Water balance) Minimize stormwater that leaves the site	<ul style="list-style-type: none"> • [Draft] WWF Water Balance: Retention of stormwater on-site to the same level of annual volume of overland runoff allowable under pre-development conditions • Minimum Requirement: Retention of all runoff from small design rainfall events (typically 5 mm) through rainwater reuse, onsite infiltration, and evapotranspiration. 	<ul style="list-style-type: none"> • ► Retain stormwater on-site to the same level of annual volume of overland runoff allowable under pre-development conditions • ► Retain all runoff from small design rainfall events (typically 5 mm) through rainwater reuse, onsite infiltration, and evapotranspiration. 	<ul style="list-style-type: none"> • Addressed by LEED Sustainable Sites Credit 6.1 • Addressed by Green Globes Site Credit B.3 	<ul style="list-style-type: none"> • Green roofs, rain barrels, permeable paving (e.g. eco stone, turfstone), green streets instead of curb and gutter, downspout disconnection, infiltration trenches, absorbent landscaping



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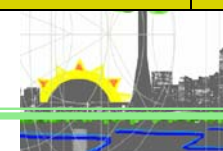
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Water Efficiency O.P., Environmental Plan, Water Efficiency Plan	Low-Water Landscaping Create natural landscapes that require little irrigation.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Use drought-resistant plant material. 	<ul style="list-style-type: none"> Addressed by LEED Water Efficiency (WE) Credits 1.1. and 1.2 Satisfied by Green Globes Water Credit D.2 	<ul style="list-style-type: none"> Native plants, rainwater harvesting, high efficiency irrigation systems, drip irrigation
	Rain Water Harvesting Use stormwater as a resource to reduce demand for potable water	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Capture, store, treat (if necessary) and use rain water for irrigation and/or flushing. 	<ul style="list-style-type: none"> Addressed by LEED WE Credits 1.1. and 1.2 Addressed by Green Globes Water Credit D.2 	<ul style="list-style-type: none"> Rain barrels, storage cisterns
	Grey Water Re-use Re-use waste water to reduce demand for potable water	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Integrate a system for collecting and treating laundry and bathing grey water for use in flushing, irrigation, janitorial cleaning, cooling and car washing. Where feasible, integrate a biological waste treatment system for the site. 	<ul style="list-style-type: none"> Addressed by LEED WE Credits 1.1, 1.2 & 2 Satisfied by Green Globes Water Credit D.3 	<ul style="list-style-type: none">
	High Efficiency Fixtures and Appliances Reduce demand for potable water through greater efficiencies	<ul style="list-style-type: none"> Toronto Water: The City has rebate programs for low flow toilets and urinals and washing machines that use 40% less water. 	<ul style="list-style-type: none"> ▶ Install water efficient fixtures including low-flow toilets (6.0 L) urinals (3.8L) and faucets (9.5L/min). ▶ Where provided, install water efficient dishwashers (38L) and washing machines that use 40% less water. Install individual suite metering 	<ul style="list-style-type: none"> LEED WE Credits 3.1 and 3.2 satisfy minimum targets for toilets, urinals, faucets and metering faucets Appliances not specified in LEED Satisfied by Green Globes Water Credit D.2 	<ul style="list-style-type: none"> Composting toilets, waterless urinals



