

## **Committee of the Whole Meeting Agenda**

**Monday, May 7, 2018 – 2:00 p.m.  
Council Chambers, Guelph City Hall, 1 Carden Street**

Please turn off or place on non-audible all electronic devices during the meeting.

Please note that an electronic version of this agenda is available on [guelph.ca/agendas](http://guelph.ca/agendas).

---

### **Call to Order – Mayor**

Disclosure of Pecuniary Interest and General Nature Thereof

---

### **Presentations:**

1. Presentation of the GLOBE Series Large Municipal Trailblazer Climate Leadership Award.

## **Consent Agenda –Infrastructure, Development and Enterprise**

### **Chair – Councillor Gibson**

The following resolutions have been prepared to facilitate Council's consideration of various matters and are suggested for consideration. If Council wishes to address a specific report in isolation of the Consent Agenda, please identify the item. It will be extracted and dealt with separately as part of the Items for Discussion.

**IDE-2018.58                      2017 Building Permit Revenue and Expenditures,  
Building Stabilization Reserve Fund and Annual  
Setting of Building Permit Fees**

### **Recommendation:**

That Council approve the recommended building permit fees, included as Attachment 2, report IDE-2018-58 titled "2017 Building Permit Revenue and Expenditures, Building Stabilization Reserve Fund and Annual Setting of Building Permit Fees" dated May 7, 2018, effective June 1, 2018.

**IDE-2018.38****139 Morris Street Brownfield Tax Increment Based Grant Deadline Extension****Recommendation:**

1. That the request to extend the deadline for project completion for the Brownfield Tax Increment Based Grant applying to 139 Morris Street from October 28, 2018 to April 28, 2021 be approved.
2. That staff be directed to prepare an amendment to the Tax Increment Based Grant Agreement between the City and 139 Morris Street Ltd., to the satisfaction of the General Manager of Planning, Urban Design and Building Services, the City Solicitor and the City Treasurer.
3. That the Mayor and Clerk be authorized to execute the amendment to the Tax Increment Based Grant Agreement.

**IDE-2018.62****Sign By-law Variances – 1515 Gordon Street****Recommendation:**

That the request for variances from Sign By-law Number (1996)-15245, as amended, to permit an illuminated freestanding sign to have a sign area of 4.53m<sup>2</sup> and a height of 4.65m above the adjacent roadway at 1515 Gordon Street, be approved.

---

**Items for Discussion – Infrastructure, Development and Enterprise**

The following items have been extracted from Consent Agenda and will be considered separately. These items have been extracted either at the request of a member of Council or because they include a presentation and/or delegations.

**IDE-2018.56****Community Energy Initiative Update****Presentation:**

Mario Petricevic, General Manager Facilities Management  
Alex Chapman, Manager Climate Change Office

**Recommendation:**

1. That Council acknowledge the role of Our Energy Guelph (OEG) as the implementer of the Community Energy Initiative going forward.
2. That Council approve the City of Guelph's continued association with OEG as a primary stakeholder and partner.
3. That Council acknowledge the target that OEG has proposed, namely for Guelph to become net zero carbon by 2050.

4. That Council direct staff to provide a report in Q1 of 2019 with specific corporate targets for GHG emissions and energy consumption taking into consideration the findings from the CEI update for council approval.
5. That Council direct staff to provide a detailed report recommending specific initiatives that are aligned with the CEI update, complete with business cases to support those initiatives, to be considered as part of the 2019 operating and capital budget process for Council approval.

#### **IDE-2018.69                      Downtown Parking Master Plan Update**

##### **Presentation:**

Jamie Zettle, Program Manager Parking

Kealy Dedman, General Manager Engineering Capital Infrastructure Services/City Engineer

##### **Recommendation:**

1. That Council approve the updated 2016-2035 funding model, that includes balanced contributions from user fees, on street paid parking, peripheral parking permits and from the City through property tax contributions.
2. That staff engage with constituents to develop the measures required to support an implementation of peripheral permits, both residential and non-residential in 2019.
3. That a Downtown Parking Committee consisting of representatives from business, community groups, residents and City staff be implemented to discuss and review downtown parking programs.
4. That downtown paid on-street parking be implemented in Fall 2019 to align with the financial model projections.

#### **IDE-2018.68                      Asset Management Program Progress and Policy Update**

##### **Presentation:**

Daryush Esmaili, Manager Corporate Asset & Project Management

##### **Recommendation:**

1. That the report "Asset Management Program Progress and Policy Update," dated May 7, 2018, be received and that staff be directed to proceed with the work plan as outlined.
2. That Council approve the updated 2018 Strategic Asset Management Policy.

## **Red Light Cameras**

Councillor Downer will speak to this item.

### **Correspondence:**

Jeff DeRuyter, Chief of Police, Guelph Police Services,

### **Recommendation:**

That staff, in consultation with Guelph Police Services, be directed to investigate the process to implement Red Light Cameras in the City of Guelph which would include, but not be limited to, capital and operational costs including a public communications plan and a recommendation regarding the use of red light cameras as is applicable to the City of Guelph based upon a review and assessment of intersection collisions and report back to Council in Q1 2019.

## **Service Area Chair and Staff Announcements**

---

### **Consent Agenda – Governance**

#### **Chair – Mayor Guthrie**

The following resolutions have been prepared to facilitate Council's consideration of various matters and are suggested for consideration. If Council wishes to address a specific report in isolation of the Consent Agenda, please identify the item. It will be extracted and dealt with separately as part of the Items for Discussion.

#### **CS-2018.47                      Accountability and Transparency Policy Update**

#### **Recommendation:**

That the proposed Accountability and Transparency Policy, included as ATT-1 to the report titled "Accountability and Transparency Policy Update", dated May 7, 2018, be approved.

---

### **Items for Discussion – Governance**

The following items have been extracted from Consent Agenda and will be considered separately. These items have been extracted either at the request of a member of Council or because they include a presentation and/or delegations.

#### **CS-2018.39                      Committee of the Whole One-year Review**

#### **Presentation:**

Stephen O'Brien, City Clerk

#### **Recommendation:**

That the Committee of the Whole governance structure be continued as outlined in report CS-2018-39, "Committee of the Whole One-year Review", dated May 7, 2018.

## **Service Area Chair and Staff Announcements**

---

## Consent Agenda – Corporate Services

### Chair – Councillor MacKinnon

The following resolutions have been prepared to facilitate Council's consideration of various matters and are suggested for consideration. If Council wishes to address a specific report in isolation of the Consent Agenda, please identify the item. It will be extracted and dealt with separately as part of the Items for Discussion.

#### **CS-2018.14                      2017 Operating Variance Report and Surplus and Deficit Allocation**

##### **Recommendation:**

1. That the report titled "2017 Operating Variance Report and Surplus and Deficit Allocation", dated May 7, 2018, be received.
2. That the Tax Supported surplus of \$3,546,195 be allocated to the reserves and reserve funds as follows:

Tax Rate Operating Contingency Reserve (180)	\$1,164,826
City-owned Contaminated Sites Reserve Fund (155)	\$1,000,000
Efficiency, Innovation and Opportunity Fund (351)	\$1,000,000
WSIB Reserve (330)	\$231,369
Police Operating Contingency Reserve (115)	\$150,000
<b>Total</b>	<b>\$3,546,195</b>

3. That the Water Services surplus of \$745,149 be allocated to the Water Capital Reserve Fund (152).
4. That the Wastewater Services surplus of \$2,636,206 be allocated to the Wastewater Capital Reserve Fund (153).
5. That the Stormwater Services surplus of \$1,071,110 be allocated as follows:

Stormwater Contingency Reserve (359)	\$321,900
Stormwater Capital Reserve Fund (165)	\$649,210
<b>Total</b>	<b>\$971,110</b>

6. That the Ontario Building Code (OBC) deficit of \$35,319 be funded from the Building Services OBC Stabilization Reserve Fund (188).
7. That the Court Services deficit of \$51,680 be funded from the Court Contingency Reserve (211).

## **CS-2018.15                      2017 Year-end Capital Variance**

### **Recommendation:**

That the 2017 Year-end Capital Variance Report (CS-2018-15), dated May 7, 2018, be received.

---

## **Items for Discussion –Corporate Services**

The following items have been extracted from Consent Agenda and will be considered separately. These items have been extracted either at the request of a member of Council or because they include a presentation and/or delegations.

## **CS-2018.16                      2017 Reserve and Reserve Fund Statement**

### **Presentation:**

Tara Baker, General Manager Finance/Treasurer

### **Recommendation:**

1. That the City's General Reserve and Reserve Fund Policy be amended to reflect the following as at December 31, 2017:
  - a. The addition of the Paramedic Services Provincial Capital Reserve Fund (360);
  - b. The consolidation of the Police Equipment Reserve Fund (115) into the Police Capital Reserve Fund (158);
  - c. The repurposing of the Police Equipment Reserve Fund (115) to a Police Operating Contingency Reserve; and
  - d. The addition of the Library Operating Contingency Reserve (102).
2. That effective January 1, 2018, the Transportation Demand Management Reserve Fund (350) and the Information Technology Reserve Fund (210) be closed and removed from the General Reserve and Reserve Fund Policy.
3. That \$813,053 be transferred from Compensation Contingency Reserve (131) to the WSIB Reserve (330) to align these reserves with the targets identified in the General Reserve and Reserve Fund Policy.
4. That the Waterworks Capital Reserve Fund (152) and the Waterworks Contingency Reserve (181) be renamed Water Capital Reserve Fund (152) and Water Contingency Reserve (181).

## **Mayor as Chair**

## **Special Resolutions**

### **Transit Route 3**

Councillor Hofland's motion for which notice was provided April 3, 2018.

That Guelph Transit revert back to the previous weekday service on the St. Joseph's #3 bus route at the earliest possible date.

## **Chair and Staff Announcements**

Please provide any announcements, to the Chair in writing, by 12 noon on the day of the Council meeting.

## **Adjournment**

# Staff Report



---

To **Committee of the Whole**

Service Area Infrastructure, Development and Enterprise Services

Date Monday, May 7, 2018

Subject **2017 Building Permit Revenue and Expenditures, Building Stabilization Reserve Fund and Annual Setting of Building Permit Fees**

Report Number IDE-2018-58

---

## Recommendation

1. That Council approve the recommended building permit fees, included as Attachment 2, report IDE-2018-58 titled "2017 Building Permit Revenue and Expenditures, Building Stabilization Reserve Fund and Annual Setting of Building Permit Fees" dated May 7, 2018, effective June 1, 2018.

## Executive Summary

### Purpose of Report

To present a summary on 2017 building permit revenue & expenditures, the building stabilization reserve fund and outline building permit fees being proposed for the period from June 1, 2018 to May 31, 2019.

### Key Findings

1. The operating budget deficit for the administration and enforcement of the Building Code Act for 2017 was \$35,319. This amount will be transferred from the Building Stabilization Reserve Fund to the operating budget to balance the Ontario Building Code (OBC) Administration budget.
2. The balance in the Building Stabilization Reserve Fund, not including interest, was \$2,726,606 as of December 31, 2017.
3. Building permit fees are recommended to increase by 2.94% on June 1, 2018 in accordance with the Council approved policy.

### Financial Implications

In accordance with the Council approved General Reserve and Reserve Fund Policy, the target balance of the Building Stabilization Reserve Fund is equal to one year of operating expenditures based on prior year budget, or \$3,069,730, for 2017.



As of December 31, 2017, the balance of the Building Stabilization Reserve Fund is below this funding level by \$343,124.

The Building Stabilization Reserve Fund balance remains at an acceptable level, which is 89% of target.

An increase in building permit fees will assist staff in balancing building permit fee revenues against expenses and help maintain a Building Stabilization Reserve Fund.

## Report

### **2017 Annual Report on Building Permit Fee Revenues and Costs**

In accordance with Subsection 7.(4) of the Building Code Act (the *Act*), municipalities shall prepare an annual report on the total building permit fees collected, the direct and indirect costs of delivering services related to the administration and enforcement of the *Act* and the amount of an established reserve fund. All indirect costs (e.g. support and overhead costs) were reviewed utilizing the Ontario Municipal Benchmarking Initiative (OMBI) methodology in 2011.

See Attachment 1 for a summary of revenue collected, direct and indirect costs, the transfer from reserve fund to operating budget, and the balance of the reserve fund, not including interest, as of December 31, 2017. The balance has been reported without interest to be consistent with previous building code reserve fund reports. Finance Report #CS-2018-14 is reporting a year-end reserve fund balance of \$2,780,859 which includes interest. The difference of \$54,253 does not impact the recommendations in this report.

### **Purpose of the Building Stabilization Reserve Fund**

The *Act* allows permit fees to be set to recover only the costs associated with the administration and enforcement of the *Act*, as well as reasonable contributions to a reserve fund. The reserve fund can be used to offset lean years, implement service enhancements and to cover unexpected expenses related to the administration and enforcement of the *Act*.

### **Funding of the Building Stabilization Reserve Fund**

Where building permit revenues exceed expenditures, the surplus is transferred to the reserve fund. Where expenditures exceed building permit revenues, funds are transferred from the reserve fund.

### **Building Stabilization Reserve Fund Balance**

The General Reserve and Reserve Fund Policy specifies the Building Stabilization Reserve Fund target balance is equal to one year of operating expenditures based on the prior year budget. The target balance for 2017 year end was \$3,069,730.

The funding strategy for this reserve fund involves annual rate reviews with adjustments, as required, to maintain cost recovery levels.

## **Automatic Setting of Building Permit Fees**

In 2010, City Council approved the automatic increase of building permit fees to be equal to the increase to the City of Guelph's tax-supported operating budget (2.45% in 2018) plus 20 percent (0.49%) of the increase, which would result in a 2.94% increase to fees in 2018. This formula has been used to determine the annual fee increases since 2010 if the reserve fund is below target.

The new fees come into effect on June 1<sup>st</sup> of each year to allow time for staff to compare the year-end Building Stabilization Reserve Fund balance to the established upper limit on the reserve fund, advertise the required public notice and inform our industry partners.

During the 2018 budget deliberations, a minimal draw on the reserve fund was forecasted for the next three years as expenditures were projected to exceed revenues. Staff are recommending the current Council approved increase of permit fees be maintained for this year as the reserve fund remains below target. Staff will continue to monitor this fund during the 2019 budget deliberations and preparation of this report next year.

## **Financial Implications**

In accordance with the Council approved General Reserve and Reserve Fund Policy, the target balance of the Building Stabilization Reserve Fund is equal to one year of operating expenditures, or \$3,069,730, for 2017.

As of December 31, 2017, the balance of the Building Stabilization Reserve Fund is below this funding level by \$343,124.

The Building Stabilization Reserve Fund balance remains at an acceptable level, which is 89% of target.

An increase in building permit fees will assist staff in balancing building permit fee revenues against expenses and help maintain a Building Stabilization Reserve Fund.

## **Consultations**

Finance

## **Communications**

1. A Public Notice was advertised in the Guelph Mercury Tribune April 12, 2018, as required by the Building Code Act.
2. An information notice will be sent to industry partners affected by the increase in building permit fees.

# Corporate Administrative Plan

## Overarching Goals

Financial Stability  
Service Excellence

## Service Area Operational Work Plans

Our Resources - A solid foundation for a growing city  
Our Services - Municipal services that make lives better

## Attachments

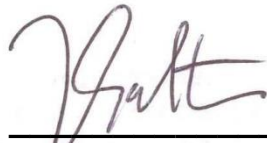
ATT-1 2017 Permit Fee Revenue, Expenditures and Reserve Fund  
ATT-2 Schedule of Building Permit Fees

## Departmental Approval

Tara Baker, Treasurer, GM of Finance

## Report Author

Rob Reynen, Chief Building Official



---

**Approved By**

Todd Salter  
General Manager  
Planning, Urban Design and  
Building Services  
519.822.1260, ext. 2395  
todd.salter@guelph.ca



for

---

**Recommended By**

Scott Stewart, C.E.T.  
Deputy CAO  
Infrastructure, Development and Enterprise  
519.822.1260, ext. 3445  
scott.stewart@guelph.ca

## Attachment 1

### 2017 Permit Fee Revenue, Expenditures and Reserve Fund

1.	Total building permit fee revenue collected	\$3,255,986
2.	a) Total direct costs of administration and enforcement of the Building Code Act, including the review of permit applications and inspections of construction & demolition	\$2,812,907
	b) Total indirect costs of administration and enforcement of the Building Code Act, including support and overhead costs	\$478,400
	Total costs of delivering services related to the administration and enforcement of the Building Code Act	\$3,291,307
3.	Transfer from reserve fund to operating budget	\$35,320
4.	Total amount of Building Stabilization Reserve Fund as of December 31, 2017 (not including interest)	\$2,726,605

**SCHEDULE "A"  
of By-law Number (2015) - 19985**

Fees for a required Permit are set out in this Schedule and are due and payable upon submission of an application for a Permit.

<b>Classes of Permits</b>	<b>Permit Fee (\$ per ft<sup>2</sup>)</b>	<b>Flat Fee (\$)</b>
<b>NEW BUILDINGS, ADDITIONS, MEZZANINES</b>		
<b>Group A: Assembly Buildings</b>		
Shell	2.15	
Finished	2.48	
Outdoor patio/picnic shelter		200.00
Outdoor public pool		800.00
<b>Group B: Detention, Care &amp; Treatment and Care Buildings</b>		
Shell	2.34	
Finished	2.68	
<b>Group C: Residential</b>		
Low-rise residential (houses and row townhouses)	1.32	
Garage/carport (per bay), shed, deck, porch, exterior stairs, exterior ramps		100.00
Hot tubs		100.00
Solar collectors - low-rise residential (per application)		100.00
Swimming pools		200.00
Apartment building, multiple attached dwelling (stacked townhouses)	1.71	
Hotels/motels	1.71	
Residential retirement home	1.71	
<b>Group D: Business and Personal Services Buildings</b>		
Shell	1.47	
Finished	1.71	
<b>Group E: Mercantile Buildings</b>		
Shell	1.47	
Finished	1.71	
<b>Group F: Industrial Buildings</b>		
Warehouse, factories	0.92	
Parking garage	0.78	
<b>Farm Building</b>	0.44	
<b>Foundation, conditional Permit</b>	0.12	
<b>INTERIOR FINISHES AND ALTERATIONS: All Classifications</b>		
New interior finishes to previously unfinished areas (including finishing of residential basements and major renovations)	0.41	
Alterations and renovations to previously finished areas	0.37	
<b>SPECIAL CATEGORIES AND MISCELLANEOUS: All Classifications</b>		
Accessory apartments, lodging houses	0.41/300.00 min.	
Air supported structures	0.46	
Balcony guard (replace per linear foot) - excluding low-rise residential	0.76/300.00 min	
Balcony repair (per building)		300.00
Ceiling (new or replace per square foot)	0.06	
Change of use Permit (with no renovations)		200.00
Demising wall, firewall		200.00
Demolitions - minor (500 sq. ft. or less)		100.00
Demolitions - major (more than 500 sq. ft.)	0.03/300.00 min.	
Designated Structures - ALL including solar collectors (per application) except retaining walls, public pools, signs and low-rise residential solar collectors		400.00
Elevator, escalator, lift		400.00
Exterior ramps (excluding low-rise residential)		200.00
Fireplace, woodstove (each)		100.00
Portables - per application (excludes port-a-pak)		200.00
Rack storage	0.37/300.00 min	
Reclad exterior wall (per square foot)	0.06	
Retaining wall (per linear foot)	3.81	
Roof structures	0.37	
Signs - 107 sq. ft. or less (each)		200.00
Signs - more than 107 sq. ft. (each)		400.00
Storefront replacement		200.00
Temporary buildings		400.00
Temporary tents - per application		200.00
Window - new, replacement or enlargement (each)		15.00
<b>MECHANICAL WORK: (independent of Building Permit)</b>		
HVAC Permit (residential per suite)		100.00
HVAC Permit (non-residential)	0.12	
New sprinkler system or new standpipe system	0.06/300.00 min.	
Alterations to existing sprinkler system or existing standpipe system	0.03/300.00 min.	
Commercial kitchen exhaust systems, spray booths, dust collectors		300.00
<b>ELECTRICAL WORK/FIRE ALARM SYSTEMS: (independent of Building Permit)</b>		
New fire alarm system	0.06/300.00 min.	
Alterations to existing fire alarm system or existing electrical work		300.00
Electromagnetic locks (each) and hold open devices (each)		50.00
<b>PLUMBING WORK: (independent of Building Permit)</b>		
Plumbing Permit, including hot water heaters (per fixture)		15.00
Testable backflow prevention devices (each)		100.00
Catchbasins, manholes, roof drains (each)		15.00
Building services (per group) -SDD, semi-Detached, duplex		100.00
Building/site services (per linear foot), excluding SDD, semi-detached, duplex	0.79/300.00 min	
<b>SEWAGE SYSTEMS:</b>		
New installations		600.00
Replacement or alteration		300.00

**(SCHEDULE "A" – continued)**

<b>Administration Fees</b>	<b>Flat Fee (\$)</b>
<b>Alternative solutions</b> (as per Subsection 6.2 of this by-law)	
All Buildings/systems within the scope of Division B, Part 9 of the Building Code	500.00
All other Buildings/systems	1,000.00
Note: Fifty percent (50%) of the administration fee for an approved alternative solution will be refunded, where in the opinion of the Chief Building Official, the proposal has supported the Community Energy Initiative.	
<b>Occupancy without a Permit</b> (as per Subsection 6.3 of this by-law)	
Occupancy of a Building, or part of it, without the required occupancy permit	500.00
<b>Additional occupancy inspections</b> (as per Subsection 6.4 of this by-law)	
	300.00
<b>Work without a Permit</b> (as per Subsection 6.5 of this By-law)	
Building, Demolition or Change of Use without the required Permit	50% of the required Permit fee, to a maximum of \$5,000.00
<b>Occupancy Permit without Construction</b> (as per Subsection 6.6 of this by-law)	
	300.00

**Rules for Determining Permit Fees:**

- A minimum Permit fee of \$100.00 shall be charged for all work for low-rise residential projects and \$200.00 for all other projects where the calculated Permit fee is less than these amounts.
- Fees identified as low-rise residential apply where there is not more than one dwelling unit above another dwelling unit in a single detached, semi-detached, duplex or row townhouse dwelling.
- For classes of Permits not described in this Schedule, a reasonable Permit fee shall be determined by the Chief Building Official.
- Floor area of the proposed work is to be measured to the outer face of exterior walls (excluding residential attached garages) and to the centre line of party walls, firewalls or demising walls.
- In the case of interior finishes, alterations or renovations, area of proposed work is the actual space receiving the work, e.g. tenant suite.
- Mechanical penthouses and floors, mezzanines, lofts, habitable attics and interior balconies are to be included in all floor area calculations.
- Except for interconnected floor spaces, no deductions are made for openings within the floor area (e.g. stairs, elevators, escalators, shafts, ducts, etc.).
- Unfinished basements for single detached dwellings, semi-detached dwellings, duplex dwellings and townhouses are not included in the floor area.
- Attached garages, fireplaces, decks, balconies, porches and exterior ramps are included in the Permit fee for single detached dwellings, semi-detached dwellings, duplex dwellings and townhouses.
- Basement finishes and exterior basement stairwells are not included in the Permit fee and will be charged the additional rate for single detached dwellings, semi-detached dwellings, duplex dwellings and townhouses.
- Where interior alterations and renovations require relocation of sprinkler heads, standpipe components or fire alarm components, no additional charge is applicable.
- Ceilings are included in both new shell and finished (partitioned) Buildings. The Permit fees for ceilings only apply when alterations occur in existing Buildings. Minor alterations to existing ceilings to accommodate lighting or HVAC improvements are not chargeable.
- Where Demolition of partitions or alterations to existing ceilings are part of an alteration or renovation Permit, no additional charge is applicable.
- Corridors, lobbies, washrooms, lounges, etc. are to be included and classified according to the major occupancy for the floor area on which they are located.
- The occupancy categories in this Schedule correspond with the major occupancy classifications in the Ontario Building Code. For multiple occupancy floor areas, the Permit fees for each of the applicable occupancy categories may be used, except where an occupancy category is less than 10% of the floor area.
- For rack storage use, with platforms or mezzanines, apply the square footage charge that was used for the Building.
- A temporary Building is considered to be a Building that will be erected for not more than three years.
- Additional Permit fees are not required when the Sewage System is included with the original Building Permit.

**Refund of Permit Fees:**

In the case of withdrawal or abandonment of an application for a Permit or abandonment of all or a portion of the work or the non-commencement of any project, the Chief Building Official shall, upon written request of the Owner or Applicant, determine the amount of paid Permit fees that may be refunded to the Owner or Applicant, if any, as follows:

- a) 80 percent (80%) if administrative functions only have been performed;
- b) 70 percent (70%) if administrative and zoning functions only have been performed;
- c) 50 percent (50%) if administrative, zoning and plans examination functions have been performed;
- d) 35 percent (35%) if the Permit has been issued and no field inspections have been performed subsequent to Permit issuance;
- e) 5 percent (5%) shall additionally be deducted for each field inspection that has been performed after the Permit has been issued;
- f) No refund shall be made of an amount that is less than the minimum Permit fee applicable to the work;
- g) No refund shall be made after two years following the date of Permit application where the Permit has not been issued or one year following the date of Permit issuance.

NOTE: In most cases, a building and/or zoning inspection will be required prior to issuance of a refund.

# Staff Report



---

To **Committee of the Whole**

Service Area Infrastructure, Development and Enterprise Services

Date Monday, May 7, 2018

Subject **139 Morris Street Brownfield Tax Increment Based Grant Deadline Extension**

Report Number IDE 2018-38

---

## Recommendation

1. That the request to extend the deadline for project completion for the Brownfield Tax Increment Based Grant applying to 139 Morris Street from October 28, 2018 to April 28, 2021 be approved.
2. That staff be directed to prepare an amendment to the Tax Increment Based Grant agreement between the City and 139 Morris Street Ltd., to the satisfaction of the General Manager of Planning, Urban Design and Building Services, the City Solicitor, and the City Treasurer;
3. That the Mayor and Clerk be authorized to execute the amendment to the Tax Increment Based Grant Agreement.

## Executive Summary

### Purpose of Report

The owner of 139 Morris Street has requested that their Brownfield Tax Increment Based Grant (TIBG) agreement with the City be amended to extend the deadline for project completion. This report provides a recommended response to that request.

### Key Findings

On October 28, 2013 Council approved a TIBG pursuant to the Brownfield Redevelopment CIP. The City and the owner entered into an agreement that requires that the project be complete by October 28, 2018. The intent of including project completion deadlines within Brownfield TIBG agreements is to ensure projects proceed expeditiously. If a project does not appear to be proceeding, then funding can be reallocated to another project. The 139 Morris St. project has been subject to delays that are now resolved, and the owner is taking steps to complete the project.

## **Financial Implications**

This grant payment has already been budgeted. Allowing a deadline extension would not negatively affect the financial schedule established to manage future TIBG payments.

## **Report**

Guelph's Brownfield Redevelopment Community Improvement Plan (CIP) includes financial incentive programs to stimulate investment in remediation, reuse and redevelopment of brownfields. The premise of the CIP is that City investment in the remediation and redevelopment of brownfield sites will result in proportionally greater improvements to environmental and neighbourhood conditions while creating additional tax revenues in the long-term.

139 Morris Street (now 143-185 & 195 Morris St.) is approximately 1.3 ha in size and is located north of York Road. The Site was formerly used in the manufacture of valves, hats and several other small industrial and warehousing uses. The former industrial brick building on the site was demolished in 2012 and the site is currently vacant. 20 townhouses and a 42 unit apartment building are planned for the site.

On October 28, 2013 Council approved a Tax Increment Based Grant (TIBG) for 139 Morris Street pursuant to the Brownfield Redevelopment CIP to an upset limit of \$1,151,879 (see [IDE Report #13-51](#), pg. 195). The City entered into an agreement with the owner to specify the terms and conditions of the grant. The council resolution and implementing agreement require that the project be complete by October 28, 2018.

On December 6, 2017 the City received a request from the owner to extend the project completion deadline to April 28, 2020 (see Attachment 1) and a subsequent request to extend it to April 28, 2021.

The Brownfield Redevelopment CIP does not place a time limit on completing a brownfield redevelopment project. Deadlines have been recommended by staff and approved by council in all recent Brownfield TIBG grants to ensure that projects proceed expeditiously. If a project does not appear to be proceeding, agreements can be allowed to lapse and then funding can be reallocated to another project.

This redevelopment project has been subject to delays in rezoning the property, largely due to difficulty in resolving noise concerns from nearby industrial uses.

The owner has shown an ongoing commitment to completing the project, for example by receiving site plan approval for both the townhouses and apartments.

## **Financial Implications**

There are no negative financial implications to extending the grant timelines. This grant payment has already been budgeted. Allowing a deadline extension would not negatively affect the financial schedule established to manage future TIBG payments.



## Consultations

None

## Corporate Administrative Plan

This report supports the following goals and work plans of the Corporate Administrative Plan (2016-2018):

### Overarching Goals

Service Excellence

### Service Area Operational Work Plans

Our People- Building a great community together

## Attachments

ATT-1 Request to extend TIBG completion deadline for 139 Morris St.

## Departmental Approval

Tara Baker CPA, CA  
City Treasurer, General Manager of Finance

### Report Author

Tim Donegani  
Policy Planner

### Approved By

Melissa Aldunate  
Manager of Policy Planning and Urban Design



---

### Approved By

Todd Salter  
General Manager  
Planning, Urban Design and  
Building Services  
519.822.1260, ext. 2395  
todd.salter@guelph.ca



---

### Recommended By

Scott Stewart, C.E.T.  
Deputy CAO  
Infrastructure, Development and Enterprise  
519.822.1260, ext. 3445  
scott.stewart@guelph.ca

## Attachment 1

### 139 MORRIS STREET LTD.

December 6th, 2017

**Tim Donegani**  
**Policy Planner, City of Guelph**  
**1 Carden Street**  
**Guelph, ON**

**Re: 139 Morris Brownfield Tax Inducement**

Dear Tim

Please accept this letter as our formal request to extend the Brownfield Improvement Completion date in Part III (4) of the agreement between The Corporation of the City of Guelph and 139 Morris Street Ltd.

Under this provision the improvement is to be completed by October 28<sup>th</sup>, 2018, and we request an extension to April 28<sup>th</sup>, 2020. Although we anticipate the development being constructed and occupied well in advance of this date, there is a requirement under the Brownfields program the property reassessment take place before the Project Completion Date. To allow for any delays in the reassessment by MPAC, we are requested an 18 month extension.

We are currently awaiting the design of the vapour mitigation system from GHD, who has been designing a system that incorporates both the vapour mitigation and radon systems in one. Together with delays meeting other obligations under the CPU, our planned construction schedule, which was to have foundations poured before the first frost, and completion in advance of the Improvement Completion Date from our agreement, seems increasingly difficult. With an extension of 18 months, we would have sufficient time to start in Spring 2018, and extend the construction schedule to allow leeway should additional delays or complications arise due to the environmental conditions on the site, or delays with the MPAC reassessment.

We are requesting this extension because, although we and our consultants have worked diligently since 2013, we have not been able to obtain regulatory approval of our development plan, and continue to await the same. Some of the items that have caused particular delays and listed below.

178 St George Street, Toronto, Ont M5R 2M7

## 139 MORRIS STREET LTD.

- Conestoga Rovers submitted Risk Assessments in February 2014, however the CPU was not completed until September 2015.
- The CPU dated September 2015 outlines conditions which must be met for the redevelopment to proceed. This document totals over 1600 pages with Risk Assessments and has taken time to implement and incorporate in to the building plans and tender process.
- Delays with Owens Corning and the Guelph Junction Railway.
- Vapour Barrier and Mitigation System design and integration with the Radon mitigation system

Although we have now completed most of the items listed above and in the CPU and associated Risk Assessments, the following items remain outstanding.

1. Vapour Mitigation System
2. Environmental Compliance Certificate

Due to these items above, and the approaching winter frost, we request an extension of the grant as has been given to other Brownfields sites (180 Gordon), such that we have sufficient time, to construct, cap, landscape, occupy and asses property tax for the building. We believe an 18 month extension will provide sufficient time to ensure delivery of a quality development to assist in the rejuvenation of the ward.

Your consideration and approval to extend the completion date to April 28<sup>th</sup>, 2020 would be appreciated.

Regards,



Michael von Teichman  
139 Morris Street Ltd  
416-817-3337  
Mike@grandviewpma.com

178 St George Street, Toronto, Ont M5R 2M7

# Staff Report



---

To **Committee of the Whole**

Service Area Infrastructure, Development and Enterprise Services

Date Monday, May 7, 2018

Subject **Sign By-law Variances – [1515 Gordon Street](#)**

Report Number IDE-2018-62

---

## Recommendation

1. That the request for variances from Sign By-law Number (1996)-15245, as amended, to permit an illuminated freestanding sign to have a sign area of 4.53m<sup>2</sup> and a height of 4.65m above the adjacent roadway at 1515 Gordon Street, be approved.

## Executive Summary

### Purpose of Report

To advise Council of Sign By-law variance requests for [1515 Gordon Street](#).

### Key Findings

The City of Guelph Sign By-law Number (1996)-15245, as amended, restricts freestanding signs in a Commercial Residential (CR) Zone to a sign area of 3m<sup>2</sup> and a height of 1.8m.

Lovett Signs has submitted a sign by-law variance application on behalf of 2320339 Ontario Inc. to permit an illuminated freestanding sign to have a sign area of 4.53m<sup>2</sup> and a height of 4.65m above the adjacent roadway at 1515 Gordon Street.

The requested variances from the Sign By-law are recommended for approval for the following reasons:

- The request is reasonable given the location of the property on Gordon Street and proposed location on the property;
- The structure is a commercial building with no residential units;
- The proposed sign will help identify the tenants of the property (signage is not permitted on the second floor of the two-storey building); and
- The proposed sign should not have a negative impact on the streetscape or surrounding area.

### Financial Implications

Not applicable

## Report

The City of Guelph Sign By-law Number (1996)-15245, as amended, restricts freestanding signs in a Commercial Residential (CR) Zone to a sign area of 3m<sup>2</sup> and a height of 1.8m.

Lovett Signs has submitted a sign by-law variance application on behalf of 2320339 Ontario Inc. to permit an illuminated freestanding sign to have a sign area of 4.53m<sup>2</sup> and a height of 4.65m above the adjacent roadway at 1515 Gordon Street.

The requested variances are as follows:

	<b>By-law Requirements</b>	<b>Request</b>
Sign Face Area	Maximum sign face area 3m <sup>2</sup>	4.53m <sup>2</sup>
Height above the adjacent roadway	Maximum height 1.8m	4.65m

The requested variances from the Sign By-law are recommended for approval for the following reasons:

- The requests are reasonable given the location of the property on Gordon Street and proposed location on the property;
- The structure is a commercial building with no residential units;
- The proposed sign will help identify the tenants of the property (signage is not permitted on the second floor of the two-storey building); and
- The proposed sign should not have a negative impact on the streetscape or surrounding area.

## Financial Implications

Not applicable

## Consultations

Not applicable

## Corporate Administrative Plan

### Overarching Goals

Service Excellence

### Service Area Operational Work Plans

Our Services - Municipal services that make lives better

## Attachments

- ATT-1      Location Map  
ATT-2      Sign Variance Drawings

## Departmental Approval

Not applicable

## Report Author

Bill Bond  
Zoning Inspector III/Senior By-law Administrator

### Approved By:

Patrick Sheehy  
Program Manager – Zoning

### Approved By:

Rob Reynen  
Chief Building Official



---

### Approved By

Todd Salter  
General Manager  
Planning, Urban Design and  
Building Services  
519.822.1260, ext. 2395  
todd.salter@guelph.ca

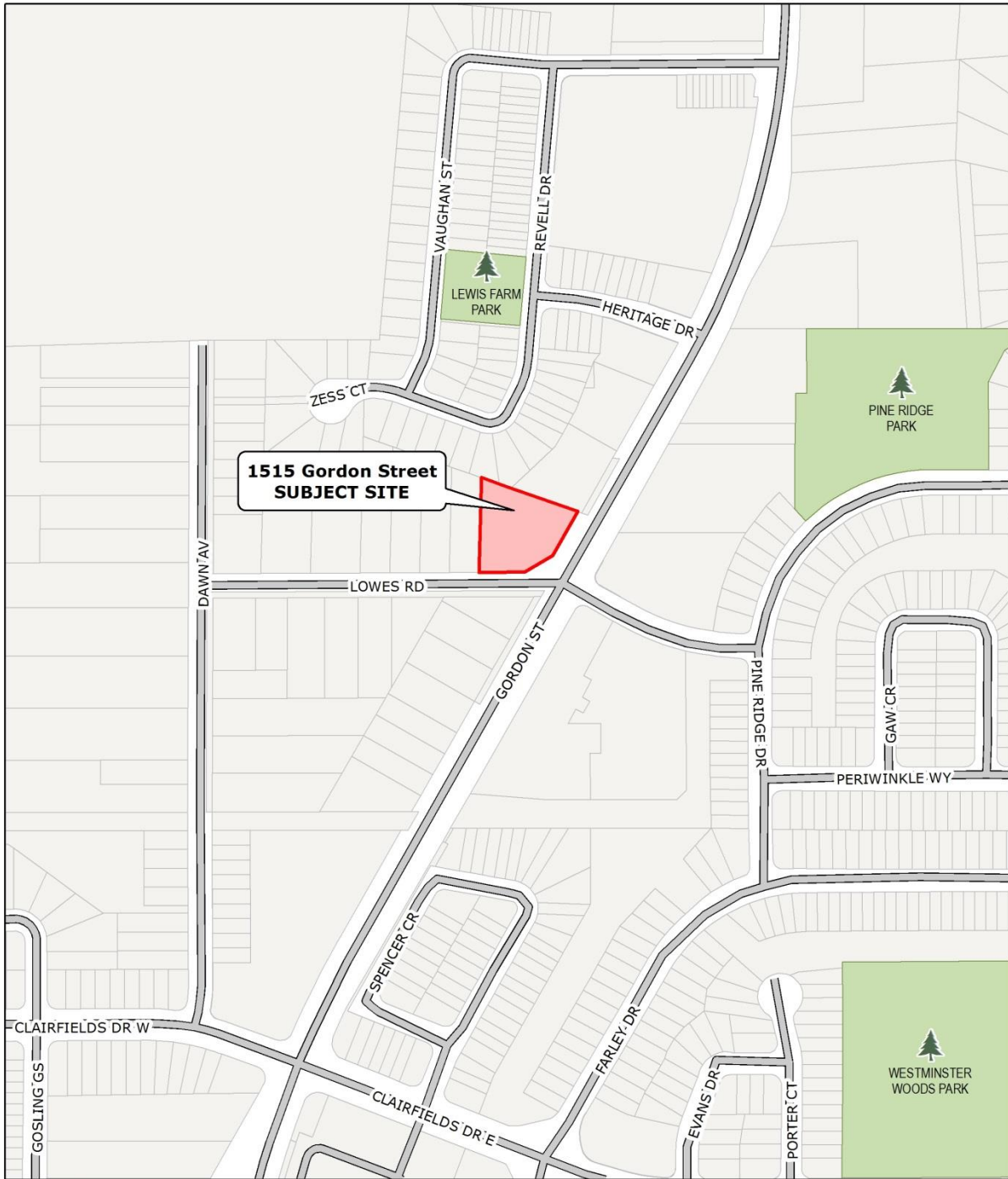


---

### Recommended By

Scott Stewart, C.E.T.  
Deputy CAO  
Infrastructure, Development and Enterprise  
519.822.1260, ext. 3445  
scott.stewart@guelph.ca

# ATT-1 - Location Map



**1515 Gordon Street  
SUBJECT SITE**

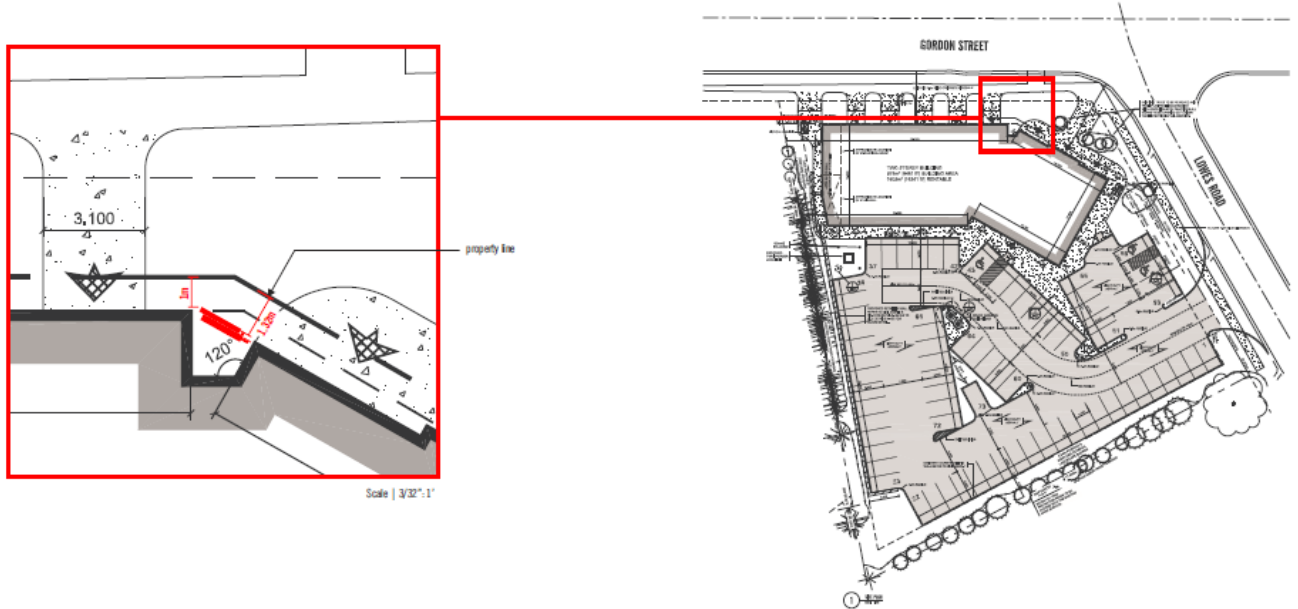
**1515 Gordon Street**



Produced by the City of Guelph  
Planning, Urban Design and Building Services - Development Planning  
March 25, 2015

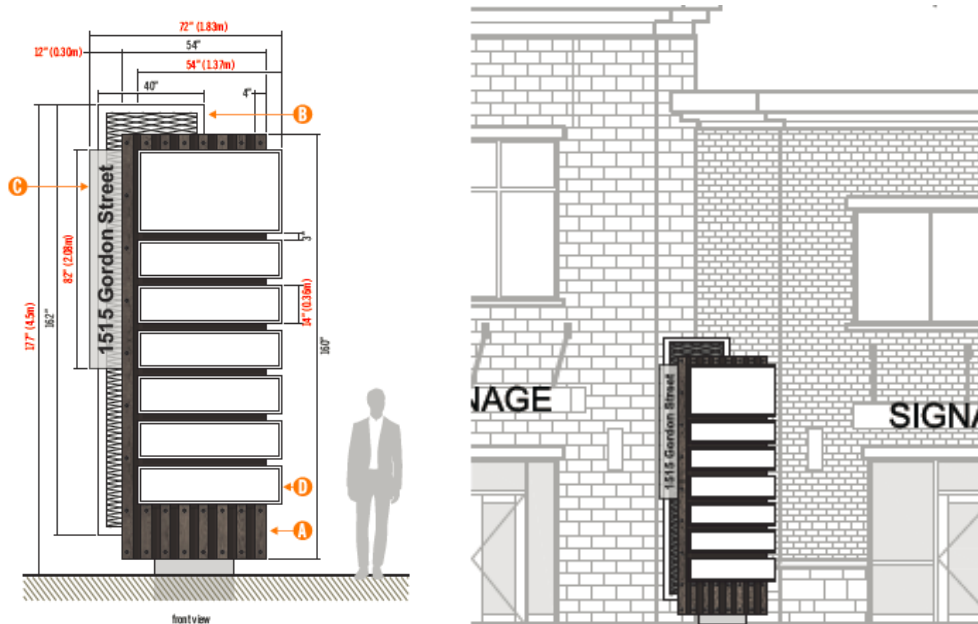
# ATT-2 - Sign Variance Drawings (Provided by the applicants)

## Location on the property



## Proposed illuminated freestanding sign

(sign area of 4.53m<sup>2</sup>, height of 4.65m above the adjacent roadway)





# Community Energy Initiative Update



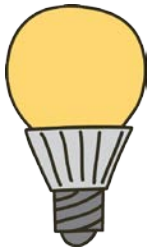
The background is a solid purple color. It features several overlapping circles of varying sizes and shades of purple. Some circles are solid, while others are dashed. The circles are arranged in a way that suggests a network or a flow of information. The text "A Brief History" is centered in the middle of the page in a white, bold, sans-serif font.

# A Brief History

# Community Energy Initiative (CEI)

## 2007

No provincial or federal targets:



Reducing  
energy  
consumption



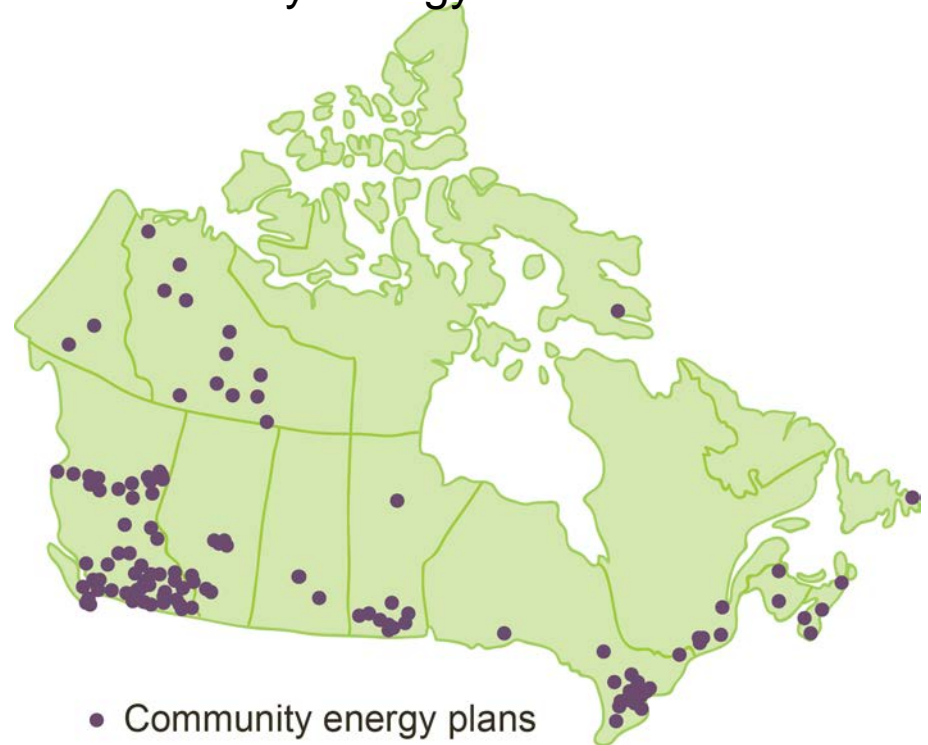
Reducing  
greenhouse gas  
(GHG) emissions

Guelph was the only Canadian  
municipality with a CEP

## 2017

Federal and Provincial GHG targets

50% of Canada's population have a  
Community Energy Plan:



## 2007 targets



Reduce per-capita  
energy consumption  
by

**50%**

over 2006 levels  
by **2031**



Reduce per-capita  
greenhouse gas emissions  
by

**60%**

over 2006 levels  
by **2031**



# How are we doing so far?



Reduction per-capita  
energy consumption  
has been

**2%**

against 2031 target



Reduction per-capita  
greenhouse gas emissions  
has been

**35%**

against 2031 target

If we were making linear progress, we would expect  
**20% energy reduction** and **24% GHG reduction**



# Achievements: the solar story

The CEI has helped Guelph make significant strides with solar energy.

- Guelph advocated for a feed-in tariff, the province obliged with the **FIT and MicroFIT programs**.
- The City gave preferential building permit treatment for rooftop solar.
- **Canadian Solar** set up its HQ in Guelph, making it the only global top-3 solar module manufacturer to be based outside of China.
- Local businesses such as **Guelph Solar, Bluewater Energy, and Canadian Solar** helped build the install base through their own marketing efforts.
- Guelphites stepped up and adopted the program in a big way.
- Guelph now has **49% higher than the provincial average** for rooftop solar arrays per person; since Ontario leads the country, it is likely that Guelph does too.



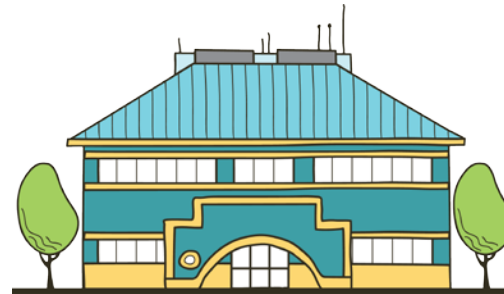
# Awards and accolades

Federation of Canadian Municipalities  
Sustainable Communities Award - Energy 2014;  
Neighbourhood Design 2018;  
Partners in Climate Protection Milestones 1 to 5



Globe Climate Leadership Award –  
Large Municipal Trailblazer 2018

LEED (Leadership in Energy and  
Environmental Design) Silver certification:  
Guelph Civic Museum;  
Clair Road Emergency Services Centre



**Awards are key to securing investment from  
private sector and other orders of government**



The background is a solid green color with a pattern of overlapping circles and dashed lines. Some circles are solid and connected by lines, while others are dashed. The overall effect is a network-like or molecular structure.

# Research and Response

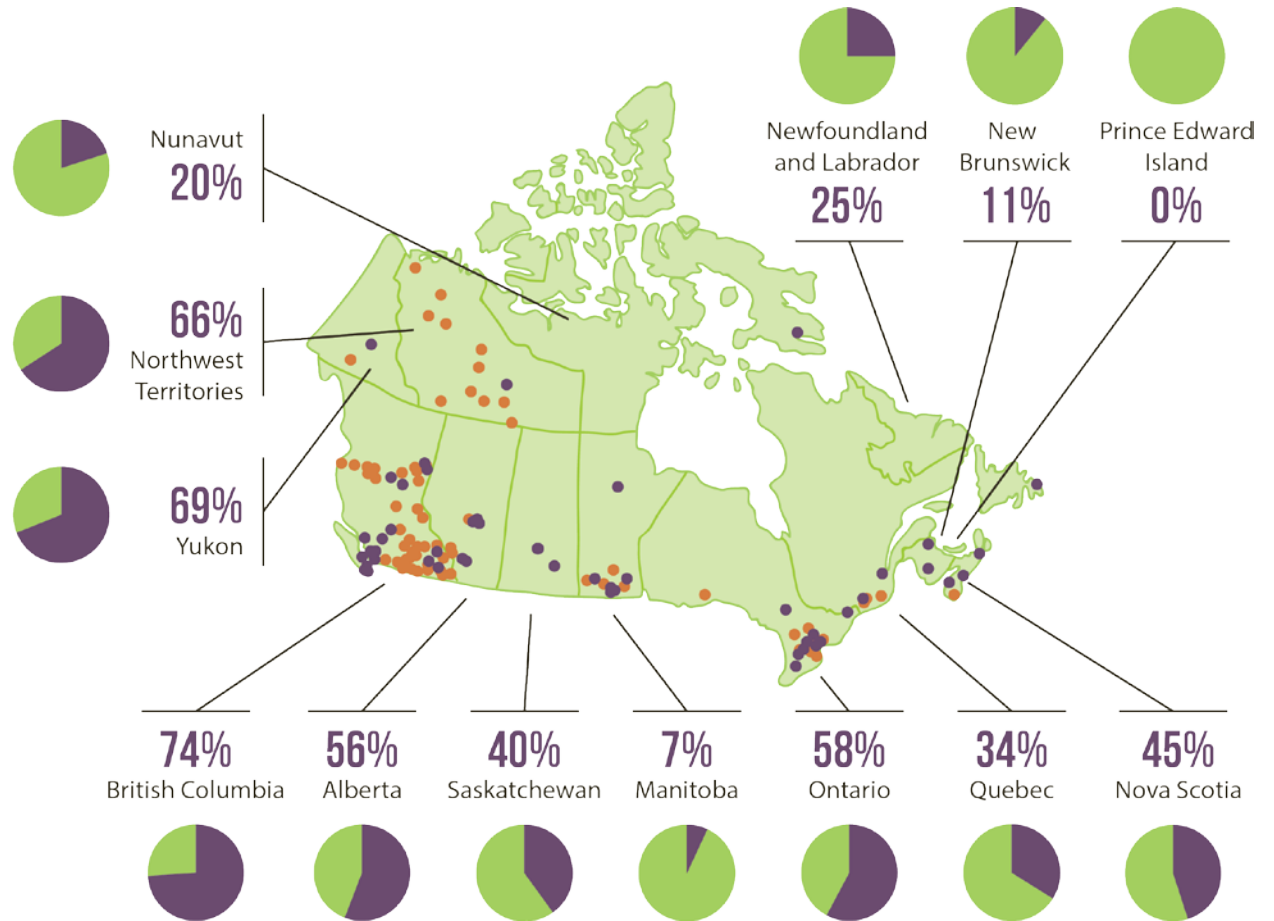


# Academic Research

Research provides a compass to guide the rest of the work.

## Percent of Population Represented by a CEP

- Researched community energy plans
- Other community energy plans



# Community Vision Survey Results



**177**  
in-person  
responses



**229**  
online  
responses



Survey respondents  
**favor targets that are  
considered to be 'leading'**  
in a provincial, national, and  
international context.



# Community Vision Survey Results



What does Guelph's  
**ideal energy future**  
look like to you?

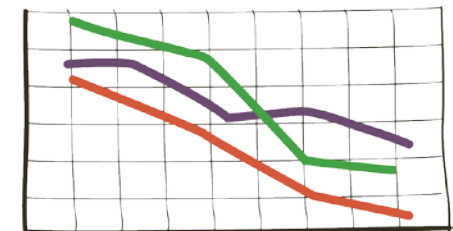
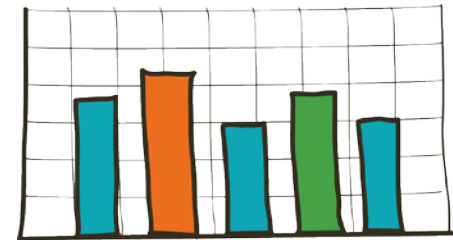


# Analytics: baseline and business-as-usual report

## City of Guelph Energy and Greenhouse Gas Emissions Baseline Inventory, 2016; Business-As-Usual Scenario, to 2050.

Input data for the report obtained from:

- City of Guelph Planning Division
- City of Guelph Transit and Transportation Demand Management divisions
- Guelph Hydro Electric Systems Inc.
- Union Gas
- The Kent Group Ltd.
- Ontario Ministry of Transportation
- Municipal Property Assessment Corporation



# **Analytics: insights**

Under a business-as-usual scenario,

**absolute energy consumption  
and emissions** are expected to be approximately  
**the same in 2050 as they are today.**



Anticipated gains in efficiency will be offset by increased consumption arising from economic and population growth.



# How did we arrive at the target?

Our Energy Guelph Task Force members voted for the new target informed by the:

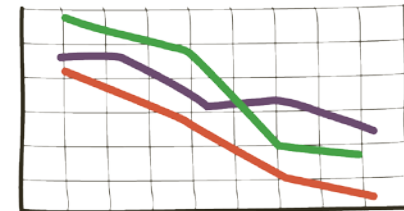
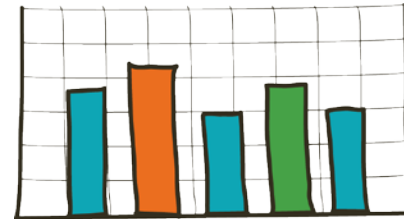
## Community Vision Survey



# 79.8%

of respondents want Guelph targets to lead provincially, federally, and internationally

## Research



Evidence-based

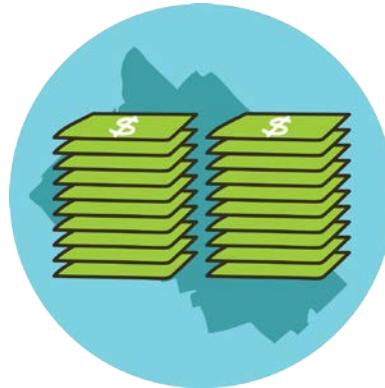


# How did we arrive at the target?

Our Energy Guelph believes in



**Reduced  
Energy Costs**



**Strong Local  
Economy**



**Resilient Healthy  
Communities**



# Updated target

Our Energy Guelph will strive toward

# NET ZERO

by 2050





## Updated target

To meet this target, our updated CEI will identify ways to:

1. **Take actions** within our sphere of influence as a municipality & as a community
2. **Develop strategic partnerships** to maximize/expand that sphere of influence
3. **Advocate** for provincial and federal action to support our efforts



The background features a network of interconnected circles and lines in various shades of orange. Some circles are solid, while others are dashed. The overall aesthetic is clean and modern, suggesting a process or a system of interconnected elements.

# Recommended Actions

# How do we get there?

The task force ranked the **criteria** used to set priorities for action.

1. Technical feasibility/technology readiness
2. Best financial payback
3. Highest GHG impact
4. Upfront cost
5. Impacts the largest number of people
6. \$ per GHG reduction
7. Political feasibility (public and Council acceptance)
8. Urban resilience
9. Profile (charisma/attention-grabbing)
10. Regulatory feasibility (i.e. within municipal influence)
11. Energy security
12. Personal health and safety



# How do we get there?

The task force ranked the 20 potential **actions** in order of priority.



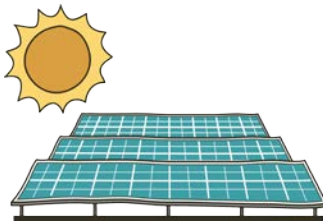
1. Retrofit homes pre-1980
2. Retrofit industrial, commercial and institutional (ICI) buildings



3. Stricter codes on new build
4. Photovoltaic (PV) net metering
5. Electrify transit



6. Heat pumps
7. Retrofit homes 1980-2017



8. Large PV
9. Active transportation



10. Energy storage



# How do we get there?

The task force ranked the 20 potential **actions** in order of priority.



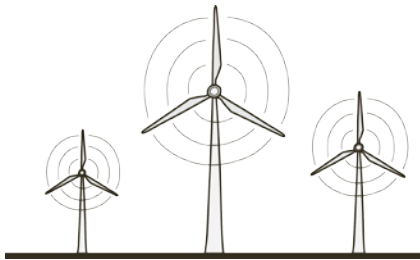
11. Electrify fleets (including the municipal fleet)

12. Expand transit

13. District energy

14. Solar hot water

15. Wind energy



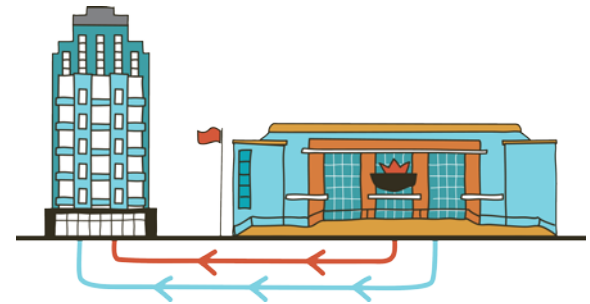
16. Renewable natural gas

17. Electrify personal vehicles

18. Ride share programs

19. Car free zones

20. Autonomous vehicles

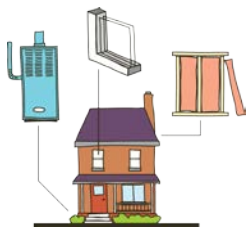


To meet targets, **Guelph must take all 20 actions**



# How do we get there?

OEG will form sub-teams to address the following **priority actions**:



1. Retrofit homes pre-1980
2. Retrofit industrial, commercial and institutional (ICI) buildings
3. Stricter codes on new build
4. Photovoltaic (PV) net metering
5. Electrify transit
6. District energy\*



\* District Energy (DE) was not among the top priority actions but there has been significant investment and lessons learned. It is important to make recommendations regarding if/how to proceed.



The background is a solid light green color. It features several overlapping circles of varying sizes and shades of green. Some circles are solid, while others are dashed. The circles are arranged in a way that suggests a network or a molecular structure. The text is centered in the middle of the page.

# Catalyst for Building a Livable City

# Role of a new not-for-profit

Our Energy Guelph intends to create an

## integrated plan and organization

that are firmly rooted in the community to ensure:

- clear and open lines of communication
- a pathway to build firm support among Guelph citizens
- strong and healthy links to City Hall

OEG will be distinct, independently led, and independently resourced, insulating it from political changes that could have an adverse impact.





# Role of a new not-for-profit

## Elements of the new organization

1. Governance
2. Host organization
3. Financial resources and business model
4. Volunteer management
5. Progress reporting
6. Education, awareness, and outreach
7. Advocacy
8. Business relationships
9. Projects and programs
10. Defining the ongoing role of the City



The background is a solid purple color. It features several overlapping circles of varying sizes and shades of purple. Some circles are solid, while others are dashed. Lines connect some of the solid circles, creating a network-like structure. The word "Conclusion" is centered in the middle of the page in a white, bold, sans-serif font.

# Conclusion

# Shared responsibility

This updated Community Energy Initiative contains ideas and initiatives to make changes to the way we produce and consume energy. The result will be

- **reduced energy costs**
- **a strong local economy**
- **a resilient and healthy community**
- **a more prosperous, sustainable, and equitable future**

A shared sense of responsibility across **government and community** is needed for positive change.



# Our Energy Guelph Task Force



**Kirby Calvert**, University of Guelph (Co-Chair)

**Jonathan Knowles**, Tradeforce Tech (Co-Chair)

**Kate Bishop**, City of Guelph

**Mike Carter**, Canadian Solar

**Alex Chapman**, City of Guelph

**Ken Church**, Natural Resources Canada

**Jake DeBruyn**

**Ian Dunbar**, Union Gas

**Steve Dyck**, Guelph Solar

**David Estill**, Siemens Wind Energy

**Evan Ferrari**, eMerge Guelph

**Mike Kazmaier**, Clean Cut Energy

**Mairead Kennedy**, Ramboll

**Larry Kotseff**, Fusion Homes

**Scott Martin**, Canadian Solar

**Jim Moore**, Polycon

**Kithio Mwanzia**, Guelph Chamber of Commerce

**Mario Petricevic**, City of Guelph

**Brandon Raco**, University of Guelph

**Patrick Sheridan**

**Eric Veneman**, Guelph Hydro Electric Systems Inc.

**Jennifer Weatherston**, Reid's Heritage Homes



# Staff Report

---

To **Committee of the Whole**

Service Area Infrastructure, Development and Enterprise Services

Date Monday, May 7, 2018

Subject **Community Energy Initiative Update**

Report Number IDE-2018-56

---

## Recommendation

1. That Council acknowledge the role of Our Energy Guelph (OEG) as the implementer of the Community Energy Initiative going forward.
2. That Council approve the City of Guelph's continued association with OEG as a primary stakeholder and partner.
3. That Council acknowledge the target that OEG has proposed, namely for Guelph to become net zero carbon by 2050.
4. That Council direct staff to provide a report in Q1 of 2019 with specific corporate targets for GHG emissions and energy consumption taking into consideration the findings from the CEI update for council approval.
5. That Council direct staff to provide a detailed report recommending specific initiatives that are aligned with the CEI update, complete with business cases to support those initiatives, to be considered as part of the 2019 operating and capital budget process for Council approval.

## Executive Summary

### Purpose of Report

To provide a ten-year update to the Community Energy Initiative (CEI), with a plan for creating a new community organization to drive CEI implementation, as well as to continue the process of selecting a revised target that reflects the wishes of the community and the evolution of the marketplace, while being aligned with key aspects of current policy at all other orders of government (e.g. target dates and baseline year).

### Key Findings

The CEI update task force renamed itself Our Energy Guelph (OEG), and positioned itself as residing in the community rather than City Hall.

OEG conducted a Community Vision Survey as well as extensive community consultations, with a total of 406 surveys completed in both hardcopy and online formats. Respondents overwhelmingly (80%) supported targets which lead at provincial, national, and international levels. OEG has proposed a new GHG target (see Recommendation #4) based on this survey, academic research, and technical analysis.

OEG technical analysis shows that, in the absence of new municipal policies and programs to reduce community-wide greenhouse gas (GHG) emissions, Guelph's overall emissions will remain roughly constant; population growth will counterbalance efficiency improvements that are expected to result from policy and technology advancements.

OEG has identified key community energy planning activities to be performed, including defining the ongoing role of the City of Guelph.

### **Financial Implications**

The update has incurred costs of approximately \$168,000 to date, with another \$80,000 expected. External funding totalling \$200,000 has been obtained, for a net cost to the Corporation of \$48,000 funded from the existing budget of the Climate Change Office.

## **Report**

The Guelph Community Energy Plan, adopted by Council in 2007, was the first of its kind in North America. It set a target for the city to reduce energy consumption by 50% and greenhouse gas emissions by 60% on a per-capita basis over 2006 levels by 2031. In 2009 the CEP became the Community Energy Initiative (CEI), signalling the transition from planning into implementation. An overview of the first ten years of the CEI is provided *in* ATT-1 A Brief History of the CEI.

In 2016, Council directed staff to initiate a ten-year update. During the fall of 2016, a community-based task force was recruited to lead the update. Following a kickoff meeting in January 2017, the Task Force positioned the CEI as residing in the community rather than in City Hall, and renamed itself Our Energy Guelph (OEG).

OEG performed extensive research and analysis to provide a solid analytical foundation for the CEI update, as described *in* ATT-2 Research and Response. *OEG enlisted the assistance of the University of Guelph to perform the following research:*

- ATT-2 From Strategic Planning to Implementation Planning: A review of emerging standards in community energy planning to support Phase 1 of Guelph's Community Energy Initiative Update
- ATT-3 Placing the 'Community' in Community Energy Planning: Translating community consultations into visions and targets for Guelph's Updated Community Energy Initiative
- ATT-4 A Primer on Stakeholder Engagement in Community Energy Planning
- ATT-5 Enabling policies and programs
- ATT-6 Forms of municipal leadership in community energy planning

Note that the University is a co-leader of the Community Energy Knowledge Action Partnership (CEKAP), a collaboration of academia, government, and civil society organizations focused on the successful implementation of community energy plans. CEKAP resources were also enlisted during the preparation of these research reports.

OEG established two sub-teams, one to manage community engagement, the other analytics. The Community Engagement sub-team developed a Community Vision Survey and administered it through online channels, guided by a comprehensive online engagement strategy and external consulting support, and through various events and appearances over the summer of 2017. The results of these engagement efforts were summarized in *ATT-7 Community Vision Survey Results*.

The Analytics sub-team oversaw the engagement of an external consultant to develop a revised energy and emissions inventory (or baseline), with projections for energy consumption and GHG emissions out to 2050. The results of these analytical efforts were presented in *ATT-8 Baseline and Business As Usual Report*. The following items are notable:

1. Since 2006, energy use per capita in Guelph has declined only slightly (2%). Significant additional action would be required to meet the original CEI target of 50% reduction in per-capita energy consumption over 2006 levels by 2031.
2. Since 2006, GHG emissions have declined markedly; if this trend persists, Guelph will attain the target of 60% reduction in per-capita GHG emissions over 2006 levels by 2031.
3. Under a business-as-usual scenario (based on available information regarding expected policy directions and industry trends), absolute energy consumption and emissions are expected to be approximately the same in 2050 as they are today. Anticipated gains in efficiency will be offset by increased consumption arising from economic and population growth.
4. Aggressive action would be required to match the provincial target of 80% reduction in absolute GHG emissions by 2050. Even more aggressive action would be required if the plan were to adopt the goal of achieving these targets without the use of carbon offsets.

Based on the academic research, community survey, and technical analysis, OEG reviewed the existing CEI targets and proposed a new target for GHG reduction. This target is for Guelph to be a net zero carbon community by 2050. The recommended target is aligned with community vision, provincial planning timelines, and emerging international trends in target setting.

OEG reviewed a list of municipal-level actions that are typically part of community energy planning in other jurisdictions, and prioritized those actions according to various criteria including technical feasibility, impact on emissions, and likelihood of public acceptance. This list will be used by the analytical consultant in a subsequent phase of work to develop a detailed action plan that is expected to deliver the target. The organizational tasks involved with launching the next phase of the CEI implementation were identified. Five top-priority technical actions were also

identified, along with the next steps for each of these actions. These are described in ATT-10 Recommended Actions.

OEG also performed a detailed review of specific activities involved in community energy planning in Guelph, to provide guidance as OEG transforms itself from a community task force to a self-sustaining non-profit community organization. These activities are detailed in ATT-11 A Catalyst for Building a Liveable City. This included the following ten subject areas:

1. Governance
2. Host organization
3. Financial resources and business model
4. Volunteer management
5. Progress reporting
6. Education, awareness, and outreach
7. Advocacy
8. Business relationships
9. Projects and programs
10. Defining the ongoing role of the City of Guelph

OEG intends to proceed immediately with the following next steps in collaboration with the Climate Change Office:

1. Initiate Interim Community Energy Board
2. Identify host organization for OEG
3. Begin discussions with Sustainable Waterloo Region to establish OEG business model
4. Appoint a volunteer coordinator to assist with all other steps
5. Begin annual progress reporting, including an update for 2017 data
6. Develop a detailed education, awareness and outreach plan
7. Identify and initiate top-priority advocacy actions
8. Establish a formal relationship with the Chamber of Commerce and its Energy Transition Committee
9. Establish sub-teams for each of the five top-priority project/program areas
10. Perform detailed modelling/simulation of recommended actions (Analytics phase 2)
11. Define the relationship between OEG, the Climate Change Office, and the Energy, Water and Climate Change working group

It is assumed that the Manager of the Climate Change Office will coordinate the above temporarily until OEG secures a permanent resource to take on these duties.

The CEI update is quite lengthy (291 pages), so a summary report has been prepared which emphasizes high-level points and uses a highly readable, infographic-based approach for presenting the content (see ATT-12 Summary Report). This document is intended to serve as an executive summary for the update.



## **Financial Implications**

Successful funding applications were made to the Ontario Ministry of Energy under its Municipal Energy Plan Program and to the Federation of Canadian Municipalities under its Municipalities for Climate Innovation Program. The amounts awarded were \$25,000 and \$175,000 respectively, for a total external funding amount of \$200,000. Expenses totalling \$168,000 have been incurred to date, with an additional \$80,000 expected for a total of \$248,000. The \$48,000 not covered by grant funding will be funded from the existing budget of the Climate Change Office.

Any financial implications related to specific program recommendations will be accompanied by a complete business case and presented to Council for approval at a later date.

## **Consultations**

Extensive consultations were held with members of the community through the Community Vision Survey, including face-to-face interaction at events and appearances/presentations, as well as online interaction through social media. A total of 406 surveys were completed in online and hardcopy formats. While not statistically rigorous, the results provide a good indication of community sentiment.

Further consultations were held with the Corporation's Energy, Water and Climate Change (EWaCC) working group and Finance.

## **Corporate Administrative Plan**

### **Overarching Goals**

Service Excellence  
Financial Stability  
Innovation

### **Service Area Operational Work Plans**

Our Services - Municipal services that make lives better  
Our People - Building a great community together  
Our Resources - A solid foundation for a growing city

## **Attachments**

- ATT-1 A Brief History of the CEI
- ATT-2 Research and Response
- ATT-3 From Strategic Planning to Implementation Planning: A review of emerging standards in community energy planning to support Phase 1 of Guelph's Community Energy Initiative Update
- ATT-4 Placing the 'Community' in Community Energy Planning: Translating community consultations into visions and targets for Guelph's Updated Community Energy Initiative

- ATT-5 A Primer on Stakeholder Engagement in Community Energy Planning
- ATT-6 Enabling policies and programs
- ATT-7 Forms of municipal leadership in community energy planning
- ATT-8 Community Vision Survey Results
- ATT-9 Baseline and Business As Usual Report
- ATT-10 Recommended Actions
- ATT-11 A Catalyst for Building a Liveable City
- ATT-12 Summary Report (Note: This item is still in development)

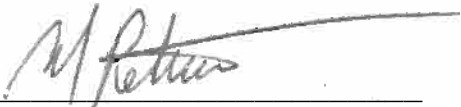
### **Departmental Approval**

Mario Petricevic, GM – Facilities Management

Greg Clark, Manager Financial Strategy and Long Term Planning – Finance

### **Report Author**

Alex Chapman, Manager – Climate Change Office



\_\_\_\_\_  
**Approved By**

Mario Petricevic, C.E.T.  
General Manager  
Facilities Management  
519-822-1260, ext. 2668  
[mario.petricevic@guelph.ca](mailto:mario.petricevic@guelph.ca)



\_\_\_\_\_  
**Recommended By**

Scott Stewart, C.E.T.  
Deputy CAO  
Infrastructure, Development and Enterprise  
519-822-1260, ext. 3445  
[scott.stewart@guelph.ca](mailto:scott.stewart@guelph.ca)

for



# A brief history of the CEI

## A track record of environmental leadership

THE COMMUNITY ENERGY INITIATIVE CAN TRACE ITS ROOTS AS FAR BACK AS 1994 WITH THE CREATION OF THE CITY OF GUELPH “GREEN PLAN”. THIS DOCUMENT PROMPTED A NUMBER OF SUSTAINABILITY INITIATIVES, INCLUDING THE CREATION OF GUELPH ENVIRONMENTAL LEADERSHIP (NOW EMERGE GUELPH) AND THE ISSUANCE OF STATE OF SUSTAINABILITY REPORTS IN 1998 AND 2003. THE PLAN ADDRESSED THE BROADER TOPIC OF SUSTAINABILITY, WITH ENERGY BEING ONLY ONE COMPONENT.

IT WAS RECOGNIZED THAT THE SINGLE MOST SIGNIFICANT THREAT TO THE NATURAL ENVIRONMENT IS CLIMATE CHANGE. IT WAS FURTHER RECOGNIZED THAT THE ONLY WAY TO AVERT CATASTROPHIC CLIMATE CHANGE IS THROUGH MITIGATION – REDUCING EMISSIONS OF GREENHOUSE GASES (GHGS) TO LEVELS THAT CAN BE ABSORBED BY THE PLANET’S NATURAL PROCESSES. THE MOST SIGNIFICANT SOURCE OF GHG EMISSIONS IS THE USE OF FOSSIL FUELS FOR ENERGY, SO CHANGING THE WAY WE USE ENERGY OFFERS THE GREATEST PROMISE FOR MITIGATING CLIMATE CHANGE.

MANY PEOPLE ARE CONCERNED ABOUT THE NATURAL ENVIRONMENT, BUT FAR MORE - INDEED, NEARLY ALL OF US – ARE FOCUSED ON THE ECONOMY AND ITS IMPACT ON PERSONAL FINANCES. FOR COMMUNITY ENERGY PLANNING TO SUCCEED, IT MUST FOCUS ON MAKING A POSITIVE IMPACT ON THE LOCAL ECONOMY, ENHANCING PROSPERITY, BRINGING EMPLOYMENT OPPORTUNITIES, AND INCREASING JOB SECURITY.

## The Community Energy Plan of 2007

IN THE FALL OF 2005 THE CITY OF GUELPH CONVENED THE 19-PERSON GUELPH COMMUNITY ENERGY PLAN CONSORTIUM UNDER THE JOINT LEADERSHIP OF DR. JANET LAIRD, DIRECTOR OF ENVIRONMENTAL SERVICES FOR THE CITY OF GUELPH, AND ART STOCKMAN, PRESIDENT OF GUELPH HYDRO ELECTRIC SYSTEMS INC. WITH CONSULTING ASSISTANCE PROVIDED BY GARFORTH INTERNATIONAL LLC, THE CONSORTIUM DEVELOPED THE COMMUNITY ENERGY PLAN (CEP) AND PRESENTED IT TO GUELPH CITY COUNCIL ON APRIL 23, 2007.

THE FIRST CEP IN CANADA, THIS 148-PAGE DOCUMENT OUTLINED A VISION TO “CREATE A HEALTHY, RELIABLE AND SUSTAINABLE ENERGY FUTURE BY CONTINUALLY INCREASING THE EFFECTIVENESS OF HOW WE USE AND MANAGE OUR ENERGY AND WATER RESOURCES”. COUNCIL UNANIMOUSLY ENDORSED THE VISION, GOALS, AND DIRECTIONS IN THIS DOCUMENT AS THE BASIS FOR COMMUNITY ENERGY PLANNING IN GUELPH.



