



**City of Kingston
Information Report to Council
Report Number 19-035**

To: Mayor and Members of Council
From: Lanie Hurdle, Commissioner, Community Services
Resource Staff: Peter Huigenbos, Director, Real Estate & Environmental Initiatives
Date of Meeting: January 22, 2019
Subject: Update on Community Greenhouse Gas Emissions – 2017 Reporting Year

Executive Summary:

In 2014, as part of Council's adoption of the Kingston Climate Action Plan (KCAP), greenhouse gas (GHG) emission reduction targets of 15% below year 2011 levels by 2020 and 30% by 2030 were adopted. This report provides an update on how Kingston's community GHG emissions are trending.

Inventories of community GHG emissions were previously completed and reported for the years 2000, 2006 – 2009, 2011, 2014 and 2015. This report provides an update based on the community GHG emissions inventory recently completed for years 2016 and 2017.

Estimates for 2017 emissions indicate a reduction of total GHGs from the entire Kingston community of 32% between 2011 and 2017, exceeding the 15% reduction target for 2020 and the 30% target for 2030. While the estimated reduction of GHG emissions is a positive indication of progress, cautious optimism should continue to be exercised and mitigation measures continued until additional years of data can establish a reliable downward trend.

The 2017 community GHG emission inventory report can be accessed from the City's website at <https://www.cityofkingston.ca/residents/environment-sustainability/climate-change-energy/greenhouse-gas-emissions>.

On November 29, 2018, the Ontario Ministry of Environment, Conservation and Parks (MECP) released its proposed "Made in Ontario Environment Plan" for public comment. Staff have reviewed this Plan in relation to the KCAP and the Corporate Climate Action Plan and have

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drafted comments, which are included in Exhibit C, to be submitted to the Province on behalf of the City of Kingston. Comments are due by January 28th.

This report also includes a discussion of activities underway by the City that have likely had the largest impacts on reducing and mitigating community GHG emissions. Staff intend to continue having GHG emission inventory reports completed for future years, and continue the City's membership in, and support for, Sustainable Kingston's Green Economy Program.

Recommendation:

This report is for information purposes only.

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Options/Discussion:

Climate Planning Framework: Kingston has been a member of the Federation of Canadian Municipalities' (FCM) Partners in Climate Protection Program (PCP) since 2001. FCM's PCP program provides a framework for municipalities seeking to reduce their GHG emissions by accomplishing progress toward five milestones as follows:

- Milestone 1: Create GHG emission inventories and forecasts
- Milestone 2: Set emissions reduction targets
- Milestone 3: Develop a local action plan
- Milestone 4: Implement the local action plan
- Milestone 5: Monitor progress and report out

With the completion of KCAP in 2014, and the reporting out of 2015 GHG emission inventories, the City of Kingston became one of approximately 50 Canadian municipalities to complete all 5 milestones of the FCM-PCP program.

In 2018, the KCAP was recognized in a study¹ by researchers from the Universities of Waterloo and Guelph as the best municipal climate change plan in Canada.

GHG Reduction Targets: The City of Kingston's current GHG emission reduction targets are 15% below year 2011 levels by 2020, and 30% by 2030. By comparison, Canada's national reduction targets are based upon the Paris Agreement targets for economy-wide reduction of 30% below year 2005 levels by 2030. Ontario's recently released Environment Plan also aligns itself with Canada's Paris Agreement commitment and puts forward the target of 30% below 2005 levels by 2030.

Measuring Progress: An important component of monitoring our progress in carbon emission reduction, and a requirement for PCP Milestone 5 has been the completion of annual community GHG emission inventories. The City of Kingston has completed and reported on community GHG emission inventories for the following reporting years:

- 2000
- 2006, 2007, 2008, 2009 (within one report)
- 2011
- 2014, 2015 (within one report)

¹ Guyadeen, D., Thistlethwaite, J. & Henstra, D. Climatic Change (2018). <https://doi.org/10.1007/s10584-018-2312-1>

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The 2017 GHG Emissions Inventory Report has also been completed. The 2017 inventory includes community emissions estimates for 2016 and 2017 and provides refinements to the findings in previous inventories by incorporating estimates for emissions and sequestration due to agricultural and forestry practices within our municipal boundaries. As with all inventories, this latest exercise also provides recalculation and restatement of previous years' estimates based upon refinements in published emission factors and other aspects.

