



**City of Kingston
Report to Council
Report Number 18-048**

To: Mayor and Members of Council
From: Lanie Hurdle, Commissioner, Community Services
Resource Staff: Peter Huigenbos, Director, Real Estate & Environmental Initiatives
Date of Meeting: February 6, 2018
Subject: Update on the Kingston Climate Action Plan

Executive Summary:

In 2014, Council endorsed its first Kingston Climate Action Plan (KCAP) and set out targets for reducing community-wide greenhouse gas emissions by 15% and 30% by 2020 and 2030 respectively. In 2015, Council approved an implementation approach that uses the resources of the City and Sustainable Kingston to reach public and community organizations and solicit action toward carbon reduction. Since that time, implementation of the KCAP has been underway and municipal departments, local businesses, institutions, community organizations and residents have undertaken many initiatives that, in conjunction with the greening of Ontario's electrical supply, have contributed to reducing community emissions by 12% as of 2015 and placed Kingston on a good track to achieve the 2020 targets. Kingston has also examined its own municipal operations and has put a Corporate Climate Action Plan (CCAP) in place to reduce corporate emissions from City operations.

These actions, while effective in the shorter term, will not be enough to continue the community's reductions and achieve longer term (2030) goals – especially as the population and economy of Kingston and its surrounding region continue to grow.

This report provides information on community carbon reduction initiatives currently underway by municipal departments and also the types of potential new initiatives that City departments will continue to evaluate to create additional reduction measures that could be implemented in the near future, and longer term, so that Kingston can continue to support climate change plans at the provincial and federal levels and utilize related funding opportunities. This report recommends that potential initiatives that are effective and affordable continue to be brought forward for consideration by Council within future work plans and budgets. This report also identifies an opportunity to integrate source separated organics into the evaluation of options for

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biosolids management currently being undertaken by Utilities Kingston and recommends the City fund this addition because of its potential to reduce greenhouse gas (GHG) emissions through the creation of renewable natural gas.

One potential barrier to implementation of the KCAP is the confusion created by the existence of separate plans that each deal with different aspects of climate and energy including the KCAP, the CCAP and the Municipal Energy Plan. Future updates to the KCAP should include a consolidation of these plans so that the context and interrelationships between energy, emissions, community action and municipal operations is not lost and so that the synergy of actions with benefit to both community and corporate carbon footprints and local energy issues can be articulated with efficiency.

Recommendation:

That Council direct staff to continue supporting the implementation of the Kingston Climate Action Plan; and

That Council direct staff to examine the feasibility of carbon reduction initiatives and assess opportunities for funding assistance of climate initiatives, submit initial applications, and bring forward opportunities for consideration by committee or Council as appropriate within future work plans and budgets; and

That Council approve up to \$60,000 to be funded from the Environmental Reserve Fund to allow adding the assessment of organics into the current biosolids and biogas management planning project being undertaken by Utilities Kingston; and

That Council approve \$20,000 to be funded from the Environmental Fund Reserve to complete community greenhouse gas emission inventories for 2016 and 2017 that also include an estimate of Kingston's 1990 and 2005 emissions so that comparison and alignment with Ontario carbon reduction targets and Canada's pledge to the Paris Agreement can be made; and

That future updates to the Kingston Climate Action Plan include a consolidation of corporate climate action plans and municipal energy planning within a single community energy and emissions plan.

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Options/Discussion:**Creation of the Kingston Climate Action Plan (KCAP)**

One of the greatest threats to the long term quality of life of Kingstonians and people all over the world is global climate change caused by unnaturally increasing atmospheric carbon dioxide levels. In 2004, the City of Kingston joined the Federation of Canadian Municipalities' (FCM) Partners for Climate Protection (PCP) program – a five milestone program that enables Canadian municipalities to pledge a commitment to help protect the climate and follow a common process for achieving positive action. As part of Milestones 1 and 2, the City of Kingston set an initial community and corporate (municipal operations) carbon reduction target and has completed community and corporate carbon or GHG emission inventories for 2000, 2006 to 2011, 2014 and 2015.

As part of achieving Milestone 3 of the FCM PCP program, in June 2014 City Council received the Kingston Climate Action Plan (KCAP) and adopted updated carbon emission reduction goals for the community of 15% and 30% of 2011 baseline levels by 2020 and 2030 respectively.

In addition, as part of Milestone 3, in November 2015, the City of Kingston's Corporate Management Team endorsed a CCAP that seeks to reduce the carbon footprint of municipal operations and demonstrate leadership in helping the community achieve its carbon reduction target. The CCAP is a rationalized approach focused on reducing carbon emissions by 8% below a 2011 baseline by 2020. Progress on the CCAP was reported to City Council in June of 2017 through Report Number [17-004](#).

The creation of both the community and corporate climate action plans as part of the FCM PCP program was carried out with financial assistance from the FCM Green Municipal Fund, an endowment created by the Government of Canada.

In 2017, with the completion and initiation of implementation plans for both the community and CCAPs (Milestone 4) and reporting out of updated GHG emission inventories (Milestone 5), the City of Kingston was recognized by the FCM as one of twenty three (23) Canadian municipalities to have completed the 5 milestone program since 2013.

KCAP Implementation 2015-2017

In September 2015, City Council approved an implementation program for the KCAP as outlined in Report Number EITP-15-016.

The implementation program is based on the framework, theme areas and inventory of actions set out within KCAP. The implementation program consists of three broad areas of activity:

1) Citizen Awareness and Engagement: An education and awareness program directed at citizens and visitors was developed and launched by City staff in the fourth quarter of 2015.