**THE CEP ESTABLISHED TWO KEY TARGETS, NAMELY TO REDUCE ENERGY USE BY 50% AND GREENHOUSE GAS (GHG) EMISSIONS BY 60% PER CAPITA OVER 2006 LEVELS BY 2031.**

## **From CEP to CEI**

**IN 2009 THE CITY CREATED AND FILLED THE POST OF COMMUNITY ENERGY MANAGER, PROVIDING FULL-TIME LEADERSHIP, MANAGEMENT, AND OVERSIGHT OF CEP-RELATED WORK. IN THE SAME YEAR, COUNCIL APPROVED THE CREATION OF THE MAYOR'S TASK FORCE ON COMMUNITY ENERGY TO PROVIDE GOVERNANCE FOR CEP IMPLEMENTATION. THIS GROUP HAD ITS INAUGURAL MEETING IN APRIL OF 2010, AND ITS TERMS OF REFERENCE SPECIFIED A TWO-YEAR MANDATE. TASK FORCE SUBCOMMITTEES INCLUDED CITY IMPLEMENTATION MANAGEMENT, COMMUNICATIONS AND STAKEHOLDER ENGAGEMENT, GOVERNANCE AND FINANCE, AND INTERGOVERNMENTAL.**

**IN 2010, THE CEP WAS RENAMED THE COMMUNITY ENERGY INITIATIVE (CEI) TO SIGNIFY THE TRANSITION FROM PLANNING TO IMPLEMENTATION. IN JUNE OF THAT YEAR A MEMORANDUM OF INTENTIONS WAS SIGNED BETWEEN GUELPH HYDRO AND THE CITY, TO ENABLE IMPLEMENTATION OF CEI PROJECTS.**

**IN 2011 THE CITY CREATED GUELPH MUNICIPAL HOLDINGS INC. (GMHI), WITH A BROAD MANDATE THAT INCLUDED THE DEVELOPMENT OF BUSINESS UNITS THAT WOULD IMPLEMENT ASPECTS OF THE CEI. ONE OF THESE UNITS WAS ENVIDA COMMUNITY ENERGY, WHICH ASSUMED RESPONSIBILITY FOR BUILDING A PORTFOLIO OF RENEWABLE GENERATION ASSETS.**

**IN 2012 COUNCIL APPROVED THE CORPORATE ENERGY MANAGEMENT PLAN (CEMP). THE PURPOSE OF THIS FIVE-YEAR PLAN WAS TO POSITION THE CITY TO DEMONSTRATE LEADERSHIP ON ENERGY EFFICIENCY, TO IMPLEMENT MEASURES ALIGNED WITH CEI GOALS, TO REDUCE THE CITY'S EXPOSURE TO VOLATILE ENERGY COSTS. THE PLAN FULFILLED THE REQUIREMENT FOR BROADER PUBLIC SECTOR ENTITIES TO SUBMIT A CONSERVATION AND DEMAND MANAGEMENT PLAN TO THE MINISTRY OF ENERGY UNDER O.REG.397/11. THE PLAN INCLUDED THE RESULTS OF ENERGY AUDITS OF 13 TAX-SUPPORTED FACILITIES, AND RECOMMENDED A CAPITAL INVESTMENT PROGRAM TO IMPROVE ENERGY EFFICIENCY OF THESE FACILITIES. THIS PROGRAM SAVED A TOTAL OF \$1.6 MILLION OVER THE PERIOD FROM 2014-2017.**

**IN 2013 THE CITY AND ENVIDA JOINTLY DEVELOPED THE DISTRICT ENERGY (DE) STRATEGIC PLAN. THIS DOCUMENT DEFINED A STRATEGY TO BUILD A CITY-WIDE THERMAL ENERGY DISTRIBUTION NETWORK SERVING 50% OF SPACE HEATING AND DOMESTIC HOT WATER NEEDS BY 2041. TWO DE NODES WERE LAUNCHED, ONE IN THE HANLON CREEK BUSINESS PARK AND ANOTHER IN THE DOWNTOWN CORE. IN**



**2016 COUNCIL DIRECTED GMHI TO HALT FURTHER DEVELOPMENT OF THESE DE SYSTEMS.**

**AS OF 2017, THE FOLLOWING CITY OF GUELPH STAFF RESOURCES SUPPORT PROGRAMS THAT ARE ALIGNED WITH CEI OBJECTIVES:**

- **A CLIMATE CHANGE OFFICE WITH 2.5 FTEs, INCLUDING THE MANAGER OF THE CLIMATE CHANGE OFFICE AND THE CORPORATE ENERGY PROGRAM MANAGER**
- **A SUSTAINABILITY BOARD CALLED THE ENERGY, WATER AND CLIMATE CHANGE (EWACC – PRONOUNCED “EWOK”) WORKING GROUP**
- **THREE ENVIRONMENTAL PLANNERS**
- **ONE FULL-TIME TRANSPORTATION DEMAND MANAGEMENT PROGRAM MANAGER AND ONE FULL-TIME TRANSPORTATION DEMAND MANAGEMENT COORDINATOR**

**CURRENTLY THE INVENTORY OF TANGIBLE CEI-RELATED CITY ASSETS INCLUDES:**

- **2.5 MEGAWATT LANDFILL GAS-FUELLED ELECTRICITY GENERATION PLANT AT THE EASTVIEW DECOMMISSIONED LANDFILL SITE**
- **575 KILOWATT COMBINED HEAT AND POWER FACILITY AT THE GUELPH WASTEWATER TREATMENT PLANT, FUELLED BY RENEWABLE NATURAL GAS FROM ANAEROBIC DIGESTION OF SEWAGE SLUDGE**
- **400 KILOWATT COMBINED HEAT AND POWER PLANT AT THE WEST END COMMUNITY CENTRE, SUPPLYING ELECTRICITY AND HEAT AT LOWER COST AND LOWER EMISSIONS THAN IF EACH WERE PURCHASED SEPARATELY FROM THE GRID**
- **NINE CITY PROPERTIES WITH SOLAR PV ARRAYS, WITH A TOTAL NAMEPLATE CAPACITY OF 88 KILOWATTS GENERATING ELECTRICITY AND REVENUE UNDER THE MICROFIT PROGRAM**
- **FOUR CITY FACILITIES WITH SOLAR HOT WATER SYSTEMS**
- **GUELPH WAS ONE OF THE FIRST COMMUNITIES TO INSTALL AN ELECTRIC VEHICLE CHARGING STATION**
- **OF THE 20 CARS IN THE CITY OF GUELPH FLEET, TEN ARE HYBRID GASOLINE-ELECTRIC**

**ADDITIONAL COMMUNITY-OWNED ASSETS ALIGNED WITH THE CEI INCLUDE:**

- **8 MEGAWATT COMBINED HEAT AND POWER PLANT AT POLYCON INDUSTRIES, A SUBSIDIARY OF MAGNA INTERNATIONAL INC.**
- **A 22 MILLION LITRE THERMAL ENERGY STORAGE FACILITY AT THE UNIVERSITY OF GUELPH, PARTIALLY FUNDED BY STUDENT FINANCIAL CONTRIBUTIONS, COOLING CAMPUS BUILDINGS WITH CLEAN, OFF-PEAK POWER**
- **CANADIAN SOLAR, THE ONLY TOP-THREE GLOBAL SUPPLIER OF SOLAR PV MODULES NOT BASED IN CHINA, WHICH IS HEADQUARTERED IN GUELPH**
- **49% MORE SOLAR PV SYSTEMS PER CAPITA THAN THE PROVINCIAL AVERAGE**

## **GEERS**

**THE CEP SPECIFIED THE GOAL OF USING EFFICIENCY TO CREATE ALL OF THE ENERGY NEEDED TO SUPPORT THE GROWTH IN THE RESIDENTIAL, COMMERCIAL, AND INSTITUTIONAL SECTORS. ONE POSSIBLE MECHANISM TO ACCOMPLISH THIS HAS APPEARED IN THE UNITED STATES THROUGH THE PROPERTY-ASSESSED CLEAN ENERGY (PACE) PROGRAM.**

**TRADITIONALLY, WHEN A PROPERTY OWNER IS CONSIDERING AN ENERGY EFFICIENCY AND/OR RENEWABLE GENERATION PROJECT, THE BEST FINANCING OPTION AVAILABLE IS A HOME EQUITY LINE OF CREDIT. HOWEVER, SUCH PROJECTS HAVE A LONG PAYBACK PERIOD, OFTEN LONGER THAN THE CURRENT OWNER INTENDS TO OWN THE PROPERTY. FURTHER, THE REPAYMENT TERMS FOR THE FINANCING ARE SUCH THAT, AT FIRST, THE PROPERTY OWNER WILL PAY MORE TO SERVICE THE FINANCING THAN THE PROJECT SAVES THEM ON UTILITY BILLS. HOMEOWNERS ARE RELUCTANT TO ADD TO THEIR PERSONAL DEBT BURDEN UNDER THESE CONDITIONS.**

**PACE ADDRESSES THESE ISSUES BY ATTACHING THE FINANCING TO THE PROPERTY, RATHER THAN THE PROPERTY OWNER. PRINCIPAL AND INTEREST IS REPAYED VIA THE PROPERTY TAX ROLL RATHER THAN DIRECTLY TO A FINANCIAL INSTITUTION. PACE ALLOWS FOR A LONGER REPAYMENT PERIOD THAN OTHER FINANCING METHODS, ALLOWING PAYMENTS TO MATCH UP WITH UTILITY SAVINGS. IF THE PROPERTY IS SOLD, THE OBLIGATION AUTOMATICALLY PASSES TO THE NEW OWNER IN THE SAME WAY THAT THE PROPERTY TAX OBLIGATION DOES (ASSUMING THE PACE FINANCING IS NOT RETIRED AS A CONDITION OF SALE).**

**BEGINNING IN 2008 WITH THE PASSAGE OF BILL AB811 IN THE STATE OF CALIFORNIA, PACE LEGISLATION IS NOW IN PLACE IN STATES REPRESENTING A TOTAL OF 80% OF THE US POPULATION. OVER 2500 MUNICIPALITIES ACROSS 19 STATES HAVE ACTIVE RESIDENTIAL PACE PROGRAMS, WITH A TOTAL OF US\$4.3 BILLION INVESTED TO DATE IN 175,000 HOME UPGRADES. MOST OF THE INVESTMENT DOLLARS (58%) WENT TO ENERGY EFFICIENCY, WITH THE REST GOING TO RENEWABLE ENERGY (37%) AND WATER (4%). COMMERCIAL PROPERTIES ARE PARTICIPATING AS WELL, WITH US\$583 MILLION INVESTED IN 1,230 PROJECTS.<sup>1</sup>**

**ENCOURAGED BY THE US EXAMPLE, PROPONENTS ADVOCATED FOR A MADE-IN-CANADA VERSION OF PACE. LOCAL IMPROVEMENT CHARGES (LICs), WHICH ALLOW A MANDATORY USER-PAY MODEL TO FINANCE MUNICIPAL INFRASTRUCTURE, WERE IDENTIFIED AS AN APPROPRIATE TOOL FOR THE PURPOSE. IN 2012, ONTARIO LIC LEGISLATION WAS AMENDED TO ALLOW THEIR USE ON A VOLUNTARY BASIS FOR ENERGY EFFICIENCY AND RENEWABLE GENERATION PROJECTS ON PRIVATE PROPERTY.**

---

<sup>1</sup> "Pace Market Data", *PACENation*, 2017, [pacenation.us/pace-market-data/](http://pacenation.us/pace-market-data/)



**IN 2014 THE CITY DEVELOPED THE GUELPH ENERGY EFFICIENCY RETROFIT STRATEGY (GEERS), A BUSINESS PLAN AIMING TO UPGRADE 80% OF THE EXISTING BUILDING STOCK (38,400 HOMES) BY 2031. STAFF PRESENTED THIS PLAN IN SEPTEMBER 2015, AND COUNCIL GAVE DIRECTION TO CONTINUE DETAILED PROGRAM DESIGN AND TO DRAFT BY-LAWS TO ENABLE LIC USAGE FOR ENERGY PROJECTS. IN MAY 2016 STAFF REPORTED ON PROGRESS AND COUNCIL GAVE FURTHER DIRECTION TO CONTINUE DEVELOPING THE PROGRAM INCLUDING IDENTIFYING PARTICIPANTS, ANALYZING ADMINISTRATIVE AND TRANSACTION COSTS, AND REPORTING ON THE APPLICABILITY OF THE PROGRAM FOR HOME ELECTRIC VEHICLE CHARGING INFRASTRUCTURE. IN MARCH 2017 STAFF NOTED THAT NEXT STEPS FOR THE GEERS PROGRAM WOULD BE ADDRESSED THROUGH THE CEI UPDATE PROCESS.**

## **Advocacy**

**SOME ACTIONS THAT COULD HELP BRING ABOUT A LOW-CARBON FUTURE ARE WITHIN THE DIRECT SCOPE OF INFLUENCE OF THE MUNICIPALITY. HOWEVER, MANY MORE ARE NOT. ENHANCED BUILDING CODES, MORE STRINGENT FUEL EFFICIENCY STANDARDS, AND RENEWABLE GENERATION POLICY ARE ALL EXAMPLES OF ACTIONS THAT FALL OUTSIDE OF MUNICIPAL JURISDICTION.**

**ALTHOUGH OTHER ORDERS OF GOVERNMENT ARE RESPONSIBLE FOR THESE ACTIONS, MUNICIPALITIES STILL HAVE THE ABILITY TO INFLUENCE THE RELEVANT POLICIES. FOR EXAMPLE, THE PROVINCE OF ONTARIO MAINTAINS ITS ENVIRONMENTAL REGISTRY, WHICH “CONTAINS ‘PUBLIC NOTICES’ ABOUT ENVIRONMENTAL MATTERS BEING PROPOSED BY ALL GOVERNMENT MINISTRIES COVERED BY THE ENVIRONMENTAL BILL OF RIGHTS. THE PUBLIC NOTICES MAY CONTAIN INFORMATION ABOUT PROPOSED NEW LAWS, REGULATIONS, POLICIES AND PROGRAMS OR ABOUT PROPOSALS TO CHANGE OR ELIMINATE EXISTING ONES.”<sup>2</sup> WHEN ITEMS ARE POSTED ON THE REGISTRY, MUNICIPALITIES CAN PROVIDE COMMENTS DIRECTLY, THROUGH ADVOCACY GROUPS, OR BOTH.**

**GUELPH HAS PARTICIPATED IN JOINT ADVOCACY EFFORTS THROUGH SUCH ORGANIZATIONS AS:**

- 1. THE CLEAN AIR PARTNERSHIP**
- 2. QUALITY URBAN ENERGY SYSTEMS OF TOMORROW**
- 3. ONTARIO SUSTAINABLE ENERGY ASSOCIATION**

**EACH OF THE ABOVE ORGANIZATIONS USES A SIMILAR APPROACH TO PREPARE RESPONSES TO POLICY AND PROGRAM PROPOSALS, AS WELL AS PROACTIVE EFFORTS TO RECOMMEND NEW PROGRAMS OR CHANGES. FIRST, THE ORGANIZATION PREPARES A DRAFT VERSION, THEN CIRCULATES IT FOR COMMENT AMONG MEMBERS,**

---

<sup>2</sup> *About the Registry*. Environmental Registry, Province of Ontario, 2018, [www.ebr.gov.on.ca/ERS-WEB-External/content/about.jsp?f0=aboutTheRegistry.info&menuIndex=0\\_1&language=en](http://www.ebr.gov.on.ca/ERS-WEB-External/content/about.jsp?f0=aboutTheRegistry.info&menuIndex=0_1&language=en)



**INCORPORATES THOSE COMMENTS INTO ANOTHER DRAFT VERSION, AND THEN PROVIDES A FINAL REVIEW AND MEMBER APPROVAL BEFORE MAKING THE SUBMISSION. SOME EXAMPLES OF SUCCESSFUL ADVOCACY EFFORTS WERE:**

- 1. THE MINISTRY OF ENERGY MUNICIPAL ENERGY PLAN PROGRAM, WHICH SUPPORTS PROJECTS TO CREATE OR ENHANCE CEPS**
- 2. AMENDMENTS TO ALLOW LOCAL IMPROVEMENT CHARGES FOR ENERGY UPGRADE PROJECTS ON PRIVATE PROPERTY**
- 3. REVISION TO THE COMBINED HEAT AND POWER STANDARD OFFER PROGRAM**

## **Education, Awareness, and Outreach**

**PROMOTING THE CEI AND BUILDING AWARENESS OF IT HAS BEEN AN IMPORTANT AREA OF ACTIVITY. PRESENTATIONS ABOUT THE CEI HAVE BEEN DELIVERED TO THE FOLLOWING ORGANIZATIONS:**

- 1. ROTARY CLUB OF GUELPH**
- 2. GUELPH-WELLINGTON MEN'S CLUB**
- 3. GUELPH RESILIENCE FESTIVAL**
- 4. ONTARIO UNIVERSITY WOMEN**
- 5. EDWARD JOHNSON PUBLIC SCHOOL (GRADE 6 STUDENTS)**
- 6. GUELPH COLLEGIATE VOCATIONAL INSTITUTE (GRADE 8 STUDENTS)**
- 7. COMMUNITY ENVIRONMENTAL LEADERSHIP PROGRAM (GRADE 10 STUDENTS)**
- 8. HEADWATERS PROGRAM (GRADE 12 STUDENTS)**
- 9. UNIVERSITY OF GUELPH – GEOG\*3020: GLOBAL ENVIRONMENTAL CHANGE**
- 10. UNIVERSITY OF GUELPH – UNIV\*2200: TOWARDS SUSTAINABILITY**
- 11. UNIVERSITY OF GUELPH – ENVS\*2270: IMPACTS OF CLIMATE CHANGE**
- 12. YORK UNIVERSITY – MASTER OF ENVIRONMENTAL STUDIES PROGRAM**
- 13. RYERSON UNIVERSITY**
- 14. ONTARIO PUBLIC INTEREST RESEARCH GROUP**

**AN ARTICLE ON THE CEI WAS ALSO PUBLISHED IN ENGINEERING DIMENSIONS, THE OFFICIAL PUBLICATION OF PROFESSIONAL ENGINEERS ONTARIO.**

**CONTENT RELEVANT TO THE CEI HAS ALSO BEEN PRESENTED TO UPPER GRAND DISTRICT SCHOOL BOARD AND WELLINGTON CATHOLIC DISTRICT SCHOOL BOARD STUDENTS IN GRADES 3-6 THROUGH PLANET PROTECTOR ACADEMY. THIS SUPERHERO-THEMED PROGRAM ENCOURAGES PARTICIPANTS TO TURN OFF LIGHTS, TAKE SHORTER SHOWERS, WALK OR BIKE TO SCHOOL, AND ENCOURAGE PARENTS TO AVOID LEAVING THEIR CAR ENGINES IDLING.**

**GUELPH HAS RECEIVED AWARDS AND RECOGNITION FOR CEI-RELATED WORK:**

- FCM PARTNERS FOR CLIMATE PROTECTION PROGRAM – MILESTONE FIVE, 2014**
- FCM SUSTAINABLE COMMUNITIES AWARD – ENERGY, 2014 (CEI)**





- **SHARE THE ROAD CYCLING COALITION SILVER AWARD, 2014**
- **QUEST COMMUNITY ENERGY BUILDER AWARD – LOCAL GOVERNMENT, 2015 (GEERS)**
- **FCM SUSTAINABLE COMMUNITIES AWARD – NEIGHBOURHOOD DESIGN, 2018 (GUELPH INNOVATION DISTRICT SECONDARY PLAN)**
- **GLOBE CLIMATE LEADERSHIP AWARD – LARGE MUNICIPAL TRAILBLAZER, 2018**

## **Exchanging Knowledge**

**COMMUNITY ENERGY STAFF AT THE CITY OF GUELPH HAVE BEEN ACTIVE PARTICIPANTS IN A NUMBER OF COMMUNITIES OF PRACTICE, BOTH CONTRIBUTING LESSONS LEARNED AND GAINING USEFUL INSIGHTS FROM THE EXPERIENCES OF PEERS IN OTHER MUNICIPALITIES. THE ORGANIZATIONS AND PROGRAMS IN WHICH THE CITY PARTICIPATES INCLUDE:**

- **CLEAN AIR PARTNERSHIP**
- **QUALITY URBAN ENERGY SYSTEMS OF TOMORROW, ONTARIO CAUCUS (MEMBER); CEP IMPLEMENTATION NETWORK (FOUNDER)**
- **INDEPENDENT ELECTRICITY SYSTEM OPERATOR (IESO), DATA STRATEGY ADVISORY COUNCIL**
- **ONTARIO MUNICIPAL ENERGY MANAGERS COMMUNITY OF PRACTICE (FOUNDER)**
- **ONTARIO SUSTAINABLE ENERGY ASSOCIATION**
- **ICLEI – LOCAL GOVERNMENTS FOR SUSTAINABILITY**
- **FEDERATION OF CANADIAN MUNICIPALITIES, PARTNERS FOR CLIMATE PROTECTION PROGRAM; CLIMATE AND ASSET MANAGEMENT NETWORK**
- **TRANSATLANTIC URBAN CLIMATE DIALOGUE, 2011-2014**
- **EUROPEAN UNION INTERNATIONAL URBAN COOPERATION PROGRAM**
- **UNITED NATIONS ENVIRONMENT PROGRAM, DISTRICT ENERGY IN CITIES INITIATIVE**
- **GLOBAL COVENANT OF MAYORS**
- **TORONTO REGIONAL CONSERVATION AUTHORITY, MAYORS' MEGAWATT CHALLENGE**
- **ASSOCIATION OF ENERGY ENGINEERS, HAMILTON CHAPTER**



# Research and Response

THE CEI UPDATE INCLUDED THREE MAIN AREAS OF RESEARCH:

1. A SCAN OF THE STATE OF THE ART IN THE FIELD OF COMMUNITY ENERGY PLANNING
2. A BASELINE AND BUSINESS-AS-USUAL (BAU) ANALYTICAL REPORT
3. A COMMUNITY VISION SURVEY ON CEP TARGETS AND HOW TO ACHIEVE THEM

THESE SOURCES OF INFORMATION WERE USED AS INPUTS FOR THE PROCESS OF ESTABLISHING OUR ENERGY GUELPH, DESIGNING OUR COMMUNITY AND STAKEHOLDER ENGAGEMENT STRATEGY, AND SETTING NEW TARGETS.

## Community Energy Sectoral Scan

OUR ENERGY GUELPH COMMISSIONED A RESEARCH PROJECT TO EXAMINE THE STATE OF COMMUNITY ENERGY PLANNING. FORTUNATELY OEG CO-CHAIR, DR. KIRBY CALVERT, CO-LEADS THE COMMUNITY ENERGY KNOWLEDGE ACTION PARTNERSHIP (CEKAP), WHICH IS ONE OF THE FOREMOST COLLABORATIONS ON THE TOPIC. THIS EXCELLENT FIT MADE IT POSSIBLE TO PERFORM WORLD-CLASS RESEARCH ECONOMICALLY WITHIN THE SCOPE OF THE CEI UPDATE.

THE RESEARCH WAS DELIVERED IN FIVE PARTS, LISTED BELOW.

1. FROM STRATEGIC PLANNING TO IMPLEMENTATION PLANNING: A REVIEW OF EMERGING STANDARDS IN COMMUNITY ENERGY PLANNING TO SUPPORT PHASE 1 OF GUELPH'S COMMUNITY ENERGY INITIATIVE UPDATE
2. PLACING THE 'COMMUNITY' IN COMMUNITY ENERGY PLANNING: TRANSLATING COMMUNITY CONSULTATIONS INTO VISIONS AND TARGETS FOR GUELPH'S UPDATED COMMUNITY ENERGY INITIATIVE
3. A PRIMER ON STAKEHOLDER ENGAGEMENT IN COMMUNITY ENERGY PLANNING
4. A DATABASE OF ENABLING POLICIES AND PROGRAMS
5. A DATABASE OF WAYS THAT OTHER SINGLE-TIER MUNICIPAL GOVERNMENTS IN ONTARIO HAVE PARTICIPATED IN CEP IMPLEMENTATION

## Baseline and Business-As-Usual Report

OEG CREATED AN ANALYTICS SUBCOMMITTEE TO PROVIDE THE FOUNDATION FOR EVIDENCE-BASED DECISION MAKING. THIS GROUP CONSISTED OF THE FOLLOWING INDIVIDUALS:

- ALEX CHAPMAN
- JAKE DEBRUYN
- JIM MOORE
- MICHAEL HOGAN
- MIKE KAZMAIER
- PATRICK SHERIDAN

**THE ANALYTICS SUBCOMMITTEE COMMISSIONED A PROCUREMENT PROCESS TO IDENTIFY A VENDOR TO PERFORM THE FOLLOWING ANALYSES:**

- 1. ENERGY AND EMISSIONS BASELINE INVENTORY**
- 2. PROJECTIONS FOR ENERGY AND EMISSIONS TO 2050 ASSUMING A BUSINESS-AS-USUAL SCENARIO, INCLUDING GEOSPATIAL REPRESENTATIONS OF KEY ENERGY- AND EMISSIONS-RELATED PARAMETERS (I.E. ENERGY AND EMISSIONS MAPS)**
- 3. SIMULATIONS SHOWING THE PACKAGE OF ACTIONS, AND ASSUMPTIONS RELATED TO THOSE ACTIONS, THAT IS MOST LIKELY TO DELIVER THE ENERGY AND EMISSIONS REDUCTIONS NECESSARY TO ACHIEVE THE NEW TARGETS (SEE BELOW)**

**SUSTAINABILITY SOLUTIONS GROUP WAS SELECTED TO PERFORM THIS WORK, WHICH WAS DELIVERED IN THE REPORT ENTITLED *CITY OF GUELPH ENERGY AND GREENHOUSE GAS EMISSIONS BASELINE INVENTORY, 2016 & BUSINESS-AS-USUAL SCENARIO, TO 2050.***

**INPUT DATA FOR THE REPORT WAS OBTAINED FROM THE FOLLOWING SOURCES:**

- 1. CITY OF GUELPH PLANNING DIVISION**
- 2. CITY OF GUELPH TRANSIT AND TRANSPORTATION DEMAND MANAGEMENT DIVISIONS**
- 3. GUELPH HYDRO ELECTRIC SYSTEMS INC.**
- 4. UNION GAS**
- 5. THE KENT GROUP LTD.**
- 6. ONTARIO MINISTRY OF TRANSPORTATION**
- 7. MUNICIPAL PROPERTY ASSESSMENT CORPORATION**

**THE KEY INSIGHTS FROM THIS REPORT ARE:**

- 1. SINCE 2006, ENERGY USE PER CAPITA IN GUELPH HAS DECLINED ONLY SLIGHTLY (2%). SIGNIFICANT ADDITIONAL ACTION WOULD BE REQUIRED TO MEET THE ORIGINAL CEI TARGET OF 50% REDUCTION IN PER-CAPITA ENERGY CONSUMPTION OVER 2006 LEVELS BY 2031.**
- 2. SINCE 2006, GHG EMISSIONS HAVE DECLINED MARKEDLY; IF THIS TREND PERSISTS, GUELPH WILL ATTAIN THE TARGET OF 60% REDUCTION IN PER-CAPITA GHG EMISSIONS OVER 2006 LEVELS BY 2031.**
- 3. UNDER A BUSINESS-AS-USUAL SCENARIO (BASED ON AVAILABLE INFORMATION REGARDING EXPECTED POLICY DIRECTIONS AND INDUSTRY TRENDS), ABSOLUTE ENERGY CONSUMPTION AND EMISSIONS ARE EXPECTED TO BE APPROXIMATELY THE SAME IN 2050 AS THEY ARE TODAY. ANTICIPATED GAINS IN EFFICIENCY WILL BE OFFSET BY INCREASED CONSUMPTION ARISING FROM ECONOMIC AND POPULATION GROWTH.**
- 4. AGGRESSIVE ACTION WOULD BE REQUIRED TO MATCH THE PROVINCIAL TARGET OF 80% REDUCTION IN ABSOLUTE GHG EMISSIONS BY 2050. EVEN MORE**



**AGGRESSIVE ACTION WOULD BE REQUIRED IF THE PLAN WERE TO ADOPT THE GOAL OF ACHIEVING THESE TARGETS WITHOUT THE USE OF OFFSETS.**

## **Community Vision Survey**

**OEG SET THE OBJECTIVE OF ENSURING THAT BOTH TARGETS AND ACTIONS TO ACHIEVE THOSE TARGETS HAD A STRONG FOUNDATION OF SUPPORT IN THE COMMUNITY. OEG FORMED A COMMUNITY ENGAGEMENT SUBCOMMITTEE CONSISTING OF THE FOLLOWING MEMBERS:**

- **ABHILASH KANTAMNENI**
- **ALEX CHAPMAN**
- **BRANDON RACO**
- **KATE BISHOP**
- **KIRBY CALVERT**

**THE SUBCOMMITTEE SETTLED ON THE APPROACH OF A COMMUNITY VISION SURVEY TO OBTAIN DIRECTION FROM GUELPH CITIZENS. THE GROUP UNDERTOOK AN EXTENSIVE COMMUNITY ENGAGEMENT EFFORT TO SUPPORT THIS SURVEY, INCLUDING BOTH ONLINE AND PHYSICAL ENGAGEMENT CHANNELS.**

**A WEBSITE ([WWW.OURENERGYGUELPH.CA](http://WWW.ourenergYGUELPH.CA)) AND SOCIAL MEDIA ASSETS WERE DEVELOPED TO ASSIST WITH ONLINE ENGAGEMENT, ALONG WITH BRANDING AND VISUAL IDENTITY GUIDELINES. PHYSICAL AND WEB-BASED ASSETS WERE CREATED TO ASSIST WITH ENGAGEMENT, INCLUDING INFOGRAPHIC-STYLE CONTENT TO DEPICT THE FOLLOWING:**

- 1. BACKGROUND ON THE CEI AND OEG**
- 2. THE ECONOMIC STORY OF ENERGY IN GUELPH**
- 3. CHALLENGES WITH EXISTING SOURCES OF ENERGY**
- 4. THE OPPORTUNITIES OF INNOVATIVE AND CLEAN ENERGY**
- 5. THE OPPORTUNITY TO CREATE A CLEAN ENERGY INDUSTRIAL CLUSTER**

**THESE INFOGRAPHICS ARE INCLUDED HERE [INCLUDE LINK TO INFOGRAPHIC CONTENT]. THIS CONTENT WAS INCORPORATED INTO TRADE SHOW-STYLE PULL-UP BANNERS IN A MOBILE EXHIBIT NAMED THE ENERGY POP-UP INNOVATION CENTRE (EPIC). A CONTEST, INVOLVING A QUIZ (THE ANSWERS TO WHICH WERE FOUND ON THE BANNER DISPLAYS), WAS DEVELOPED TO ENCOURAGE PARTICIPATION. A FORM WAS ALSO DEVELOPED TO CAPTURE CONTACT INFORMATION FOR VISITORS INTERESTED IN PARTICIPATION AND VOLUNTEERING. FINALLY, A SURVEY INSTRUMENT WAS CREATED TO CAPTURE FEEDBACK FROM THE PUBLIC, AND MADE AVAILABLE IN BOTH PAPER AND ONLINE FORMATS.**

**TWO PUBLIC INFORMATION SESSIONS WERE HELD IN JUNE, ONE AT HARCOURT UNITED CHURCH AND THE OTHER AT THE EVERGREEN SENIORS CENTRE. THE SESSIONS WERE DESIGNED TO ACCOMMODATE DROP-IN PARTICIPATION THROUGH A**



**TOUR OF THE EPIC DISPLAYS, AS WELL AS TOWN HALL-STYLE PARTICIPATION THROUGH A SIT-DOWN PRESENTATION AND GROUP Q&A.**

**TURNOUT AT THESE SESSIONS WAS LOWER THAN HOPED. THE APPROACH WAS THEN REVISED SO THAT RATHER THAN INVITING THE COMMUNITY TO A DEDICATED EVENT HOSTED BY OEG, OEG WENT OUT INTO THE COMMUNITY WITH EPIC. THIS EFFORT TOOK PLACE FROM JUNE THROUGH SEPTEMBER, 2017.**

**SOCIAL MEDIA ENGAGEMENT CONTINUED THROUGHOUT THIS PERIOD WITH THE ASSISTANCE OF TRAFFICSODA, A SOCIAL MEDIA CONSULTANCY. THE RESULTS OF THESE EFFORTS ARE SUMMARIZED IN THE DOCUMENT *OUR ENERGY GUELPH – TRAFFIC SODA CASE STUDY*. AT THE SAME TIME, OEG APPEARED AT THE FOLLOWING EVENTS AND LOCATIONS:**

- LOCAL FOOD FESTIVAL
- ROTARY CLUB CANADA DAY CELEBRATION
- GUELPH FARMERS' MARKET
- GUELPH PUBLIC LIBRARY
- YMCA/YWCA OF GUELPH
- WEST END COMMUNITY CENTRE
- CANADIAN SOLAR
- DANBY
- DUBLIN STREET UNITED CHURCH

**THE LATTER THREE EVENTS WERE “LUNCH ‘N’ LEARN” FORMAT, WHILE THE OTHERS WERE TRADESHOW-STYLE EXHIBITS. THESE EVENTS WERE STAFFED CHIEFLY BY THE FOLLOWING OEG VOLUNTEERS, WHO GRACIOUSLY DONATED THEIR TIME AND TALENTS:**

- ABHILASH KANTANAMNENI
- KIRBY CALVERT
- JING CHEN
- SHREYA GHOSE
- REBECCA JAHNS
- BRANDON RACO
- JOHN “JP” THOMPSON

**IN ADDITION TO PROVIDING INFORMATION ABOUT OEG, THE HISTORY OF THE CEI, AND KEY ISSUES AND OPPORTUNITIES RELATED TO ENERGY IN OUR COMMUNITY, THESE EFFORTS SOLICITED TANGIBLE FEEDBACK FROM THE COMMUNITY VIA THE SURVEY. ONLINE INTERACTIONS DROVE COMPLETION OF AN ONLINE SURVEY; IN-PERSON INTERACTIONS AIMED AT HAVING PARTICIPANTS COMPLETE A PAPER-BASED SURVEY, WITH THE ALTERNATIVE OF COMPLETING THE SURVEY ONLINE. A TOTAL OF 406 SURVEYS WERE COMPLETED (229 ONLINE AND 177 HARDCOPY). WHILE FULL STATISTICAL RIGOUR WAS NOT EMPLOYED FOR THIS SURVEY, THE RESULTS ARE**

CONSIDERED A GOOD INDICATION OF COMMUNITY SENTIMENT. THE SURVEY INSTRUMENT IS PROVIDED HERE [ADD LINK TO SURVEY INSTRUMENT].

THE RESULTS OF THE SURVEY, AND ANALYSIS OF THE SAME, ARE PROVIDED IN THE REPORT *COMMUNITY INPUT INTO GUELPH'S COMMUNITY ENERGY PLAN: ANALYSIS AND INTERPRETATION OF SURVEY RESPONSES*.

THE KEY INSIGHTS FROM THIS REPORT ARE:

1. RESPONDENTS WANTED GUELPH TO HAVE TARGETS THAT LEAD AT THE PROVINCIAL, NATIONAL, AND INTERNATIONAL LEVEL.
2. COMPETING NARRATIVES IN THE SURVEY RESULTS WILL NEED TO BE ADDRESSED THROUGH ONGOING COMMUNITY OUTREACH AND AWARENESS-BUILDING (E.G. COMMUNICATE A SENSE OF THE PATHWAY TO ACHIEVING TARGETS, TO AVOID A SENSE THAT THIS IS SIMPLY A MARKETING TACTIC; COMMUNICATE HOW THE LIMITATIONS OF THE MUNICIPAL/COMMUNITY SPHERE OF INFLUENCE MIGHT BE OVERCOME).
3. CLARIFY THAT GOVERNMENT WILL NOT HAVE SOLE RESPONSIBILITY FOR ACHIEVING TARGETS.
4. KEY WORDS DESCRIBING GUELPH'S IDEAL ENERGY FUTURE INCLUDED "RENEWABLE", "CONSERVATION", "CLEAN", "SUSTAINABLE", "AFFORDABLE", "INFORMED", "SELF-SUFFICIENT", "INCLUSIVE", AND "LOCAL".
5. KEY WORDS DESCRIBING HOW TO ACHIEVE THIS FUTURE INCLUDED "RENEWABLES", "SOLAR", "CONSERVATION", "INFORMATION", "INVESTMENT", AND "PLANNING". ACTIONABLE MESSAGES INCLUDED (IN ORDER OF PRIORITY):
  - A. RAISE AWARENESS
  - B. IMPLEMENT/TAKE DIRECT ACTION
  - C. LEADERSHIP IN LOCAL GOVERNMENT
  - D. DEVELOP PARTNERSHIPS
  - E. SUSTAINABILITY PLANNING
  - F. MAKE INVESTMENTS
  - G. DEVELOP INCENTIVES

## Response

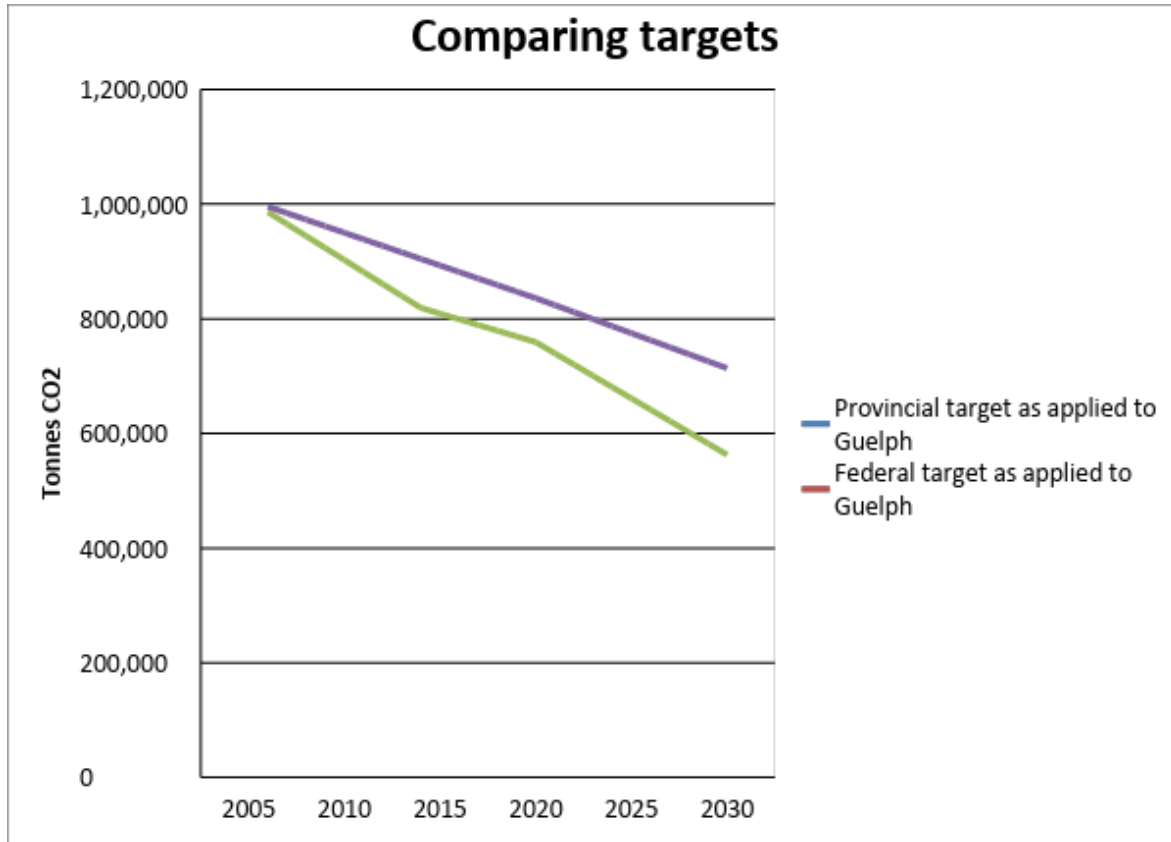
OEG USED THE RESULTS OF THE ABOVE RESEARCH AS INPUTS TO THE PROCESS OF SETTING NEW TARGETS FOR THE CEI.

TO RECAP, THE TWO KEY TARGETS OF THE ORIGINAL CEI WERE TO REDUCE ENERGY CONSUMPTION BY 50% AND GHG EMISSIONS BY 60% OVER 2006 LEVELS BY 2031.

## Federal and provincial targets

WHEN GUELPH DEVELOPED ITS COMMUNITY ENERGY PLAN (LATER THE CEI) IN 2006, THERE WERE NO FEDERAL OR PROVINCIAL CLIMATE CHANGE TARGETS. THIS IS NO

LONGER THE CASE. THE FEDERAL AND PROVINCIAL TARGETS OUT TO 2030 ARE SHOWN BELOW.



THE TARGETS ARE CALCULATED BY TAKING THE OVERALL TARGET FOR THE PROVINCE OR THE COUNTRY, AND MULTIPLYING IT BY GUELPH’S PERCENTAGE OF TOTAL POPULATION AS OF 2006.

**THE PROVINCIAL TARGET FOR 2030 REPRESENTS A 43% ABSOLUTE REDUCTION OVER 2006 LEVELS; THE FEDERAL 28%. THE PROVINCIAL TARGET IS ALIGNED WITH THE NATIONALLY DETERMINED CONTRIBUTION UNDER COP21, SO IT MATCHES THE INTERNATIONAL TARGET.**

THE PROVINCE HAS ALSO SET A 2050 TARGET OF 80% REDUCTION IN GHG EMISSIONS OVER 1990 LEVELS.

### Absolute or Per-capita?

THE ABOVE TARGETS ARE ABSOLUTE, AND HENCE DO NOT CONSIDER THE EFFECT OF POPULATION GROWTH. AS THE POPULATION GROWS, IT BECOMES INCREASINGLY DIFFICULT TO MEET ABSOLUTE TARGETS SINCE THE ADDITIONAL POPULATION DEMANDS ADDITIONAL ENERGY; EVEN SIGNIFICANT ENERGY EFFICIENCY



IMPROVEMENTS COULD BE COMPLETELY NEGATED BY THE ARRIVAL OF ADDITIONAL RESIDENTS.

THE PROVINCE RECOMMENDS SETTING LOCAL TARGETS BASED ON THE PROVINCE-WIDE TARGET, BUT SCALED DOWN ACCORDING TO THAT LOCALE'S SHARE OF THE PROVINCIAL POPULATION IN A SPECIFIED YEAR. THIS FORMULA RESULTS IN MANDATES FOR EMISSION REDUCTIONS THAT ARE INHERENTLY LESS AGGRESSIVE IN LOWER-GROWTH COMMUNITIES, BUT MORE AGGRESSIVE IN HIGHER-GROWTH COMMUNITIES. **THE PROVINCIAL GROWTH PLAN ANTICIPATES STEEP POPULATION INCREASES FOR GUELPH, MAKING THE PROVINCIAL TARGET-SETTING FORMULA PROBLEMATIC.**

WHILE A PER-CAPITA TARGET WOULD PRODUCE LESS DISPARITY BETWEEN REGIONS, THIS APPROACH WOULD HAVE TO BE USED PROVINCE-WIDE AND WOULD NEED TO BE REVISED BASED ON ACTUAL POPULATION INCREASES. THE CARBON BUDGET, WHICH IS THE AMOUNT OF CO<sub>2</sub> WE CAN EMIT WHILE STILL HAVING A LIKELY CHANCE OF LIMITING GLOBAL TEMPERATURE RISE TO 2 DEGREES CELSIUS, RESPECTS ONLY ABSOLUTE NUMBERS.

## The people have spoken

AS MENTIONED ABOVE, THE COMMUNITY VISION SURVEY PRODUCED A SAMPLE SIZE ABOVE THE THRESHOLD REQUIRED FOR STATISTICAL SIGNIFICANCE. HENCE, IT CAN BE TRUSTED TO REPRESENT THE WISHES OF THE GUELPH COMMUNITY.

**WHEN ASKED WHETHER GUELPH SHOULD HAVE TARGETS THAT LEAD — PROVINCIAALLY, FEDERALLY, AND INTERNATIONALLY — RESPONDENTS OVERWHELMINGLY SAID YES (79.8%). THIS GAVE OEG A MANDATE TO SET TARGETS THAT ARE ALIGNED WITH THIS SENTIMENT.**

## Town to town, up and down the dial

THERE IS NO LEVEL PLAYING FIELD FOR EMISSIONS REDUCTIONS.

RURAL COMMUNITIES, SUCH AS THE NEIGHBOURING GUELPH-ERAMOSIA TOWNSHIP, HAVE HIGH TRANSPORTATION ENERGY REQUIREMENTS BECAUSE INHABITANTS MUST TRAVEL LONG DISTANCES FOR WORK, SHOPPING, AND ENTERTAINMENT. URBAN COMMUNITIES, BY CONTRAST, BENEFIT FROM THE FACT THAT ALL THE NECESSITIES OF LIFE ARE COMPARATIVELY CLOSE TOGETHER. **GUELPH IS CONSIDERED URBAN BY MOST MEASURES.**

COMMUNITIES WITH SIGNIFICANT HEAVY INDUSTRY, SUCH AS HAMILTON, HAVE HIGH INDUSTRIAL ENERGY REQUIREMENTS THAT ARE DIFFICULT TO REDUCE. BY CONTRAST, COMMUNITIES WITH A SIGNIFICANT SHARE OF EMPLOYMENT FROM KNOWLEDGE-INTENSIVE BUSINESSES, SUCH AS KITCHENER-WATERLOO, HAVE MUCH LOWER

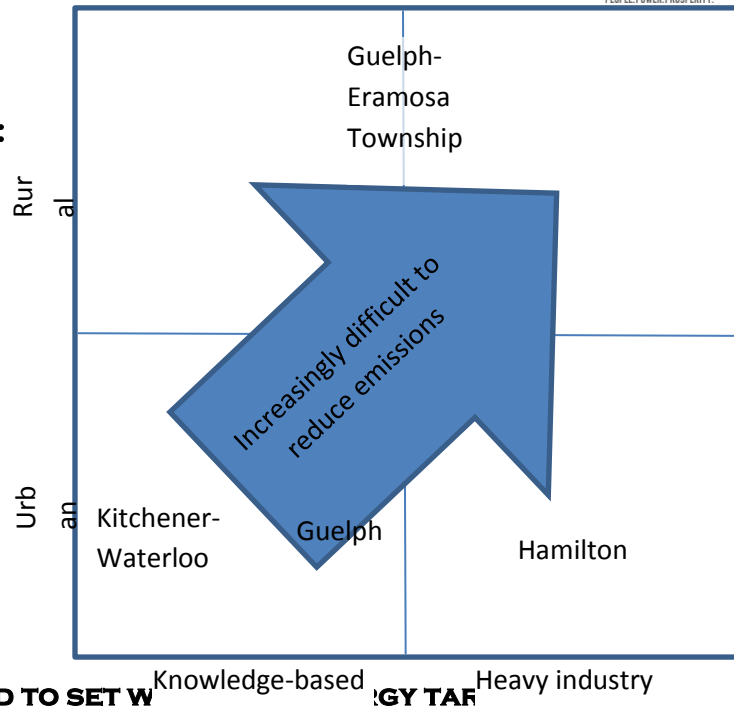


ENERGY REQUIREMENTS FOR INDUSTRIAL, COMMERCIAL AND INSTITUTIONAL SECTORS. **GUELPH FALLS SOMEWHERE IN THE MIDDLE: WE HAVE SOME KNOWLEDGE-BASED INDUSTRY (OMAFRA, UOFG, UGDSB, ETC.) AS WELL AS SOME LIGHT TO MEDIUM INDUSTRY (LINAMAR, POLYCON, HITACHI).**

### Energy? carbon? Both?

THE CEI PROPOSED TARGETS FOR BOTH ENERGY AND CARBON. OTHER ORDERS OF GOVERNMENT HAVE NOW SET TARGETS FOR CARBON, BUT NOT FOR COMMUNITY-SCALE ENERGY USE.

**OEG THEREFORE HAS A FREE HAND TO SET WHAT IS CONSIDERED REASONABLE. IT WAS DECIDED TO BEGIN WITH A GHG TARGET, AND THEN ESTABLISH AN ENERGY TARGET ALIGNED WITH THAT.**



TO REITERATE, OEG IS GUIDED BY THE FOLLOWING KEY BELIEFS:

1. REDUCED ENERGY COSTS
2. STRONG LOCAL ECONOMY
3. RESILIENT, HEALTHY COMMUNITIES

TAKING INTO CONSIDERATION ALL OF THE ABOVE INFORMATION, OEG TASK FORCE MEMBERS WERE ASKED TO VOTE ON THREE POSSIBLE ALTERNATIVE CARBON TARGETS:

1. MATCH THE PROVINCE.
2. BEAT THE PROVINCE’S 2050 TARGET BY 10%. (“10 BY 50”)
3. ACHIEVE NET ZERO CARBON BY 2050. (“ZERO BY 50”)

THE RESULT OF THE VOTE IS SHOWN BELOW.

# Guelph will achieve net zero carbon by 2050.

TO MEET OR EXCEED THIS TARGET, OUR UPDATED COMMUNITY ENERGY INITIATIVE WILL IDENTIFY WAYS TO:



- 1. TAKE ACTIONS WITHIN OUR SPHERE OF INFLUENCE, AS A COMMUNITY AND AS A MUNICIPALITY**
- 2. DEVELOP STRATEGIC PARTNERSHIPS TO MAXIMIZE AND EXPAND THAT SPHERE OF INFLUENCE**
- 3. ADVOCATE FOR PROVINCIAL AND FEDERAL ACTION TO SUPPORT OUR EFFORTS**

# FROM STRATEGIC PLANNING TO IMPLEMENTATION PLANNING

A review of emerging standards in community energy  
planning to support Phase 1 of Guelph's Community Energy  
Initiative Update

Prepared for:

Guelph Community Energy Initiative Task Force

Prepared by:

Kirby Calvert, PhD & Ian McVey, B.Comm/MES  
Co-Directors, Community Energy Knowledge-Action Partnership

February 15, 2017

**Contents**

Summary / Highlights ..... 2

About the Authors & Acknowledgements ..... 3

List of Acronyms..... 3

1. Background..... 4

    Why do this now? ..... 4

    Why do this at all? ..... 5

2. Purpose and Scope of the Document ..... 5

3. Principles & Approaches for Effective CEP Development ..... 6

    Work from a Baseline ..... 6

    Clarify the Scope ..... 7

    From Strategic Planning to Implementation Planning ..... 7

    Account for Interdependence through Integrated Energy Planning ..... 12

        Across Sectors and the Supply Chain..... 12

        Across services and their respective planning divisions ..... 13

        Across administrative units..... 13

    Community Engagement ..... 14

        Frameworks for Community Engagement ..... 15

4. Conclusion and Next Steps..... 16

References ..... 17

## Summary / Highlights

- Community energy plans, in spirit and in practice, are predicated on the idea that pending structural changes to our energy systems will be easier to foresee, to manage, to capitalize on, and to accept, if they are guided by a strategic community energy plan.
- Guelph has the resources and capacity to pursue a ‘comprehensive’ community energy plan; i.e., a plan that combines initiatives in energy conservation, local distribution, and local supply.
- Community energy plans are most creative when they work from a set of high-level visions and goals (strategic planning), and are most successful when those visions and goals are translated into intermediate objectives and initiatives with assigned responsibility to empowered stakeholders for action (implementation planning)
- The ‘success’ of a community energy plan is most appropriately assessed based on a combination of process and outcome indicators tied to intermediate objectives and initiatives (i.e., the implementation plan), not to the high level visions and goals
- Early community engagement is critical to success in the near and the long term. Developing a strategy for community engagement must be a near-term priority of the Task Force.
- A proposed process by which to update Guelph’s CEI, based on state-of-art theory and consensus around best practice, is described in Figure 1
- This document contains a series of ‘considerations’ that the Task Force may want to discuss/debate before moving forward.

## About the Authors & Acknowledgements

*Dr. Kirby Calvert* received his PhD in Geography (2013) at Queen's University in Kingston Ontario, where he worked with the Queen's Institute of Energy and Environmental Policy. After two fulfilling years as an assistant professor in the Department of Geography at The Pennsylvania State University where he was cross-appointed with the Penn State Institutes of Energy and Environment (2013-2015), Kirby returned to Canada to join the Department of Geography at the University of Guelph. Dr. Calvert is Co-Director and Principal Investigator of the Community Energy Knowledge-Action Partnership (CEKAP); a national partnership of universities, municipalities, and other non-academic partners with shared interests in improving the process and outcomes of community energy planning ([www.cekap.ca](http://www.cekap.ca)). He has studied energy policy issues in Ontario and elsewhere using both qualitative and quantitative techniques for approximately eight years, with a focus on land-use issues and the trend toward decentralized energy governance.

*Ian McVey* is a Project Manager with the Ontario Climate Consortium (OCC) based within the Toronto and Region Conservation Authority. In his role with the OCC Ian leads efforts to support Ontario municipalities with low carbon policy and planning. Along with Dr. Calvert, Ian is the co-director of the SSHRC-funded Community Energy Knowledge Action Partnership (CEKAP). Ian has more than eight years of experience as a climate policy analyst, having worked in roles with Federal Government agencies, provincial government, the private sector and civil society organizations. Most relevant to this project, Ian led the OCC's research addressing best practices for the integration of climate change into the land use planning framework in the Greater Golden Horseshoe Region.

We would like to acknowledge the research support of Kelly Wildfong and Rob Kerr. Also acknowledge the feedback from various CEKAP members. And of course we are grateful for those who engaged as willing participants in this research.



### List of Acronyms

CEP = Community Energy Planning  
CEI = Community Energy Initiative  
QUEST = Quality Urban Energy Systems of Tomorrow  
DER = Distributed Energy Resources  
GTI = Getting to Implementation

## 1. Background

The City of Guelph has initiated a process to update the City of Guelph Community Energy Initiative (CEI), first established in 2006. At its core, a community energy plan (CEP) documents a community's vision for how it can leverage energy systems to achieve broader social, environmental, and economic objectives. 'Community' implies a collective and inclusive endeavor, in which local government is one among many stakeholders and agents of change. 'Plan' implies a comprehensive and long-term view. Although CEPs will look different across communities, due to differences in institutional capacity, community values, and comparative advantages, generally speaking a CEP is best described in two parts. First, a set of goals for energy efficiency gains, greenhouse gas emissions reductions, and local sustainable energy solutions in the community. Second, a roadmap or blueprint to achieving those goals. This roadmap or blueprint includes a description of possible technological changes, institutional changes, social changes (civil influence), and / or strategic social and institutional partnerships that need to be in place.

### Why do this now?

The timing could not be more appropriate. A decade removed from Guelph's first CEI, the conditions under which, or the context within which, community energy initiatives are established and implemented have changed dramatically:

- More than 150 communities representing more than 50% of the Canadian population now have a CEI of some kind (Littlejohn and Laszlo, 2015). A 'first mover' in 2006, Guelph now has a long list of peer communities from which to learn, and to develop a much improved version of its original CEI.
- Electricity systems and electrical utilities are being forced to change with the onset of cost-competitive distributed energy resources (DERs) (EDA, 2017). Declining costs of "solar plus storage" and efficiency improvements, set against increasing market rates and rising consumer empowerment, has the potential to drive ratepayers off the system (the so-called 'utility death spiral'). Utilities must think strategically about how it will adapt; e.g., by acting as a service platform rather than a commodity carrier and / or investing in DERs directly through unregulated activities.
- Ontario's electricity system is much less greenhouse gas intensive after extensive fuel switching at the provincial level away from coal. Now, the most GHG intensive sectors are transport, industry, and buildings; sectors that can be directly engaged by local-level energy initiatives.
- Electric and other alternative-fuel vehicles are re-shaping urban mobility patterns and fuel supply infrastructures which will have a direct and increasingly significant impact on Guelph's broader urban planning processes and objectives.
- A paradigm shift has occurred in Canada's governance system. The federal and provincial governments are increasingly relying on and mandating municipalities to establish and implement local action plans around climate mitigation and adaptation. Through a more advanced CEI, Guelph will align with this paradigm shift, and will develop a clear sense of what the City needs from other orders of government in order to deliver on its mandate.
- Related to this, governance over Ontario's energy system is rapidly decentralizing, as exemplified by the IESO Integrated Regional Resource Planning process. Also, in 2014

the OEB have implemented a Renewed Regulatory Framework for Electricity which, among other things, requires Distribution System Plans to improve coordination between utilities.

### **Why do this at all?**

How quickly those structural changes described above will unfold in any given community is an open question. What is clear, however, is that all of those trends manifest at the local level in terms of new service delivery models, new economic opportunities, new landscapes, and new pressures on energy bills. Community energy plans, in spirit and in practice, are predicated on the idea that these structural changes will be easier to foresee, to manage, to capitalize on, and to accept, if they are guided by a strategic community energy plan (GTI, 2016). In other words, community energy plans:

- Provide a framework for decision-making and a focal point for conversation across local stakeholder groups and citizens as new opportunities and challenges arise
- Help to overcome policy failure by filling a void left by government (Cowell et al., 2015; Van der Schoor and Scholtens, 2015). Community-level issues are sometimes outside of the purview of provincial-level planning activities. Municipal-level activities can fill this void under certain conditions, which is the impetus behind decentralizing energy planning activities. More importantly, formal government action is by itself insufficient to manage the structural changes described above. Government at all levels has a limited influence on energy systems; limitations that can be overcome if problems are scoped and solutions are identified with meaningful input from the general community, business leaders, civic leaders, academics, and other non-government organizations.
- Help to overcome market failure. The development and implementation of CEPs helps to raise awareness about the economic benefits of new energy technologies and behaviors. Often, failure to adopt among the general public is related to poor messaging, low awareness, and / or lack of trust. CEPs include strategies to overcome these failures, and the process of developing a CEP is itself an opportunity to engage with the consumer base.

## **2. Purpose and Scope of the Document**

This document provides a summary of the core principles that have emerged around CEPs over the last decade, with the intention to guide the activities of the Task Force through Phase 1 of the CEI Update Process. As the document unfolds, a set of ‘considerations’ will be put forward to the Task Force. Decisions made around these considerations will form the structure by which Task Force activities unfold.

The summary and recommendations contained in this document have been established based on a review of practitioner and academic literature around community energy planning. Priority was given to literature that combined theories of effective governance with case-study analysis of CEP in practice. In particular, the review builds heavily on recent research conducted by the ‘Getting to Implementation’ project which involved extensive research in communities across Canada by three research organizations: QUEST, the Community Energy Association, and the Smart Prosperity Institute. While recognizing



the need to account for unique policy, political, and market conditions in Ontario and Canada more generally, the scope of the review included jurisdictions that have a longer and richer history of decentralized energy systems and local energy system planning, especially Scandinavian and Western European countries (which, it should be noted, have many similarities to the Canadian context in terms of the factors that bear heavily upon energy planning policies and practices: developed market economies, liberal democracies, multi-level governance arrangements, pressures on urbanization, growing urban-rural tensions).

This document represents the first in a series of three reports. The second report in this series (March 13) will provide more details on the following, based on a deeper analysis of experiences across peer communities in Ontario:

- Targets that have been set across other Canadian jurisdictions at the ‘visioning’ stage of CEP development (see Figure 1 below)
- The specific tools and procedures used for community engagement
- The municipal sphere of influence
- The roles that a municipality can play in implementation and implementation planning

The third report in this series will provide an inventory of policies and programs from provincial governments and agencies that can support Guelph’s efforts in CEP development and implementation. This will include recommendations on which and how to engage those opportunities, along with a high-level regulatory risk analysis.

### **3. Principles & Approaches for Effective CEP Development**

The technical and policy principles of community energy planning are at least three decades in the making (e.g., Wene et al., 1988; Jaccard et al., 1997; GTI, 2016). In large part, these principles have been established around the assumption that community energy plans would be led directly by municipal governments, using only the tools directly available to municipal staff. Our undertaking in Guelph is unique, in that it represents an attempt to move the CEP out of City Hall through a Task Force and by clearly defining the role of the municipality as more than just the ‘implementer’ of the plan. With this in mind, this section identifies and describes a set of core principles that have been deemed critical to the success of Guelph’s efforts. Throughout this section, a set of ‘considerations’ have been identified for the Task Force to discuss, leading into Phase 1 of the CEI Update process.

#### **Work from a Baseline**

As a matter of first principles, all CEPs are based on an inventory of energy use and emissions across the territory in question. Indeed, provincial and federal governments are increasingly mandating such inventories. In order to make meaningful comparisons across time and space, standard protocols for developing inventories must be developed. Fortunately, a range of modeling tools and data sharing protocols are emerging in Canada to support these efforts (NRCan, 2015), along with standard protocols (accounting and reporting guidelines) through which to conduct greenhouse gas emissions estimates at the

municipal level (FCM, 2014). In many communities, inventories and estimates are visualized in a geographic information system in order to conduct more refined analyses in a spatial environment and to use maps as public communication tools (GTI, 2016).

Consider: adopting protocols espoused by federal or provincial organizations such as the Emissions Analysis Protocol developed by the Federation of Canadian Municipalities (see FCM, 2014) in order to align with other orders of government.

Consider: formulating data-sharing procedures across institutions and in particular the development of a 'common GIS' across municipal services

### Clarify the Scope

CEPs can take different forms depending on financial resources, political support, and community willingness. In its simplest form, a CEP centers on a single project which is typically targeted at energy conservation and efficiency. In many cases, CEPs focus almost exclusively on downstream, demand-side activities such as building retrofits or public transit (see CMHC, 1999; Pitt & Bassett, 2013). At its most complex, a CEP builds from conservation (as the 'first fuel') to also consider local distribution and local supply. Comprehensive approaches are strongly endorsed by leading organizations such as QUEST, the Smart Prosperity Institute, and the Community Energy Association (GTI, 2016), Natural Resources Canada (see NRCan, 2007), and the United States Department of Energy (see DoE, 2013). Only a comprehensive plan can engage all of the drivers of structural change described earlier. Furthermore, comprehensive planning enables creative forms of system integration that have higher potential to achieve energy and emissions targets and ensure long-term community benefit (Garforth, 2009; St. Denis & Parker, 2009). The benefits of system integration are discussed in a [later section](#).

The decision to engage in a simple versus a comprehensive energy plan is often driven by financial resources. Based on experience across practitioners, a comprehensive plan is possible with a budget between \$100,000-250,000 (GTI, 2016). As a result of provincial funding and Council support, the resources available to Guelph's CEI Update Process fall well within this range.

Consider: scoping the CEI Update process as 'comprehensive' in nature

### From Strategic Planning to Implementation Planning

The notion that energy systems will undergo 'disruptive' change is rarely an overstatement when considering the structural drivers of change described in [Section 1](#) of this report. One of the overall objectives of a CEP is to identify, understand and manage these disruptions for long-term community benefit. Framing CEPs in this way requires a shift in

focus *from innovation systems*, where the gaze is centered around the core functions of specific innovation networks or technologies and their ability to promote greener goods and services, *to system innovation*, where the gaze is broadened to consider interdependence across the institutions and infrastructures that constitute the fabric of society and the way we produce, distribute, and use energy. In order to address these challenges, many of the leading municipalities in Europe have adopted and adapted the ‘transition management’ approach to local energy planning (e.g., Loorbach and Rotmans, 2010; Frantzeskaki et al., 2012).

The transition management approach has three features. First, planning activities occur within a ‘transition arena’. A transition arena refers to a forum for so-called ‘community leaders’ to engage in focused discussion, separately from the forums in the political arena such as community events and Council proceedings. In other words, meeting minutes are not circulated publically and City staff are available as resources and facilitators, not members. This principle has been implemented across Canada (GTI, 2016) as well as leading jurisdictions across the US (Pitt and Bassett, 2011) and Europe (Loorbach and Rotmans, 2010). The CEI Update Task Force epitomizes best practices here: supported by dedicated City staff to ensure long-term viability as voluntary members come-and-go, with clear terms of reference to ensure some level of direction and autonomy.

Experience to date demonstrates that ‘transition arenas’ lead to a higher likelihood for success for three reasons. First, the forum helps to drive the discussion forward, avoiding stalled visions and processes. Second, the forum brings many of the key ‘change agents’ into the room, since it by definition enrolls motivated community members (a self-selected group). Third, the forum is an efficient means of community engagement as forum members act as ‘channel partners’ to the broader community (as discussed in a [later section](#)). This third factor is critical – the legitimacy and effectiveness of recommendations and plans which emerge from the ‘transition arena’ are strongly tied to the nature and extent of community engagement.

Consider: the Task Force a ‘transition arena’ and an institutional back-bone for ongoing CEP development and implementation in Guelph (with membership turnover, of course).

Consider: parking tactical level conversations for a later date, and focusing instead on high-level strategic conversations such as visions and goals.

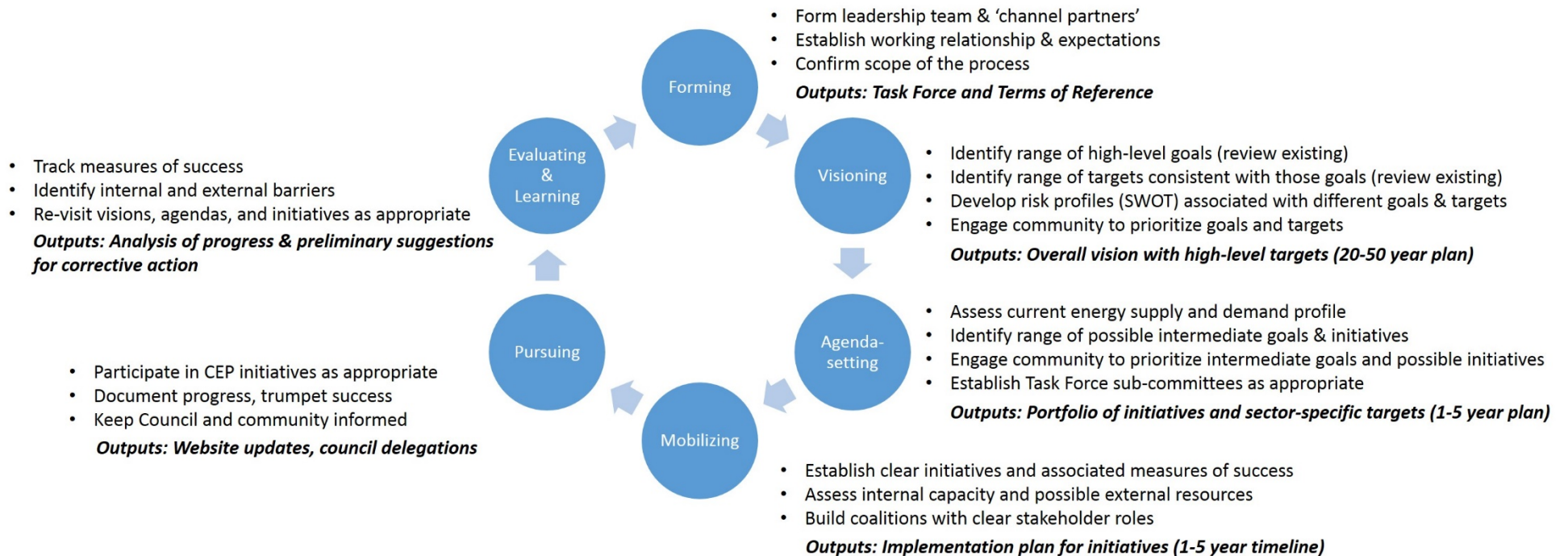
Consider further: beginning Phase 1 at the ‘monitoring and learning’ stage of the transition management approach as shown in Figure 1, which would involve using the targets and progress from CEI 2007 as a starting point rather than starting from scratch.

Second, the transition management approach unfolds in a series of planning exercises that move from strategic to operational activities (see Figure 1). Planning exercises begin with a long view, centering on visions and goals which define the alternative futures that are desired by the community. The tactical level conversations, whereby the intermediate

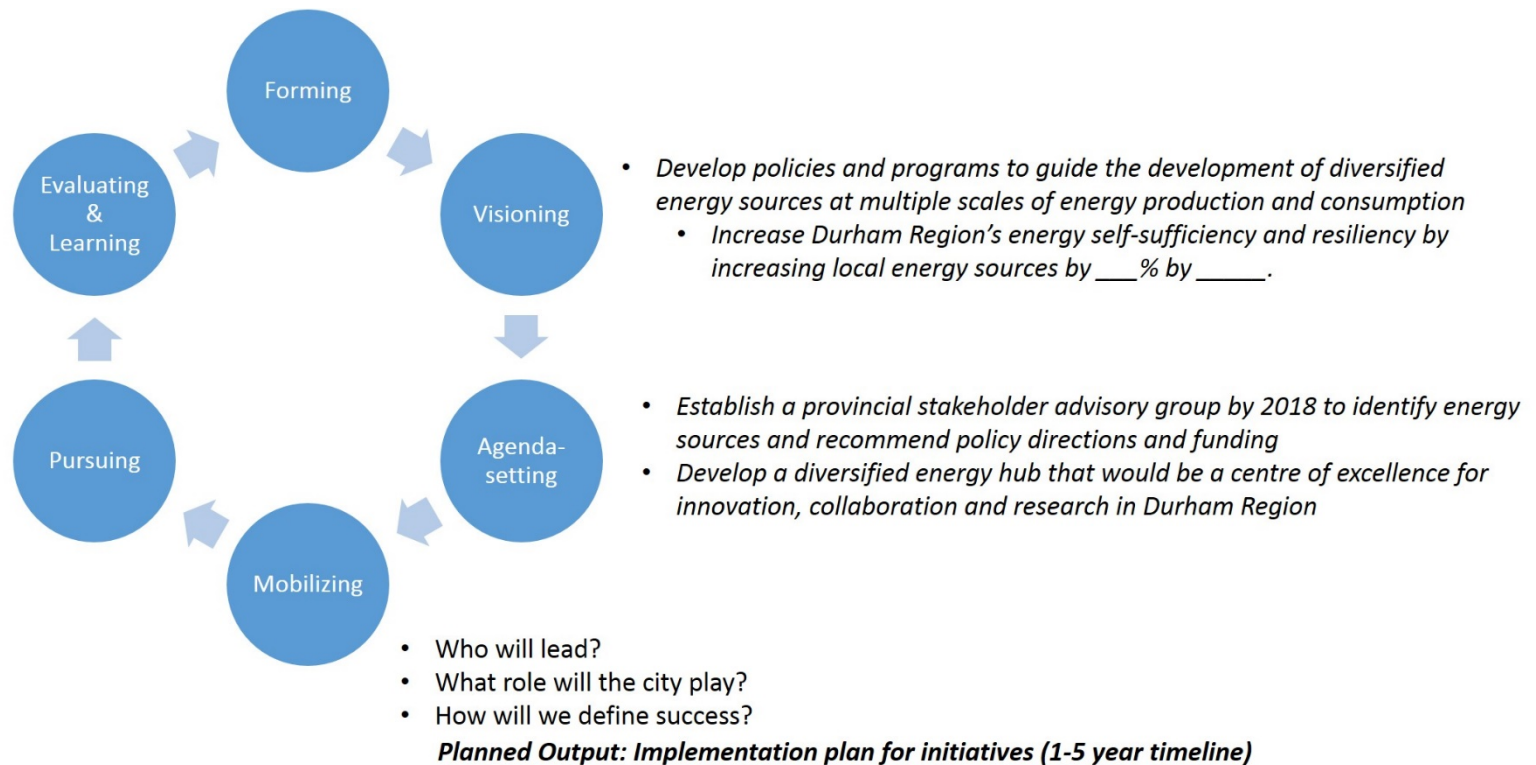
objectives and activities necessary to achieve those goals are defined, come later – in the terms of the Guelph CEI Update Process, in Phase 2 of the process. Tactical level conversations focus on activities at the level of subsystems that attempt to build up and break-down system structures (institutions, regulation, physical infrastructures, financial infrastructures and so on). Without being framed in the context of long-term strategic objectives, those tactical level conversations can be incoherent and inconsistent. Furthermore, framing tactical level conversations within a broader strategic vision helps to ensure more creative solutions that are not limited by (and in fact can focus on circumventing) existing institutional or infrastructural confines.

Third, the transition management approach is an exercise of governance – i.e., management by a combination of government and non-governmental actors. This is consistent with the discussion above, in terms of overcoming market and policy failure. This also implies varying roles for government, beyond their traditional regulatory role. A later report will provide more insight on the role that the municipal government can play and has played in CEP implementation across Canada.

Figure 1 below provides a generic structure to the process that will guide the Task Force’s activities throughout the Update process. Although depicted in sequence, many of these activities may happen in parallel. It is also important to note that activities are already occurring at later stages of this process. The Guelph Energy Efficiency Retrofit Strategy, for instance, is currently at the ‘Mobilizing’ stage. Figure 2 provides an example of outputs at early stages in this process, based on recent experiences in Durham Region (who are currently at the ‘Mobilizing’ stage). Figure 2 hopefully serves to clarify expectations at each stage of this process.



*Figure 1: A strategic approach to community energy planning, the activities and outputs that might be expected of the Task Force. The approach described here is rooted in the principles of transition management (Loorbach and Rotman, 2010) and builds on experiences across North America as summarized by GTI (2016), USDOE (2013), and Natural Resources Canada (2007). The Guelph CEI Update process would end at the ‘mobilizing’ phase. The metrics used to measure success of the new CEI would be based on the implementation plan (either process or outcome indicators), not the high-level targets, since many of the factors which determine our ability to reach those aspirations are beyond the control of the community and the municipality. Although sub timelines are shown, these are not usually predetermined.*



*Figure 2: An example of how the process unfolded over the course of Durham Region's planning process, from high level goals in the visioning stage to more specific initiatives in the agenda-setting stage. Durham Region is currently at the 'mobilizing' stage, thinking through questions that will help them build an implementation plan.*

## Account for Interdependence through Integrated Energy Planning

### *Across Sectors and the Supply Chain*

Energy planning processes are typically organized in terms of energy end-use sectors (e.g., buildings, mobility, waste, industrial activity). Once those sectors are defined, they may be further disaggregated (e.g., breaking down ‘buildings’ into ‘residential’, and then into ‘multi-unit’ vs. ‘detached’) and then characterized in terms of their energy profiles (e.g., electricity, heat, transport fuels). Sectoral disaggregation is critical in order to account for differences in regulatory frameworks, decision-making criteria, motivations, and barriers to act. For example, the range of alternative fuels that are economically viable in the heavy duty transport sector is much narrower than those available to the light duty sector; and the commercial, institutional and multiunit housing sectors provide an economy of scale for retrofit activities that bears lower hanging fruit for efficiency gains than the detached housing sector. These differences can only be considered with careful disaggregation and analysis. Furthermore, disaggregation helps to improve community engagement, as it establishes the basis upon which specific organizations and individuals can be understood and engaged throughout the process.

As opportunities to integrate infrastructural systems emerge, however, planning processes must follow suit. The possible electrification of the light duty vehicle fleet, for example, is encouraging the combination of electricity system planning with transport and land-use planning to ensure access to electric vehicle charging stations. Considerations to use compressed (renewable) natural gas in municipal vehicle fleets brings the transport sector into direct contact with the heating system and with feedstock systems such as agriculture and wastewater. The deployment of highly efficient cogeneration technologies requires careful consideration of heat and electricity markets and consumption patterns. District energy can take advantage of spatial proximity of cross-sector energy demands to maximize total energy efficiency.

In any case, as a matter of best practice, the planning arena should be broadened from single-sector strategies to system-level strategies (Jaccard et al., 1997; Garforth, 2009). There is a growing recognition that integrated energy planning and systems-level thinking will help to avoid ‘lock-in’ from sunk costs, and work toward system-level changes that help ensure long-term community benefit. Layering conservation objectives into local distribution and distributed generation opportunities have potential to dramatically reduce total energy consumption per capita and per unit of productivity, thereby reducing emissions while maximizing the economic performance of the energy system (Garforth, 2009; EDA, 2017). To achieve system-level change and capture the benefits of distributed energy resources, planning efforts and community discussions must cut across sectors.

Consider: Strategies (visions and agendas) that transcend sector-specific constraints  
Consider further: the establishment of sub-committees as deemed appropriate to explore cross-sector synergies and conflicts that need to be addressed as part of an implementation plan (e.g., utility coordination committee; intermodal transport committee).

### *Across services and their respective planning divisions*

The implementation of a CEP requires various degrees of municipal involvement to achieve success. There are two principal factors which shape the ability of a municipality to engage in CEP implementation. First is the municipal sphere of influence over energy systems, which will be discussed in Report 2. Second is the level of intra-municipal coordination, which we discuss briefly here.

Community energy plans are no longer about energy alone. Energy systems are increasingly seen as integral to outcomes in public health, land-use, economic development, social justice, and environmental sustainability. As such, CEPs are conceptualized as the start of a process by which energy systems are leveraged to achieve broader social, economic, and environmental goals. In practice, CEPs touch on, and in some cases are formally integrated with, plans to alleviate poverty, improve environmental performance, advance economic development, reduce municipal debt loads, improve public health, and other issue domains have some roots in the way energy is produced, distributed, and use (Koirala et al., 2016).

Energy plans must therefore be developed with these connections and interdependencies in mind (Sperling et al., 2011) and then implemented by way of embedding and coordinating the goals and principles of CEPs throughout Official Plans and Secondary Plans (Evenson et al., 2013). This, in turn, will help to ensure that the principles of CEPs filter through urban design as well as the delivery of municipal services such as water and waste management. Perhaps more importantly, integrated planning activities will help to ensure that the CEP does not impose unwarranted costs or constraints on health planning, land-use planning etc, and vice versa.

### *Across administrative units*

CEPs are nested within a multi-scalar and interdependent system of institutions and energy infrastructure. Jurisdiction over key components of energy systems, such as energy generation and distribution infrastructure, is divided across levels of government. This multi-level governance context opens and closes (enables and disables) opportunities for the implementation of CEPs. Furthermore, infrastructure systems and energy markets operate outside of the control of any single community. The CEP cannot be limited by these constraints. Rather, the CEP process needs to be approached as an opportunity to explore ways to circumvent limits in the municipal sphere of influence.

Local energy systems are part of a much larger network of energy flows. And many of the renewable resources with which communities hope to achieve a more sustainable energy supply are accessible in rural areas. As such, regional and intermunicipal planning has become increasingly prominent in some European jurisdictions with longer histories of local energy planning. Common benefits include greater institutional capacity through combining resources, managing possible urban-rural tensions, and reaching economies of scale, and ensuring that plans coordinate rather than conflict, e.g. transport planning in common commuter-sheds. In some cases, regional plans develop due to a formal structural change in the governance system, as supported by higher orders of government either



through mandate, devolution of powers, or new resources. In other cases, regional planning is more organic. In these cases, regional planning can be driven by a common spatial identity and shared values that transcends municipal borders (e.g., Murau, an alpine district in Austria as described in Spath and Rohracher, 2010), a common experience of economic depression or stagnation that might be overcome through a regional approach to energy system management (e.g., Parkstad Limburg, a cooperation of 8 municipalities described in the Netherlands in Loorbach and Rotmans, 2010; an emerging 'green region' centered on Worcester, Massachusetts described in McCauley & Stephens, 2012); or recognition of the potential to be a powerful regional hub for innovations (e.g., the German cities of Emben and Bottrop, described in Mattes et al., 2015). All that said, the benefits of regional planning needs to be carefully discussed before any formal engagement, due to added time requirements and political dynamics that can make plan development and implementation challenging (Warbroek and Hoppe, 2017).

Consider: engaging with rural and regional counterparts as early as the agenda-setting stage (see Figure 1 below), before an implementation plan is established.

Alternatively, consider: engagement with rural and regional counterparts as an intermediate objective as part of an implementation plan.

Consider: the conditions under which Guelph and the Task Force might participate in inter-municipal energy planning (probably as part of implementation planning).

Consider further: identifying barriers and opportunities within Guelph's multi-level governance and infrastructural system at the agenda-setting stage, so that they are

## Community Engagement

Community engagement helps to build networks, manage expectations and facilitate learning: all of which are widely recognized as the most important factors to achieving broad, system-level goals (Pitt and Bassett, 2013; Hoppe et al., 2015; C40, 2016; GTI, 2016). Community engagement builds on the principles of 'open government' but is much more. It needs to be recognized that the community is not being engaged *only* to provide their input into what the City should do with respect to energy planning. Rather, the community is being engaged to share in the vision that the CEP is trying to achieve, and to participate in the development of solutions that may not involve any direct government action at all. Research and experience has shown that smaller groups tend to focus much more on what government can and should do, while more creative solutions tend to emerge from larger groups (Koontz and Johnson, 2005). In other words, the process of community engagement establishes the basis for non-governmental action in energy system change. Furthermore, community engagement is an opportunity to connect CEPs to wider debates and values; if these are ignored and if communication breaks down throughout the process, even the most technically sound and economically rational plan is unlikely to be accepted or successful in the end (Garforth, 2009; Moss et al., 2015; GTI, 2016).

The 'why' for community engagement is intuitive, perhaps obvious. The more challenging question is 'when', 'how' and 'for what purpose'. History is replete with poor and often counter-productive community engagement and participatory governance strategies. Even in regions and municipalities with well-established legacies of local planning, collaborative planning tends to suffer from the 'same ten people' problem, whereby engagement never extends beyond easily motivated and directly vested citizens (Warbroek & Hoppe, 2017). The underlying problem is that so-called 'innovations' in community engagement focus primarily on techniques (e.g., focus groups vs. charrettes) which are often applied for the sake of 'checking a box' and political expediency. According to Bickerstaff and Walker (2001), community engagement strategies fall flat because they fail to consider the *purpose* of community participation in the first place, the *outcomes* that are needed from community engagement, and the *structural barriers to participation*. These issues can be addressed through a thoughtful engagement strategy.

Consider: developing a strategy for community engagement as early as possible, which specifies very clearly the timing with which the community will be engaged (see Figure 1), the intended outcome of those engagement activities, and how those outcomes will impact the Task Force's recommendations.

Consider further: using this strategy as a basis upon which to negotiate terms of reference for professionals that may be hired to lead these efforts.

### *Frameworks for Community Engagement*

Community engagement strategies often combine community wide engagement activities with targeted engagement activities. Community wide engagement activities would include town-hall meetings, open houses, random surveys, or websites. Targeted engagement activities would include Task Force meetings, workshops with practitioner groups such as social housing providers or with special interest groups such as developers, or meetings with major institutional partners such as Guelph General Hospital or the University of Guelph.

In some cases, including ongoing CEP processes in Ontario, wider community engagement does not happen until after the plan has been established. This may be sufficient for a narrow CEP which focuses on a single or a small number of projects. It is not sufficient for comprehensive planning however. Experience shows that there is a very strong correlation between how a comprehensive plan was developed and the extent to which the plan achieves measurable success. If wider community debates and concerns are not engaged immediately, at the visioning stage, then the plan is likely to lack the legitimacy it requires to be implemented (Pitt and Bassett, 2013; Moss et al., 2015; GTI, 2016).

Furthermore, many of the changes required in the energy system suffer from demand-side issues (failure to adopt) and not supply side issues (e.g., home efficiency retrofits). Early engagement will help to ensure these demand-side issues are engaged early and often. At the initial stage of community engagement, the idea is not to coordinate the community around a set of specific issues and technologies, but to establish the CEP as a more general focal point for conversation about what a CEP will do, what (and who) it represents, and what might be expected from it.

Consider: community wide engagement activities at the visioning stage.

Consider further: the level of detail put forward to the community – at this stage and all stages – to balance (a) avoiding the impression that the plan has already been thought out and we are simply looking for an ‘accept’ or ‘reject’ response (b) proving enough substance to help spark and scope the discussion

A targeted approach is often useful at the agenda setting stage to assess concerns, identify significant barriers, gauge interest in a particular idea, and take stock of potential opportunities. Targeted approaches also help to understand willingness and motivations for engaging in proposed initiatives within specific sectors. All of this is critical to developing realistic intermediate objectives and effective implementation plans. The business community and institutional counterparts are especially critical here, as they bring resources and expertise and need to see value in possible initiatives that require private investment or public-private partnerships (C40, 2015).

Of course, both community wide and targeted engagement activities can be part of an implementation plan, rather than or in addition to the development of the plan itself. An excellent example of this is the GEERS program. The general concept emerged during plan development, while community engagement happened much later over the course of program design through a phone survey. This reduced the burden on time and resources of community-wide engagement in the planning phase, and helped to develop a more purposeful engagement process. In a follow-up report, the processes and tools used for community engagement will be discussed in more detail, based on a review of experiences among our peer communities.

#### **4. Conclusion and Next Steps**

The highlights section at the beginning of this report provides a concise list of highlights from this report. The second report in this series (March 13) will provide a deeper analysis of experiences across peer communities in Ontario to provide insights on the following:

- Targets that have been set across other Canadian jurisdictions at the ‘visioning’ stage (see Figure 1)
- The specific tools and procedures used for community engagement
- The municipal sphere of influence
- The roles that a municipality can play in implementation and implementation planning

This second report will support our transition from the visioning to the agenda setting stage (see Figure 1). The third report in this series (late March) will analyze the policies and programs from provincial governments and agencies that can support Guelph’s CEP efforts. This will include recommendations on which and how to engage those opportunities, along with a high-level regulatory risk analysis. The third report will support the transition from agenda setting to implementation planning.

## References

- Bickerstaff, K., Walker, G. 2001. Participatory local governance and transport planning. *Environmental and Planning A* 33: 431-451
- C40 Cities. 2015. Climate Action in Megacities 3.0 Networking works, there is no global solution without local action. Accessed online 28 January 2017 at <http://www.cam3.c40.org/images/C40ClimateActionInMegacities3.pdf>
- C40 Cities. 2016. Unlocking climate action in megacities. Accessed online 28 January 2017 at [www.c40.org/researches/unlocking-climate-action-in-megacities](http://www.c40.org/researches/unlocking-climate-action-in-megacities)
- Canada Mortgage and Housing Corporation (CMHC). (1999). Community Energy Management: Foundation Paper. (Cat. no. NH15-331/1999E). Retrieved from: <https://www03.cmhcschl.gc.ca/catalog/productDetail.cfm?cat=123&itm=56&lang=en&fr=1321313053809>
- Cowell, R., Ellis, G., Sherry-Brennan, F., Strachan, P.A., Toke, D. 2015. Rescaling the governance of renewable energy: Lessons from the UK devolution experience *Journal of Environmental Policy and Planning* DOI: 10.1080/1523908X.2015.1008437
- Electricity Distributors Association. 2017. The Power to Connect: Advancing Customer-Driven Electricity Solutions for Ontario. February 2017. Prepared by Navigant Consulting.
- Evenson, J., Margerm, K., McDonough, A. Advancing integrated community energy planning in Ontario: a primer. Report produced for QUEST. Accessible online at <http://books.scholarsportal.info/viewdoc.html?id=647321>
- Frantzeskaki, N., Loorbach, D., Meadowcroft, J. 2012. Governing societal transitions to sustainability. *International Journal of Sustainable Development* 15. 19-35.
- FCM (Federation of Canadian Municipalities). 2014. PCP Protocol: Canadian Supplement to the International Emissions Analysis Protocol. Accessible online at [www.fcm.ca/Documents/reports/PCP/PCP\\_Protocol\\_Canadian\\_Supplement\\_EN.pdf](http://www.fcm.ca/Documents/reports/PCP/PCP_Protocol_Canadian_Supplement_EN.pdf)
- Garforth, P. 2009. Community energy planning: best practices. Report prepared for BC Hydro by Garforth International Inc. June 9 2009.
- GTI (Getting to Implementation) 2016. Community Energy Implementation Framework. Accessed online 27 January 2017 at [http://gettingtoimplementation.ca/wp-content/uploads/2016/12/Final-Framework-December72016\\_online.pdf](http://gettingtoimplementation.ca/wp-content/uploads/2016/12/Final-Framework-December72016_online.pdf)
- Hoppe, T., Graf, A., Warbroek, B., Lammers, I., Lepping, I. 2015. Local governments supporting local energy initiatives: lessons from the best practices of Saerbeck (Germany) and Lochem (The Netherlands). *Sustainability* 15: 1900-1931.

Jaccard, M, L. Failing and T. Berry. 1997. From equipment to infrastructure: Community energy management and greenhouse gas emissions reduction. *Energy Policy* 25: 1065–1074.

Koirala, B.P., Koliou, E., Friege, J., Hakvoort, R.A., Herder, P.M. 2016. Energetic communities for community energy: a review of key issues and trends shaping integrated community energy systems. *Renewable and Sustainable Energy Reviews* 56: 722-744.