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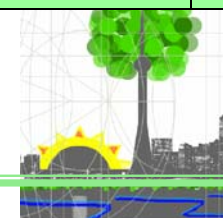
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Solid Waste O.P., Environmental Plan, Solid Waste Management Diversion Goals	Storage and Collection of Recyclables Facilitate waste reduction and efficient processing	<ul style="list-style-type: none"> • Solid Waste Division: Mandatory participation in recycling collection for residential buildings. Commercial Waste Diversion Program provides free recycling and organic collection for participating businesses. 	<ul style="list-style-type: none"> • ► Install user-friendly and accessible handling and storage facilities for recyclable materials. • ► Install user-friendly and accessible handling and storage facilities for organic waste. 	<ul style="list-style-type: none"> • Addressed by LEED Materials and Resources Prerequisite 1 • Satisfied by Green Globes Resources Credit E.7 	<ul style="list-style-type: none"> • Three chute system, aluminum can crushers, cardboard balers.
	Construction Waste Management Reduce waste going to landfill and reduce demand for new materials	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • ► <u>Minimum:</u> Recycle and/or salvage at least 50% of non-hazardous construction and demolition debris. • <u>Preferred:</u> Recycle and/or salvage at least 75% of non-hazardous C&D debris. 	<ul style="list-style-type: none"> • Minimum satisfied by LEED MR Credit 2.1 • Preferred satisfied by LEED MR Credit 2.2 • Addressed by Green Globes Resources Credit E.6 	<ul style="list-style-type: none"> • Construction waste management plan, designated area on site for recyclable materials.
	Reuse of Building Materials Reduce waste going to landfill and reduce demand for new materials	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • <u>Preferred:</u> Ensure that at least 5% of a project's materials (based on value) comprise salvaged, refurbished or reused materials. • <u>Excellent:</u> 10% re-used materials 	<ul style="list-style-type: none"> • Preferred target satisfied by LEED MR Credit 3.1; • Excellent target satisfied by LEED MR Credit 3.2 • Addressed by Green Globes Resources Credit E.3 	<ul style="list-style-type: none"> • Use salvaged beams, posts, flooring, paneling doors, frames, cabinetry, furniture, bricks and detailing.
	Use of Recycled Materials Reduce demand for new materials and increase market for recycling	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • <u>Preferred:</u> Ensure that at least 7.5% of a project's materials (based on value) are comprised of recycled content* • <u>Excellent:</u> 15% recycled content* <p><i>* Recycled content defined by CAN/CSA-ISO 14021-00 Environmental Labeling and Advertising Guidelines</i></p>	<ul style="list-style-type: none"> • Addressed by LEED Materials and Resources Credit 4.1 • Addressed by Green Globes Resources E.2 	<ul style="list-style-type: none"> • Identify recycled materials suppliers, require manufacturer documentation
	Durable Buildings Minimize need to replace materials and assemblies	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Compliance to CSA S478-95 (R2001) guideline for durable buildings 	<ul style="list-style-type: none"> • Satisfied by LEED Materials and Resources Credit 8 • Addressed by Green Globes Materials Credit E.4 	<ul style="list-style-type: none"> • Shading screens, eaves, overhangs, durable surface materials, drained walls.



4.2 Toronto Standard for Mid to High Rise Residences, Commercial, Industrial and Institutional Development



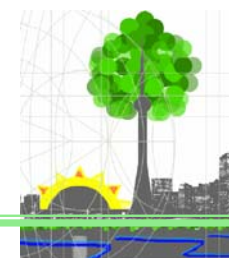
	Development Feature	Existing City Standards, Guidelines or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Ecology O.P., Environmental Plan, Our Common Grounds, Tree Protection Policy and Bylaws, Ravine Protection By-law, Migratory Bird Policy	Urban Forest: Site and Adjacent Boulevard Preserve and enhance the urban forest	<ul style="list-style-type: none"> • OP: provide suitable growing environment for trees; increase the tree canopy coverage and diversity; especially long-lived native and shade trees; regulate the injury and destruction of trees. • Our Common Grounds: goal to achieve a sustainable canopy of 30-40%. • Ravine Protection Bylaw: Protect existing trees in the City's Ravines • City Street Tree Bylaw: Protect street trees on the public right-of-way • City Parks Bylaw, Article VII: Protect trees in all City Parks • Private Tree Bylaw: Provides protection for trees 30cm or more diameter at breast height • Tree Protection Policy and Specifications for Construction Near Trees: Guidelines to protect trees during construction and demolition • Draft Streetscape Manual: Guidelines for the construction of walkways and driveways to permit root growth by providing a continuous sub-grade 	<ul style="list-style-type: none"> ○ ► Retain all trees that are 30cm or more DBH (diameter at breast height) ○ ► Provide each tree a minimum soil volume of 30 m³ of high quality soil. ○ ► Adhere to the minimum protection distances and standards for tree protection barriers during construction according to Specifications for Construction Near Trees ○ Provide a non-potable watering system for all trees ○ Retain native soil on site, adjust or replace with local soil of equal or better quality. ○ Plant large growing, predominantly native shade trees to achieve 20% canopy coverage of the site at maturity 	<ul style="list-style-type: none"> • Not addressed by LEED or Green Globes 	<ul style="list-style-type: none"> • Use soil cells, retain native topsoil, construction management plan to avoid site disturbance