Modules within the Citizen Awareness and Engagement program area focus on building awareness of waste reduction and energy conservation opportunities in the home and work place, fuel choices and energy implications of driving, active transportation choices, the carbon

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footprint of everyday living, and renewable energy use and generation. Working in conjunction with community organizations such as the Sustainable Kingston Corporation, Utilities Kingston, SWITCH and other not-for-profits, these modules have included:

- a) The creation and launch of a visual identity for the Kingston Community Climate Action Plan and promotion of the Plan to citizens through impressions on Facebook and Twitter.
- b) Promotion of updated web content at www.cityofkingston.ca, an online carbon reduction toolkit, and the introduction of learning modules marketed to over 200 schools and over 100 community organizational representatives.
- c) Delivery of motivational and expert messages to engage citizens attending the Climate Action Speaker Series.
- d) Coordination of an annual demonstration event in spring 2016 and 2017 to engage citizens, create awareness of opportunities for reducing carbon, and enabling citizens to participate in an action.
- e) Integration of carbon reduction messaging into community events. Additional interdepartmental subject matter expertise and in-kind support for community special events such as the Cataraqui Region Conservation Agency 50th Anniversary, Earth Day/Kingston Unplugged, electric vehicle infrastructure planning, active transportation and transit promotions, tree planting, renewable energy development and community energy planning.
- f) Linkage of the KCAP with new initiatives such as community bike sharing, electric vehicle charging, and active transportation planning.
- g) Promotion of financial incentive opportunities for energy conservation such as Save-On Energy and residential gas retrofit programs.
- h) Provision of community forums such as the Kingston Climate Change Symposium (January, 2018).

2) Engagement of Community Organizations: Implementation of the KCAP to Kingston's industrial, commercial and institutional (IC&I) sector has been accomplished through Sustainable Kingston's Green Economy program. The Green Economy program has been funded through grants from the Community Foundation for Kingston and Area, the Ontario Trillium Foundation and through member contributions. The program utilizes a member based network to engage Kingston businesses and organizations and assist them in reducing their GHG emissions by providing a simple framework for progress that includes:

- Membership in Sustainable Kingston's Green Economy program;
- Creating a baseline emissions inventory for their organization;
- Setting reduction targets;
- Assessing and undertaking opportunities for emission reduction; and
- Measuring progress and reporting out.

Sustainable Kingston's Green Economy program has attracted twenty four (24) member organizations to date, representing over 2,000 employees and a collective GHG emissions footprint of over 30,000 tonnes annually. Notable achievements from the program have included:

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- First Annual Evening of Recognition (May 2017): 200 attendees, 31 Sustainability Leadership Award nominations from the community;
- Pitch-In 2017: 112 teams (50% increase from 2016), 2975 participants (23% increase from 2016), 830 bags collected (66% increase from 2016);
- 13 programs, seminars, workshops and events targeted at green economy program members and the general public - over 450 total attendees;
- 18,770 total Sustainable Kingston (SK) website visits in 2016; and
- 20 of 24 members have completed baseline GHG emission inventories for their operations.

3) Monitoring and Reporting: Monitoring of the KCAP implementation and progress toward our community's GHG reduction goals is undertaken by the City's Real Estate & Environmental Initiatives Department in consultation with the community, other City departments, Utilities Kingston and SK's Green Economy program. Monitoring progress consists of the following key activities:

- a) Community greenhouse gas emission inventory update – staff conduct inventories on a two-year cycle (i.e. results published every two years), utilizing specialist carbon accounting services to assist in the compilation of emission data and normalizing the data to identify where weather and other factors may have influenced carbon emissions within a given year, so that reductions due to progress from community initiatives can be assessed. The next reporting will be in 2018 for emissions in years 2016 and 2017.
- b) Measurement of awareness and education outcomes – measuring and reporting on the types and effectiveness of awareness and education initiatives undertaken by the Real Estate & Environmental Initiatives Department.
- c) Inventory of local carbon reduction actions – compiling and reporting on initiatives undertaken each calendar year within the community that have contributed to carbon reduction and highlighting remarkable results.
- d) Refinement and updating of concept actions – providing an analysis of KCAP's implementation recommendations for improvements. Also providing an analysis of concept actions identified within the KCAP, to determine if concept actions remain appropriate and are being implemented.

Measuring GHG Reduction Performance & Targets

The City has commissioned GHG emission inventories for the community and municipal operations for the following reporting years:

- 2000
- 2006 through 2011
- 2014 and 2015

Community and corporate inventories have been conducted using the ICLEI Protocol for community reporting (a.k.a. PCP Protocol) as recommended by the FCM.

Inventory reports are available through the City's website. Updated inventories for 2016 and 2017 will be published in 2018.

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The most recent inventory (2015) of community GHG emissions indicates that GHG emissions have decreased by 170,000 tonnes (11%) from the years 2000 to 2015, which is largely attributed to the significant reduction in the emissions factor for electricity in Ontario.

While Kingston's population has increased slightly (approximately 0.4%) between 2011 and 2016, the City's per capita energy use remained the same during the 2011 – 2015 period, per capita emissions decreased by 23% (again, due to the electricity emissions factor), and per capita expenditures on energy went up by 13%.

As of 2015, overall community emissions have decreased by 12% from the year 2011, on track with the KCAP target of a 15% reduction from 2011 to 2020.