Koontz, T., & Johnson, E. (2005). One size does not fit all: Matching breadth of stakeholder participation to watershed group accomplishments. *Sage Urban Studies*, 33(2)

Littlejohn, D., Laszlo, R. 2015. National report on community energy plan implementation. *Community Energy Planning: Getting to Implementation in Canada. QUEST Canada.*

Loorbach, D., and Rotmans, J. 2010. The practice of transition management: examples and lessons from four distinct cases. *Futures* 42: 237-246.

Mattes, J., Huber, A, Koehrsen, J. 2015. Energy transitions in small-scale regions – what can we learn from a regional innovation systems perspective. *Energy Policy* 78: 255-264.

McCauley, S.M., Stephens, J.C. 2012. Green energy clusters and socio-technical transitions: analysis of a sustainable energy cluster for regional economic development in Central Massachusetts, USA. *Sustainability Science* 7: 213.

Moss, T., Becker S., Naumann, M. 2015. Whose energy transition is it, anyway? Organization and ownership of the Energiewende in villages, cities and regions. *Local Environment* 20: 1547-1563

Natural Resources Canada. 2007. Natural Resources Canada Community Energy Planning Guide. CanMET Energy Technology Center. Prepared by Ken Church. Accessed online at <http://www.smartgrowth.ca/research/cep/CEP-SGCN.pdf>

Natural Resources Canada . 2015. Data issues and promising practices for integrated community energy mapping. CanMET Energy Technology Center. Prepared by Jessica Webster.

Pitt, D., Bassett, E. 2013. Collaborative Planning for Clean Energy Initiatives in Small to Mid-Sized Cities *Journal of the American Planning Association*, Vol. 79, No. 4, Autumn 2013

Roggema, R., Martin, J., Horne, R. 2011. Sharing the climate adaptive dream: the benefits of the charrette approach. Available online at <http://www.cittaideale.eu/wp-content/uploads/2015/05/anzrsai-paper-2011-Roggema-Horne-Martin.pdf>

Sheppard, S.R.J., Tooke, R. 2014. Engaging the community in community energy. Presentation made at Community Energy Symposium 2014. New Westminster B.C.

Smith, A., Voß, J.P., Grin, J. 2010. Innovation studies and sustainability transitions: the allure of the multi-level perspective and its challenges. *Research Policy* 39: 435-448

Späth, P.; Rohracher, H. 2010. 'Energy Regions': The transformative power of regional discourses on socio-technical futures. *Research Policy* 39: 449–458.

Sperling, K., Hvelplund, F., Mathiesen, B.V. 2011. Centralization and decentralization in strategic municipal energy planning in Denmark. *Energy Policy* 39: 1338-1351

St. Denis, G., and Parker, P. 2009. Community energy planning in Canada: The role of renewable energy. *Renewable and Sustainable Energy Reviews* 13: 2088-2095.

United States Department of Energy. 2013. Introduction to community energy strategic planning. Accessed online at [https://energy.gov/sites/prod/files/2014/05/f15/cesp\\_guide\\_intro.pdf](https://energy.gov/sites/prod/files/2014/05/f15/cesp_guide_intro.pdf)

Van der Schoor, T., Scholtens, B. 2015. Power to the people: local community initiatives and the transition to sustainable energy. *Renewable and Sustainable Energy Reviews* 43: 666-675.

Warbroek, B., Hoppe, T. 2017. Modes of governing and policy of local and regional governments supporting local low-carbon energy initiatives; exploring the cases of the Dutch regions of Overijssel and Fryslan. *Sustainability* 9, 75-85 Open access at <http://www.mdpi.com/2071-1050/9/1/75/htm>

Webster, J. 2015. Data Issues and Promising Practices for Integrated Community Energy Mapping. CanmetEnergy, Natural Resources Canada.

Wene, C.O., Ryden, B. 1988. A comprehensive energy model in the municipal planning process. *European Journal of Operations Research* 33: 212-222.

Young, R. 2013. Multilevel governance and public policy in Canadian municipalities: reflections on research results. Presented at the panel on The Politics of Multilevel Governance, Canadian Political Science Association, 6 June 2013

# PLACING THE 'COMMUNITY' IN COMMUNITY ENERGY PLANNING

Translating community consultations into visions and targets  
for Guelph's Updated Community Energy Initiative

Prepared for:

Guelph Community Energy Initiative Task Force

Prepared by:

Kirby Calvert, PhD

Ian McVey, B.Comm, MES

Abhilash Kantamneni, MSc, PhD Candidate

Community Energy Knowledge-Action Partnership

March 10, 2017

**Contents**

Summary / Highlights ..... 3

About the Authors & Acknowledgements ..... 5

Background ..... 7

Part 1: Community Engagement Strategies ..... 7

    What level of community engagement is appropriate at the visioning stage?..... 8

    Why consult with the community so early in the CEP process? ..... 8

    What have we learned from experiences across Ontario? ..... 9

    What have we learned from international experiences? ..... 12

    Summary of Community Engagement Principles and Procedures ..... 14

Part 2: Targets and Target Setting Across Canadian Communities..... 15

    Approaches to Target Setting: Strengths and Weaknesses..... 15

    The range of high-level targets across Canadian communities..... 15

Conclusion and Next Steps ..... 17

References ..... 17

Appendix A: Summary of Results from Ontario Case Studies..... 22

    Kingston Community Energy Plan..... 22

    London Community Energy Action Plan ..... 25

    Burlington Community Energy Plan ..... 28

    Caledon Community Energy Plan ..... 30

    Sault St Marie Smart Energy Plan ..... 32

Appendix B: Pros and Cons of Various Community Engagement Strategies (Table 1) ..... 35

    Media Engagement ..... 35

    Information Campaigns ..... 35

    Educational Initiatives ..... 36

    Information Gathering ..... 37

    Shared Visioning..... 37

    Empowered Implementation..... 38



## Summary / Highlights

### *On Community Engagement Strategies*

- The level of community engagement that should be achieved at the visioning stage of the CEP process, in order to mitigate against political risk and provide the best chance for successful implementation, falls somewhere between ‘consultation’ and ‘involvement’, which are described in Figure 2. It is important to think about how all of the engagement activities that might be deployed at this stage (see Table 2) work together to ensure effective messaging and to collection useful / actionable / well-scoped community input
- To achieve meaningful consultation, best practice suggests that we must go to the community rather than expecting the community to come to us. The Task Force should take inventory of upcoming community events and support the development of an ‘information campaign’ (see Table 1 and [Appendix B](#) for details), perhaps modeled after the Town of Caledon’s ‘roadshow’ approach. City Staff could resource this effort with personnel (staff) to take the messages from the TF to the community.
- Mobilizing general public support for the CEP process is best achieved when the goals of the CEP are framed along two dimensions:
  1. Local economic development and resilience. These goals are most often expressed without an explicit target: e.g., developing CEP initiatives that will achieve cost savings on energy, increase local revenue, increase local employment opportunities. In some cases, however, specific targets related to reductions in energy use, and increasing local energy generation, are considered proxies for these economic development targets.
  2. Local contributions to global issues, such as resource scarcity and anthropogenic climate change. These goals are most often expressed with an explicit target
- Analytics and infographics are crucial to effective communication and community engagement, but need to be well-considered as they are resource intensive and can often confuse more than clarify.
- Bringing in noted experts that are distanced from the politics of the community can inject unbiased clarity as to the long-term direction and objectives that the CEP should focus on.

### *On Targets and Target Setting:*

- The most commonly quantified targets that guide CEPs across Canada, in order to relative prevalence, are: greenhouse gas reductions, followed by reductions in overall energy use, followed by increases in local (renewable) energy generation.
- Ideally, when setting targets, communities would clearly state both absolute and per capita goals.
- The year 2050 is significant in provincial, national, and international conversations about greenhouse gas emissions reductions. All provincial level governments have used this date to establish targets. Communities who sought to align their targets with their provincial counterparts tended to engage the community with the

question: “should we be more or less aggressive?” This approach enabled a clear directive from the community. It can also serve as an entry point into a broader conversation about the value propositions and benefits that are most important to the community.

- Sector-specific goals and intermediate targets are important at later stages of the planning process, since different sectors pose challenges that need to be approach.
- Community engagement should figure strongly in the implementation plan. Through regular consultations and progress updates to the public, awareness, literacy and a motivated constituency is developed. Most CEPs focus on key stakeholder engagement, with limited public engagement on an ongoing basis which weakens accountability and legitimacy of the CEP process.

#### *Suggested Next Steps Based on the Report*

- In the light of this research and opportunities available to us, the most pragmatic approach to developing the community engagement process for the CEI Update seems as follows:
  1. Task Force discusses the kind of information we are seeking from the public at this stage – what’s the question?
  2. Discuss the different activities through which this input can be received – i.e., the engagement strategies and information campaign (see Table 2).
  3. Discuss the objectives for the first community wide-event
  4. City of Guelph and SVS, along with a TF sub-committee, translate input from 1-3 into a formal community engagement strategy. This will combine the City’s well-established principles of community engagement principles with expertise at SVS.

## About the Authors & Acknowledgements

*Kirby Calvert* received his PhD in Geography (2013) at Queen's University in Kingston Ontario, where he worked with the Queen's Institute of Energy and Environmental Policy. After two fulfilling years as an assistant professor in the Department of Geography at The Pennsylvania State University where he was cross-appointed with the Penn State Institutes of Energy and Environment (2013-2015), Kirby returned to Canada to join the Department of Geography at the University of Guelph. Dr. Calvert is Co-Director and Principal Investigator of the Community Energy Knowledge-Action Partnership (CEKAP); a national partnership of universities, municipalities, and other non-academic partners with shared interests in improving the process and outcomes of community energy planning ([www.cekap.ca](http://www.cekap.ca)). He has studied energy policy issues in Ontario and elsewhere using both qualitative and quantitative techniques for approximately eight years, with a focus on land-use issues and the trend toward decentralized energy governance.

*Ian McVey* is a Project Manager with the Ontario Climate Consortium (OCC) based within the Toronto and Region Conservation Authority. In his role with the OCC Ian leads efforts to support Ontario municipalities with low carbon policy and planning. Along with Dr. Calvert, Ian is the co-director of the SSHRC-funded Community Energy Knowledge Action Partnership (CEKAP). Ian has more than eight years of experience as a climate policy analyst, having worked in roles with Federal Government agencies, provincial government, the private sector and civil society organizations. Most relevant to this project, Ian led the OCC's research addressing best practices for the integration of climate change into the land use planning framework in the Greater Golden Horseshoe Region.

*Abhilash Kantamneni* (Abhi) is a PhD candidate at the University of Guelph. His research helps communities prescribe, implement and evaluate energy programs. Prior to moving to Guelph in 2016, Abhi helped write Michigan's first [community-driven energy plan](#), and championed Houghton (MI) into the semi-finals of a national energy competition ([GUEP](#)). His data-driven approach to community engagement on energy issues has earned him wide recognition, including being named a ['40 Under 40 Energy Leader'](#) by the Midwest Energy News. Abhi holds a BS in Electrical Engineering (Anna University, 2008), a MS in Physics (Michigan Tech, 2013) and a MS in Computer Science (Michigan Tech, 2016).

We would like to acknowledge the research support of Kelly Wildfong and Rob Kerr, as well as the support and feedback from various CEKAP members. And of course we are grateful for those who engaged as willing participants in this research.



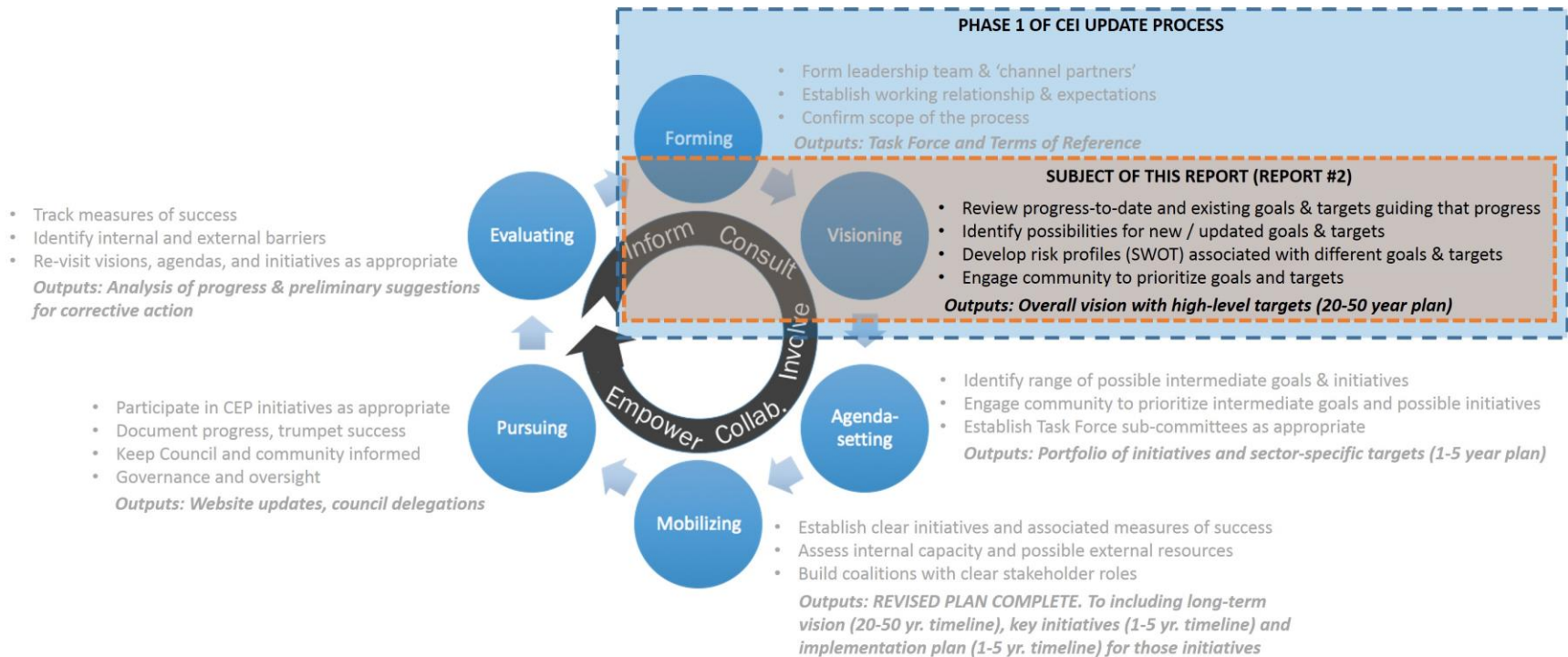


Figure 1: A strategic approach to community energy planning, including the activities and outputs that might be expected of the Task Force. Levels of community engagement that we should expect at each stage are indicated in the black arrow, and described in Figure 2 below. This report is focused on the 'Visioning' Stage, which represents a set of core activities in Phase 1 of the Guelph CEI Update Process that we intend to complete at or near the end of Q1 2017 (April-May). For more details on the levels of community engagement, refer to Figure 2, Table 1, and Appendix B within this report (Report #2). For more details on the phases of CEP, refer back to Report #1.

## Background

The purpose of this report is to support the Task Force as it undergoes the visioning phase of the CEP process (see Figure 1). The report is broken down into two parts:

### [Part 1. Community Engagement Strategies.](#)

We identify a set of principles and procedures (tools/methods) upon which the Task Force might consider structuring its community engagement strategy, based on lessons learned from ‘peer communities’ across Ontario (London, Burlington, Kingston, Sault Ste. Marie, and Caledon) combined with a scan of academic and non-academic literature.

### [Part 2. Target Setting.](#)

We provide insights into the range of targets that have been set by provincial and municipal governments across Canada and into the processes by which those targets were established, based on a documentary analysis and a set of semi-structured interviews with peer communities across Ontario.

Conclusions of the report are summarized above, in the [Summary/Highlight](#) section. Further details can be found in the [appendices](#).

## Part 1: Community Engagement Strategies

This report is predicated on a distinction between ‘community engagement’ and ‘stakeholder engagement’. *Stakeholder engagement* is a targeted form of community engagement used to formulate actionable agendas and implementation plans that align with the interests and concerns of key constituents and change agents: e.g., social housing providers, urban developers, active transport interests, and/or major institutions. These objectives are typically met with one-on-one or small focus group meetings, workshops, or enrolling representatives from specific communities within planning sub-committees. The topic of ‘stakeholder engagement’ will be covered in Report 3, which is intended to support the transition from visioning to agenda setting and implementation planning (refer back to Figure 1).

This report will focus on the role of *community engagement* activities that support the visioning stage of CEPs. Community engagement refers to an open and collaborative process by which the community, defined broadly as ‘the public’, is incorporated in the CEP process. As illustrated in Figure 2, community engagement can take a variety of forms, depending on desired outcomes and expectations of the community in the planning process. Figure 2 is based on best practice as summarized by the International Association for Public Participation in Canada (<http://iap2canada.ca/page-1020549>) with some modifications for the CEI Task Force.

## What level of community engagement is appropriate at the visioning stage?

The Figure below provides an overview of the levels of community engagement that might be achieved, depending on stated objectives and timing. At the visioning stage of a community energy planning process, community engagement typically moves through to the ‘Consult’ stage – Involvement, Collaboration, and Empowerment are typically reserved for later phases of the CEP process, such as ‘Agenda Setting’ and ‘Implementation Planning’ (refer back to Figure 1).

	<i>Inform</i>	<i>Consult</i>	<i>Involve</i>	<i>Collaborate</i>	<i>Empower</i>
<b>Task Force Synergy</b>	Evaluating/Forming	Forming/Visioning	Visioning/Agenda-setting	Agenda-setting/Mobilizing	Mobilizing/Pursuing
<b>Objectives</b>	Provide balanced information to help public understand the project, solutions, challenges and alternatives.	Solicit feedback on analysis, proposals or alternatives	Two-way information exchange to build capacity and ensure broad representation of community views.	Shared agenda setting and open deliberation on key issues.	Empower community to make decisions, manage processes and drive implementation.
<b>Commitment to community</b>	Transparency about decision making process.	Listen to community concerns, provide feedback on how input influenced final decision.	Concerns and aspirations will be directly reflected in development or proposals and alternatives.	Seek community advice on solutions and incorporate recommendations	Implement community decision.
<b>Outcomes for community</b>	Well-informed community to ensure vibrant participation in program initiatives.	Assessing attitudes, moods, and interest within the community.	Developing shared vision, goals, measures for success and strategies for implementation.	Community led development of priorities, timelines and alternatives.	Community led implementation with local institutions as intermediaries and stakeholders.
<b>Preferred Engagement Strategies</b>	Media engagement, information campaigns, educational initiatives.	Information campaigns, educational initiatives, gathering information.	Information gathering, shared visioning.	Shared visioning, empowered implementation.	Empowered implementation.

Figure 2: Levels of community engagement that might be achieved in energy planning projects. At the visioning stage, community engagement typically moves through to the level of ‘Coordinate’. For specific activities that can be deployed at each level, see Table 1 and [Appendix B](#).

## Why consult with the community so early in the CEP process?

- If wider community debates and concerns are not engaged immediately, at the visioning stage, then the plan is likely to lack the legitimacy it requires to be supported and implemented (Garforth, 2009; Pitt & Bassett, 2013; Moss et al., 2015; GTI, 2016a).
- Many of the changes required in the energy system to achieve efficiency and sustainability gains suffer from demand-side issues and failure to adopt, not supply side issues (e.g., home efficiency retrofits). Early engagement will help to ensure these demand-side issues are identified, better understood and overcome.
- The process of community engagement establishes the basis for non-government-driven action. Many of the changes required in the energy system to achieve efficiency and sustainability gains will need to be championed by community members, and rest on the decisions of key community/business stakeholders, involving no or little direct government action. Small group discussions are more likely to focus on what *government* can and should do, while creative community-based solutions are more likely to emerge from larger group discussions (Koontz & Johnson, 2005)

- The community is able to set expectations for their leaders – in government, business, and civil society. Collaborative and community-based processes are critical to unsettling an otherwise path-dependent system that is suffering from ‘status quo thinking’ in the way technologies and institutions are established and operate (Brand & Gafkin, 2006; Briggs, 2007)

## What have we learned from experiences across Ontario?

Our findings here are based on interviews with five communities who are currently undergoing, or have recently undertaken, CEP-related community engagement activities: London, Burlington, Kingston, Sault Ste. Marie, and Caledon. Each case study is summarized in [Appendix A](#). In this section, we identify the common themes across these case studies and highlight a set of ‘lessons learned’ that the Task Force might consider as it moves forward with its own visioning process.

### How to secure buy-in and mobilize the community: framing the issues carefully

Mobilizing general public support for the CEP process is best achieved using two frames: (1) local economic development and resilience and (2) role of the community in addressing global challenges, such as resource scarcity and anthropogenic climate change. These **complementary frames** address a wide range of perspectives and ideologies, and thus **create a big tent** for broad community support. This speaks to the importance of early-stage public education around the nature and scale of the energy and carbon challenge, and the power that the local community has to lead the transition. Bringing in noted experts that are distanced from the politics of the community can inject unbiased clarity as to the long-term direction and objectives that the CEP needs to focus on, as it relates to those economic and environmental frames.

In most of the communities surveyed for this study the general public was involved at the very early visioning stages of a community energy plan. The general purpose of this engagement was twofold: 1) inform citizens that the City is actively addressing a critical issue for the community, 2) solicit input from interested community members on the vision and long-term goals for the City to pursue. These meetings established the **CEP process as a focal point for conversation** about what a CEP could accomplish, what (and who) it represents, and what expectations are tied to it, especially in terms of the expected level of ambition and possible role for and resource allocation by municipal government. Conversations about specific solutions and initiatives are reserved for later meetings, most often through more targeted stakeholder engagement processes.

### How to establish a shared sense of accountability

On average, a comprehensive community engagement process requires six to eight months. This assumes a mixed-method approach, including in-person and on-line consultation approaches. Many of the case study communities (note Caledon and Burlington) have included ‘community engagement’ as part of the implementation of the plan itself. In other words, the final plan will include a strategy to maintain community dialogue as various initiatives unfold. In this way, community engagement becomes an initiative that is

monitored and assessed in much the same way as energy efficiency or improved transport; the community engagement process is therefore 'institutionalized'.

Community engagement may happen outside of the specific context of the Community Energy Plan. In Kingston, for example, the public was heavily engaged in the development of the City's Climate Action Plan, which defines a vision and goals with respect to greenhouse gas reductions and other sustainability-related visions. Kingston's Community Energy Plan is seen as an implementation initiative of the broader Climate Action Plan, and engagement activities for the CEP specifically have focused on stakeholder engagement. Energy plans are indeed widely seen as the leading edge for climate plans, and in fact the funding from provincial ministries and agencies to support CEPs often comes from climate-focused programs. The benefit, here, is that more of the budget for public engagement activities tied to the CEP could be allocated to stakeholder engagement activities.

In a few cases, visions were established through Council directives, and community engagement was reserved for identifying initiatives through which that vision could be achieved. In other words, the **community was not involved in setting the frame for the CEP**. This was the case in Burlington, where the resulting CEP did not reflect broader community goals for greenhouse gas reductions. Rather than reset and take a few steps back, Council seems to have doubled down: having since endorsed ambitious net zero carbon objectives which will need to be reflected in an update to Burlington's CEP which is expected in 2018. Oxford's 100 per cent renewable energy plan seems to have followed a similar trajectory, whereby the 'Future Oxford Sustainability Plan' was designed to "create a better vision *and then engage the community* in creating the initiatives that will get us there." (Future Oxford Community Sustainability Plan, 2016, emphasis our own). As noted above, this approach **introduces considerable risk into the plan itself**. If wider community debates and concerns are not embedded into the vision, then the plan is likely to lack the legitimacy it requires to be supported and implemented (Garforth, 2009; Pitt & Bassett, 2013; Moss et al., 2015; GTI, 2016a).

On the other hand, purely community-driven visions don't seem to work either. In Sault Ste. Marie, the "Smart Energy Strategy" was developed by an economic development agency with the municipality as a partner. **Without any accountability to the public by way of municipal Council reporting, the Strategy has not been implemented**. The Municipality has since secured Ministry of Energy funding for its own energy plan, focused on municipal corporate operations, and has shown no apparent interest in breathing life into the wider community plan held by a local non-profit economic development agency.

#### How to build toward meaningful consultation

Community engagement procedures in Canadian CEP processes are not supported by clear standards and principles. With this in mind, communities often rely on broader (and better resourced) municipal engagement exercises, such as those conducted for Official Plan (OP) reviews, to seek feedback and validation for community energy plans and initiatives. Official Planning review consultations typically engage citizens in long-range visioning for



the future of their communities, and have well-resourced staff and multi-media resources that can be leveraged to achieve engagement goals for community energy planning.

The City of Guelph, recognizing that **Official Planning engagement processes are often basic and compliance driven**, has established a comprehensive community engagement framework. This framework, developed alongside researchers from the University of Guelph, includes a clear set of guiding principles and responsibilities across stakeholder groups (see <http://guelph.ca/city-hall/communicate/community-engagement/>).

Typical tools for engagement at the visioning stage were via public open houses and online consultations: both of which have already been identified by the Task Force. **Data visualization**, and especially through maps, are seen as critical to community engagement (Sheppard and Tooke, 2014, GTI, 2016a). Data and mapping tools developed and utilized early in the plan development process can help to set the context for conversations about the scale that is required of the plan needs to be to meet community ambitions, and where to focus short, medium and long-term efforts in terms of economic sectors, and geographic areas of the community.<sup>1</sup> For stakeholder engagement and implementation planning, however, there were questions about value. Map development and spatial decision support is a resource intensive process that in some cases were not particularly valuable in terms of generating insights that key stakeholders weren't already aware of (e.g. it is obvious to stakeholders that downtown is an energy hotspot).

A key message was to 'go to the community' rather than assuming the community will step forward. Caledon, for instance, put together a '**roadshow**' for their information campaign, taking a core set of messages, infographics and so forth to large community events such as home shows. Of course, this is a more resource intensive process, although aided with the support of QUEST who provide resources that help community energy managers community the value proposition of community energy planning in general terms (e.g., see GTI, 2016b). A related strategy for bringing the process *to* the community is to share draft reports of the vision for public comment, but with care not to give the impression that the vision has already been established and that the community is simply being asked for a 'thumbs up' or 'thumbs down'.

London's Roundtable on the Environment and the Economy recruited ~50 members of the general public to join a **virtual focus group** designed to solicit feedback to questions relating to issues at the intersection of energy and the environment. Participants received a series of biweekly/weekly question (30 total over 6-8 months). The online format provided a safe space for individuals to voice their perspectives, without fear of sanction from other community members that may occur in an in-person engagement format. Additionally, with a week or more of time to respond, participants provided much more qualitative

---

<sup>1</sup> Baseline energy and emissions inventories and community energy maps were used in most of the communities surveyed to set the context for engagement with both the general public and key stakeholders (e.g., see CUI, 2012). Burlington and London collaborated with other municipalities (including Guelph) on the Integrated Energy Mapping for Ontario Communities (IEMOC) project in 2011, 2-3 years before their plans were made public. Kingston and Caledon are developing energy mapping tools as part of CEP development.

feedback than would have been the case in a social media type engagement (with 140 character response limits). Feedback received indicated that the community was much more interested in local economic development than climate action frames for CEP messaging, which was reflected in the plan that was eventually endorsed by Council (e.g. emphasis is on reducing dollars sent outside of the community for fossil fuels).

### **What have we learned from international experiences?**

In Figures 4 and 5 below, we summarize community engagement processes undertaken across the world, with emphasis on those communities that achieved or exceeded the level of 'consultation' (as defined in Figure 1 above). The examples represent a limited selection of international examples for city-based local energy plans that explicitly use a community engagement strategy. The case studies were chosen not to suggest that these are plans that are exceptional and that we must choose to emulate them, but rather as a way to illustrate how typical community engagement strategies aim to achieve various levels of engagement. Learnings from these examples helped to establish a categorical set of engagement strategies, each of which is constituted by various activities: has been compiled (Table 1) and the pros and cons of pursuing each strategy have been summarized ([Appendix B](#)).

	Communicate	Consult	Coordinate	Collaborate	Co-lead
<b>Texel, Netherlands [Community Smartgrid]</b>	Distribute smart meters with interactive displays in local slang about energy generation and consumption updates, energy saving tips.	N/A	N/A	N/A	N/A
<b>Helsinki, Finland [Greater Helsinki 2050]</b>	Launch website announcing growing problems faced by city, solicit ideas through multi-multifaceted competition	Analyze proposals and seek public input on distilling core regional vision for Helsinki in 2050.	N/A	N/A	N/A
<b>Burgas, Bulgaria [Sustainable Energy Action Plan]</b>	Collaborate with local educational institutions to organize and conduct social marketing campaigns.	Surveys to assess community support for energy efficiency, clean public transport, renewables, and local energy management.	Invite key stakeholders and engage in public process of visioning, defining objectives, targets, priorities, measures and desired outcomes.	N/A	N/A
<b>San Andres [Island Microgrid]</b>	Workshop 1, "Learning Conversations" - Technical information provided through Q&A with experts.	Workshop 2, "Facilitation Exercises" - Developing shared understanding of current energy systems through dialogue and listening.	Workshop 3, "Community Visioning" - Stakeholders prioritized environment, education, efficiency and space as values to guide energy transition pathway.	N/A	N/A

Figure 4: Case studies of community engagement strategies that sought to inform the community of new opportunities (Texel, 2014), seek public input on policy (Helsinki 2011) and coordinate a shared vision (Burgas 2013, RMI 2016)

	Communicate	Consult	Coordinate	Collaborate	Co-lead
<b>Canberra, Australia [Climate Change Action Plan]</b>	Awareness campaigns including public lectures, public reports and wide dissemination of climate change action plans.	Community survey on awareness, support for local response and commitment to individual actions.	Community and business stakeholder workshop to distill elements of "empowering active citizenry towards action"	Establish Climate Change Council to advise local government.	N/A
<b>Boston, USA [Climate Change Action Plan]</b>	Long-term, multi-lingual campaign involving local teams, TV, radio, social media and highlighting "ordinary actions by ordinary people".	Engaging "City of neighborhoods" as project partners to develop local priorities and disseminate information.	Local government along with community partners develops "concrete indicators to gauge progress" across all neighborhoods in the city.	Advisory committee of 10-12 members meet publicly twice a year to review progress and plan.	N/A
<b>Ludwigsburg, Germany [Sustainable Energy Action Plan]</b>	Early identification and outreach to key stakeholders including housing associations, multi-family residential units and large private landlords.	Guided interviews with council members, energy experts, community champions, investors and the general public, results published in community kickoff meeting.	Baseline, Visioning, Strategies, Pathways, and Agenda workshops centered around question "How do we achieve energy transitions together?" Final round table to situate energy use within future vision for city.	One plan for each district, developed by citizens in close collaboration with their council members.	Creation of new Department of Sustainable Urban Development, a PPP that coordinates sustainable city development with community and other cities
<b>Perth, Australia [Most Livable City 2030]</b>	Get people "interested in issues and help people understand complexities" through interactive infographics social media, comprehensive issues papers, full-page feature articles, radio and prime time TV broadcast.	Community survey of 8000 residents to understand concerns, issues and values. Use interactive online forum to encourage debate and dialogue spanning multiple viewpoints.	Grassroots engagement to enroll traditionally under-represented into community workshops. "Planning game" to help participants move from "information to dialogue to prioritization to practical planning"	Implementation Team, community, industry and local government liaison teams organized into working groups were formed to recommend, plan and develop action strategies.	A smaller coalition of government, industry and community will oversee implementation of recommendations and replication of plan within local councils.

Figure 3: Case studies of community engagement strategies aimed at developing priorities and implementation plan in collaboration with the community (Hartz-Karp (2005), Boston (2014) ) and shared community decision-making (Ludwigsburg, (2014), Perth, (2014))

Table 1: Summary of community engagement strategies, examples of activities and select best practices consolidated from (Intelligent Energy Europe. (2012), Fife City Council (2006), Irwin and Stansbury (2004)) More info in [Appendix B](#).

Strategies	Activities	Best Practices
<b>Media engagement</b>	Print & Digital media, press releases, radio shows, council updates.	Leverage existing media relations and networks. Publish regular updates and project milestones to sustain interest in the community.
<b>Information campaigns</b>	Social media, flyers, poster sessions, exhibition materials, leaflets, mailers, newsletter	Clearly identify target audience, use plain language and visuals as focal points. Leverage local resources and community partners as delivery networks
<b>Educational Initiatives</b>	Conferences, public lectures, policy documents, technical reports, peer-reviewed articles.	Manage public expectations early. Clearly define and describe the scope, character and purpose of the educational initiatives as merely one stage of a comprehensive community engagement strategy. Make proceedings available to a wider community audience.
<b>Information Gathering</b>	Community, key institutional stakeholders, underserved and under-represented community members,	Survey fatigue can set in quickly. Clearly identify set of survey objectives, prune out “nice to know” and retain “need to know” questions. Organize consultations around events already happening in the community.
<b>Shared Visioning</b>	Journey mapping, design charrettes, visioning workshops, facilitated discussions, stakeholder forums, advisory groups, planning cells	Manage public expectations early. Try to arrive at consensus through a clear process. Where there isn’t consensus, be transparent. The only thing more detrimental than lack of consensus, is a false sense of consensus.
<b>Empowered Implementation</b>	Delphi technique, design charrettes, citizen’s jury, local advisory committees, steering committees, intermediaries, collective impact.	Test for conditions under which community engagement is most likely to lead to successful outcomes for local government, community and key stakeholders – low risk to participation, trust in process, transparency in decision-making and acknowledged mutual-benefits.

## Summary of Community Engagement Principles and Procedures

The community engagement process is of course very messy. The process and outcome is shaped by the salience of political issues, available human resources, time constraints, financial support, willingness among the community to be engaged, and myriad other factors that cannot be fully accounted. Community engagement is, in other words, predominantly art and intuition and very little science and analysis. As such, a successful process in one community or at one time might fail in a different community or in the same community at a different time. These vagaries notwithstanding, the importance of a well-

considered, clearly scoped process is confirmed as critical in all case studies. For more information on specific engagement strategies, see Appendix B.

## Part 2: Targets and Target Setting Across Canadian Communities

Community energy plans contain a set of high-level targets, progress toward which are measured by a set of indicators related to the implementation plan. As stated earlier, it is important to connect these targets to multiple value systems. Typically two core frames are used: local economic development and environmental management. Through targets, the value proposition for a community energy plan can be discussed and embedded into the guiding principles for the plan. The three most common high-level targets that are used to guide CEPs are reductions in energy use (efficiency and conservation), reductions in greenhouse gas emissions, and higher rates of local / renewable energy generation. These three target domains are inclusive of economic and environmental goals.

### Approaches to Target Setting: Strengths and Weaknesses

Communities establish targets by means of one or a combination of the following approaches:

*Table 2: Approaches used to establish community-wide targets for the CEP*

Approach	Opportunities / Benefits	Threats / Costs
<b>Align with provincial / federal targets</b>	Sense of solidarity and shared responsibility; easier access to program funding tied to those targets	Exposure to provincial / federal issues;
<b>Benchmark against peer communities</b>	Healthy competition; policy-learning; sense of solidarity and shared responsibility	Failure in other communities may need to be defended
<b>Community-driven</b>	Coordinates community, government, and business values; increases community buy-in and therefore likelihood of successful implementation;	Weak or biased community representation may skew targets; time constraints; need to be very clear about how community input will be considered (see Figure 2)
<b>Stakeholder-driven</b>	Consistent with stakeholder commitments and intentions	Higher likelihood of status-quo thinking; perceived as ‘elitist’ by broader community

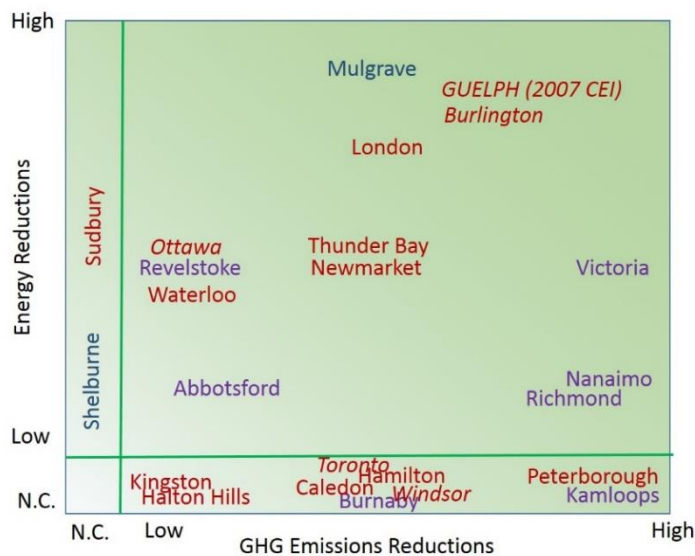
### The range of high-level targets across Canadian communities

It is difficult to compare targets across Canadian communities. A target is not a target is not a target. Some targets are absolute while others are relative (e.g., per capita). For example, in the case of Waterloo Region, an absolute goal of 6% by 2020 was set - an amount which would constitute a 20+ percent per capita reduction given the region’s projected population growth. By comparison, a per capita reduction goal may still result in an overall emissions increase from the region- for example, in the case of Abbotsford, where a stated

goal of 20% per capita reduction would lead to an absolute emissions increase given population growth projections.

In addition to the absolute vs. relative criterion, baselines and timelines vary considerably, as circumstances are of course different. Leading communities in Ontario, notably London and Durham Region, aligned their timelines with provincial timelines. All three provincial governments surveyed in this research included a GHG reduction target for 2050, which is an internationally recognized milestone in terms of mitigating global climate change. Leading communities in Ontario, London and Durham Region included, followed suit and used 2050 as a key parameter in the development of their own targets. When aligning their timeline with provincial government, community engagement revolved around the question of whether or not their plan should be more or less aggressive, which simplified the nature of engagement and enabled a clear community directive.

With all of this in mind, we have done our best to normalize these targets for the purpose of comparison. Normalization was achieved by binning the targets into one of four categories: non-committal; low; medium; and high. It is important to note that **Figure 5 categorizes the high-level targets and do not include sector-specific targets**. Many communities have established very clear and detailed sector-specific targets (including in Guelph's 2007 CEI). Sector-specific targets represent 'Agendas' in the terms of Figure 1 above, and are based on detailed analysis combined with stakeholder input.



*Figure 5: Overall targets used to guide CEPs across Canada focused on GHG and energy reductions. This figure compares across communities from three Canadian provinces. NOTE: N.C. = 'non-committal'*

Communities are most likely to specify a target for greenhouse gas emissions, and least likely to specify a target for local generation. Of the 35 peer-communities reviewed in this study, only 29% were non-committal for greenhouse gas reduction goal-setting, compared to 63% for energy efficiency and 80% for renewable energy or local generation. Most of the communities from Nova Scotia were non-committal across all categories, with only two

exceptions as seen in the Figure below. Where targets were set for local renewable generation, they focused on the electricity sector.

## Conclusion and Next Steps

A summary of core lessons learned from this research is provided in the Highlights/Summary section of this report.

In the light of this research and opportunities available to us, the most pragmatic approach to developing the community engagement process for the CEI Update seems as follows:

1. Task Force discusses the kind of information we are seeking from the public at this stage – what’s the question?
2. Discuss the different activities through which this input can be received – i.e., the engagement strategies and information campaign (see Table 2).
3. Discuss the objectives for the first community wide-event
4. City of Guelph and SVS, along with a TF sub-committee, translate input from 1-3 into a formal community engagement strategy. This will combine the City’s well-established principles of community engagement principles with expertise at SVS.

In terms of research, the next report, Report #3, is intended to support the Task Force as it moves into Agenda Setting and Implementation Planning (see Figure 1). Report #3 will cover three main topics that are critical to establishing meaningful and realistic implementation plans: (1) policies and programs from other orders of government that have potential to enable our efforts; (2) insights into the various roles that the municipality has played, and can potentially play, in CEP implementation; (3) methods and objectives for stakeholder engagement.

## References

Bickerstaff, K., Walker, G. 2001. Participatory local governance and transport planning. *Environmental and Planning A* 33: 431-451

Boston. (2014). *City of Boston Community Engagement Strategy*  
[https://www.cityofboston.gov/Images/Documents/Community%20Engagement%20Strategy%20DRAFT\\_tcm3-15941.pdf](https://www.cityofboston.gov/Images/Documents/Community%20Engagement%20Strategy%20DRAFT_tcm3-15941.pdf)

Brand, R., Gaffikin, F. 2006. Collaborative planning in an uncollaborative world. *Planning Theory* 6: 282–313

Briggs, L. (2007). *Tackling Wicked Problems: A Public Policy Perspective*. Australian Public Services Commission

Burgas. (2013). *Burgas Municipal Strategy for Sustainable Energy Development 2020: City of Green Opportunities*.  
[www.burgas.bg/uploads/aa9ecc8f220b5b3ac3a6c18c243dbd4b.pdf](http://www.burgas.bg/uploads/aa9ecc8f220b5b3ac3a6c18c243dbd4b.pdf)

C40 Cities. 2015. Climate Action in Megacities 3.0 Networking works, there is no global solution without local action. Accessed online 28 January 2017 at <http://www.cam3.c40.org/images/C40ClimateActionInMegacities3.pdf>

C40 Cities. 2016. Unlocking climate action in megacities. Accessed online 28 January 2017 at [www.c40.org/researches/unlocking-climate-action-in-megacities](http://www.c40.org/researches/unlocking-climate-action-in-megacities)

Canada Mortgage and Housing Corporation (CMHC). (1999). Community Energy Management: Foundation Paper. (Cat. no. NH15-331/1999E). Retrieved from: <https://www03.cmhcschl.gc.ca/catalog/productDetail.cfm?cat=123&itm=56&lang=en&fr=1321313053809>

Canberra. (2014). *Community Engagement Strategy on Climate Change*. [http://www.environment.act.gov.au/data/assets/pdf\\_file/0006/620736/Community-Engagement-Strategy-on-climate-change\\_ACCESS.pdf](http://www.environment.act.gov.au/data/assets/pdf_file/0006/620736/Community-Engagement-Strategy-on-climate-change_ACCESS.pdf)

City of Guelph. 2015. Guiding principles for community engagement. <http://guelph.ca/city-hall/communicate/community-engagement/>

Cowell, R., Ellis, G., Sherry-Brennan, F., Strachan, P.A., Toke, D. 2015. Rescaling the governance of renewable energy: Lessons from the UK devolution experience *Journal of Environmental Policy and Planning* DOI: 10.1080/1523908X.2015.1008437

Electricity Distributors Association. 2017. The Power to Connect: Advancing Customer-Driven Electricity Solutions for Ontario. February 2017. Prepared by Navigant Consulting.

Evenson, J., Margerm, K., McDonough, A. Advancing integrated community energy planning in Ontario: a primer. Report produced for QUEST. Accessible online at <http://books.scholarsportal.info/viewdoc.html?id=647321>

Fife City Council. (2006). *Consulting the Community Handbook*. [www.fifedirect.org.uk/consultationhandbook](http://www.fifedirect.org.uk/consultationhandbook)

Frantzeskaki, N., Loorbach, D., Meadowcroft, J. 2012. Governing societal transitions to sustainability. *International Journal of Sustainable Development* 15. 19-35.

FCM (Federation of Canadian Municipalities). 2014. PCP Protocol: Canadian Supplement to the International Emissions Analysis Protocol. Accessible online at [www.fcm.ca/Documents/reports/PCP/PCP Protocol Canadian Supplement EN.pdf](http://www.fcm.ca/Documents/reports/PCP/PCP%20Protocol%20Canadian%20Supplement%20EN.pdf)

Garforth, P. 2009. Community energy planning: best practices. Report prepared for BC Hydro by Garforth International Inc. June 9 2009.

GTI (Getting to Implementation) 2016a. Community Energy Implementation Framework. Accessed online 27 January 2017 at [http://gettingtoimplementation.ca/wp-content/uploads/2016/12/Final-Framework-December72016\\_online.pdf](http://gettingtoimplementation.ca/wp-content/uploads/2016/12/Final-Framework-December72016_online.pdf)



GTI (Getting to Implementation) 2016b. Community Energy Planning, The Value Proposition: Environmental, Health and Economic Benefits. Accessed online 6 March 2017 at [http://gettingtoimplementation.ca/wp-content/uploads/2016/02/Full-Report\\_ValueProposition\\_OnlineVersionFeb92016.pdf](http://gettingtoimplementation.ca/wp-content/uploads/2016/02/Full-Report_ValueProposition_OnlineVersionFeb92016.pdf)

Hartz-Karp, Janette. (2005) "A case study in deliberative democracy: Dialogue with the city." *Journal of Public Deliberation* 1, no. 1.

Helsinki. (2011). Greater Helsinki Vision 2050. <http://www.hel.fi/hel2/helsinginseutu/2050/en/what-is-this/greater-helsinki-vision-2050.html>

Hoppe, T., Graf, A., Warbroek, B., Lammers, I., Lepping, I. 2015. Local governments supporting local energy initiatives: lessons from the best practices of Saerbeck (Germany) and Lochem (The Netherlands). *Sustainability* 15: 1900-1931.

Intelligent Energy Europe. (2012). *Tools and concepts for the Local Energy Planning*. [https://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/easy\\_tools\\_and\\_concepts\\_for\\_local\\_energy\\_planning\\_en.pdf](https://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/easy_tools_and_concepts_for_local_energy_planning_en.pdf)

Irvin, Renee A., and John Stansbury. "Citizen participation in decision making: Is it worth the effort?." *Public administration review* 64, no. 1 (2004): 55-65.

Jaccard, M, L. Failing and T. Berry. 1997. From equipment to infrastructure: Community energy management and greenhouse gas emissions reduction. *Energy Policy* 25: 1065-1074.

Koirala, B.P., Koliou, E., Friege, J., Hakvoort, R.A., Herder, P.M. 2016. Energetic communities for community energy: a review of key issues and trends shaping integrated community energy systems. *Renewable and Sustainable Energy Reviews* 56: 722-744.

Koontz, T., & Johnson, E. (2005). One size does not fit all: Matching breadth of stakeholder participation to watershed group accomplishments. *Sage Urban Studies*, 33(2)

Littlejohn, D., Laszlo, R. 2015. National report on community energy plan implementation. *Community Energy Planning: Getting to Implementation in Canada*. QUEST Canada.

Loorbach, D., and Rotmans, J. 2010. The practice of transition management: examples and lessons from four distinct cases. *Futures* 42: 237-246.

Ludwigsburg. (2014). *City of Ludwigsburg Municipal Sustainable Urban Development*.

Mattes, J., Huber, A, Koehrsen, J. 2015. Energy transitions in small-scale regions – what can we learn from a regional innovation systems perspective. *Energy Policy* 78: 255-264.

McCauley, S.M., Stephens, J.C. 2012. Green energy clusters and socio-technical transitions: analysis of a sustainable energy cluster for regional economic development in Central Massachusetts, USA. *Sustainability Science* 7: 213.

Moss, T., Becker S., Naumann, M. 2015. Whose energy transition is it, anyway? Organization and ownership of the Energiewende in villages, cities and regions. *Local Environment* 20: 1547-1563

Natural Resources Canada. 2007. Natural Resources Canada Community Energy Planning Guide. CanMET Energy Technology Center. Prepared by Ken Church. Accessed online at <http://www.smartgrowth.ca/research/cep/CEP-SGCN.pdf>

Natural Resources Canada . 2015. Data issues and promising practices for integrated community energy mapping. CanMET Energy Technology Center. Prepared by Jessica Webster.

Oxford County. 2016. Future Oxford Community Sustainability Plan. <http://www.oxfordcounty.ca/Home/Newsroom/News-Details/ArticleId/6208/Oxford-releases-Draft-100-Renewable-Energy-Plan-for-public-review-and-comment>

Pitt, D., Bassett, E. 2013. Collaborative Planning for Clean Energy Initiatives in Small to Mid-Sized Cities *Journal of the American Planning Association*, Vol. 79, No. 4, Autumn 2013

Roggema, R., Martin, J., Horne, R. 2011. Sharing the climate adaptive dream: the benefits of the charrette approach. Available online at <http://www.cittaideale.eu/wp-content/uploads/2015/05/anzrsai-paper-2011-Roggema-Horne-Martin.pdf>

San Andres. (2016). *RMI San Andres Visioning Workshop*. [www.rmi.org/Content/Files/RMI\\_SanAndres\\_Print.pdf](http://www.rmi.org/Content/Files/RMI_SanAndres_Print.pdf)

Sheppard, S.R.J., Tooke, R. 2014. Engaging the community in community energy. Presentation made at Community Energy Symposium 2014. New Westminster B.C.

Smith, A., Voß, J.P., Grin, J. 2010. Innovation studies and sustainability transitions: the allure of the multi-level perspective and its challenges. *Research Policy* 39: 435-448

Späth, P.; Rohracher, H. 2010. 'Energy Regions': The transformative power of regional discourses on socio-technical futures. *Research Policy* 39: 449-458.

Sperling, K., Hvelplund, F., Mathiesen, B.V. 2011. Centralization and decentralization in strategic municipal energy planning in Denmark. *Energy Policy* 39: 1338-1351

St. Denis, G., and Parker, P. 2009. Community energy planning in Canada: The role of renewable energy. *Renewable and Sustainable Energy Reviews* 13: 2088-2095.

Texel. (2014). *Smartgrid Engagement Toolkit*. <http://www.smartgrid-engagement-toolkit.eu/learning/list-of-guidelines-and-tools/>

United States Department of Energy. 2013. Introduction to community energy strategic planning. Accessed online at [https://energy.gov/sites/prod/files/2014/05/f15/cesp\\_guide\\_intro.pdf](https://energy.gov/sites/prod/files/2014/05/f15/cesp_guide_intro.pdf)

Van der Schoor, T., Scholtens, B. 2015. Power to the people: local community initiatives and the transition to sustainable energy. *Renewable and Sustainable Energy Reviews* 43: 666-675.

Warbroek, B., Hoppe, T. 2017. Modes of governing and policy of local and regional governments supporting local low-carbon energy initiatives; exploring the cases of the Dutch regions of Overijssel and Fryslan. *Sustainability* 9, 75-85 Open access at <http://www.mdpi.com/2071-1050/9/1/75/htm>

Webster, J. 2015. Data Issues and Promising Practices for Integrated Community Energy Mapping. CanmetEnergy, Natural Resources Canada.

Wene, C.O., Ryden, B. 1988. A comprehensive energy model in the municipal planning process. *European Journal of Operations Research* 33: 212-222.

## Appendix A: Summary of Results from Ontario Case Studies

### Kingston Community Energy Plan

Municipality	City of Kingston
Plan name, and vintage	Kingston Community Energy Plan (KCEP), 2017 (still in development). Kingston also has a Climate Action Plan (KCAP), developed in 2014.
Plan creator, and lead implementer	City of Kingston - Environment and Sustainable Initiatives Department within the Corporate and Strategic Initiatives Group Consultant team (IndEco Strategic Consulting and Sustainability Solutions Group) is supporting plan development
Cost	\$106,600 total, with matching funds from Ontario Ministry of Energy Municipal energy plan program
Governance/ accountability	<ul style="list-style-type: none"> <li>• For KCEP, a Project Management team (City staff) and a key stakeholder advisory team are responsible for: <ul style="list-style-type: none"> <li>○ Steering the progress of the project;</li> <li>○ Assisting with event management and participant recruitment; and</li> <li>○ Reviewing the energy database and final draft report.</li> </ul> </li> <li>• The Environment, Infrastructure, and Transportation Policies Committee (EITP), one of four standing committees of Kingston City Council, receives progress reports from City staff (periodicity not defined)</li> <li>• The <a href="#">Kingston Environmental Advisory Forum</a> (KEAF), a group of citizens, city councilors and advisors, has a Climate and Energy Working Group. This working group provides advice to City Staff on the overall implementation of the Kingston Climate Action Plan, and is the conduit through which progress reports to the EITP are directed</li> </ul>
Targets	<ul style="list-style-type: none"> <li>• June 2014 City Council adopted carbon emission reduction goals for the community of 15% and 30% below 2011 baseline levels, by 2020 and 2030 respectively.</li> <li>• These “rationalized” targets were established based on a bottom-up accounting of expected emissions reductions from existing plans and actions from key stakeholders: transit authorities, utilities, and municipal departments (planning, engineering, buildings).</li> <li>• City of Kingston has adopted a corporate target of 8% below a 2011 baseline by 2020</li> </ul>
Overall Engagement Timeline	<ul style="list-style-type: none"> <li>• Sept 2013 – Feb 2014: Community engagement for KCAP</li> <li>• June 2014: Council adopts GHG targets in KCAP.</li> <li>• January 2015: Council approval for development of CEP</li> </ul>

	<ul style="list-style-type: none"> <li>• March 2015: project kick-off with Project Management Team and Key Stakeholder Advisory Team. Seen as 18-month exercise with an estimated completion date of Sept 2016.</li> <li>• March-June 2015: One-on-one consultations with community leaders in the economic develop and energy sector to better inform the overall vision, goals and objectives for the plan.</li> <li>• June 2015: invite-only key stakeholder consultation workshop &amp; open-to-public Community Energy Café to raise awareness and seek input</li> <li>• June 2015-February 2016: development of scenarios by Consultants and Project Management Team</li> <li>• February 2016: Second invite-only key stakeholder workshop to evaluate and prioritize specific scenarios</li> <li>• March 2016: Progress report to KEAF and EITP – still indicated September 2016 completion timeline</li> <li>• March 2016: online public engagement via “Ideascape” to gather public input on KCEP</li> <li>• Plan is yet to be completed – website indicates March 2017, but personal communications with staff suggest April/May more likely</li> </ul>
<b>Community (public) engagement</b>	
Purpose	KCEP did not involve significant broad public engagement effort, instead focusing resources on key stakeholder engagement. There was extensive community engagement in 2013-2014 as part of KCAP development
Audience	general public
Timing	For KCAP community engagement was conducted between Fall 2013 and Spring 2014 to gather public input before the development of the plan
Methods	<p>For KCAP - Community members were asked to identify GHG emission reduction actions already underway and proposed new potential GHG emission reduction actions through a number of engagement opportunities:</p> <p><b>Community Roundtable:</b> advertised on the City of Kingston website and within local newspapers. A background primer was provided to participants in advance.</p> <p><b>On-line Survey:</b> 65 participants</p> <p><b>Open Houses</b></p> <p>Feedback received from the public was filtered through a key stakeholder group of City staff departments and energy stakeholders (e.g. utilities) to identify feasible actions and “Rationalized” targets.</p>
<b>Stakeholder Engagement</b>	
Purpose	<ul style="list-style-type: none"> <li>• For KCAP: Seek input feasibility of actions identified by community consultations; define “rationalized targets”</li> <li>• For KCEP: Key stakeholder advisory team (see below) was established to support City staff with steering the progress of plan development and implementation, and to provide key baseline data needed for energy mapping and analysis</li> </ul>

Audience	<p>Key stakeholder advisory team:</p> <ul style="list-style-type: none"> <li>• Ontario Ministry of Energy;</li> <li>• Utilities: Kingston, Hydro One and Union Gas;</li> <li>• Economic Development: Kingston Chamber of Commerce, Kingston Economic Development CO</li> <li>• Sustainable Energy advocacy: SWITCH;</li> <li>• City staff: Environment and Sustainable Initiatives, Engineering, Planning, Building &amp; Licensing, Strategic Communications;</li> <li>• Academic: Queen’s School of Policy Studies.</li> </ul>
Timing	<ul style="list-style-type: none"> <li>• Key stakeholder advisory team was involved in the project kick-off, early 2015, and has been engaged throughout the plan development process to identify preferred scenarios for CEP implementation</li> </ul>
Methods	<ul style="list-style-type: none"> <li>• One-on-one consultations with community leaders in the economic develop and energy sector</li> <li>• Two consultation workshop to evaluate preferred scenarios for implementation</li> </ul>
Lessons learned	<ul style="list-style-type: none"> <li>• Distinction between KCAP and KCEP is confused with the public and key stakeholders. Consider integrating energy and climate plan into a “Community Energy and Climate Action Plan”.</li> <li>• Accountability for plan implementation is somewhat unclear, with City Council committee (EITP) only receiving reports and Key Stakeholder Group helping City staff “steer progress”. It was noted that EITP meetings are regularly cancelled, suggesting a potential lack of public oversight.</li> <li>• For KCAP the City strongly promoted public engagement opportunities, leveraging local radio and newspaper media to reach a broader audience. Social media was seen as less effective, as was the on-line engagement tool which has limited uptake.</li> <li>• General public was engaged early to raise awareness of the climate change issue, and the community’s role in addressing it. Actual planning and implementation has proceeded by way of key stakeholder engagement</li> <li>• Engaging with small and medium sized employers is a challenge. Sustainable Kingston (Colab member) is seen as avenue to engage with this sector.</li> <li>• Expect delays in plan completion – original 18 month timeline is now at least 24 months.</li> </ul>

Key weblinks	<ul style="list-style-type: none"> <li>• City CEP website: <a href="https://www.cityofkingston.ca/residents/environment-sustainability/climate-change-energy/community-energy-plan">https://www.cityofkingston.ca/residents/environment-sustainability/climate-change-energy/community-energy-plan</a></li> <li>• June 2015 Community Energy Café invite: <a href="https://www.cityofkingston.ca/-/reminder-first-community-energy-cafe-is-tomorrow-at-tett-centre">https://www.cityofkingston.ca/-/reminder-first-community-energy-cafe-is-tomorrow-at-tett-centre</a></li> <li>• February 2016 Stakeholder consultation invitation: <a href="http://eventful.com/kingston/events/kingston-community-energy-plan-stakeholders-consu-/E0-001-090289808-5">http://eventful.com/kingston/events/kingston-community-energy-plan-stakeholders-consu-/E0-001-090289808-5</a></li> <li>• March 2016 progress report to Council committee: <a href="https://www.cityofkingston.ca/residents/environment-sustainability/climate-change-energy/community-energy-plan">https://www.cityofkingston.ca/residents/environment-sustainability/climate-change-energy/community-energy-plan</a></li> <li>• Kingston Environmental Advisory Forum membership, agendas and meeting minutes: <a href="https://www.cityofkingston.ca/city-hall/committees-boards/kingston-environmental-advisory-forum">https://www.cityofkingston.ca/city-hall/committees-boards/kingston-environmental-advisory-forum</a></li> </ul>
--------------	--

### London Community Energy Action Plan

Municipality	City of London
Plan name, and vintage	Community Energy Action Plan (CEAP), 2014-2018
Plan creator, and lead implementer	City of London – Environment, Fleet and Solid Waste Division
Cost	<p>Plan development: Total unknown. FCM Green Municipal Fund provided \$50,000 for the Integrated Energy Mapping for Ontario Communities (IEMOC) energy mapping initiative and London’s Roundtable on the Environment and the Economy</p> <p>Plan implementation: funding allocated to energy-related, community-led actions, awareness, and education ranges from \$50,000 to \$75,000 annually, in addition to staff time.</p>
Governance/ accountability	<ul style="list-style-type: none"> <li>• Annual progress reporting to City Council Civic Works Committee</li> <li>• Mayor’s Sustainable Energy Council (MSEC), with more than 30 key stakeholders, played an advisory role before being disbanded in 2014</li> </ul>
Targets	<ul style="list-style-type: none"> <li>• London has adopted Ontario’s GHG targets in its CEAP; community consultation showed split opinion on whether City should adopt more aggressive targets</li> <li>• CEAP also contains sector-specific targets which were developed through stakeholder engagement (see discussion below)</li> </ul>

Overall Engagement Timeline	<ul style="list-style-type: none"> <li>• January 2010 – July 2011: Rethink Energy London community consultation</li> <li>• March 2011: the Integrated Energy Mapping for Ontario Communities (IEMOC) workshop</li> <li>• October 2011 – May 2012: London Roundtable online consultation</li> <li>• Summer 2013: Customized discussion primers circulated to Key Energy Stakeholders</li> <li>• December 2013 – March 2014: Seek feedback and commitments from Key Energy Stakeholders through Draft CEAP</li> <li>• July 2014: CEAP approved by City works committee</li> <li>• 2016-2017: Launch/implementation of Active &amp; Green Communities engagement pilot project</li> <li>• June 2016: Corporate Leadership for a Greener London workshop</li> </ul>
<b>Community (public) engagement</b>	
Purpose	Raise awareness of sustainable energy, encourage action, and seek input on actions
Audience	general public
Timing	Community engagement was conducted between 2010 and 2012 to gather public input before the development of the plan
Methods	<ul style="list-style-type: none"> <li>• London Roundtable on the Environment and the Economy was set up to conduct public opinion research on various aspects of London’s CEAP, including targets. Roundtable was an online group of individuals recruited through a multi-media outreach strategy (newspaper, radio, social media). Group was engaged over 15 weeks between fall 2011 and spring 2012 via a weekly email with 2 questions (30 questions total). Given time and space to reflect, responses received were seen as quite thoughtful and helpful in terms of framing the CEP with nuanced language. A combined total of more than 1,000 pages of ideas, opinions and comments were received.</li> <li>• London’s Official Plan Public consultation process (Rethink London) included questions related to energy and climate. OP consultation was much better resourced than CEAP consultation, and so received more than 10,000 responses.</li> <li>• Website: <a href="#">Reduce Impact London</a>, launched in late January 2014 to help Londoners and London’s businesses and institutions share their energy conservation actions, and ideas on what further actions should be taken</li> <li>• Active &amp; Green Communities pilot project, with carbon calculator from Project Neutral – launched in 2016.</li> </ul>
<b>Stakeholder Engagement</b>	
Purpose	<ul style="list-style-type: none"> <li>• Introduce stakeholders to key concepts and principles</li> <li>• seek commitment to implement specific actions in the CEAP, as well as support sector-based targets</li> </ul>
Audience	<ul style="list-style-type: none"> <li>• 28 Key energy stakeholders, described as a:</li> </ul>



	<ul style="list-style-type: none"> <li>○ Large energy user or supplier</li> <li>○ Business already engaged in energy conservation, energy efficiency or sustainable energy practices</li> <li>○ Business association engaged in various energy related matters</li> <li>○ Community group engaged in various energy related matters</li> </ul>
Timing	<ul style="list-style-type: none"> <li>● Stakeholders were introduced to CEAP concepts and principles in 2011</li> <li>● Stakeholders were re-engaged in 2013 as part of CEAP development</li> </ul>
Methods	<ul style="list-style-type: none"> <li>● In 2011 London participated in the Integrated Energy Mapping for Ontario Communities (IEMOC) initiative led by the Canadian Urban Institute. Over 30 of London’s energy stakeholders – local utilities, home builders, developers, academia, advisory groups, and environmental groups – participated in the workshop</li> <li>● In 2013 Staff created “Engagement Primers” customized for each group which detailed suggested actions that each could take on, as well as sector-specific targets. A total of 36 such primers were developed and sent out via email to each stakeholder along with a request for follow-up engagement, either one-on-one or via email.</li> <li>● Feedback received in subsequent follow-up engagement was used to revise the actions contained in the CEP, and the sector-specific targets. In cases where stakeholders didn’t respond (12 out of 36), that was taken as acquiescence to the actions and targets drafted by the municipality.</li> <li>● Mayor’s Sustainable Energy Council (MSEC) played an advisory and knowledge sharing role prior to disbandment in 2014</li> <li>● City staff are currently working on an engagement primer follow-up. Each primer will present highlights on city-led activities, as well as a request for update on progress with identified actions for stakeholder. Responses to these primers will feed into a report to Council Civic Works Committee on progress with the CEP between 2014-2016.</li> </ul>

Lessons learned	<ul style="list-style-type: none"> <li>• Social media engagement was not seen as successful. Light response rate to surveys and online tools</li> <li>• Leverage OP consultations to integrate energy/climate engagement to broaden outreach</li> <li>• Public engagement since the development of the plan hasn't been a major focus.</li> <li>• Engaging with small and medium sized employers is a challenge. Business Improvement Associations (BIAs) are not able to represent diverse interests of SMEs effectively. Sustainable Colab model is seen as a potential solution, but there is no civil society champion in London to lead that initiative</li> <li>• Formalize ongoing stakeholder engagement at the plan development stage. In London key stakeholders involved in the development of the plan were not re-engaged periodically to update on progress. Therefore, there has been no accountability mechanism to ensure that actions stakeholders committed to were implemented.</li> <li>• Community-wide engagement could be stronger. Consider summary progress reports for public, along with video content and infographics.</li> <li>• The Municipality is playing a dominant role in London's CEP. It is filling a vacuum in that there is insufficient civil society capacity to lead the initiative outside of the City bureaucracy</li> </ul>
Key weblinks	<ul style="list-style-type: none"> <li>• July 2014 Council report recommending approval of CEAP: <a href="https://www.london.ca/newsroom/Documents/Community%20Energy%20Action%20Plan_14802207312014105855102.pdf">https://www.london.ca/newsroom/Documents/Community%20Energy%20Action%20Plan_14802207312014105855102.pdf</a></li> <li>• London CEAP: <a href="http://www.london.ca/residents/Environment/Energy/Documents/Community%20Energy%20Plan.pdf">http://www.london.ca/residents/Environment/Energy/Documents/Community%20Energy%20Plan.pdf</a></li> <li>• Report on public consultation: <a href="http://www.london.ca/residents/Environment/Energy/Documents/Learning from People.pdf">http://www.london.ca/residents/Environment/Energy/Documents/Learning from People.pdf</a></li> <li>• May 5, 2016: Annual CEAP progress report to Civic works committee</li> <li>• June 8, 2016: Annual CEAP progress report to Civic works committee: <a href="http://sire.london.ca/cache/2/s4kfid45iis0op55vj4pfp45/23375702272017075741266.PDF">http://sire.london.ca/cache/2/s4kfid45iis0op55vj4pfp45/23375702272017075741266.PDF</a></li> <li>• Active and Green Communities website: <a href="https://www.london.ca/residents/Environment/environmental-initiatives/Pages/Active-and-Green-Communities.aspx">https://www.london.ca/residents/Environment/environmental-initiatives/Pages/Active-and-Green-Communities.aspx</a></li> </ul>

### **Burlington Community Energy Plan**

Municipality	City of Burlington
Plan name, and vintage	Community Energy Plan, 2014

Plan creator, and lead implementer	City of Burlington Corporate Strategic Initiatives and Burlington Hydro
Cost	Unknown
Governance/ accountability	<ul style="list-style-type: none"> <li>• A Steering Committee led the development of the Community Energy Plan (City staff and Burlington Hydro)</li> <li>• A Community Stakeholder Advisory Committee (SAC) provided input and guidance to the development of the Community Energy Plan, and continues to meet semi-annually to provide guidance and feedback on the implementation of the plan</li> <li>• Implementation Management Team oversees actual implementation of the CEP, managing four specific Stakeholder Advisory Committee task groups: 1. Energy Generation 2. Energy Efficiency 3. Community Engagement 4. Built Form</li> <li>• Annual reporting to Council Development and Infrastructure Committee</li> </ul>
CEP Targets	<ul style="list-style-type: none"> <li>• None explicitly stated in the plan. Plan forecasts that community energy consumption could reduce by approximately 27% by 2030, translating into a 26% reduction in greenhouse gas emissions</li> <li>• NB: Burlington's 2015-2040 Strategic Plan adopts an objective of carbon neutrality in corporate operations by 2040. This objective emerged after the CEP was developed</li> </ul>
Overall Engagement Timeline	<ul style="list-style-type: none"> <li>• Early 2012: Council endorses CEP terms of reference and Stakeholder Engagement Strategy</li> <li>• Late 2012: Terms of Reference for the Stakeholder Advisory Committee were presented and accepted by Council</li> <li>• Late 2012 – June 2013: Steering Committee works with Stakeholder Advisory group to develop draft plan</li> <li>• June 2013: Draft plan presented to council</li> <li>• September 2013: Inspire Burlington presentation by Brent Gilmour (QUEST)</li> <li>• January 2014: CEP endorsed by Council</li> <li>• June 2016: Burlington and Hamilton City councils pass joint motion to develop a collaborative governance model to develop and implement a Community Climate Change Action Plan for the Hamilton Bay area</li> <li>• September 2016: District energy workshop</li> </ul>
<b>Community (public) engagement</b>	
Purpose	Raise awareness of CEP initiative, and seek input
Audience	General public
Timing	July 2013-Fall 2013

Methods	<ul style="list-style-type: none"> <li>• Draft report and discussion paper shared on City’s Energy website from July 2013, email comments solicited</li> <li>• Inspire Burlington presentation hosted by Mayor Goldring with Brent Gilmour (QUEST) – Sept 2013</li> <li>• Online consultation Oct 2013 “Let’s Talk Burlington”</li> </ul>
<b>Stakeholder Engagement</b>	
Purpose	<ul style="list-style-type: none"> <li>• Engage in development of plan, and ongoing review of progress with implementation</li> </ul>
Audience	<ul style="list-style-type: none"> <li>• Community Stakeholder Advisory Committee, consisting of utilities, broader public sector, private sector, academic, and civil society groups</li> </ul>
Timing	<ul style="list-style-type: none"> <li>• Twice annual meetings of Stakeholder Advisory committee, with quarterly task group meetings</li> </ul>
Methods	<ul style="list-style-type: none"> <li>• Formally established committee with regular meetings.</li> </ul>
Lessons learned	<ul style="list-style-type: none"> <li>• Quarterly task group meetings focused on specific sub-issues in the plan (efficiency, supply, vehicles) ensures that stakeholders continue to feel part of the ongoing plan implementation</li> <li>• Tight partnership with Burlington Hydro may have limited ambition in initial plan, reflects conservative corporate culture; Council has since surpassed the original plan objectives with carbon neutrality and district energy ambitions.</li> <li>• Public engagement is challenging. Online and in-person events did not attract much public engagement. Burlington does not have a local newspaper that is widely read, which is a limitation.</li> </ul>
Key weblinks	<ul style="list-style-type: none"> <li>• CEP <a href="https://www.burlington.ca/en/live-and-play/resources/Environment/Burlington%20Community%20Energy%20Plan.pdf">https://www.burlington.ca/en/live-and-play/resources/Environment/Burlington Community Energy Plan.pdf</a></li> <li>• 2016 Progress report: <a href="https://www.burlington.ca/en/live-and-play/resources/Environment/Energy/CW-12-15-Community-Energy-Plan-Progress.pdf">https://www.burlington.ca/en/live-and-play/resources/Environment/Energy/CW-12-15-Community-Energy-Plan-Progress.pdf</a></li> <li>• 2016 Progress report: <a href="https://www.burlington.ca/en/live-and-play/resources/Environment/Energy/CW-13-16---Community-Energy-Plan-Progress-Report.pdf">https://www.burlington.ca/en/live-and-play/resources/Environment/Energy/CW-13-16---Community-Energy-Plan-Progress-Report.pdf</a></li> <li>• Stakeholder advisory committee terms of reference</li> <li>• Joint resolution Burlington and Hamilton regarding climate action: <a href="https://www.burlington.ca/en/your-city/resources/Council/Agenda-Packet-07-04-16-2.pdf">https://www.burlington.ca/en/your-city/resources/Council/Agenda-Packet-07-04-16-2.pdf</a></li> </ul>

### Caledon Community Energy Plan

Municipality	Town of Caledon
Plan name, and vintage	Community Climate Change Action Plan (CCCAP), 2010

	Community Energy Plan (CEP), in development with expected Council endorsement in Spring 2017. CEP seen as a way to enhance CCCAP through creation of initiatives targeted to the residential sector, which is Caledon's major emitting sector (bedroom community)
CEP creator, and lead implementer	Town of Caledon - Energy and Environment Division - Finance and Infrastructure Services Consultants: Golder Associates
Cost	Unknown- funded under Ontario gov't MEP program phase 2 which provides up to a maximum of \$25,000 to cover 50% of costs. Therefore ~\$50,000 budget is estimated.
Governance/ accountability	<ul style="list-style-type: none"> <li>Stakeholder group created to provide input and advice to plan development.</li> <li>Town has also engaged internal stakeholders in the Town's Development Policy Group to develop scenarios for potential CEP actions, such as District Energy, and comprehensive residential retrofits.</li> </ul>
Targets	CCCAP: 17% below 2006 levels by 2021
Overall Engagement Timeline	<ul style="list-style-type: none"> <li>September 2015: Project Kick-off</li> <li>December 2015: Stakeholder group meeting #1</li> <li>Jan-June 2016: Residential Energy Map baseline and forecasting study</li> <li>March 2016: Stakeholder group meeting #2 – develop vision and principles</li> <li>September 2016: Stakeholder group meeting #3 – Identify opportunities, potential actions and targets</li> <li>October 2016: Stakeholder group meeting #4 – Review and prioritize actions; discuss implementation approach</li> <li>November 2016: Stakeholder group meeting #5 – Review draft CEP and implementation plan</li> </ul>
<b>Community (public) engagement</b>	
Purpose	Raise awareness of CEP initiative, and seek input after the plan has been developed
Audience	General public
Timing	Spring/summer 2017
Methods	<ul style="list-style-type: none"> <li>Energy roadshow – staff bring residential energy maps to public events, and engage citizens in conversations about energy use and the role of individual actions. Caledon Home and Lifestyle show (April 2017) is being targeted</li> <li>Event is being planned with School Boards to coincide with Earth Day 2017.</li> <li>Caledon Official Plan Review – Town staff are developing a Community Discussion paper presenting highlights of the energy mapping research.</li> </ul>

<b>Stakeholder Engagement</b>	
Purpose	<ul style="list-style-type: none"> <li>Engage in development of plan: vision, goals, prioritization of actions and implementation approach</li> </ul>
Audience	<ul style="list-style-type: none"> <li>Stakeholder group sectors represented include: <ul style="list-style-type: none"> <li>Land developers</li> <li>School boards</li> <li>Regional municipal staff and provincial staff</li> <li>Civil society groups</li> <li>Conservation Authorities</li> <li>Utilities</li> </ul> </li> </ul>
Timing	<ul style="list-style-type: none"> <li>Minimum of 5 meetings over the course of the project life cycle. 12 months: Dec 2015 – November 2016.</li> </ul>
Methods	<ul style="list-style-type: none"> <li>Formally established committee with regular meetings.</li> </ul>
Lessons learned	<ul style="list-style-type: none"> <li>CEP development seen as a sub-component of Community Climate Change Action Plan (CCCAP) – implementation focused on residential energy, which is one of the largest emitters in Caledon.</li> <li>With CEP Caledon developed a clear terms of reference for Stakeholder Group participants which laid out expected engagement timeline, and expectations of participation, early in the process.</li> <li>Key stakeholder groups/sectors vary by community. In Caledon agricultural sector is a key group (Peel Federation of Agriculture).</li> <li>Town has developed a targeted pitch to each stakeholder that they want to engage. Pitch focuses on win-win opportunities for engagement in CEP and implementation.</li> </ul>
Key weblinks	<ul style="list-style-type: none"> <li>Community Climate Change Action Plan, 2010:  <a href="https://www.caledon.ca/en/live/resources/CommunityClimateChangeActionPlan.pdf">https://www.caledon.ca/en/live/resources/CommunityClimateChangeActionPlan.pdf</a> </li> </ul>

### **Sault St Marie Smart Energy Plan**

Municipality	Sault St Marie
Plan name, and vintage	Smart Energy Strategy, 2011

CEP creator, and lead implementer	Sault Ste Marie Innovation Centre, as lead for Destiny Sault St Marie Consultant: Parker Venture Management Inc.
Cost	Unknown
Governance/ accountability	<ul style="list-style-type: none"> <li>• Destiny Sault St Marie is a multi-stakeholder partnership that maintains the Community Economic Diversification Strategy. Alternative energy is (was) a major component of the Strategy. Partners include the City, province, federal government, major institutions (local University and college, and local economic development organizations).</li> <li>• Destiny SSM Energy Committee created an Alternative Energy Task Team which led the development of the Strategy.</li> <li>• No clear accountability for implementation</li> </ul>
Targets	None
Overall Engagement Timeline	<ul style="list-style-type: none"> <li>• Unclear, and plan has not moved to implementation.</li> </ul>
<b>Community (public) engagement</b>	
Purpose	Gather input on the strategy
Audience	
Timing	
Methods	<ul style="list-style-type: none"> <li>•</li> </ul>
<b>Stakeholder Engagement</b>	
Purpose	<ul style="list-style-type: none"> <li>•</li> </ul>
Audience	<ul style="list-style-type: none"> <li>○</li> </ul>
Timing	<ul style="list-style-type: none"> <li>•</li> </ul>
Methods	<ul style="list-style-type: none"> <li>•</li> </ul>

Lessons learned	<ul style="list-style-type: none"> <li>• With governance and responsibility for implementation resting outside of municipality, clear buy-in and commitment from all stakeholders is needed. <ul style="list-style-type: none"> <li>○ Municipality has since backed away from commitment to the Smart Energy Strategy, and is instead focusing solely on addressing corporate emissions. It has successfully applied for funding from Ontario MEP program phase 2 for implementation of its “corporate” municipal energy plan.</li> </ul> </li> <li>• Explicit focus on economic development objectives, and community revitalization, helped to attract “unusual suspects” to stakeholder group. However perhaps indicative of the time (2011) when renewable energy industries was seen as a panacea for communities experiencing decline of traditional sectors</li> </ul>
Key weblinks	<ul style="list-style-type: none"> <li>• Sault St Marie Smart Energy Strategy: <a href="http://www.ssmic.com/UploadedFiles/files/Executive%20Summary%20-%20FINAL%20REPORT%20SSM%20Smart%20Energy%20Strategy.pdf">http://www.ssmic.com/UploadedFiles/files/Executive%20Summary%20-%20FINAL%20REPORT%20SSM%20Smart%20Energy%20Strategy.pdf</a></li> <li>• Overview of SSM Smart Energy Strategy: <a href="http://www.fonom.org/sites/default/files/May%207%20-%203pm%20SSM%20Innovation%20Centre.pdf">http://www.fonom.org/sites/default/files/May%207%20-%203pm%20SSM%20Innovation%20Centre.pdf</a></li> </ul>



## **Appendix B: Pros and Cons of Various Community Engagement Strategies (Table 1)**

### **Media Engagement**

*Print & Digital media, press releases, radio shows, city council updates.*

Target Group:

Broader community and institutional stakeholders.

Advantages:

- Reaches people in their homes
- Quick progress updates
- Inexpensive, and in some cases free
- Sustain long term interest

Disadvantages:

- Not universally accessible
- Participation is largely passive
- Limited feedback from audience or community
- Has to compete with other exciting blurbs and community events
- Information can be misconstrued, misunderstood or misrepresented

Best Practices:

- Leverage existing media relations and networks
- Publish regular updates and project milestones to sustain community interest in the project

### **Information Campaigns**

*Social media, flyers, poster sessions, exhibition materials, leaflets, mailers, newsletters.*

Strategies for increasing awareness of key issues and 'take-away' messages

Target Audience:

Broader community, institutional stakeholders and participants for future engagement stages.

Advantages:

- Reaches a wider audience through creative use of visual and social media
- Easy to understand 'take-away' messages
- Raises project profile and public awareness
- Build public support and commitment through social media
- Can be used to recruit participation in later stages of engagement (surveys, workshops, focus groups, etc.)

- Quantitative metrics for outreach easy to measure (number of people reached, number of follow-up clicks, social media analytics etc.)

#### Disadvantages

- Qualitative outcomes of engagement difficult to measure
- Uncertainty about whether limited feedback is representative of broader community
- Has to compete with other exciting blurbs and community events.
- Information can be misconstrued, misunderstood or misrepresented

#### Best Practices:

- Clearly identify target audience, use plain language and visuals as focal points (GTI, 2016a).
- Leverage local resources and community partners as delivery networks (supermarkets, doctor's offices, etc.)
- Bootstrap engagement campaign by leveraging existing social media channels (official city govt. accounts, etc.)
- Have a single point of reference (website) where all content is hosted, link to this source in every campaign material

## Educational Initiatives

*Conferences, public lectures, policy documents, technical reports, peer-reviewed articles.*

### Strategies for engaging with peers and experts.

#### Target Audience:

Community sector organizations, policy makers, institutional stakeholders, researchers, government representatives, technical experts, community members.

#### Advantages:

- Events familiar to organize and attend, documents familiar to prepare and read.
- Peer-to-peer communication and consultation
- Solicit feedback from experts in the field
- In-depth exploration of issues
- Opportunities for cross-sector networking and community building
- Present and debate alternative views, identify concerns early, if any

#### Challenges:

- Organizational and budgetary
- Outcomes may be inconclusive and feedback may be minimal
- Community may perceive initiatives as 'agenda setting', not merely educational

#### Best Practices:

- Make proceedings and materials accessible to broader community outside target audience.
- Manage public expectations early. Clearly define and describe the scope, character and purpose of the educational initiatives as one stage of a comprehensive community engagement strategy.

## **Information Gathering**

*Opinion polls, surveys, phone sampling, consultation meetings, online comments, public meetings.*

Strategies for acquiring representation and input from a broad section of the community.

Target Audience:

Community, key institutional stakeholders, underserved and under-represented community members,

Advantages:

- Familiar to most people.
- Target underserved stakeholders to secure their representation
- Some room for discussion and dialogue at public events.
- Consultation events encourage participation, bridge gap between community and representatives.
- Quantitative and qualitative metrics of ‘engagement’ easy to measure

Challenges:

- Poor response rate, vocal respondent bias (may be addressed by sampling techniques)
- Time consuming, organizational and budgetary challenges

Best Practices:

- Survey fatigue can set in quickly. Clearly identify set of survey objectives, prune out “nice to know” and retain a core set of “need to know” questions.
- Organize consultations around events already happening in the community.
- Retain and sustain engagement by
  - Giving out handouts/flyers with visual information
  - Informing people about additional resources and opportunities for further participation

## **Shared Visioning**

*Journey mapping, design charrettes, visioning workshops, facilitated discussions, stakeholder forums, advisory groups, planning cells.*

Strategies for developing a common set of values that provides focus, purpose and direction for the implementation process.

Target Audience:

All community and institutional stakeholders.

Advantages:

- Brings disparate viewpoints towards consensus on community values and shared vision for future
- Providing inspiration and motivation towards action
- Mobilizing assets and resources towards implementation
- Establish a culture of collaboration, support and project participation

Challenges:

- Requires skilled and experienced facilitators to run large gatherings of people
- Time consuming, organizational and budgetary challenges
- Effective shared visioning possible only when enough participants that are representative of the community are engaged in the previous stages

Best Practices:

- Try to arrive at consensus through a clear process. Where there isn't consensus, be transparent. The only thing more detrimental than lack of consensus, is a false sense of consensus.

## **Empowered Implementation**

*Delphi technique, design charrettes, focus group, citizen's jury, local advisory committees, steering committees, intermediaries, collective impact.*

Strategies for developing priorities, timelines, action plans, and empowering community ownership of implementation.

Target Audience:

Participants engaged in previous stages.