The 2017 Community GHG Emissions Inventory Report was undertaken through a contract with the Sustainable Solutions Group and provided the following key conclusions (illustrated within Figures 1 and 2 below):

- Between 2011 and 2017, the community has seen an estimated reduction in GHG emissions of 32% and a reduction in total energy used of over 25%.
- The majority of the estimated GHG reductions since 2011 have come from the removal of coal from the provincial electricity generating mix.
- A significant portion of the reductions in GHG emissions seen between 2015 and 2017 were due to a large decrease in natural gas usage within the industrial, commercial and institutional (ICI) sector.
- Reductions seen in 2017 are also likely attributable to weather conditions that resulted in the number of heating and cooling degree days in 2017 being lower than previous years.

While the estimated reduction of GHG emissions is a positive indication of progress, cautious optimism should continue to be exercised and mitigation measures continued until additional years of data can establish a reliable downward trend. If sustainable, the estimated 32% reduction indicates an early achievement of the City's 2030 GHG reduction target.

The 2017 Community GHG Emissions Inventory Report is available in PDF format through the City of Kingston's website at <https://www.cityofkingston.ca/residents/environment-sustainability/climate-change-energy/greenhouse-gas-emissions>.

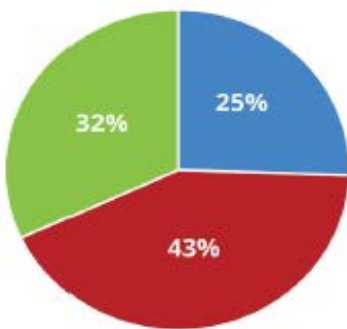
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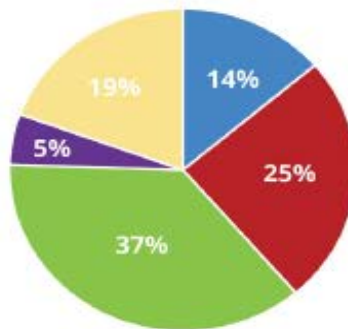
Figure 1: Summary of 2017 Community Energy and GHG Emissions by Sector

Sector	GJ (millions)	tCO ₂ e (thousands)	Expenditures (\$ millions)
Residential	4.77	158	87
ICI	8.0	288	149
Transportation	5.96	422	184
Solid Waste	n/a	58	n/a
Agriculture & Forests	n/a	221	n/a
Total	18.76	1,149	420

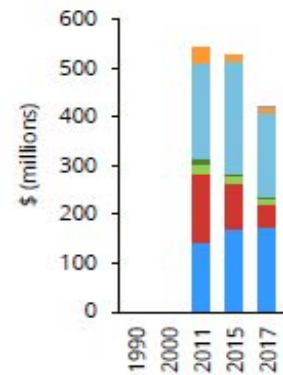
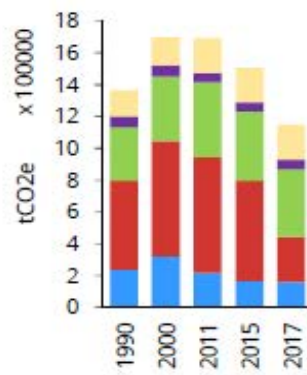
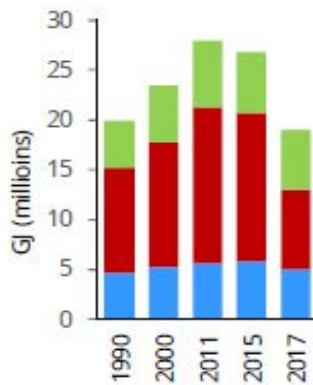
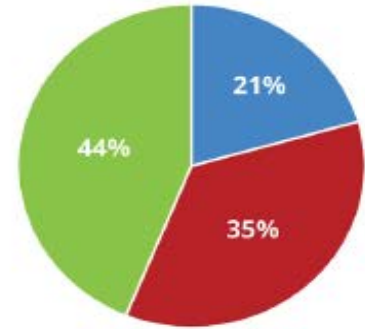
2017 Energy Consumption
18.76 million GJ