4.2 Toronto Standard for Mid to High Rise Residences, Commercial, Industrial and Institutional Development



	Development Feature	Existing City Standards, Guidelines or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Ecology O.P., Environmental Plan, Our Common Grounds, Tree Protection Policy and Bylaws, Ravine Protection By-law, Migratory Bird Policy	Natural Heritage: Site Protect and enhance natural habitat	<ul style="list-style-type: none"> • OP: policies support bio-diversity and ecological improvement for habitat for native flora and fauna and aquatic species. • OP policies generally prohibit development in designated Parkland and Open Space Areas and in the Natural Heritage System. When development is permitted, it will minimize adverse impacts and restore and enhance the natural heritage system 	<ul style="list-style-type: none"> • ► No planting of invasive species on properties or streets adjacent to ravines and natural area parks • Plant native trees, shrubs and ground cover: <u>Preferred:</u> 50% coverage of site area (excluding building footprint) <u>Excellent:</u> 75% coverage of site area (excluding building footprint). 	<ul style="list-style-type: none"> • Minimum not addressed by LEED • Preferred target satisfied by LEED SS Credit 5.1 • Addressed by Green Globes Site B.4 	<ul style="list-style-type: none"> • Plant native species, construction management plan to avoid site disturbance
	Glass and other design features for Migratory Birds Ensure that design features minimize the risk for migratory bird collisions.	<ul style="list-style-type: none"> • Bird friendly Development Guidelines [under development] 	<ul style="list-style-type: none"> • Adhere to Bird friendly Development Guidelines 	<ul style="list-style-type: none"> • Not addressed by LEED or Green Globes 	<ul style="list-style-type: none"> • ‘Visual noise’ elements can include patterned glass, film treatments on windows, overhangs
	Light Pollution Reduce nighttime glare from lighting	<ul style="list-style-type: none"> • Bird friendly Development Guidelines [under development] 	<ul style="list-style-type: none"> • ► Avoid directly lighting the sky • Adhere to Bird friendly Development Guidelines 	<ul style="list-style-type: none"> • Minimum satisfied by LEED SS Credit 8 • Enhanced target not addressed by LEED • Minimum satisfied by Green Globes Site Credit B.2 	<ul style="list-style-type: none"> • No vanity lighting, use motion sensor lighting

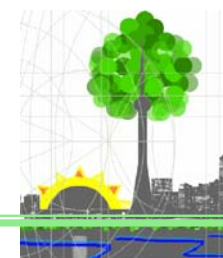


4.3 Toronto Standard for Low-Rise Residential Development



	Development Feature	Existing Standards or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Air Quality O.P., Environmental Plan, Air Quality Strategy	Local Materials Avoid unnecessary long-distance shipping of building materials	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> ▶ Minimum: 10% (based on value) of materials to be harvested, manufactured and supplied within 800 km of project. Preferred: 20% of materials to be harvested, manufactured and supplied within 800 km of project. 	<ul style="list-style-type: none"> Addressed by LEED for Homes Materials and Resources 3 	<ul style="list-style-type: none"> Identify materials and suppliers that can help to achieve this goal
	Pedestrian Infrastructure Encourage walking as a clean air alternative	<ul style="list-style-type: none"> O.P. policies promote a beautiful, comfortable and safe public realm with accessible streets, parks and open spaces. Urban Design Guidelines: Provide guidelines for orienting buildings and improving the public realm. Draft Toronto Streetscape Manual Toronto Accessibility Design Guidelines 	<ul style="list-style-type: none"> ▶ Provide appropriate grading and surface treatment, in accordance with the Toronto Accessibility Design Guidelines and the Draft Toronto Streetscape Manual, as applicable 	<ul style="list-style-type: none"> Addressed in Canadian Institute of Transportation Engineers: Promoting Sustainable Transportation Through Site Design Guidelines 	
	Construction Activity Minimize air pollution from construction and demolition	<ul style="list-style-type: none"> City Building Permit Construction and Demolition, Article 363 By-law 598-2005: requires identification of method for handling air and dust emissions, recognizing on-site resources, in compliance with sections 6 and 11 of regulation 346 made under the EPA. 	<ul style="list-style-type: none"> ▶ For construction and demolition, identify method for minimizing air and dust emissions. For construction and demolition, identify method for minimizing VOC emissions. 	<ul style="list-style-type: none"> Air and Dust Emissions Control Plan 	
	Ozone Protection Minimize contributions to ozone depletion from HVAC&R Equipment	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> ▶ Zero use of CFC-based refrigerants and Halons in fire suppression 	<ul style="list-style-type: none"> Addressed by LEED for Homes EA 11 	<ul style="list-style-type: none"> Install HVAC equipment that uses no CFC refrigerants