Based on the above, and on new initiatives described within this report, the community is on track to achieve its goal of a 15% reduction by 2020. Achievement of the 30% reduction by 2030 will be a more difficult objective now that the provincial electrical supply has been so effectively decarbonized. Achievement of the 2030 community goal will require significant progress in reducing GHG emissions from:

- Transportation;
- Space heating within homes;
- Space heating within the industrial, commercial and institutional sectors; and
- Emissions from food production and consumer choices.

Similarly, as previously reported in Report Number 17-004, the GHG emission inventories undertaken for just municipal operations have also shown a decline in emissions between 2000 to 2011 and 2011 to 2015.

Ontario has released its Ontario Climate Action Plan and set emission reduction targets based upon a 1990 baseline year of 15% by 2020, 37% by 2030 and 50% by 2050.

In December, 2015 the United Nations Climate Change Conference (COP21) adopted the language of the Paris Agreement which sets out an international agreement to limit climate change to “well below 2 degrees Celsius” which has been clarified as a limit to average global warming of 1.5 degrees Celsius. In January 2016, Kingston City Council endorsed the inclusion of the work of cities and other subnational organizations into the COP21 Paris Agreement. Canada ratified the agreement later in 2016 and has pledged to reduce the country's GHG emissions by 30% of 2005 levels by 2030.

Kingston does not presently have access to community GHG emissions estimates for 1990 or 2005 and so direct comparison with Ontario and Canada's targets are not possible. This report recommends that the community GHG emission inventories for 2016 and 2017 include an estimate for 1990 and 2005 so that Kingston may examine its targets, progress and achieve alignment with provincial targets and the national commitment to the Paris Agreement.

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City Initiatives

Aside from the removal of coal from the provincial electricity generation, the most important component of implementing the KCAP has been, and will continue to be, the support provided by households, the ICI sector, and community organizations and their commitments to “doing their part” through taking action. These commitments have been solicited through outreach, incentives and through SK’s Green Economy program. The Corporation of the City of Kingston is a member of the Green Economy program and has undertaken many initiatives through its CCAP that reduce the carbon footprint of municipal operations. In addition to CCAP initiatives, City departments also undertake actions that contribute to community-wide carbon reduction. The following sections in this report provide an update of initiatives undertaken by City departments and of potential new initiatives that may be considered to drive carbon reduction going forward.

KCAP Initiatives Undertaken by City Departments and Agencies

Exhibit B provides a summary of actions referenced within the KCAP that have been evaluated, undertaken or are ongoing by City departments and agencies. In some cases initiatives have been completed as originally described, while others have been modified and others have not proceeded. Exhibit B also provides information on other initiatives that municipal departments are undertaking that were not referenced within the KCAP but have community GHG emission reduction potentials.

KCAP initiatives being undertaken by the City and Utilities Kingston that are expected to be particularly impactful are highlighted below within Table 1.

Table 1: Highlights of City-Led KCAP Initiatives

Initiative	Implementation Notes
Support electric vehicle (EV) adoption by providing public charging stations at municipal properties/facilities.	<ul style="list-style-type: none"> • Up to 25 Level 2, and 2 Level 3 locations planned. • Council approval received in 2017. • Installations targeted for 2018. • Assistive funding from grants and service partners being pursued.
Improvements to Kingston Transit:	<p>A 73% increase in transit ridership 2011 – 2017 supported by:</p> <ul style="list-style-type: none"> • The introduction of high frequency, direct express routes. • Expanded year-round bicycle racks on all Kingston Transit buses. • Revised fare structure, including an employee transit pass program. • Free transit for all children 14 and under and all high school students. <p>Decrease and potential decreases in transit emissions</p>

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Initiative	Implementation Notes
	from: <ul style="list-style-type: none"> • Increase in bio-diesel use. • Grant applications made to allow for purchase of Kingston's first all-electric public transit buses.
Active transportation infrastructure investment and planning	<ul style="list-style-type: none"> • Approximately 90 kilometres of on-road cycling lanes and 57 kilometres off road trails. • Active Transportation Master Plan – in progress. • Vision Zero – Kingston's Road Safety Plan – in progress. • Community Bike Share Pilot Program – completed in 2017; implementation of full scale system in progress.
Increasing Urban Tree Canopy	<ul style="list-style-type: none"> • 17,927 new tree plantings 2016-2017 • 11,100 planned for 2018
Increasing urban density, transit orientation and beneficial re-use of lands.	<ul style="list-style-type: none"> • Improved and updated Brownfield CIP. • Central Growth and Infill Study - in progress. • Integrate emissions and sustainability into North Kings Town Secondary Planning - in progress. • Updated density and sustainability objectives within the Official Plan. • Community benefits program – in progress.
Assessment and reduction of GHG emissions from large infrastructure projects	<ul style="list-style-type: none"> • Full GHG assessment done for Third Crossing Project. • Assessments to be completed for future large infrastructure projects.
Support and installation of renewable energy generation	<ul style="list-style-type: none"> • 500 kW of installed solar PV on City facilities. • Streamlined microFIT application process in Kingston Hydro area. • Streamlined planning support for large renewables program. • Council's support in principle for roof top and small ground mount projects by-law.
District energy	<ul style="list-style-type: none"> • FCM-funded net-zero development CIP study with London and Kitchener-Waterloo.
Incentives for electricity and natural gas reduction.	<ul style="list-style-type: none"> • Save on Energy electricity incentive program (UK). • Water efficiency retrofit incentive program (UK). • Kingston Hydro awarded Conservation Leadership Excellence Award (2014).