2017 Emissions
1.1 million tCO₂e



2017 Energy Expenditures
\$420 million



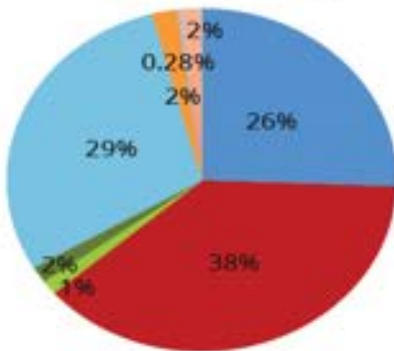
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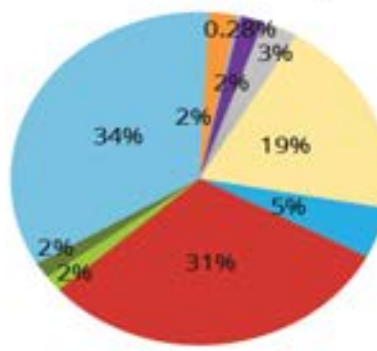
Figure 2: Summary of 2017 Community Energy and GHG Emissions by Source

Fuel Type	Gj (millions)	tCO ₂ e (thousands)	Expenditures (\$ millions)
Electricity	4.80	57	174
Natural Gas	7.13	352	48
Fuel Oil	0.25	18	11
Propane	0.30	18	4
Gasoline	5.57	394	173
Diesel	0.39	28	11
Aviation Fuel	0.52	3.2	0.1
Wood	0.32	0	0
Solid Waste	n/a	22	n/a
Wastewater	n/a	36	n/a
Agriculture & Forests	n/a	221	n/a
Total	18.76	1,149	420

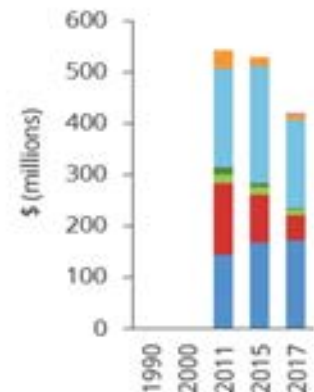
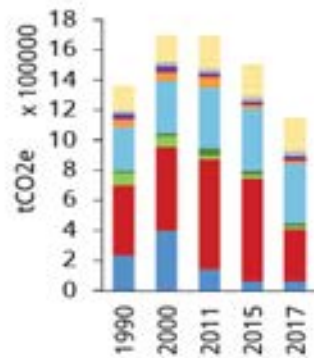
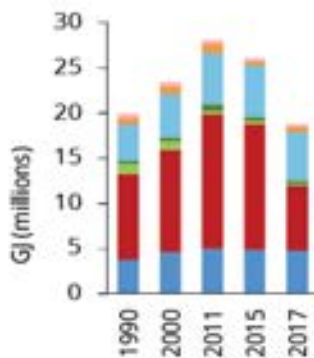
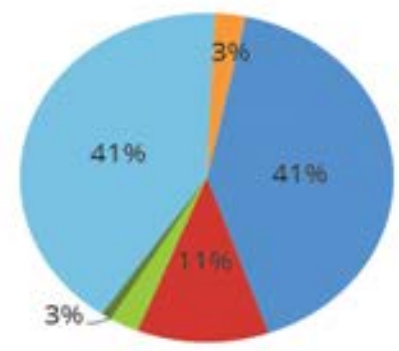
2017 Energy Consumption
18.76 million Gj



2017 Emissions
1.15 million tCO₂e



2017 Energy Expenditures
\$420 million



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Community Climate Action: The City continues to implement the KCAP through outreach to citizens and through the partnership with Sustainable Kingston's Green Economy program.

Activities underway by the City that have likely had the largest impacts on reducing and mitigating community GHG emissions include the following:

Conservation: Programs that reduce energy use:

- Natural Gas Efficiency Upgrade Program (Utilities Kingston)
- Water Efficiency Incentive Program (Utilities Kingston)
- Rain Barrel Program (Utilities Kingston)
- Save on Energy Program Delivery (Kingston Hydro)

Buildings:

- Investments in energy retrofits and building systems automation within existing municipal facilities.
- Mitigation of new GHG emissions through application of green building standards such as LEED to new municipal building projects. Exhibit A provides a list of existing and planned municipal buildings and their level of green building standard.
- Mitigation of emissions through incorporation of renewable energy systems into new municipal facilities. Exhibit B provides an overview of planned and existing renewable energy generation capacity on City property.

Transportation: Programs and projects that reduce single occupancy automobile use.