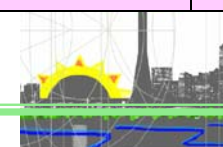
* The symbol “▶” identifies the core, minimum requirements of the Toronto Green Standard.



4.3 Toronto Standard for Low-Rise Residential Development



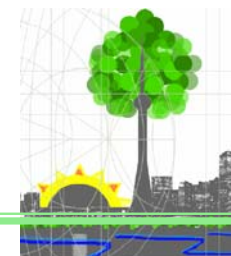
	Development Feature	Existing Standards or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Air Quality O.P., Environmental Plan, Air Quality Strategy	Urban Heat Island Reduction: At Grade Reduce ambient surface temperatures	<ul style="list-style-type: none"> • Front yard Parking Provisions in Zoning By-law: Specifies maximum driveway widths and front-yard landscaping requirements. For lots less than 6m frontage, maximum 2.6m driveway width and remaining front yard must be landscaped. For lots 6-15m, 6.0m maximum driveway width with 50% landscaping. For lots greater than 15m, 9.0 maximum driveway width with 60% landscaping. Additionally, 75% of all landscaping is to be soft landscaping (trees shrubs, grass, flowers, vegetables and other vegetation but not hard surfaced areas). 	<ul style="list-style-type: none"> • ► Do one of the following: Provide cover, including trees, that shades at least 30% of hardscape, including surface parking areas, walkways and other hard surfaces OR Use light coloured materials* for 50% of hardscape, including surface parking areas, walkways and other hard surfaces OR Use a combination of shading and light coloured materials* for 50% of hardscape, including surface parking areas, walkways and other hard surfaces * <i>Light coloured materials must have a reflectance of 0.3</i> 	<ul style="list-style-type: none"> • Satisfied by Energy Star • Satisfied by LEED for Homes Sustainable Sites 3 	<ul style="list-style-type: none"> • Soft landscaping, green roofs, trees and shading, light-colored materials
	Urban Heat Island Reduction: Roof Reduce ambient surface temperatures	<ul style="list-style-type: none"> • Green Roof Strategy: Adopted by City Council in 2006. • Green Roof Performance Criteria: 6 inch depth, 50% coverage, non-monoculture. 	<ul style="list-style-type: none"> • Do one of the following: Install green roof with 50% coverage OR Use light coloured roofing materials* with 75% coverage OR Use combination of both strategies with 75% coverage. • Design green roof to meet the City's performance criteria (6 inch depth, non-monoculture) *<i>Light coloured materials must have an Surface Reflectivity Index greater than 78 and emissivity greater than 0.9 according to ASTM Standard 408</i> 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •