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City departments also undertake initiatives that have positive effects on reducing community emissions but are more difficult to quantify. Examples of these “qualitative” initiatives include:

- Trenchless repair and reconstruction of underground infrastructure reduces waste soil production and haulage;
- Excess soil management planning reduces soil haulage by beneficially reusing materials on local sites;
- Pathways (i.e. K&P Trail and others) encourage non-automotive commuting and recreation; and
- Traffic signal synchronization and traffic circles reduce idling traffic.

Potential New Initiative Areas for City Departments and Agencies

The achievement of the community goal of a 30% reduction in 2011 GHG emission levels by 2030 will require new initiatives be evaluated, funded and implemented. Technologies that hold promise for GHG reductions are developing at a rapid pace and provincial and federal governments are creating new programs that can provide financial assistance to municipalities and other organizations to assess and pursue new approaches to mitigating emissions. Some potential areas of municipal activity that may be considered within future work plans as climate action funding becomes available may include:

- Incorporating EV readiness and other climate friendly requirements in alignment with the Official Plan and the Ontario CCAP into subdivision and site plan control guidelines.
- Mitigating growth related emissions by utilizing Community Improvement Planning (CIPs) opportunities to incent new development to net-zero outcomes.
- Reducing emissions from existing buildings by using local improvement charge or on-bill financing models to incent high impact energy efficiency retrofits (i.e. geothermal and air sourced heat pumps, HRVs, solar hot water heating) and smaller scale renewable energy generation and storage systems.
- Supporting the integration of electric vehicles into car sharing, ride hailing and taxi services.
- Assessing the potential for Solar PV, off-peak storage and net metering on existing and future municipal facilities and property.
- Energy generation from wastewater biosolids and organic wastes.
- Electrification of transit and heavy duty fleets.
- Assessing district energy potentials of existing and new neighborhoods.
- Creating an autonomous vehicle strategy that identifies potential barriers within municipal infrastructure.
- Incenting the conversion of underutilized private parking space to new infill development.
- Utilizing “hyperloop” and other emerging transportation technologies.

While these types of potential actions may be feasible they are not within current workplans or budgets.

The generation of renewable natural gas (RNG) is a particularly promising initiative that may enable the reduction of emissions from our community’s natural gas use. Utilities Kingston is

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presently evaluating RNG production potentials as part of their biosolids and biogas master planning project associated with the City's wastewater treatment plant operations. RNG production may also be possible from organic wastes such as those currently collected through the City's source separated organics (green bin) program and from those generated by commercial and industrial food services and restaurants within Kingston and surrounding areas. With the current work being done by UK there is an opportunity to add an assessment of community organic waste potentials into the current planning work so that a business case analysis can be undertaken that includes these additional inputs and evaluates capital investment requirements to implement biogas production and cleaning so that the renewable product might be utilized locally in place of petroleum derived natural gas fuel. This change in scope to UK's biosolids and biogas master planning project is estimated to require an additional \$60,000 to current project budgets to complete. This report recommends that the City invest in the additional work as part of its examination of potential approaches to community GHG emission reduction. There may be an opportunity to mitigate this additional cost to the City through application to funding programs offered by the province or the Federation of Canadian Municipalities.

Funding Assistance for Climate Change Initiatives

While the cost of many projects that reduce carbon emissions can be justified based on the energy they save, there is a greater number that will not have a direct return on investment. The Province of Ontario has recognized this and has begun utilizing revenues from the Cap and Trade system to fund projects at the municipal level through several granting programs such as:

- Electric Vehicle Incentive Program (EVIP);
- Electric Vehicle Charger Incentive Program (EVCIP);
- Electric Vehicle Charging Opportunities Program (EVCO); and
- Municipal GHG Challenge Fund.

The City of Kingston has and will be using each of these programs to seek assistance from the Province for projects and potential projects such as:

- Light duty fleet electric vehicle and charger purchases;
- Municipal building lighting retrofits;
- Electrification of Kingston Transit bus fleet;
- Boiler and heating system retrofits at the Rideaucrest Home;
- Incorporation of geothermal and solar renewables into new municipal facilities;
- Public EV charging network; and
- Climate change adaptation planning.

As the provincial and federal governments continue to implement their respective climate change plans, additional opportunities for funding support may materialize for new and existing municipal projects. This report recommends that Council authorize municipal staff to assess emerging funding opportunities for carbon reduction initiatives and bring opportunities forward to Council for consideration where funding appears feasible.

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Consolidating Climate and Energy Action Planning

The City has completed a KCAP, a CCAP and is developing a Municipal Energy Plan (MEP). The nature of municipal projects and services often means that they provide benefit to the carbon footprints of both the community and municipal operations, and may also advance issues of municipal energy planning such as affordability and resiliency. With three distinct plans in place, the opportunity to place goals and actions into context may be lost and confusion may be created through a lack of awareness. For these reasons, staff are considering how these three closely linked and often synergistic areas of climate and energy planning could be consolidated.

Within future updates to the KCAP, the opportunity to consolidate aspects of corporate climate action planning, municipal energy planning and climate adaptation and resiliency will be considered.

Existing Policy/By-Law:

In June 2015, Kingston City Council accepted the KCAP and the associated carbon reduction targets of 15% and 30% of year 2011 emission levels by 2020 and 2030 respectively.

In November 2015, the City's Corporate Management Team adopted a CCAP to reduce the carbon footprint of municipal operations by 8% (not inclusive of reductions in the carbon intensity of the Provincial electricity supply) below a 2011 baseline by 2020.

On January 26, 2016, City Council endorsed the inclusion of the work of cities into the language of the Paris Agreement.