Advantages:

- Often lead to creative solutions and bring stakeholders together who would be involved in delivering those solutions
- In cases that require substantial public and private investment, public deliberation and visioning can reduce risk of gridlock, litigation, costs and delays
- May be necessary to tackle *wicked* problems – complex issues

Challenges:

- Requires commitment to participation from community and confidence in the process from local government and institutions
- Expectations of citizen enthusiasm, involvement and participation may prove unrealistic.

- Average citizens may independently lack the capacity to take sole ownership of complex public affairs and make decisions involving sophisticated processes

Best Practices:

- Test for conditions under which community engagement is most likely to lead to successful outcomes for local government, community and key stakeholders – low risk to participation, trust in process, transparency in decision-making and widely acknowledged mutual-benefits.



# **A Primer on Stakeholder Engagement in Community Energy Planning**

Prepared by:  
**Kirby Calvert & Abhilash Kantamneni**



Prepared for:  
**Our Energy Guelph Community Engagement Committee**



# About this Primer

This purpose of this primer is to share best-practices and state-of-art stakeholder engagement activities in the context of community energy planning

The primer will ultimately build toward a suggested “Roadmap for Effective Stakeholder Engagement”, pausing along the way to reflect on key concepts and considerations that should guide the activity.

# Stakeholder engagement is...

...a process by which **stakeholders** are **consulted** and **involved** in the development of **actionable agendas** and **implementation plans**. Broadly speaking, the objectives of stakeholder engagement are two-fold:

1. Stakeholder empowerment and buy-in through participation in the planning process
2. Mutual capacity building through knowledge exchange and resource sharing



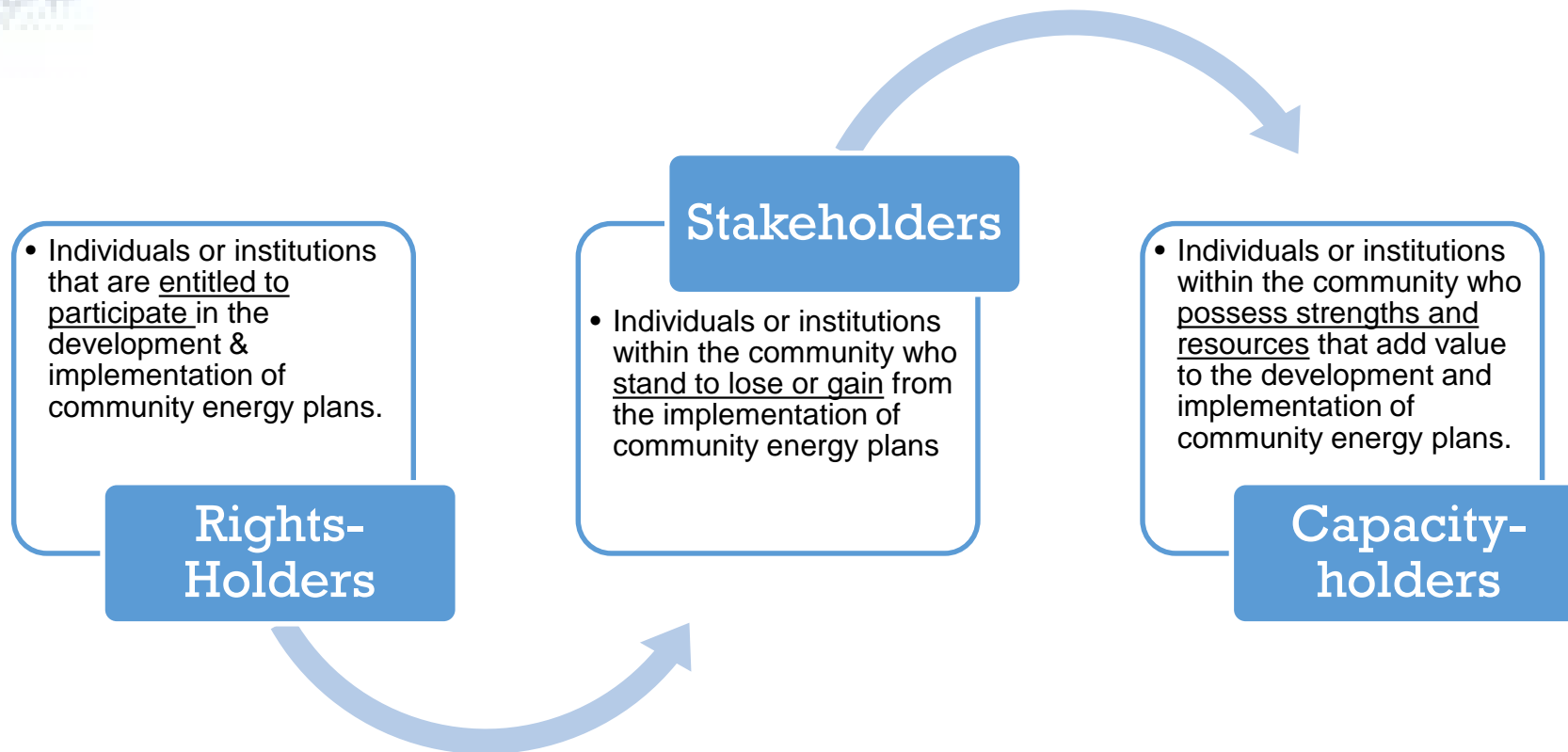


# Roadmap for Effective Stakeholder Engagement

1. Develop a 'holder' map of the community.

# '-holders' in the Community

Community members can be (simultaneously) classified in one of three ways, depending on the conditions under which their participation is elicited...



# '-holders' in the Community

Phase 1 Activities  
(Visioning)

'Community Engagement

Phase 2 & 3 Activities  
(Agenda-Setting, Mobilizing)

• Individuals or institutions that are entitled to participate in the development & implementation of community energy plans.

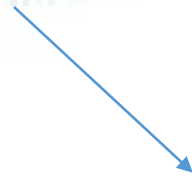
Rights-Holders

• Individuals or institutions within the community who stand to lose or gain from the implementation of community energy plans

Stakeholders

• Individuals or institutions within the community who possess strengths and resources that add value to the development and implementation of community energy plans.

Capacity-holders





# Roadmap for Effective Stakeholder Engagement

1. Develop a 'holder' map of the community.
2. Determine which groups must be engaged as stakeholders, and which groups must be engaged as capacity holders.
  - Determine what sort of 'capacity' you need / are interested in...

# Classifying 'Capacity-holders'

- Status-holders ('governing change agents')
  - have a formal status in the governance structure of a community energy plan, and play a role in a decision-making capacity. eg – council, city staff, utility representatives, lending institutions.
- Social capital-holders ('social change agents')
  - facilitate (or impede) community faith, cooperation, networking and participation in community energy plans. eg – local champions.
- Knowledge-holders
  - play a technical or advisory role in community energy plans. eg – external researchers, consultants,
- Interest-holders
  - might advocate for a specific interest through the community energy planning process. eg – environmental organizations, developers.



# Roadmap for Effective Stakeholder Engagement

1. Develop a 'holder' map of the community.
2. Determine which groups must be engaged as stakeholders, and which groups must be engaged as capacity holders.
  - Determine what sort of 'capacity' you need / are interested in...
3. Articulate objectives of engagement for each stakeholder group and identify information / input required from each stakeholder group
4. Develop template in which to organize information from (3) – see accompanying word document

# Considerations for –holder Mapping

- Any person or institution can simultaneously be classified into more than one ‘holder’ category. Rights/stake/capacity-holder classification depends on conditions under which their participation is elicited.
- When identifying stakeholders, aim for those that can also be ‘capacity-holders’ and bring value to the process.
- Participation is more feasible for some stakeholders than others (Lasker, 2009).
- Avoid over-representation from stakeholders with similar positions or who have already formed an alliance for a common purpose (Schmitter, 2002).



# Roadmap for Effective Stakeholder Engagement

1. Develop a 'holder' map of the community.
2. Determine which groups must be engaged as stakeholders, and which groups must be engaged as capacity holders.
  - Determine what sort of 'capacity' you need / are interested in...
3. Articulate objectives of engagement for each stakeholder group and identify information / input required from each stakeholder group
4. Develop template in which to organize information from (3) – see accompanying word document
5. Design applied research protocol consistent with (3) and (4) – i.e., methods and outreach strategy by which to complete template
6. Execute applied research protocol from (5) and fill-in template from (4)





# Tools for –holder engagement

## A brief overview...

<b>Tool</b>	<b>Typical Application</b>
Online Survey	Large-n; compiling and comparing individual perspectives from a given group; measuring level of support/opposition; soliciting what might be considered 'sensitive' feedback
Focus Group / Workshop	Small-n; searching for consensus and co-produced knowledge/ideas
Targeted Interview	Small-n; discussing specific roles and resource sharing opportunities

# Considerations for Engagement Plan

- Targeted stakeholder engagement needs to take a 'horses for courses' approach – find appropriate engagement tool/strategy for each key stakeholder.
- Engagement fatigue can set in quickly. Clearly identify core set of objectives/questions/inputs required and prune out 'nice to know' questions. Pre-engagement activities are critical here.



# Roadmap for Effective Stakeholder Engagement

1. Develop a 'holder' map of the community.
2. Determine which groups must be engaged as stakeholders, and which groups must be engaged as capacity holders.
  - Determine what sort of 'capacity' you need / are interested in...
3. Articulate objectives of engagement for each stakeholder group and identify information / input required from each stakeholder group
4. Develop template in which to organize information from (3) – see accompanying word document
5. Design applied research protocol consistent with (3) and (4) – i.e., methods and outreach strategy by which to complete template
6. Execute applied research protocol from (5) and fill-in template from (4)

# Key Readings

GTI (Getting to Implementation) 2016. *Community Energy Implementation Framework*. Accessed online 27 January 2017 at [http://gettingtoimplementation.ca/wp-content/uploads/2016/12/Final-Framework-December72016\\_online.pdf](http://gettingtoimplementation.ca/wp-content/uploads/2016/12/Final-Framework-December72016_online.pdf)

Lasker, Roz Diane, and John A. Guidry. *Engaging the community in decision making: case studies tracking participation, voice and influence*. McFarland, 2009.

Natural Resources Canada (CANMET). 2014. *Stakeholder Engagement Guide for District Energy Systems (with worksheets)*.  
[https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/energy/pdf/engagementguide\\_eng\\_12.pdf](https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/energy/pdf/engagementguide_eng_12.pdf)

Schmitter, P. C. 2002: *Participation in Governance Arrangements: Is there any Reason to Expect it will Achieve "Sustainable and Innovative Policies in a Multilevel Context"?*, in: Grote, J. R./Gbikpi, B. (eds.): *Participatory Governance. Political and Sociatal Implications*, Opladen: Leske & Budrich, 51-70

Wates, Nick. *The Community Planning Handbook: How people can shape their cities, towns & villages in any part of the world*. Routledge, 2014.

**\*\*For further information, see White Papers #1 and #2**

## Natural Resource Canada

Legislation Policy Program	Date	Description	Policy Supports	How	Policy Category	Policy Type	Taskforce opportunities	Status of opportunity
<a href="#">Energy Efficiency Regulations</a>	1995	The first Energy Efficiency Regulations came into effect in 1995; they are amended periodically to be current with the market. The most recent amendment was in 2016. Further amendments are proposed in the Pan-Canadian Framework on Clean Growth and Climate Change.	CEP implementation	Require	Energy Efficiency	Market Transformation		Legislative support
<a href="#">Office of Energy Efficiency</a>	n.d.	The Office of Energy Efficiency (OEE) is Canada's centre of excellence for energy, efficiency and alternative fuels information. The OEE also offers grants and incentives and other resources, including workshops for professionals, statistics and analysis, and hundreds of free publications.	CEP implementation	Support & Enable	Energy Efficiency	Capacity Building	1) Source of funding for program development (e.g. issued a call for proposals for residential energy efficiency programs in November 2016); 2) Access to data, expertise and best practice; 3) Leverage reputation for contributing to a national CEP community of practice	Legislative support

## Natural Resource Canada

<a href="#">CanMet Energy</a>	n.d.	CanmetENERGY helps to accelerate the deployment of innovative technologies and solutions that will reduce the energy required by Canadian communities. Their researchers support municipal stakeholders and developers with the development and implementation of community energy planning and initiatives for communities across Canada.	CEP implementation	Support & Enable	Community Energy Planning	Capacity Building	1) Source of funding for research and development; 2) Access to expertise and best practice (note: NRCan represented on Taskforce); Leverage reputation for contributing to a CEP national community of practice.	Legislative support
<a href="#">Energy Star - Products</a>	1992	The ENERGY STAR symbol indicates that a product meets or exceeds high efficiency standards. Typically, a certified model is in the top 15 to 30 percent of its class for energy performance.	CEP implementation	Require	Energy Efficiency	Market Transformation	1) Standardized program to engage consumers	Legislative support

## Natural Resource Canada

<a href="#">Energy Star - Homes</a>	2012	<p>In 2012, Natural Resources Canada published the ENERGY STAR® for New Homes Standard Version 12. Homes built to this Standard are on average 20% more energy-efficient than typical new homes.</p>	CEP implementation	Support & Enable	Energy Efficiency	Market Transformation	1) Standardized program to engage local home builders	Legislative support
<a href="#">Energuide Home Evaluation Program</a>		<p>An EnerGuide home evaluation is a service designed to help homeowners increase the energy-efficiency and comfort of their homes. An EnerGuide evaluation provides useful information about a home's energy performance that can help a homeowner make informed decisions when operating, renovating or purchasing a home. Homeowners are also provided with an EnerGuide label for their home (see below)</p>	CEP implementation	Support & Enable	Energy Conservation and Efficiency	Retrofit Program	1) Standardized home energy evaluation program to support a residential energy efficiency program.	Cross-jurisdictional support

## Natural Resource Canada

<a href="#">EnerGuide Home Rating System (Home Label)</a>		<p>The EnerGuide Rating System estimates the energy performance of a house and can be used for both existing homes and in the planning phase for new construction. It allows building professionals to provide consumers with information to help with their home purchase decisions and to choose the best renovations to maximize savings on their energy bills. This is a voluntary home energy labelling program.</p>	<p>CEP implementation</p>	<p>Support &amp; Enable</p>	<p>Energy Conservation and Efficiency</p>	<p>Market Transformation</p>	<p>1) Standardized home labelling program to support a residential energy efficiency retrofit program.</p>	<p>Cross-jurisdictional support</p>
---	--	---	---------------------------	-----------------------------	---	------------------------------	--	-------------------------------------



## Natural Resource Canada

<a href="#">Energy Star Portfolio Manager</a>	2013	<p>A standard, free, online national energy benchmarking system that provides more accurate and equitable building energy data and assessments for the commercial and institutional buildings sector. Initially developed in the U.S. Adopted by Province of Ontario for Regulation 20/17.</p>	CEP implementation	Support/Enable	Energy Conservation and Efficiency	Business Tool	<p>1) Standardized energy benchmarking tool to support a commercial and industrial energy efficiency retrofit program and mandatory reporting (Ontario Regulation 20/17)</p>	Cross-jurisdictional support
<a href="#">Electric Vehicle and Alternative Fuel Infrastructure Deployment Initiative</a>	2016	<p>Supports the deployment of infrastructure, along key transportation corridors, for fast-charging infrastructure for electric vehicles, natural gas and hydrogen refueling stations. Eligible applicants include: electricity or gas utilities, companies, industry associations, research associations, standards organizations, indigenous and community groups, academic institutions, provincial, territorial, regional or municipal overnments or their departments or agencies where applicable.</p>	Energy transition	Provide	Transportation	Funding Program	<p>1) Infrastructure funding to promote low carbon transportation</p>	Time-limited program

## Natural Resource Canada

<a href="#">Integrated Community Energy Solutions: A Roadmap for Action</a>	2009	<p>Cross-cutting opportunities were introduced in <i>Moving Forward on Energy Efficiency in Canada: A Foundation for Action</i>, released by the Council of Energy Ministers in September 2007. In <i>Moving Forward</i>, Ministers recognized the vital role that governments can play in advancing energy efficiency in key sectors, including the built environment, transportation and industry. This document builds on <i>Moving Forward</i> to capture the additional potential of fully-integrated community solutions. The Roadmap represents the collaborative efforts of the provincial, territorial and federal governments, with important input from a wide cross-section of representatives from outside government, including non-governmental organizations and industry. The Roadmap also recognizes the essential role of municipalities, developers, energy utilities and providers, non-</p>	CEP development	Talk & hope	Community Energy Planning	Best Practice	1) Rationale for local government engagement in energy planning	Cross-jurisdictional support
---	------	---	-----------------	-------------	---------------------------	---------------	---	------------------------------

Role	Lever	Approach	Rationale & Best Practice	Target 1	Target 2	Example	
Regulate	Building Code	Require new build to be 'solar ready' or even to include solar panels	<ul style="list-style-type: none"> <li>·A hard lever that can coordinate actions with strategic objectives.</li> <li>·Collaborative, rather than commanding, regulations work best</li> </ul>	Buildings	Supply	San Fran	
		Strengthen building codes for efficiency (including passive solar gain)		Buildings	Demand		
	Zoning & Bylaws	Require new builds to be 'EV ready'		<ul style="list-style-type: none"> <li>·Reduce red-tape, less paper work.</li> </ul>	Buildings	Demand	<a href="http://www.autoblog.com/2017/05/09/tesla-hometown-fremont-require-new-homes-solar-ev-ready/">http://www.autoblog.com/2017/05/09/tesla-hometown-fremont-require-new-homes-solar-ev-ready/</a> Edmonton - <a href="http://www.cbc.ca/news/canada/edmonton/solar-energy-city-edmonton-bylaw-1.4040528">http://www.cbc.ca/news/canada/edmonton/solar-energy-city-edmonton-bylaw-1.4040528</a>
		Mandatory connection by-laws in areas suitable for district energy			Buildings	Distribution	
Tax Reform	Remove requirement for development permit for rooftop solar, with conditions	<ul style="list-style-type: none"> <li>·Municipal governments are large energy consumers</li> <li>·Patient capital can provide a 'niche' market for the technology or service to achieve cost reductions, driving down cost-curve for others</li> </ul>	Buildings		Supply		
	Require 'climate change impact' warning labels on all gas pumps		Transport		Supply		
Urban Development	Open up Local Improvement Charge mechanism (don't need to lend)		<ul style="list-style-type: none"> <li>·Infrastructure can be leveraged to service broader community (e.g., EV charging)</li> <li>·Lead by example, demonstrate best-practice</li> </ul>	Buildings	Demand		
	Create bike sharing program;			Active Transport	Demand		
Implement	Procurement and Service Delivery	Re-allocate space from cars to pedestrians;		<ul style="list-style-type: none"> <li>·Spreads risk across public and private entities</li> <li>·Brings dividends as community invests in itself</li> </ul>	Active Transport	Demand	Surrey and renewable natural gas; Brampton and electric buses
		Separate active and passive transport infrastructure			Active Transport	Demand	
	Ownership	Install traffic light timing controls to minimize idling	<ul style="list-style-type: none"> <li>·Combines patient with impatient capital</li> <li>·Creates an enabling environment for investment</li> </ul>		Motor Transport	Demand	
		Install LED traffic lights			Motor Transport	Demand	
Cash Reserves	Convert vehicle fleets to alternative fuels	<ul style="list-style-type: none"> <li>·Maintains dialogue across community, industry / business, government</li> </ul>		Supply	Supply		
	Install waste-to-energy systems			Buildings	Buildings		
Invest	Development Charges		Retrofit municipal facilities with a 'revolving fund' to be (near) net-zero (efficiency and distributed generation)	<ul style="list-style-type: none"> <li>·Collaborative rather than commanding</li> </ul>	Buildings	Buildings	
			Install clean energy supply systems (rooftop solar, geothermal, etc)		Buildings	Buildings	
	Access to capital	Extend revolving fund to community projects that demonstrate high return	<ul style="list-style-type: none"> <li>·Collaborative rather than commanding</li> </ul>		All		
		Invest directly into (unregulated) energy sectors (e.g., municipal owned solar farm)			All		
Facilitate	Sharing and Building Institutional Capacity	PPPs or joint ventures into strategic infrastructure (e.g., electricity storage assets; district energy)		<ul style="list-style-type: none"> <li>·Collaborative rather than commanding</li> </ul>	All		
		Bring city resources to community-led steering committees					
	Community Engagement	Lead funding proposal applications to FCM and others	<ul style="list-style-type: none"> <li>·Collaborative rather than commanding</li> </ul>				
		Conduct infrastructure & resource (supply) assessments					
Lobbying Mediate	Make data available widely and in a variety of formats for public use	<ul style="list-style-type: none"> <li>·Collaborative rather than commanding</li> </ul>					
	Coordinate land-use plans with utility planning						
Community Engagement	Facilitate strategic partnerships among key stakeholders		<ul style="list-style-type: none"> <li>·Collaborative rather than commanding</li> </ul>				
	Open up a Ward meeting for community engagement around the CEP process						
Lobbying Mediate	Hold annual 'expo' or 'open-house' which communicates various strategic initiatives across the City, including energy	<ul style="list-style-type: none"> <li>·Collaborative rather than commanding</li> </ul>					
	Be a champion among peer communities when lobbying province						
Lobbying Mediate	Leverage LICs		<ul style="list-style-type: none"> <li>·Collaborative rather than commanding</li> </ul>				

Municipal leadership is chief among the first principles of effective community energy planning. Municipal leadership drives from a commitment to 'comprehensive government', i.e., recognition that the duties of local government extend beyond a focus on 'potholes and parking, and include collaborative strategic planning. In other words, the municipality needs to drive the planning process, providing dedicated resources. The role of the municipality in the *implementation* of CEPs is less clear and situational, however.

# Community input into Guelph's Community Energy Plan: Analysis and Interpretation of Survey Responses

A Presentation Prepared By:

Kirby Calvert, Co-Chair, Our Energy Guelph

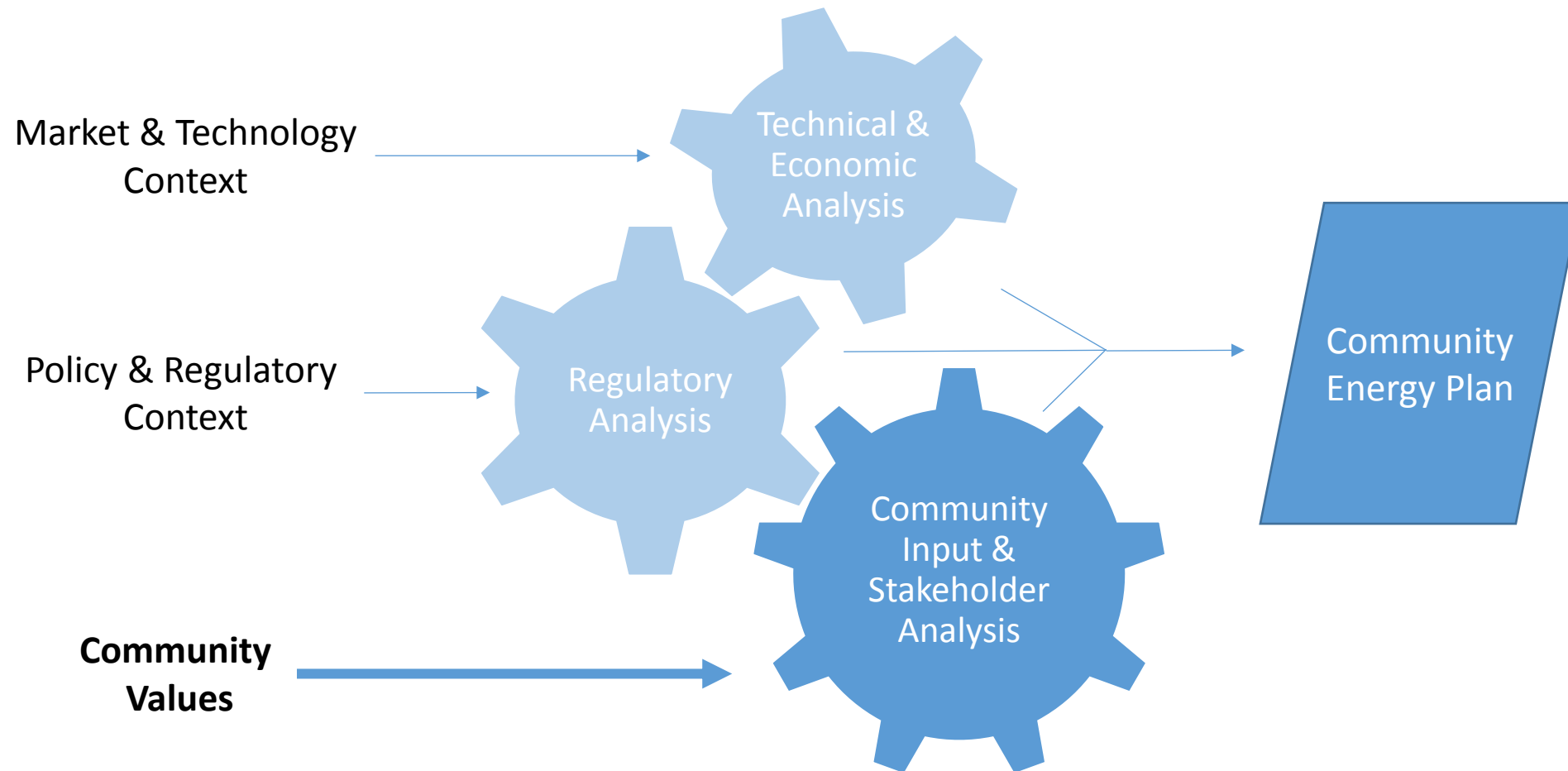
Rebecca Jahns, MA Candidate, University of Guelph

# About the report

- Attached is a final report which summarizes the results from the Our Energy Guelph (OEG) Community Vision Survey. The analysis was conducted by Dr. Kirby Calvert and Ms. Rebecca Jahns, at the direction of Mr. Alex Chapman (Manager, Climate Office, City of Guelph). The layout and design of the report is bland and rough – this is intentional, with an expectation that the content will be sent to a graphic designer for styling.
- Following some background information, the analysis is broken into four parts. Each part can be considered a stand-alone presentation or report. The slides that constitute this report have been organized under the assumption that someone is reading this report, not listening to it. When converting this into a presentation, much of the text in the slides should be moved into the notes section and communicated verbally.

Background

During the spring and summer of 2017, OEG collected **406 survey responses from community members** to seek input from the community at large into Guelph's community energy plan. As shown below, the survey represents **one of three primary inputs and activities** that will come together to inform our community energy plan.....



Survey results were **gathered through the following channels:**

In person (177 responses):

Local Food Fest

Canada Day Celebration at Riverside Park

Guelph Farmer's Market

Guelph Library - Downtown Location

Stone Road Mall

OEG-hosted community events (Harcourt United Church, Evergreen Seniors Centre)

Guelph YMCA

West End Community Centre

Dublin Street United Church

Canadian Solar

Danby

Online (229 responses):

[www.ourenergyguelph.ca](http://www.ourenergyguelph.ca)

Through Twitter and Facebook notifications

Following a public service announcement from CRFU Radio



**The survey structure** was modeled after a similar effort by the Federal Government, and included a mix of multiple choice and short answer questions. For the same of analysis and communication of results, the survey is **best described in two parts:**

### Survey Part 1: The Targets Questions

Q: Do you think it is important for Guelph to continue to have energy targets that are leading provincially, nationally and internationally?

A: Choose from the following options: Yes, Somewhat, No

Q: Please tell us why you have answered this way

A: Open ended responses

### Survey Part 2: Guelph's Energy Future Questions

Q: What does Guelph's ideal energy future look like to you? What are the elements and features that exist in this future?

A: Open ended responses

Q: What do you think needs to happen over the next 30 years to realise Guelph's ideal energy future?

A: Open ended responses

In what follows, we summarize the analysis of this survey in four parts:

Part 1: The targets questions: Does the community think Guelph's energy targets should be leading, lagging, or somewhere in the middle?

Part 2: Guelph's energy future questions: What does the community think about Guelph's energy future?

Part 3: Actionable messages: What initiatives have been suggested by the community for Guelph's updated energy plan?

Part 4: Segmented analysis: What does the business community think about all of this?

Please note that although the survey collected personal information from respondents, this analysis is based on anonymized data – i.e., the analysts were not able to connect specific data points to individual respondents.

# Part 1: The Targets Questions

Does the community think Guelph's energy targets should be leading, lagging, or somewhere in the middle?

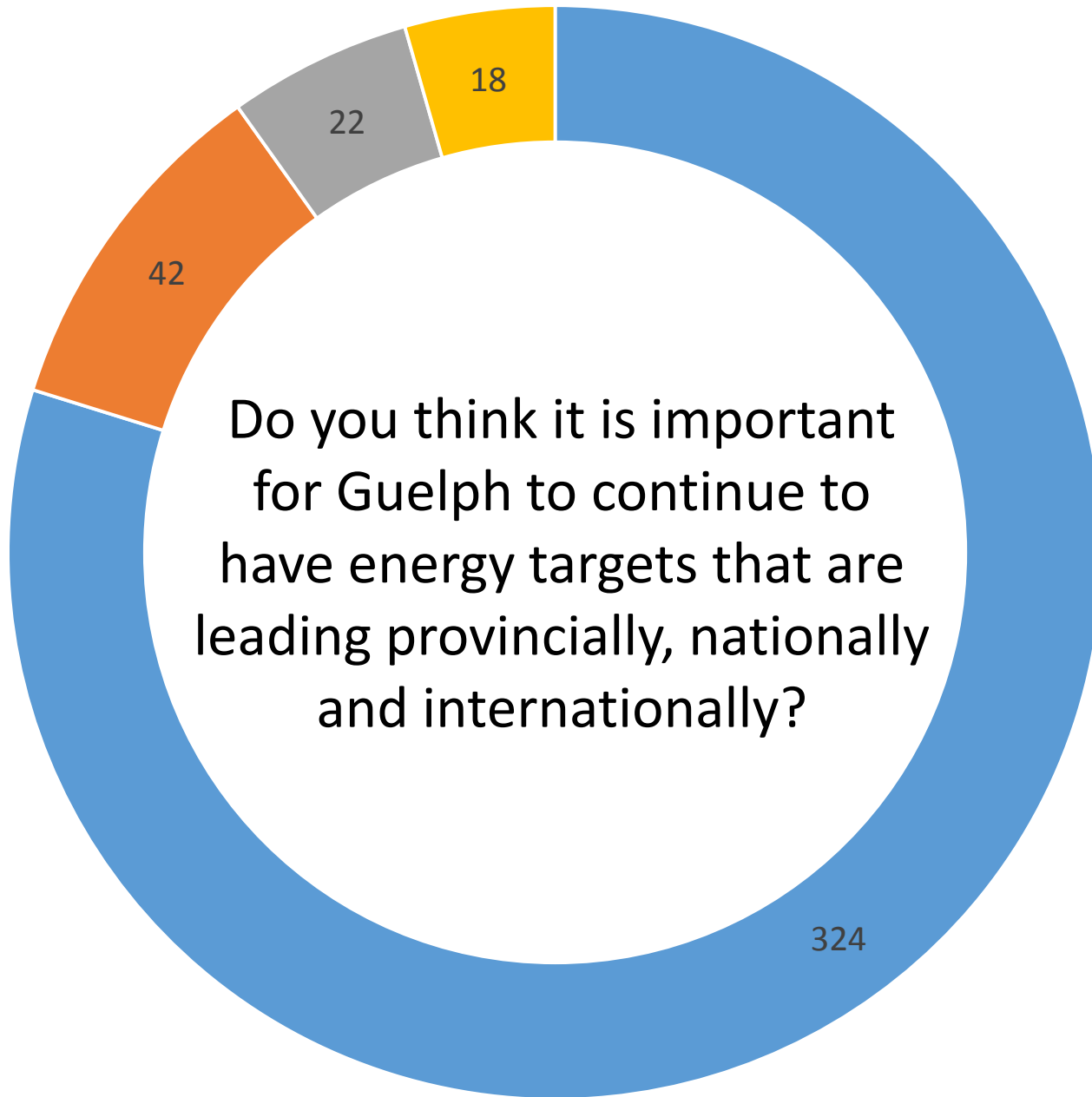
# The Targets Questions: Analysis

The survey included two questions targets. First, the survey asked respondents to provide a response of 'no', 'somewhat', or 'yes' to the question:

*Do you think it is important for Guelph to continue to have energy targets that are leading provincially, nationally and internationally?*

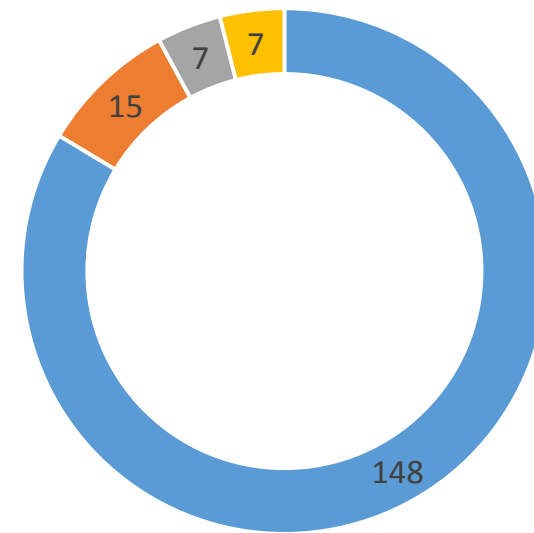
The following slide summarizes those responses in a series of pie charts. We segmented the analysis to determine if/to what extent responses may have differed for those who responded in person using a hard-copy form, relative to those who responded through the online survey. No meaningful differences were detected.

All Respondents



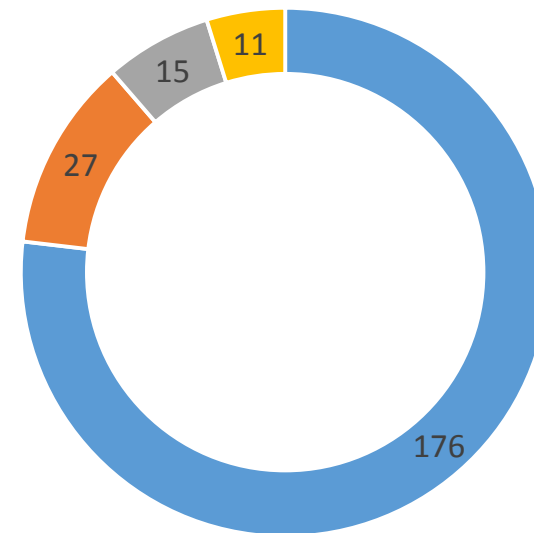
■ Yes ■ Somewhat ■ No ■ Did not respond

Hardcopy Respondents



■ Yes ■ Somewhat ■ No ■ Did not respond

Web Respondents



■ Yes ■ Somewhat ■ No ■ Did not respond

# The Targets Questions: Analysis

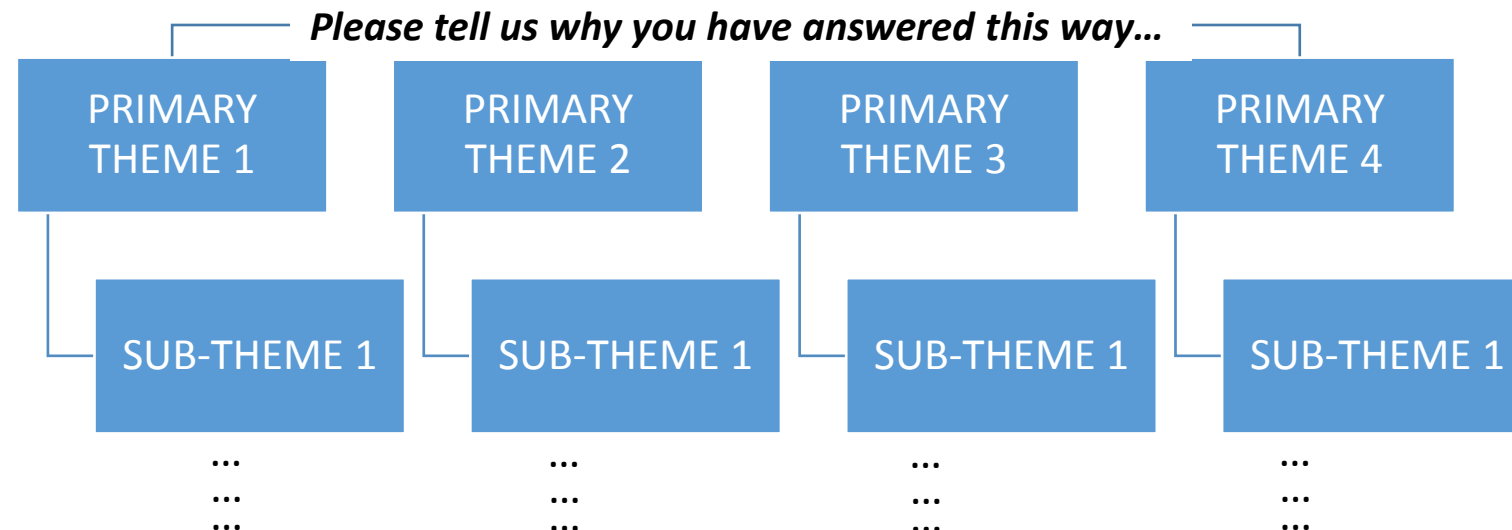
- Respondents were then asked to ‘please tell us why you have responded this way’.
- Raw data and individual responses were analyzed in order to capture common themes that might be useful for decision-making and planning. Using an iterative coding procedure, all of the written responses were first classified into one of a limited number of ‘primary themes’. These primary themes group multiple responses under the same broad narrative. Sub-themes within each primary theme are then discerned to provide more detail about the subtle nuances in the messages within each theme.

# The Targets Questions: Analysis

- We present results using the structure below:

Do you think it is important for Guelph to continue to have energy targets that are leading provincially, nationally and internationally?

→ RESPONSE TO TARGETS QUESTION 1



\*1 respondent did not elaborate

Do you think it is important for Guelph to continue to have energy targets that are leading provincially, nationally and internationally?

NO (22)

***Please tell us why you have answered this way...***

Achieving ambitious targets would be too costly (4)

Make sure the economy comes first

We already wasted millions of dollars

Government is already spread too thin

High targets amount to nothing more than boosterism (6)

We are too small to make a difference, so why claim that we are trying

Sounds like greenwashing; this should not be about marketing

Pride-based thinking leads to wasted money and counterproductive efforts

Keep the focus on local benefits (7)

Focus on local needs and keep it simple

Let's move slowly and learn from others

Ambitious targets are not consistent with our available resources (4)

This is a provincial responsibility

Municipalities are not equipped to lead



\*16 respondents did not elaborate

Do you think it is important for Guelph to continue to have energy targets that are leading provincially, nationally and internationally?

SOMEWHAT (42)

*Please tell us why you have answered this way...*

Unachievable targets risk losing support of people (5)

We want to lead, but not bleed (7)

We can nest with provincial/federal targets, and then exceed if possible (5)

Targets need to be consistent with resources (9)

Middle of the road targets are less politically divisive

Overly ambitious targets are costly

We are too small for our leadership to matter

We need realistic targets; incremental change toward eventual system shift

High targets are overwhelming

Ambitious targets might cause us to neglect short-term solutions

If we end up exceeding targets, we can set an example

Natural gas needs to be phased out, we can't do that alone

\*63 respondents did not elaborate

Do you think it is important for Guelph to continue to have energy targets that are leading provincially, nationally and internationally?

YES (324)

*Please tell us why you have answered this way...*

Being a leader is central to Guelph's identity. We've done it before. (67)

Leading will grow our economic prospects and open new opportunities (49)

The climate change problem is urgent and requires dramatic, immediate action (62)

Guelph, and cities in general, have the capacity to lead and need to leverage that capacity (35)

We need to hold ourselves accountable (46)

Guelph has shown other cities what's possible, why stop now

Being a leader will draw innovators and businesses in a growing economy

If we don't change now, we may not have a choice in the future

The U of G combined with existing civic leadership and business

If we don't lead, who else will?

Other cities will follow, and it all adds up

The economic argument is only improving

We can't wait for top-down direction. Global future depends on local decisions

It won't happen top-down and cities can lead the way. Guelph has more potential than others

Be the change you wish to see in the world, and set an example for the next generation

A vision of leadership will raise awareness and pride

# The Targets Questions: Results

- Survey respondents clearly favor targets that are considered to be ‘leading’ in a provincial, national, and international context.
- Many respondents are equating the targets to municipal responsibility – i.e., assuming that ‘government’ will be solely responsible for taking action to achieve those targets
- A few competing narratives became apparent through the analysis:
  - ‘Leading targets would be too costly to achieve’ vs. ‘leading targets would facilitate economic opportunity’
  - ‘High targets are a greenwash and are politically divisive’ vs. ‘high targets will raise awareness and civic pride’
  - ‘achieving ambitious targets is outside of our sphere of influence’ vs. ‘cities, and especially Guelph, are in a position to do things that other levels of government are not’
  - ‘we should go slow and learn from others’ vs. ‘we should be the leaders from whom others learn’

# The Targets Questions: Interpretation

The results of the survey are relevant to Guelph's CEP in the following ways:

1. OEG has been empowered by the community to establish ambitious targets.
2. The competing narratives identified through the analysis should be addressed when communicating decisions related to target setting
  - E.g., communicate a sense of the pathway to achieving targets, to avoid a sense that this is simply a marketing tactic; communicate how the limitations of the municipal/community sphere of influence might be overcome (see point at 4)
3. In the next iteration of the survey, be clearer on what is meant by 'energy targets'. A few respondents noted this to be 'ambiguous'
4. The analysis has identified a false assumption that 'government' will be solely responsible for taking action to achieve energy targets set by the plan. The municipality and the task force should bring clarity to this, and correct this assumption.

# Part 2: Guelph's Energy Future Questions

What does the community think about Guelph's energy future?

# Guelph's Energy Future Questions: Analysis

This part of the survey included two open-ended questions:

- 1. What does Guelph's ideal energy future look like to you? What are the elements and features that exist in this future?*
- 2. What do you think needs to happen over the next 30 years to realise Guelph's ideal energy future?*

Early on in the analysis, it was apparent that respondents were answering these questions holistically – i.e., many of the responses from (2) were relevant to (1), and vice versa. As such, we chose to begin by grouping all of the responses to both questions into a single dataset. From that aggregated dataset, we generated two word clouds which help to easily identify and visualize the main themes in the group of responses.

# Guelph's Energy Future Questions: Analysis

## 1. A 'what' word cloud.

This cloud uses responses to both questions in order to help us answer the question: *What does Guelph's ideal energy future look like to you? What are the elements and features that exist in this future?*

Here, we focus on the qualities that were most commonly invoked by the respondents to be embodied in Guelph's energy future. These are best understood as descriptors of Guelph's energy future...

What does  
Guelph's ideal  
energy future  
look like to  
you?





# Guelph's Energy Future Questions: Analysis

## 2. A 'how' word cloud.

This cloud uses responses to both questions in order to help us answer the question: *What do you think needs to happen over the next 30 years to realise Guelph's ideal energy future?*

Here, we focus on action-oriented responses and responses that point to specific technologies that are most commonly invoked as a requirement in order to achieve the elements/features identified in the first word cloud. These are best understood as 'things' or 'actions' within Guelph's energy future...

What needs to happen in order to achieve this vision?



# Guelph's Energy Future Questions: Analysis

- The words/phrases that have been visualized are not an exact match to the original words/phrasing used by respondents. Some answers were straightforward, specific, and used technical language. For example: “We need to improve our energy conservation strategies”, in which case the answer would be shortened to “conservation”. Other answers were less straightforward and used language that is not easily truncated and captured in a word cloud. For example: “We need to reduce how much energy we use in our homes”. Both responses point to the same quality/strategy: “conservation”. A number of similar cases were observed. Careful and systematic data processing was used in order to ensure these and other instances were captured by the word clouds. In an attached document, we have provided a detailed breakdown of how original language was converted for inclusion in the word cloud.

# Part 3: Actionable messages

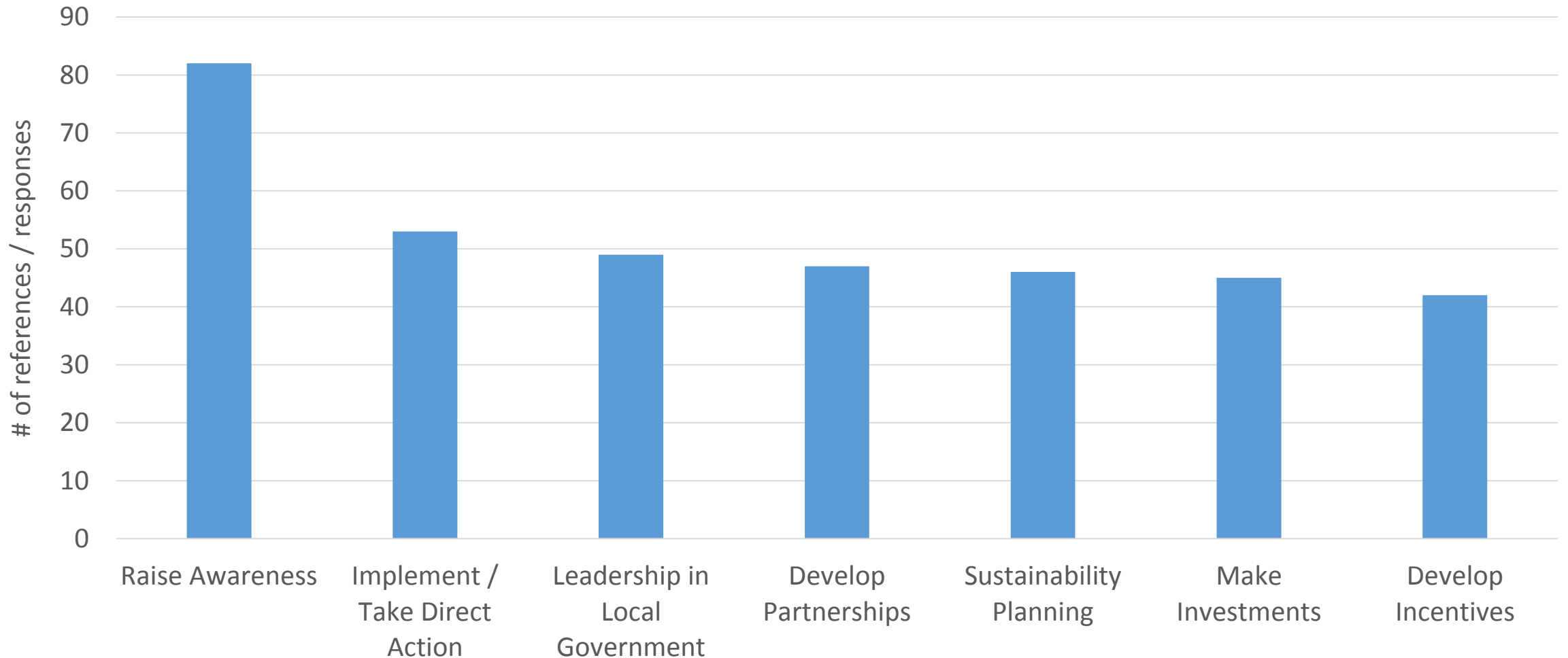
What initiatives have been suggested by the community for Guelph's updated energy plan?

# Actionable Messages: Analysis

- Here, we focus on responses to question four: “what do you think needs to happen to get [to the energy future you describe in question three]”. This analysis is more interpretive in nature than what a word cloud is able to provide. The responses are distilled into basic categories of action, from which we further distill into specific ideas for initiatives that might be pursued as part of Guelph’s updated community energy plan.

# Actionable Messages: Snapshot

“What do you think needs to happen to get [to the desired energy future you describe in question three]...”

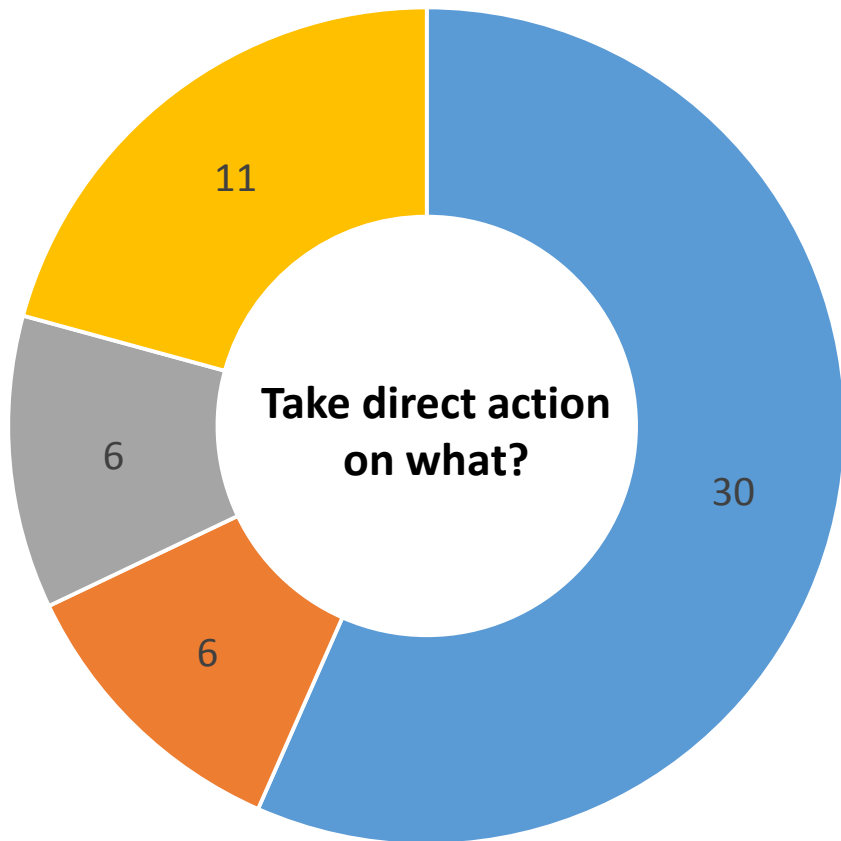


# Actionable Message 1: Raise Awareness (~23% of responses)

‘Raise awareness’ was the most commonly cited initiative. Respondents drew on one or a combination of the following motivations to raise awareness: enhance capacity to act among community through access to technical expertise; create a culture of change; educate on the problems and opportunities to get ‘buy-in’. These would be met by:

- Do-it-yourself support groups / campaigns
- Community-level block parties and support groups
- Regular updates to community on technology and market changes
- Elementary school curriculum
- More expert-driven research

# Actionable Message 2: Implement / Take Direct Action (~14% of responses)



■ Renewable Energy

■ Active Transport

■ Electric Transport

■ Undefined

- Implementation implies a direct expense.
- Although many respondents felt that it is important to take this sort of direct action, it was unclear 'who' exactly would be making the expense.



# Actionable Message 3: Leadership in Government (~13% of responses)

**Leadership was discussed in one of two (complementary) ways:**

## ***New Regulation***

- Stronger building codes
- Stricter requirements for developers
- New consumption taxes (carbon taxes)
- Road & parking pricing

## ***Facilitation /Coordination***

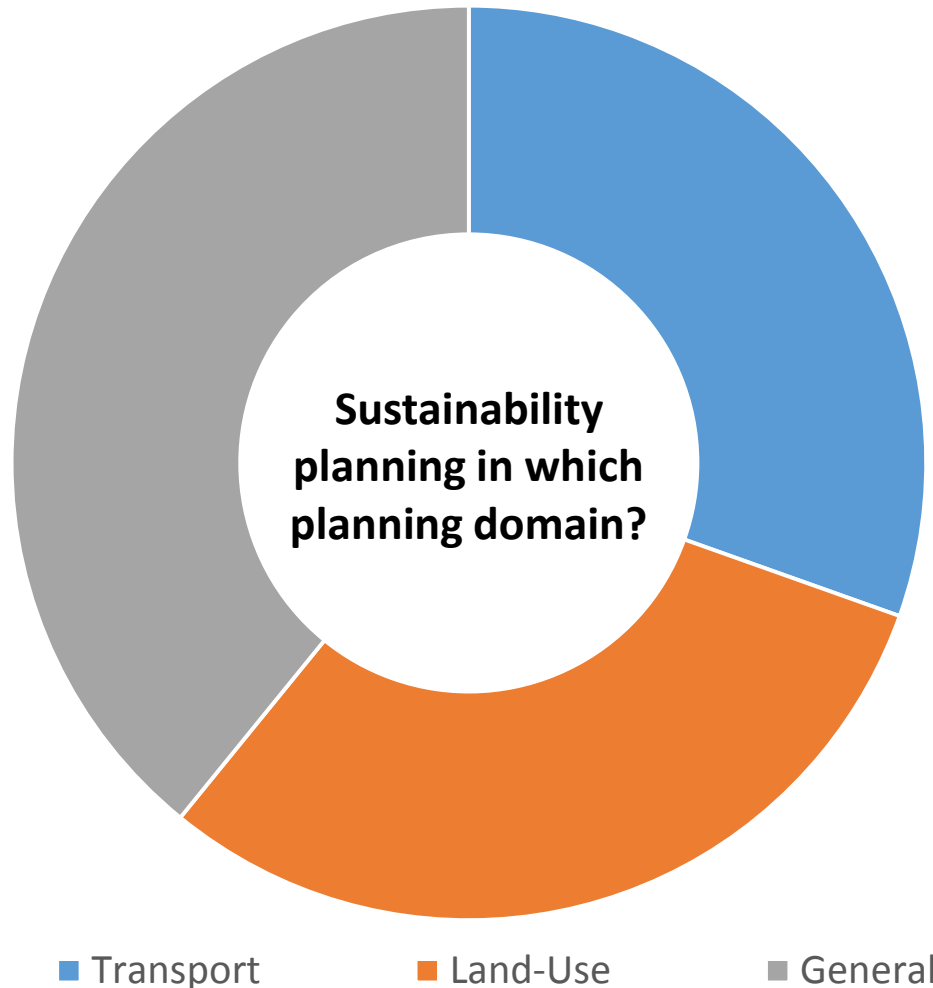
- Championing the cultural shift through overall policy changes to facilitate energy planning and projects,
- An explicit and sustained commitment to the movement and to community energy planning

# Actionable Message 4: Develop Partnerships (~13% of responses)

Respondents who focused on this theme tended to emphasize the ability of partnerships to increase our collective capacity to raise awareness and to take direct action. There was a strong emphasis on Government coordination and leadership to facilitate these partnerships. The specific kinds of partnerships referenced include:

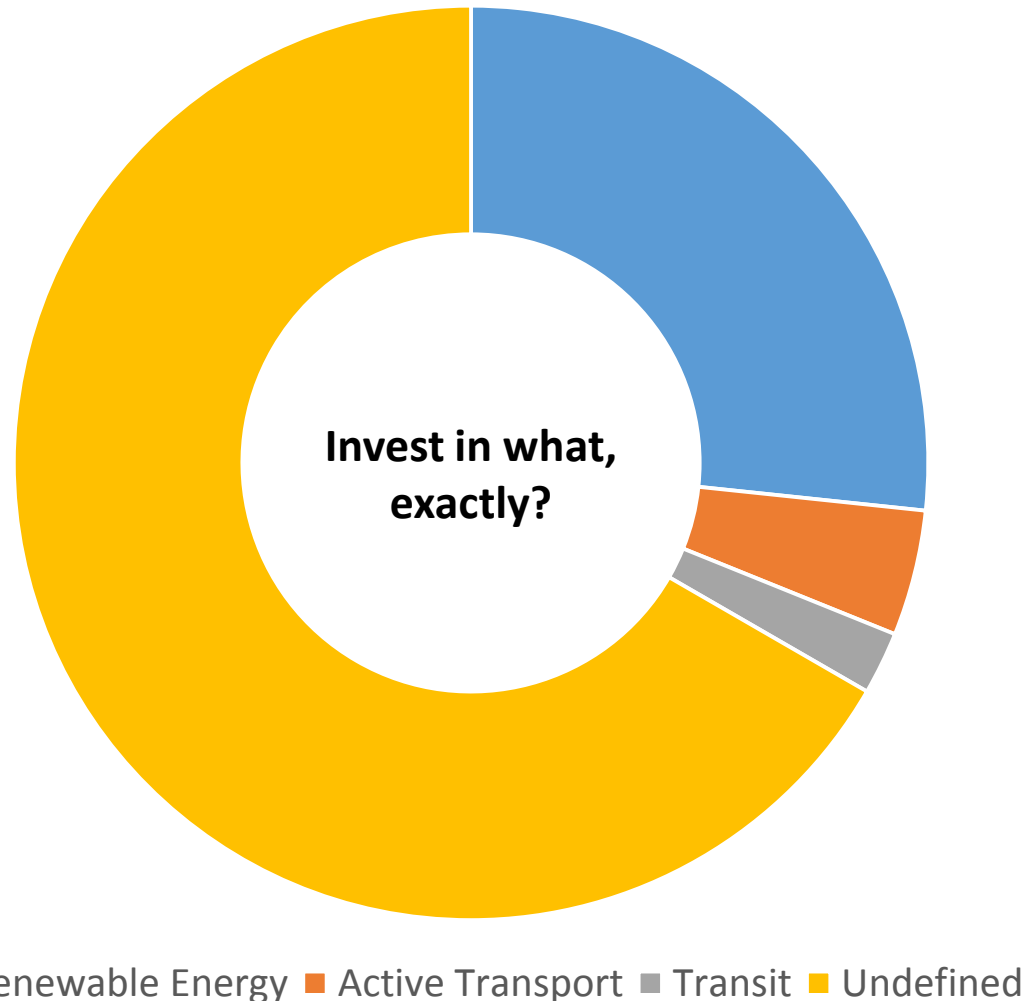
- Community participation and consultation in the planning process
- Relationships between government, businesses, industry, utility company
  - Identify rooftops for PV deployment
  - Identify opportunities for Virtual Net Metering
  - Identify opportunities for efficiency gains
- Work with experts to develop plan and projects

# Actionable Message 5: Sustainability Planning (~13% of responses)



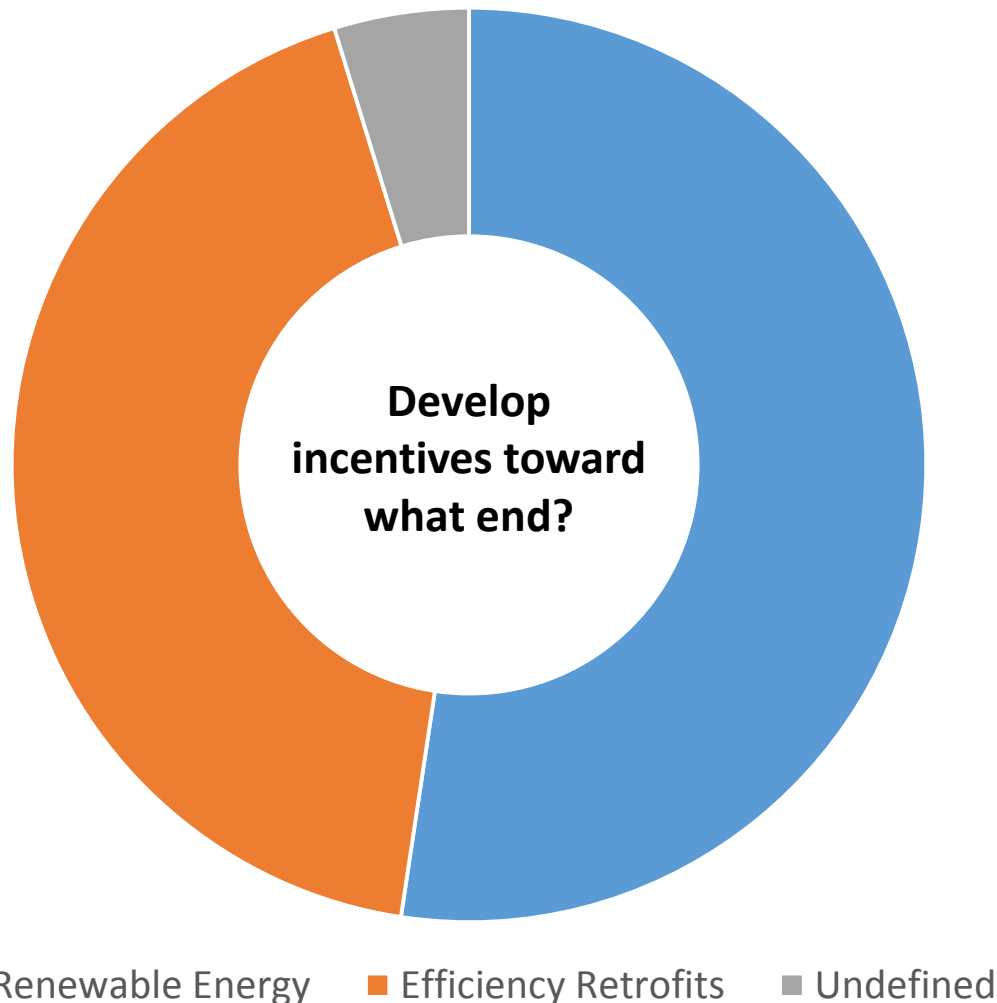
- Responses in this theme focused on the need for dramatic changes to infrastructure, and well-informed strategic thinking to guide those changes
- Responses that focused on transport planning tended to emphasize coordination across modes of transport (including active transport) while response that focused on land-use planning tended to emphasize the need for greater control over new urban development.

# Actionable Message 6: Make Investments (~12% of responses)



- In contrast to direct implementation, which implies direct ownership and full expense, we took ‘invest’ to mean the partial ownership or some other kind of stake in a project, with expectation of a return on that investment.
- Most respondents focused on ‘investing into the new energy economy’, without much elaboration.
- The most common motivation was to ‘pay now, save and benefit later’. Many respondents who drew on this theme acknowledged equity issues (e.g., imposing costs on the less fortunate).

# Actionable Message 7: Develop Incentives (~11% of responses)



- Here, the idea was to facilitate action rather than taking direct action.
- Many who responded with this action also discussed partnerships
- Another common suggestion was to build subsidies or tax incentives that would help ensure the less fortunate would benefit from, or at least not be harmed by, investments others were making into new energy technologies.
  - E.g., incentive solar panels and revenue from those systems to support low-income housing.

# General insights from the analysis

- Across all types of initiatives, renewable energy was a clear focus
- Who invests? Who implements? These questions are still left unanswered and should be part of the discussion with stakeholders.
- OEG should take these messages into consideration when developing near, mid- and long-term initiatives that will be pursued as part of the community energy plan, taking into account technical, economic and regulatory/political feasibility.

# Methodological suggestions

- In the next iteration of this survey, consider asking for a limited number of responses to the 'energy future' questions (e.g., 'list the top three adjectives that come to mind when describing Guelph's energy future' or 'list the top three issues most important to consider in community planning' ... 'if we could achieve one objective in the next five years, what would it be? In the next 10 years?')
- Perhaps include a drop-down menu that asks respondents to rank their choices. This should still be accompanied by an open-ended question, to allow for nuance and personal narratives to shine through

# Part 4: Segmented Analysis

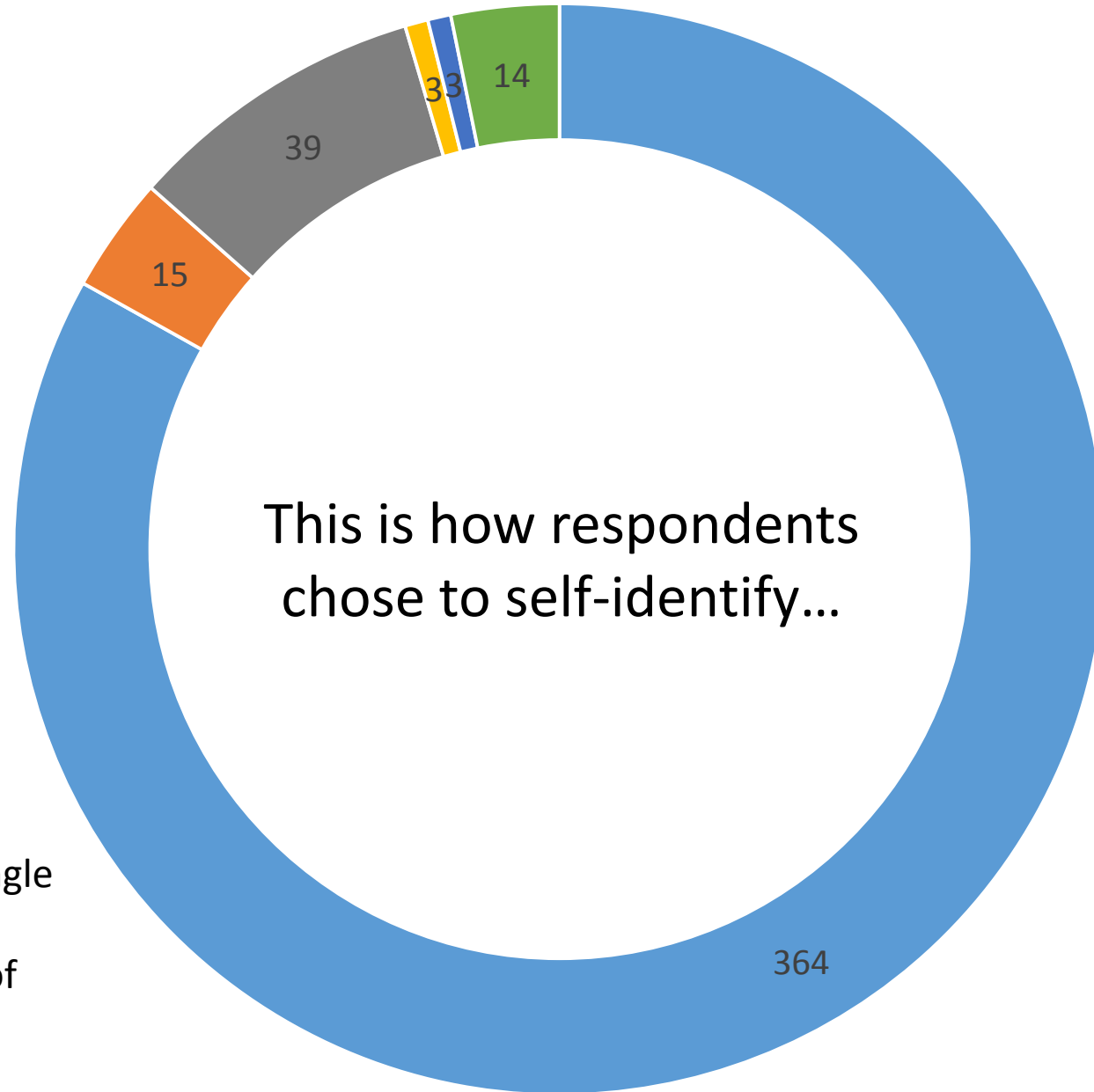
What does the business community think about all of this?



# Segmented Analysis

The survey asked respondents to self-identify from five pre-determined categories, with the option to expand from this list through an 'other' category. Those categories included:

- Community member
- Representative of an agency or group
- Business owner
- Representative of a government organization
- Business owner in the energy sector
- Other



\*Respondents were given the option to select more than a single category, so the total here is greater than the total number of respondents.

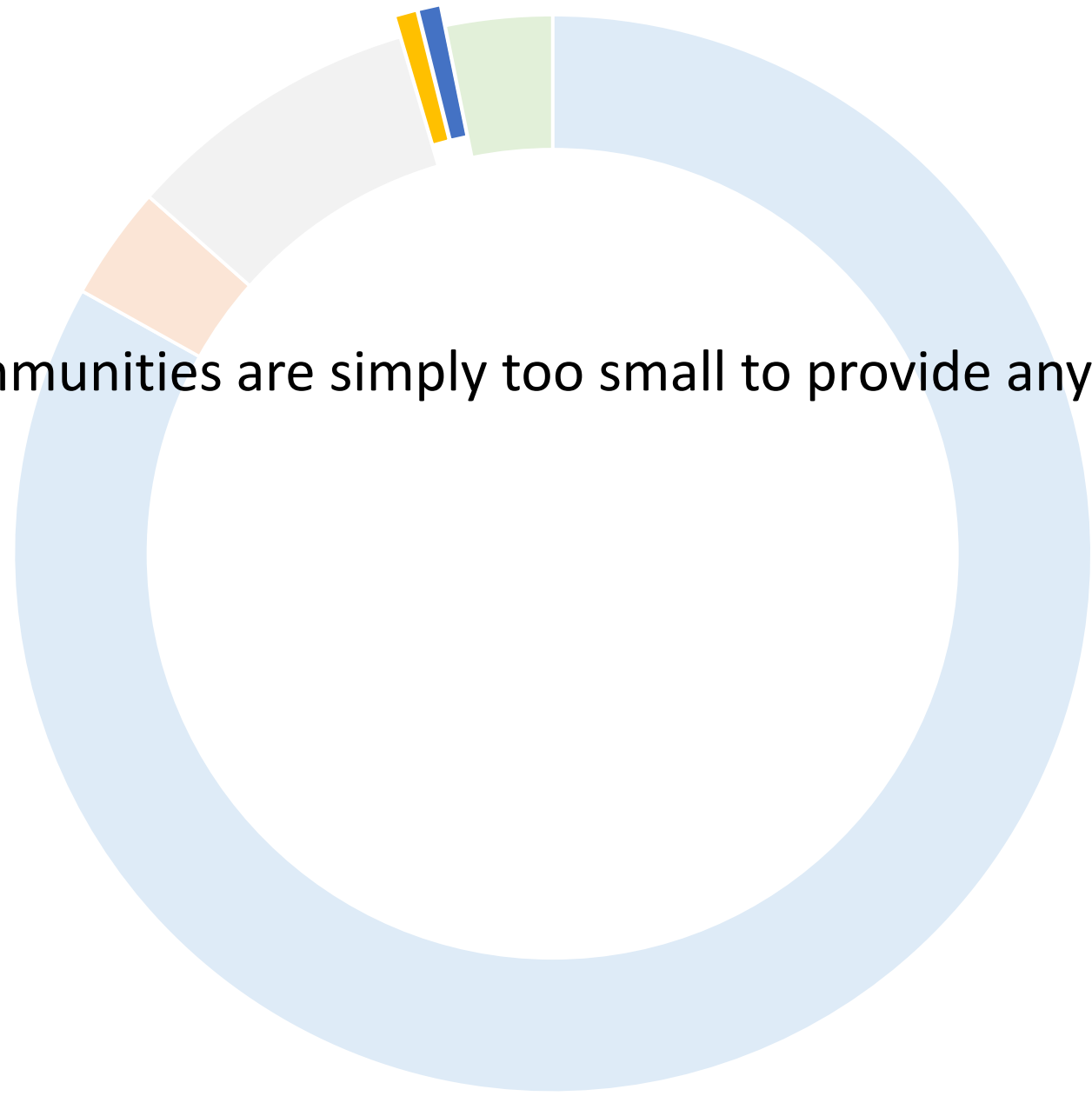
■ Community member ■ Agency / Group Rep ■ Business owner ■ Government ■ Business Owner in Energy Sector ■ Other

# Segmented Analysis

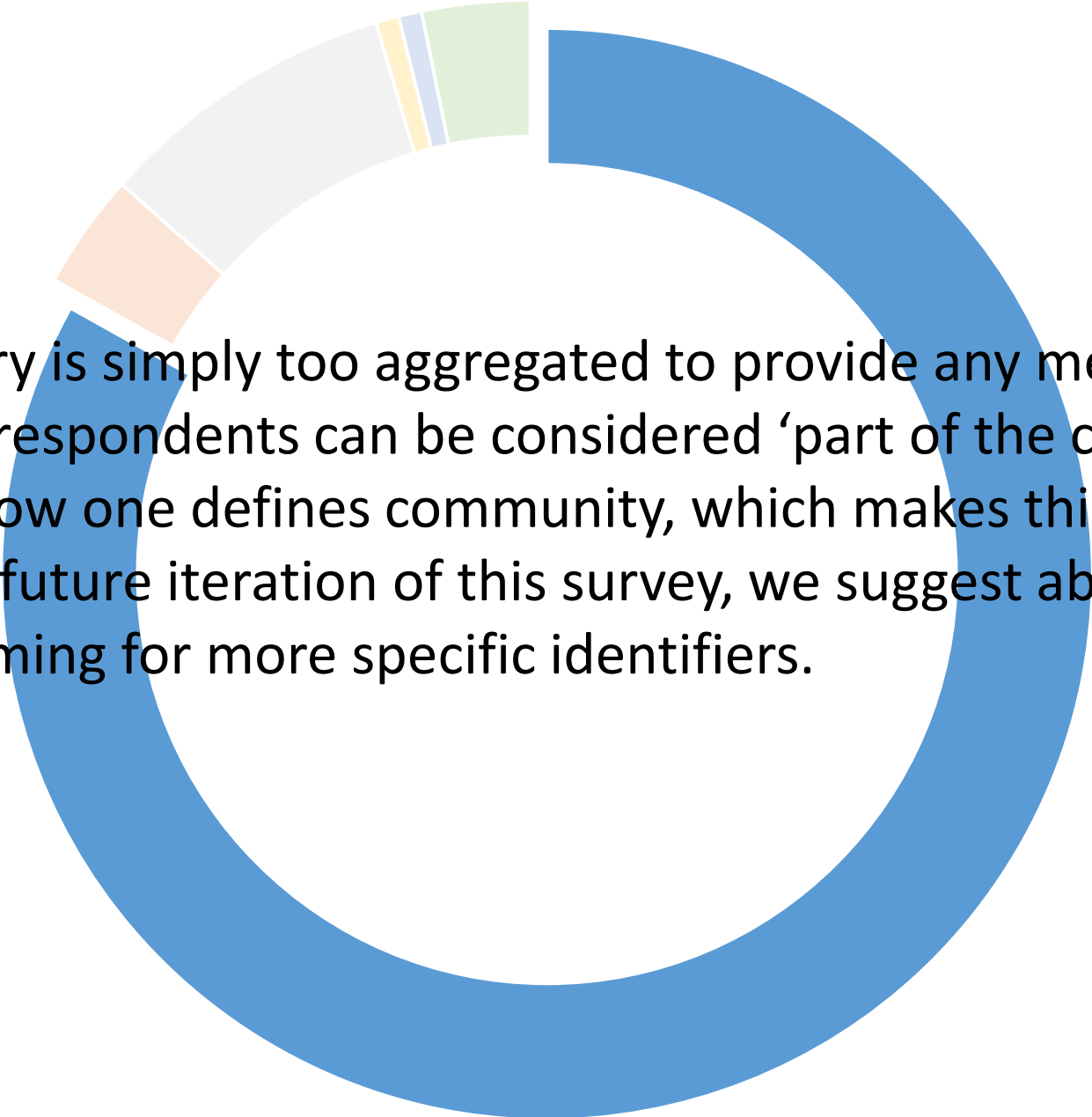
The purpose of collecting this quasi-demographic information was to provide grounds on which to perform a segmented analysis – i.e., to filter responses to the questions about Guelph’s energy future and, in turn, to identify initiatives that might be most relevant and of interest to particular stakeholder groups or ‘communities within the community’. In order for segmented analysis to proceed, we need categories that are specific and meaningful (i.e., can be associated with an easily defined and approachable group), and boast a significant response rate...



These two communities are simply too small to provide any meaningful results.



Community member   Agency / Group Rep   Business owner   Government   Business Owner in Energy Sector   Other



And this category is simply too aggregated to provide any meaningful results. Presumably, all respondents can be considered ‘part of the community’ depending on how one defines community, which makes this category redundant. In a future iteration of this survey, we suggest abandoning this category and aiming for more specific identifiers.

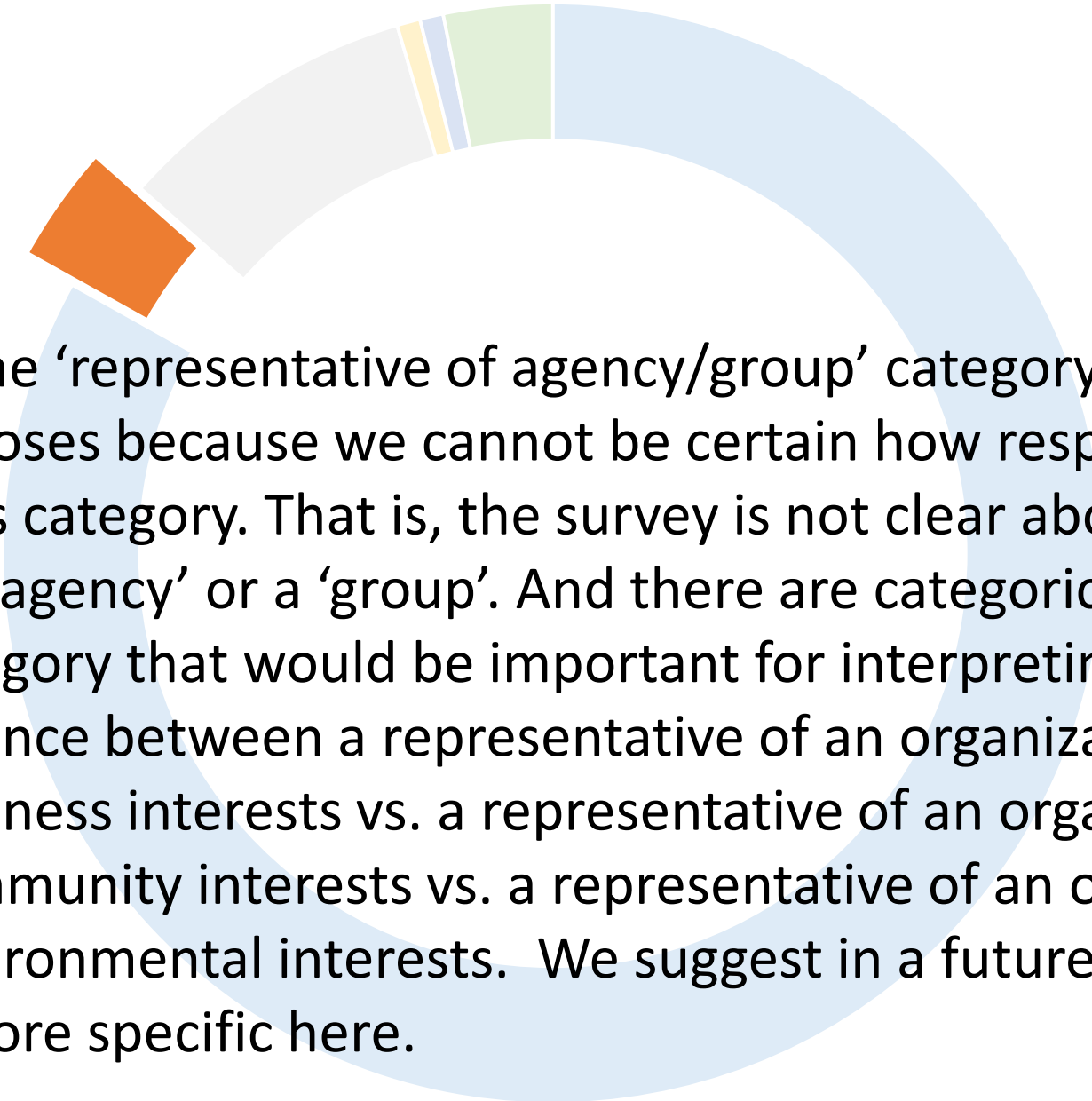
■ Community member ■ Agency / Group Rep ■ Business owner ■ Government ■ Business Owner in Energy Sector ■ Other



Respondents used the ‘other’ category to:

- State their residence (1 from Kitchener; 1 from Rockwood)
- Identify unique qualities (e.g., 1 off-grid farmer; 2 retirees)
- Specify occupation (e.g., 1 net-zero builder)

These responses were not useful for analytical purposes. We suggest for a future iteration of the survey to provide some direction on how this category should be used. One option is to ask respondents to add specifics to the other categories (e.g., the kind of agency/group one is representing) or to specify their living situation (e.g., rural resident / suburban resident / resident of urban core; home-owner / renter / precarious living situation; etc).



Responses in the ‘representative of agency/group’ category are not useful for analytical purposes because we cannot be certain how respondents interpreted this category. That is, the survey is not clear about what constitutes an ‘agency’ or a ‘group’. And there are categorical differences within this category that would be important for interpreting the findings: e.g., the difference between a representative of an organization that represents business interests vs. a representative of an organization that represents community interests vs. a representative of an organization that represents environmental interests. We suggest in a future iteration of this survey to be more specific here.

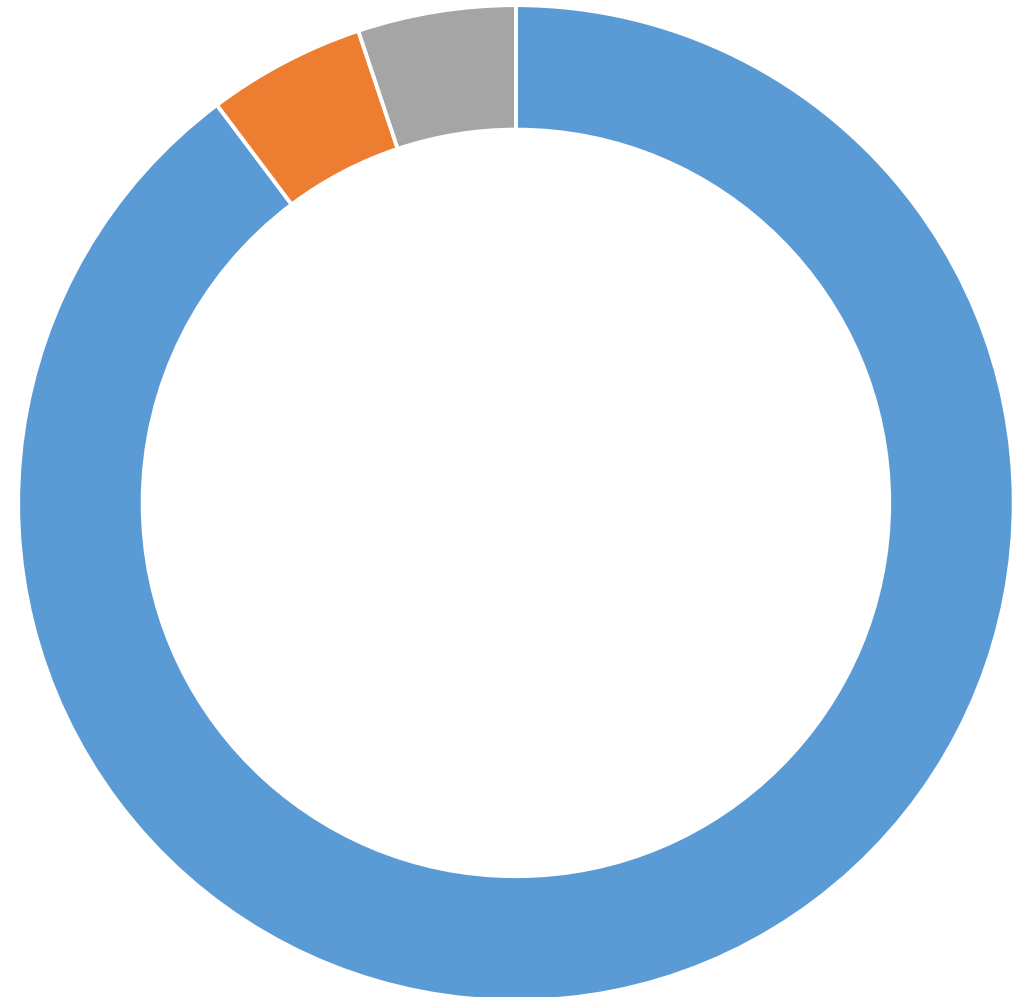
Sort of like the 'Goldilocks' approach, the 'business owner' category seemed 'just right' for a segmented analysis. It is a specific community, and boasts a meaningful response rate. The remainder of this section will analyze responses from this group, to ascertain any initiatives that might resonate with this community.





