

Attachment A

TransformTO Short-term Strategies Business Cases

TransformTO *Energy Efficiency in Buildings*

Business Case 1.1: Enhance the Better Buildings Partnership (BBP)

Type of business case:	Enhancement of existing program	Lead City Division:	Environment & Energy
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Objective: Retrofit up to 50 million square feet of commercial and institutional buildings by 2020.

Action: Increase technical resources, financial assistance and coordination of incentives and financing for property owners. In 2017, staff will identify and implement new opportunities across multiple sectors and establish the administrative program operations. This will include enhanced marketing, education and outreach and initiation of incentive program participation for property owners, including delivery of Provincial incentive programs. In 2018, additional resources will ramp-up program delivery, increasing incentive program participation and accelerating coordination of incentives for property owners participation in programs across multiple sectors that align with the Ontario Climate Action Plan.

Risk/Dependency/Limitation: Identification of new opportunities and programs along with successful marketing and engagement will be essential to accelerating the voluntary participation of individual building and portfolio owners.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Enhance the City's Quality of Life
- ✓ Engage the Public

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low	\$85,000	\$1,100,000	185,000	\$350	6.0	\$6,200	13.0
High	\$156,000	\$2,500,000	415,000				

Potential Capital Funding (All Sources)

- ✓ Sustainable Energy Plan Financing
- ✓ Cap & Trade Proceeds
- ✓ Provincial/Federal Infrastructure
- ✓ Private

TransformTO *Energy Efficiency in Buildings*

Business Case 1.2: Innovative financing mechanisms

Type of business case:	New program	Lead City Division:	Environment & Energy
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Objective: Advance Toronto’s case for securing its fair share of provincial and federal low-carbon funding to channel new money into TransformTO strategies supporting the development and implementation of energy retrofit projects in the commercial, MURB and residential sectors.

Action: A new temporary staff position is required to develop a holistic sustainable finance strategy for the City combined with an inter-governmental outreach plan designed to maximize access to cap and trade proceeds and infrastructure funding for the package of TransformTO strategies. This position will advise the City on the expansion and improvement of established financing options currently available, namely the recoverable debt model, local improvement charge financing, and TAF’s Energy Savings Performance Agreement. Explore opportunities to mobilize private capital (such as green bonds) for City sponsored energy projects to increase retrofit uptake.

Risk/Dependency/Limitation: Ability to deliver on the objective is entirely dependent on the cooperation of other orders of government and private sector actors.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Finance the City’s Growth

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO _{2e})	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low/High	-	-	ENABLER	\$60	1.0	\$320	1.0

TransformTO *Energy Efficiency in Buildings*

Business Case 1.3: Dedicate funding for community-based climate action

Type of business case:	Enhancement of existing program	Lead City Division:	Environment & Energy
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Objective: Expand direct funding of neighbourhood-based climate action, including the not-for-profit sector

Action: A new, temporary position to manage application intake and processing, outreach and promotions within the community. Successful marketing and engagement with community is key to accelerate the voluntary participation of community groups. EED has proposed a \$5 million increase of recoverable debt to be allocated starting in 2017. Re-assignment of exiting staff within EED will be utilized to advance this initiative in 2017 and after that additional staff resourcing will be needed to identify additional capital investment opportunities.

Risk/Dependency/Limitation: Ability to identify and engage interested organizations in the program, capital availability at competitive rates from other sources.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Enhance the City's Quality of Life
- ✓ Engage the Public

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low/High	\$20,000	-	ENABLER	-	-	250	1.0

Potential Capital Funding Sources:

- ✓ Sustainable Energy Plan Financing

TransformTO *Energy Efficiency in Buildings*

Business Case 1.4: Improve energy efficiency of social housing

Type of business case:	Enhancement of existing program	Lead City Division:	Shelter, Support & Housing Administration
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Objective: Retrofit up to 40% of social housing building stock.

Action: Build upon existing discussions with TCHC to leverage \$42 million in Provincial SHARP funding, coupled with financing from the Sustainable Energy Plan, to achieve energy reductions and utility cost savings for low-income households. Expand investment in energy efficiency and the quality of social housing to support both GHG emission reductions and City poverty reduction and social equity goals. The Toronto Poverty Reduction Strategy identifies in Section 1- Housing Stability, the need to expand incentive programs to improve energy efficiency of affordable homes, and increase the uptake of building energy retrofitting programs.