- Investment in improved public transit and multiple transit initiatives to increase ridership.
- Community bike share program.
- Active transportation master planning and infrastructure.
- Electric Vehicle Strategy and public charging infrastructure.

Land Use Planning: Programs and policies that have encouraged infill and intensification.

- City of Kingston Official Plan
- Brownfield Community Improvement Program
- Williamsville Main Street Study
- Downtown Action Plan
- 10 Year Municipal Housing & Homelessness Plan

Waste Management: Programs that reduce the amount of organic wastes to landfill.

- Source separated organics program (Green Bin)

Information and Outreach: Information provided via the City of Kingston's website and social media accounts and through Sustainable Kingston.

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- Energy and emissions reduction tips.
- Sustainable Kingston's Green Economy Program.

Areas of additional work that the municipality is researching or may be ready to pursue include:

- **Bio-gas production:** In 2018, City Council approved an expenditure of \$60,000 toward the assessment of bio-gas production potential within Utilities Kingston's bio-solids master planning process. The production and use of bio-gas from organic wastes provides an opportunity to reduce petroleum natural gas use and its associated GHG emissions. Biogas production also presents opportunities for local production of energy.
- **Net-Zero Construction Templates:** Kingston is working with London, Kitchener and Waterloo on an FCM-funded study to develop templates for municipal programs that support net-zero standards for new construction.
- **Electrification of Heavy Duty Fleet:** The City continues to monitor the availability of electric vehicles for heavy duty applications such as public transit and solid waste. Staff are monitoring the City of Toronto's progress in evaluating electric transit vehicles and expects to benefit from the information produced from their work. Other heavy duty electric vehicles are beginning to appear in the U.S., European and Asian markets but few examples of Canadian municipal applications have materialized at this time.

The City's implementation of the KCAP continues to through citizen awareness and engagement, the engagement of local businesses and organizations through Sustainable Kingston's Green Economy Program, implementation of supportive programs and projects, and through the monitoring and reporting of annual GHG emissions. Of particular note is the success that the Green Economy Program has achieved with a current roster of 31 member organizations with an estimated collective GHG emissions reduction of 21,571 tonnes of CO₂e in 2017.

Seeking alignment with Provincial and Federal direction on climate action has always been important in Kingston's approach to climate planning. On November 29, 2018, the MECP released its proposed "Made in Ontario Environment Plan" for public comment. The Province's proposed Environment Plan contains direction on many facets of environmental management including air and water quality, waste and soil, conservation and greenspace, government leadership and addressing climate change. The proposed Environment Plan is meant to act as the Province's climate action plan and replaces the previous Ontario Climate Change Action Plan. The proposed Environment Plan has been placed on Ontario's Environmental Registry (EBR) and municipalities, businesses, organizations and citizens have until January 28, 2019 to provide comments via the EBR website.

The climate change components of the proposed Environment Plan are generally less ambitious than the previous plan and, with the removal of a provincial carbon pricing program, have shifted funding of climate action projects from Cap and Trade revenues to a provincially-funded Ontario Carbon Trust that seeks to leverage private capital to support new climate initiatives. A significant change is the proposed reduction in provincial GHG emission reduction targets to

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align with Federal targets. Furthermore, the proposed plan makes no additional commitment to renewable energy generation and does not emphasize the importance of active transportation in reducing GHG emissions from transportation. Staff have examined the climate aspects of the proposed Environment Plan and have prepared comments within the context of the City's Official Plan, KCAP and other Council approved master plans. These comments, provided in Exhibit C of this report, will be submitted on behalf of the City of Kingston prior to the deadline.

Existing Policy/By-Law:

In 2014, as part of its acceptance of the KCAP, City Council approved the establishment of community GHG emission reduction targets of 15% below 2011 levels by 2020 and 30% by 2030.

Notice Provisions:

Not applicable

Accessibility Considerations:

Not applicable

Financial Considerations:

The creation of GHG emission inventory reports for future years is expected to require approximately \$20,000 per reporting year which has been reflected within proposed capital budgets of the Real Estate & Environmental Initiatives Department.