4.3 Toronto Standard for Low-Rise Residential Development



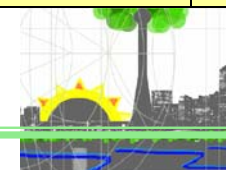
	Development Feature	Existing Standards or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Air Quality O.P., Environmental Plan, Air Quality Strategy	Indoor Air Quality Ensure a comfortable indoor climate, ensure clean and fresh indoor air and minimize sources of air contaminants	<ul style="list-style-type: none"> • Compliance to ASHRAE 55-2004 Thermal Comfort standards for City-owned and leased buildings. • Compliance to ASHRAE 62-2001 Ventilation standard for City-owned and leased buildings. 	<ul style="list-style-type: none"> • ► Minimum: Ensure that at least 45% of materials are low-emitting, including adhesives and sealants, paints and coatings, carpet systems, composite wood and agrifiber products: • Preferred: 75% low-emitting materials • Excellent: 90% low-emitting materials • Ensure proper ventilation to control fungus, mould and bacteria. • Principle Venting Capacity (PVC) = 15 cubic feet per minute times the number of bedrooms plus one. • Forced air distribution required to be interconnected with operation of PVC fan. 	<ul style="list-style-type: none"> • Addressed by LEED for Homes IEQ 8 • Addressed by LEED Materials and Resources 5 • Satisfied by LEED for Homes Indoor Environmental Quality (IEQ) 3 • Satisfied by LEED for Homes IEQ 4, 5, 6 and 7 • Enhanced ventilation satisfied by Energy Star 	<ul style="list-style-type: none"> • Design according to ASHRAE specifications, specify low-VOC materials in construction documents, provide manufacturer literature identifying emissions



4.3 Toronto Standard for Low-Rise Residential Development



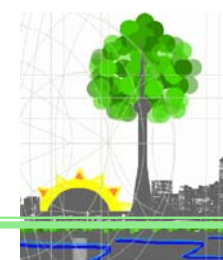
	Development Feature	Existing Standards or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Greenhouse Gas Emissions / Energy Efficiency O.P., Environmental Plan, Energy Plan, Air Quality Strategy	Insulation Maximize performance of the thermal envelope	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> ▶ Insulate walls, floor and ceiling to the following Energuide standards: <ul style="list-style-type: none"> Ceiling w/ attic: R40 Ceiling no attic: R31 Exterior walls: R19+5 Basement walls: full height, R+10/R13 Exposed floors: R31 Slab w/o infloor heating: <ul style="list-style-type: none"> If >2ft below grade: uninsulated If <2ft BG: R+10, edge 	<ul style="list-style-type: none"> Satisfied by Energy Star Addressed by LEED for Homes Energy and Atmosphere (EA) Credit 2 	<ul style="list-style-type: none">
	Air tightness / air leakage Minimize energy wastage from air leakage	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> ▶ Minimize air leakage at doors and windows to less than 2.0 in²/100ft. 	<ul style="list-style-type: none"> Satisfied by Energy Star Addressed by LEED for Homes EA 3 	<ul style="list-style-type: none">
	Windows and doors Optimize performance	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> ▶ Install Energy Star certified windows 	<ul style="list-style-type: none"> Satisfied by Energy Star Satisfied by LEED for Homes EA 4 Satisfied by R-2000 	<ul style="list-style-type: none">
	Ducts Minimize energy wastage from leakage in heating and cooling systems	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> ▶ Seal ductwork in basement. Ducts located in heated boundary 	<ul style="list-style-type: none"> Satisfied by Energy Star Satisfied by R-2000 Addressed by LEED for Homes EA 5 	<ul style="list-style-type: none">
	Space heating and cooling Optimize performance of HVAC equipment	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> ▶ Install an Energy Star heating and air conditioning system 	<ul style="list-style-type: none"> Satisfied by Energy Star Satisfied by LEED for Homes EA 6 	<ul style="list-style-type: none">
	Water Heating Optimize performance of water heating system	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> ▶ Install a high efficiency boiler or tankless water heater and comply with Canada's energy efficiency regulations. 	<ul style="list-style-type: none"> Satisfied by Energy Star Addressed by LEED for Homes EA 7 	<ul style="list-style-type: none"> Solar thermal water heating, tankless water heating.