Risk/Dependency/Limitation: Meeting the Province’s project completion timelines (March 31, 2018 deadline) is the main risk to this strategy.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Support Affordable Housing
- ✓ Enhance the City’s Quality of Life

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low	\$55,000	(\$25,000)	5,000	-	-	\$1,100	3.0
High	\$240,000	(\$96,000)	25,000				

Potential Capital Funding Sources

- ✓ Tax-supported debt
- ✓ Sustainable Energy Plan Financing
- ✓ Provincial/Federal Infrastructure Funding
- ✓ Cap & Trade Proceeds

TransformTO *Energy Efficiency in Buildings*

Business Case 1.5: Continue support for residential property owners

Type of business case:	Enhancement of existing program	Lead City Division:	Environment & Energy, Social Development, Finance and Administration
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Objective: Retrofit residential buildings at a scaled-up rate of up to 5,000 homes and 10 buildings per year by 2020.

Action: An increased staff complement and support services would support marketing, contractor outreach, building audits, application processing and customer support for HELP and Hi-RIS, or similar programs. Local improvement charge regulation enables the City to recover all program administration costs directly from program participants, as a result there is no net financial impact to the City when using this financing mechanism. A staff report is to be considered by City Council in early 2017 with the results of the pilot program evaluation and recommendations for future direction of the Program. City Council approval of the extension of both programs is required to implement this strategy.

Risk/Dependency/Limitation: City Council approval of the extension of both programs is required to implement this strategy. Achieving the enhanced 2020 target is dependent on the level of energy and GHG reductions pursued by program applicants, the competitiveness of city offering (e.g. interest rates, eligibility criteria) and market uptake.

Alignment with Toronto's Strategic Actions:

- ✓ Implement Smart Urban Growth Strategies Support Affordable Housing
- ✓ Support Environmental Sustainability

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low	\$18,000	(\$9,700)	3,000	\$210	2.0	\$2,500	5.0
High	\$208,000	(\$105,000)	40,000				

Potential Capital Funding Sources:

- ✓ Tax-supported debt
- ✓ Cap & Trade proceeds
- ✓ Provincial/Federal infrastructure funding
- ✓ Private

TransformTO *Raising the bar for new construction & community energy solutions*

Business Case 2.1: Advance leading-edge new construction standard

Type of business case:	Enhancement of existing program	Lead City Division:	Environment & Energy, City Planning
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Objective: To undertake the necessary research to support integration into the Toronto Green Standard of more progressive energy efficiency requirements.

Action: Addition of two, new temporary staff positions to complete the research and develop funding mechanism for designs/solutions that displace natural gas use in new development.

Risk/Dependency/Limitation: Successful implementation of the new TGS update, continued engagement with industry stakeholders, setting-up a funding mechanism for GHG reducing designs/strategies.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Increase Employment Opportunities
- ✓ Accelerate Economic Development
- ✓ Implement Smart Urban Growth Strategies

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low/High	-	-	10,000	\$70	2.0	\$910	2.0

TransformTO *Raising the bar for new construction & community energy solutions*

Business Case 2.2: Advance community Energy Planning

Type of business case:	Enhancement of existing program	Lead City Division:	Environment & Energy, City Planning
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Objective: To maximize the potential for low-carbon development through the preparation and implementation of community energy plans for all new major developments and revitalization areas.

Action: Starting in 2017, dedicated resources will be applied to engage with key stakeholders to ensure that new development has the lowest energy use intensity resulting in the least possible emissions, matched by local renewable energy solutions at both the building and neighbourhood scales. In 2018, additional resources will ramp-up the Community Energy Planning program delivery, including showcasing of leading net-zero designs. Staff will work with legal and other stakeholders on a road map for minimum requirements to accelerate adoption in the market place.

Risk/Dependency/Limitation: Number of area plans per year by City Planning, and number of large developments per year. Uptake by the market place.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Increase Employment Opportunities
- ✓ Accelerate Economic Development
- ✓ Implement Smart Urban Growth Strategies

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low/High	-	-	ENABLER	\$110	4.0	\$1,500	4.0

TransformTO Raising the bar for new construction & community energy solutions

Business Case 2.3: Advance low-carbon/renewable thermal energy networks (district energy)

Type of business case:	Enhancement of existing program	Lead City Division:	Environment & Energy, City Planning
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Objective: To reduce emissions from existing district energy systems by 3% (10,000 tCO₂e) to 30% (100,000 tCO₂e) by 2020 including health care and institutional campuses.