Notice Provisions:

Not applicable

Accessibility Considerations:

Not applicable

Financial Considerations:

This report recommends the use of the City's environmental reserve fund to enable scope additions to the City's planned GHG emissions inventory reporting for 2016 and 2017 (\$20,000) and to UK's biosolids and biogas master plan project to enable assessment of renewable natural gas potential from community organic wastes (\$60,000). Mitigation of these additional costs may be possible through application to granting programs provided by the province and the FCMs for municipal climate action.

The assessment of other potential carbon reduction initiatives may precipitate future recommendations for municipal funding within future departmental workplan and budget submissions.

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Contacts:

Peter Huigenbos, Director, Real Estate & Environmental Initiatives 613-546-4291 extension 3148

Paul MacLatchy, Environment Director, Real Estate & Environmental Initiatives 613-546-4291 extension 1226

Other City of Kingston Staff Consulted:

John Bolognogne, City Clerk

Sheila Kidd, Director, Transportation Services

Speros Kanellos, Director, Facilities Management & Construction Services

Paige Agnew, Director, Planning, Building and Licensing Services

Damon Wells, Director, Public Works

Luke Follwell, Director, Recreation & Leisure Services

Heather Roberts, Manager, Solid Waste

Mark Campbell, Acting Director, Engineering

Sheldon Laidman, Director Housing & Social Services

Casie Keyes, Administrator, Rideaucrest

Sean Meleschuck, VP, Utilities Kingston

Exhibits Attached:

Exhibit A Energy and GHG Emissions Summary 2000-2015

Exhibit B Summary of Municipal KCAP Initiatives In-Progress

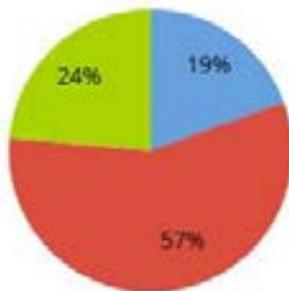
Energy and GHG Emissions Summary 2000-2015

City of Kingston 2015 community inventory energy, emissions, and expenditures by sector

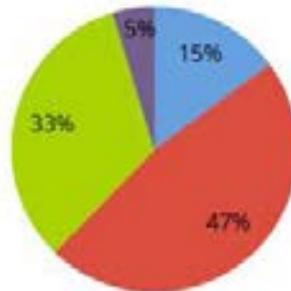
Table 1. 2015 Energy consumption, emissions, and costs by sector

Sector	GJ (millions)	tCO ₂ e (thousands)	Expenditures (millions \$)
Residential	5	197	109
ICI	15	628	226
Transportation	6	437	243
Waste	n/a	63	n/a
Total	26	1,326	578

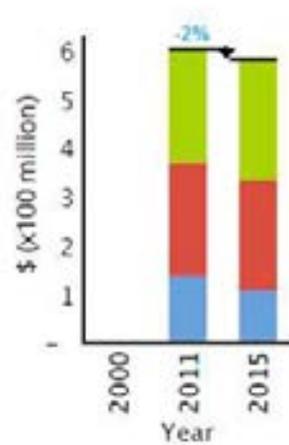
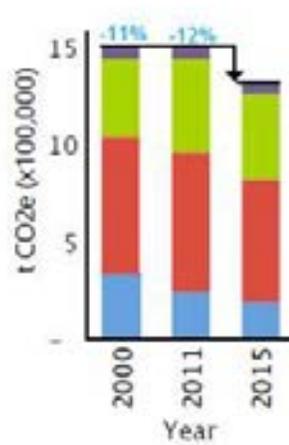
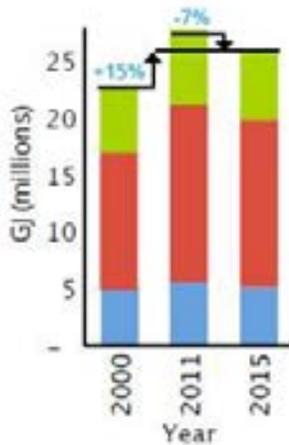
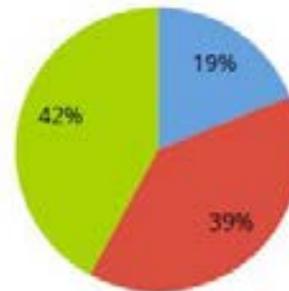
2015 Energy Consumption
26 million GJ



2015 Emissions
1.3 million tCO₂e



2015 Energy Expenditures
\$578 million



Source: City of Kingston 2015 Community Greenhouse Gas Emissions Inventory, Sustainable Solutions Group, July, 2016.

KINGSTON CLIMATE ACTION PLAN – Completed and In-Progress Municipal Initiatives

Items listed in order of their estimated reduction potentials for community GHG emissions

KCAP INITIATIVE	DESCRIPTION	LEAD DEPARTMENT	PROGRESS TO DATE	NEXT STEPS
Improvements to Kingston Transit	Implementation of the Kingston Transit Redevelopment Plan, Provide bus service east of Highway 15 and make transit a better option for the suburbs.	Transportation Services	<ul style="list-style-type: none"> • Kingston Transit Redevelopment Plan (2011 – 2015) completed. • Kingston Transit Business Plan (2017 – 2021) in progress. <p>A 73% increase in transit ridership 2011 – 2017 supported by:</p> <ul style="list-style-type: none"> • The introduction of high frequency, direct express routes • Expanded year-round bicycle racks on all Kingston Transit buses • Revised fare structure, including an employee transit pass program • Free transit for all children 14 and under and all high school students 	<ul style="list-style-type: none"> • Kingston Transit Business Plan (Year 2 – 2018), including new 15-minute peak/30-minute off peak express route on Montreal Street providing direct service between Highway 401 and Queens/KGH.
Kingston Active Transportation Master Plan (ATMP)	Create a plan to support reduction of vehicular GHG emissions through shift to active transportation modes.	Engineering	<ul style="list-style-type: none"> • ATMP underway, scheduled for completion in 2018. 	