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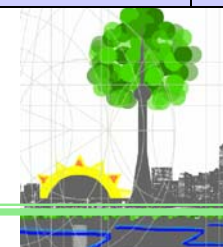
	Development Feature	Existing Standards or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
GHG Emissions / Energy Efficiency O.P., Environmental Plan, Energy Plan, Air Quality Strategy	Light fixtures and home appliances Minimize appliance energy demand	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> All appliances and fixtures are to be Energy Star compliant. 	<ul style="list-style-type: none"> Satisfied by Energy Star Satisfied by LEED for Homes EA 8 and 9 Satisfied by R-2000 	<ul style="list-style-type: none"> Energy Star appliances and fixtures
	Green Energy Reduce demand for energy from the grid and encourage renewable energy production	<ul style="list-style-type: none"> Environmental Plan: Purchase 25% of energy needs for City buildings through green power (and encourage same of ABCs) 	<ul style="list-style-type: none"> Where feasible, provide on-site renewable energy to self-supply 5% -10% of requirements; Where feasible, purchase 25% of energy needs through grid-source renewable energy. 	<ul style="list-style-type: none"> Addressed by LEED for Homes EA 10 	<ul style="list-style-type: none"> Wind turbines, photo-voltaics, solar thermal water heating, geothermal, biogas
	Daylighting / Building Orientation Minimize energy demand through passive solar heating and lighting	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Orient and design the building to take advantage of passive solar heating and natural lighting. 		<ul style="list-style-type: none"> Permanent shading devices, high performance glazing



4.3 Toronto Standard for Low-Rise Residential Development



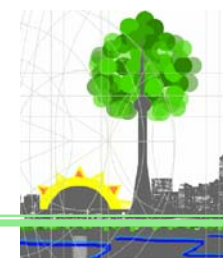
	Development Feature	Existing Standards or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Water Quality O.P., Environmental Plan, Wet Weather Flow Management Master Plan, Toronto Region Conservation Authority Generic Regulation	Construction Activity Ensure protection of water quality during construction and demolition	<ul style="list-style-type: none"> [Draft] WWF Interim Stormwater Management Guidelines: Adherence to Greater Toronto Area Conservation Authorities on-site Erosion and Sediment Control Guidelines during construction and demolition activities. 	<ul style="list-style-type: none"> ▶ Adhere to Greater Toronto Area Conservation Authorities on-site Erosion and Sediment Control Guidelines during construction and demolition activities. 	<ul style="list-style-type: none"> Addressed by LEED for Homes Sustainable Sites 1 	<ul style="list-style-type: none"> Erosion and sediment control plan, silt fencing, sediment traps, sediment basins
	Stormwater Run-Off Manage and clean stormwater that leaves the site	<ul style="list-style-type: none"> [Draft] WWF Suspended Solids Removal: Remove 80% of total suspended solids on an annual loading basis from all runoff leaving the site 	<ul style="list-style-type: none"> ▶ Remove 80% of total suspended solids on an annual loading basis from all runoff leaving the site. 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Mechanical or natural treatment systems such as constructed, vegetated filter strips, bio-swales, sediment traps
		<ul style="list-style-type: none"> [Draft] WWF Disinfection: Disinfect runoff from the site which discharges directly into Lake Ontario or Waterfront areas 	<ul style="list-style-type: none"> ▶ Disinfect runoff from the site which discharges directly into Lake Ontario or Waterfront areas. 	<ul style="list-style-type: none"> 	
			<ul style="list-style-type: none"> [Draft] WWF Erosion Control: Adherence to TRCA erosion control criteria for individual sites which discharge directly or are in close proximity to natural watercourses 	<ul style="list-style-type: none"> ▶ Adhere to TRCA erosion control criteria for individual sites which discharge directly or are in close proximity to natural watercourses. 	<ul style="list-style-type: none"> Addressed by LEED for Homes Sustainable Sites 1
	Stormwater Retention (Water balance) Minimize stormwater that leaves the site	<ul style="list-style-type: none"> [Draft] WWF Water Balance: Retention of stormwater on-site to the same level of annual volume of overland runoff allowable under pre-development conditions Minimum Requirement: Retention of all runoff from small design rainfall events (typically 5 mm) through rainwater reuse, onsite infiltration, and evapotranspiration. 	<ul style="list-style-type: none"> ▶ Retain stormwater on-site to the same level of annual volume of overland runoff allowable under pre-development conditions ▶ Retain all runoff from small design rainfall events (typically 5 mm) through rainwater reuse, onsite infiltration, and evapotranspiration. 	<ul style="list-style-type: none"> Addressed by LEED for Homes Sustainable Sites 4 	<ul style="list-style-type: none"> Green roofs, rain barrels, permeable paving (e.g. eco stone, turfstone), green streets instead of curb and gutter, downspout disconnection, infiltration trenches, absorbent landscaping