# Messages from the business community: The targets question

Do you think it is important for Guelph to continue to have energy targets that are leading provincially, nationally and internationally?



■ Yes ■ Somewhat ■ No

Do you think it is important for Guelph to continue to have energy targets that are leading provincially, nationally and internationally?

NO (2)

*Please tell us why you have answered this way...*

Achieving ambitious targets would be too costly

Ambitious targets are not consistent with resources

Make sure the economy comes first

Municipalities are not equipped to lead – focus on basic services

Do you think it is important for Guelph to continue to have energy targets that are leading provincially, nationally and internationally?



SOMEWHAT (2)

*Please tell us why you have answered this way...*

Targets need to be consistent with resources

We need realistic targets; incremental change toward eventual system shift

\*5 respondents did not elaborate

Do you think it is important for Guelph to continue to have energy targets that are leading provincially, nationally and internationally?

YES (35)

***Please tell us why you have answered this way...***

Being a leader is central to Guelph's identity. We've done it before. (4)

Leading will grow our economic prospects and open new opportunities (12)

The climate change problem is urgent and requires dramatic, immediate action (7)

Guelph, and cities in general, have the capacity to lead and need to leverage that capacity (2)

We need to hold ourselves accountable (5)

Guelph has shown other cities what's possible, why stop now

Being a leader will draw innovators and businesses in a growing economy

If we don't change now, we may not have a choice in the future

The U of G combined with existing civic leadership and business

If we don't lead, who else will?

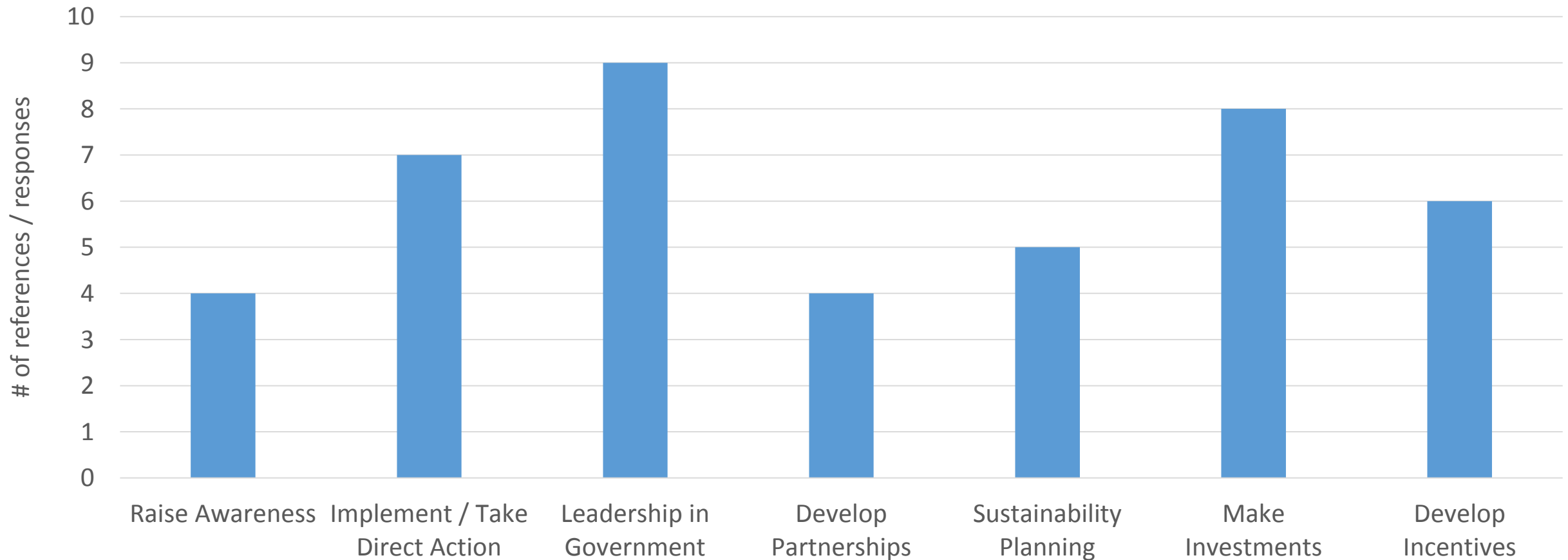
Other cities will follow, and it all adds up

A vision of leadership will raise awareness and pride, differentiate us within the T.O.-Waterloo corridor

It won't happen top-down and cities can lead the way. Guelph has more potential than others

Be the change you wish to see in the world, and set an example for the next generation

# Actionable messages from the business community: Snapshot



# Actionable messages from the business community: Discussion

- The business community was more likely to identify 'leadership in local government' as an important initiative relative to the general population; just over half of those who spoke to this theme specified the need for new regulations, tending to focus on building codes and urban development.

# City of Guelph

## Energy and Greenhouse Gas Emissions

Baseline Inventory, 2016 &

Business-As-Usual Scenario, to 2050

Completed as part of the Metrics and Analysis component of the City of Guelph Community Energy Initiative (CEI) update.

March 2018

Completed by:



Intentionally left blank



# TABLE OF CONTENTS

Introduction	i
Executive Summary	ii
<b>Part 1: Energy &amp; Emissions, 2016-2050</b>	<b>1</b>
Demographics	1-2
Community Energy	1-4
Community Emissions	1-7
Buildings Sector Energy	1-10
Buildings Sector Emissions	1-13
Transportation Sector Energy	1-16
Transportation Sector Emissions	1-18
Waste Sector Emissions	1-20
Financial Analysis	1-21
Summary Analysis	1-24
<b>Part 2: Data, Methods &amp; Assumptions</b>	<b>2</b>
Emissions Framework, Scope & Factors	2-2
Modelling Tool	2-6
Modelling Process	2-9
Sensitivity Analysis	2-20
Appendix 1: GPC Emissions Scope Table, 2016	
Appendix 2: GPC Emissions Report, 2016	
<b>Part 3: Energy Mapping</b>	<b>3</b>

# Introduction

The City of Guelph's Community Energy Initiative (CEI), originally approved by City Council as the Community Energy Plan in April 2007, is currently being updated. The update to the CEI envisions three interrelated categories of activity:

- » Metrics and Analysis – Quantitative and Qualitative
- » Community Engagement and Ownership
- » Governance, Oversight and Reporting

The Metrics and Analysis component of the CEI update has been structured into two phases:

- » **Phase 1:** Baseline Inventory; Base Case Projections to 2050; and, Development of a Simulation Tool.
- » **Phase 2:** Development and modelling of multiple sector-based sub-strategies (using the simulation tool) to assess the potential of sub-strategies to meet the CEI targets.

This report summarizes the work completed in **Phase 1** of the Metrics and Analysis component. A baseline inventory for 2016, and a base case projection to 2050, hereinafter referred to as the business-as-usual (BAU) scenario, was completed and is the subject of this report.

The BAU scenario is intended to illustrate the anticipated energy use and emissions associated with population and employment growth projections for the City of Guelph, if no additional policies, actions or strategies to address energy and emissions are implemented between 2017-2050, other than those currently underway or planned.

The emissions baseline and BAU scenario were developed using an energy and emissions model called CityInSight; this model will be used as the simulation tool in Phase 2.

The emissions baseline and BAU scenario applied the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC Protocol) accounting framework, using the municipal boundary of the City of Guelph as the inventory boundary.

This report is divided into three parts:

**Part 1: Energy & Emissions, 2016-2050**, includes the results and analysis of:

- » A baseline energy and greenhouse gas (GHG) emissions inventory for 2016;
- » A energy and GHG emissions business-as-usual (BAU) scenario, to 2050.

**Part 2: Data, Methods & Assumptions**, discusses the data, methods, assumptions and simulation tool used to develop the baseline inventory and BAU scenario.

**Part 3: Energy Mapping**, includes a series of energy maps and analysis.

# Executive Summary

The population of Guelph is projected to grow by 53% between 2016 and 2050, adding approximately 78,700 new residents. This growth is expected to be accompanied by 75,600 new jobs, and 37,900 new households, which will drive demand for new residential and non-residential floor space. This growth will also drive additional demands for transportation, and generate additional waste. As the population continues to grow, the BAU projections indicate that community wide energy demand will increase only slightly by 0.1%, from 25.09 million GJ to 25.10 million GJ between 2016 and 2050, but emissions will decline by 4.5%, from 1,156,700 tCO<sub>2</sub>e in 2016, to 1,105,000 tCO<sub>2</sub>e in 2050.

Per capita energy is projected to decline by 35%, from 169 GJ/cap in 2016 to 111 GJ/cap in 2050, while per capita emissions are projected to decline by 38%, from 7.8 tCO<sub>2</sub>e/cap in 2016 to 4.9 tCO<sub>2</sub>e/cap in 2050.

While population continues to grow, the BAU projections indicate that emissions have a decreasing trajectory, but only a slight one. This decrease is primarily driven by: fuel efficiency standards and the uptake of electric vehicles in the transportation sector; the incremental increase in building efficiency standards for new buildings; reduced energy demands for space heating in new and existing buildings due to a decrease in heating degree days projected to occur as the climate continues to warm; and a marginal switch to electricity in the buildings and transportation sector.

Total expenditures on energy in Guelph increase from approximately \$488 million in 2016 and to \$653 million by 2050. Per household expenditures decrease from approximately \$4,110 in 2016 to \$3,320 in 2050, primarily as a result of vehicle efficiency standards.

High level observations for the City moving into phase 2 of this work include:

- » Switching to electricity provides a significant emissions reduction opportunity.
- » By 2035, increases in vehicle kilometres travelled (VKT)<sup>1</sup> will outpace any energy gains realized from vehicle fuel efficiencies and electric vehicles.
- » New construction standards will be key.
- » Retrofitting the existing building stock will be critical.
- » New electricity generation capacity from renewables will be needed.
- » Current waste and wastewater treatment will not keep up with waste and wastewater generation.
- » The city has, and is expected to continue to, benefit from variables outside of the City's control, in particular the fuel efficiency standards and the greening of the provincial grid; however, the City can not solely rely on these factors to reduce emissions.

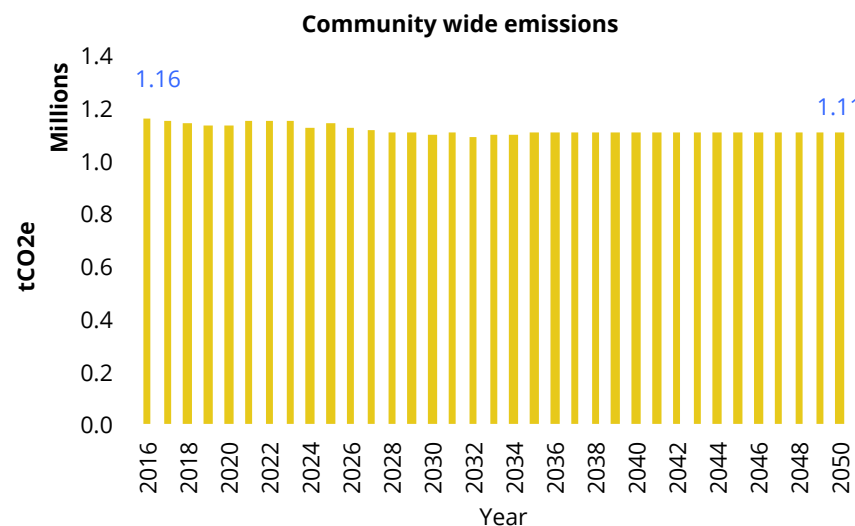


Figure 1. Projected BAU emissions for Guelph (tCO<sub>2</sub>e), 2016-2050.

<sup>1</sup> Vehicle kilometers travelled is the collective total mileage (kilometres) traveled by all vehicles.

Intentionally left blank

# Part 1:

## Energy & Emissions, 2016-2050

Demographics

Community Energy

Community Emissions

Buildings Sector Energy

Buildings Sector Emissions

Transportation Sector Energy

Transportation Sector Emissions

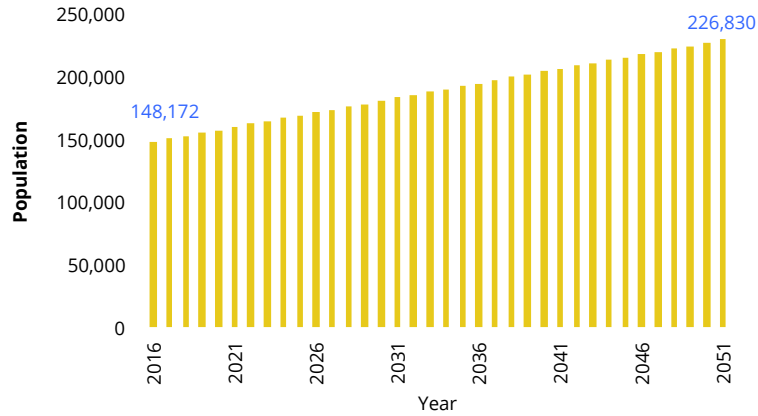
Waste Sector Emissions

Financial Analysis

Summary Analysis

# DEMOGRAPHICS

## Population



The City of Guelph’s population in 2016 amounted to 148,172 people. This is projected to grow steadily to 226,830 people by 2050; a total growth of 53% over that period.

Figure 2. Projected population, 2016-2050.

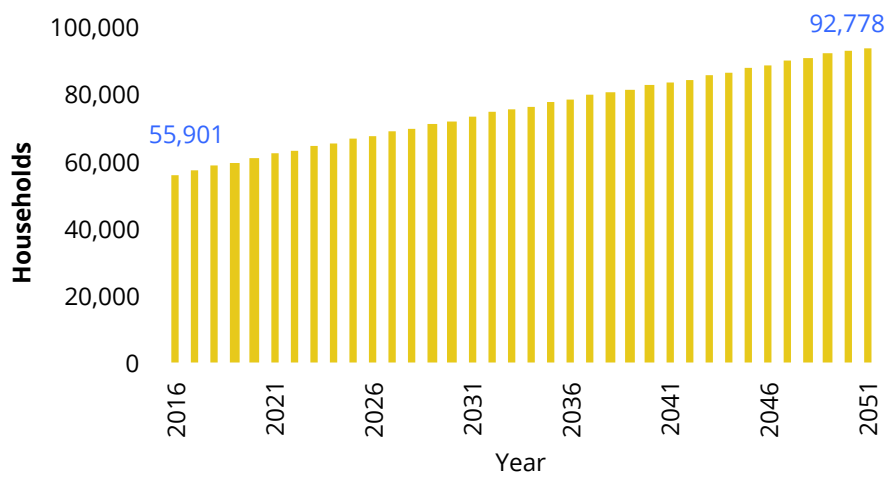
## Employment



Employment in Guelph is projected to almost double, increasing from 77,674 jobs in 2016 to 153,318 jobs in 2050.

Figure 3. Projected employment, 2016-2050.

# Households



The number of households in Guelph in 2016 amounted to 55,901. An additional 37,894 households are projected to be added, for a total of 92,778 by 2050.

Figure 4. Projected households, 2016-2050.

# COMMUNITY ENERGY

## Energy by sector

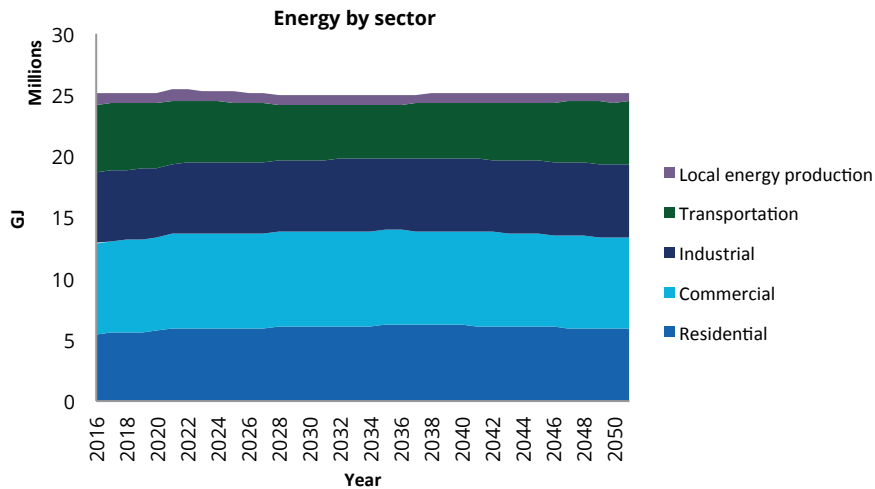


Figure 5. Projected BAU energy consumption (GJ) by sector, 2016-2050.

## Energy by fuel

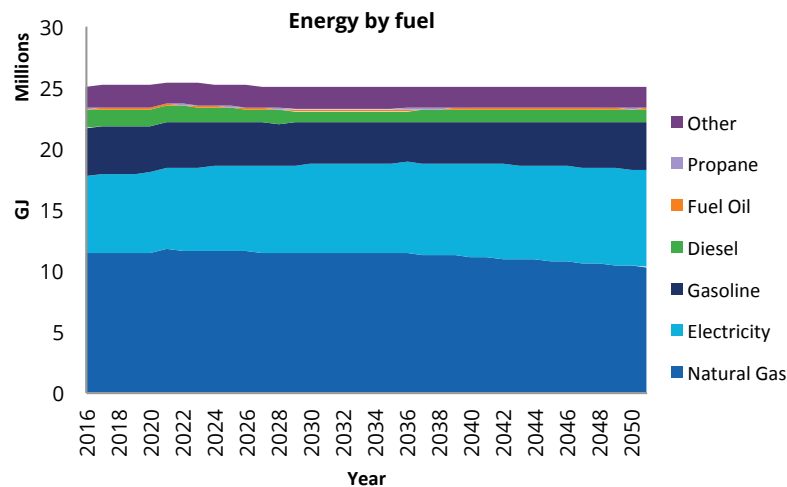


Figure 6. Projected BAU energy consumption (GJ) by fuel, 2016-2050.

Community wide energy consumption for Guelph is projected to remain fairly constant to 2050, increase only slightly by approximately 0.1% from 2016 to 2050, from approximately 25.09 million GJ in 2016, to 25.1 million GJ in 2050.

A decrease in energy consumption in the transportation sector occurs through to 2030, due mostly to improved fuel efficiency standards in vehicles, and an incremental uptake of electric vehicles, which also contributes to the increase in electricity consumption. Thereafter, energy consumption in the transportation sector increases as increases in vehicle kilometres travelled outpaces any gains in fuel efficiency.

Slight increases in energy consumption in the residential and commercial buildings sector occur through to 2035, consistent with projected population and buildings growth. Improved building efficiency standards and codes for new buildings, as well as a decrease in heating degree days (which are projected to occur as the climate continues to warm), result in a slight decrease in energy consumption in residential and commercial buildings post 2035, even as the building stock continues to grow to 2050.

The industrial sector accounted for approximately 23% of total energy consumption in Guelph in 2016, and increases from 5.7 million GJ in 2016 to 6 million GJ in 2050; and overall increase of 5.4%.

Despite a shift towards electricity, natural gas remains a major fuel source in 2050, accounting for 41.5% of fuel consumption.

Refer to Table 1 for tabulated results of energy by sector and fuel.



## Local Energy Production

In 2016, approximately 986,000 GJ of energy was generated locally through district energy (which produces heating and cooling through the consumption of natural gas and electricity), solar PV (which produces electricity), and biogas recapture from landfill (which produces heat and electricity). Of total generation, 65% is heating, 28% cooling, and 7% electricity. It was assumed that this locally generated energy was consumed within the buildings sector in Guelph. The BAU assumes no further expansion in local energy generation to 2050.

## Per Capita Energy

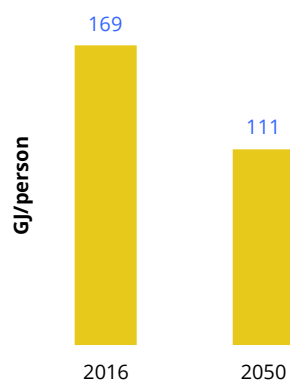


Figure 7. Projected BAU energy per capita (GJ/person), 2016 & 2050.

While overall energy consumption in Guelph is projected to remain fairly constant to 2050, on a per capita basis, Guelph residents are projected to use approximately 35% less energy in 2050 compared with 2016, decreasing from 169 GJ/person in 2016 to 111 GJ/person in 2050.

Table 1. Community energy consumption tabulated results, 2016 & 2050 (BAU).

Energy by sector (GJ)	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Commercial	7,543,600	30.1%	7,427,500	29.6%	-1.5%
Industrial	5,732,100	22.8%	6,039,700	24.1%	5.4%
Residential	5,404,300	21.5%	5,884,400	23.4%	8.9%
Transportation	5,473,400	21.8%	5,065,300	20.2%	-7.5%
Local energy production <sup>2</sup>	933,000	3.7%	687,900	2.7%	-26.3%
<b>Total</b>	<b>25,086,300</b>		<b>25,104,900</b>		<b>0.1%</b>
Energy by fuel (GJ)	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Diesel	1,395,600	5.6%	1,019,700	4.1%	-26.9%
Electricity	6,314,600	25.2%	7,921,300	31.6%	25.4%
Fuel Oil	152,400	0.6%	134,800	0.5%	-11.5%
Gasoline	3,967,600	15.8%	3,806,900	15.2%	-4.1%
Natural Gas	11,453,100	45.7%	10,399,600	41.4%	-9.2%
Other <sup>3</sup>	1,752,500	7.0%	1,765,200	7.0%	0.7%
Propane	50,500	0.2%	57,500	0.2%	13.9%
<b>Total</b>	<b>25,086,300</b>		<b>25,104,900</b>		<b>0.1%</b>
<b>Energy per capita (GJ/cap)</b>	<b>169</b>		<b>111</b>		<b>-34.6%</b>

<sup>2</sup> Local energy production includes fuel consumed in the production of local energy through district energy.

<sup>3</sup> Other fuels include biomass, wood, biodiesel and ethanol.

## Energy flow and conversion

The sankey diagrams alongside depict the energy flow by fuel and sector through Guelph in 2016 and 2050 respectively. Overall, energy demand remains fairly constant to 2050, with a slight increase in the buildings sector, and decrease in the transportation sector.

Noticeably, there is an increase in useful energy between 2016 and 2050, accompanied by a reduction in conversion losses; the ratio of useful energy to conversion losses in 2016 is 1.59:1, compared with 1.85:1 in 2050. This is mostly as a result of switching to electricity, accompanied by projected increases in efficiency in the transportation and buildings sector.

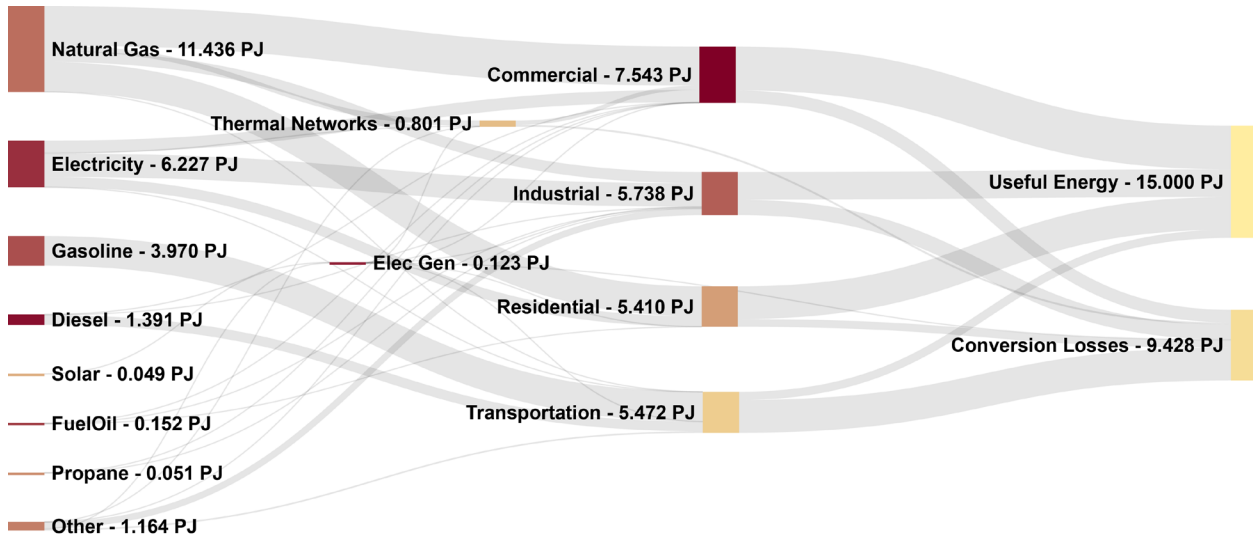


Figure 8. Energy flow, 2016.

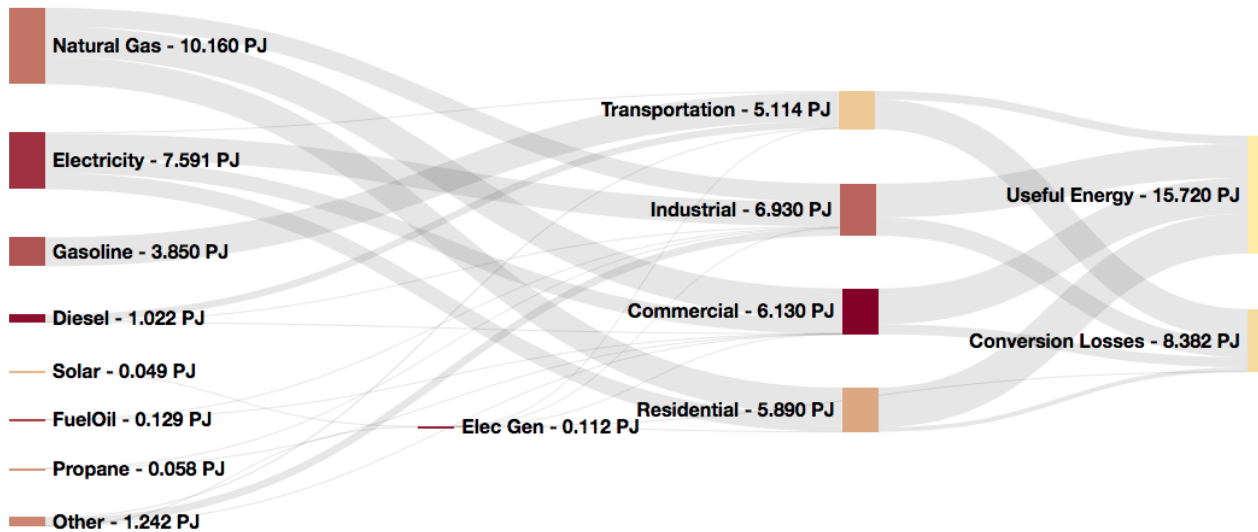


Figure 9. Energy flow, 2050 (BAU).

# COMMUNITY EMISSIONS

## Emissions by sector

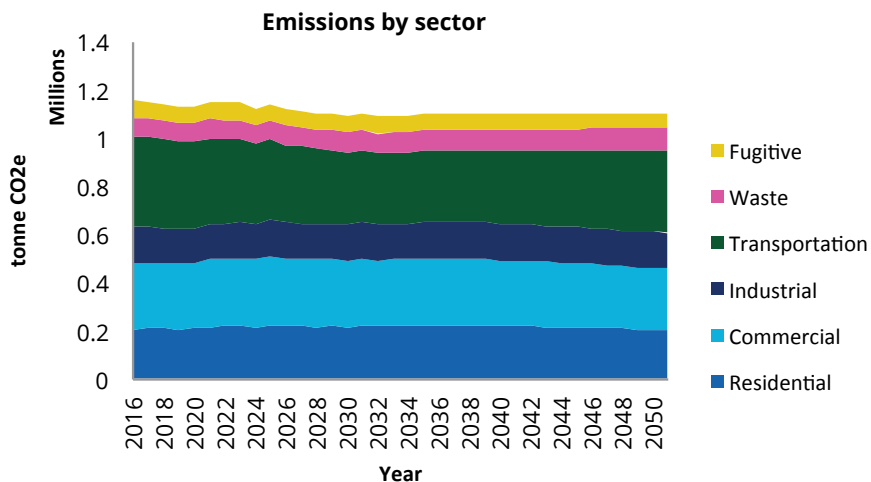


Figure 10. Projected BAU emissions (MtCO<sub>2</sub>e) by sector, 2016-2050.

## Emissions by source

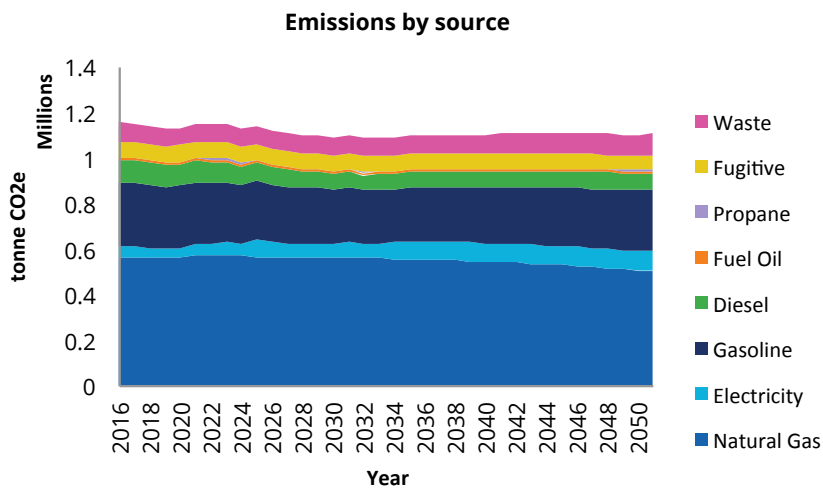


Figure 11. Projected BAU emissions (MtCO<sub>2</sub>e) by source, 2016-2050.

4 See Part 2 for assumptions on projected grid electricity emissions factor.

Community wide emissions are projected to decrease slightly from 1.16 MtCO<sub>2</sub>e in 2016 to 1.11 MtCO<sub>2</sub>e in 2050, a 4.5% decrease over that period. Between 2016 and approximately 2032, there is a steady decrease in emissions; this occurs mostly in the transportation sector, due to improved fuel efficiency standards in vehicles, which result in a steady decline in gasoline use, as well as an incremental uptake of electric vehicles.

In the buildings sector, a shift away from natural gas results in a decrease in emissions; this is accompanied by a decrease in fugitive emissions from natural gas. While this shift results in higher electricity consumption in the buildings sector, overall emissions decrease as the provincial electricity continues to remain fairly green.<sup>4</sup>

Post 2032, emissions in Guelph are projected to start increasing; this is mostly from the transportation sector as increases in vehicle kilometres travelled start to outpace any gains in fuel efficiency.

Emissions in the waste sector increase by 14.6% between 2016 and 2050. The BAU assumes no further actions (other than what is currently underway) to reduce waste emissions, and as such, increases in this sector are primarily driven by population growth.

Refer to Table 2 for tabulated results of emissions by sector and source.

# Per Capita Emissions

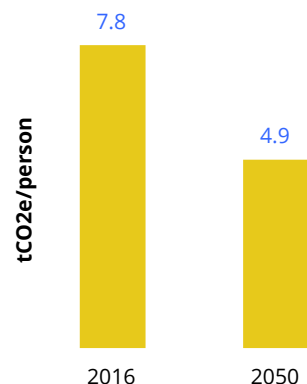


Figure 12. Projected BAU emissions per capita (tCO<sub>2</sub>e/person), 2016 & 2050.

Similarly to per capita energy, per capita emissions are projected to decrease from 7.8 tCO<sub>2</sub>e/person in 2016 to 4.9 tCO<sub>2</sub>e/person in 2050, resulting in an overall decrease of 38%.

Table 2. Community emissions tabulated results, 2016 & 2050 (BAU).

Emissions by sector (tCO <sub>2</sub> e)	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Commercial	275,300	23.8%	256,800	23.2%	-6.7%
Fugitive <sup>5</sup>	69,500	6.0%	63,200	5.7%	-9.1%
Industrial	148,900	12.9%	150,700	13.6%	1.2%
Residential	208,400	18.0%	205,300	18.6%	-1.5%
Transportation	374,200	32.4%	336,900	30.5%	-10.0%
Waste	80,400	7.0%	92,100	8.3%	14.6%
<b>Total</b>	<b>1,156,700</b>		<b>1,105,000</b>		<b>-4.5%</b>
Emissions by source (tCO <sub>2</sub> e)	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Diesel	99,900	8.6%	72,900	6.6%	-27.0%
Electricity	51,800	4.5%	84,300	7.6%	62.7%
Fuel Oil	10,800	0.9%	9,600	0.9%	-11.1%
Gasoline	280,900	24.3%	269,500	24.4%	-4.1%
Natural Gas	560,300	48.4%	509,900	46.1%	-9.0%
Fugitive	69,500	6.0%	63,200	5.7%	-9.1%
Waste	80,400	7.0%	92,100	8.3%	14.6%
Propane	3,100	0.3%	3,500	0.3%	12.9%
<b>Total</b>	<b>1,156,700</b>		<b>1,105,000</b>		<b>-4.5%</b>
<b>Emissions per capita (tCO<sub>2</sub>e/person)</b>	<b>7.8</b>		<b>4.9</b>		<b>-37.6%</b>

<sup>5</sup> Fugitive emissions account for unintentional emissions associated with the transportation and distribution of natural gas within the city (through equipment leaks, accidental releases etc.) that is used within the buildings sector.

## Comparison with previous inventories

Table 3 shows a comparison between two energy and emission profiles completed for the City of Guelph: the first is the 2006 inventory completed as part of the 2007 Community Energy Plan; the second is the 2016 inventory being completed as part of the Community Energy Initiative update, and the subject of this report.

The 2006 inventory showed energy consumption by fuel in terms of megawatt-hour equivalent (MWh). For the purposes of providing a comparison, 2006 energy has been converted to gigajoule (GJ)<sup>6</sup>. Additionally, the 2016 emissions factor for natural gas was applied to the 2006 natural gas consumption for better comparability.

The reader should be cautioned that this comparison is not an apples-to-apples comparison. The methodology and emissions accounting framework, as well as the accuracy and availability of data have evolved significantly over the last ten years, particularly for the transportation sector<sup>7</sup>. Additionally, emissions factors have changed significantly, particularly for electricity and natural gas; Table 4 shows a comparison of the emissions factors by used for 2006 and 2016.

Table 3. Comparison of 2006 and 2016 energy and emissions.<sup>8,9,10</sup>

Source	2006 energy (MWh)	2006 energy (GJ)	2006 emissions (tCO <sub>2</sub> e)	2016 energy (GJ)	2016 emissions (tCO <sub>2</sub> e)	% +/- (2010-2016)	
						energy	emissions
Diesel	435,187	1,566,673	110,620	1,395,600	99,946	-11%	-10%
Electricity	1,629,730	5,867,028	443,286	6,314,600	51,780	8%	-88%
Fuel Oil	139,753	503,111	38,029	152,400	10,769	-70%	-72%
Gasoline	1,285,028	4,626,101	314,918	3,967,600	280,933	-14%	-11%
Natural Gas	2,381,368	8,572,925	420,362 <sup>8</sup>	11,453,100	560,273	34%	34%
Fugitive					69,473		
Waste					80,420		
Propane				50,500	3,087		
Biodiesel <sup>9</sup>	23,002	82,807	3,773				
Other <sup>10</sup>				1,752,500			
<b>Total</b>		<b>21,218,645</b>	<b>1,330,988</b>	<b>25,086,300</b>	<b>1,156,681</b>	<b>18%</b>	<b>-13%</b>

Table 4. Emissions factors, 2006 & 2016.

	Used in 2006 inventory	Used in 2016 inventory
Diesel	2.730 kg CO <sub>2</sub> /L	2.755 kg CO <sub>2</sub> e/L
Electricity	0.272 kg CO <sub>2</sub> /kwh	0.029 kg CO <sub>2</sub> e/kwh
Fuel Oil	2.830 kg CO <sub>2</sub> /L	2.563 kg CO <sub>2</sub> e/L residential 2.763 kg CO <sub>2</sub> e/L commercial 2.762 kg CO <sub>2</sub> e/L industrial
Gasoline	2.360 kg CO <sub>2</sub> /L	2.523 kg CO <sub>2</sub> e/L
Natural Gas	0.37 kg CO <sub>2</sub> /m <sup>3</sup>	1.81 kg CO <sub>2</sub> e/m <sup>3</sup>

<sup>6</sup> Conversion 3.6 GJ/MWh.

<sup>7</sup> See Part 2 for a description of the emissions accounting methodology for transportation and other sectors for 2016.

<sup>8</sup> 2016 natural gas emissions factor applied to the 2006 natural gas consumption for emissions comparability.

<sup>9</sup> GPC emissions accounting framework (used for 2016 inventory) considers biodiesel as a zero emissions fuel; this was likely not the case in 2006 as emissions from biodiesel were included in the total.

<sup>10</sup> Other fuels include biomass, wood, biodiesel and ethanol.

# BUILDINGS SECTOR ENERGY

## Buildings energy by fuel

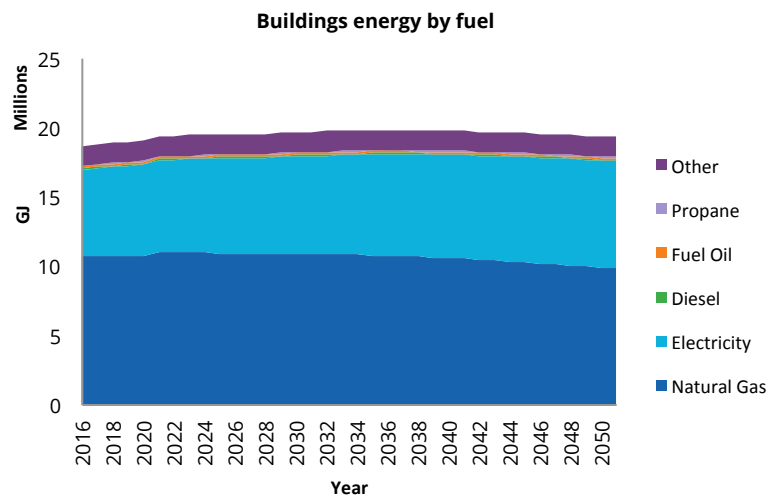


Figure 13. Projected BAU buildings energy use (GJ) by fuel, 2016-2050.

## Buildings energy by end use

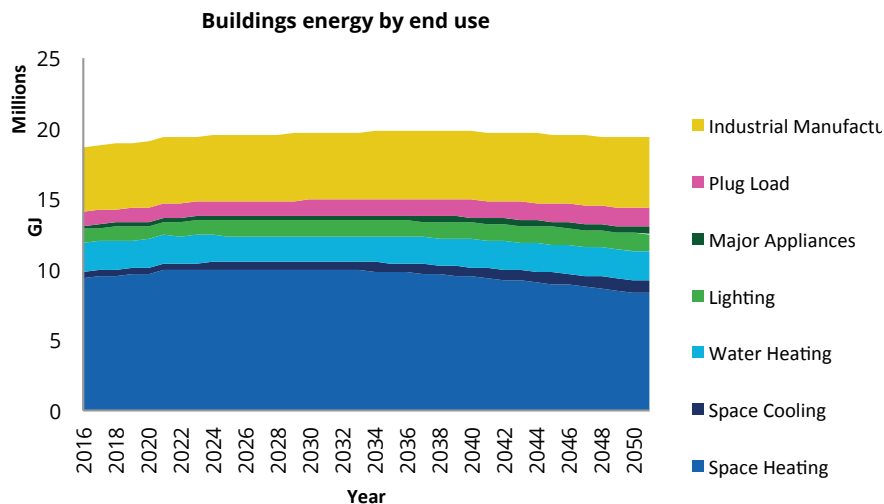


Figure 14. Projected BAU buildings energy use (GJ) by end use, 2016-2050.

Building energy use amounted to 18.7 million GJ in 2016, and is projected to grow to just under 19.4 million GJ by 2050, an increase of 3.6%.

Increases in energy consumption in the residential and commercial buildings sector occur through to 2035, consistent with projected population and buildings growth. Improved building efficiency standards and codes for new buildings, as well as a decrease in heating degree days (which are projected to occur as the climate continues to warm), result in a slight decrease in energy consumption post 2035, even as the building stock continues to grow to 2050; this is primarily as a result of a decrease in space heating requirements.

In 2016, natural gas accounted for almost two thirds of energy consumption (57%), used predominantly for space heating in the residential and commercial sector, as well as manufacturing in the industrial sector. Towards 2050, there is a slight shift from natural gas to electricity; resulting in a fuel shares of 51% and 40% for natural gas and electricity respectively.

In 2016, the industrial sector accounted for approximately 31% of energy consumption in the buildings sector, with commercial buildings at 40%, residential at 29% (Table 5). These shares remain fairly constant to 2050.

## Buildings energy by building type & fuel

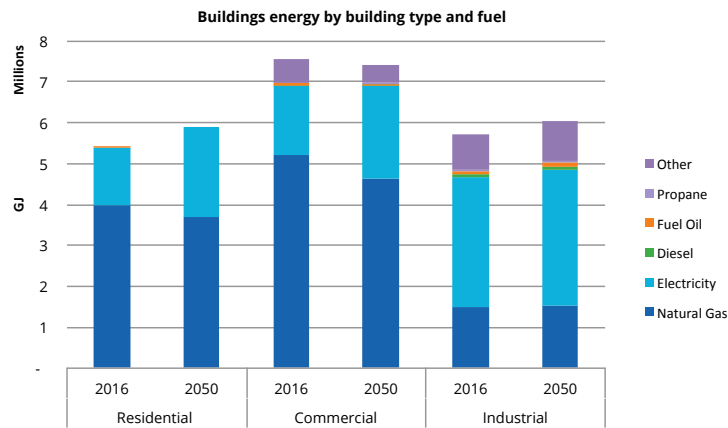


Figure 15. Projected BAU buildings energy use (GJ) by building type and fuel, 2016 & 2050.

In 2016, residential buildings energy demand is dominated by space heating requirements (65%), followed by water heating (22%); natural gas is the dominant fuel, accounting for 74% of residential energy demand.

Commercial buildings are also dominated by space heating (73%), but have higher demands for plug load and lighting in comparison with residential buildings; as a result, the shift from natural gas to electricity from 2016 to 2050 is most noticeable in this sector.

Industrial buildings energy use is dominated by manufacturing demand (75%); supplied predominantly by electricity and natural gas.

## Buildings energy by building type & end use

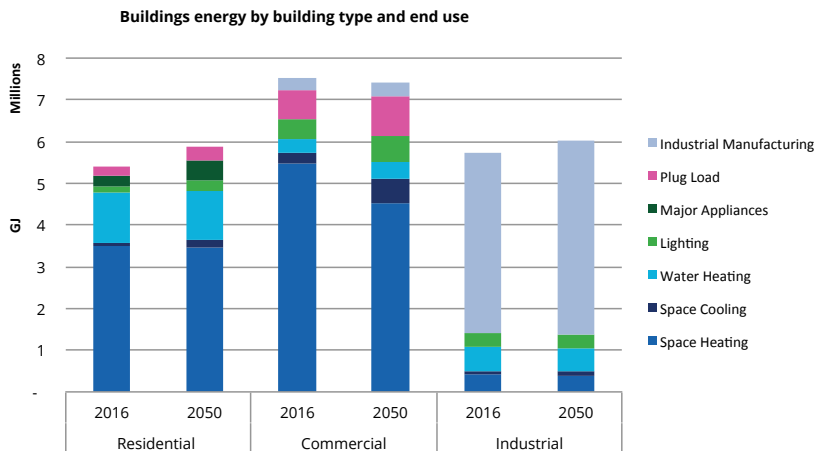


Figure 16. Projected BAU buildings energy use (GJ) by building type and end use, 2016 & 2050.

## Per household energy

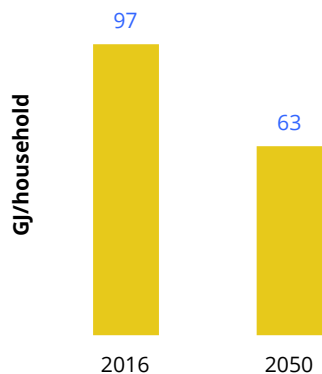


Figure 17. Projected BAU residential energy per household (GJ/household), 2016 & 2050.

While energy consumption in the residential sector is projected to increase by 8.9% between 2016 and 2050, on a per household basis, Guelph residents are projected to use approximately 35% less energy, decreasing from 97 GJ/household in 2016 to 63 GJ/household in 2050.

Table 5. Buildings sector energy tabulated results, 2016 & 2050 (BAU).

Buildings energy (GJ) by building type	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Residential	5,404,300	28.9%	5,884,400	30.4%	8.9%
Commercial	7,543,600	40.4%	7,427,500	38.4%	-1.5%
Industrial	5,732,100	30.7%	6,039,700	31.2%	5.4%
<b>Total</b>	<b>18,680,000</b>		<b>19,351,700</b>		<b>3.6%</b>
Buildings energy (GJ) by fuel	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Diesel	90,900	0.5%	96,700	0.5%	6.4%
Electricity	6,246,600	33.4%	7,715,900	39.9%	23.5%
Fuel Oil	152,400	0.8%	134,800	0.7%	-11.5%
Natural Gas	10,710,500	57.3%	9,907,000	51.2%	-7.5%
Other	1,429,100	7.7%	1,439,900	7.4%	0.8%
Propane	50,500	0.3%	57,500	0.3%	13.9%
<b>Total</b>	<b>18,680,000</b>		<b>19,351,700</b>		<b>3.6%</b>
Buildings energy (GJ) by end use	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Lighting	979,600	5.2%	1,223,200	6.3%	24.9%
Major Appliances	256,300	1.4%	458,900	2.4%	79.0%
Plug Load	929,800	5.0%	1,312,800	6.8%	41.2%
Space Cooling	440,600	2.4%	840,000	4.3%	90.6%
Space Heating	9,375,000	50.2%	8,401,800	43.4%	-10.4%
Water Heating	2,079,000	11.1%	2,118,400	10.9%	1.9%
Industrial Manufacturing	4,619,700	24.7%	4,996,600	25.8%	8.2%
<b>Total</b>	<b>18,680,000</b>		<b>19,351,700</b>		<b>3.6%</b>



# BUILDINGS SECTOR EMISSIONS

## Buildings emissions by source

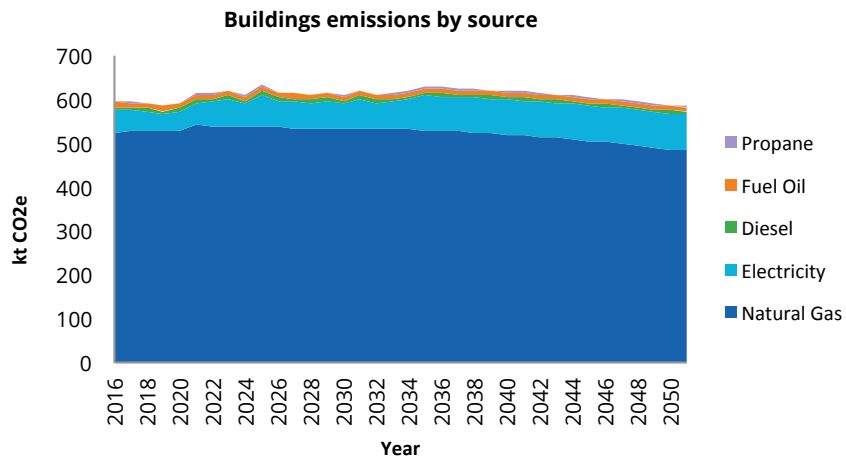


Figure 18. Projected BAU buildings emissions (kt CO2e) by source, 2016-2050.

## Buildings emissions by end use

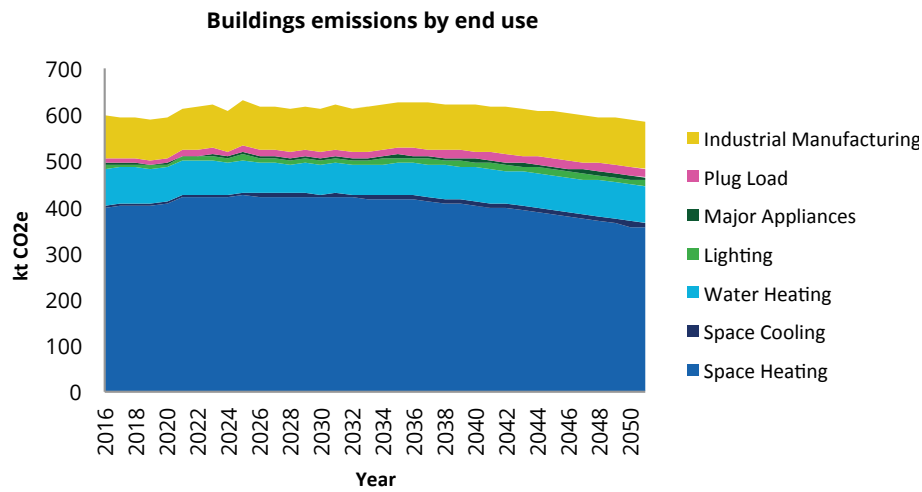


Figure 19. Projected BAU buildings emissions (kt CO2e) by end use, 2016-2050.

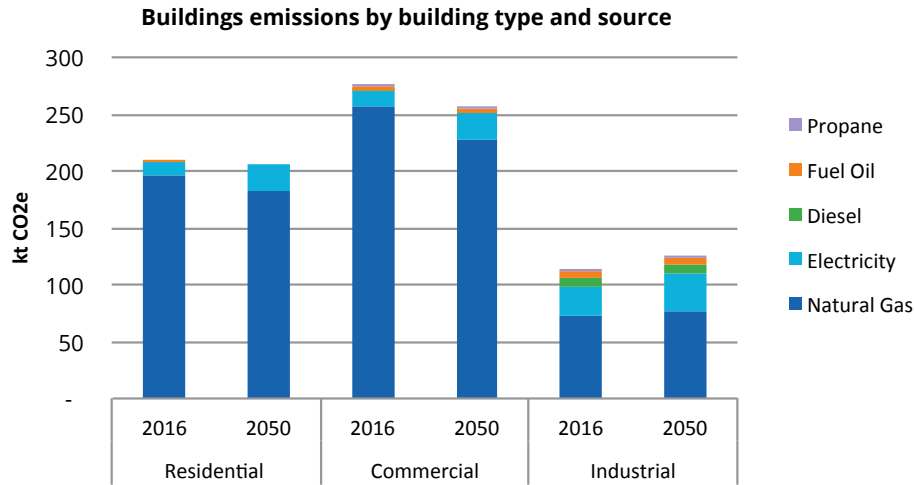
<sup>11</sup> See Part 2 for assumptions on projected grid electricity emissions factor.

Emissions in the buildings sector decrease slightly from 597 kt CO2e in 2016 to 588 kt CO2e, and decrease of 1.5% over the period.

Buildings emissions are dominated significantly by natural gas, accounting for 88% of emissions in 2016. A shift towards electricity out to 2050 results in fewer emissions from natural gas over time; however, natural still remains the dominant source of emissions in the buildings sector in 2050, accounting for 83%. A few spikes in the emissions trajectory occur between 2016 and 2035 are noticeable; this is a result of changes in the projected grid emissions electricity factor over that period.<sup>11</sup>

Emissions from space heating demand decrease by 10% between 2016 and 2050, primarily as a result of improved building efficiency standards and codes for new buildings, as well as a decrease in heating degree days. Emissions from all other end uses increase as energy demand increases in these areas.

## Buildings emissions by building type & source



Emissions in the residential and commercial buildings sectors decrease from 2016 to 2050 by 1.5% and 6.7% respectively, primarily as a result of a decrease in space heating demand, accompanied by a shift away from natural gas to electricity.

In the industrial sector, emissions increase by 11% over the same period, primarily as a result of an increase in manufacturing energy demand to 2050.

Figure 20. Projected BAU buildings emissions (kt CO<sub>2</sub>e) by building type and source, 2016 & 2050.

## Buildings emissions by building type & end use

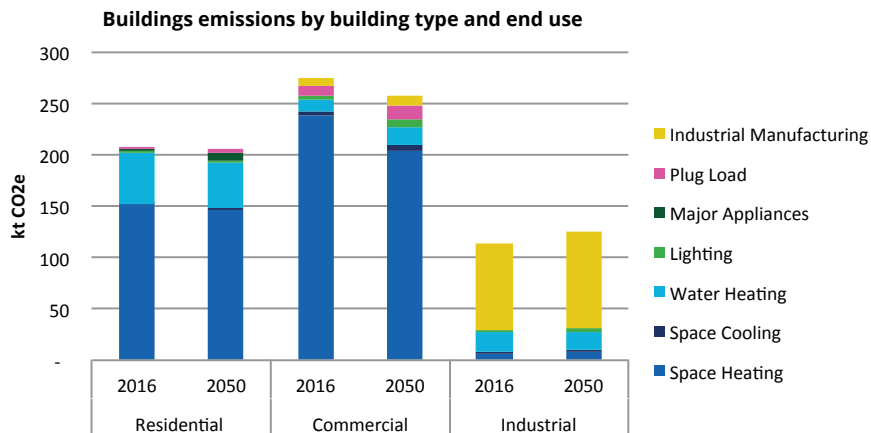


Figure 21. Projected BAU buildings emissions (kt CO<sub>2</sub>e) by building type and end use, 2016 & 2050.

## Per household emissions

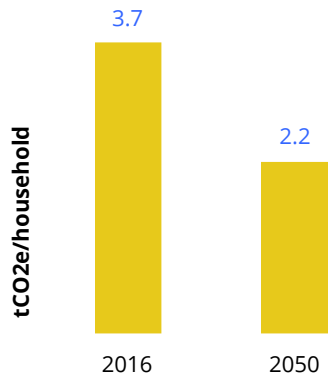


Figure 22. Projected BAU residential emissions per household (tCO<sub>2</sub>e/household), 2016 & 2050.

On a per household basis, residential emissions are projected to decrease by 40%, from 3.7 tCO<sub>2</sub>e/hh to 2.2 tCO<sub>2</sub>e/hh.

Table 6. Buildings sector emissions tabulated results, 2016 & 2050 (BAU).

Buildings emissions (tCO <sub>2</sub> e) by building type	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Residential	208,400	34.9%	205,300	34.9%	-1.5%
Commercial	275,300	46.1%	256,800	43.7%	-6.7%
Industrial	113,300	19.0%	125,900	21.4%	11.1%
<b>Total</b>	<b>597,000</b>		<b>588,000</b>		<b>-1.5%</b>
Buildings emissions (tCO <sub>2</sub> e) by fuel	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Diesel	6,700	1.1%	7,100	1.2%	6.0%
Electricity	51,200	8.6%	82,100	14.0%	60.4%
Fuel Oil	10,800	1.8%	9,600	1.6%	-11.1%
Natural Gas	525,200	88.0%	485,800	82.6%	-7.5%
Propane	3,100	0.5%	3,500	0.6%	12.9%
<b>Total</b>	<b>597,000</b>		<b>588,000</b>		<b>-1.5%</b>
Buildings emissions (tCO <sub>2</sub> e) by end use	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Lighting	8,000	1.3%	13,000	2.2%	62.5%
Major Appliances	3,200	0.5%	6,800	1.2%	112.5%
Plug Load	11,000	1.8%	17,900	3.0%	62.7%
Space Cooling	5,100	0.9%	10,800	1.8%	111.8%
Space Heating	397,400	66.6%	358,200	60.9%	-9.9%
Water Heating	81,500	13.7%	78,500	13.4%	-3.7%
Industrial Manufacturing	90,700	15.2%	102,800	17.5%	13.3%
<b>Total</b>	<b>597,000</b>		<b>588,000</b>		<b>-1.5%</b>

# TRANSPORTATION SECTOR ENERGY

## Transportation energy by fuel

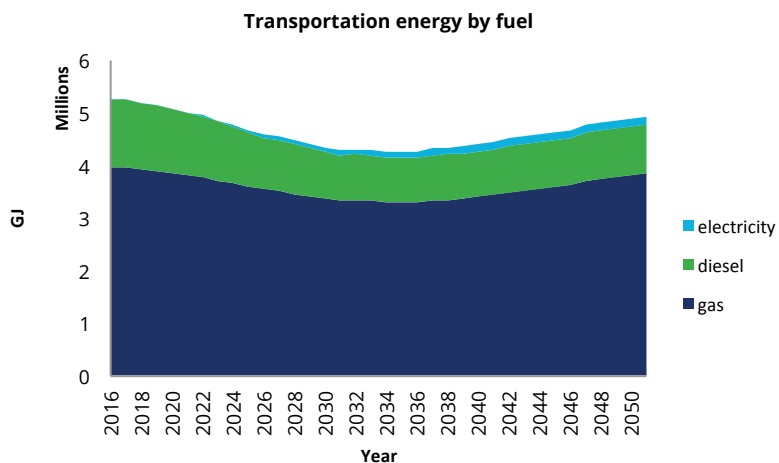


Figure 23. Projected BAU transportation energy use (GJ) by fuel, 2016-2050.

## Transportation energy by vehicle type

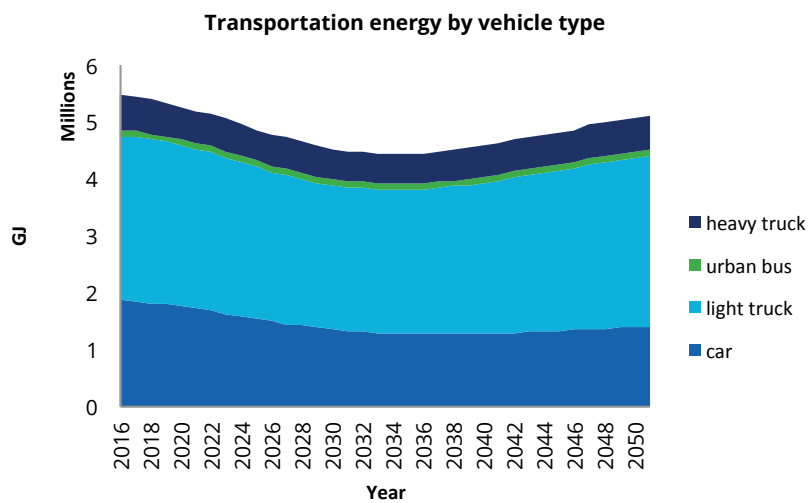


Figure 24. Projected BAU transportation energy use (GJ) by vehicle type, 2016-2050.

Transportation energy in 2016 amounts to approximately 5.5 million GJ, of which 73% is supplied through gasoline, followed by diesel at 24%. This is projected to decrease to 5.1 million GJ in 2050, a decrease of 7.5% over the period.

There is a noticeable decline in energy demand in the transportation sector between 2016 and 2035; this is primarily as a result of the projected fuel efficiency standards for vehicles assumed in the BAU; it is not as a result of a decrease in vehicle kilometres travelled (VKT).

Vehicle fuel consumption rates in the BAU are set to reflect the implementation of the U.S. Corporate Average Fuel Economy (CAFE) fuel standard for light duty vehicles and phase 1 and phase 2 of EPA HDV fuel standards for medium and heavy duty vehicles.

Post 2035, transportation energy sees an increase to 2050. During this period, the projected vehicle fuel efficiencies start to flatline, that is, there are not major increases or gains in efficiency post 2035. At this point, the ongoing increase in VKT, which is driven by population and buildings growth from 2016 to 2050, starts to overcome any gains made from efficiencies in the vehicle stock. The BAU does not include any assumptions around the expansion of transit service, as such has no impact on VKT.

Between 2016 and 2050, there is also a slight shift away from cars to light trucks, as SUVs become a more prominent choice of vehicle.

# Transportation energy by vehicle type & fuel

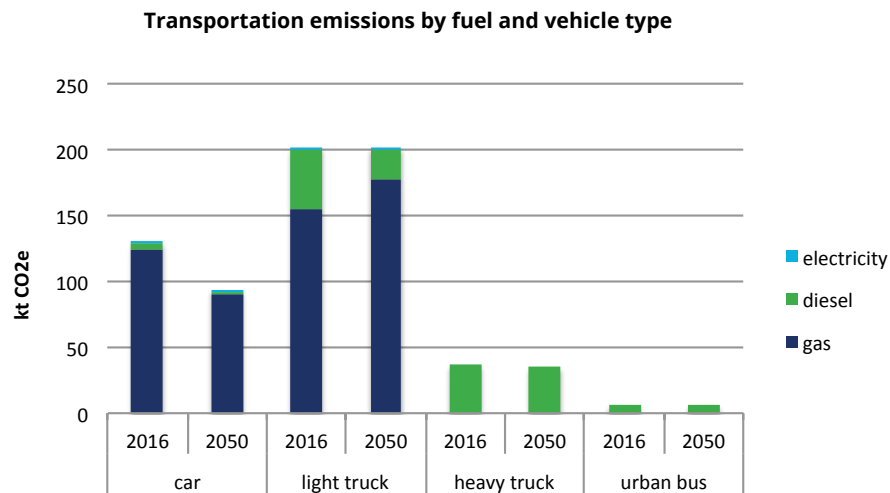


Figure 25. Projected BAU transportation energy use (GJ) by vehicle type and fuel, 2016-2050.

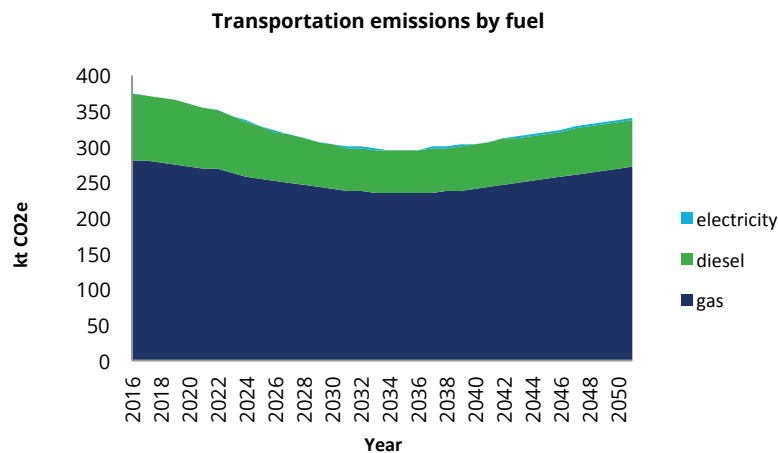
Between 2016 and 2050, there is a noticeable decline in energy demand for cars; this is driven by a combination of the implementation of vehicle fuel efficiency standards and an increase of number electric vehicles within the car stock, but also as a result of a shift from cars to light trucks; which is driving energy demand up in the light truck stock. Within the light truck stock, there is shift away from diesel as more gasoline and electric vehicles enter the market.

Table 7. Transportation sector energy tabulated results, 2016 & 2050 (BAU).

Transportation energy (GJ) by fuel	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Biodiesel	41,100	0.8%	32,300	0.6%	-21.4%
Diesel	1,304,800	23.8%	923,000	18.2%	-29.3%
Electricity	500	0.0%	150,200	3.0%	300.0%
Ethanol	159,400	2.9%	152,900	3.0%	-4.1%
Gasoline	3,967,600	72.5%	3,806,900	75.2%	-4.1%
<b>Total</b>	<b>5,473,300</b>		<b>5,065,300</b>		<b>-7.5%</b>
Transportation energy (GJ) by vehicle type	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Car	1,868,200	34.1%	1,392,200	27.5%	-25.5%
Heavy truck	609,800	11.1%	579,900	11.4%	-4.9%
Light truck	2,886,600	52.7%	2,984,500	58.9%	3.4%
Urban bus	108,700	2.0%	108,700	2.1%	0.0%
<b>Total</b>	<b>5,473,300</b>		<b>5,065,300</b>		<b>-7.5%</b>

# TRANSPORTATION SECTOR EMISSIONS

## Transportation emissions by source



Transportation emissions follow a similar trajectory as transportation energy demand; emissions decline from 374 ktCO<sub>2</sub>e in 2016 to 337 ktCO<sub>2</sub>e in 2050, a decrease of 10% over the period.

Reductions in transportation emissions (10%) are slightly higher than reductions in transportation energy demand (7.5%), as there is a small shift away from gasoline to electricity in the car stock, and away from diesel to gasoline and electricity in the light truck stock.

Gasoline remains the predominant source of transportation emissions, accounting for 75% in 2016 and 80% in 2050.

While there is a slight shift to electric vehicles over the period, emissions from electricity remain fairly low as the provincial electricity grid remains fairly green.<sup>12</sup>

Figure 26. Projected BAU transportation emissions (kt CO<sub>2</sub>e) by source, 2016-2050.

## Transportation emissions by vehicle type

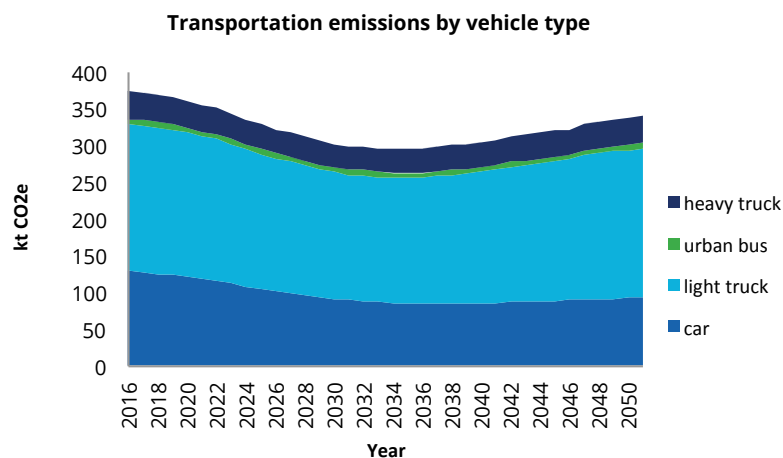


Figure 27. Projected BAU transportation emissions (kt CO<sub>2</sub>e) by vehicle type, 2016-2050.

<sup>12</sup> See Part 2 for assumptions on projected grid electricity emissions factor.

## Transportation emissions by source & vehicle type

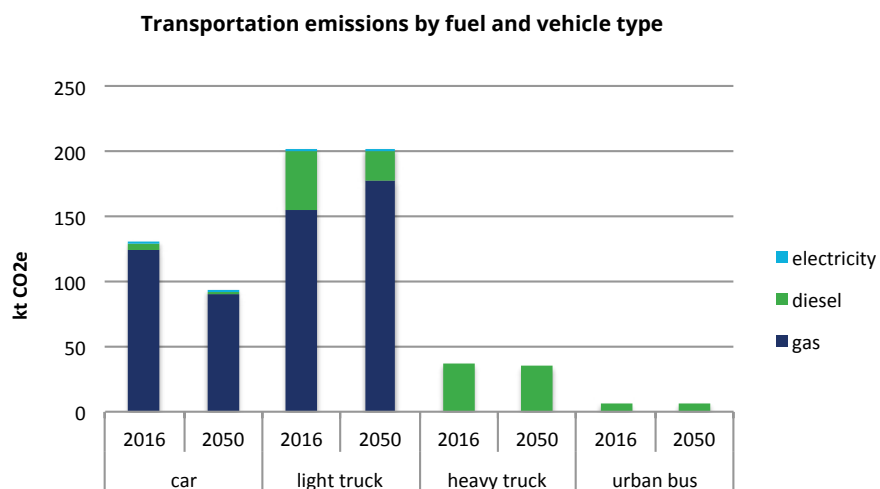


Figure 28. Projected BAU transportation emissions (ktCO<sub>2</sub>e) by source and vehicle type, 2016-2050.

Similarly to energy demand for cars, there is a noticeable decline in emissions for cars between 2016 and 2050; driven by a combination of the implementation of vehicle fuel efficiency standards and an increase in the number of electric vehicles within the car stock.

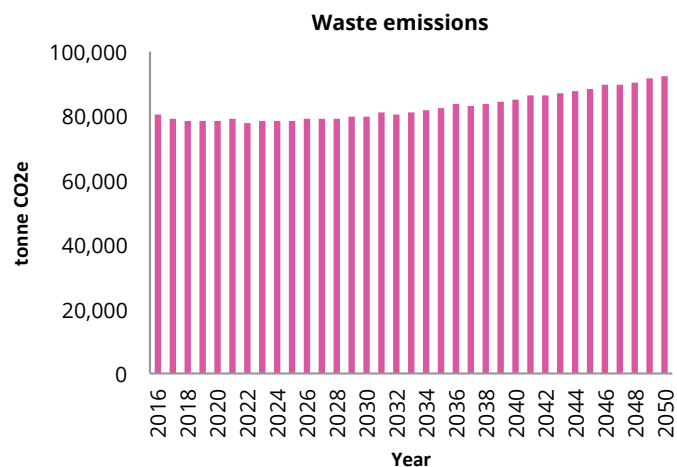
Emissions for light trucks declines to 2035, but then steadily increases to 2050 again. Again, the decline is as a result of vehicle fuel efficiency standards and a shift away from diesel to gasoline and electricity; but post 2035, increases in VKT outweigh these gains.

Table 8. Transportation sector emissions tabulated results, 2016 & 2050 (BAU).

Transportation emissions (tCO <sub>2</sub> e) by fuel	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Diesel	93,300	24.9%	65,800	19.5%	-29.5%
Electricity	-	0.0%	1,600	0.5%	
Gasoline	280,900	75.1%	269,500	80.0%	-4.1%
<b>Total</b>	<b>374,200</b>		<b>336,900</b>		<b>-10.0%</b>
Transportation emissions (tCO <sub>2</sub> e) by vehicle type	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Car	129,500	34.6%	93,200	27.7%	-28.0%
Heavy truck	37,400	10.0%	35,500	10.5%	-5.1%
Light truck	200,500	53.6%	201,400	59.8%	0.4%
Urban bus	6,800	1.8%	6,800	2.0%	0.0%
<b>Total</b>	<b>374,200</b>		<b>336,900</b>		<b>-10.0%</b>

# WASTE SECTOR EMISSIONS

## Waste emissions by type



Waste emissions account for 80.4 kt CO<sub>2</sub>e in 2016, and increase gradually to 92.1kt CO<sub>2</sub>e by 2050; an increase of approximately 14.5% over the period. Waste emissions include both emissions produced from solid waste and wastewater treatment. In 2016, approximately 72% of waste emissions were from wastewater.

The increase in waste emissions is primarily driven by an increase in population. In 2016, solid waste diversion was calculated at 40%; this rate is held constant to 2050 and applied to additional waste generated over the period. The projection assumes no further reduction in the rates of per capita waste production or improvement in treatment facilities. The solid waste diversion rate is included as a variable in the sensitivity analysis.

Figure 29. Projected BAU waste emissions (tCO<sub>2</sub>e), 2016-2050.

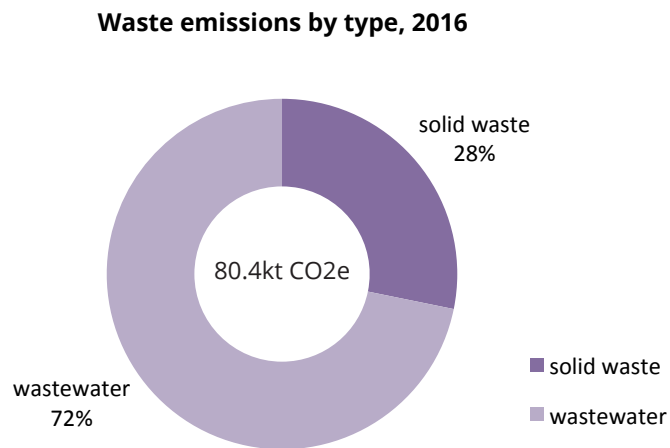


Figure 30. Waste emissions by type, 2016.



# FINANCIAL ANALYSIS

**Total energy expenditures by fuel**

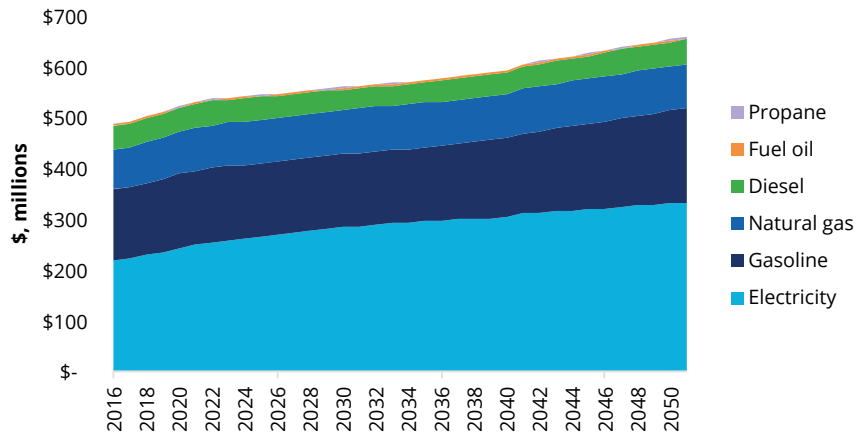


Figure 31. Projected BAU energy expenditures by fuel, 2016-2050.

In 2016, total energy expenditures in Guelph amounted to \$488 million, and are projected to climb by 34% to \$653 million by 2050.

In 2016, electricity expenditures account for 45% of total energy expenditures, while representing only 25% of total energy consumption. This pattern holds true to 2050, where electricity expenditures are projected to make up 51% of total, while representing 32% of consumption. Conversely, natural gas expenditures make up 16% of total expenditures in 2016, representing 46% of energy consumption. This is primarily driven by a much lower cost of natural gas compared with electricity.<sup>13</sup>

In 2016, gasoline and diesel expenditures amount to \$141 million and \$47 million respectively, increasing to \$183 million and \$48 million by 2050; the transportation sector accounts for 38% of total expenditures in 2016. The residential sector accounts for 20%, the industrial sector 25%, and the commercial sector 17% of total energy expenditures in 2016.

**Total energy expenditures by sector**

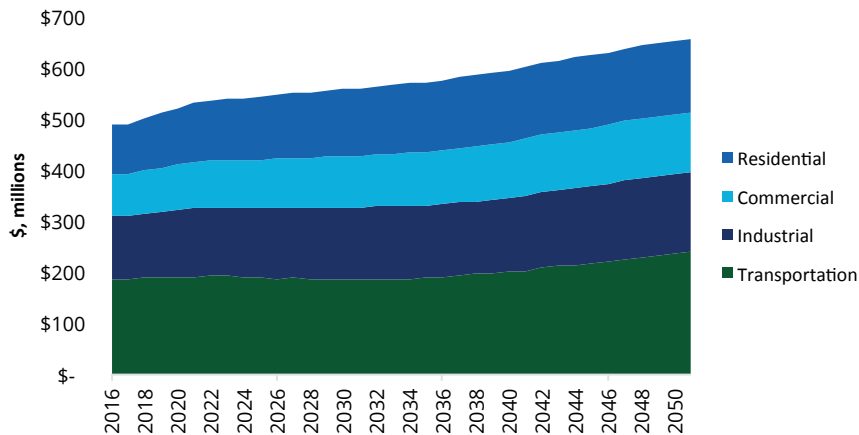


Figure 32. Projected BAU energy expenditures by sector, 2016-2050.

<sup>13</sup> See Part 2 for assumptions on projected energy costs by fuel.

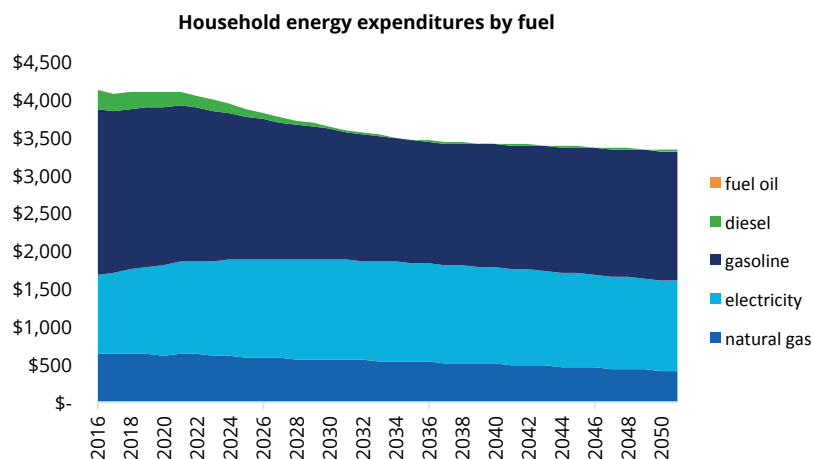


Figure 33. energy expenditures per household by fuel, 2016-2050.

In 2016, average household energy expenditures amounted to \$4,110 per household, with 41% being spent on energy in buildings (electricity, natural gas, fuel oil), and the remaining 59% on transportation (gasoline, diesel).

Towards 2050, per household expenditures are projected to decline for every fuel except electricity, which is projected to increase by \$150 per year. Improved fuel efficiency in vehicles are projected to save \$490 per year per household.

Table 9. Energy expenditures tabulated results, 2016 & 2050 (BAU).

Energy expenditures by fuel (million \$)	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Gasoline	\$141.1	28.9%	\$182.8	28.0%	30%
Electricity	\$218.1	44.7%	\$330.6	50.6%	52%
Diesel	\$47.4	9.7%	\$48.3	7.4%	2%
Natural gas	\$77.6	15.9%	\$86.6	13.3%	12%
Fuel oil	\$3.1	0.6%	\$3.7	0.6%	19%
Propane	\$0.9	0.2%	\$1.3	0.2%	52%
<b>Total</b>	<b>\$488.2</b>		<b>\$653.3</b>		<b>34%</b>

Energy expenditures by sector (million \$)	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Residential	\$94.9	19.4%	\$142.9	21.9%	51%
Commercial	\$82.5	16.9%	\$118.8	18.2%	44%
Industrial	\$123.7	25.3%	\$156.1	23.9%	26%
Transportation	\$187.1	38.3%	\$235.6	36.1%	26%
<b>Total</b>	<b>\$488.2</b>		<b>\$653.3</b>		<b>34%</b>

Household energy expenditure by fuel (\$)	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Gasoline	\$2,190	53.2%	\$1,700	51.1%	-22%
Electricity	\$1,050	25.5%	\$1,200	36.1%	14%
Diesel	\$230	5.6%	\$20	0.6%	-91%
Natural gas	\$640	15.6%	\$410	12.3%	-36%
Fuel oil	\$10	0.2%	-	-	-100%
<b>Total</b>	<b>\$4,110</b>		<b>\$3,320</b>		<b>-19%</b>

## Cost of carbon

A carbon price aligned with the federal projection that starts at \$10/tCO<sub>2</sub> in 2018, increasing to \$50/tCO<sub>2</sub> by 2022, and to \$114 \$/tCO<sub>2</sub> by 2050<sup>14</sup> was applied to BAU carbon emissions (CO<sub>2</sub> only) to 2050. Total carbon price expenditures climb from just under \$10 million in 2018 to nearly \$110 million in 2050.

In the residential sector, this is approximately \$14 per person in 2018, climbing to \$103 per person by 2050.

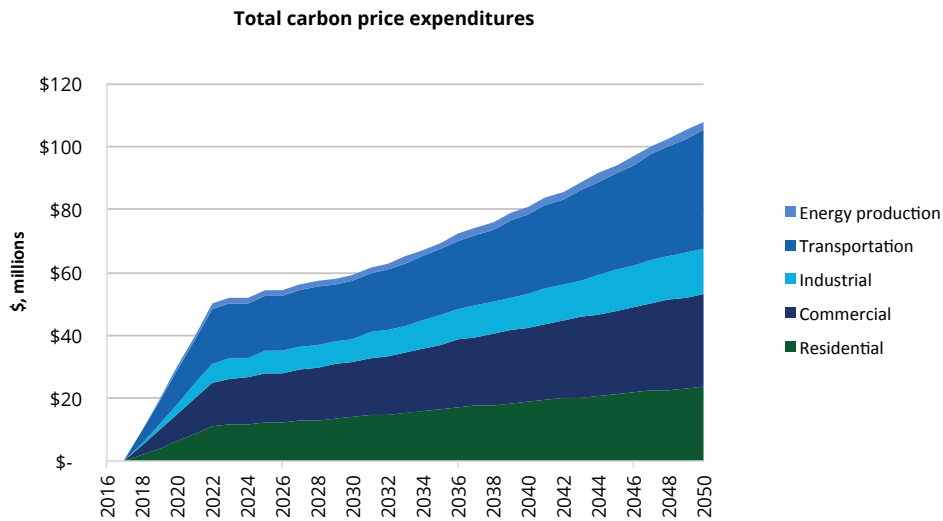


Figure 34. Projected BAU carbon expenditures by sector, 2016-2050.

Table 10. Carbon price expenditures tabulated results, 2016 & 2050 (BAU).

Carbon price expenditures by sector (\$)	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Residential	\$2,113,500	21.2%	\$23,464,100	22%	1010%
Commercial	\$2,753,800	27.6%	\$29,600,300	27%	975%
Industrial	\$3,617,500	36.3%	\$37,451,700	35%	935%
Transportation	\$1,133,300	11.4%	\$14,802,700	14%	1206%
Energy production	\$343,300	3.4%	\$2,821,800	3%	722%
<b>Total</b>	<b>\$9,961,400</b>		<b>\$108,140,500</b>		<b>986%</b>

<sup>14</sup> Government of Canada (2018). Technical paper: federal carbon pricing backstop. Retrieved from: <https://www.canada.ca/en/services/environment/weather/climatechange/technical-paper-federal-carbon-pricing-backstop.html>

# SUMMARY ANALYSIS

## General

The population of Guelph is expected to grow by 53% between 2016 and 2050, adding approximately 78,700 new residents. This growth is expected to be accompanied by 75,600 new jobs, and 37,900 new households, which will drive demand for new residential and non-residential floor space. This growth will also drive additional demands for transportation, and generate additional waste.