Action: Staff will identify and implement opportunities with district energy stakeholders including conservation, efficiency gains, waste heat recovery, and potential to integrate low-carbon/renewable energy sources. Starting in 2017 staff will identify and act on development opportunities for new low-carbon/thermal energy networks.

Risk/Dependency/Limitation: Motivation and mobilization of district energy system owners, operators and customers. Provincial cap and trade proceeds are needed for the high scenario (100,000 tCO₂e), as well as, for new low-carbon district energy systems in order to reduce/displace natural gas use.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Increase Employment Opportunities
- ✓ Accelerate Economic Development
- ✓ Implement Smart Urban Growth Strategies

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low	\$1,000	-	10,000	\$70	2.0	\$1,200	3.0
High	\$10,000	-	100,000				

Potential Capital Funding Sources:

- ✓ Cap & Trade Proceeds
- ✓ Private
- ✓ Provincial/Federal infrastructure funding

TransformTO <i>Raising the bar for new construction & community energy solutions</i>			
Business Case 2.4: Create Renewable Energy Strategy			
Type of business case:	New program	Lead City Division:	Environment & Energy, Economic Development

Objective: To create a renewable energy strategy to advance emerging clean technologies such as solar PV, wind, biogas, geo exchange and energy storage through a comprehensive long-term strategy developed with industry and community stakeholders.

Action: Starting in 2018, a new, temporary staff position is required to lead the policy development and stakeholder engagement process. The strategy will also explore economic development opportunities to grow and promote local jobs.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Increase Employment Opportunities
- ✓ Accelerate Economic Development
- ✓ Implement Smart Urban Growth Strategies

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low/High	-	-	ENABLER	-	-	\$310	0.5

TransformTO *Sustainable Transportation*

3.1: Explore road pricing

Lead City Division: Transportation Services

Status Update: In September 2015, Executive Committee directed Transportation Services to undertake a detailed study on options for tolling and pricing of the Gardiner Expressway and Don Valley Parkway. Work undertaken involves consultation with relevant stakeholders, detailed cost and revenue projections for a range of cost recovery and road pricing options, impacts on other elements of the transportation network, impacts on the environment (GHG and air pollutant reduction) and impacts on economic competitiveness. This work is still underway and a detailed report to Executive Committee is planned for 2017. Preliminary findings on cost and revenue from tolling were presented to the Executive Committee on December 1, 2016 as part of the committee's consideration of item EX20.2 *The City of Toronto's Immediate and Longer-term Revenue Strategy Direction*.

It is therefore premature to provide a business case for this emissions reduction strategy in the absence of a Council direction. Given this timing, it is recommended that road pricing be deferred as a TransformTO short-term strategy and instead be considered as part of its long-term framework.

TransformTO *Sustainable Transportation*

3.2: Support safe cycling and walking

Lead City Division: Transportation Services

Status Update: At its meeting of June 2016, Toronto City Council adopted, in principle, a Ten Year Cycling Network Plan to connect, grow and renew infrastructure for Toronto's cycling routes. Council directed that staff consider as part of the annual budget process the capital funding required to implement the Cycling Network Plan at a rate of \$16 million annually. The proposed cycling network projects to be resourced through this funding could represent a considerable emission reduction of 75,000 tonnes CO₂e by 2020. Additionally, City Council at its meeting on December 13, 2016 will consider new capital funding made available by the federal Public Transit Infrastructure Fund to further accelerate the implementation of the Cycling Network Plan projects in 2017 and 2018. As a result, these recent directions from City Council negate the need for a business case for additional investment in the cycling at this time, because current plans align with and support the emission reduction goals of TransformTO.

TransformTO *Sustainable Transportation*

3.3: Enhance transit service

Lead City Division: Toronto Transit Commission, City Planning

Status Update: At its November 2016 meeting, City Council adopted the Transit Network Plan Update and Financial Strategy. This update provided an overview of the major directions for public transit infrastructure for 2017- 2026 including, SmartTrack/RER Integration (6 SmartTrack Stations, plus marginal O&M), Regional Express Rail, GO Transit Growth Related Capital Costs, Metrolinx-Toronto LRT Projects and Other Transit Initiative. In partnership the City of Toronto, Toronto Transit Commission (TTC) and Metrolinx are working together to bring more transit to communities across the city with connections to the entire Greater Toronto and Hamilton Region.