KCAP INITIATIVE	DESCRIPTION	LEAD DEPARTMENT	PROGRESS TO DATE	NEXT STEPS
Incentives for electricity conservation and demand management (CDM)	Reduce electricity consumption through retrofit measures funded by Save On Energy Program.	Utilities Kingston	<ul style="list-style-type: none"> • 15,962 MW hours of cumulative electricity conservation achieved from measures implemented 2014-2017. • Equivalent to reduction of approximately 1,516 tonnes CO2 emissions/year. 	
Incentives for Natural Gas Conservation and Demand Management (CDM)	Reduce natural gas consumption through retrofit measures.	Utilities Kingston	<ul style="list-style-type: none"> • 108,000 m³ of cumulative conservation expected from measures implemented in 2016 and 2017. • Equivalent to the reduction of approximately 205 tonnes CO2 emissions/year. 	
Enable loans for energy efficiency and renewables through On-Bill utility Financing.	Gives homeowners and business owners the option of paying for their energy retrofit, water retrofit, or renewable installation over time through their utility bill.	Utilities Kingston	<ul style="list-style-type: none"> • Assessment of on-bill financing potentials is underway. 	
Encourage Infill, Densification and Mix-Use through Land-use Planning.	Develop and promote incentives and planning instruments that encourage infill, densification and mixed use development.	Planning, Building & Licensing Services	<ul style="list-style-type: none"> • May be possible to integrate objectives into Community Benefits program. • North Kingstown Secondary Planning Study • Central Growth and Infill Study 	

KCAP INITIATIVE	DESCRIPTION	LEAD DEPARTMENT	PROGRESS TO DATE	NEXT STEPS
Install Electric Vehicle (EV) Charging Stations	Support EV adoption by providing EV charging stations at select public parking locations.	Real Estate & Environmental Initiatives	<ul style="list-style-type: none"> • EV Strategy completed and endorsed by City Council in October 2017. • First all-electric fleet vehicles procured in 2017. • Public EV charging network to be procured and installed starting in 2018. 	<ul style="list-style-type: none"> • Examine need for EV charging support at City employee parking areas. • Continue to examine potentials for electrification of heavy duty fleet vehicles and specialty equipment.
Kingston Brownfield Program	Program that promotes infill and densification by offering incentives for the redevelopment of Brownfield Properties.	Real Estate & Environmental Initiatives	<ul style="list-style-type: none"> • Brownfield CIP revision was completed in January 2018. • 15 Brownfield remediation and redevelopment projects (42) acres approved since 2005. 	<ul style="list-style-type: none"> • Continue to implement the Brownfield CIP and failed tax sale programs.
Update the Transportation Master Plan (TMP)	Updating the TMP will add focus on active transportation and assist in reducing vehicular GHG emissions.	Engineering	<ul style="list-style-type: none"> • TMP update completed in December 2015. 	<ul style="list-style-type: none"> • Implementation of the TMP and subordinate plans (ATMP).
Increase Composting and Recycling within the Industrial, Commercial and Institutional (IC&I) sectors and monitor the development of provincial policy on waste diversion for the IC&I Sector.	The province passed the Resource Recovery and Circular Economy Act (RRCEA) along with a Strategy for a Waste Free Ontario: Building the Circular Economy in 2016 which will have stronger regulations to enforce waste diversion in the IC&I sector.	Solid Waste	<ul style="list-style-type: none"> • Monitoring IC&I sector policy from province. • May be opportunities within UK Biosolids and Biogas Master Plan Project. 	<ul style="list-style-type: none"> • Waste Free Ontario Act will take steps to increase diversion rate for IC&I sector.

KCAP INITIATIVE	DESCRIPTION	LEAD DEPARTMENT	PROGRESS TO DATE	NEXT STEPS
Green and Passive Development Guidelines and Incentives	Use planning tools to require and incent the adoption of energy efficiency and sustainable design measures.	Planning, Building & Licensing Services	<ul style="list-style-type: none"> • Consider use of green standard for access to brownfield financial benefits and density bonusing within context of community benefits. • Net-Zero Community Improvement Plan (CIP) Study with London, Kitchener and Waterloo. 	<ul style="list-style-type: none"> • Reconsider once Net-Zero CIP study has been completed in 2019.
Residential Waste Diversion – Update	Continue pursuit of 60 to 65 per cent residential waste diversion from landfill goal.	Solid Waste	<ul style="list-style-type: none"> • Successful waste diversion programs; source separated organics (green bin) program, and recycling. • Residential waste diversion rate of 60% achieved (2015). 	<ul style="list-style-type: none"> • Continue to educate and promote use of the programs to maximize the use and benefit. • Continue to implement non-traditional waste diversion programs. • Align programs based on Waste Free Ontario Act.
Increase Cycling Infrastructure	Increase the number of kilometres of designated bike lanes and cycling paths.	Engineering	<ul style="list-style-type: none"> • 90 lane kilometres of on-road bike lanes as of 2016. • 57 kilometres of off-road trail. 	
Develop Community Bike Sharing Program	Assess and implement a community bike share program in Kingston.	Real Estate & Environmental Initiatives + Engineering	<ul style="list-style-type: none"> • Pilot program (Dropbike) and public engagement completed November 2017. • Developing terms of reference and RFP for full scale system in 2018. 	<ul style="list-style-type: none"> • Complete RFP process and implement bike sharing in 2018.
Consider GHG emission impact of transportation-related infrastructure plans and investments.	Determine if smaller investments can be made to have a greater impact through active transportation, transit, and carpooling, determine GHG impact.	Transportation Services + Engineering	<ul style="list-style-type: none"> • Full GHG assessment done for Third Crossing project. • Template and SOP required for large infrastructure projects. 	