As the population continues to grow, the BAU projections indicate that community wide energy demand will increase slightly by 0.1%, from 25.09 million GJ to 25.10 million GJ between 2016 and 2050, but emissions will decline by 4.5%, from 1,156,700 tCO<sub>2</sub>e in 2016, to 1,105,000 in 2050.

Per capita energy is projected to decline by 35%, from 169 GJ/cap in 2016 to 111 GJ/cap in 2050, while per capita emissions are projected to decline by 38%, from 7.8 tCO<sub>2</sub>e/cap in 2016 to 4.9 tCO<sub>2</sub>e/cap in 2050.

Table 11. Community energy and emissions summary results, 2016 & 2050 (BAU).

Energy by sector (GJ)	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Commercial	7,543,600	30.1%	7,427,500	29.6%	-1.5%
Industrial	5,732,100	22.8%	6,039,700	24.1%	5.4%
Residential	5,404,300	21.5%	5,884,400	23.4%	8.9%
Transportation	5,473,400	21.8%	5,065,300	20.2%	-7.5%
Local energy production	933,000	3.7%	687,900	2.7%	-26.3%
<b>Total</b>	<b>25,086,300</b>		<b>25,104,900</b>		<b>0.1%</b>
Emissions by sector (tCO <sub>2</sub> e)	2016	share 2016	2050 (BAU)	share 2050	% +/- (2016-2050)
Commercial	275,300	23.8%	256,800	23.2%	-6.7%
Fugitive	69,500	6.0%	63,200	5.7%	-9.1%
Industrial	148,900	12.9%	150,700	13.6%	1.2%
Residential	208,400	18.0%	205,300	18.6%	-1.5%
Transportation	374,200	32.4%	336,900	30.5%	-10.0%
Waste	80,400	7.0%	92,100	8.3%	14.6%
<b>Total</b>	<b>1,156,700</b>		<b>1,105,000</b>		<b>-4.5%</b>

## Buildings

Energy consumption in the buildings sector is expected to increase by 3.6%, from approximately 18.7 million GJ in 2016 to 19.6 million GJ in 2050. This is accompanied by a slight decrease in emissions of 1.5%, from 597,000 tCO<sub>2</sub>e in 2016 to 588,000 tCO<sub>2</sub>e in 2050.

The increase in buildings energy demand is mainly driven by a demand for new residential and non-residential floorspace. The trajectory of this increase (3.6%) however, is significantly lower than the increase in population (53%); that is, while buildings energy demand is driven by population growth, and the resulting buildings to support that growth, they are not growing at the same rate. This is as a result of two main driving assumptions within the BAU:

- » **New building energy performance requirements:** the BAU assumes that all new construction, in all building sectors, will be 15% more efficient every 5 years starting in 2018. Toronto Green Standard (TGS) analysis by The Atmospheric Fund (TAF) indicates that by 2017, the Ontario Building Code (OBC) will be the equivalent of TGS v2 Tier 1. The modelling approach assumes that OBC evolution will follow TGS evolution with a 5-year lag. Based on modelled energy use intensity improvements, the incremental performance improvement for TGS v2 Tier 1 and TGS v3 Tier 1 are 13-15% and 20-40%, respectively. The modelling for all new construction assumes a 15% improvement every 5 years.
- » **Heating and cooling degree days:** The BAU accounts for the influence of projected climate change by including an assumption for heating degree days (HDD) and cooling degree days (CDD).<sup>15</sup> The projection indicates a decrease in heating degree days (HDD), and an increase in cooling degree days (CDD) as the climate continues to warm towards 2050. A decrease in the number of heating degree days (the number of degrees that a day's average temperature is below 18°C, at which buildings need to be heated) results in a reduction in the amount of energy required for space heating. This increase is partially offset by an increase in the number of cooling days (the temperature at which

buildings start to use air conditioning for cooling), which results in an increase in energy usage. The overall impact is a net decrease in energy demand for buildings over time as a result of a warming climate; as building energy demand is significantly dominated by space heating, this outweighs any increases in cooling demand.

It is worth noting that while the assumptions for new building energy performance requirements are defensible, they could be considered a bit optimistic for a BAU scenario. As such, sensitivity analysis on this assumption and others was undertaken to estimate the impact of the assumption on the outcome of the BAU scenario. Refer to Part 2 for the sensitivity analysis results.

For the existing building stock, that is, the building stock prior to 2016, no improvements in efficiency were applied in the BAU. The baseline efficiencies for each building type in 2016 were held constant to 2050. As such, any reductions in energy demand in existing buildings is primarily as a result of a decrease in space heating requirements that is driven by a decrease in heating degree days. The decrease (1.5%) in emissions in the building sector, compared with the increase in energy demand (3.6%), is being driven by a shift away from carbon intensive fuels, in particular natural gas, towards electricity. This is most prominent in the new building stock. Emissions from the provincial electricity grid are assumed to be 0.0294 kg CO<sub>2</sub>e/kwh in 2016, climbing slightly to 0.0385 kg CO<sub>2</sub>e/kwh in 2035, and then declining to slightly 0.038 kg CO<sub>2</sub>e/kwh in 2050;<sup>16</sup> emissions from electricity remain significantly lower than natural gas (0.177 kg CO<sub>2</sub> equivalent).

<sup>15</sup> See Part 2 for assumptions on HDD and CDD.

<sup>16</sup> See Part 2 for assumptions on projected grid electricity emissions factor.

## Transport

Energy consumption in the transportation sector is expected to decrease by 7.5%, from approximately 5.5 million GJ in 2016 to 5.1 million GJ in 2050. This is accompanied by a decrease in emissions of 10.0%, from 374,200 tCO<sub>2</sub>e in 2016 to 336,900 tCO<sub>2</sub>e in 2050.

The decrease in transportation energy demand is being primarily driven by an increase in vehicle fuel efficiencies (through the implementation of fuel efficiency standards)<sup>17</sup>, along with an assumed uptake in electric vehicles<sup>18</sup>; it is not being driven by a decrease in vehicle kilometres travelled (VKT). As the population continues to grow towards 2050, along with the addition of new buildings that are assumed to be distributed according to existing growth patterns in the City, VKT is projected to increase.

The decrease in transportation energy occurs primarily between 2016 and 2035, thereafter it increases again towards 2050. An inflection point occurs at around 2035 as an increase in VKT starts to overcome any gains made from vehicle fuel efficiencies and a shift towards electric vehicles. Additionally, the BAU does not include any assumptions around the expansion of transit service, and as such, has no impact on VKT.

A larger decrease in transportation emissions (10%) compared with transportation energy (7.5%), is being driven not only the the reduction in transportation energy demand, but also by a shift away from gasoline to electricity in cars, and away from diesel to gasoline and electricity in light trucks.

<sup>17</sup> See Part 2 for assumptions on projected vehicle fuel efficiency standards.

<sup>18</sup> See Part 2 for assumptions on projected uptake of electric vehicles.

## Waste

Waste emissions increase by 14.6% from 80,400 tCO<sub>2</sub>e in 2016 to 92,100 tCO<sub>2</sub>e by 2050. Emissions in this sector include those produced from solid waste and wastewater treatment, and are primarily driven by an increase in population. The waste sector sees the highest percentage increase from 2016 to 2050 compared with buildings and transportation. This result is not unexpected, as the BAU assumes no further reduction in the rates of per capita waste production, waste diversion, or improvement in treatment facilities.

## Financial

Total expenditures on energy in Guelph increase from approximately \$488 million in 2016 and to \$653 million by 2050.

Household expenditures in 2016 were approximately \$4,110, and are projected to decline to \$3,320 by 2050. The decrease in household expenditure is primarily as a result of vehicle efficiency standards, which significantly reduced gasoline and diesel costs.

## Observations and Insights for Phase 2

### Switching to electricity provides a significant emissions reduction opportunity.

- » The Provincial electricity grid has significantly decarbonized since the phase out of coal in 2014, and is projected to remain relatively clean to 2050. This creates a major emissions reduction opportunity for fuel switching from carbon intensive fuels to electricity, particularly from natural gas in the buildings sector, and gasoline and diesel in the transportation sector. For vehicles (private and transit) away from carbon intensive gasoline to increasingly cleaner electricity.

### By 2035, increases in VKT will outpace any energy gains realized from vehicle fuel efficiencies and electric vehicles.

- » A focus on reducing VKT will be critical to reducing emissions, particularly post 2035, and even more so post 2050. This will require a large focus on the provision of transit infrastructure and densified transit oriented growth patterns to influence a shift to more active modes, reduced trip lengths, and reduced vehicle ownership. As buildings growth occurs incrementally over time, and transit infrastructure can take years to implement, it will be critical for the City start implementing growth policies and infrastructure funding immediately to get ahead of the projected inflection point in 2035.

### New construction standards will be key.

- » Improved performance standards, above the BAU assumptions, will be needed for new construction in order to lessen the upward pressure of an increasing population on the GHG curve.

### Retrofitting the existing building stock will be critical.

- » The existing building stock will continue to play a major role in community wide energy demand, and as such provides a great opportunity for energy and emissions reductions. A ambitious retrofit program will be critical.

### New electricity generation capacity from renewables will be needed.

- » Significant efforts to fuel switch to electricity will require new generation capacity with renewables to ensure that the emissions factor for electricity continues remains constant or declines, as well as ensuring sufficient electrical capacity is available.

### Current waste treatment will not keep up with waste generation.

- » At current solid waste diversion rates, and with existing wastewater treatment processes, emissions from waste will continue to grow with a growing population. Actions to decreasing waste and wastewater generation, increase diversion, and improve treatment processes will be critical to reducing emissions in waste.

### The city has, and is expected to continue to, benefit from variables outside of the City's control; however, the City can not solely rely on these factors to reduce emissions.

- » Provincial policies and standards:
  - ◇ Since 2006, the City has benefited significantly from the greening of the Provincial grid; and will continue to realize this benefit as the grid emissions factor is projected to remain relatively constant towards 2050. However, the City cannot solely rely on the Province's ability to keep the grid, and will need to increase local electricity generation capacity with renewables to ensure that the emissions factor for electricity remains constant or declines.
  - ◇ Vehicle fuel efficiency standards are projected to play a major role in decreasing transportation energy demand to 2035. These however, are not within the City's control; the City's will need to focus on other measures to reduce VKT to ensure transportation emissions are reduced.

Intentionally left blank



# Part 2:

## Data, Methods & Assumptions

Emissions Framework, Scope & Factors

Modelling Tool

Modelling Process

Sensitivity Analysis

# EMISSIONS FRAMEWORK, SCOPE & FACTORS

## Emissions Accounting Framework & Scope

Category	Description	Comment	Source
<b>Accounting Framework</b>	Global Protocol for Community-Scale GHG Emission Inventories (GPC)		Global Protocol for Community-Scale GHG Emission Inventories (GPC) Accessed at <a href="http://www.ghgprotocol.org/greenhouse-gas-protocol-accounting-reporting-standard-cities">http://www.ghgprotocol.org/greenhouse-gas-protocol-accounting-reporting-standard-cities</a>
<b>Emissions scope</b>	Scope 1, 2 and partial scope 3	GPC scope definition: 1) All GHG emissions from sources located within the city boundary. 2) All GHG emissions occurring as a consequence of the use of grid supplied electricity, heat, steam and/or cooling within the city boundary. 3) All other GHG emissions that occur outside the city boundary as a result of activities taking place within the city boundary.	See <i>GPC Emissions Scope Table</i> in Appendix 1rt for detailed list of scope items included in City of Guelph emissions inventory.
<b>Sectors</b>	Stationary energy (buildings) Transportation Waste		See <i>GPC Emissions Scope Table</i> in Appendix 1 for detailed list of sectors and sub-sectors included in City of Guelph emissions inventory.
<b>Boundary</b>	Municipal Boundary of City of Guelph		
<b>Reporting</b>	GPC BASIC & partial BASIC+		See Section 4.4 <i>GPC reporting framework</i> in GPC.
<b>Transportation methodology</b>	GPC induced activity method		See Section 7.3.1 <i>Transportation methodology options</i> in GPC.
<b>Baseline year</b>	2016		
<b>Projection year</b>	2050	5 year increments are modelled from the 2016 baseline year. 2021 will represent the first simulation period/year. Projections will extend to 2050. Due to the 5-yr increment, the last simulation year will be 2051. Results will be interpolated back for 2050.	
<b>Greenhouse gases</b>	Carbon dioxide (CO <sub>2</sub> ), methane (CH <sub>4</sub> ) and nitrous oxide (N <sub>2</sub> O) are included. GWP: CO <sub>2</sub> = 1 CH <sub>4</sub> = 34 N <sub>2</sub> O = 298	Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF <sub>6</sub> ) and nitrogen trifluoride (NF <sub>3</sub> ) are not included. Emissions are expressed in CO <sub>2</sub> equivalents (CO <sub>2</sub> e) per global warming potential (GWP) factors; GWPs have been updated in the IPCC 5th Assessment Report to include climate-carbon feedback.	Myhre, G. et al., 2013: <i>Anthropogenic and Natural Radiative Forcing</i> . Table 8.7. In: <i>Climate Change 2013: The Physical Science Basis</i> . Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

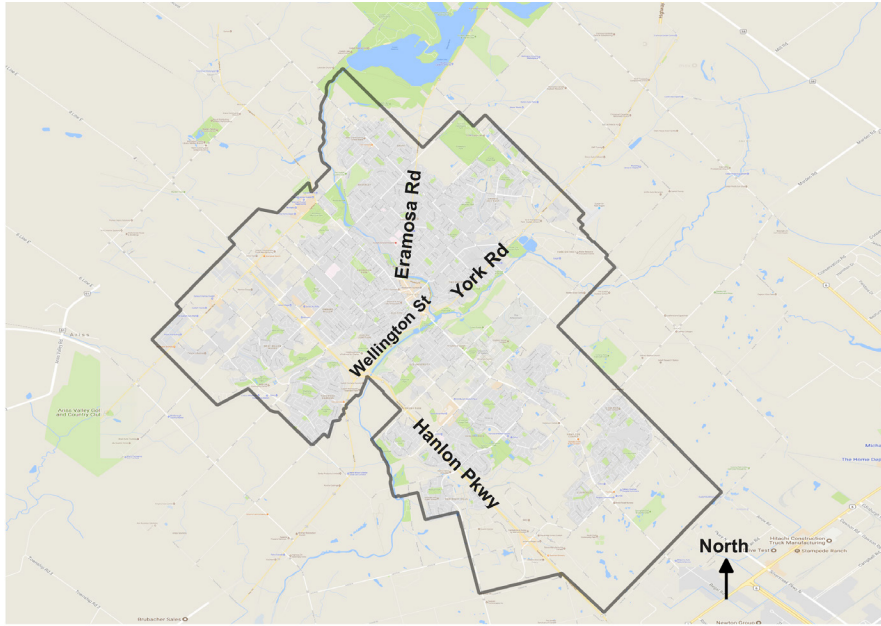


Figure 35. Municipal Boundary of Guelph.

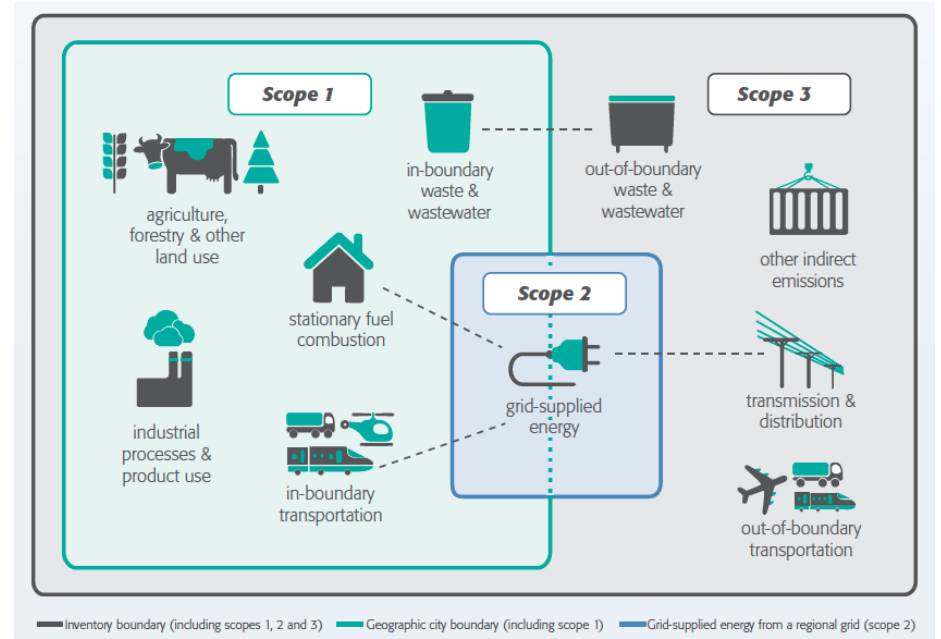


Figure 36. GPC scope boundaries.

# Emissions Factors

Category	Description	Comment
Natural gas	49 kg CO <sub>2</sub> e/GJ	Environment and Climate Change Canada. <i>National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada</i> . Part 2. Tables A6-1 and A6-2, Emission Factors for Natural Gas.
Electricity	2016: CO <sub>2</sub> : 28.9 g/kWh CH <sub>4</sub> : 0.007 g/kWh N <sub>2</sub> O: 0.001 g/kWh  2050: CO <sub>2</sub> : 37.4 g/kWh CH <sub>4</sub> : 0.009 g/kWh N <sub>2</sub> O: 0.001 g/kWh	National Energy Board. (2016). <i>Canada's Energy Future 2016</i> . Government of Canada. Retrieved from <a href="https://www.neb-one.gc.ca/nrg/ntgrtd/ftr/2016pt/nrgyfrs_rprt-2016-eng.pdf">https://www.neb-one.gc.ca/nrg/ntgrtd/ftr/2016pt/nrgyfrs_rprt-2016-eng.pdf</a>
Gasoline	g/L CO <sub>2</sub> : 2316 CH <sub>4</sub> : 0.32 N <sub>2</sub> O: 0.66	Environment and Climate Change Canada. <i>National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada</i> . Part 2. Table A6-12 Emission Factors for Energy Mobile Combustion Sources
Diesel	g/L CO <sub>2</sub> : 2690.00 CH <sub>4</sub> : 0.07 N <sub>2</sub> O: 0.21	Environment and Climate Change Canada. <i>National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada</i> . Part 2. Table A6-12 Emission Factors for Energy Mobile Combustion Sources
Fuel oil	Residential g/L CO <sub>2</sub> : 2560 CH <sub>4</sub> : 0.026 N <sub>2</sub> O: 0.006 Commercial g/L CO <sub>2</sub> : 2753 CH <sub>4</sub> : 0.026 N <sub>2</sub> O: 0.031 Industrial g/L CO <sub>2</sub> : 2753 CH <sub>4</sub> : 0.006 N <sub>2</sub> O: 0.031	Environment and Climate Change Canada. <i>National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada</i> . Part 2. TABLEable A6-4 Emission Factors for Refined Petroleum Products

Category	Description	Comment
Propane	g/L Transport CO2: 1515.00 CH4: 0.64 N2O: 0.03 Residential CO2: 1515.00 CH4 : 0.027 N2O: 0.108 All other sectors CO2: 1515.00 CH4: 0.024 N2O: 0.108	Environment and Climate Change Canada. <i>National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada. Part 2.</i> Table A6–3 Emission Factors for Natural Gas Liquids Table A6–12 Emission Factors for Energy Mobile Combustion Sources
Waste	Landfill EEmissions are calculated from first order decay of degradable organic carbon deposited in landfill. Derived emission factor in 2016 = 0.015 kg CH4/tonne solid waste (assuming 70% recovery of landfill methane); 0.050 kg CH4/tonne solid waste not accounting for recovery.	Landfill emissions: <i>IPCC Guidelines Vol 5. Ch 3, Equation 3.1</i>
Wastewater	CH4: 0.48 kg CH4/kg BOD N2O: 3.2 g / (person * year) from advanced treatment 0.005 g /g N from wastewater discharge	CH4 wastewater: <i>IPCC Guidelines Vol 5. Ch 6, Tables 6.2 and 6.3; MCF value for anaerobic digester</i> N2O from advanced treatment: <i>IPCC Guidelines Vol 5. Ch 6, Box 6.1</i> N2O from wastewater discharge: <i>IPCC Guidelines Vol 5. Ch 6, Section 6.3.1.2</i>

# MODELLING TOOL

The modelling for the baseline year 2016, and BAU scenario out to 2050 were completed using CityInSight.

## About CityInSight

CityInSight is an integrated energy, emissions and finance model developed by Sustainability Solutions Group (SSG) and whatIf? Technologies Inc. (whatIf?). It is an integrated, multi-fuel, multi-sector, spatially-disaggregated energy systems, emissions and finance model for cities. The model enables bottom-up accounting for energy supply and demand, including renewable resources, conventional fuels, energy consuming technology stocks (e.g. vehicles, appliances, dwellings, buildings) and all intermediate energy flows (e.g. electricity and heat).

Energy and GHG emissions are derived from a series of connected stock and flow models, evolving on the basis of current and future geographic and technology decisions/assumptions (e.g. EV penetration rates). The model accounts for physical flows (i.e. energy use, new vehicles by technology, vehicle kilometres travelled) as determined by stocks (buildings, vehicles, heating equipment, etc).

CityInSight incorporates and adapts concepts from the system dynamics approach to complex systems analysis. For any given year within its time horizon, CityInSight traces the flows and transformations of energy from sources through energy currencies (e.g. gasoline, electricity, hydrogen) to end uses (e.g. personal vehicle use, space heating) to energy costs and to GHG emissions. An energy balance is achieved by accounting for efficiencies, conservation rates, and trade and losses at each stage in the journey from source to end use.

## Model Structure

The major components of the model, and the first level of modelled relationships (influences), are represented by the blue arrows in Figure 33. Additional relationships may be modelled by modifying inputs and assumptions, specified directly by users, or in an automated fashion by code or scripts running “on top

of” the base model structure. Feedback relationships are also possible, such as increasing the adoption rate of non-emitting vehicles in order to meet a particular GHG emissions constraint.

The model is spatially explicit. All buildings and transportation activities are tracked within a discrete number of geographic zones, or zone system, specific to the city. This enables consideration of the impact of land-use patterns and urban form on energy use and emissions production from a baseline year to future points in the study horizon. CityInSight’s GIS outputs can be integrated with city mapping and GIS systems.

Table 12. Characteristics of CityInSight.

Characteristic	Rationale
<b>Integrated</b>	CityInSight is designed to model and account for all sectors that relate to energy and emissions at a city scale while capturing the relationships between sectors. The demand for energy services is modelled independently of the fuels and technologies that provide the energy services. This decoupling enables exploration of fuel switching scenarios. Physically feasible scenarios are established when energy demand and supply are balanced.
<b>Scenario-based</b>	Once calibrated with historical data, CityInSight enables the creation of scenarios to explore different possible futures. Each scenario can consist of either one or a combination of policies, actions and strategies. Historical calibration ensures that scenario projections are rooted in observed data.
<b>Spatial</b>	The configuration of the built environment determines the ability of people to walk and cycle, accessibility to transit, feasibility of district energy and other aspects. CityInSight therefore includes a full spatial dimension that can include as many zones - the smallest areas of geographic analysis - as are deemed appropriate. The spatial component to the model can be integrated with City GIS systems, land-use projections and transportation modelling.
<b>GHG reporting framework</b>	Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC Protocol).
<b>Economic impacts</b>	CityInSight has the ability to incorporate a financial analysis of costs related to energy (expenditures on energy) and emissions (carbon pricing, social cost of carbon), as well as operating and capital costs for policies, strategies and actions. It allows for the generation of marginal abatement curves to illustrate the cost and/or savings of policies, strategies and actions.

## Stocks and flows

For any given year, various factors shape the picture of energy and emissions flows, including: the population and the energy services it requires; non-residential buildings; energy production and trade; the deployed technologies which deliver energy services (service technologies); and the deployed technologies which transform energy sources to energy carriers (harvesting technologies). The model makes an explicit mathematical relationship between these factors - some contextual and some part of the energy consuming or producing infrastructure - and the energy flow picture.

Some factors are modelled as stocks—counts of similar things, classified by various properties. For example, population is modelled as a stock of people classified by age and gender. Population change over time is projected by accounting for: the natural aging process, inflows (births, immigration) and outflows (deaths, emigration). The fleet of personal use vehicles, an example of a service technology, is modelled as a stock of vehicles classified by size, engine type and model year—with a similarly-classified fuel consumption intensity.

As with population, projecting change in the vehicle stock involves aging vehicles and accounting for major inflows (new vehicle sales) and major outflows (vehicle discards). This stock-turnover approach is applied to other service technologies (e.g. furnaces, water heaters) and also harvesting technologies (e.g. electricity generating capacity).

## Sub-models

### Population and demographics

City-wide population is modelled using the standard population cohort-survival method, disaggregated by single year of age and gender. It accounts for various components of change: births, deaths, immigration and emigration. The age structured population is important for analysis of demographic trends, generational differences and implications for shifting energy use patterns.

### CityInSight Major Components & Relationships Influence Diagram

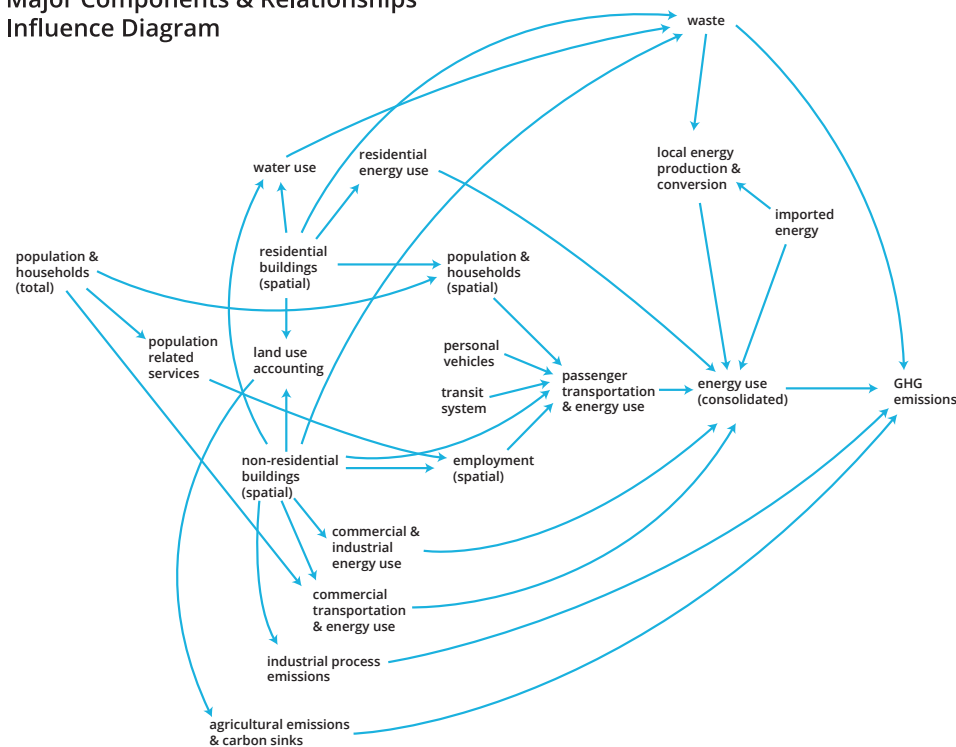


Figure 37. Representation of CityInSight’s structure.

## Residential buildings

Residential buildings are spatially located and classified using a detailed set of 30+ building archetypes capturing footprint, height and type (single, double, row, apt. high, apt. low), in addition to year of construction. This enables a “box” model of buildings and the estimation of surface area. Coupled with thermal envelope performance and degree-days the model calculates space conditioning energy demand independent of any particular space heating or cooling technology and fuel.

Energy service demand then drives stock levels of key service technologies (heating systems, air conditioners, water heaters). These stocks are modelled with a stock-turnover approach capturing equipment age, retirements, and

additions - exposing opportunities for efficiency gains and fuel switching, but also showing the rate limits to new technology adoption and the effects of lock in.

Residential building archetypes are also characterized by number of contained dwelling units, allowing the model to capture the energy effects of shared walls but also the urban form and transportation implications of population density.

## Non-residential buildings

Non-residential buildings are spatially located and classified by a detailed use/purpose-based set of 50+ archetypes, and the floorspace of these non-residential building archetypes can vary by location. Non-residential floorspace produces waste and demand for energy and water, and also provides an anchor point for locating employment of various types.

## Spatial population and employment

City-wide population is made spatial by assignment to dwellings, using assumptions about persons-per-unit by dwelling type. Spatial employment is projected via two separate mechanisms: population-related services and employment, which is assigned to corresponding building floorspace (e.g. teachers to school floorspace); and floorspace-driven employment (e.g. retail employees per square metre).

## Passenger Transportation

The model includes a spatially explicit passenger transportation sub-model that responds to or accounts for changes in land use, transit infrastructure, vehicle technology, travel behavior and other factors. Trips are divided into four types (home-work, home-school, home-other, and non-home-based), each produced and attracted by different combinations of spatial drivers (population, employment, classrooms, non-residential floorspace).

Trips are distributed - that is, trip volumes are specified for each zone of origin and zone of destination pair. For each origin-destination pair trips are shared over walk/bike (for trips within the walkable distance threshold), public transit (for trips whose origin and destination are serviced by transit) and automobile.

Following the mode share step, along with a network-based distance matrix, a projection of total personal vehicles kilometres travelled (VKT) is produced. The energy use and emissions associated with personal vehicles is calculated by assigning VKT to a stock-turnover personal vehicle model. All internal and external passenger trips are accounted for and available for reporting according to various geographic conventions.

## Waste

Households and non-residential buildings generate solid waste and wastewater, and the model traces various pathways to disposal, compost and sludge including those which capture energy from incineration and recovered gas. Emissions accounting is performed throughout the waste sub-model.

## Energy flow and local energy production

Energy produced from primary sources (e.g. solar, wind) is modelled alongside energy converted from imported fuels (e.g. electricity generation, district energy, CHP). As with the transportation sub-model, the district energy supply model has an explicit spatial dimension and represents areas - collections of zones - served by district energy networks.

## Finance and employment

Energy related financial flows and employment impacts - while not shown explicitly in Figure 36 - are captured through an additional layer of model logic. Calculated financial flows include the capital, operating and maintenance cost of energy consuming stocks and energy producing stocks, including fuel costs. Employment related to the construction of new buildings, retrofit activities and energy infrastructure is modelled.



# MODELLING PROCESS

## Data request & collection

A detailed data request was compiled and issued to the City of Guelph. Data was collected from various sources by the City, SSG and whatlf?. Assumptions were identified to supplement any gaps in observed data. The data and assumptions were applied in modelling per the process described below.

## Setting up the model

### Zone system

The modelling tool (CityInSight) is spatially explicit, that is, population, employment and residential and non-residential floorspace, which drives stationary energy demand, are allocated and tracked spatially within the model's zone system. The passenger transportation sub-model, which drives transportation energy demand, also operates within the same zone system. The City of Guelph uses a pre-existing transportation zone system extensively for planning projections and analysis. The population, employment and floorspace projections, as well as baseline and projected transportation modelling results, were completed and provided by the City of Guelph at the transportation zone level.

As such, the transportation zone system for the City of Guelph was adopted as CityInSight's zone system, the primary spatial unit of analysis.

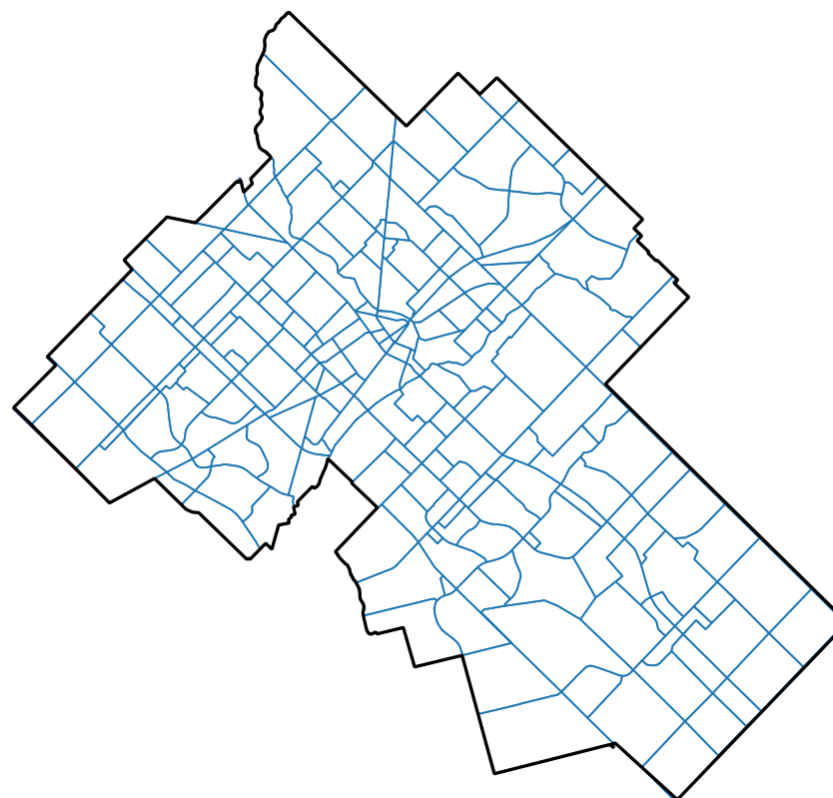


Figure 38. Transportation zones for City of Guelph.

## Buildings

Buildings data, including building type, building footprint area, number of storeys, total floorspace area, number of units, and year built was sourced from the City of Guelph's Municipal Property Assessment (MPAC) data for 2016. Using the spatial attributes of the MPAC data, buildings were allocated to specific zones, based on the zone system for the City of Guelph.

Subsequently, buildings were classified using a detailed set of buildings archetypes; 30+ archetypes for residential, and 50+ archetypes for non-residential. These archetypes capture footprint, height and type (eg. single family home, semi-attached home etc.), enabling the creation of a “box” model of buildings, and an estimation of surface area for all buildings.

### Residential buildings

The model multiplies the residential building surface area by an estimated thermal conductance (heat flow per unit surface area per degree day) and the number of degree days to derive the energy transferred out of the building during winter months and into the building during summer months. The energy transferred through the building envelope, the solar gain through the building windows, and the wild heat gains from equipment inside the building constitute the space conditioning load to be provided by the heat systems and the air conditioning. The initial thermal conductance estimate is a provincial average by dwelling type from the Canadian Energy System Simulator (CanESS)<sup>19</sup>.

### Non-residential buildings

For non-residential buildings, the model calculates the space conditioning load as it does for residential buildings with one distinction; the thermal conductance parameter for non-residential buildings is based on floor space area instead of surface area. CanESS provides the initial estimate of the non-residential thermal conductance by building sector. This estimate is then adjusted to match the space heating energy use intensity for building types in the Ontario Broader Public Sector data set.

Starting values for output energy intensities and equipment efficiencies for other residential and non-residential end uses are also provincial averages from CanESS. All parameter estimates are further adjusted during the calibration

process (see [Buildings calibration](#)).

Using assumptions for thermal envelope performance for each building type, the model calculates total energy demand for all buildings, independent of any particular space heating or cooling technology and fuel.

## Population and employment

Population and employment data was sourced directly from the City, and spatially allocated to residential (population) and non-residential (employment) buildings. Population and employment is allocated spatially primarily to enable indicators to be derived from the model, such as emissions per household, and to drive the BAU energy and emissions projections (buildings, transportation, waste).

Population for 2016 was spatially allocated to residential buildings using initial assumptions about persons-per-unit (PPU) by dwelling type. These initial PPUs are then adjusted so that total population in the model (which is driven by the number of residential units by type multiplied by PPU by type) matches the total population from census data.

Employment for 2016 was spatially allocated to non-residential buildings using initial assumptions for two main categories: population-related services and employment, allocated to corresponding building floorspace (e.g. teachers to school floorspace); and floorspace-driven employment (e.g. retail employees per square metre). Similarly to population, these initial ratios are adjusted within the model so that the total employment derived by the model matches total employment from census data.

<sup>19</sup> Canadian Energy Systems Analysis Research. *Canadian Energy System Simulator*. <http://www.cesarnet.ca/research/caness-model>.

## Transportation

Data from the GTA-wide 2011 Transportation Tomorrow Survey<sup>20</sup> (TTS) was analysed with respect to passenger trips to, from and within the City of Guelph; at the time of the analysis the 2016 TTS data was not available, so 2011 was used. The TTS zone system and the city's traffic zone system is identical, and therefore the same as the zone system used for Guelph CityInSight.

Several key model parameters were calculated from the TTS data: trip generation rates; origin-destination patterns for trip distribution within the city; shares for external (inbound and outbound) trips; and mode share assumptions for each origin-destination zone pair, and external trips.

## Waste

Solid waste stream composition and routing data (landfill, composting, recycling) was sourced from the Solid Waste Resource Innovation Centre Annual Report 2016. The base carbon content in landfill was estimated based on waste production data going back to 2000. Total methane emissions were estimated using the first order decay model, with the methane generation constant and methane correction factor set to default, as recommended by and based on values from IPCC Guidelines for landfill emissions<sup>21</sup>. Data on methane removed via recovery/flaring was sourced from the annual report for the Twin Creeks Landfill and correspondence with the City for the Eastview Landfill.

## Calibration

### Buildings calibration

Total buildings energy demand, derived from the buildings box model, was then calibrated against 2016 observed utility data for electricity and natural gas, provided by Guelph Hydro and Union Gas respectively. In the calibration process, fuel shares are adjusted to meet the ratio of electricity to natural gas energy use in a given sector. Then the thermal conductance for residential building space conditioning and output energy use intensities for non-residential buildings and non-space conditioning residential end uses are adjusted until the model estimate of electricity and natural gas use matches the observed data.

### Transportation calibration

Unlike utility-reported stationary energy consumption totals (e.g. electricity, natural gas) transportation fuel sales data is not a preferred control total for municipal transportation activity and energy analysis, due to the uncertainty of estimating point of fuel consumption based on retail point of fuel purchase. Therefore, calibration of the passenger transportation model was anchored with the household survey informing the spatial travel demand model and the results compared for reasonableness against indicators such as average annual VKT per vehicle. For medium-heavy duty commercial vehicle transportation, the diesel fuel sales<sup>22</sup> for Guelph were used as a control total - along with an assumed retail/non-retail ratio - due to the absence of other data sources for local commercial transportation activity.

The modelled stock of personal vehicles (by size, fuel type, efficiency, vintage) was informed by the CanESS model and refined with MTO vehicle registration data for Guelph.

The transit vehicle fleet, VKT and fuel consumption was modelled on data provided by Guelph transit.

The modelled 2016 spatial transportation-driver variables - population, employment, non-residential floorspace - were applied to the transportation

<sup>20</sup> <http://www.transportationtomorrow.on.ca/>

<sup>21</sup> Landfill emissions: *IPCC Guidelines Vol 5. Ch 3, Equation 3.1*

<sup>22</sup> Kent Group Ltd.

model with parameters estimated from the 2011 TTS data. This is intended to reflect the transportation impacts of recent growth and development.

## Baseline

After completion of model calibration, a baseline energy and emissions profile was generated for 2016. Refer to Part 1 for 2016 energy and emissions results, and Appendix 2 for a GPC emissions report for 2016.

## Business-as-usual

### About the BAU

The business-as-usual (BAU) scenario is a projection over the time period from 2017 to 2050. It is designed to illustrate the anticipated energy use and greenhouse gas emissions for the City of Guelph if no additional policies, actions or strategies to address energy and emissions are implemented between 2017-2050, other than those currently underway or planned.

Note that a scenario, as it is applied in this context, is an internally consistent view of what the future might turn out to be—not a forecast, but one possible future outcome. As such, the BAU scenario projection is one of many possible views of the future; in this case, one that assumes that no additional policies, actions or strategies to address energy and emissions, other than those currently underway or planned, are implemented between 2017-2050.

### The BAU process

The BAU scenario was established through developing assumptions as follows:

- » Incorporating existing quantitative projections directly into the model when available. This included:
  - a. From the City:
    - Population and employment projections by zone;
  - b. From other technical sources:
    - Ontario building code and new building energy performance standards
    - Electricity grid emissions factor
    - Climate projections for heating/cooling degree days
    - Vehicle efficiency standards
    - Electric vehicle uptake projections
- » Where quantitative projections were not carried through to 2050 (eg. completed to 2031), the projected trend was extrapolated to 2050.

- » Where specific quantitative projections were not available, projections were derived using proxy or related data, and continuing with the existing trend; this included:
  - Building floorspace projections, derived using the population and employment projections and allocating new dwellings based on existing persons per unit (for residential), and floorspace (m2) per employee/job (for non-residential space).
  - Waste projections, derived using population projections and applying existing waste productions rates (tonnes waste/person).

The BAU methodology and assumptions for the major model components are summarized. Further details and sources of data can be found in *BAU data & assumptions*.

### Population, employment and buildings

The BAU energy and emissions profile was generated through:

- » Applying the population and employment projections into the future, provided by the City;
- » Identifying new residential floorspace (households/dwellings) to house the projected population; this is derived by allocating new dwellings based on the existing persons per unit;
- » Identifying new non-residential floorspace to accommodate projected employment; this is derived by allocating new non-residential floorspace according to gross floor area per employee/job.
- » New residential and non-residential floorspace is spatially allocated according to existing and projected growth/land-use plans.

### Buildings performance

**New construction:** Toronto Green Standard (TGS) analysis by The Atmospheric Fund (TAF) indicates that by 2017, the Ontario Building Code (OBC) will be the equivalent of TGS v2 Tier 1. The modelling approach assumes that OBC evolution will follow TGS evolution with a 5-year lag. Based on modelled energy use intensity improvements, the incremental performance improvement for TGS v2 Tier 1 and TGS v3 Tier 1 are 13-15% and 20-40%, respectively. The modelling for all new construction assumes a 15% improvement every 5 years.

**Existing buildings:** The efficiency of the existing building stock was assumed to remain unchanged; efficiency was held constant from 2016-2050.

### Climate projections

To account for the influence of projected climate change, energy use was adjusted according to the number of heating and cooling degree days. A projection developed for the City of Toronto by SENES Consultants Ltd. was applied. Because the projection only includes the time periods of 2000-2009 and 2040-2049, a trend line was interpolated between those two periods (Figure 39). This projection indicates a decrease in heating degree days (HDD), and an increase in cooling degree days (CDD) as the climate continues to warm towards 2050. A decrease in the number of heating degree days (the number of degrees that a day's average temperature is below 18° Celsius, at which buildings need to be heated) results in a reduction in the amount of energy required for space heating. This increase is partially offset by an increase in the number of cooling days (the temperature at which buildings start to use air conditioning for cooling), which results in an increase in energy usage.

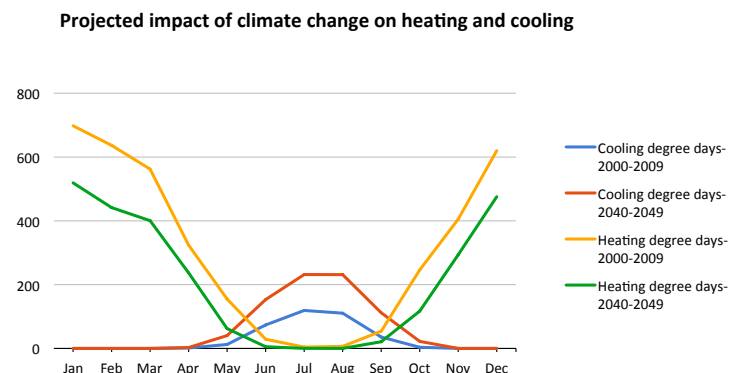


Figure 39. Projected heating and cooling degree days in 2000-2009 and 2040-2049.

## Grid emissions

For the BAU scenario, the electricity generation input variables were set on the basis of a combination of NEB's Energy Future 2016 projected electricity generation capacity for Ontario, and IESO capacity factors that specify the planned deployment of that capacity. This scenario assumes: the Pickering generation units are decommissioned between 2022 and 2024, while refurbishments of the remaining nuclear facilities mostly occurs in the 2020s; wind, solar and natural gas increases in capacity from 2016 to 2025; from 2016 onwards there is a slight increase in carbon intensity as nuclear loses some of its share; and, post 2035 fossil fuel based electricity generation (natural gas) is maintained at 2035 levels, and all increases in capacity, required due to increases in demand, is non-fossil fuel based, resulting in a constant carbon intensity post 2035 (Figure 40). The resulting Ontario grid carbon intensity closely aligns with the emission and generation projection of Outlook B presented in the 2016 IESO Ontario Planning Outlook (OPO)<sup>23</sup>.

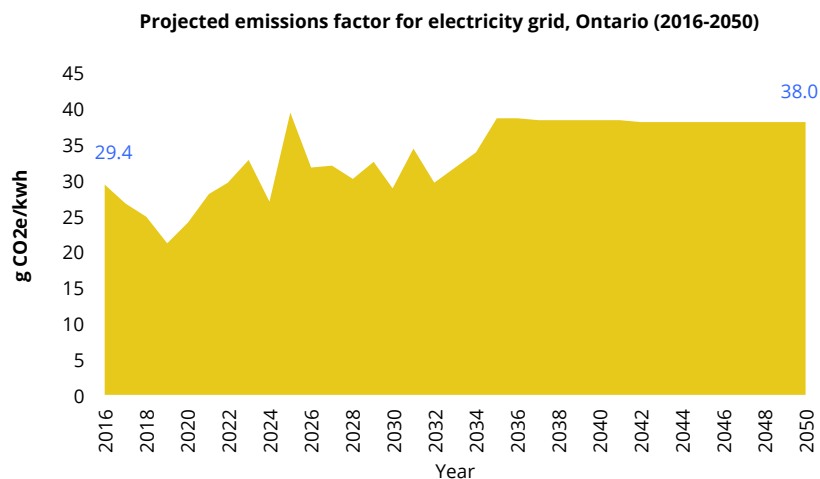


Figure 40. Projected emissions factor for electricity grid, Ontario (2016-2050).

<sup>23</sup> <http://www.ieso.ca/en/sector-participants/planning-and-forecasting/ontario-planning-outlook>

<sup>24</sup> Based on LTEP projections of 1 million EVs in Ontario by 2035, pro-rata to Guelph population.

## Transportation

Transportation projections for vehicle stocks, distance travelled, and fuel consumption are derived from calibrated baseline model parameters, BAU household projections, BAU buildings projections, and explicit assumptions about the introduction of electric vehicles and changes to vehicle fuel efficiency standards.

For vehicle stocks, the BAU assumes the introduction of electric vehicles. By 2020, electric vehicles are assumed to constitute 4% of all new personal use vehicles. By 2035, the personal use vehicle stock will include over 11,000 electric vehicles, increasing to 14,500 by 2050.<sup>24</sup> The composition of the corporate vehicle stock is held constant from the model baseline. The total number of personal use and corporate vehicles is proportional to the projected number of households in the BAU.

Vehicle distances travelled projections are driven by buildings projections. The number and location of dwellings and non-residential buildings over time in the BAU drive the total number of internal and external person trips. Person trips are converted to vehicle trips using the baseline vehicle occupancy. Vehicle distance travelled is calculated from vehicle trips using the baseline distances between zones and average external trip distances.

Vehicle fuel consumption rates in the BAU are set to reflect the implementation of the U.S. Corporate Average Fuel Economy (CAFE) fuel standard for light duty vehicles and phase 1 and phase 2 of EPA HDV fuel standards for medium and heavy duty vehicles.

## Waste

Emissions projections for waste are derived using projected population growth and existing rates of waste produced per capita. For 2016, solid waste diversion was calculated at 40%; this rate was held constant to 2050 and applied to additional waste generated over the period. The projection assumes no reduction in the rates of per capita waste production and no improvement in treatment facilities.

## Financial

Energy cost intensities were derived from two sources: National Energy Board Energy Futures 2016 projections- reference case (electricity, natural gas, fuel oil, gasoline and diesel oil); and, a Fuels Technical Report prepared for the Government of Ontario (propane). The National Energy Board projections extend until 2040; these were extrapolated to 2050. The energy cost intensities are applied to energy consumption by fuel, derived by the model as described above, to determine total annual energy and per household costs.

Table 13. Energy costs projections, 2016 & 2050.

Energy costs (\$/MJ)		2016	2050	% +/- (2016- 2050)
Residential	Natural_Gas	\$0.009	\$0.010	17%
Residential	Electricity	\$0.042	\$0.048	14%
Residential	FuelOil	\$0.029	\$0.037	28%
Commercial	Natural_Gas	\$0.006	\$0.008	23%
Commercial	Electricity	\$0.035	\$0.042	20%
Commercial	FuelOil	\$0.025	\$0.034	33%
Commercial	Propane	\$0.015	\$0.018	26%
Industrial	Natural_Gas	\$0.006	\$0.007	27%
Industrial	Electricity	\$0.032	\$0.039	20%
Industrial	Diesel	\$0.016	\$0.024	54%
Industrial	FuelOil	\$0.016	\$0.024	54%
Industrial	Propane	\$0.019	\$0.027	41%
Vehicles	Natural_Gas	\$0.009	\$0.010	17%
Vehicles	Electricity	\$0.042	\$0.048	14%
Vehicles	Gasoline	\$0.036	\$0.049	36%
Vehicles	Diesel	\$0.035	\$0.048	39%

# BAU data & assumptions

Data/Assumption	Source	Summary approach/methodology
<b>DEMOGRAPHICS</b>		
<b>Population &amp; employment</b>		
Population & employment	Population: 148,172 (2016), 226,830 (2050). Employment: 77,674 (2016), 153,318 (2050).	City of Guelph; population & employment projections to 2031 by zone. <i>Pop Emp, Person Trips, Auto Trips_internal zones.xlsx</i>  Population and employment projections by zone to 2050 are applied and spatially allocated in the model. 2016 population number includes estimated census undercount. Post 2031 projections and spatial allocation were not available from the City. The population and employment trends for 2017-2031 were extrapolated to get totals for 2050. Spatial allocation of post 2031 population and employment was distributed according to similar patterns of growth exhibited between 2017-2031.
<b>BUILDINGS</b>		
<b>New buildings growth</b>		
Building growth projections	No data from City or other. Derived by the model.	Buildings floorspace (residential & non-residential) by zone to 2050 was derived using the population and employment projections provided by the City.  <ul style="list-style-type: none"> <li>» New residential floorspace (households/dwellings) is derived by allocating new dwellings based on the existing persons per unit. New dwellings by type are allocated to zones:</li> <li>» if zone already has dwellings, the existing dwelling type share is used for new builds</li> <li>» if zone does not have dwellings, existing dwelling type share from nearby zones is used for new builds</li> <li>» if population in a zone is projected to decrease, dwellings are removed</li> <li>» greenfield vs. infill designation is based on the Neptis Foundation GIS data</li> <li>» New non-residential floorspace is derived by allocating new non-residential floorspace according to gross floor area per employee/job. New non-residential floorspace by type is allocated to zones</li> <li>» if zone already has employment, the existing employment sector shares are used along with gross floor area per employee</li> <li>» if zone does not have any employment, the employment shares from nearby zones are used along with gross floor area per employee</li> <li>» if employment in a zone decreases, non-residential buildings are removed</li> <li>» greenfield vs. infill designation is based on the Neptis Foundation GIS data</li> </ul>



### New buildings energy performance

Residential	New construction 15% more efficient every 5 years starting in 2018.	City of Toronto. <i>Toronto Green Standard Version 2</i> .  Toronto Atmospheric Fund. <i>Internal analysis</i> . Received through email correspondence.	Toronto Green Standard (TGS) analysis by The Atmospheric Fund (TAF) indicates that by 2017, the Ontario Building Code (OBC) will be the equivalent of TGS v2 Tier 1. The modelling approach assumes that OBC evolution will follow TGS evolution with a 5-year lag. Based on modelled energy use intensity improvements, the incremental performance improvement for TGS v2 Tier 1 and TGS v3 Tier 1 are 13-15% and 20-40%, respectively. The modelling for all new construction assumes a 15% improvement every 5 years.
Multi-residential	New construction 15% more efficient every 5 years starting in 2018.		
Commercial & Institutional	New construction 15% more efficient every 5 years starting in 2018.		
Industrial	New construction 15% more efficient every 5 years starting in 2018.		

### Existing buildings energy performance

Residential	Existing building stock efficiency unchanged; efficiency held constant from 2016-2050.		Baseline efficiencies for each building type are derived in the model through calibration with observed data; for existing buildings, no improvements in efficiency are applied.
Multi-residential			
Commercial & Institutional			
Industrial			

### End use

Space heating	Fuel shares for end use unchanged; held from 2016-2050.	Canadian Energy Systems Analysis Research. Canadian Energy System Simulator. <a href="http://www.cesarnet.ca/research/caness-model">http://www.cesarnet.ca/research/caness-model</a>	Within the model, the starting point for fuel shares by end use is an Ontario average value for the given building type, which comes from CanESS. From there, the fuel shares are calibrated to track on observed natural gas and electricity use. Once calibrated, end use shares are held constant through the BAU.
Water heating			
Space cooling			

### Projected climate impacts

Heating & cooling degree days	Heating degree days (HDD) decrease and cooling degree days (CDD) increase from 2016-2050.	SENES Consultants Ltd. (2011). Toronto's future weather and climate driver study: Volume 2- data tables (2000-2009 and 2040-2049). City of Toronto. Retrieved from <a href="http://www1.toronto.ca/city_of_toronto/environment_and_energy/key_priorities/files/pdf/tfwcds-volume2-datatables.pdf">http://www1.toronto.ca/city_of_toronto/environment_and_energy/key_priorities/files/pdf/tfwcds-volume2-datatables.pdf</a>	To account for the influence of projected climate change, energy use was adjusted according to the number of heating and cooling degree days. The projection only includes the time periods of 2000-2009 and 2040-2049 so a trend line was interpolated between those two periods.
-------------------------------	---	--	--

## Grid electricity emissions

Grid electricity emissions factor	<p>2016: 50.8 gCO<sub>2</sub>e/kWh</p> <p>2050: 76.4 gCO<sub>2</sub>e/kWh</p> <p>2016:</p> <p>CO<sub>2</sub>: 28.9 g/kWh</p> <p>CH<sub>4</sub>: 0.007 g/kWh</p> <p>N<sub>2</sub>O: 0.001 g/kWh</p> <p>2050:</p> <p>CO<sub>2</sub>: 37.4 g/kWh</p> <p>CH<sub>4</sub>: 0.009 g/kWh</p> <p>N<sub>2</sub>O: 0.001 g/kWh</p>	<p>National Energy Board. (2016). Canada's Energy Future 2016. Government of Canada. Retrieved from <a href="https://www.neb-one.gc.ca/nrg/ntgrtd/fttr/2016pt/nrgyftrs_rprrt-2016-eng.pdf">https://www.neb-one.gc.ca/nrg/ntgrtd/fttr/2016pt/nrgyftrs_rprrt-2016-eng.pdf</a></p>	<p>Electricity generation input variables are sourced from CanESS and are set on the basis of a combination of NEB's Energy Future 2016 projected electricity generation capacity for Ontario, and IESO capacity factors that specify the planned deployment of that capacity</p>
-----------------------------------	---	---	---

## ENERGY GENERATION

### Local energy generation

Solar PV	<p>8,128 kW FIT capacity modelled as solar PV on commercial buildings.</p> <p>2,941 kW microFIT capacity + 45 kW net meter capacity modelled as solar PV on residential buildings.</p>	<p>Guelph Hydro &amp; City of Guelph; <i>Email correspondence, Feb 2018.</i></p>	<p>Generation was derived assuming solar capacity is available 8760 hr/year and using a capacity factor of 0.16, which was based on the assumed solar capacity factor in the Guelph 2012 Energy and Emissions report, page 13.</p> <p>Solar capacity in 2016 is held constant to 2050.</p>
----------	--	--	--

## TRANSPORTATION

### Transit

Expansion of transit	<p>Existing transit service unchanged 2016-2050; no expansion of transit assumed 2016-2050.</p>		<p>No change in transit mode share assumed 2016-2050.</p>
Electric vehicle transit fleet	<p>No electrification of transit vehicle fleet assumed 2016-2050.</p>		<p>No electrification of transit vehicle fleet assumed 2016-2050.</p>

### Active

Cycling & walking infrastructure	<p>No expansion of active transportation infrastructure assumed in BAU.</p>		<p>No change in active transportation mode share assumed 2016-2050.</p>
----------------------------------	---	--	---

### Private & commercial vehicles

Vehicle kilometers travelled	<p>No data from City or other. Derived by the model.</p>		<p>Vehicle kilometres travelled projections are driven by buildings projections. The number and location of dwellings and non-residential buildings over time in the BAU drive the total number of internal and external person trips. Person trips are converted to vehicle trips using the baseline vehicle occupancy. Vehicle kilometres travelled is calculated from vehicle trips using the baseline distances between zones and average external trip distances.</p>
------------------------------	--	--	--

Vehicle fuel efficiencies	Vehicle fuel consumption rates reflect the implementation of the U.S. Corporate Average Fuel Economy (CAFE) Fuel Standard for Light-Duty Vehicles, and Phase 1 and Phase 2 of EPA HDV Fuel Standards for Medium- and Heavy-Duty Vehicles.	EPA. (2012). EPA and NHTSA set standards to reduce greenhouse gases and improve fuel economy for model years 2017-2025 cars and light trucks. Retrieved from <a href="https://www3.epa.gov/otaq/climate/documents/420f12050.pdf">https://www3.epa.gov/otaq/climate/documents/420f12050.pdf</a> <a href="http://www.nhtsa.gov/fuel-economy">http://www.nhtsa.gov/fuel-economy</a>	Fuel efficiency standards are applied to all new vehicle stocks starting in 2016.
Vehicle share	Personal vehicle stock share changes between 2016-2050. Commercial vehicle stock unchanged 2016-2050.	CANSIM and Natural Resources Canada's Demand and Policy Analysis Division.	The total number of personal use and corporate vehicles is proportional to the projected number of households in the BAU.
Electric vehicles	11,000 EVs in personal use vehicle stock by 2035, and 14,500 by 2050.	Government of Ontario. (2013). <i>Long Term Energy Plan</i> .	Incrementally increase EVs in personal use vehicle stock starting in 2016 so that by 2020, EVs constitute 4% of all new personal use vehicles. By 2035, the personal use vehicle stock will include over 11,000 electric vehicles (based on LTEP projections of 1 million EVs in Ontario by 2035, pro-rata to Guelph population).

## WASTE

Waste generation	Existing per capita waste generation rates unchanged.		Waste generation per capita held constant form 2016-2050.
Waste diversion	Existing waste diversion rates unchanged.		Waste diversion rates held constant form 2016-2050.
Waste treatment	Existing waste treatment processes unchanged.		No change in waste treatment processes assumed 2016-2050.

## FINANCIAL

Energy costs	Energy intensity costs by fuel increase incrementally between 2016-2050 per projections.	National Energy Board. (2016). Canada's Energy Future 2016. Government of Canada. Retrieved from <a href="https://www.neb-one.gc.ca/nrg/ntgrtd/ptr/2016pt/nrgyftrs_rprt-2016-eng.pdf">https://www.neb-one.gc.ca/nrg/ntgrtd/ptr/2016pt/nrgyftrs_rprt-2016-eng.pdf</a> Government of Ontario. (2016). Fuels Technical Report. <a href="https://www.ontario.ca/document/fuels-technical-report">https://www.ontario.ca/document/fuels-technical-report</a>	NEB projections extend until 2040; extrapolated to 2050. Energy cost intensities are applied to energy consumption by fuel, derived by the model, to determine total annual energy and per household costs.
--------------	--	--	---

# SENSITIVITY ANALYSIS

The BAU scenario illustrates the projected emissions for the City of Guelph built upon the assumptions as described in this report. In that light, the BAU reflects what is anticipated to occur in the future if the actions/assumptions as described are implemented.

Sensitivity analysis involves the process of adjusting certain selected variables within the model in order to identify variables that have the most significant impact on the model outcomes of a scenario. It is not a process of “scenario analysis”, as the variables tested do not represent internationally consistent scenarios. The approach to sensitivity analysis is to adjust those variables that were identified as having a higher potential to “move the curve”, (ie. the factors that appear to be contributing significantly to the BAU scenario), in order to be better informed about the implications of future options.

The process used applies a judgement-based “one-at-a-time”<sup>25</sup> exploration of variables within a scenario. The results should not be viewed as an evaluation of fully considered alternative futures, rather, it is an exploration revealing how a selected output (i.e. emissions) responds to changes in selected inputs (e.g. # residential units).

## Variables and Results

Sensitivity analysis was applied to the BAU scenario. Several variables were identified for sensitivity analysis; the assumptions and results of each are described in Table 13, and depicted in Figures 40 & 41. The impact, expressed in GJ for energy and kt CO<sub>2</sub>e for emissions, shows the absolute difference relative to the BAU in 2050.

<sup>25</sup> One-factor-at-a-time (OFAT or OAT) involves changing only one variable at a time to see what effect it produces on the output; generally involves changing one input variable while keeping others at their baseline (nominal) values, then returning the variable to its nominal value, and repeating for each of the other inputs in the same way. Sensitivity is then be measured by monitoring changes in the output.

## Discussion

For energy, changes in BAU assumptions for heating degree days (HDD) and building energy performance have the most significant impact on BAU energy consumption. Those variables with the least impact include changes in VKT and the uptake of electric vehicles.

Similarly for emissions, changes in BAU assumptions for HDD and building energy performance have the most significant impact on the BAU emissions trajectory, as does the grid electricity emissions factor. Variables with a lesser impact include include changes in VKT, the uptake of electric vehicles, and changes in solid waste diversion rates.

Population and employment assumptions also play a role in both energy and emissions outcomes of the BAU; an increase in population and employment of 10% by 2050 results in a 7.5% increase in energy and 8.5% increase in emissions; a decrease of 10% in population and employment by 2050 results in a 8.9% and 8.4% decrease in energy and emissions respectively.

Notwithstanding the above however; the assumptions for heating degree days appear to be muting the impact of a growing population on energy and emissions in the BAU. For sensitivity, if it is assumed that HDD are constant over the time period (i.e. the climate does not change, and winters do not become warmer), and the population projections used in the BAU are not adjusted (as described above), the results indicate an increase in energy (+15.6%) and emissions (+18.9%); the impact of population growth becomes much more apparent.

Changes in the grid electricity emissions factor (EF) has an important influence for emissions. There is only a minor shift towards electricity in the BAU; by 2050, approximately two thirds of energy consumption remains fossil fuel based (predominantly natural gas), resulting in over 80% of emissions. As such, large changes in the grid emissions factor assumption in the BAU scenario results in somewhat minor changes in emissions; an increase and decrease of 7.1% and 6.8% respectively. However, this would not be the case for a scenario that represented a large shift towards electricity (eg. in a low carbon scenario). It will be fundamental, in that type of scenario, for the EF of new capacity to

remain low, or the electrification approach will be at risk from a greenhouse gas emissions perspective.

The BAU assumes that all new construction, in all building sectors, will be 15% more efficient every 5 years starting in 2018, which is based on The Atmospheric Fund (TAF) analysis indicating that by 2017, the Ontario Building Code (OBC) will be the equivalent of the Toronto Green Standards (TGS) v2 Tier 1 with a 5-year lag. For sensitivity, the performance improvement was decreased to represent a lower achievement in performance of OBC. Results indicate that if OBC building energy performance requirements do not follow those in TGS, building energy and emissions will increase by 12.1% and 12.7% respectively (for 5% improvement), and 7.0% and 7.0% (for 10% improvement). The City should therefore not rely solely on the expected improvements in OBC to decrease energy and emissions in new buildings; the City will need to focus on adopting more aggressive energy performance requirements in the buildings sector.

Table 14. BAU sensitivity analysis variables and results.

		ENERGY		EMISSIONS	
		Impact: relative to BAU in 2050		Impact: relative to BAU in 2050	
		+/- GJ	+/- %	+/- kt CO2e	+/- %
		BAU Energy 2050 = 24.1 million GJ		BAU Emissions 2050 = 1,157 kt CO2e	
<b>Demographics and buildings</b>					
Decrease population & employment	-10% dwelling units with reduced population by 2050 -10% non-residential floorspace with reduced employment by 2050	-1,935,100	-8.9%	-97.3	-8.4%
Increase population & employment	plus 10% dwelling units with increased population by 2050 +10% NR floorspace with increased employment by 2050	1,937,700	7.5%	97.5	8.5%
<b>Heating degree days (HDD)</b>					
Hold HDD fixed	Keep number of heating degree days fixed at baseline value.	4,383,200	15.6%	218.0	18.9%
Decrease HDD	Incrementally decrease number of heating degree days, so that by 2050, there are 10% less HDD compared with BAU.	-1,099,700	-4.9%	-54.9	-4.8%
<b>Grid electricity emissions factor (EF)</b>					
Decrease EF	Decrease EF to 1.59 g CO2e/kWh in 2050 (compared with BAU 37.4 g CO2e/kWh in 2050). Represents consideration of natural gas as a transition fuel towards a clean grid; post 2020, all NG turbines get decommissioned at end of life (20 years) and replaced by carbon free sources.	0	0.0%	-77.8	-6.8%
Increase EF	Increase EF to 76 g CO2e/kWh in 2050 (compared with BAU 37.4 g CO2e/kWh in 2050). Represents NEB data derived capacity factors that use less nuclear and hydro and more natural gas.	0	0.0%	82.3	7.1%
<b>Electric Vehicle (EV) adoption</b>					
Decrease in EV uptake in personal use vehicles	Decrease 2035 EV number of personal use vehicle stocks by 60% (from approx. 11,000 in BAU to 4,600); decrease 2050 EV number of personal use vehicle stocks by 50% (from approx. 14,500 in BAU to 7,200).	122,800	0.5%	12.6	1.1%
Increase in EV uptake in personal use vehicles	Increase EV number of personal use vehicle stocks so that Guelph reaches 24,000 EVs by 2035, and 32,000 EVs by 2050.	-294,400	-1.3%	-30.3	-2.6%
<b>Vehicle kilometres travelled (VKT)</b>					
Increase VKT	Gradual increase in passenger vehicle VKT by 20% in 2050.	702,000	2.9%	46.9	4.1%
Decrease VKT	Gradual decrease in passenger vehicle VKT by 20% in 2050.	-702,000	-3.0%	-46.9	-4.1%
<b>New building energy performance requirements</b>					
OBC achieves modest reductions in building EUI	5% improvement every 5 years (compared with 15% in BAU)	3,267,700	12.1%	146.6	12.7%
OBC achieves moderate reductions in building EUI	10% improvement every 5 years (compared with 15% in BAU)	1,790,000	7.0%	80.3	7.0%
<b>Solid waste</b>					
Increase solid waste diversion rate	Increase solid waste diversion rate from 40% in 2016 to 70% by 2023; hold constant at 70% from 2023-2050.	0	0.0%	-5.1	-0.4%

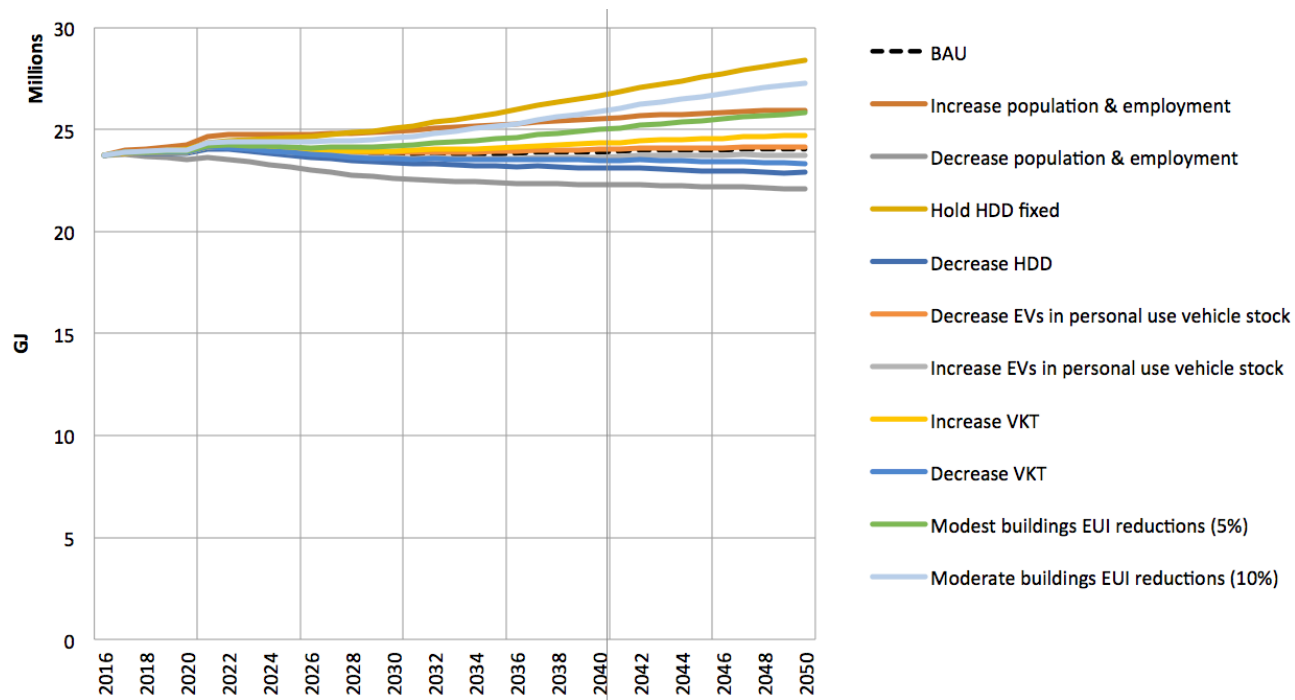


Figure 41. BAU energy sensitivity, 2016-2050.

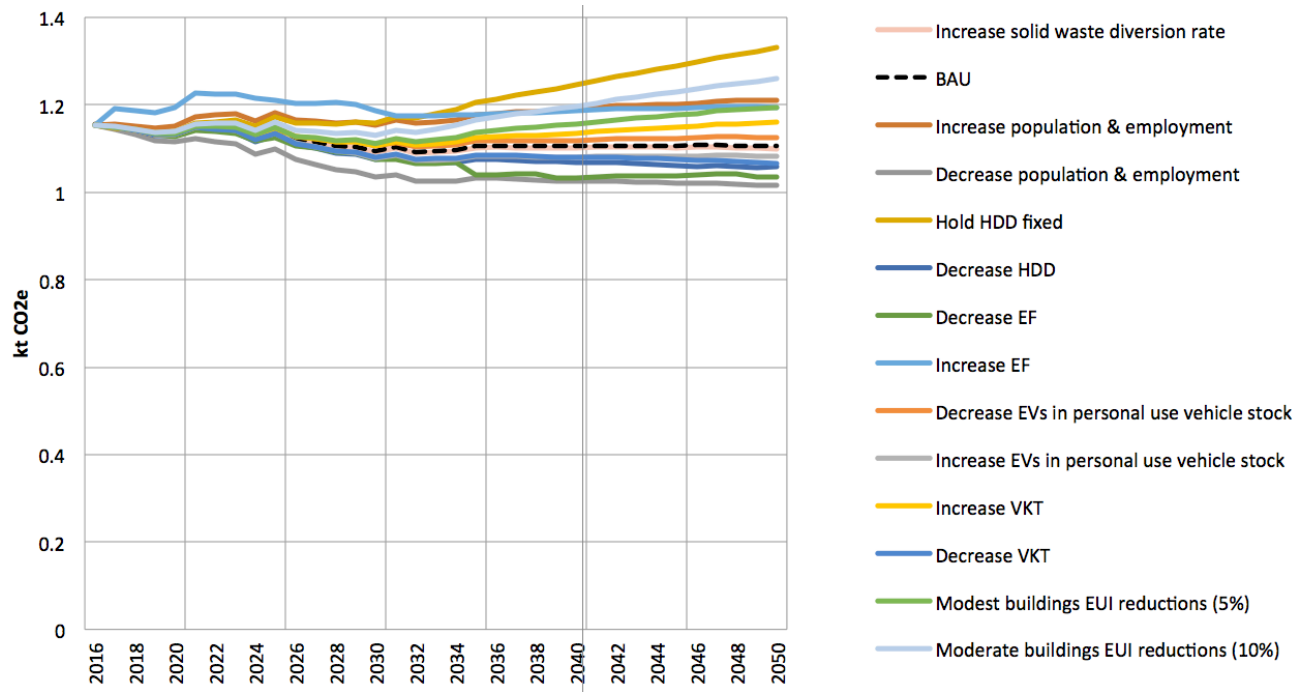


Figure 42. BAU emissions sensitivity, 2016-2050.