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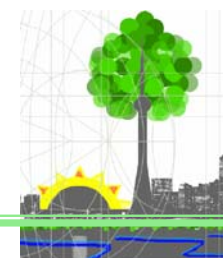
	Development Feature	Existing Standards or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Water Efficiency O.P., Environmental Plan, Water Efficiency Plan	Low-Water Landscaping Create natural landscapes that require little irrigation.	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Use drought-resistant plant material 	<ul style="list-style-type: none"> Addressed by LEED for Homes Sustainable Sites 2 and Water Efficiency 2 	<ul style="list-style-type: none"> Native plants, rainwater harvesting, high efficiency irrigation systems, drip irrigation
	Rain Water Harvesting Use stormwater as a resource to reduce demand for potable water	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Capture, store, treat and use at least 50% of rain water for irrigation and/or flushing. 	<ul style="list-style-type: none"> Satisfied by LEED for Homes Water Efficiency 1 	<ul style="list-style-type: none"> Rain barrel
	Grey Water Re-use Re-use waste water to reduce demand for potable water	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Integrate a system for collecting and treating laundry and bathing grey water for use in flushing, irrigation, cleaning and car washing. 	<ul style="list-style-type: none"> Satisfied by LEED for Homes Water Efficiency 1 The Canadian Standards Association is currently developing a new grey-water standard (June 2006). 	<ul style="list-style-type: none">
	High Efficiency Fixtures and Appliances Reduce demand for potable water through greater efficiencies	<ul style="list-style-type: none"> Toronto Water: The City has rebate programs for low flow toilets and washing machines that use 40% less water. 	<ul style="list-style-type: none"> ▶ Install water efficient fixtures including low-flow toilets (6.0 l) and faucets (9.5L/min). ▶ Where provided, install water efficient dishwashers (38L) and washing machines that use 40% less water. Install individual suite metering 	<ul style="list-style-type: none"> Addressed by LEED for Homes Water Efficiency 3 Satisfied by R-2000 	<ul style="list-style-type: none"> Composting toilets, low flow toilets and faucets



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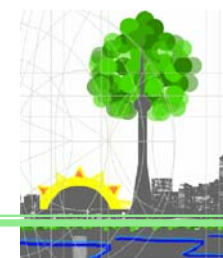
	Development Feature	Existing Standards or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Solid Waste O.P., Environmental Plan, Solid Waste Management Diversion Goals	Construction Waste Management Reduce waste going to landfill and reduce demand for new materials	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> ► Maximum of 2.5 Lbs /sq foot of construction waste sent to landfill 	<ul style="list-style-type: none"> Satisfied by LEED for Homes Materials and Resources 6 	<ul style="list-style-type: none"> Construction waste management plan, designated area on site for recyclable materials.
	Reuse of Building Materials Reduce waste going to landfill and reduce demand for new materials	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> <u>Preferred</u>: Ensure that at least 5% of a project's materials (based on value) comprise salvaged, refurbished or reused materials. <u>Excellent</u>: 10% re-used materials 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
	Use of Recycled Materials Reduce demand for new materials and increase market for recycling	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> <u>Preferred</u>: Ensure that at least 7.5% of a project's materials (based on value) are comprised of recycled content* <u>Excellent</u>: 15% recycled content* <p><i>*Recycled content defined by CAN/CSA-ISO 14021-00 Environmental Labeling and Advertising Guidelines</i></p>	<ul style="list-style-type: none"> Addressed by LEED Materials and Resources 5 Addressed by R-2000 	<ul style="list-style-type: none"> Identify recycled materials suppliers, require manufacturer documentation
	Durable Buildings Minimize need to replace materials and assemblies	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Compliance to CSA S478-95 (R2001) guideline for durable buildings 	<ul style="list-style-type: none"> Addressed by LEED for Homes Materials and Resources 4 	<ul style="list-style-type: none"> Shading screens, eaves, overhangs, durable surface materials, drained walls.