KCAP INITIATIVE	DESCRIPTION	LEAD DEPARTMENT	PROGRESS TO DATE	NEXT STEPS
	of road plans			
Reforestation and forest protection Initiatives	Urban Forest Management Plan and Urban Tree Canopy goal. Identify opportunities for reforestation of vacant and underutilized municipal lands.	Public Works	<ul style="list-style-type: none"> • Maintain or Enhance Existing Urban Forest Canopy. • 17,927 new trees planted (2016-2017). • Tree by-law in place for protection and replacement. 	<ul style="list-style-type: none"> • 11,100 plantings planned for 2018.
Official Plan (OP) Update – Energy Conservation, Energy Efficiency & Sustainable Production of Energy	Incorporate energy efficiency and renewable energy outcomes into Official Plan.	Planning, Building, & Licensing Services	<ul style="list-style-type: none"> • Recent OP Updates included energy, emissions and sustainability objectives. • Municipal Energy Plan in progress. Can be referenced in OP once completed. 	
Regulate Parking Fees to encourage modal shift.	Adjust parking fees to provide financial incentive for active transportation.	Transportation Services	<ul style="list-style-type: none"> • Monthly parking pass fees adjusted to be greater than transit pass. • On-street permit system put in place to remove free parking option in high commuter demand areas. 	
Alternative Transportation Fuel Availability	Incent the local retail availability of alternate transportation fuels such as bio-diesel.	Real Estate & Environmental Initiatives	<ul style="list-style-type: none"> • No progress. May conflict with strategic emphasis on electric vehicles. 	
Incent Densification through development charges (DCs)	Use development charge rebates or exemptions to incent densification.	Planning, Building & Licensing Services	<ul style="list-style-type: none"> • Not currently under review. • May be possible to implement via Ontario's recently proposed Fair Housing Plan. • Generally not financially feasible without assistance as DCs are required to fund 	<ul style="list-style-type: none"> • Assess ability of the proposed DC rebates within Fair Housing Plan to provide incentive for densification.

KCAP INITIATIVE	DESCRIPTION	LEAD DEPARTMENT	PROGRESS TO DATE	NEXT STEPS
			the increased infrastructure that would be required by increased density.	
Traffic Circles	Assess and install traffic circles as an option to reduce idling.	Engineering	<ul style="list-style-type: none"> • 5 traffic circles in use within Kingston. 2 more planned in 2018. 	
Increase Carpooling Opportunities	Promote carpooling to citizens, businesses, municipal employees, development/use online matching service.	Transportation Services	<ul style="list-style-type: none"> • Carpooling has been identified as a priority within Transportation Master Plan. • No municipal carpool program in place. 	<ul style="list-style-type: none"> • Continue to review best practices and emerging tools in other Ontario communities for potential adoption.
District Energy (DE) and Cogeneration	Feasibility of DE at high energy density area at King and Queen Streets – Net Zero CIP study.	Real Estate & Environmental Initiatives	<ul style="list-style-type: none"> • S2E Net Zero CIP study is underway. 	<ul style="list-style-type: none"> • Detailed feasibility assessments for DE in select Kingston neighborhoods and incorporation of results into secondary plans or zoning.
Provide incentives for Energy Audits through the Building Permit Process		Planning, Building & Licensing Services	<ul style="list-style-type: none"> • Energy audit financial incentives are currently in place for all UK and Union Gas customers within Kingston through the <u>Union Gas Home Reno Rebate Program and Save on Energy Programs</u>. 	<ul style="list-style-type: none"> • Continue to implement existing conservation and demand management programs.
Community Anti-Idling Initiatives	Public awareness campaign to educate residents on the negative impact that vehicle idling has on the environment, by-law blitzes.	Transportation Services	<ul style="list-style-type: none"> • Anti-idling by-law in place. • 28 enforcement orders (2015-17). • Parking enforcement staff are trained on the anti-idling by-law and enforce as part of regular patrols. 	<ul style="list-style-type: none"> • Continue to implement and monitor progress.
Municipal Green Building Policy – Update on	Update the municipal green building policy.	Facilities Management & Construction	<ul style="list-style-type: none"> • Revised policy endorsed by Council December 2017. 	<ul style="list-style-type: none"> • Monitor and update as appropriate.