There are a number of transit expansion projects currently underway, each in different phases of planning, approval, design and construction. Collectively each of these projects are building Toronto and the region's transit network. In the short-term specific expenditures have been identified in the TTC capital and operating budgets and the application to Federal Public Transit Infrastructure Fund as approved by the TTC Board on November 21, 2016.

TTC staff has also been investigating alternative technologies for future bus fleet procurements. This includes an evaluation of our current clean diesel and diesel electric hybrid buses against CNG, battery electric and fuel cell propulsion systems. As these latter technologies mature, they may offer significant reduction in emissions. Staff will report the status of this investigation to the TTC Board in 2017.

TransformTO *Sustainable Transportation*

Business Case 3.4 Develop a low-carbon freight strategy

Type of business case:	Council-approved direction	Lead City Division:	Energy & Environment, Economic Development & Culture
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Objective: Develop a City-wide low-carbon freight strategy, and related interdivisional policies, regarding urban goods movement/urban freight in alignment with Metrolinx's Regional Transportation Plan (RTP).

Action: A new, temporary half-time position will build upon the already established interdivisional Urban Freight Working Group to develop a comprehensive low-carbon freight strategy. Freight movements in the City needs to be addressed in a comprehensive manner as it has impacts on traffic congestion, air quality, business continuity and productivity.

Risk/Dependency/Limitation: Achieving the objective will be contingent on coordination with other communities in the GTHA and Metrolinx.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Develop Long-Term Transportation Plan

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low/High	-	-	ENABLER	-	-	\$270	0.5

TransformTO Sustainable Transportation			
Business Case 3.5: Enable electric vehicles (EVs)			
Type of business case:	New program	Lead City Divisions:	Transportation Services, Environment & Energy, Toronto Parking Authority

Objective: Support Toronto in achieving the Provincial target rate of 5% electric vehicle sales of all new vehicle sales by 2020.

Action: A new, temporary half-time position would manage the development of a City-wide policy and related operational support for City divisions, agencies and the community to support the expected Provincial target.

Risk/Dependency/Limitation: Currently, there is a lack of City-wide policy direction on the role that the City would play in supporting public charging infrastructure despite a steady increase and public interest in purchasing EVs in Toronto. There is ongoing dialogue between Toronto Hydro and EV charging manufacturers, but we have limited understanding to date of the impacts that EV infrastructure will have on Toronto's electricity grid.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Develop Long-Term Transportation Plan

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO _{2e})	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low/High	-	-	50,000	-	-	\$230	0.5

TransformTO *Leading by example*

Business Case 4.1: Expand energy retrofits at City facilities

Type of business case:	Enhancement of existing program	Lead City Division:	Environment & Energy
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Objective: To scale-up energy efficiency retrofits of the City-owned real estate portfolio to achieve energy savings of up to 50%, including low-carbon fuel switching (i.e. geothermal).

Action: Starting in 2017, an accelerated work plan will be implemented for screening potential buildings for retrofit opportunities, conducting more energy audits, completing business cases and managing contractors responsible for the installation of energy efficiency measures.

Risk/Dependency/Limitation: Energy price trends, capacity of geothermal energy industry and results of the city-wide real estate review are underlying factors and limitations that will impact this strategy.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Good governance

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low	\$84,000	(\$54,000)	15,000	-	-	\$1,900	3.0
High	\$147,000	\$18,500	40,000				

Potential Capital Funding Sources:

- ✓ Sustainable Energy Plan Financing
- ✓ Cap & Trade Proceeds
- ✓ Provincial/Federal infrastructure funding

TransformTO *Leading by example*

Business Case 4.2: Scale-up renewable energy installations

Type of business case:	Enhancement of existing program	Lead City Division:	Environment & Energy
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Objective: To scale-up renewable energy installation at City-owned facilities by doubling capacity by 2020 (up to 24MW).

Action: Starting in 2017, an accelerated work plan will be implemented for screening potential City facilities for renewable energy opportunities, conducting technical studies, completing business cases and managing contractors responsible for the installation of measures.