# APPENDIX 1: GPC Emissions Scope Table, 2016

GPC ref No.	Scope	GHG Emissions Source	Inclusion	Reason for exclusion (if applicable)	Comments
<b>I</b>					
<b>STATIONARY ENERGY SOURCES</b>					
<b>I.1 Residential buildings</b>					
I.1.1	1	Emissions from fuel combustion within the city boundary	Yes		
I.1.2	2	Emissions from grid-supplied energy consumed within the city boundary	Yes		
I.1.3	3	Emissions from transmission and distribution losses from grid-supplied energy consumption	Yes		
<b>I.2 Commercial and institutional buildings/facilities</b>					
I.2.1	1	Emissions from fuel combustion within the city boundary	Yes		
I.2.2	2	Emissions from grid-supplied energy consumed within the city boundary	Yes		
I.2.3	3	Emissions from transmission and distribution losses from grid-supplied energy consumption	Yes		
<b>I.3 Manufacturing industry and construction</b>					
I.3.1	1	Emissions from fuel combustion within the city boundary	Yes		
I.3.2	2	Emissions from grid-supplied energy consumed within the city boundary	Yes		
I.3.3	3	Emissions from transmission and distribution losses from grid-supplied energy consumption	Yes		
<b>I.4 Energy industries</b>					
I.4.1	1	Emissions from energy used in power plant auxiliary operations within the city boundary	Yes		
I.4.2	2	Emissions from grid-supplied energy consumed in power plant auxiliary operations within the city boundary	Yes		
I.4.3	3	Emissions from transmission and distribution losses from grid-supplied energy consumption in power plant auxiliary operations	Yes		
I.4.4	1	Emissions from energy generation supplied to the grid	Yes		
<b>I.5 Agriculture, forestry and fishing activities</b>					
I.5.1	1	Emissions from fuel combustion within the city boundary	No	NR	
I.5.2	2	Emissions from grid-supplied energy consumed within the city boundary	No	NR	
I.5.3	3	Emissions from transmission and distribution losses from grid-supplied energy consumption	No	NR	
<b>I.6 Non-specified sources</b>					
I.6.1	1	Emissions from fuel combustion within the city boundary	No	NR	
I.6.2	2	Emissions from grid-supplied energy consumed within the city boundary	No	NR	
I.6.3	3	Emissions from transmission and distribution losses from grid-supplied energy consumption	No	NR	
<b>I.7 Fugitive emissions from mining, processing, storage, and transportation of coal</b>					
I.7.1	1	Emissions from fugitive emissions within the city boundary	No	NR	
<b>I.8 Fugitive emissions from oil and natural gas systems</b>					
I.8.1	1	Emissions from fugitive emissions within the city boundary	Yes		
<b>II TRANSPORTATION</b>					
<b>II.1 On-road transportation</b>					
II.1.1	1	Emissions from fuel combustion for on-road transportation occurring within the city boundary	Yes		
II.1.2	2	Emissions from grid-supplied energy consumed within the city boundary for on-road transportation	Yes		
II.1.3	3	Emissions from portion of transboundary journeys occurring outside the city boundary, and transmission and distribution losses from grid-supplied energy consumption	Yes		
<b>II.2 Railways</b>					
II.2.1	1	Emissions from fuel combustion for railway transportation occurring within the city boundary	No	NR	
II.2.2	2	Emissions from grid-supplied energy consumed within the city boundary for railways	No	NR	
II.2.3	3	Emissions from portion of transboundary journeys occurring outside the city boundary, and transmission and distribution losses from grid-supplied energy consumption	No	NR	
<b>II.3 Water-borne navigation</b>					
II.3.1	1	Emissions from fuel combustion for waterborne navigation occurring within the city boundary	No	N/A	
II.3.2	2	Emissions from grid-supplied energy consumed within the city boundary for waterborne navigation	No	N/A	
II.3.3	3	Emissions from portion of transboundary journeys occurring outside the city boundary, and transmission and distribution losses from grid-supplied energy consumption	No	N/A	
<b>II.4 Aviation</b>					
II.4.1	1	Emissions from fuel combustion for aviation occurring within the city boundary	No	N/A	
II.4.2	2	Emissions from grid-supplied energy consumed within the city boundary for aviation	No	N/A	
II.4.3	3	Emissions from portion of transboundary journeys occurring outside the city boundary, and transmission and distribution losses from grid-supplied energy consumption	No	N/A	
<b>II.5 Off-road</b>					
II.5.1	1	Emissions from fuel combustion for off-road transportation occurring within the city boundary	No	NR	
II.5.2	2	Emissions from grid-supplied energy consumed within the city boundary for off-road transportation	No	NR	

III		<b>WASTE</b>			
III.1		<b>Solid waste disposal</b>			
III.1.1	1	Emissions from solid waste generated within the city boundary and disposed in landfills or open dumps within the city boundary	Yes		
III.1.2	3	Emissions from solid waste generated within the city boundary but disposed in landfills or open dumps outside the city boundary	Yes		
III.1.3	1	Emissions from waste generated outside the city boundary and disposed in landfills or open dumps within the city boundary	No	N/A	
III.2		<b>Biological treatment of waste</b>			
III.2.1	1	Emissions from solid waste generated within the city boundary that is treated biologically within the city boundary	Yes		
III.2.2	3	Emissions from solid waste generated within the city boundary but treated biologically outside of the city boundary	No	N/A	
III.2.3	1	Emissions from waste generated outside the city boundary but treated biologically within the city boundary	No	N/A	
III.3		<b>Incineration and open burning</b>			
III.3.1	1	Emissions from solid waste generated and treated within the city boundary	No	N/A	
III.3.2	3	Emissions from solid waste generated within the city boundary but treated outside of the city boundary	No	N/A	
III.3.3	1	Emissions from waste generated outside the city boundary but treated within the city boundary	No	N/A	
III.4		<b>Wastewater treatment and discharge</b>			
III.4.1	1	Emissions from wastewater generated and treated within the city boundary	Yes		
III.4.2	3	Emissions from wastewater generated within the city boundary but treated outside of the city boundary	No	NR	
III.4.3	1	Emissions from wastewater generated outside the city boundary	No	N/A	
IV		<b>INDUSTRIAL PROCESSES AND PRODUCT USE (IPPU)</b>			
IV.1	1	Emissions from industrial processes occurring within the city boundary	No	ID	
IV.2	1	Emissions from product use occurring within the city boundary	No	ID	
V		<b>AGRICULTURE, FORESTRY AND LAND USE (AFOLU)</b>			
V.1	1	Emissions from livestock within the city boundary	No	NR	
V.2	1	Emissions from land within the city boundary	No	NR	
V.3	1	Emissions from aggregate sources and non-CO2 emission sources on land within the city boundary	No	NR	
VI		<b>OTHER SCOPE 3</b>			
VI.1	3	Other Scope 3	No	N/A	

**Reason for exclusion:**

- N/A** Not applicable; or not included in scope
- ID** Insufficient data
- NR** No relevant or limited activities identified
- Other** Reason provided under Comments

## APPENDIX 2: GPC Emissions Full Report, 2016

GPC ref No.	Scope	GHG Emissions Source	in tonnes			
			CO2	CH4	N2O	Total CO2e
I		<b>STATIONARY ENERGY SOURCES</b>				
I.1		<b>Residential buildings</b>				
I.1.1	1	Emissions from fuel combustion within the city boundary	195,679	4	4	196,886
I.1.2	2	Emissions from grid-supplied energy consumed within the city boundary	11,074	3	0	11,256
I.1.3	3	Emissions from transmission and distribution losses from grid-supplied energy consumption	211	0	0	215
I.2		<b>Commercial and institutional buildings/facilities</b>				
I.2.1	1	Emissions from fuel combustion within the city boundary	260,000	5	5	261,620
I.2.2	2	Emissions from grid-supplied energy consumed within the city boundary	13,204	3	0	13,422
I.2.3	3	Emissions from transmission and distribution losses from grid-supplied energy consumption	252	0	0	256
I.3		<b>Manufacturing industry and construction</b>				
I.3.1	1	Emissions from fuel combustion within the city boundary	86,438	2	2	87,212
I.3.2	2	Emissions from grid-supplied energy consumed within the city boundary	25,172	6	1	25,586
I.3.3	3	Emissions from transmission and distribution losses from grid-supplied energy consumption	480	0	0	488
I.4		<b>Energy industries</b>				
I.4.1	1	Emissions from energy used in power plant auxiliary operations within the city boundary	34,879	1	1	35,083
I.4.2	2	Emissions from grid-supplied energy consumed in power plant auxiliary operations within the city boundary	534	0	0	543
I.4.3	3	Emissions from transmission and distribution losses from grid-supplied energy consumption in power plant auxiliary operations	10	0	0	10
I.4.4	1	Emissions from energy generation supplied to the grid				
I.5		<b>Agriculture, forestry and fishing activities</b>				
I.5.1	1	Emissions from fuel combustion within the city boundary				
I.5.2	2	Emissions from grid-supplied energy consumed within the city boundary				
I.5.3	3	Emissions from transmission and distribution losses from grid-supplied energy consumption				
I.6		<b>Non-specified sources</b>				
I.6.1	1	Emissions from fuel combustion within the city boundary				
I.6.2	2	Emissions from grid-supplied energy consumed within the city boundary				
I.6.3	3	Emissions from transmission and distribution losses from grid-supplied energy consumption				
I.7		<b>Fugitive emissions from mining, processing, storage, and transportation of coal</b>				
I.7.1	1	Emissions from fugitive emissions within the city boundary				
I.8		<b>Fugitive emissions from oil and natural gas systems</b>				
I.8.1	1	Emissions from fugitive emissions within the city boundary	15	2,043	0	69,473
II		<b>TRANSPORTATION</b>				
II.1		<b>On-road transportation</b>				
II.1.1	1	Emissions from fuel combustion for on-road transportation occurring within the city boundary	261,373	23	55	278,656
II.1.2	2	Emissions from grid-supplied energy consumed within the city boundary for on-road transportation	4	0	0	4
II.1.3	3	Emissions from portion of transboundary journeys occurring outside the city boundary, and transmission and distribution losses from grid-supplied energy consumption	88,309	9	23	95,550
II.2		<b>Railways</b>				
II.2.1	1	Emissions from fuel combustion for railway transportation occurring within the city boundary				
II.2.2	2	Emissions from grid-supplied energy consumed within the city boundary for railways				
II.2.3	3	Emissions from portion of transboundary journeys occurring outside the city boundary, and transmission and distribution losses from grid-supplied energy consumption				

II.3		<b>Water-borne navigation</b>				
II.3.1	1	Emissions from fuel combustion for waterborne navigation occurring within the city boundary				
II.3.2	2	Emissions from grid-supplied energy consumed within the city boundary for waterborne navigation				
II.3.3	3	Emissions from portion of transboundary journeys occurring outside the city boundary, and transmission and distribution losses from grid-supplied energy consumption				
II.4		<b>Aviation</b>				
II.4.1	1	Emissions from fuel combustion for aviation occurring within the city boundary				
II.4.2	2	Emissions from grid-supplied energy consumed within the city boundary for aviation				
II.4.3	3	Emissions from portion of transboundary journeys occurring outside the city boundary, and transmission and distribution losses from grid-supplied energy consumption				
II.5		<b>Off-road</b>				
II.5.1	1	Emissions from fuel combustion for off-road transportation occurring within the city boundary				
II.5.2	2	Emissions from grid-supplied energy consumed within the city boundary for off-road transportation				
III		<b>WASTE</b>				
III.1		<b>Solid waste disposal</b>				
III.1.1	1	Emissions from solid waste generated within the city boundary and disposed in landfills or open dumps within the city boundary		474	0	16,118
III.1.2	3	Emissions from solid waste generated within the city boundary but disposed in landfills or open dumps outside the city boundary		113	0	3,839
III.1.3	1	Emissions from waste generated outside the city boundary and disposed in landfills or open dumps within the city boundary				
III.2		<b>Biological treatment of waste</b>				
III.2.1	1	Emissions from solid waste generated within the city boundary that is treated biologically within the city boundary		44	3	2,451
III.2.2	3	Emissions from solid waste generated within the city boundary but treated biologically outside of the city boundary				
III.2.3	1	Emissions from waste generated outside the city boundary but treated biologically within the city boundary				
III.3		<b>Incineration and open burning</b>				
III.3.1	1	Emissions from solid waste generated and treated within the city boundary				
III.3.2	3	Emissions from solid waste generated within the city boundary but treated outside of the city boundary	243	0	0	243
III.3.3	1	Emissions from waste generated outside the city boundary but treated within the city boundary				
III.4		<b>Wastewater treatment and discharge</b>				
III.4.1	1	Emissions from wastewater generated and treated within the city boundary	0	1,669	3	57,766
III.4.2	3	Emissions from wastewater generated within the city boundary but treated outside of the city boundary				
III.4.3	1	Emissions from wastewater generated outside the city boundary				
IV		<b>INDUSTRIAL PROCESSES AND PRODUCT USE (IPPU)</b>				
IV.1	1	Emissions from industrial processes occurring within the city boundary				
IV.2	1	Emissions from product use occurring within the city boundary				
V		<b>AGRICULTURE, FORESTRY AND LAND USE (AFOLU)</b>				
V.1	1	Emissions from livestock within the city boundary				
V.2	1	Emissions from land within the city boundary				
V.3	1	Emissions from aggregate sources and non-CO2 emission sources on land within the city boundary				
VI		<b>OTHER SCOPE 3</b>				
VI.1	3	Other Scope 3				
<b>Reason for exclusion:</b>						
<b>N/A</b>	Not applicable; Not included in scope				<b>TOTAL</b>	<b>1,156,679</b>
<b>ID</b>	Insufficient data					
<b>NR</b>	No relevant or limited activities identified					
<b>Other</b>	Reason provided under Comments					

## APPENDIX 2: GPC Emissions Summary Report, 2016

Sector		Total by Scope (tCO2e)				Total	Total by city-induced reporting level (tCO2e)	
		Scope 1	Scope 2	Scope 3	Other Scope 3		BASIC	BASIC+
<b>Stationery Energy</b>	Energy use (all I emissions except I.4.4)	650,274	50,807	970		702,051	701,081	702,051
	Energy generation supplied to the grid (I.4.4) *							
<b>Transportation (all II emissions)</b>		278,656	4	95,550		374,210	278,660	374,210
<b>Waste</b>	Generated in the city (all III. X.1 and III.X.2)	76,335		4,082		80,417	80,417	80,417
	Generated outside city (all III. X.3)							
<b>IPPU (all IV emissions)</b>								
<b>AFOLU (all V emissions)</b>								
<b>Total</b>		1,005,266	50,811	100,602	0	<b>1,156,679</b>	1,060,158	1,156,679
		<i>(All territorial emissions)</i>					<i>(All BASIC emissions)</i>	<i>(All BASIC &amp; BASIC+ emissions)</i>

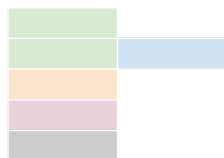
Sources required for BASIC reporting

Sources required for BASIC+ reporting (green & blue)

Sources included in Other Scope 3

Sources required for territorial but not for BASIC/BASIC+ reporting

Non-applicable emissions



Intentionally left blank

# Part 3:

## Energy Maps

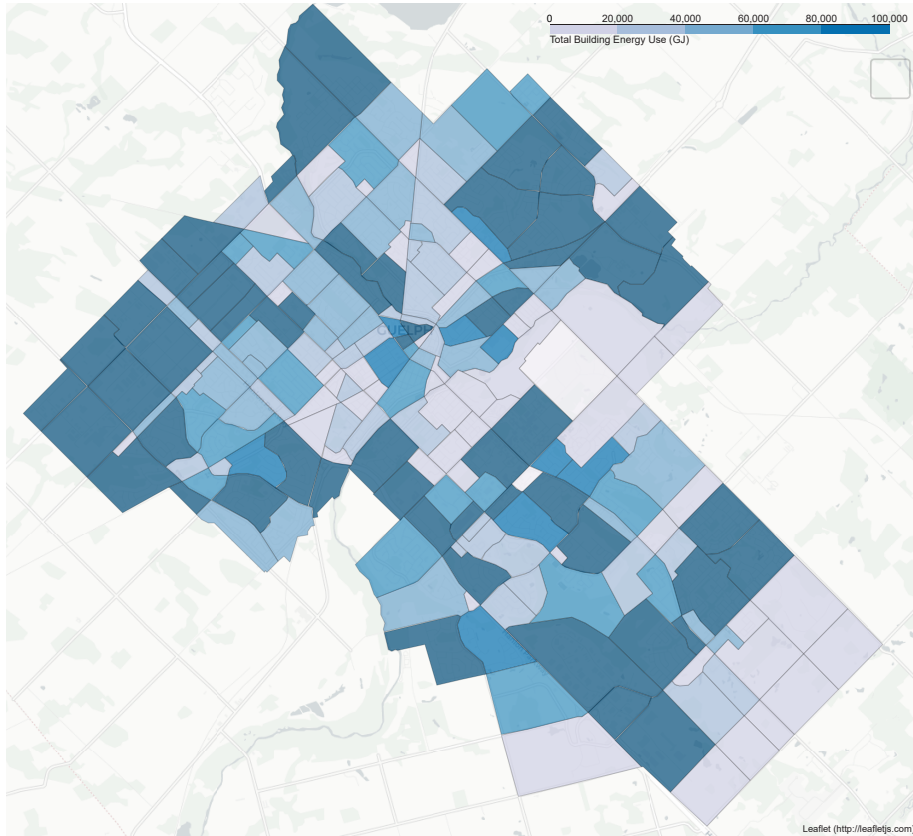
Intentionally left blank



## List of maps

Map type	Definition	Variable
<b>Buildings</b>		
Buildings energy	Total energy (GJ) consumed by all buildings	Buildings energy consumed (GJ) in zone
Buildings energy density	Total energy consumed by all buildings per area of developable land (GJ/ha)	Buildings energy consumed in zone (GJ) / total area of zone (ha).
Buildings energy intensity	Total energy consumed by all buildings per area of buildings floorspace (GJ/m <sup>2</sup> )	Buildings energy consumed in zone (GJ) / total buildings floorspace in zone (m <sup>2</sup> ).
Buildings emissions	Total buildings emissions (CO <sub>2</sub> e) produced from energy consumed by all buildings	Buildings emissions (CO <sub>2</sub> e) produced in zone
<b>Residential buildings</b>		
Residential buildings energy cost per resident	Total cost of residential buildings energy consumed per resident (\$/resident)	Cost of residential buildings energy consumed (\$) in zone / residents in zone.
Residential buildings emissions per resident	Residential buildings emissions produced from energy consumed in residential buildings per resident (CO <sub>2</sub> e/resident)	Residential buildings emissions (CO <sub>2</sub> e) produced in zone / residents in zone
<b>Non-residential buildings</b>		
Non-residential buildings energy cost per employment	Total cost of non-residential buildings energy consumed per employment (\$/employment)	Cost of non-residential buildings energy consumed (\$) in zone / employment in zone.
Non-residential buildings emissions per employment	Non-residential buildings emissions produced from energy consumed in non-residential buildings per employment (CO <sub>2</sub> e/employment)	Non-residential buildings emissions (CO <sub>2</sub> e) produced in zone / employment in zone
<b>Transportation</b>		
Personal use vehicle kilometres travelled (VKT)	Total VKT (km) of trips by zone of origin	VKT (km) of trips originating in zone (total trip length assigned to zone of origin)
Personal use VKT per capita	Total VKT (km) of trips per capita by zone of origin	VKT (km) of trips originating in zone / capita in zone (total trip length assigned to zone of origin)
Personal use vehicle energy	Energy (GJ) consumed by personal vehicles	Energy (GJ) consumed by personal vehicles, assigned to origin zone
Personal use vehicle energy per capita	Energy (GJ) consumed by personal vehicles per capita	Energy (GJ) consumed by personal vehicles, assigned to origin zone / capita in zone
Personal use vehicle emissions	Emissions (CO <sub>2</sub> e) produced from energy consumed by personal vehicles	Emissions (CO <sub>2</sub> e) produced from personal vehicles, assigned to origin zone
Personal use vehicle emissions per capita	Total transportation emissions (CO <sub>2</sub> e) produced per capita	Emissions (CO <sub>2</sub> e) produced from personal vehicles, assigned to origin zone / capita in zone

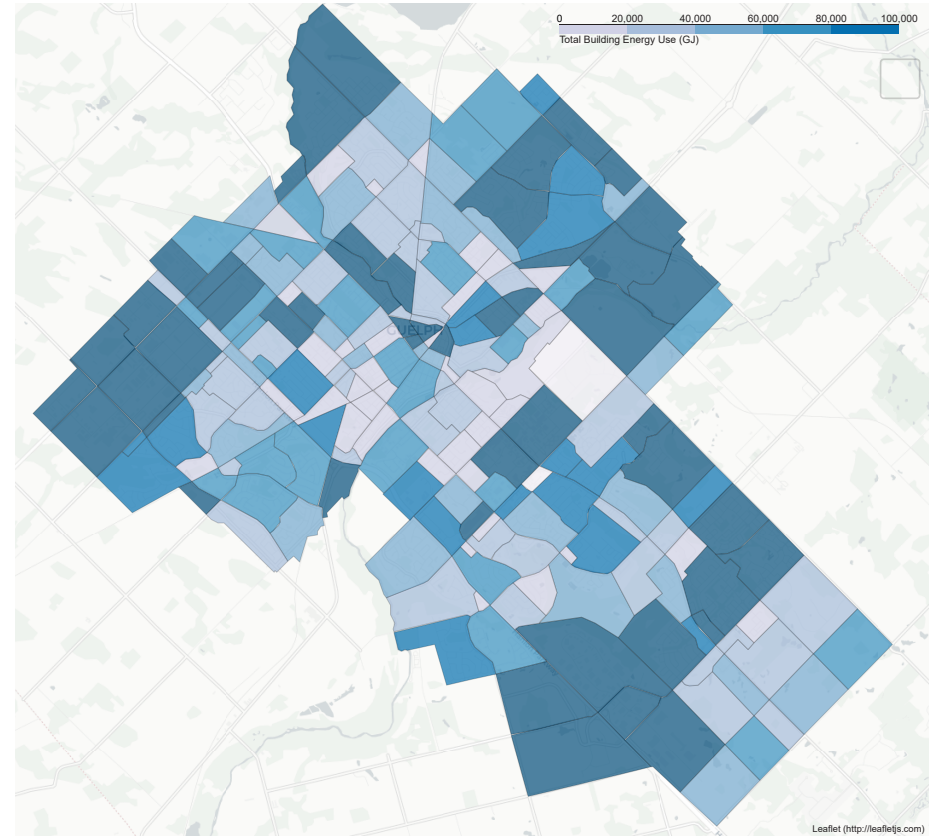
## Buildings energy use



Map 1. Total buildings energy use by zone, 2016.

The maps above indicate total energy (GJ) consumed by buildings in a zone, and are intended to provide an indication of areas that have high energy consumption in total; this is not necessarily consistent with building densities (eg. industrial areas with high demand but low building densities).

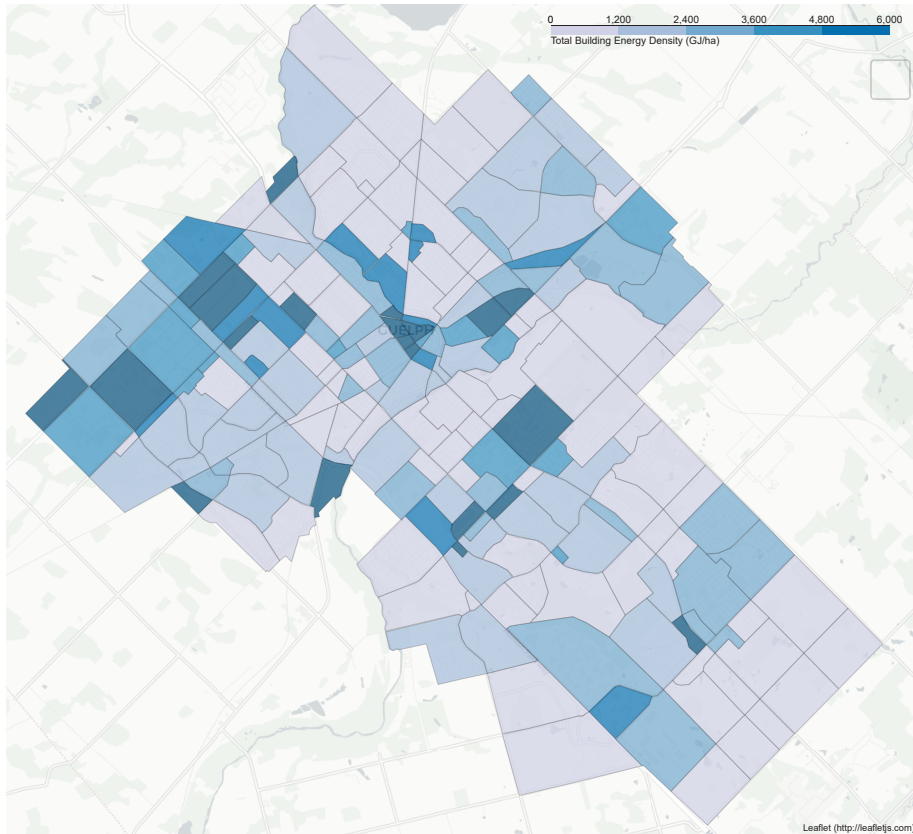
Map 1 indicates high levels of energy use in the NW, NE and SE corners of the city. Energy use in these areas is driven by large tracts of industrial land and commercial buildings around Woodlawn Rd in the NW and Highway 6 in the SE; and by single family residential suburbs in the SE and NE (Grange Hill East & north end of Victoria Rd).



Map 2. Total buildings energy use by zone, 2050.

Towards 2050 (Map 2), energy use remains high in the industrial/commercial areas. New areas, particularly in the SE start to show major increases in energy use, driven by projected buildings growth in these areas. Overall, energy use in the buildings sector is projected to increase by 3.6% from 18.7 million GJ in 2016 to 19.4 million GJ in 2050.

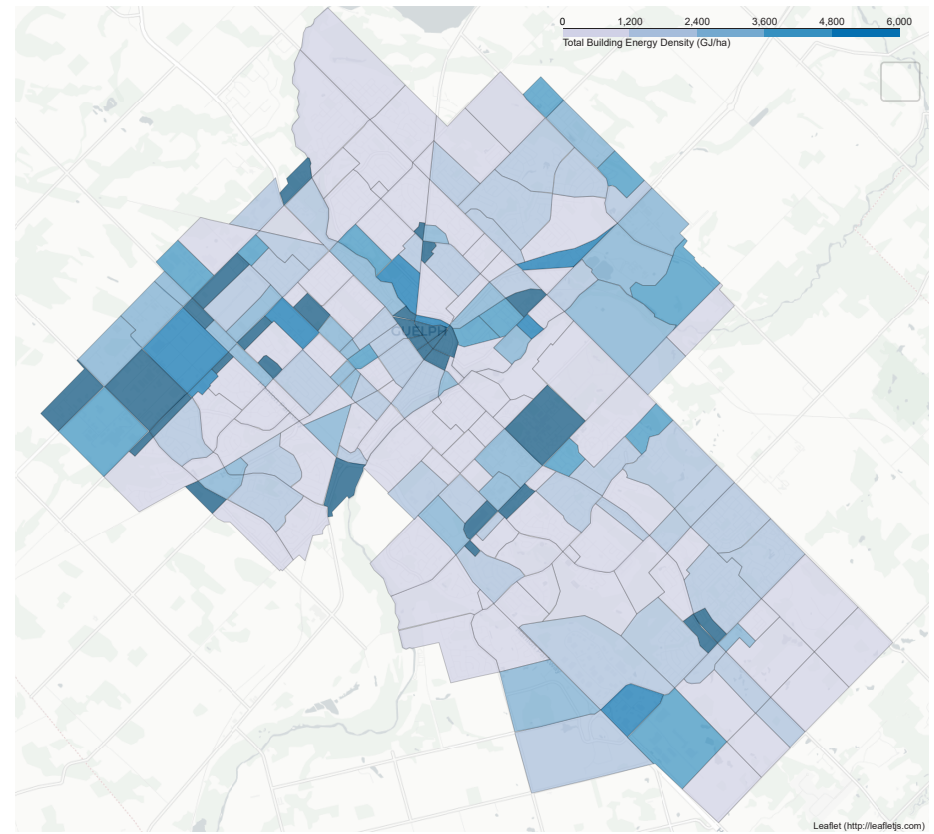
## Buildings energy density



Map 3. Buildings energy density by zone, 2016.

Energy density maps indicate energy consumed by all buildings per area of developable land (GJ/ha). Areas of high energy densities are generally consistent with areas that have high building densities (urban form) or high energy use intensities (eg. industrial buildings). Increases in building area (resulting in an increase in energy consumption), over the same developable land area (ie. increase in building density), generally result in increased energy density.

Areas in the NW show high levels of energy density; this area is dominated by industrial and commercial buildings that consume high amounts of energy (consistent with Map 1), but also indicate high levels of energy density, based on the land area over which this energy is consumed. In

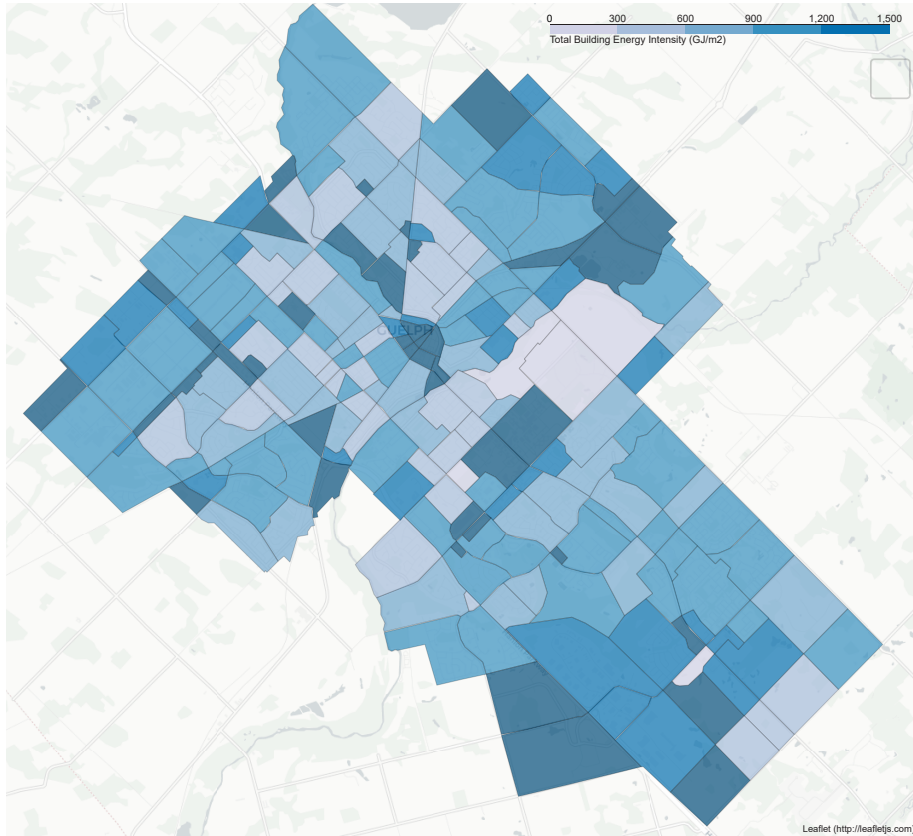


Map 4. Buildings energy density by zone, 2050.

contrast, the residential suburbs showing high total energy use have much lower energy densities in comparison. Downtown Guelph and the University of Guelph campus also demonstrate higher levels of energy density.

Areas demonstrating higher energy densities indicate areas that may have potential for district energy and/or heat recovery opportunities.

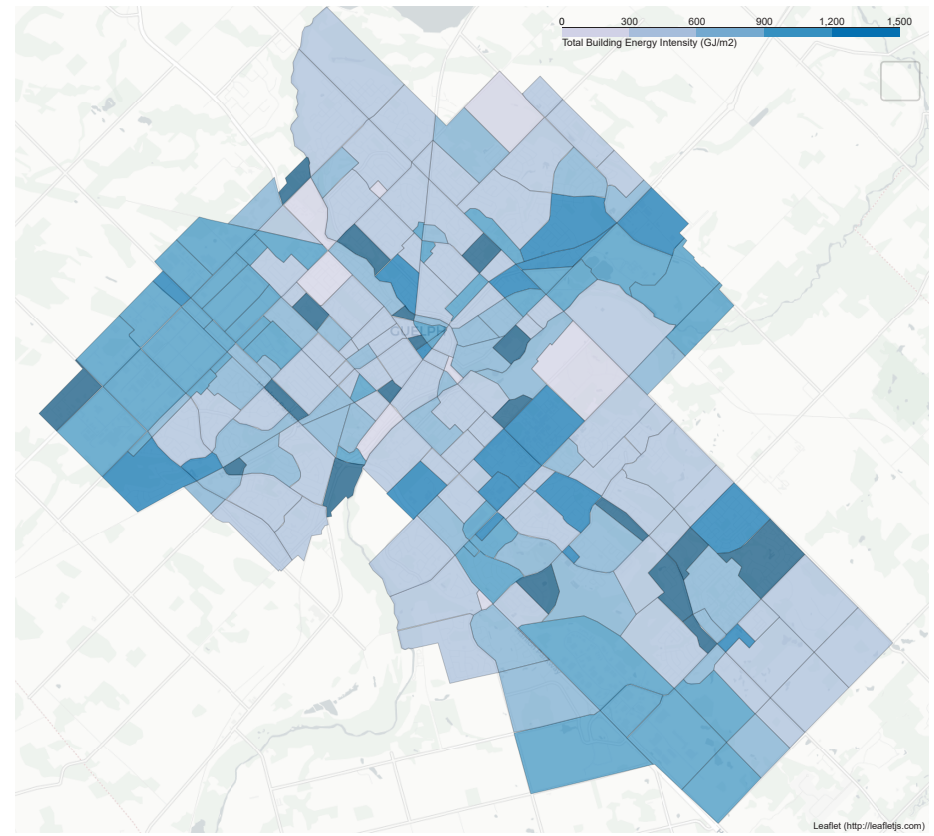
## Buildings energy intensity



Map 5. Buildings energy intensity by zone, 2016.

Energy intensity maps show total energy consumed by all buildings per square area of the total buildings floorspace (GJ/m<sup>2</sup>). Energy intensity (also known as energy use intensity (EUI)), is a unit of measure that describes the overall efficiency or performance of a building(s), either individually, or within an area. At a zone level, which this map shows, it indicates the average energy intensity (or efficiency) for all the buildings in the zone. Areas demonstrating high energy intensities may be targeted for retrofit programs for example.

When comparing building energy intensities in 2016 (Map 5), with those projected in 2050 (Map 6), it appears that in general, EUIs appear to be decreasing. This is primarily being driven by a decrease in space heating

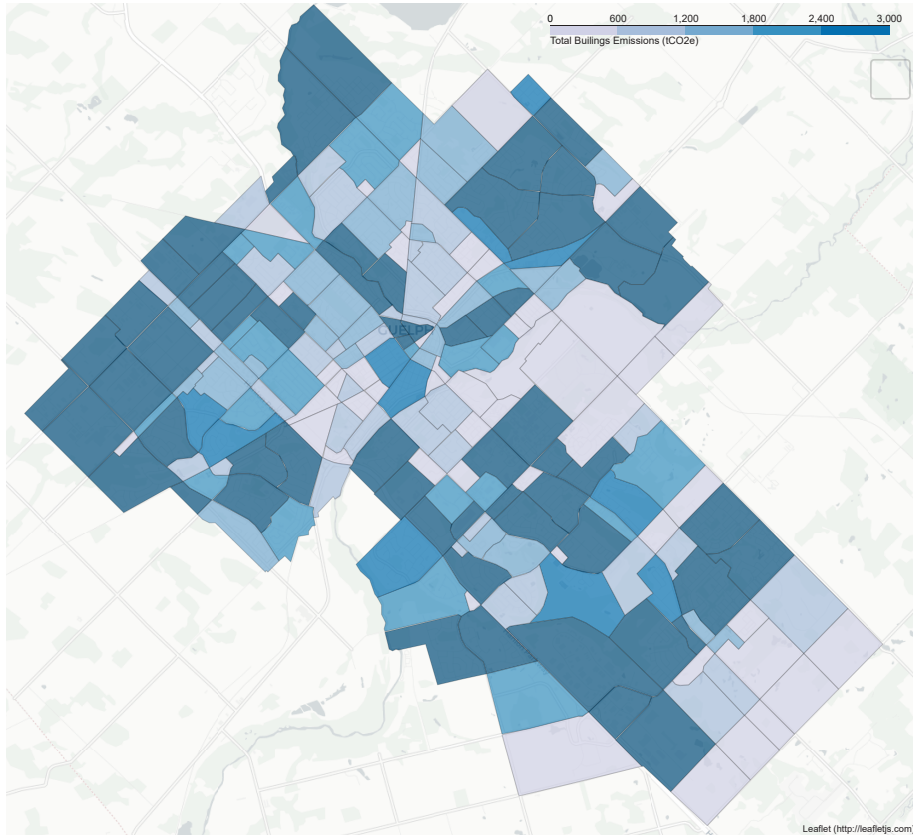


Map 6. Buildings energy intensity by zone, 2050.

requirements over time that is occurring as the climate continues to warm, as well as new building energy performance requirements that are projected to be implemented. However, even though EUIs appear to be decreasing, overall energy consumption in the building sector increases to 2050; indicating that the growth of buildings is outpacing any gains in EUI.

If an extensive retrofitting program were to be implemented across the building stock to further decrease energy use intensities, one would expect to see shades on this energy intensity map get lighter.

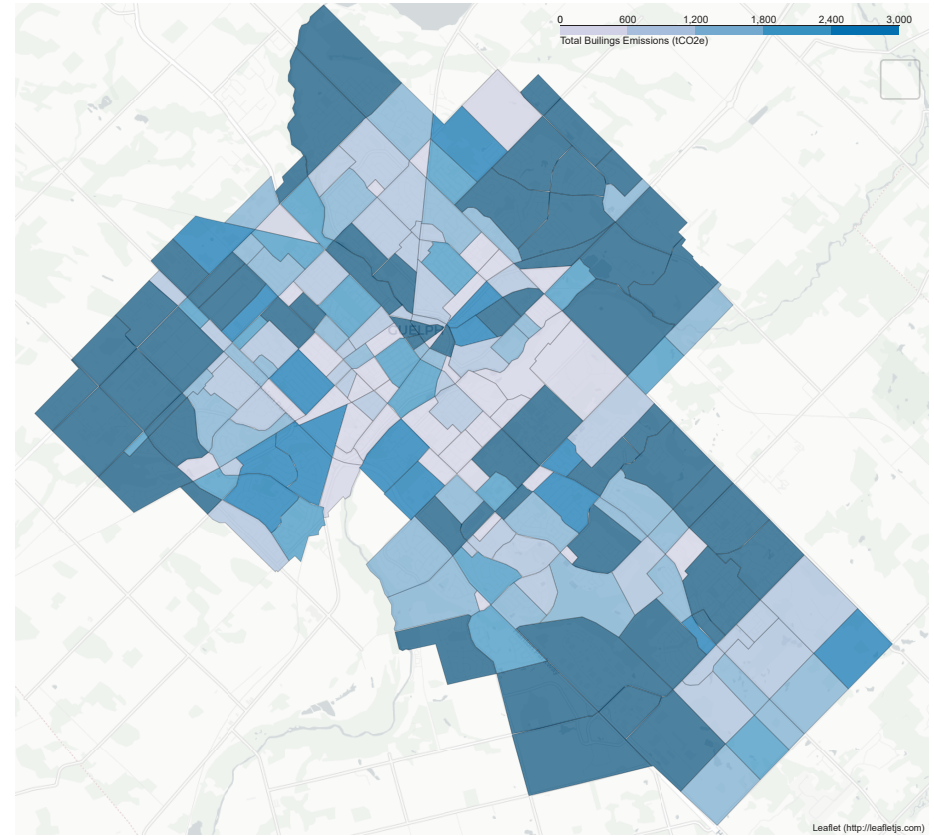
## Buildings emissions



Map 7. Buildings emissions by zone, 2016.

Buildings emissions maps indicate the total emissions (tCO<sub>2</sub>e) that are produced from energy consumed by buildings. Emissions intensive areas (darker shades) represent those areas that are either consuming large amounts of energy (eg. commercial/industrial) using medium to high carbon intensive fuels (natural gas), or, areas with medium energy use that are using high carbon intensive fuels. Conversely, areas using lower amounts of energy, using lower carbon fuels (eg. electricity), or a combination of both, result in lower emissions areas (lighter shades).

Between 2016 and 2050, emissions in the building sector are expected to decrease by 1.5%. This is primarily driven by decreases in emissions in the residential (1.5%) and commercial (6.7%) as space heating requirements

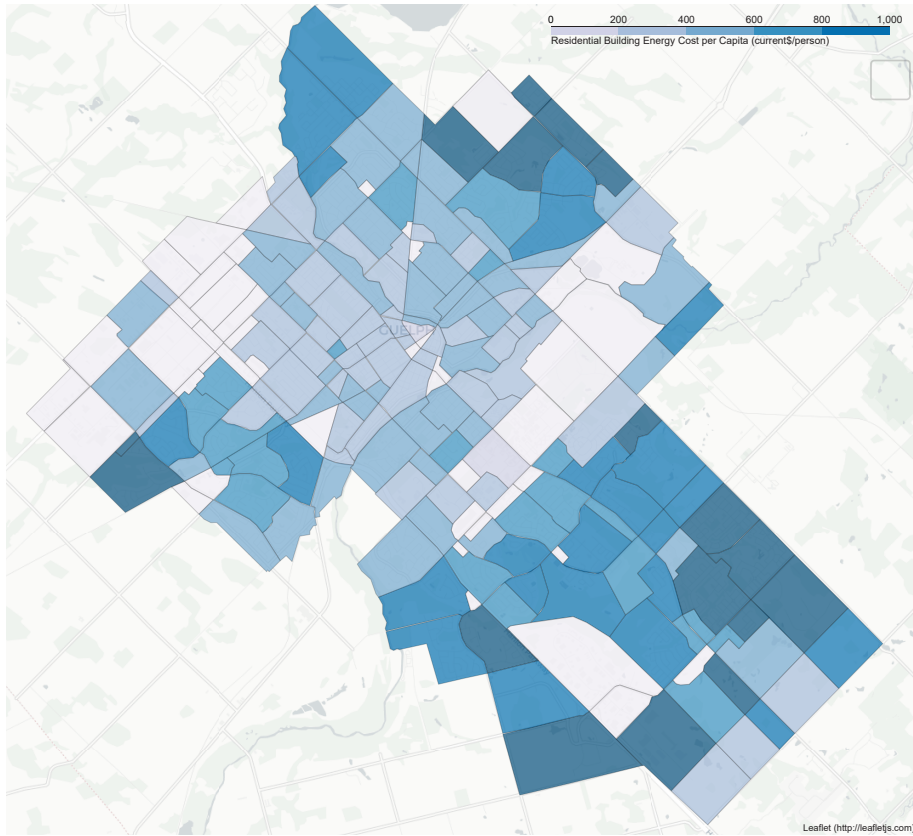


Map 8. Buildings emissions by zone, 2050.

(which is predominantly supplied by natural gas) decrease due to a warming climate. Conversely, emissions in the industrial sector are increasing; this is driven by projected increases in manufacturing energy demand, which is supplied by both natural gas and electricity.

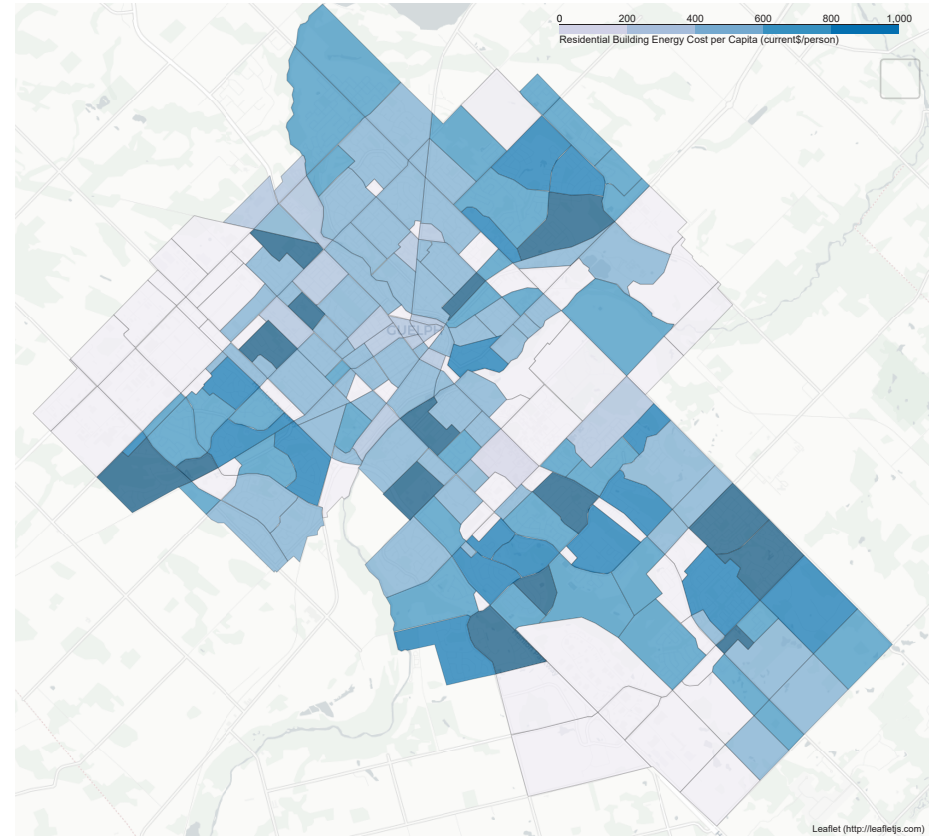
As a result, the maps above highlight some interesting nuances between 2016 and 2050: existing residential and commercial areas show decreasing emissions; existing industrial areas show constant or increasing emissions, new residential areas show increases, but area comparatively low with new industrial and commercial areas.

## Residential buildings energy cost per resident



Map 9. Residential energy cost per resident by zone, 2016.

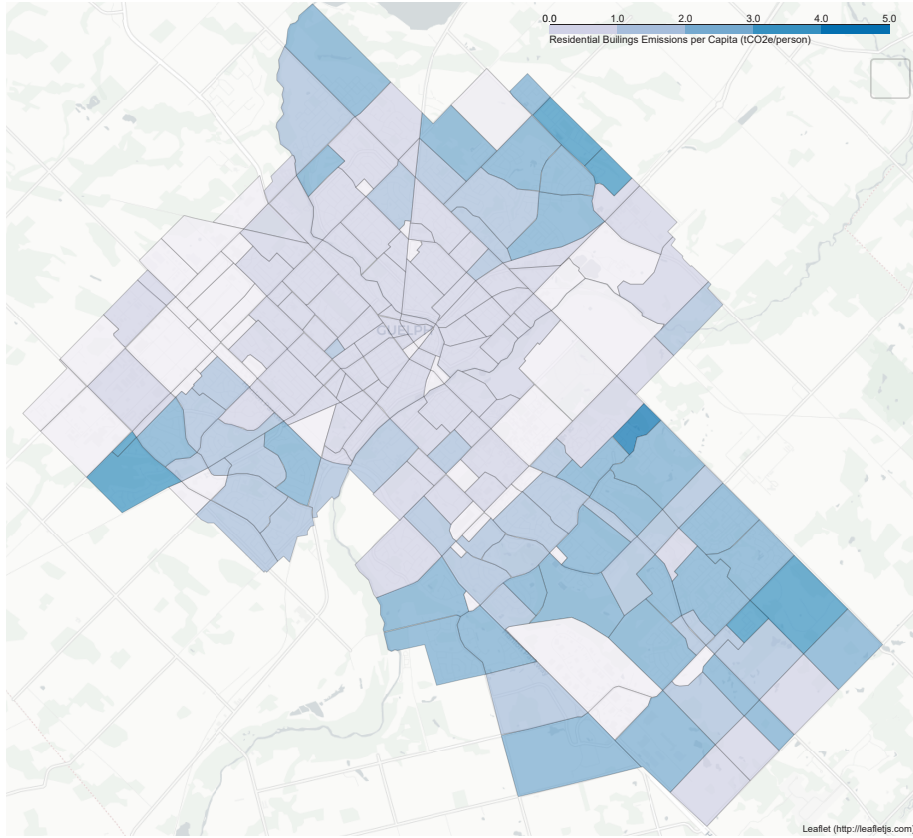
The maps above show the total cost per resident for energy consumed in residential buildings. Higher energy costs per resident are evident in the NE and SE parts of the city; these neighbourhoods are predominantly populated with larger single family homes. Towards the inner city, energy costs per resident decline; many of these areas are made up of smaller single family homes, as well as townhomes and apartments.



Map 10. Residential energy cost per resident by zone, 2050.

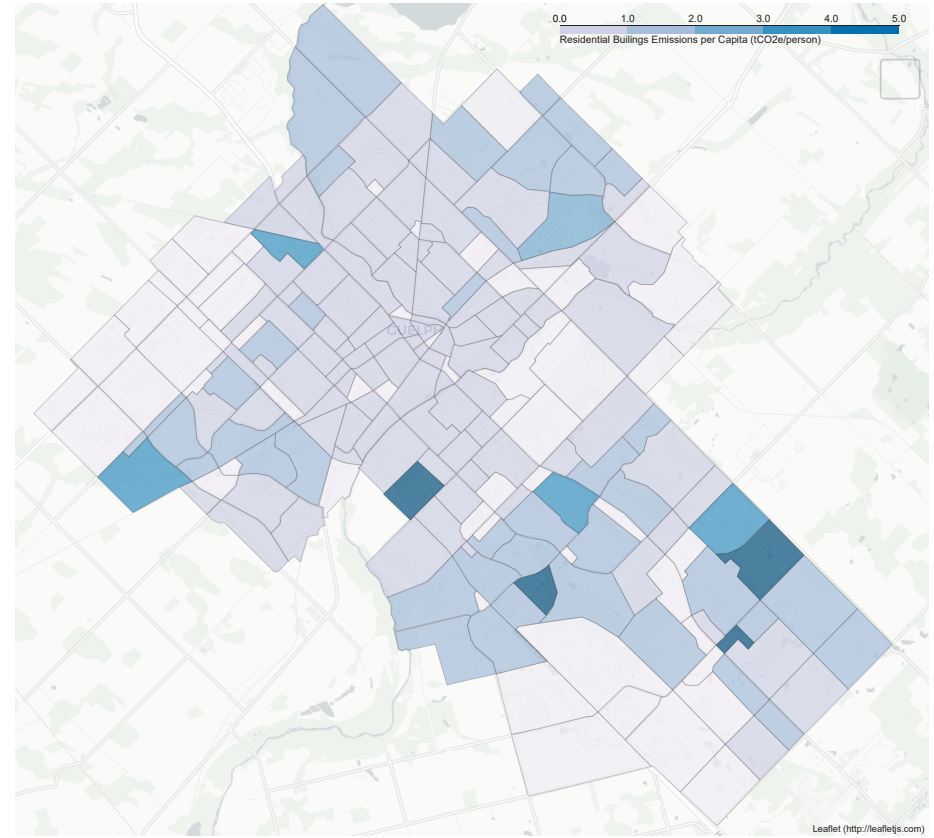
Towards 2050, overall, energy costs per resident appear to be decreasing. Overall, total energy consumption in the residential sector increases 8.9% from 5.4 million GJ to 5.9 million GJ as more residential building space is built. At the same time, energy prices are projected to increase to 2050. However, Guelph's resident population is projected to grow by 53% from 148,172 people in 2016 to 226,830 people by 2050. This resident population growth is outpacing the increases in overall residential energy. As a result, per resident energy costs decrease overall.

## Residential buildings emissions per resident



Map 11. Residential emissions per resident by zone, 2016.

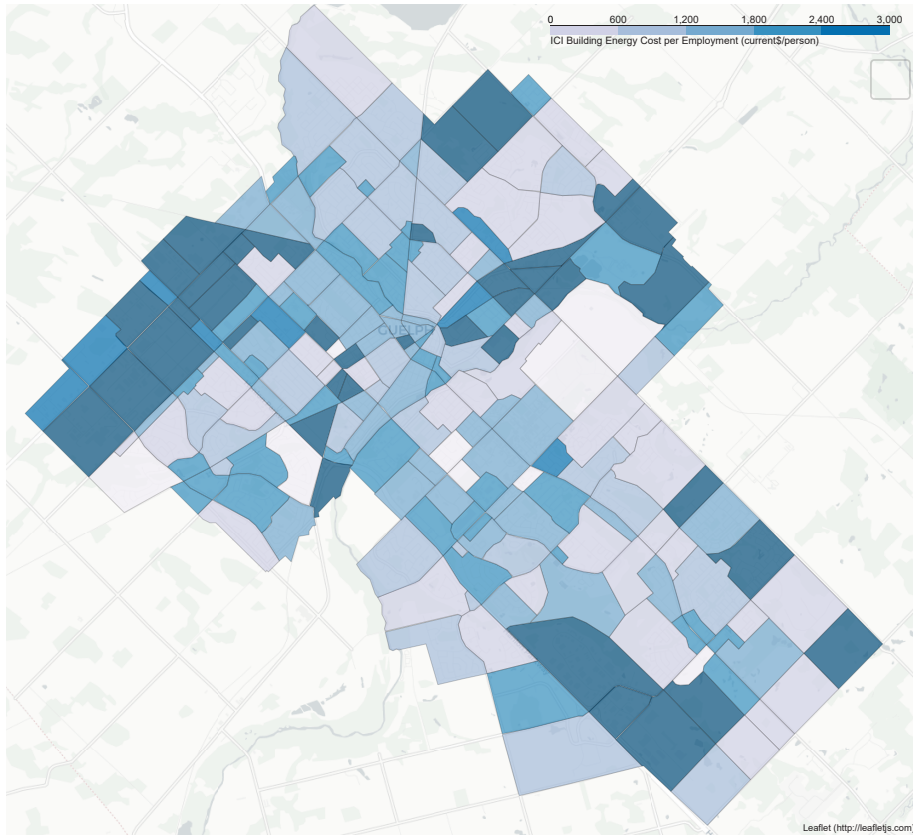
These maps indicate the emissions produced from energy consumed in residential buildings per resident. As discussed in Map 9 & 10, energy use per resident is decreasing between 2016 and 2050. Similarly, per resident emissions is also decreasing, as a result of both a reduction in per resident energy use, as well as a slight shift towards electricity over that period.



Map 12. Residential emissions per resident by zone, 2050.

This is generally consistent with Map 12 (2050), as the shades of most areas are getting lighter compared with Map 11 (2016). However, this is not the case in all areas; some appear to be getting darker. Further investigation revealed that emissions per resident in these areas is increasing as a result of a decrease in residents, rather than an increase in emissions.

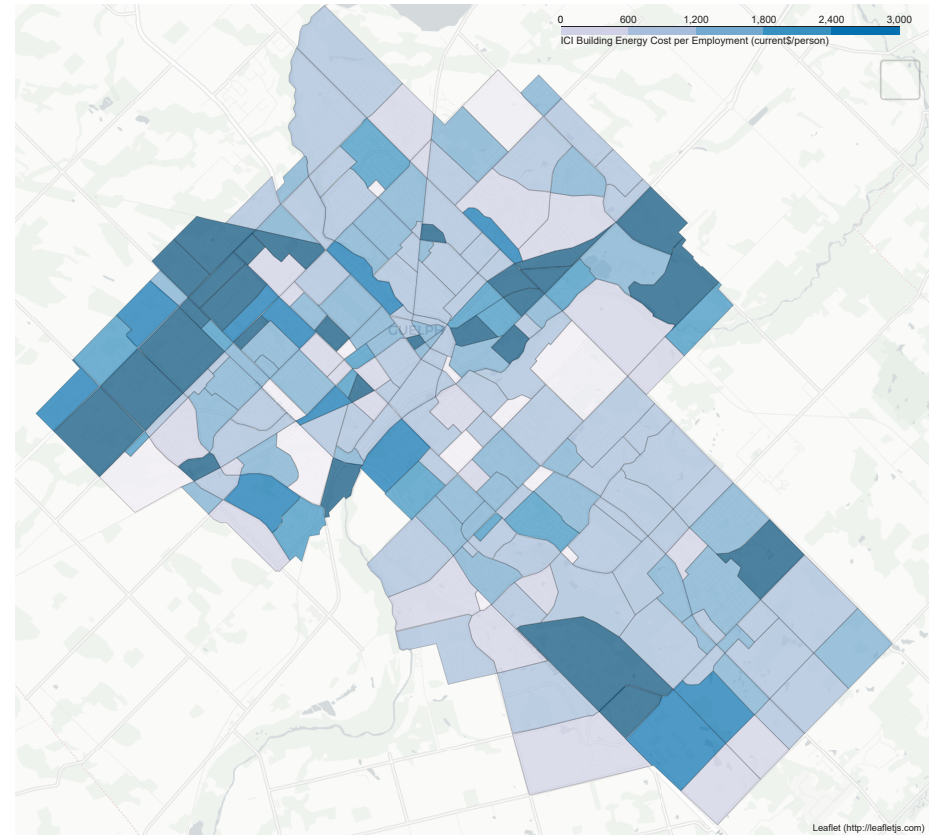
## Non-residential buildings energy cost per employment



Map 13. Non-residential energy cost per employment by zone, 2016.

Maps 13 and 14 indicate the total cost for energy consumed in non-residential buildings per employment (or job) for 2016 and 2050 respectively. Areas in the NW and SE parts of the city show higher levels of cost per employment. These areas are dominated by large industrial and commercial buildings and operations which demonstrate high energy use (Map 1); darker shades indicate much higher energy costs relative to the number of jobs.

Other areas of the city show lower energy costs per employee; these are generally representative of other building types in the non-residential sector, for example commercial offices and retail.



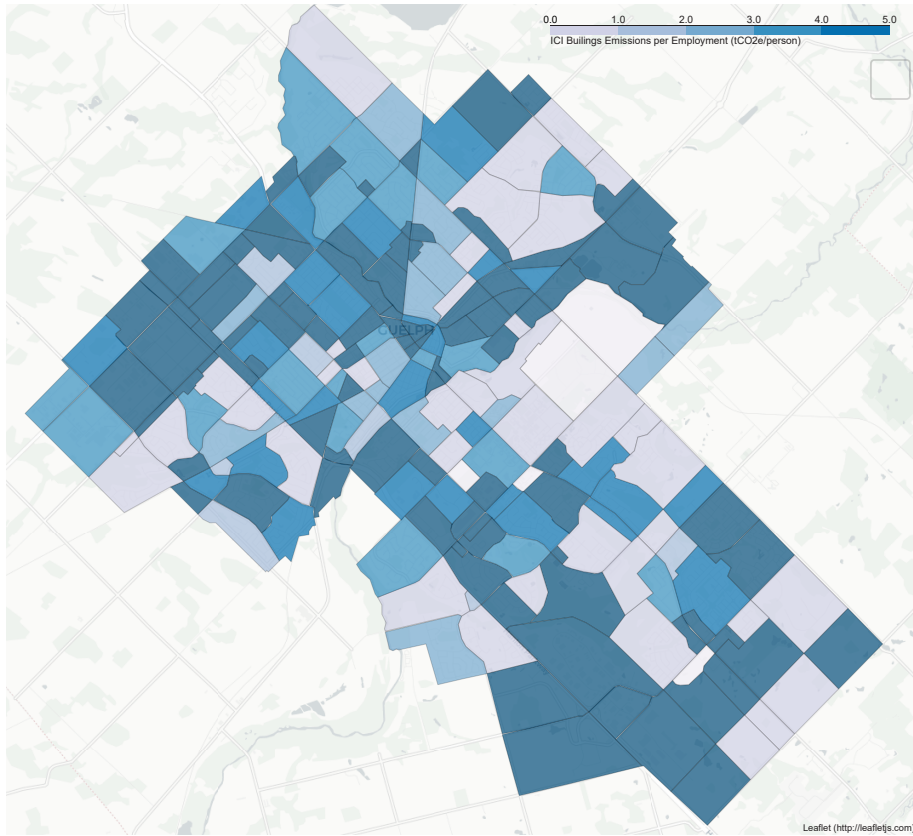
Map 14. Non-residential energy cost per employment by zone, 2050.

Between 2016 and 2050, energy use is increasing in the industrial sector (5.4%) while decreasing in the commercial sector (1.5%); and as with residential energy costs, the cost of fuels in the non-residential sector is also projected to continue increasing to 2050.

In Map 14, some areas have increasing energy costs per employment, indicating sectors where increases in energy costs (as a result of increases in energy use and fuel cost) outpace increases in employment, while others are decreasing, indicating either an increase in employment that outpace increases in energy use, fuel costs, or both.



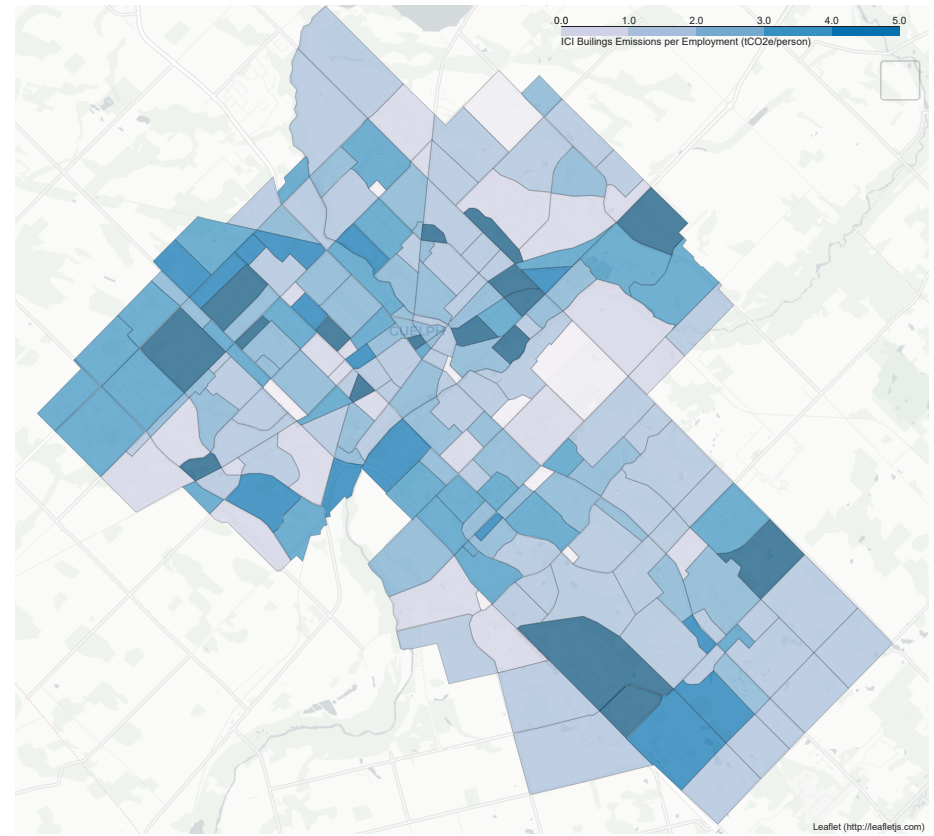
## Non-residential buildings emissions per employment



Map 15. Non-residential emissions per employment by zone, 2016.

Non-residential emissions maps indicate the emissions produced from energy consumed in non-residential buildings per employment (or job). In general, emissions per employment appear to be decreasing towards 2050.

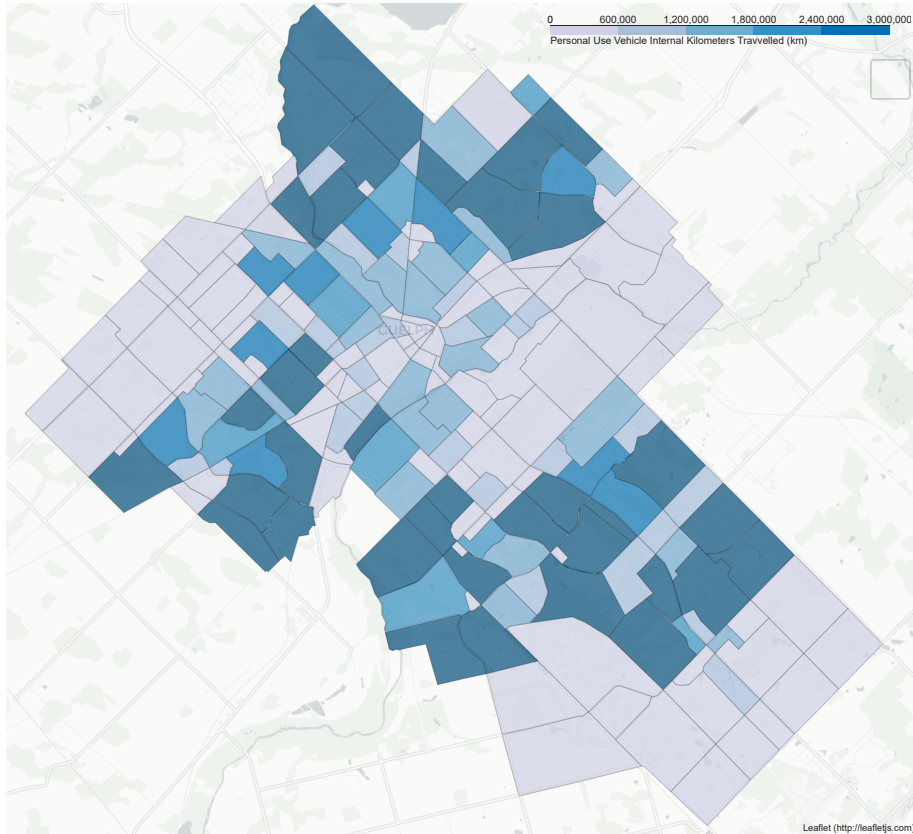
Similar to the residential sector, emissions in the commercial sector are projected to decrease by 6.7% between 2016 and 2050, but are projected to increase by 11.1% in the industrial sector. With growing employment in all sectors to 2050, the overall result is a decrease in emissions per employment over that period.



Map 16. Non-residential emissions per employment by zone, 2050.

Some areas in Map 16 (2050) indicate a similar emissions per employment compared with Map 15 (2016), indicating areas where a growth in employment is keeping pace (or possibly being out weighed) by a growth in emissions. Conversely, areas becoming lighter indicate those where either employment growth is outpacing emissions increases, or, emissions are decreasing at a higher rate than employment is growing.

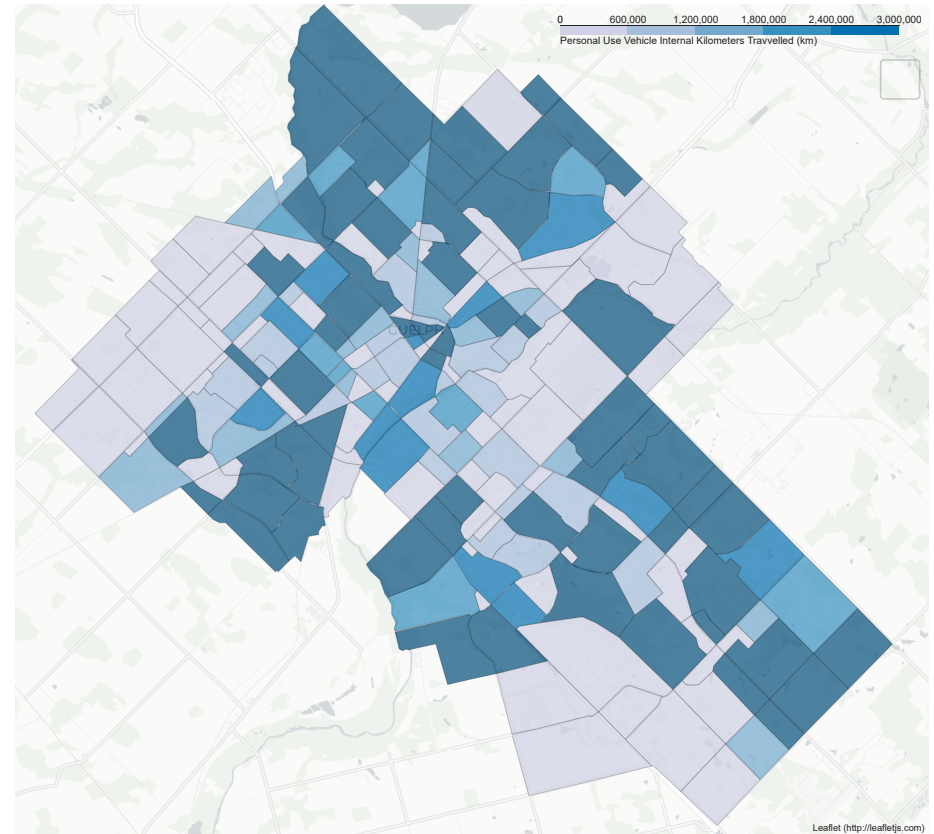
## Personal use vehicle kilometres travelled



Map 17. Personal use vehicle kilometres travelled by origin zone, 2016.

These maps indicate vehicle kilometres travelled (VKT) by personal use vehicles, allocated to the zone of origin; that is, the full length of the trip (km) in a personal use vehicle is assigned to the zone where the trip originated.

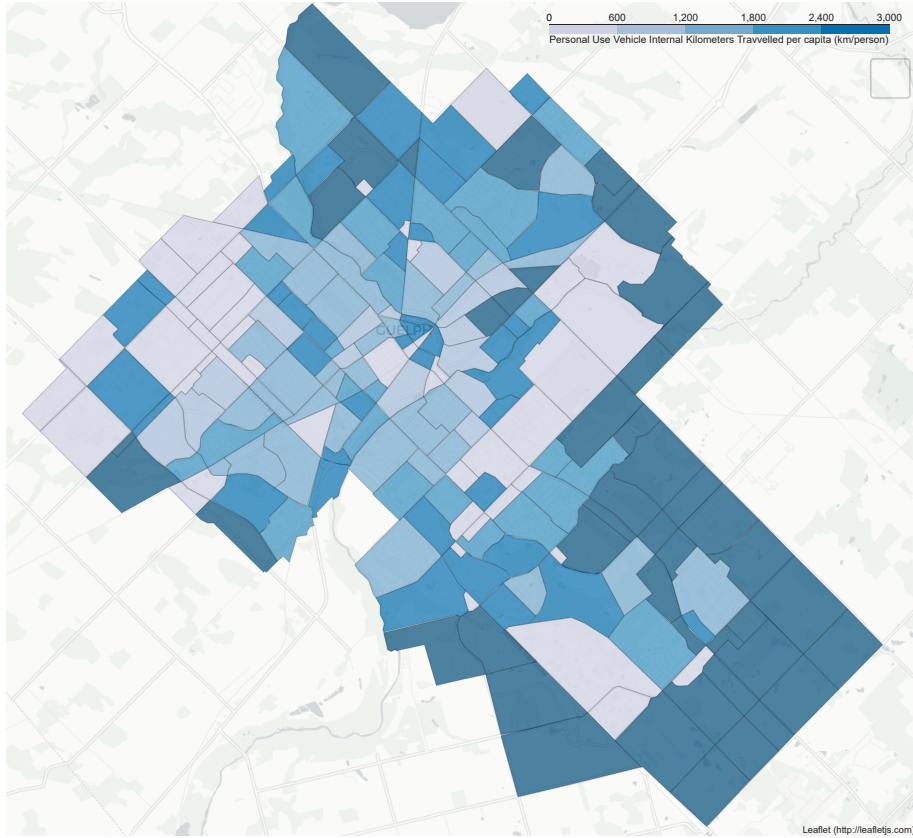
Personal use vehicle trips, in general, originate from a personal residence. Darker areas show higher levels of kilometres travelled when originating from those areas. In other words, people living in darker areas are collectively driving more compared with those in lighter areas.



Map 18. Personal use vehicle kilometers travelled by origin zone, 2050.

Between 2016 and 2050, total VKT in personal use vehicles is increasing. Map 18 (2050) indicates that VKT is increasing predominantly in areas on the outskirts of the city boundary, particularly towards the SE, where new residential growth is projected to occur. VKT is also increasing in existing residential areas; this is mostly driven by an increasing population that continues to drive, outpacing transit capacity.

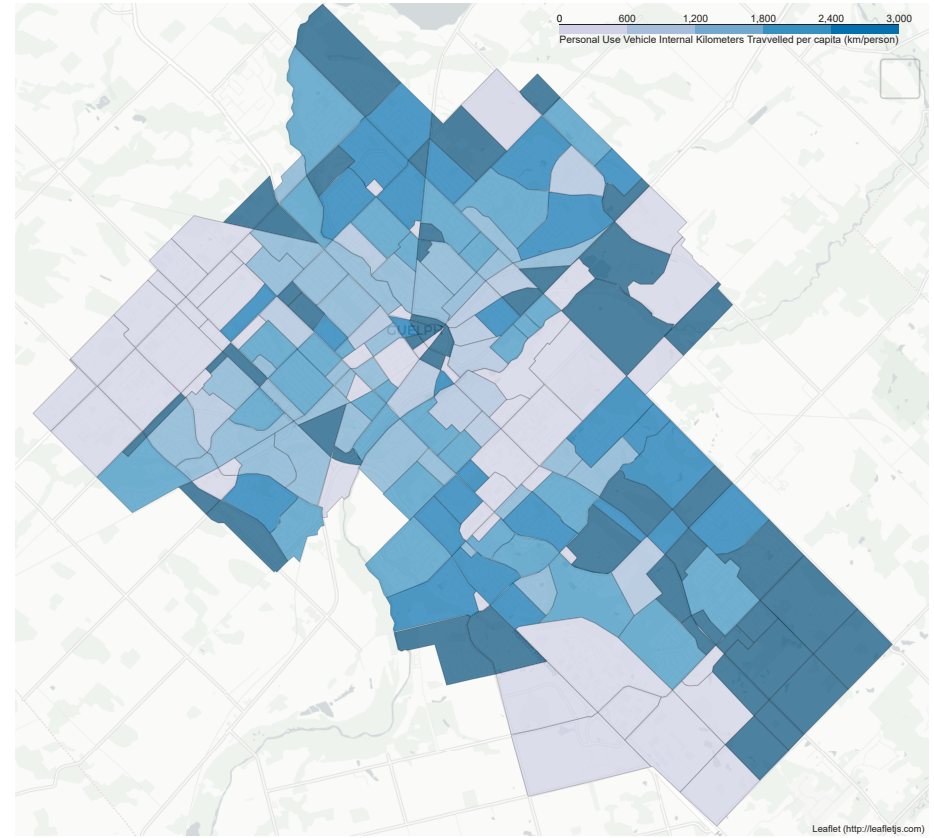
## Personal use vehicle kilometres travelled per capita



Map 19. Personal use vehicle kilometers travelled per capita by origin zone, 2016.

On a per capita basis, personal use VKT remains fairly constant between 2016 and 2050; some areas indicate increases while other indicate decreases.

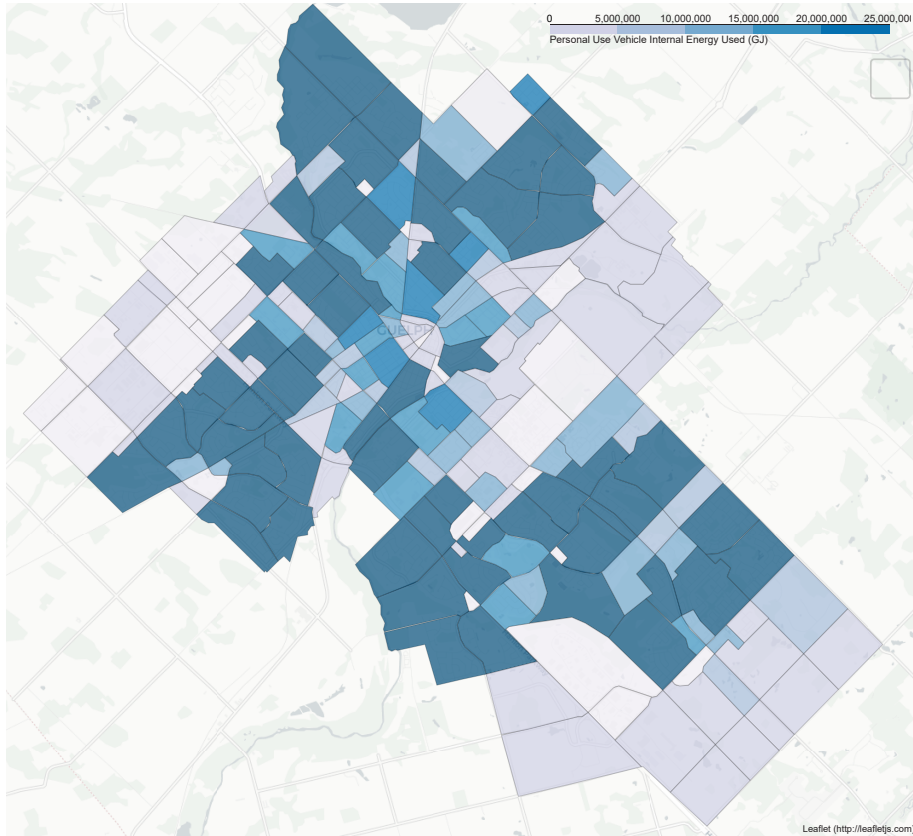
Areas with increasing VKT per capita are those where VKT is increasing faster than residents. Areas with decreasing VKT per capita indicate those areas where resident growth outpaces increases in VKT, or where residents are decreasing.



Map 20. Personal use vehicle kilometers travelled per capita by origin zone, 2050.

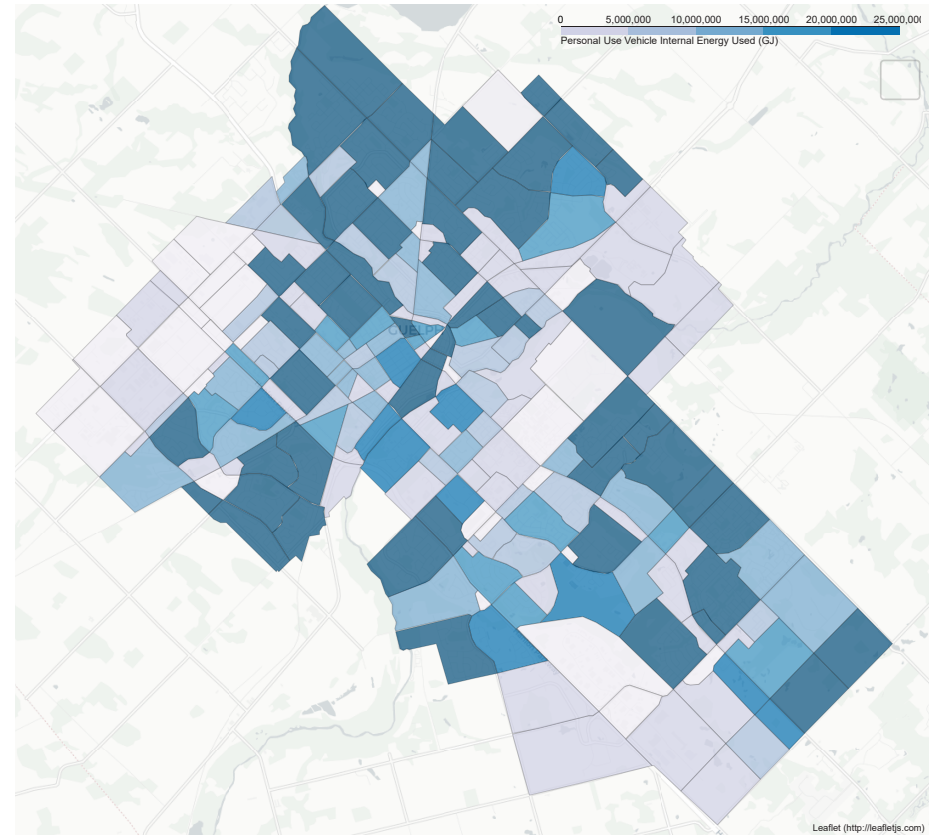
Further investigation into some (but not all) of the areas with decreasing VKT per capita indicate that resident numbers in these areas are decreasing, along with their associated VKT; this appears to be as a result of a few of single family homes that are projected to be replaced with non-residential uses.

## Personal vehicle energy use



Map 21. Personal vehicle energy use by origin zone, 2016.

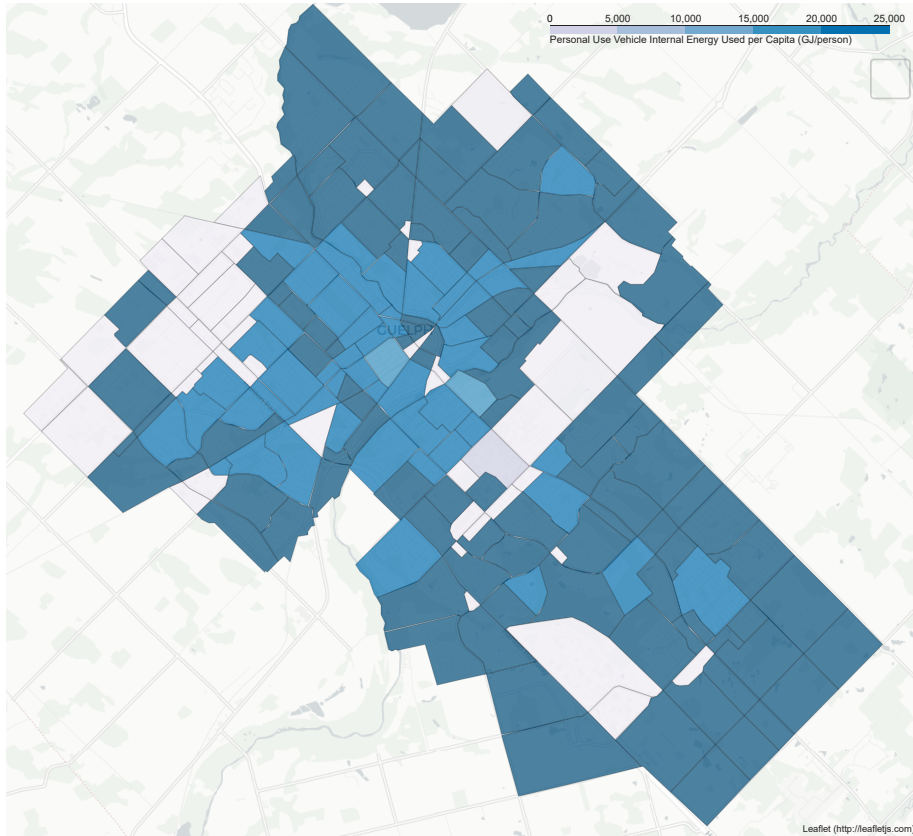
Energy use in the personal use vehicle stock is expected to decrease between 2016 and 2050, even while VKT is increasing. This is predominantly as a result of increasing fuel efficiency standards that are projected to take place over this period, particularly between 2015 and 2035, as well as an uptake in electric vehicles (see Part 1 for further details). By 2050 however, increases in VKT outpace any gains in fuel efficiency; post 2050 will therefore see a continued increase in personal vehicle energy use.



Map 22. Personal vehicle energy use by origin zone, 2050.

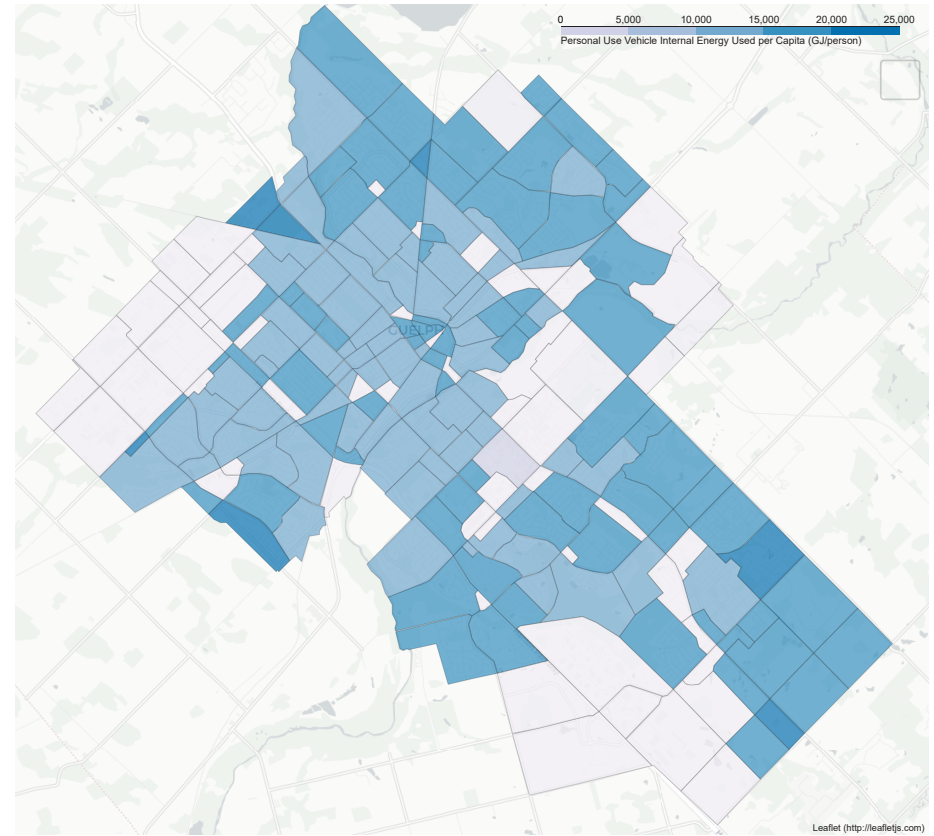
Personal vehicle energy use (of a full trip) is assigned to the zone of trip origin. Similar to the spatial distribution of VKT (Map 17 & 18), personal vehicle energy use is highest in the peripheral residential suburbs. Towards 2050, areas demonstrating increases in personal vehicle energy use are those where increases in VKT (driven by a growing population) is outpacing gains in fuel efficiency. Where it is decreasing, fuel efficiency is outpacing VKT.

## Personal vehicle energy use per capita



Map 23. Personal vehicle energy use per capita by origin zone, 2016.

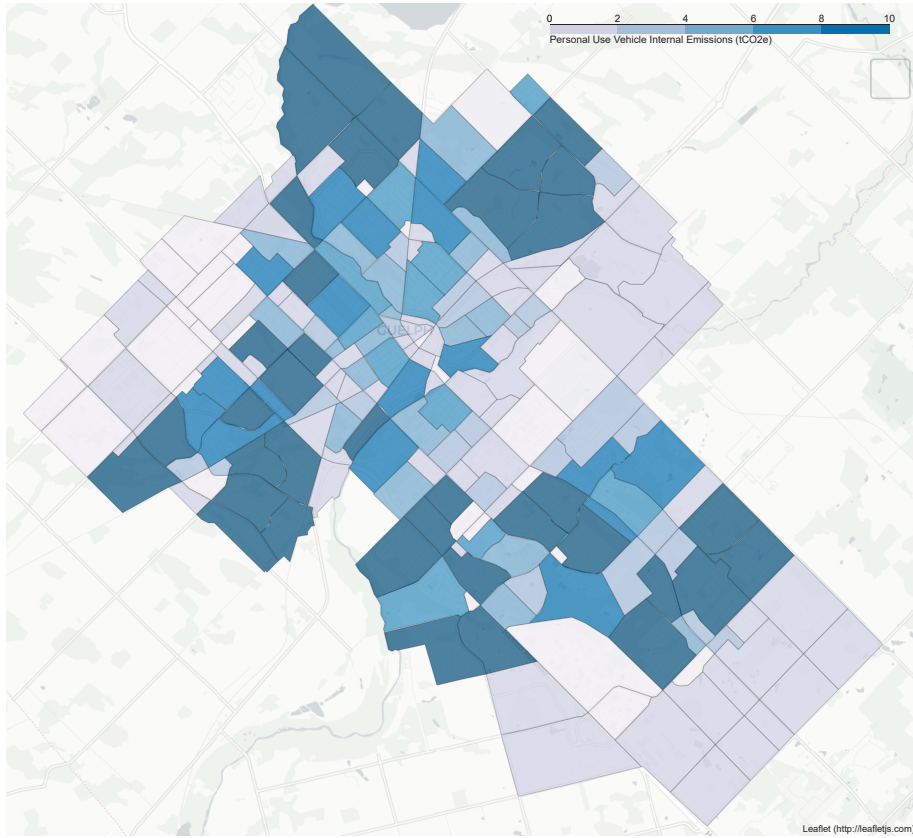
On a per capita basis, personal vehicle energy use is decreasing significantly between 2016 (Map 23) and 2050 (Map 24) as the population continues to grow. This is primarily being driven by increases in fuel efficiency; not as a result of a decrease in VKT.



Map 24. Personal vehicle energy use per capita by origin zone, 2050.

Similar to VKT and VKT per capita, areas towards the centre of the city indicate areas of lower personal vehicle energy use per capita, compared with the surrounding suburbs.

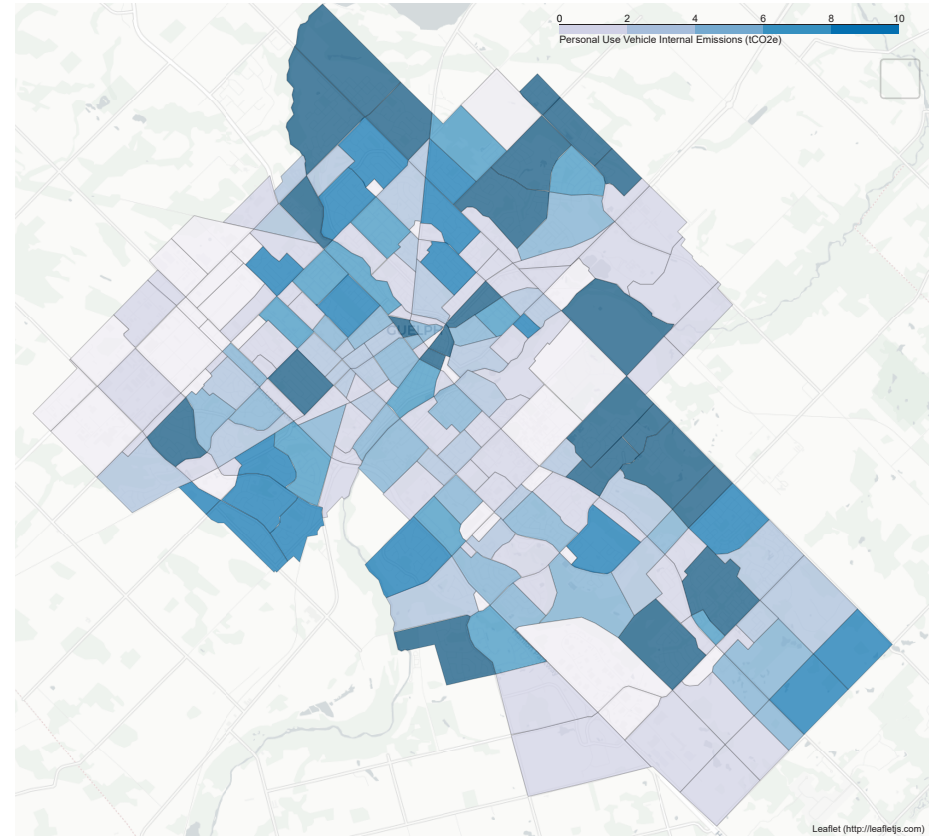
## Personal vehicle emissions



Map 25. Personal vehicle emissions by origin zone, 2016.