KCAP INITIATIVE	DESCRIPTION	LEAD DEPARTMENT	PROGRESS TO DATE	NEXT STEPS
progress		Services		
Water Conservation & Demand Management (CDM) Incentives - Update	Reduce energy consumption related to water use through retrofit measures.	Utilities Kingston	<ul style="list-style-type: none"> • 191,300 m³ of cumulative water conservation expected from measures implemented 2014-2017). • Equivalent to approx. 4.2 tonnes CO2 emissions/year. 	
Increase Bicycle Parking	Increase number and distribution of bike parking infrastructure.	Engineering	<ul style="list-style-type: none"> • Recommendations for increased bicycle parking expected within draft ATMP (2017-2018). 	
Rezoning as a Leveraging Tool	Require higher energy efficiency than code for projects that are requesting rezoning.	Planning, Building & Licensing Services	<ul style="list-style-type: none"> • Assessing ability of municipalities to use zoning for this purpose. 	<ul style="list-style-type: none"> • Opportunities may come about as a result of the Ontario Climate Action Plan.
Development of an on-line Transportation Portal	Make information related to transportation available in one place	Transportation Services	<ul style="list-style-type: none"> • Under review, may be addressed within the Active Transportation Master Plan project. 	
Installation of Solar Photovoltaic (PV) Systems on Municipal Buildings – Update	Micro-FIT and FIT (Feed-In-Tariff) programs.	Facilities Management & Construction Services	<ul style="list-style-type: none"> • Approx. 500kW of solar generation installed on municipal property. • Additional solar generation planned for new builds (Kingston East Community Centre, Fleet garage), but not through FIT. 	

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Application Support in Principle for Roof Top and Small Ground Mount Projects By-Law	Enable participants in micro-FIT program to achieve priority points.	City Council	<ul style="list-style-type: none"> Support in principle motions provided by City Council to support roof and small ground mount systems. 	<ul style="list-style-type: none"> No further action – microFIT and FIT programs ended.
Solar Hot Water Rental - Update		Utilities Kingston	<ul style="list-style-type: none"> Discontinued due to lack of feasible levels of customer demand. Replaced with tankless unit rentals. 	
Solar Application By-Law	By-Law to enable Kingston microFIT applications.	Utilities Kingston	<p>Data for Kingston Hydro territory as of 2016:</p> <ul style="list-style-type: none"> 131 microFIT PV projects with a total capacity of 1,077.5kW. 5 FIT PV projects with total capacity of 665kW. 1 Natural Gas CHP facility with total capacity of 15,000kW. 	<ul style="list-style-type: none"> Will become redundant with ending of microFIT program.
Planning Priority Treatment	Give priority treatment to projects that offer significant energy efficiency, water efficiency, and/or incorporate renewables.	Planning, Building & Licensing Services	<ul style="list-style-type: none"> This initiative was examined within the Mayors Task Force on Development and not selected for advancement. 	
Green waste recovery and diversion – Rideaucrest	Source separate organic food wastes and divert from landfill to compost creation. Reduce greenhouse gas emissions from sending organics to landfill.	Rideaucrest Home	<ul style="list-style-type: none"> Program has been initiated and is being monitored. 	<ul style="list-style-type: none"> Adjust as necessary based upon results. Use experience to assist other local long term care facilities to implement similar programs.

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Opportunities for Permeable Surfaces	Permeable surfaces consist of a variety of types of pavement, pavers and other devices that provide stormwater infiltration while serving as a structural surface.	Engineering	<ul style="list-style-type: none"> • Low impact development principles integrated into several stormwater and road reconstruction projects. • Support for local NGOs (De-pave paradise). 	<ul style="list-style-type: none"> • Consider incorporating into revised subdivision and site plan control guidelines update.
Develop Policy for Municipal Urban Fruit Trees		Recreation & Leisure Services	<ul style="list-style-type: none"> • Community Orchard & Edible Forest Policy (completed 2016). 	
Expand the number of Community Gardens	Current network of community gardens includes space for allotment plots (your own personal garden plot), tasting gardens, donation gardens and training gardens.	Recreation & Leisure Services	<ul style="list-style-type: none"> • 38 community gardens and 3 community orchards identified in 2017. • 10 community gardens on municipal lands. 	<ul style="list-style-type: none"> • Continue to work with the Kingston Community Gardens Network to implement plans for 2018.
Measures to reduce rate of loss of natural systems and increase parkland areas		Public Works + Recreation & Leisure Services	<ul style="list-style-type: none"> • Urban tree canopy goal and implementation 2016-2018. • Natural heritage study completed (Planning). • Acquisition of parkland in areas where need identified (Recreation & Leisure Services). • Naturalization of 12 hectares of existing parkland planned (50% decrease in manicured parkland space). 	
Develop a Community Climate Adaption Plan	Community adaption plans outline steps to prepare for impending climate changes and	Real Estate & Environmental Initiatives	<ul style="list-style-type: none"> • Budget approved in 2017. 	<ul style="list-style-type: none"> • Implementation planned in 2018.

KCAP INITIATIVE	DESCRIPTION	LEAD DEPARTMENT	PROGRESS TO DATE	NEXT STEPS
	protect integrity of new and existing infrastructure.			
Enhance public resilience to Climate Change Impacts	Improve public awareness of expected climate related impacts and issues and integrate climate impacts into emergency planning.	Real Estate & Environmental Initiatives + Office of Emergency Management	<ul style="list-style-type: none"> • 72 hour preparedness campaign. • UK basement flooding info. • Climate Change Symposium provided by Sustainable Kingston and the City in January 2018. 	<ul style="list-style-type: none"> • Enhance through incorporation into adaptation plan (2018 or 2019).
Lobby for Kingston Relevant Climate Surveillance		Real Estate & Environmental Initiatives	<ul style="list-style-type: none"> • Local scale climate modelling was included within 2014 KCAP. 	
Update floodplain mapping	Update floodplain mapping to include new weather data, determine flooding risks, and the impact on development and infrastructure planning.	CRCA	<ul style="list-style-type: none"> • Updated flood plain mapping included within CRCA 2017-2020 work plans and 2018-2027 capital work plans. 	<ul style="list-style-type: none"> • CRCA to assess ability to incorporate local climate impact modelling.