Risk/Dependency/Limitation: This strategy is dependent up suitable rooftop and parking lot space in addition to Power Purchase Agreements (or similar) made available by the Independent Electricity Systems Operator.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Good governance

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low	\$26,000	\$13,000	450	-	-	\$1,100	4.0
High	\$53,000	\$27,000	900	-	-	\$1,100	4.0

Potential Capital Funding Sources:

- ✓ Sustainable Energy Plan Financing
- ✓ Cap & Trade Proceeds
- ✓ Provincial/Federal infrastructure funding

TransformTO *Leading by example*

Business Case 4.3: Utilize landfill gas and biogas

Type of business case:	Enhancement of existing program	Lead City Division:	Solid Waste Management, Fleet Services
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Objective: To implement biogas capture and utilization at the Disco Organics Processing Facility, in addition to other sites managed by Solid Waste Management and Toronto Water.

Action: The City is currently examining various options with regards to biogas and landfill gas utilization. One promising emissions reduction and revenue generation project is Renewable Natural Gas (RNG). RNG is produced by upgrading biogas or landfill gas to natural gas quality, at which point it can be injected directly into the natural gas grid. Once in the grid, it can be used to fuel natural gas vehicles, provide heating for homes and/or be used to generate electricity. The Disco project can also serve as a proof-of-concept for other City operations, like wastewater plants, that generate biogas.

Risk/Dependency/Limitation: This strategy is dependent on the City using the renewable natural gas it produces as a vehicle fuel (i.e. to offset diesel). The main limitations are the optimization of the resource from a triple-bottom line approach (economics, environmental and social). In addition, the ability to construct and operate all potential facilities (capital funding, technical issues, equipment lead-time, end-markets) within the given timeframe.

Alignment with Toronto's Strategic Actions:

- ✓ Develop a Long-term Solid Waste Management Strategy
- ✓ Support Environmental Sustainability
- ✓ Finance the City's Growth
- ✓ Enhance the City's Quality of Life

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low/High	\$30,800	\$40,000	95,000	-	-	-	-

Potential Capital Funding Sources:

- ✓ Sustainable Energy Plan Financing
- ✓ Cap & Trade Proceeds
- ✓ Provincial/Federal infrastructure funding

TransformTO *Leading by example*

Business Case 4.4: Improve fleet fuel efficiency

Type of business case:	Enhancement of existing program	Lead City Division:	Fleet Services
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Objective: To accelerate the City's Green Fleet Plan to ensure effective and efficient utilization of available green technologies and management practices.

Action: By developing and implementing transportation alternatives for City employees, standardizing specifications for multi-use vehicles via specific functional module selection, assessing alternate fuel technologies, and focusing on fuel and total lifecycle cost analytics to achieve reductions in fuel consumption and associated emissions.

Risk/Dependency/Limitation: Results are dependent upon an increased staff compliment, the availability of new green fleet technology by vehicle manufacturers and adoption thereof by fleet clients.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Good Governance
- ✓ Improve Organization Excellence

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO _{2e})	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low	\$650	-	ENABLER	\$60	2.0	\$1,000	4.0
High	\$900						

Potential Capital Funding Sources:

- ✓ Tax-supported debt

TransformTO *Leading by example*

Business Case 4.5: Promote Smart Commute for Toronto Public Service

Type of business case:	Enhancement of existing program	Lead City Division:	Environment & Energy
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Objective: To expand the implementation of the City of Toronto's Smart Commute Program to promote sustainable commuting options for the Toronto Public Service.

Action: Starting in 2017, additional staffing resource will allow the rollout of actions, tools and resources, based on the 2016 Commuter Survey, to engage City staff in behaviour change towards more sustainable commute modes. This strategy aligns with the office modernization program for City facilities by providing infrastructure and support services for active commuters. Implementation of this strategy will not only lead to GHG emission reductions but also will position the City of Toronto as a leader in Smart Commute workplace and serve as a model for other employers across the City. The success of this strategy is related to the continued delivery of the Regional Smart Commute Program and pending cost-share agreement with Metrolinx.

Risk/Dependency/Limitation: The success of this strategy is related to the continued delivery of the Regional Smart Commute Program and pending cost-share agreement with Metrolinx.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Develop Long-Term Transportation Plan
- ✓ Strengthen Public Service

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low/High	-	\$3,500	1,500	\$40	1.0	\$300	1.0

TransformTO *Engaging and collaborating with stakeholders*

Business Case 5.1: Continue *TransformTO* Community Engagement

Type of business case:	Enhancement of existing program	Lead City Divisions:	Environment & Energy
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Objective: Large-scale mobilization of Toronto residents through visualizations of low-carbon futures and engagement of under-represented communities in climate action.