Contacts:

Paul MacLatchy, Environment Director 613-546-4291 extension 1226

Other City of Kingston Staff Consulted:

Speros Kanellos, Director, Facilities Management & Construction Services

Exhibits Attached:

- Exhibit A List of Municipal Buildings with Green Building Standard (Planned and Existing)
- Exhibit B Renewable Energy Generation on Municipal Facilities (Planned and Existing)
- Exhibit C Proposed Comments on Climate Aspects of Ontario's Environment Plan for Submission to the Environmental Registry of Ontario (ERO)

**List of Municipal Buildings with Green Building Standard
(Planned and Existing)**

Facility	Green Standard	Status
Police HQ - 705 Division Street	LEED - Gold	Completed – Certified 2008
Leon's Centre	LEED - Silver	Completed – Certified 2010
INVISTA Centre	LEED - Gold	Completed – Certified 2011
Calvin Park Branch – Library	LEED - Gold	Completed – Certified 2011
Ravensview Wastewater Treatment Plant Admin Building	LEED - Silver	Completed – Certified 2012
Public Works Administration – 701 Division Street	LEED - Gold	Completed – Certified 2015
Kingston Transit Garage	LEED - Certified	Completed - Certified 2015
UK Admin Building – 85 Lappans Lane	LEED - Silver	Completed – Certified 2017
Rideau Heights Community Centre	LEED - Silver	Completed – Certification Pending
Kingston Library Main Branch	Building to LEED Silver Standard	Underway
Kingston East Community Centre	Building to LEED Silver standard	Planned
Public Works/Fleet Garage	LEED Silver	Planned

**Renewable Energy (Solar PV) Generation on Municipal Facilities
(Planned and Existing)**

Facility	Capacity (kW)	Status
1211 John Counter Boulevard	100	Built & Operating
1181 John Counter Boulevard	50	Built & Operating
95 Lappans Lane	50	Built & Operating
362 Montreal Street	10	Built & Operating
Artillery Park Aquatic Centre	10	Built & Operating
Kingston Fire Hall #1	10	Built & Operating
Kingston Fire Hall #2	10	Built & Operating
Kingston Fire Hall #3	10	Built & Operating
Kingston Fire Hall #7	10	Built & Operating
Kingston Fire Hall #8	10	Built & Operating
Norman Rogers Airport	10	Built & Operating
Ravensview Wastewater Treatment Plant	100	Built & Operating
Kingston Police HQ – 705 Division Street	120	Planned and underway for 2019 completion

Facility	Capacity (kW)	Status
Fleet Maintenance Garage	315	Planned
Kingston East Community Centre	69	Planned
Rideau Heights Community Centre	TBD	Feasibility planning
Total Current Generation Capacity	380 kW	
Future Planned Generation Capacity	504 kW	
Total Future Generating Capacity	884 kW	

Comments for Submission to the Environmental Registry of Ontario Pertaining to Climate Aspects of the Proposed Ontario Environmental Plan

1. The City of Kingston encourages the Province to recognize the important role that municipalities play in reducing greenhouse gas emissions, adapting to a changing climate and increasing the resiliency of the infrastructure and services that Ontarians rely upon and that consideration be given to providing support for municipalities to continue to act toward climate mitigation and adaptation.
2. The City of Kingston supports the Province's plan to build resilience in the Province's critical infrastructure and encourages the Province to recognize and support the challenge faced by municipalities in assessing municipal infrastructure for climate-related vulnerabilities and implementing projects that improve resilience at the local level.
3. The City of Kingston has adopted an Electric Vehicle Strategy that recognizes the opportunity for cleaner transportation provided by Ontario's low carbon electricity supply and has led to a municipal investment in public EV charging infrastructure and light duty municipal fleet to reduce greenhouse gas (GHG) emissions. The City of Kingston encourages the Province to develop programs that support the uptake of light and heavy duty electric vehicles by citizens, businesses and municipalities.
4. The City of Kingston encourages the Province to recognize the importance of renewable energy generation and energy from waste in reducing GHG emissions and local economic development, and consider how to support such initiatives.
5. The City of Kingston encourages the Province to recognize how programs that support the energy retrofit of existing residential, institutional, commercial and industrial building stock reduce GHG emissions and provide significant local economic development and job creation.
6. The City of Kingston encourages the Province to recognize the importance of active transportation (walking, cycling and public transit) and related infrastructure in reducing automobile use and GHG emissions.
7. The City of Kingston encourages the Province to recognize the importance of municipal land use planning in creating more energy and carbon efficient societies and the role that existing provincial policies, including the Provincial Policy Statement (2014), play in supporting intensification, transit-oriented development, pedestrian friendly built environments and the regeneration of existing urban neighborhoods.