4.3 Toronto Standard for Low-Rise Residential Development



	Development Feature	Existing Standards or Targets	The Toronto Green Standard 2006*	Relationship to Other Standards	Possible Strategies to Implement
Ecology O.P., Environmental Plan, Our Common Grounds, Tree Protection Policy and Bylaws, Ravine Protection By-law, Migratory Bird Policy	Urban Forest: Site and Adjacent Boulevard Preserve and enhance the urban forest	<ul style="list-style-type: none"> • OP: provide suitable growing environment for trees; increase the tree canopy coverage and diversity; especially long-lived native and shade trees; regulate the injury and destruction of trees. • Our Common Grounds: goal to achieve a sustainable canopy of 30-40%. • Ravine Protection Bylaw: Protect existing trees in the City's Ravines • City Street Tree Bylaw: Protect street trees on the public right-of-way • City Parks Bylaw, Article VII: Protect trees in all City Parks • Private Tree Bylaw: Provides protection for trees 30cm or more diameter at breast height • Tree Protection Policy and Specifications for Construction Near Trees: Guidelines to protect trees during construction and demolition • Draft Streetscape Manual: Guidelines for the construction of walkways and driveways to permit root growth by providing a continuous sub-grade 	<ul style="list-style-type: none"> • ► Retain all trees that are 30cm or more DBH (diameter at breast height) • ► Provide each tree a minimum soil volume of 15 m³ of high quality soil. • ► Adhere to the minimum protection distances and standards for tree protection barriers during construction according to Specifications for Construction Near Trees • ► Retain native soil on site (or replace, as necessary, with local soil of equal or better quality). • Provide a non-potable watering system for all trees • Plant large growing, predominantly native shade trees, in back-yards, front yards and along streets that achieves a 40% canopy cover at maturity. 	<ul style="list-style-type: none"> • Addressed by LEED for Homes Sustainable Sites 1 	<ul style="list-style-type: none"> • Retention of native topsoil, construction management plan to avoid site disturbance



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Ecology O.P., Environmental Plan, Our Common Grounds, Tree Protection Policy and Bylaws, Ravine Protection By-law, Migratory Bird Policy	Natural Heritage: Site Protect and enhance natural habitat	<ul style="list-style-type: none"> • OP: policies support biodiversity and ecological improvement for habitat for native flora and fauna and aquatic species. • OP policies generally prohibit development in designated Parkland and Open Space Areas and in the Natural Heritage System. When development is permitted, it will minimize adverse impacts and restore and enhance the natural heritage system 	<ul style="list-style-type: none"> • ► No planting of invasive species on properties or streets adjacent to ravines and natural area parks • Plant native trees, shrubs and ground cover on: <u>Preferred:</u> 50% coverage of site area (excluding building footprint) <u>Excellent:</u> 75% coverage of site area (excluding building footprint). 	<ul style="list-style-type: none"> • Addressed by LEED for Homes Sustainable Sites 1 and 2 	<ul style="list-style-type: none"> • Planting native species, construction management plan to avoid site disturbance
	Glass and other design features Glass and building features that incorporate 'visual noise' to reduce reflectivity to protect migratory birds	<ul style="list-style-type: none"> • Bird friendly Development Guidelines [under development] 	<ul style="list-style-type: none"> • For homes adjacent to ravines and natural areas, adherence to the "Bird friendly" Development Guidelines 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 'Visual noise' elements can include patterned glass, film treatments on windows, overhangs
	Light Pollution Reduce nighttime glare from lighting	<ul style="list-style-type: none"> • Bird friendly Development Guidelines [under development] 	<ul style="list-style-type: none"> • ► Avoid directly lighting the sky • Adhere to Bird friendly Development Guidelines 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • No vanity lighting, use motion sensor lighting