Action: Three new temporary staff positions will support the next stages of TransformTO. 1) Continue the ongoing analysis of GHG emissions reduction potential with the model of GHG emissions calibrated to Toronto that can provide important ongoing analysis of the GHG implications of different long-term strategic directions. 2) Focus mobilization efforts on under-represented communities including youth, equity-seeking groups, and residents and businesses outside of the typically engaged downtown core.

Risk/Dependency/Limitation: Achieving Toronto's long-term low-carbon goals will require transformational change of residents' day-to-day behaviours and City of Toronto's infrastructure planning priorities.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Implement Smart Urban Growth Strategies
- ✓ Engage the Public
- ✓ Develop a Long-term Transportation Plan
- ✓ Enhance the City's Quality of Life

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low/High	-	-	ENABLER	\$340	2.0	\$1,900	3.0

TransformTO Engaging and collaborating with stakeholders

Business Case 5.2 Use building energy disclosure as an engagement tool

Type of business case:	Council-approved direction	Lead City Divisions:	Environment & Energy
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Objective: Use energy performance benchmarks to drive energy savings among building owners most in need of support, and further motivate industry leaders in energy efficiency.

Action: An additional staff position and resources would implement marketing and outreach activities with private building owners. The City will publish annual building energy use reports to understand market trends and provide an evidenced-based approach to developing new policies and programs in an effort to raise the energy performance of existing buildings. This effort dovetails with the policy development completed jointly by the City of Toronto and Ontario Ministry of Energy.

Risk/Dependency/Limitation: Toronto has received a \$200,000 grant from The Atmospheric Fund for program implementation costs, which hinges on matching funds from the City. Strong interest exists from the CaGBC, REALpac, BOMA Toronto and academic partners to support building owner training and education, analytics and outreach.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability
- ✓ Engage the Public
- ✓ Implement Smart Urban Growth Strategies

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low/High	-	-	ENABLER	\$70	1.0	\$480	1.0

TransformTO Engaging and collaborating with stakeholders

Business Case 5.3: Leverage Live Green Toronto

Type of business case:	Enhancement of existing program	Lead City Divisions:	Environment & Energy
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Objective: Cultivate neighbourhood-based low-carbon projects and challenge residents and businesses to undertake deep energy retrofits.

Action: Additional, temporary staff resources will allow the Live Green Toronto program to enhance its support of the City's sustainability programs by significantly ramping-up its communications and marketing efforts. It will enhance the volunteer program to broaden its reach and allocate a dedicated staff resource to be embedded within communities to cultivate neighbourhood-based projects. Key to these efforts will be a 2-year, large-scale neighbourhood challenge in 2018/2019 on deep energy retrofits that will seek to drive residents and businesses to existing City programs.

Risk/Dependency/Limitation: The risk associated with this strategy is low as Live Green Toronto has a long history of community engagement, including strong partnerships that enable this work. The strategy is dependent on many of the other strategies getting approval to move forward; and providing content and input into the development of marketing/outreach programs.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO _{2e})	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low/High	-	-	ENABLER	\$170	1.0	\$2,300	2.0

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Business Case 5.4: Collaborate with utilities on local programming

Type of business case:	New program	Lead City Divisions:	Environment & Energy
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Objective: Enable local utilities – Toronto Hydro and Enbridge Gas – to best support Toronto's long-term low-carbon future.

Action: Utilize existing resources to collaborate with Toronto Hydro and Enbridge Gas to support urban renewable energy development, expand customer access to utility data for conservation programming, and to manage issues related to city-wide growth, such as reducing demand in energy-strained areas.

Risk/Dependency/Limitation: This strategy is dependent on ability to align local utilities objectives with deep decarbonization of Toronto's core urban system and support their electrification. It represents low-risk as it redeploys existing resources.

Alignment with Toronto's Strategic Actions:

- ✓ Support Environmental Sustainability

Preliminary Estimate – Resource Requirements							
Scenario	Projected Capital 2017-2020 (\$000)	Net benefit (cost) over project lifetime (NPV/2016\$)	Emission Reduction Potential by 2020 (tonnes CO ₂ e)	Total Operating 2017		Total Operating 2017-2020	
				Expenditure (\$000)	Staffing Increase (# of FTEs)	Total Expenditure (\$000)	Staffing Level by 2020 (# of FTEs)
Low/High	-	-	ENABLER	-	-	-	-