Emissions from personal vehicles (assigned to the zone of trip origin) in Map 25 align very closely with personal vehicle energy use in Map 21, as these

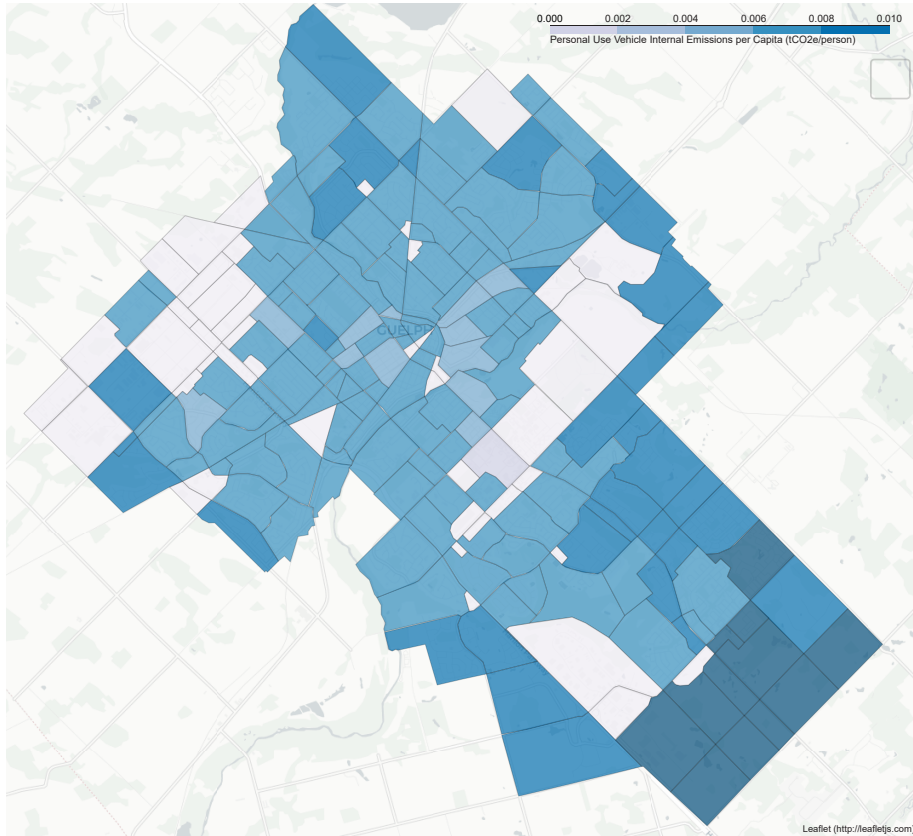
As a result of a decrease in personal use vehicle energy between 2016 and 2050, alongside an increase in electric vehicles, emissions from personal use vehicles are projected to decrease towards 2050.



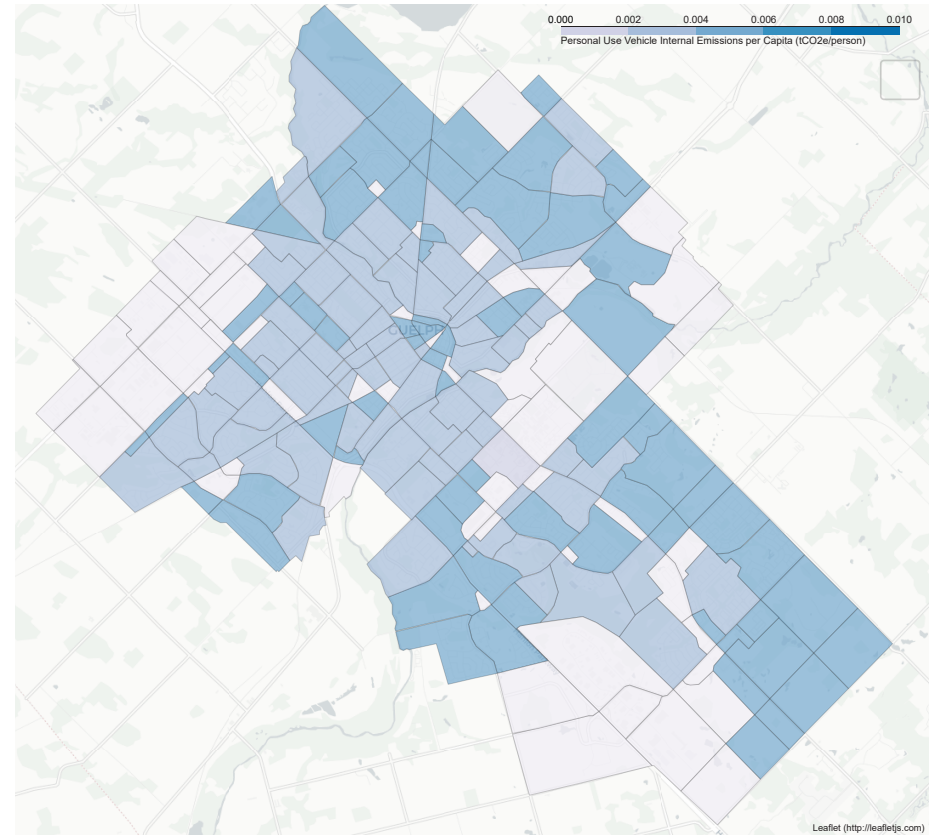
Map 26. Personal vehicle emissions by origin zone, 2050.

Similarly to personal vehicle energy use, some areas demonstrate increases in emissions, while others show decreases. Increases in emissions (areas that get darker towards 2050) are occurring where increases in VKT outpace fuel efficiency. Decreases in emissions (areas that get lighter) are occurring where fuel efficiency is outpacing VKT.

## Personal vehicle emissions per capita



Map 27. Personal vehicle emissions per capita by origin zone, 2016.



Map 28. Personal vehicle emissions per capita by origin zone, 2050.

Areas towards the centre of the city indicate areas of lower personal vehicle emissions per capita compared with the surrounding suburbs, particularly in 2016. As the population grows towards 2050, along with the projected increases in fuel efficiency, emissions per capita from personal vehicles are projected to decrease substantially between 2016 and 2050.

**City of Guelph**  
Energy and Greenhouse Gas Emissions

Baseline Inventory, 2016 & Business-As-Usual Scenario, to 2050

Completed by:







# Recommended Actions

## Getting There from Here

THE PLAN TO ACHIEVE THIS AMBITIOUS TARGET IS THREEFOLD:

1. BUILD A COMMUNITY ORGANIZATION TO CO-LEAD CEI IMPLEMENTATION
2. IMPLEMENT ENABLING ACTIVITIES TO ENCOURAGE COMMUNITY ACTION
3. IMPLEMENT SPECIFIC TECHNICAL ACTIONS WITH DIRECT GHG REDUCTION POTENTIAL

ITEM 1 IS ADDRESSED IN THE SECTION ENTITLED *OUR ENERGY GUELPH - A CATALYST FOR BUILDING A LIVEABLE CITY*. ITEM 2 IS AS WELL, THROUGH REFERENCES TO SPECIFIC ENABLING ACTIVITIES THAT AROSE FROM THE COMMUNITY VISION SURVEY.

TASK FORCE MEMBERS WERE PRESENTED WITH A LIST OF SPECIFIC TECHNICAL ACTIONS THAT WILL CONTRIBUTE TO ACHIEVING THE GHG TARGET. THEY WERE ASKED TO RANK EACH ACTION IN ORDER OF PRIORITY, AND TO PROVIDE THEIR RATIONALE FOR THIS SELECTION. THE RESULTS ARE SHOWN BELOW. [INSERT REFORMATTED CHARTS FROM PRESENTATION TO OEG MEETING ON TARGET SETTING]

THIS INFORMATION WAS PROVIDED TO THE ANALYTICS CONSULTANT TO FULFILL THE THIRD AND FINAL COMPONENT OF THEIR SCOPE OF WORK, NAMELY TO DETERMINE TWO DIFFERENT PACKAGES OF ACTIONS AND ASSUMPTIONS TO ACHIEVE THE TARGET:

1. ACTIONS WITHIN THE CITY ONLY
2. ACTIONS INCLUDING PURCHASE OF OFFSETS EXTERNAL TO THE CITY

## Summary: Top Priority Actions

THIS SECTION REVIEWS THE ACTIONS WHICH HAVE TOP PRIORITY TO BE IMPLEMENTED FOLLOWING THE ACCEPTANCE OF THE CEI UPDATE.

1. APPOINT AN INTERIM BOARD TO OVERSEE THE CREATION OF A PERMANENT OEG ORGANIZATION INCLUDING A GOVERNANCE STRUCTURE.
2. IDENTIFY AN ORGANIZATION TO HOST OEG.
3. DEVELOP AN INITIAL OEG BUDGET, IDENTIFY SOURCES OF FUNDS, AND MAKE THE NECESSARY SOLICITATIONS TO SECURE THOSE FUNDS.
4. APPOINT KEY ROLES (INITIALLY ON A VOLUNTEER BASIS SUPPLEMENTED BY CITY STAFF RESOURCES, WITH INTENT TO DEVELOP INTO PAID POSITIONS AS THE FINANCIAL RESOURCES BECOME AVAILABLE):
  - A. EXECUTIVE DIRECTOR
  - B. TREASURER

- C. EDUCATION/AWARENESS/OUTREACH/COMMUNICATIONS COORDINATOR
  - D. BUSINESS/STAKEHOLDER RELATIONSHIP MANAGER
  - E. PROJECT AND PROGRAM COORDINATOR
  - F. METRICS AND REPORTING COORDINATOR
  - G. VOLUNTEER COORDINATOR
  - H. ADVOCACY/INTERGOVERNMENTAL COORDINATOR
5. CREATE A CITY IMPLEMENTATION TEAM TO OVERSEE ALL ASPECTS OF THE MUNICIPALITY'S RELATIONSHIP TO OEG LISTED IN THE FINAL SECTION OF *OUR ENERGY GUELPH - A CATALYST FOR BUILDING A LIVEABLE CITY*. NOTE THAT THIS COULD BE EWACC OR A SUB-COMMITTEE OF THE SAME.
  6. CREATE A NEW CITY STAFF ROLE, COMMUNITY ENERGY COORDINATOR, TO PROVIDE HANDS-ON SUPPORT FOR OEG AND FOR ALL CEI IMPLEMENTATION WORK BOTH WITHIN THE CITY AND OUT IN THE COMMUNITY. THIS WILL INCLUDE LAUNCHING ALL SUB-TEAMS, FACILITATING THE PROCESS OF NOMINATING LEADERS, AND PROVIDING SUPPORT FOR THEM AS THEY RAMP UP THEIR ACTIVITIES.
  7. CREATE SUB-TEAMS FOCUSED ON THE TOP-PRIORITY TECHNICAL ACTIONS (SEE BELOW).
  8. LAUNCH AN EDUCATION, AWARENESS, OUTREACH, AND COMMUNICATIONS SUB-TEAM WITH THE TASK OF CREATING A PLAN FOR THE SAME WITHIN THE FIRST SIX MONTHS, AND THEN IMPLEMENTING IT.
  9. MAINTAIN CURRENT LEADERSHIP AND SUPPORT FOR OEG AND THE CEI FROM THE CITY'S CLIMATE CHANGE OFFICE, WHILE IDENTIFYING OPPORTUNITIES TO AUGMENT EXISTING EFFORTS WITH OEG RESOURCES (INCLUDING VOLUNTEERS) AS THEY ARE DEVELOPED. NOTE THAT THE CITY MUST CONTINUE TO PROVIDE LEADERSHIP ON ANY AND ALL CEI ASPECTS WHERE OEG HAS NOT YET DEVELOPED CAPACITY.

## Top-Priority Technical Actions

THE TASK FORCE REVIEWED A LIST OF 20 POTENTIAL ACTIONS TO REDUCE EMISSIONS AND IMPROVE ENERGY PERFORMANCE AND RANKED THESE ACTIONS IN ORDER OF PRIORITY. THE RESULTS ARE SHOWN BELOW, IN ORDER FROM HIGHEST TO LOWEST PRIORITY.

1. RETROFIT HOMES PRE-1980
2. RETROFIT INDUSTRIAL, COMMERCIAL AND INSTITUTIONAL (ICI) BUILDINGS
3. STRICTER CODES ON NEW BUILD
4. PHOTOVOLTAIC (PV) NET METERING
5. ELECTRIFY TRANSIT
6. HEAT PUMPS
7. RETROFIT HOMES 1980-2017
8. LARGE PV

**9. ACTIVE TRANSPORTATION**

10. ENERGY STORAGE
11. ELECTRIFY FLEETS (INCLUDING THE MUNICIPAL FLEET)
12. EXPAND TRANSIT
13. DISTRICT ENERGY
14. SOLAR HOT WATER
15. WIND ENERGY
16. RENEWABLE NATURAL GAS
17. ELECTRIFY PERSONAL VEHICLES
18. RIDE SHARE PROGRAMS
19. CAR FREE ZONES
20. AUTONOMOUS VEHICLES

THE TASK FORCE WAS FURTHER ASKED TO RANK THE CRITERIA USED TO SET THOSE PRIORITIES. THEY WERE:

1. TECHNICAL FEASIBILITY/TECHNOLOGY READINESS
2. BEST FINANCIAL PAYBACK
3. HIGHEST GHG IMPACT
4. UPFRONT COST
5. IMPACTS THE LARGEST NUMBER OF PEOPLE
6. \$ PER GHG REDUCTION
7. POLITICAL FEASIBILITY (PUBLIC AND COUNCIL ACCEPTANCE)
8. URBAN RESILIENCE
9. PROFILE (CHARISMA/ATTENTION-GRABBING)
10. REGULATORY FEASIBILITY (I.E. WITHIN MUNICIPAL INFLUENCE)
11. ENERGY SECURITY
12. PERSONAL HEALTH AND SAFETY

IT IS PROPOSED TO CREATE SUB-TEAMS TO FOCUS ON EACH OF THE TOP FIVE ACTIONS. THESE ARE LISTED BELOW. THESE SUB-TEAMS WILL DEVELOP DETAILED AND TARGETED IMPLEMENTATION PLANS FOR THEIR RESPECTIVE SCOPES OF RESPONSIBILITY, INCLUDING IDENTIFYING SPECIFIC DIRECT ACTIONS THAT THE CITY MUST TAKE (E.G. POLICY/REGULATORY CHANGES, INVESTMENTS) TO ENSURE THOSE PLANS ARE IMPLEMENTED SUCCESSFULLY.

## **Launch Energy Efficiency Retrofit (Residential and ICI) Team**

THE HIGHEST PRIORITY ACTION THAT THE TASK FORCE IDENTIFIED WAS RESIDENTIAL RETROFITS OF HOMES BUILT PRIOR TO 1980; THE SECOND HIGHEST WAS RETROFITS IN THE ICI SECTOR. A PROGRAM FOCUSED ON DELIVERING ENERGY EFFICIENCY RETROFITS WOULD ADDRESS EACH OF THESE, BEGINNING WITH RESIDENTIAL AND THEN MOVING ON TO ICI.

THE ENERGY EFFICIENCY RETROFIT PROGRAM (EERP) TEAM WOULD INCLUDE REPRESENTATION FROM THE FOLLOWING CONSTITUENCIES:

1. CITY OF GUELPH
2. DELIVERY AGENT
3. RENOVATION CONTRACTORS
4. SUPPLIERS OF ENERGY-EFFICIENT BUILDING PRODUCTS
5. ENERGY AUDITORS
6. UTILITIES (GAS AND ELECTRIC), INCLUDING THE GRE&T CENTRE (SEE BELOW)
7. FINANCIAL INSTITUTIONS (AS INVESTORS)
8. MORTGAGE LENDERS (AS STAKEHOLDERS IN PRIORITY LIEN STATUS)
9. REALTORS

THE URGENCY TO PROCEED WITH AN EERP HAS INCREASED SINCE THE GUELPH ENERGY EFFICIENCY RETROFIT STRATEGY (GEERS) CONCEPT WAS FIRST PRESENTED TO COUNCIL; AT THAT TIME, AN AVERAGE OF 2400 HOMES WOULD NEED TO BE RETROFITTED PER YEAR TO MEET THE PROGRAM GOALS OF 80% PENETRATION BY 2031. NOW, THE ANNUAL AVERAGE WOULD HAVE TO REACH 3200 HOMES TO MEET THE GOAL. DELAYING THE PROGRAM LAUNCH WILL MAKE IT LESS AND LESS REALISTIC THAT THE END GOAL WOULD BE ACHIEVABLE.

THERE ARE OPPORTUNITIES TO ADVANCE AN EERP WITH PROVINCIAL FUNDING ASSISTANCE. IN MARCH 2018 THE PROVINCE ANNOUNCED THE GREENON CHALLENGE, IN WHICH IT PLANS TO INVEST UP TO \$300M IN PROJECTS “THAT IDENTIFY AND PROPOSE A SOLUTION TO A MARKET BARRIER IN DEPLOYING COMMERCIALY AVAILABLE LOW-CARBON TECHNOLOGIES AND/OR IMPROVING PROCESSES IN BUILDINGS OR THE PRODUCTION OF GOODS”. AN EERP WOULD BE A VERY GOOD FIT WITH THIS FOCUS.

THERE ARE FURTHER OPPORTUNITIES TO PARTNER WITH OTHER MUNICIPALITIES SHOULD IT BE DECIDED TO IMPLEMENT ENERGY EFFICIENCY RETROFIT PROGRAMS USING LOCAL IMPROVEMENT CHARGES (LICs). FOR EXAMPLE, A TOTAL OF 22 MUNICIPALITIES PARTICIPATED IN THE COLLABORATION ON HOME ENERGY EFFICIENCY RETROFITS IN ONTARIO (CHEERIO), AN ADVOCACY INITIATIVE “TO FACILITATE COST SHARING AND CO-OPERATION IN CREATING AN LIC PILOT-PROGRAM TEMPLATE AND OTHER TOOLS THAT CAN BE USED OR ADAPTED BY ANY ONTARIO MUNICIPALITY”<sup>1</sup>. ENOUGH MUNICIPALITIES ARE APPROACHING THE POINT OF LAUNCHING A GEERS-LIKE PROGRAM THAT THERE WOULD BE SUBSTANTIAL BENEFITS IN PARTNERING WITH THEM ON FUNDING APPLICATIONS, KNOWLEDGE SHARING, ADVOCACY EFFORTS, AND POTENTIALLY ESTABLISHING A PROGRAM DELIVERY AGENT.

THE PENDING MERGER OF GUELPH HYDRO ELECTRIC SYSTEMS INC. WITH ALECTRA UTILITIES OFFERS YET MORE OPPORTUNITY. THE PLANNED GREEN AND RENEWABLE ENERGY & TECHNOLOGY CENTRE (GRE&T CENTRE) WILL HAVE THE POTENTIAL TO

---

<sup>1</sup> Persram, Sonja. *LIC Primer: Using Local Improvement Charges to Finance Residential Energy Upgrades*. Collaboration on Home Energy Efficiency Retrofits In Ontario. July 25, 2013. [www.cleanairpartnership.org/wp-content/uploads/2016/08/Primer.pdf](http://www.cleanairpartnership.org/wp-content/uploads/2016/08/Primer.pdf)

**BRING EXCITING NEW TECHNOLOGICAL AND BUSINESS MODEL INNOVATIONS TO COMMERCIALIZATION. THIS WILL POSITION GUELPH AS AN INNOVATOR, GIVE COMMUNITY MEMBERS THE FIRST CHANCE TO TRY OUT THESE NEW PRODUCTS AND SERVICES, AND ATTRACT INVESTMENT FROM THE COMPANIES THAT ARE DEVELOPING THEM. ONE POSSIBLE WAY FOR OEG TO COLLABORATE WITH THE GRE&T CENTRE IS USING AN EERP AS A CHANNEL TO FINANCE THE PURCHASE OF GRE&T CENTRE TECHNOLOGIES.**

## **Launch Building Code Team**

**THERE ARE TWO KEY WAYS THAT BUILDING CODES COULD PLAY A ROLE IN MEETING CEI OBJECTIVES:**

- 1. DIRECT INFLUENCE ON THE ONTARIO BUILDING CODE AND/OR THE MODEL NATIONAL ENERGY CODE FOR BUILDINGS, WITH THE OBJECTIVE OF MAKING PROVISIONS FOR ENERGY EFFICIENCY AND ON-SITE RENEWABLE GENERATION MORE STRINGENT.**
- 2. ADOPTION OF GREEN DEVELOPMENT STANDARDS, WHICH EFFECTIVELY SPECIFY A MORE RIGOROUS CODE FOR A PARTICULAR JURISDICTION (SUCH AS GUELPH).**

**A FURTHER CONSIDERATION IS WHETHER THE SCOPE OF THE CODE IS STRICTLY NEW CONSTRUCTION, OR WHETHER IT INCLUDES RENOVATIONS.**

**THE BUILDING CODE TEAM SHOULD INCLUDE REPRESENTATION FROM THE FOLLOWING STAKEHOLDERS:**

- 1. CONTRACTORS – NEW CONSTRUCTION**
- 2. CONTRACTORS – RENOVATION**
- 3. CITY OF GUELPH BUILDING DEPARTMENT**
- 4. BUILDING SCIENCE CONSULTANCIES**
- 5. UTILITIES (ELECTRIC AND GAS)**
- 6. REALTORS**

## **Launch PV Net Metering Team**

**WITH THE TERMINATION OF THE MICROFIT, FIT, AND LARGE RENEWABLES PROCUREMENT, THE NEXT PHASE FOR DEPLOYMENT OF SOLAR PHOTOVOLTAIC TECHNOLOGY IS NET METERING. UNDER THE VARIOUS TIERS OF THE FIT PROGRAM, 100% OF THE ELECTRICITY GENERATED BY RENEWABLE SOURCES (WIND, SOLAR, BIOMASS) WAS SOLD TO THE GRID AT A SPECIFIED PREFERENTIAL RATE. IN CONTRAST, NET METERING ASSUMES THAT RENEWABLE ELECTRICITY GENERATED ON SITE WILL FIRST GO TO OFFSET ON-SITE CONSUMPTION; ANY EXCESS IS EXPORTED TO THE GRID AND CREDITED AT A SPECIFIED RATE.**

**THE PROVINCE IS EXPLORING SOME ENHANCEMENTS TO NET METERING, NAMELY VIRTUAL NET METERING (VNM), 3<sup>RD</sup> PARTY OWNERSHIP (3PO), AND MULTIPLE ENTITY VIRTUAL NET METERING (MEVNM). VNM WOULD ALLOW EXCESS ELECTRICITY GENERATED ON ONE SITE TO OFFSET CONSUMPTION AT ANOTHER SITE OWNED BY THE SAME ENTITY. 3PO WOULD REMOVE THE CURRENT REQUIREMENT THAT ANY NET METERING GENERATION SYSTEM MUST HAVE THE SAME OWNER AS THE PROPERTY ON WHICH IT IS LOCATED. MEVNM WOULD ALLOW SEVERAL ORGANIZATIONS TO PARTICIPATE IN A POOL OF VNM FACILITIES, SELLING EXCESS GENERATION INTO THE POOL OR PURCHASING FROM IT.**

**THE SCOPE OF THIS TEAM WOULD INCLUDE ADVOCACY EFFORTS AIMED AT EXPANDING THE SCOPE OF NET METERING APPLICABILITY. IT WOULD ALSO INCLUDE OVERSIGHT FOR BOTH TEST AND SCALE PROJECTS. THE FOLLOWING STAKEHOLDERS SHOULD BE REPRESENTED:**

- 1. MANUFACTURERS OF SOLAR PV ARRAY COMPONENTS (MODULES, RACKING, INVERTERS, BALANCE-OF –SYSTEM)**
- 2. INSTALLERS OF SOLAR PV ARRAYS**
- 3. PROPERTY OWNERS (SINGLE, MULTIPLE) WITH AN INTEREST IN DEVELOPING SOLAR PV**
- 4. INVESTORS, E.G. RENEWABLE ENERGY COOPERATIVES**
- 5. THE ELECTRIC UTILITY**

## **Launch Electric Transit Team**

**THE CITY OF GUELPH’S LARGEST SOURCE OF GHG EMISSIONS IS FLEET FUELS, AND THE TRANSIT FLEET IS THE LARGEST COMPONENT OF THE MUNICIPAL FLEET. CONVERTING THAT FLEET TO LOW/ZERO CARBON DRIVE SYSTEMS OFFERS SIGNIFICANT GHG EMISSIONS REDUCTION POTENTIAL. FURTHER, THERE ARE ATTRACTIVE POTENTIAL FUNDING SOURCES SUCH AS THE PROVINCE OF ONTARIO GHG CHALLENGE FUND, WHICH PRIORITIZES APPLICATIONS WITH THE LOWEST COST PER TONNE OF AVOIDED GHG EMISSIONS. A TEAM FOCUSED ON THIS INITIATIVE SHOULD INCLUDE REPRESENTATION FROM THE FOLLOWING CONSTITUENCIES:**

- 1. CITY OF GUELPH TRANSIT DEPARTMENT LEADERSHIP**
- 2. CITY OF GUELPH TRANSIT UNION**
- 3. CITY OF GUELPH FINANCE DEPARTMENT**
- 4. CITY OF GUELPH INTERGOVERNMENTAL AFFAIRS**
- 5. THE ELECTRIC UTILITY**
- 6. TRANSIT USERS**
- 7. EMPLOYERS WITH WORKFORCES DEPENDENT ON GUELPH TRANSIT**

## **Launch District Energy Team**

**WHILE DISTRICT ENERGY (DE) WAS NOT AMONG THE TOP PRIORITY ACTIONS THAT OEG IDENTIFIED, THIS AREA HAS SEEN SIGNIFICANT INVESTMENT AND LESSONS**



**LEARNED. BECAUSE DE INVOLVES AN EXTREMELY LONG TERM DEVELOPMENT HORIZON, IT IS IMPORTANT THAT THESE LESSONS BE CAPTURED AND DOCUMENTED, AND RECOMMENDATIONS MADE REGARDING IF/HOW TO PROCEED WITH THIS METHOD OF ENERGY DISTRIBUTION. IT IS PROPOSED TO CONVENE A TEAM TO ADDRESS DE, WITH REPRESENTATION AS FOLLOWS:**

- 1. CITY OF GUELPH FACILITIES MANAGEMENT**
- 2. CURRENT CUSTOMERS OF THE GALT AND/OR HANLON CREEK DE SYSTEMS**
- 3. DE SUBJECT MATTER EXPERTS (DESIGN, INSTALLATION, AND OPERATION)**
- 4. GUELPH DOWNTOWN BUSINESS ASSOCIATION**
- 5. GUELPH CHAMBER OF COMMERCE**

## **Conclusion**

**THE NEW CEI TARGET IS BOLD, AMBITIOUS, AND VISIONARY. IT IS ALSO EASY TO UNDERSTAND, WITH VIGOROUS ACTION TO BUILD AWARENESS AND SUPPORT IN THE COMMUNITY, TO CREATE AN ORGANIZATION TO MOBILIZE THE COMMUNITY BEHIND THIS TARGET, AND TO MOVE FORWARD DECISIVELY ON THE TOP-PRIORITY TECHNICAL OPPORTUNITIES, GUELPH CAN BUILD ON THE SUCCESS OF THE FIRST TEN YEARS OF THE COMMUNITY ENERGY INITIATIVE, AND EMBARK ON AN EXCITING NEW JOURNEY TO BE A NET-ZERO CARBON COMMUNITY BY THE MIDDLE OF THIS CENTURY.**

# Our Energy Guelph: A catalyst for building a liveable city



AS ITS NAME SUGGESTS, THE COMMUNITY ENERGY INITIATIVE BEGAN IN THE COMMUNITY. CITY COUNCIL EMBRACED IT, MADE IT POLICY, AND ALLOCATED RESOURCES TO IT, INCLUDING FULL-TIME STAFF. WHILE THIS ADDED MOMENTUM AND PROFILE TO THE CEI, IT CREATED THE IMPRESSION THAT THE CITY HAD THINGS WELL IN HAND; DIRECT COMMUNITY INVOLVEMENT SEEMED UNNECESSARY, AND GRADUALLY FADED AWAY. THE MANDATE OF THE MAYOR'S TASK FORCE ON COMMUNITY ENERGY ENDED AND WAS NOT RENEWED. THE CHAMBER OF COMMERCE CREATED ITS ENERGY TRANSITION COMMITTEE, WITH INVOLVEMENT FROM THE CITY THAT GRADUALLY DISAPPEARED. eMERGE GUELPH (PREVIOUSLY GUELPH ENVIRONMENTAL LEADERSHIP), ENVISIONED AS A KEY CEI IMPLEMENTATION PARTNER, BEGAN WITH TWO SITTING COUNCILLORS AND ONE STAFF MEMBER SERVING ON ITS BOARD; THERE IS NO LONGER ANY CITY REPRESENTATION THERE.

THE CEI UPDATE TASK FORCE, NOW REINVENTED AS OUR ENERGY GUELPH (OEG), INTENDS TO CREATE AN INTEGRATED PLAN AND ORGANIZATION THAT ARE FIRMLY ROOTED IN THE COMMUNITY. THIS WILL ENSURE CLEAR AND OPEN LINES OF COMMUNICATION AND A PATHWAY TO BUILD FIRM SUPPORT AMONG GUELPH CITIZENS. OEG WILL HAVE STRONG AND HEALTHY LINKS TO CITY HALL. AT THE SAME TIME, OEG WILL BE DISTINCT, INDEPENDENTLY LED, AND INDEPENDENTLY RESOURCED, THEREBY INSULATING IT FROM POLITICAL CHANGES THAT COULD HAVE AN ADVERSE IMPACT (E.G. SHIFTS IN MUNICIPAL FUNDING PRIORITIES).

## Governance

THE MANDATE OF THE TASK FORCE WILL CONCLUDE WHEN THE UPDATE IS DELIVERED TO COUNCIL. FOLLOWING THE UPDATE, IT IS PROPOSED THAT AN INTERIM COMMUNITY ENERGY BOARD BE CREATED. THIS GROUP WOULD BE MANDATED WITH DEVELOPING THE FOLLOWING FOR A PERMANENT BOARD OF DIRECTORS TO PROVIDE GOVERNANCE TO THE NEW OEG ORGANIZATION:

- TERMS OF REFERENCE
- ROLE DESCRIPTIONS
- BYLAWS
- DEFINE THE RELATIONSHIP THAT THE PERMANENT BOARD WILL HAVE TO THE CITY OF GUELPH AND OTHER KEY STAKEHOLDER ORGANIZATIONS

THIS GROUP WOULD ALSO RECRUIT MEMBERS FOR THAT BOARD, AND POSSIBLY APPOINT AN EXECUTIVE DIRECTOR.

## Host organization

IT MAY BE POSSIBLE TO BUILD A COMPLETE ORGANIZATION FROM THE GROUND UP, INCLUDING STAFF, LEADERSHIP, PHYSICAL SPACE, INFORMATION TECHNOLOGY,





TELECOMMUNICATIONS, HUMAN RESOURCES MANAGEMENT, ACCOUNTING, PRINTING, FILING, AND ADMINISTRATIVE SUPPORT. HOWEVER, IT WOULD BE PREFERABLE IN THE EARLY DAYS FOR THESE FUNCTIONS TO BE PROVIDED BY A HOST ORGANIZATION. THIS WILL ALLOW OEG TO FOCUS ON ITS CORE MISSION. POSSIBLE HOST ORGANIZATIONS INCLUDE:

- A. EMERGE GUELPH
- B. CHAMBER OF COMMERCE
- C. UNIVERSITY OF GUELPH – COMMUNITY ENGAGED SCHOLARSHIP INSTITUTE (CESI)
- D. CITY OF GUELPH
- E. SUSTAINABLE WATERLOO REGION

THE CRITERIA FOR SELECTION OF THE HOST ORGANIZATION WOULD INCLUDE:

- ALIGNMENT WITH THE MISSION OF OEG
- COMMON EXTERNAL STAKEHOLDERS AND RELATIONSHIPS
- POTENTIAL FOR JOINT ACTION
- ABILITY TO FULFIL OEG RESOURCE REQUIREMENTS
- ACCESS TO ADDITIONAL USEFUL RESOURCES

## Financial resources and business model

THESE CAN BE DIVIDED INTO OPERATING FUNDS REQUIRED TO MAINTAIN THE ORGANIZATION, AND CAPITAL FUNDS TO IMPLEMENT SPECIFIC PROGRAMMING AGENDAS.

**OPERATING FUNDS** WILL BE SECURED BY HAVING A RELIABLE REVENUE STREAM FROM FOR-FEE SERVICES. THE BEST AVAILABLE MODEL FOR THIS IS SUSTAINABLE WATERLOO REGION, AS WELL AS THE COMMUNITIES WHERE THIS MODEL HAS BEEN REPLICATED WITH THE ASSISTANCE OF SUSTAINABILITY CoLAB. BY BUILDING A SOLID BOOK OF BUSINESS THROUGH ENERGY EFFICIENCY AND SUSTAINABILITY CONSULTING, THESE ORGANIZATIONS HAVE ACHIEVED FISCAL STABILITY (OR ARE ON TRACK TO DO SO).

IT IS PROPOSED TO MOVE AS SOON AS POSSIBLE TO EITHER EXTEND THE SCOPE OF SWR TO INCLUDE GUELPH, TO LAUNCH A CoLAB PLANT, OR SOME COMBINATION OF THE TWO. IF THIS RELATIONSHIP WITH SWR WERE TO INCLUDE ACCESS TO THE REGIONAL SUSTAINABILITY INITIATIVE, IT WOULD SERVE TO REINFORCE THE RELATIONSHIP BETWEEN OEG AND THE LOCAL BUSINESS COMMUNITY (SEE *BUSINESS RELATIONSHIPS*, BELOW).

UNTIL THIS MODEL IS IN PLACE, OPERATING FUNDS FOR OEG WILL DEPEND ON SUCH SOURCES AS THE CITY OF GUELPH, OTHER ORDERS OF GOVERNMENT, INVESTMENTS FROM LOCAL BUSINESSES, AND CONTRIBUTIONS FROM CHARITABLE FOUNDATIONS.

**CAPITAL FUNDS CAN BE OBTAINED THROUGH A VARIETY OF POTENTIAL CHANNELS:**

- **OTHER ORDERS OF GOVERNMENT (E.G. THE ONTARIO CLIMATE CHALLENGE FUND, WHICH REINVESTS THE PROCEEDS OF THE ONTARIO CAP AND TRADE SYSTEM)**
- **INSTITUTIONAL INVESTORS SUCH AS OMERS AND OTPP, POSSIBLY VIA GREEN MUNICIPAL BONDS (SEE SIDEBAR)**
- **CROWDFUNDING**
- **COOPERATIVES**

THERE ARE PLENTY OF OPTIONS AND THERE IS PLENTY OF CAPITAL AVAILABLE TO FINANCE THE SORTS OF PROJECTS THAT OEG IS LIKELY TO ENVISAGE. WHILE THE CITY OF GUELPH CAPITAL BUDGET IS AN OPTION, IT IS ANTICIPATED THAT IT WILL BE A LAST RESORT, AND THAT THE OTHER FINANCING METHODS LISTED ABOVE WILL BE MORE ATTRACTIVE AND SUSTAINABLE.

### **Volunteer management**

GUELPH HAS MADE EXCELLENT PROGRESS IN BUILDING A CULTURE OF VOLUNTEERISM. THE ENVIRONMENTAL MESSAGES AT THE HEART OF OEG HAVE ALREADY ATTRACTED MANY SUCH VOLUNTEERS, INCLUDING:

1. **HIGH SCHOOL STUDENTS (INCLUDING THOSE SEEKING TO FULFILL THE REQUIREMENT FOR VOLUNTEER HOURS)**
2. **UNIVERSITY STUDENTS AND RECENT GRADUATES**
3. **RETIREEES**

BY MANAGING THIS ASSET BASE EFFECTIVELY, OEG CAN DELIVER SIGNIFICANT CHANGE IN THE COMMUNITY AT MINIMAL COST. VOLUNTEERS CAN ASSIST WITH:

- **STAFFING OEG APPEARANCES AT COMMUNITY EVENTS, LUNCH-AND-LEARNS, AND FACILITIES SUCH AS THE GUELPH FARMERS' MARKET**
- **SOCIAL MEDIA CAMPAIGNS, INCLUDING CREATING CONTENT (OR REPOSTING OF RELEVANT CONTENT FROM 3<sup>RD</sup> PARTIES) AND MANAGING PLACEMENTS SUCH AS BLOG POSTS, OP-ED PIECES, LOCAL RADIO SPOTS, LOCAL CABLE TV APPEARANCES, AND ONLINE VIDEOS ON PLATFORMS SUCH AS YOUTUBE**
- **RECRUITMENT (MEMBER ORGANIZATIONS, ADDITIONAL VOLUNTEERS, BOARD MEMBERS)**

Green Municipal Bonds: A promising source of investment capital

IN THE FALL OF 2014, THE EGLINTON LIGHT RAIL TRANSIT PROJECT IN TORONTO SOUGHT FINANCING FROM THE INVESTOR COMMUNITY. THE CHOSEN INSTRUMENT WAS THE GREEN MUNICIPAL BOND. THE ISSUE WAS A GREAT SUCCESS, RAISING ALL OF THE REQUIRED CAPITAL OF \$500 MILLION. IN FACT, THE ISSUE WAS FIVE TIMES OVERSUBSCRIBED. THIS DEMONSTRATES THAT THERE IS A GREAT DEAL OF UNMET DEMAND FOR THIS KIND OF FINANCIAL INSTRUMENT. THIS PORTENDS WELL FOR OEG AS IT MOVES TOWARD IMPLEMENTING SPECIFIC CAPITAL PROJECTS.

- FUNDRAISING
- ADMINISTRATION

IT IS PROPOSED TO CREATE A CORPS OF VOLUNTEERS TO ASSIST WITH ALL OF THE ABOVE ACTIVITIES, LED BY A VOLUNTEER COORDINATOR. THIS INDIVIDUAL WOULD BE RESPONSIBLE FOR:

- ENSURING ALL EVENTS HAVE A SIGN-UP PROCESS FOR PROSPECTIVE NEW VOLUNTEERS
- CONNECTING WITH ALL NEW VOLUNTEERS TO UNDERSTAND THEIR ASPIRATIONS, PREFERENCES, SKILLS, AND CONSTRAINTS
- MAINTAINING A DATABASE OF VOLUNTEERS INCLUDING THE ABOVE INFORMATION
- PERIODICALLY RECONNECTING WITH VOLUNTEERS TO CONFIRM THEIR ONGOING COMMITMENT, OBTAIN THEIR FEEDBACK ON COMPLETED EVENTS, AND THANK THEM FOR THEIR PARTICIPATION
- PERFORMING EXIT INTERVIEWS FOR VOLUNTEERS THAT END THEIR RELATIONSHIP WITH OEG
- COORDINATING VOLUNTEERS TEAMS FOR SPECIFIC EVENTS, OR APPOINTING EVENT LEADERS
- REVIEWING EVENT RESULTS TO IDENTIFY OPPORTUNITIES TO IMPROVE
- ORGANIZING VOLUNTEER APPRECIATION EVENTS

IT IS ENVISIONED THAT THIS WOULD BEGIN AS AN UNPAID POSITION, BUT THIS WOULD CHANGE AS THE OEG BUSINESS MODEL BECOMES SELF-SUSTAINING AND CAN SUPPORT THE ASSOCIATED PAYROLL COST.

## Progress reporting

OEG WILL ENHANCE ITS PROFILE IN THE COMMUNITY IF IT DELIVERS REGULAR, TRANSPARENT, AND EASY-TO-UNDERSTAND REPORTS ON ITS PROGRESS. CEI PROGRESS REPORTING DID NOT ACHIEVE ITS POTENTIAL, IN PART BECAUSE A STATUS REPORTING SCHEDULE WAS NOT ESTABLISHED, AND BECAUSE STANDARDS FOR GHG INVENTORY CALCULATION WERE STILL TAKING SHAPE. AS A RESULT, DIRECT COMPARISONS BETWEEN SUCCESSIVE STATUS REPORTS WERE NOT POSSIBLE.

IT IS PROPOSED TO PROVIDE PROGRESS REPORTING TO THE PUBLIC AND OTHER STAKEHOLDERS INCLUDING THE CITY OF GUELPH ON AN ANNUAL BASIS. THIS REPORT WOULD INCLUDE:

1. UPDATES TO KEY METRICS AND DATA SETS, INCLUDING UTILITY USE, TRANSPORTATION STATISTICS, AND BUILDING ATTRIBUTES
2. AN UPDATED GHG INVENTORY BASED ON THE GPC STANDARD
3. AN UPDATE ON PROGRESS TOWARD ESTABLISHED TARGETS
4. STATUS AND ACHIEVEMENTS OF SPECIFIC PROGRAMS
5. SUCCESS STORIES FROM INDIVIDUALS AND ORGANIZATIONS IN THE COMMUNITY

6. RESULTS OF A SURVEY ON PUBLIC OPINIONS
7. A SUMMARY OF KEY CHANGES IN POLICY, TECHNOLOGY, AND ENERGY MARKETS
8. PRIORITIES FOR THE COMING YEAR FOR PROGRAMMING, INCLUDING AWARENESS, EDUCATION, AND OUTREACH

IT IS FURTHER PROPOSED THAT EVERY FIVE YEARS, A MORE COMPREHENSIVE REPORT WOULD BE PUBLISHED THAT WOULD INCLUDE:

1. STRIKING A NEW TASK FORCE TO LEAD THE UPDATE
2. CONDUCT A NEW COMMUNITY VISION SURVEY
3. OBTAIN CONSULTING ASSISTANCE AS REQUIRED (TECHNICAL ANALYSIS, TARGETED STAKEHOLDER SURVEYS/FOCUS GROUPS/INTERVIEWS)
4. AN EVALUATION ON WHETHER THE TARGETS CONTINUE TO BE RELEVANT
5. ANY PROPOSALS TO ADJUST OR ELIMINATE EXISTING TARGETS, OR ADD NEW ONES
6. TRANSITIONING OWNERSHIP OF THE UPDATED PLAN TO OEG

THIS APPROACH SHOULD HELP ENSURE STRONG, ONGOING COMMUNITY SUPPORT FOR OEG AND ITS WORK.

## **Education, awareness, and outreach – The spiral staircase toward an energy aware electorate**

TYPICALLY, THE CREATION OF A COMMUNITY ENERGY PLAN WILL INCLUDE COMMUNITY ENGAGEMENT EFFORTS WITH A DEFINED START AND END. HOWEVER, THE GUELPH EXPERIENCE HAS DEMONSTRATED THAT, OVER TIME, THE REALITIES OF CEP IMPLEMENTATION CAN DIVERGE DRAMATICALLY FROM THE PUBLIC PERCEPTION OF THE SAME. TO PREVENT THIS DRIFT, COMMUNITY ENGAGEMENT MUST BE A PERMANENT FIXTURE. THE COMMUNITY VISION SURVEY UNDERScoreD THE IMPORTANCE OF THIS, WITH THE TERM “RAISE AWARENESS” BEING THE MOST COMMON SPECIFIC ACTION THAT RESPONDENTS NAMED.

OEG COMMUNITY ENGAGEMENT EFFORTS ILLUSTRATE HOW THIS CONCEPT OF ONGOING COMMUNITY ENGAGEMENT MIGHT TAKE SHAPE. THE FIRST TWO COMMUNITY ENGAGEMENT EVENTS THAT OEG HELD WERE AT A LOCAL FAITH COMMUNITY AND AT A SENIORS’ CENTRE. THE VENUE WAS SPLIT INTO A DROP-IN AREA WITH INFOGRAPHIC DISPLAYS, AND A “TOWN HALL” FORMAT WITH LIVE PRESENTERS AND A SLIDE SHOW FOLLOWED BY Q&A. THESE EVENTS WERE POORLY ATTENDED, AND IT WAS DETERMINED THAT THIS WAS BECAUSE OEG WAS ASKING THE COMMUNITY TO COME TO THEM; IT WAS RECOGNIZED THAT OEG NEEDED TO GO TO THE COMMUNITY.

THE APPROACH WAS CHANGED TO EXHIBITING AT LOCAL EVENTS AND FESTIVALS, WITH VOLUNTEERS ON HAND TO GUIDE VISITORS THROUGH THE DISPLAYS, ANSWER QUESTIONS, AND ENCOURAGE PARTICIPATION BY COMPLETING A SURVEY. IN ADDITION, LUNCH-AND-LEARN EVENTS WERE HELD AT LOCAL BUSINESSES AND OTHER ORGANIZATIONS, USING THE SAME PRESENTATION AND SLIDE SHOW THAT WAS USED



**FOR THE TOWN HALL PORTION OF THE INITIAL EVENTS. THIS COMBINATION OF PIGGYBACKING ON EXISTING EVENTS AND HOLDING LUNCH-AND-LEARN OUTREACH WAS QUITE SUCCESSFUL.**

**IN ADDITION, COMMUNITY ENGAGEMENT WAS TAKEN ONLINE THROUGH A COMPREHENSIVE SOCIAL MEDIA CAMPAIGN. WITH THE ASSISTANCE OF A SOCIAL MEDIA CONSULTANCY, THIS CAMPAIGN ACHIEVED THE FOLLOWING:**

- **FROM ZERO TO 500 FACEBOOK FOLLOWERS IN 2 MONTHS**
- **AD REACH OF 90,303 PEOPLE (COMPARED TO GUELPH POPULATION OF 130,000)**
- **245,566 AD IMPRESSIONS**
- **ENGAGEMENT RATE OF 2.3%**
- **CLICK-THROUGH RATE OF 1.44%**
- **SURVEY CONVERSION RATE OF 12.93%**

**IT IS PROPOSED TO REVISE AND EXPAND THIS APPROACH AND MAKE IT A PERMANENT FEATURE IN GUELPH. THE PURPOSE OF THIS EFFORT WOULD BE AS FOLLOWS:**

Planet Protector Academy: A case study in collaboration

**SEVERAL CITY OF GUELPH DEPARTMENTS HAVE COLLABORATED ALONG WITH THE UPPER GRAND DISTRICT SCHOOL BOARD AND THE WELLINGTON CATHOLIC DISTRICT SCHOOL BOARD TO DELIVER AN INNOVATIVE TWIST ON ENVIRONMENTAL EDUCATION. PLANET PROTECTOR ACADEMY IS A SUPERHERO-THEMED, MULTIMEDIA PROGRAM AIMED AT STUDENTS IN GRADES 3-6. THE PROGRAM ENCOURAGES PARTICIPANTS TO USE LESS WATER BY TAKING SHORTER SHOWERS; TURN OFF LIGHTS WHEN THEY AREN'T BEING USED; ENCOURAGE PARENTS NOT TO IDLE THEIR VEHICLE; AND FIND WAYS TO GET TO SCHOOL WITHOUT DRIVING.**

- 1. BUILD SUPPORT FOR COMMUNITY ENERGY MANAGEMENT**
  - 2. UNDERSTAND PUBLIC SENTIMENT REGARDING BROAD MATTERS RELATED TO ENERGY AND CLIMATE CHANGE, AS WELL AS SPECIFIC PROGRAM ELEMENTS**
  - 3. CLOSE GAPS BETWEEN PUBLIC SENTIMENT AND MARKETPLACE REALITIES**
  - 4. BUILD AWARENESS OF, AND SUPPORT FOR, SPECIFIC PROGRAM ELEMENTS**
  - 5. BUILD AWARENESS OF PERSONAL ACTION THAT CAN INCREASE ENERGY EFFICIENCY, SAVE MONEY, AND REDUCE EMISSIONS**
  - 6. SHARE LOCAL SUCCESS STORIES**
- THIS WOULD INCLUDE THE FOLLOWING:**

- 1. GUEST LECTURES/PRESENTATIONS AT EDUCATIONAL INSTITUTIONS**
  - 2. PARTICIPATION IN COMMUNITY EVENTS**
  - 3. "LUNCH AND LEARN" EVENTS**
  - 4. PERMANENT PUBLIC SPACE/STOREFRONT (POSSIBLY)**
  - 5. ONLINE ENGAGEMENT**
- THE CITY OF GUELPH HAS ALREADY HAD SOME SUCCESS WITH ENGAGING WITH EDUCATIONAL**

**INSTITUTIONS, BUT LARGELY ON A REACTIVE AND BY-INVITATION BASIS. THIS HAS INCLUDED GUEST LECTURES AT THE UNIVERSITY OF GUELPH, AS WELL AS YORK UNIVERSITY AND RYERSON UNIVERSITY. IT HAS ALSO INCLUDED GUEST PRESENTATIONS TO:**

- **JUNIOR HIGH SCHOOL GEOGRAPHY STUDENTS AT GUELPH COLLEGIATE VOCATIONAL INSTITUTE**
- **PARTICIPANTS IN THE CELP AND HEADWATERS PROGRAMS**
- **GRADE 6 STUDENTS AT EDWARD JOHNSON PUBLIC SCHOOL**
- **GUELPH RESILIENCE FESTIVAL**

**AN EXCEPTION TO THIS REACTIVE APPROACH HAS BEEN PLANET PROTECTOR ACADEMY (SEE SIDEBAR).**

**IT IS PROPOSED TO CREATE A COMPREHENSIVE PROGRAM TO ENGAGE WITH PRIMARY, SECONDARY, AND POST-SECONDARY STUDENTS, INCLUDING GUEST PRESENTATIONS, DEVELOPMENT OF CURRICULUM CONTENT, AND FOSTERING ONGOING CLUBS/TEAMS IN THESE INSTITUTIONS THAT WOULD REMAIN LINKED TO OEG.**

**PARTICIPATION IN COMMUNITY EVENTS WOULD INCLUDE:**

- **ONGOING MONITORING OF UPCOMING FESTIVALS AND OTHER SIMILAR EVENTS**
- **REGISTERING FOR THOSE EVENTS**
- **MANAGING SETUP, TENDING, AND TEAR-DOWN**
- **EVALUATING OUTCOMES**

**THIS WOULD BE PARTICULARLY EFFECTIVE IF COORDINATED WITH CITY OF GUELPH COMMUNITY-FACING INITIATIVES LIKE THE WATER WAGON.**

**IT IS PROPOSED TO BUILD A REGULAR SCHEDULE OF “LUNCH AND LEARN” EVENTS FOR THE FOLLOWING AUDIENCES:**

- **LOCAL EMPLOYERS**
- **FAITH COMMUNITIES**
- **SERVICE CLUBS (E.G. THE ROTARY CLUB)**

**IN ADDITION TO SCHEDULING APPEARANCES AND MANAGING THE LOGISTICS OF THE SAME, THIS PROGRAM WOULD ENCOURAGE THESE GROUPS TO SET UP THEIR OWN COMMUNITY ENERGY COMMITTEE/TEAM (IF NONE ALREADY EXISTS) AND FOR THIS GROUP TO REMAIN CONNECTED WITH OEG.**

**IT REMAINS TO BE SEEN WHETHER IT IS WORTHWHILE TO CREATE A PHYSICAL SPACE WHERE THE DISPLAYS CAN BE SET UP PERMANENTLY, ALONG WITH ADDITIONAL COLLATERAL PROVIDED BY PARTNER BUSINESSES AND OTHER ORGANIZATIONS. THE CITY OF BOTTRUP, GERMANY HAD SUCCESS WITH THIS APPROACH, BUT eMERGE GUELPH HAS HAD A LESS POSITIVE EXPERIENCE AND RECENTLY ABANDONED ITS STOREFRONT AREA. COMMUNITY AWARENESS AND MOMENTUM MAY HAVE TO BE BUILT UP MUCH MORE BEFORE SUCH A FACILITY WOULD BE A USEFUL INVESTMENT.**



**THIS PROCESS OF ONGOING COMMUNITY ENGAGEMENT WILL BE A KEY TASK FOR THE PROPOSED VOLUNTEER CORPS (SEE ITEM 5 BELOW).**

## **Advocacy**

**OEG HAS LIMITED MEANS AT ITS DISPOSAL TO AFFECT CHANGE DIRECTLY. HOWEVER, AS THE CITY OF GUELPH HAS DEMONSTRATED, IT IS POSSIBLE TO INFLUENCE OTHER ORGANIZATIONS – MOST NOTABLY OTHER ORDERS OF GOVERNMENT – TO IMPLEMENT ACTIONS AND POLICIES THAT SUPPORT THE OBJECTIVES OF THE CE I. SOME EXAMPLES INCLUDE:**

- 1. PROVINCIAL LEGISLATION WAS AMENDED TO ALLOW THE USE OF LOCAL IMPROVEMENT CHARGES TO FINANCE ENERGY PROJECTS ON PRIVATE PROPERTY (PREVIOUSLY THEY WERE ONLY USED FOR MUNICIPAL INFRASTRUCTURE, TYPICALLY IN THE RIGHT-OF-WAY).**
- 2. THE MINISTRY OF ENERGY IMPLEMENTED THE MUNICIPAL ENERGY PLAN PROGRAM TO PROVIDE FINANCIAL ASSISTANCE FOR COMMUNITY ENERGY PLANNING.**
- 3. THE FEDERATION OF CANADIAN MUNICIPALITIES IMPLEMENTED THE MUNICIPALITIES FOR CLIMATE INNOVATION PROGRAM, WHICH FUNDS VARIOUS CATEGORIES OF EFFORT RELATED TO CLIMATE CHANGE (INCLUDING CREATING OR UPDATING COMMUNITY ENERGY PLANS).**

**THIS ADVOCACY CAN BE DONE DIRECTLY (E.G. BY RESPONDING TO POSTINGS ON THE PROVINCE OF ONTARIO ENVIRONMENTAL REGISTRY), OR COLLECTIVELY THROUGH ORGANIZATIONS SUCH AS:**

- 1. CLEAN AIR PARTNERSHIP (CAP)**
- 2. QUALITY URBAN ENERGY SYSTEMS OF TOMORROW (QUEST)**
- 3. COMMUNITY ENERGY KNOWLEDGE ACTION PARTNERSHIP (CEKAP)**
- 4. ONTARIO SUSTAINABLE ENERGY ASSOCIATION (OSEA)**
- 5. ICLEI – LOCAL GOVERNMENTS FOR SUSTAINABILITY**
- 6. ONTARIO CLIMATE CONSORTIUM (OCC)**

**IT IS RECOMMENDED THAT THE CITY OF GUELPH CONTINUE TO PROVIDE ADVOCACY SUPPORT TO OEG, WHILE BUILDING OEG PARTICIPATION IN POLICY/PROGRAM PUBLIC CONSULTATIONS AND SEEKING OPPORTUNITIES TO BUILD DIRECT RELATIONSHIPS BETWEEN OEG AND THESE ADVOCACY ORGANIZATIONS. AS OEG MATURES AS AN ORGANIZATION, IT WILL BE ABLE TO TAKE ON A MORE SIGNIFICANT ADVOCACY ROLE.**

## **Business relationships**

**OEG WILL BE MUCH MORE LIKELY TO ACHIEVE SUCCESS WITH ITS PROGRAMS IF IT HAS STRONG RELATIONSHIPS WITH THE BUSINESS COMMUNITY. SUCH RELATIONSHIPS WILL HELP TO ACHIEVE THE FOLLOWING BENEFITS FOR OEG:**

1. PROSPECTIVE BOARD MEMBERS
2. GUIDANCE ON PROGRAM OFFERINGS
3. FUNDING RELATIONSHIPS
4. CUSTOMERS FOR CONSULTATIVE SERVICES

IN SOME CASES THESE RELATIONSHIPS WILL BE FORMALIZED INTO PARTNERSHIPS, EITHER ON AN ONGOING BASIS OR ONE-OFF ARRANGEMENTS FOR SPECIFIC PROJECTS. (NOTE THAT “DEVELOP PARTNERSHIPS” WAS THE FOURTH MOST COMMON THEME IN THE COMMUNITY VISION SURVEY.) IN RETURN, A RELATIONSHIP WITH OEG WILL OFFER THE FOLLOWING BENEFITS TO LOCAL ORGANIZATIONS:

1. A PLATFORM TO ACQUIRE AND SHARE KNOWLEDGE ABOUT SUCCESSFUL INITIATIVES TO REDUCE ENERGY COST, CONSUMPTION, AND EMISSIONS
2. FOR BUSINESSES ACTIVE IN THE ENERGY SECTOR, NEW CUSTOMER RELATIONSHIPS AND OPPORTUNITIES TO SELL PRODUCTS AND SERVICES
3. OPPORTUNITIES FOR CO-BRANDING AND GAINING “GREEN” CREDIBILITY WITH CUSTOMERS AND THE GENERAL PUBLIC
4. IMPROVED EMPLOYEE JOB SATISFACTION, ENGAGEMENT, AND RETENTION BY IMPROVING SUSTAINABILITY AND CORPORATE CITIZENSHIP

IT IS PROPOSED TO BEGIN WITH THE EXISTING MEMBERS OF THE OEG TASK FORCE, AS WELL AS THE CHAMBER OF COMMERCE ENERGY TRANSITION COMMITTEE.

## Projects and programs

THE OEG BOARD WILL PROVIDE OVERSIGHT FOR SPECIFIC PROJECTS AND PROGRAMS THAT FALL UNDER THE THEME “IMPLEMENT/TAKE DIRECT ACTION”, THE 2<sup>ND</sup> MOST COMMON RESPONSE IN THE COMMUNITY VISION SURVEY. THIS WILL INCLUDE:

1. ESTABLISHING CRITERIA TO SELECT AND PRIORITIZE PROJECTS AND PROGRAMS
2. FORMULATING PROJECT/PROGRAM APPROACH BASED ON BEST PRACTICE
3. ASSIGNING LEADERSHIP AND ESTABLISHING PROJECT GOVERNANCE
4. SETTING UP PARTNERSHIPS
5. OBTAINING FINANCING
6. SETTING UP PROGRESS REPORTING
7. DEFINING POINTS OF INTEGRATION WITH OTHER PROJECTS/PROGRAMS

## Defining the ongoing role of the City

THE COMMUNITY VISION SURVEY EMPHASIZED THE IMPORTANCE OF THE CITY’S ROLE IN SUCCESSFUL IMPLEMENTATION OF COMMUNITY ENERGY PLANNING, WITH VARIATIONS OF THE TERM “LEADERSHIP IN LOCAL GOVERNMENT” BEING THE THIRD MOST COMMON THEME IN SURVEY RESPONSES. THE CITY WILL PLAY SEVERAL KEY ROLES WITH RESPECT TO OEG:



1. **POLICY IMPLEMENTER.** COMMUNITY ENERGY PLANNING IS ONLY SUCCESSFUL IF IT CAN BE INTEGRATED INTO OTHER MUNICIPAL PLANS AND POLICIES, SUCH AS THE OFFICIAL PLAN, WATER CONSERVATION PLANS, TRANSIT AND TRANSPORTATION MASTER PLANS, AND WASTE MANAGEMENT PLANS. THIS IS EMPHASIZED BY THE COMMUNITY VISION SURVEY, IN WHICH “SUSTAINABILITY PLANNING” WAS THE 5<sup>TH</sup> MOST COMMON THEME IN RESPONSES. OEG LEADERS WILL NOT NECESSARILY BE CLOSE ENOUGH TO THE INTERNAL WORKINGS OF THE MUNICIPALITY TO ACHIEVE THIS INTEGRATION. IT WILL THEREFORE BE CRITICAL FOR A CITY-BASED BODY SUCH AS THE ENERGY, WATER AND CLIMATE CHANGE (EWACC) WORKING GROUP TO HAVE A CLOSE RELATIONSHIP WITH OEG. THIS WILL ENSURE THAT OEG IS:
  - A. AWARE OF POLICIES AND PLANS THAT HAVE CLIMATE CHANGE IMPLICATIONS
  - B. ABLE TO WORK COLLABORATIVELY WITH THE CITY TO CRAFT AND REVISE THESE POLICIES AND PLANS TO INTEGRATE ENERGY AND CLIMATE CHANGE CONSIDERATIONS
2. **FINANCING CHANNEL.** SOME FUNDING, PARTICULARLY THAT OFFERED BY THE PROVINCIAL AND FEDERAL GOVERNMENTS, WILL ONLY BE AVAILABLE TO MUNICIPALITIES. FOR EXAMPLE, ONLY MUNICIPALITIES MAY APPLY FOR THE MUNICIPALITIES FOR CLIMATE INNOVATION (MCIP) PROGRAM OFFERED BY THE FEDERATION OF CANADIAN MUNICIPALITIES (FCM). THE CITY WILL ASSIST OEG WITH THE APPLICATION FOR SUCH FUNDING, WILL ESTABLISH THE APPROPRIATE LEGAL FRAMEWORK (SUCH AS A COMMUNITY BENEFIT AGREEMENT) FOR DISBURSEMENT OF THE FUNDING, WILL CHANNEL THE FUNDS FROM THE SUCCESSFUL APPLICATION FROM THE CITY TO OEG, AND WILL PARTICIPATE IN ANY STATUS REPORTING AND AUDITING THAT IS SPECIFIED BY THE FUNDER. THIS MAY INCLUDE PROGRAMS WHICH INCENTIVIZE ACTIONS THAT SUPPORT CEI OBJECTIVES. NOTE THAT “DEVELOP INCENTIVES” WAS A COMMON THEME IN THE RESPONSES TO THE COMMUNITY VISION SURVEY.
3. **ADVOCACY PARTNER.** NON-PROFIT ORGANIZATIONS SUCH AS QUALITY URBAN ENERGY SYSTEMS OF TOMORROW (QUEST), THE ONTARIO SUSTAINABLE ENERGY ASSOCIATION (OSEA), AND THE CLEAN AIR PARTNERSHIP (CAP) HAVE ACHIEVED CONSIDERABLE SUCCESS WITH POLICY CHANGES AT THE PROVINCIAL AND FEDERAL LEVEL. GENERALLY THESE ORGANIZATIONS HAVE EVOLVED ASSUMING THE MUNICIPALITY ITSELF IS THE REPRESENTATIVE OF THE COMMUNITY. THE MOST PRACTICAL WAY TO ADDRESS THIS FACT MAY BE TO HAVE THE MUNICIPALITY CONTINUE AS LIAISON BETWEEN THESE ORGANIZATIONS AND OEG.
4. **PROGRAM IMPLEMENTER.** IN MANY CASES, LOCAL NON-PROFIT ENTITIES OR BUSINESSES WILL BE FULLY CAPABLE OF IMPLEMENTING ASPECTS OF THE REVISED COMMUNITY ENERGY PLAN. HOWEVER, THERE WILL BE SOME FUNCTIONS THAT CAN ONLY BE PERFORMED BY THE MUNICIPALITY.

- A. **EXAMPLE: A PARTNER CAN ACT AS THE DELIVERY AGENT FOR LIC-FINANCED ENERGY EFFICIENCY RETROFITS (AS RENOVATE AMERICA DOES WITH CALIFORNIA’S PROPERTY ASSESSED CLEAN ENERGY (PACE) PROGRAM, KNOWN AS HERO). HOWEVER, ONLY THE MUNICIPALITY CAN LEVY THE LIC ITSELF. THE SUCCESS OF THIS PROGRAM WILL BE DIRECTLY RELATED TO THE DEGREE TO WHICH THE ROLE OF THE MUNICIPALITY CAN BE MINIMIZED TO THOSE LIC FUNCTIONS THAT ONLY THE MUNICIPALITY CAN PERFORM.**
  - B. **EXAMPLE: A PARTNER CAN ACT AS FINANCIER, BUSINESS DEVELOPER, BUILDER, AND OPERATOR OF A DISTRICT ENERGY NETWORK. HOWEVER, ONLY THE MUNICIPALITY CAN PASS MANDATORY CONNECTION BYLAWS (ASSUMING THIS IS DESIRABLE, AND IS ENABLED BY PROVINCIAL LEGISLATION), AND ONLY THE MUNICIPALITY CAN ENHANCE THE ECONOMICS OF A DE PROJECT BY INTEGRATING THE INSTALLATION OF DE PIPING INTO OTHER SUBSURFACE INFRASTRUCTURE PROJECTS SUCH AS WATER AND SEWER RENEWAL.**
5. **LEADER BY EXAMPLE.** THE CITY HAS ALREADY HAD SUCCESS WITH DEMONSTRATING LEADERSHIP ON ENERGY CORPORATELY, THROUGH ITS CORPORATE ENERGY MANAGEMENT PLAN. CURRENT INTENTIONS TO REVISE THIS PLAN TO ALIGN WITH ISO5000 1 AND TO DEVELOP A PATHWAY TO NET ZERO CARBON (OR SIMILAR LOW-CARBON DESIGNATION) SHOW HOW THIS CAN CONTINUE INTO THE FUTURE. NOTE THAT RESPONSES TO THE COMMUNITY VISION SURVEY INCLUDED “MAKE INVESTMENTS” AS THE 6<sup>TH</sup> MOST COMMON THEME.
6. **ORGANIZATIONAL ADVISOR.** IN ITS EARLY DAYS, OEG WILL BE STARTING FROM SCRATCH WITH SUCH ELEMENTS AS COMMUNICATIONS AND SOCIAL MEDIA. THE CITY CAN PROVIDE VALUABLE GUIDANCE AND OVERSIGHT OF SUCH WORK WHERE IT HAS A DIRECT EQUIVALENT IN MUNICIPAL GOVERNMENT.

# Downtown Parking Master Plan Update

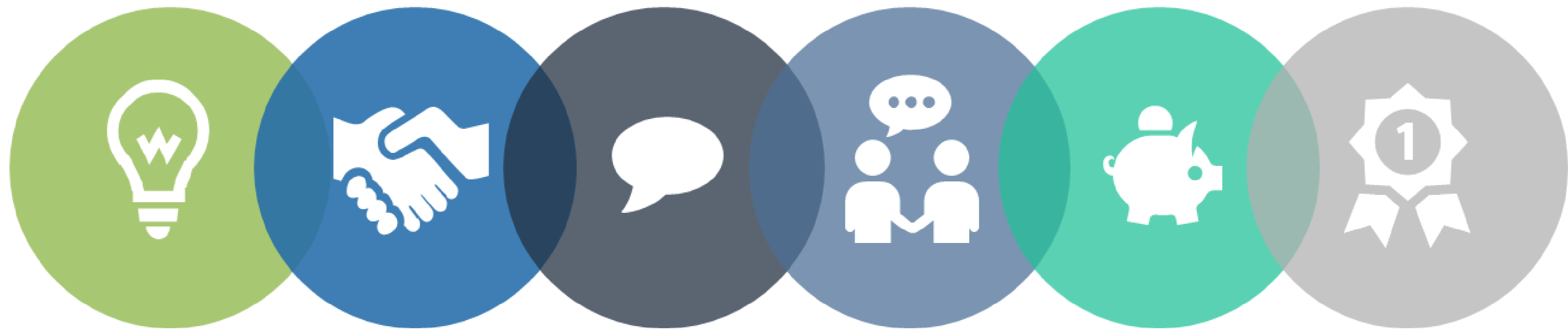
May 7, 2018



# Background

## Building the plan

Downtown Parking Master Plan purpose: to increase the supply of parking downtown and establish a financial model to fund the construction of new supply and replacement of existing assets.



### 01 Community engagement

IBI Group was retained to develop the background and recommendations

### 02 Personal interviews

IBI Group conducted over 30 personal interviews in 2013

### 03 Public information centres

In 2013, three public information centres were held attended by over 100 individuals

### 04 Online survey

An online survey was deployed supported by public communications plan, resulting in 448 responses in 2015

### 05 Public information centres

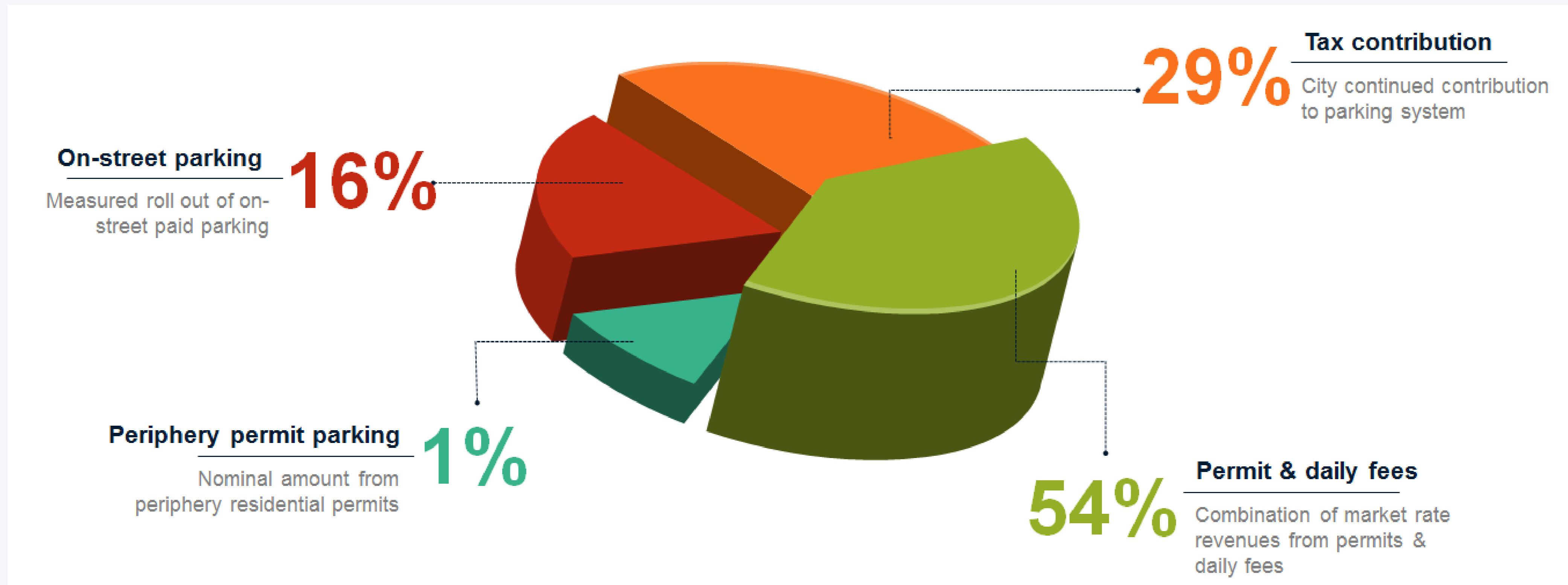
In 2015, eight additional information centres were held across the city

### 06 Presentations

An additional presentation was made to one of Guelph's Rotary clubs

# 2015 approved funding model




Balancing revenue streams





The previously approved funding model balances revenue streams across four components to achieve stable funding for current and future needs.

# Progress to date

Key elements of the plan are moving forward

-  **Program manager, parking**  
Dedicated full time resource actively managing parking portfolio
-  **Parking management software**  
Procured new parking management software to modernize parking operations
-  **Wilson street parkade**  
Construction has begun on the Wilson street parkade with construction complete by Fall 2019



- Implementation metrics study**   
Technology selection and implementation metrics study completed
- PARCS tender**   
Tender issued for parking access and revenue control system
- East & west parkade refurbishing**   
Refurbishing work in the East & West Parkades to be complete by Fall 2018

# Outstanding issues

Slow progress on two key components



## On-street paid parking

- Implementing on-street paid parking has been delayed.
- The funding model relies on revenue from on-street paid parking.
- Removal of the on-street paid parking revenue requires either an increase in property tax contributions or permit fees to support the downtown parking program.



## Periphery residential parking permits

- Demand for permitted monthly parking continues to outpace supply.
- Peripheral, residential areas are being impacted as they function as a valve for the lack of supply of downtown parking.

# Updated funding model

## Assumptions

**Key changes to the assumptions underlying the update to the 2015 funding model include:**

1. Delay in the projected start and completion date of the Wilson Street Parkade
2. Cancellation of the Neeve Street Parkade and removal from the financial model
3. Delay in implementation of on-street paid parking downtown
3. Financial model now includes 2017 Actuals – Revenues & Expenses
4. Inclusion of Baker Street Parkade costs and debt servicing
5. Aligning debt servicing costs with the Council approved increase in funding for the Wilson Parkade and the cancellation of Neeve Parkade



# 2018 updated funding model

Scenario	Tax contribution	Tax burden per \$300K household	% of parking budget	Monthly permits	% of parking budget	On-street paid parking	% of parking budget	Periphery permits	% of parking budget
Approved 2015 funding model	\$1.9M	\$29	29%	\$120 - \$160 \$14 daily rate	54%	\$1.75/hour	16%	\$65K (nominal amount)	1%
Updated 2018 funding model	\$1.9M	\$29	29%	\$120 - \$150 \$20 daily rate \$3.6M	52%	\$2.00/hour \$1.2M	21%	\$65K (nominal amount)	1%
Alternative A (tax support)	\$3.1M	\$47	47%	\$100 - \$150 \$20 daily rate \$3.6M	52%	-	0%	\$65K (nominal amount)	1%
Alternative B (fee support)	\$1.9M	\$29	29%	\$175 - \$250 \$20 daily rate \$4.8M	70%	-	0%	\$65K (nominal amount)	1%
Alternative C (blended tax and fee support)	\$2.5M	\$38	38%	\$130 - \$160 \$20 daily rate \$4.2M	61%	-	0%	\$65K (nominal amount)	1%

---

To **Committee of the Whole**

Service Area Infrastructure, Development and Enterprise Services

Date Monday, May 7, 2018

Subject **Downtown Parking Master Plan Update**

Report Number IDE-2018-69

---

## Recommendation

1. That Council approve the updated 2016-2035 funding model that includes balanced contributions from user fees, on-street paid parking, peripheral parking permits and from the City through property tax contributions.
2. That staff engage with constituents to develop the measures required to support the implementation of peripheral permits, both residential and non-residential in 2019.
3. That a Downtown Parking Committee consisting of representatives from business, community groups, residents and City staff be implemented to discuss and review downtown parking programs.
4. That downtown paid on-street parking be implemented in the third quarter of 2019 to align with the financial model projections.

## Executive Summary

### Purpose of Report

The purpose of this report is to provide Council with the updated Downtown Parking Master Plan (DPMP) and the associated Parking Financial Plan (PFP) for approval.

### Key Findings

- The Downtown Parking Master Plan (DPMP), approved in November 2015, focused on supporting growth targets and the economy in Guelph's Downtown by improving parking availability.
- All on- and off-street parking facilities in the downtown core are currently at capacity with demand being greater than supply. To address current and future parking needs, which will require the construction and maintenance of off-street facilities, the approved Downtown Parking Master Plan included a funding model for 2016-2035 that balanced contributions from user fees, on-street paid parking, peripheral parking permits and from the City through property tax contributions.

- A key funding component, the implementation of on-street paid parking, was delayed through Council direction that metrics first be established to measure the impact of paid on-street parking on the downtown economic health.
- The removal of the on-street paid parking revenue from the funding model requires either an increase in property tax contributions up to \$1.2 million, which is equivalent to a \$18 increase per average household over the 2015 approved tax contribution for a total of \$47 per household, or an increase in permit fees up to \$90 per month for a total of \$250 per month.
- In March 2018, IDE report "Parking Technology and Metrics Study," stated that paid parking does not have a direct impact on economy i.e. paid on-street parking has not been found to either attract or deter potential customers and, therefore, it is not possible to develop indicators/metrics as requested by Council since there is no evidence of a direct connection.
- Since approval of the DPMP in 2015, the City has invested in construction of the Wilson Street Parkade and in structural rehabilitation of the West and East Parkades based upon the revenue assumptions in the approved funding model.
- Report IDE 17-80, "Parking Master Plan Implementation & Award of Wilson Street Parkade Design-Build Contract #17-050", was approved with the understanding that that on-street paid parking revenues would contribute to servicing the associated debt.
- The updated financial model includes revised construction costs for the Wilson Parkade, cancellation of the Neeve parking structure, and includes projected costs for the Baker Street parking structure.
- Extensive public consultation informed the 2016-2035 DPMP.
- Customer parking data demonstrates a willingness of users to pay for short duration parking off-street in the surface lots; 57% of all hourly/daily paid visits in City of Guelph surface lots are less than two hours.
- Parking enforcement is considered through the DPMP however it is a separate issue from the purpose of the DPMP to establish a long term parking supply.

### **Financial Implications**

The downtown parking program requires an annual investment of \$6.8 million. The recommended funding strategy includes funding from four sources: tax supported funding (\$1.9 million or 29%), monthly permits and daily parking revenue (\$3.6 million or 52%), on-street paid parking (\$1.2 million or 18%) and periphery parking permit revenue (\$65K or 1%).

To enable the implementation of the proposed parking program, adequate operating reserves are required to ensure pricing stability as parking infrastructure comes on line, debt is issued and as utilization ramps up. Further, a capital reserve is required to establish sufficient funds that can address the replacement of existing infrastructure and enable future parking program requirements as needed.

### **Report Background**

Council approved the Downtown Parking Master Plan (2016 to 2035) at its meeting of November 18, 2015. Report IDE-BDE-1550 contains the full plan and recommendations, and can be found at the link below.

[http://guelph.ca/wp-content/uploads/council\\_minutes\\_111815downtown\\_parking\\_master\\_plan.pdf](http://guelph.ca/wp-content/uploads/council_minutes_111815downtown_parking_master_plan.pdf)

Subsequently, at the meeting of December 7, 2016, Guelph City Council provided the following direction regarding the re-introduction of on-street technology in the downtown:

*"That \$700,000 for downtown parking metres be removed from the 2017 Capital Budget."*

*"That staff report back on the timing of implementation once performance metrics have been put in place and measured."*

On July 17, 2017, Council awarded the contract for design and build of the Wilson Street Parkade to The Newton Group Ltd. including an increase in funding to allow for 496 total parking spaces. Report IDE 17-80 can be found at the link below. The basis for this recommendation followed assumptions included in the approved DPMP as the projected two parkade builds (Wilson and Neeve) were combined into one at Wilson.

<https://guelph.ca/2017/07/special-council-meeting-july-17-2017/>

An Information Report, entitled Parking Master Plan – On-Street Parking Metrics Study Update was provided to Council in October 2017. Report IDE-2017-124 can be found at the link below.

<https://guelph.ca/2017/10/information-items-week-ending-october-20-2017/>

At its meeting of March 26, 2017 City Council approved the recommendations within Report IDE-2018.36 with the following change to Clause 5 of the recommendations:

*"That the implementation of the new on-street paid parking technology be scheduled for Fall of 2019, following the opening of the Wilson Street Parkade" be referred to the May 7, 2018 Committee of the Whole Meeting".*

Report IDE- IDE-2018.36 can be found at the link below.

<https://guelph.ca/city-hall/mayor-and-council/city-council/agendas-and-minutes/>

### **Downtown Parking Master Plan (DPMP) (2016 to 2035)**

The purpose of the DPMP and the associated Parking Financial Plan (PFP) was to establish a strategic plan to support the economic health and growth of downtown Guelph by building new parking facilities to increase the overall number of parking spaces for long term users. It also envisioned implementing a performance based parking management system, inclusive of on-street paid parking, to increase

turnover and ensure that on street short term parking spaces are available for customers. In establishing the strategic plan, a Parking Financial Plan (PFP) was developed as an appropriate funding strategy and was considered essential to support current and future parking needs.

Extensive public consultation informed the 2016-2035 DPMP with information gathered from multiple Public Information Centres, surveys and mail outs. This data contributed to the development of various parking financial models.

Staff and the Downtown Advisory Committee considered five parking financial models. The recommended and approved scenario required an increase in tax base contribution of 14%, representing 29% of total projected revenue requirements. This scenario also included revenue from paid on-street parking whereby it is re-introduced in a measured and phased approach. This would also serve as a method to support turnover, enhance customer service and enforceability.

The 2015 approved scenario provided the best ability to achieve the following within the first five years:

- Support the economic health and growth of the downtown;
- Address risk transfer matters;
- Establish investment performance criteria for the City;
- Improve economies of scale to attract investment;
- Leverage private sector expertise to produce new facilities in a cost effective manner;
- Address infrastructure life cycle needs/risk; and
- Optimize municipal financial requirements.

Table 1 illustrates the approved scenario including the estimated rates as presented during the Community Engagement Public Information Centres and to Council as part of the November 18, 2015 staff report.

**Table 1 – 2015 Council Approved Funding Scenario**

	<b>City Contributions</b>	<b>User Pay Contributions</b>	<b>Comments</b>
City Contribution (tax base)	\$1.9M	-	Blended scenario introduces on-street paid parking, downtown periphery parking permits and balances user-pay with City contribution.
Tax Burden per \$300k Household Value	\$29 (up \$6)	-	
<b>% of Total Parking Budget</b>	<b>29%</b>	-	
Downtown Monthly Parking Permits	-	Monthly \$120-160 Daily:\$14	
<b>% of total parking budget</b>	-	<b>54%</b>	
Downtown Paid On-Street Parking	-	\$1.75/hr.	
<b>% of total parking budget</b>	-	<b>16%</b>	
Downtown Periphery Parking Permits	-	\$65K (nominal amount)	
<b>% of total parking budget</b>	-	<b>1%</b>	

**Timeline and Staging Overview**

As part of the approved DPMP, a timing and staging plan was established for a five year ramp up period between 2016 and 2020 that identified key infrastructure and program elements for development. Table 2 provides the staging plan with original timing, as well as a revised view of their program phases.

**Table 2 - Revised Staging of Downtown Parking Master Plan**

<b>Plan Component</b>	<b>Original Timing</b>	<b>Revised Timing</b>
Wilson Parkade RFP Program Development (Governance, On-street management, technology selection, enforcement, zoning)	2016	2017-2018
Wilson Parkade Complete	2017	Fall 2019
Refurbish Parkades	2017	2017-2018
Implement preferred on- street management technology and approach	2017	Fall 2019
Program development, Refurbish parkades	2018	2018
Neeve RFP	2019	Cancelled
Program development	2019	2019
Neeve Complete	2020	Cancelled
Implement program & continuous improvement process	2020	2020
Baker Parkade RFP	2020	2020
Baker Parkade Complete	2023	2025

## Progress to Date

Since the approval of the Downtown Parking Master Plan, there has been progress on a number of components of the plan, as shown in Table 2. Specifically, the following key components have moved forward:

- Program Manager - Parking hired in September, 2017;
- Wilson Street Parkade Construction began in February, 2018 and is anticipated to be complete by Fall, 2019;
- West & East Parkade major refurbishment project anticipated to be complete by late Fall, 2018;
- Completion of a Parking Technology Selection and Implementation Metrics Study;
- Procurement of new Parking Management Software; and
- Tender issued for new Parking Access Revenue Control System (PARCS).

The current parking system continues to be affected by demand exceeding supply for both short and long term stays. There is a waiting list for monthly parking permits with 393 applicants for a total of 518 permits. Of those applicants, there are 5 corporate applicants seeking 130 permits.

As well, usage data in the City's surface lots from payment machines indicates that 57% of all paid stays (non-permit) in the downtown are two hours or less. This behaviour is consistent with customers using the pay by phone application downtown. In total, 49% of all paid stays in the downtown using the application are two hour or less.

While progress has been made with some aspects of the plan, there remain a number of outstanding priorities to complete. Many of these components relate directly to the affordability of projects such as the Wilson and Baker Street parkades, the refurbishment and eventual replacement costs of the West and East parkades and to upgrade and replace the on-street paid parking technologies and permit software.

## Outstanding Priorities

- a) **Periphery parking impacts.** There has been some recent progress to understand the impacts of downtown parking overflow on the adjacent residential neighbourhoods. Community engagement needs to be planned to understand the requirements in the residential neighbourhoods and how periphery parking will function within the overall parking ecosystem.
- b) **On street paid parking not implemented.** As noted in the staff report, "Parking Technology Selection & Implementation Metrics Study," dated March 5, 2018, City staff and members of the Downtown Advisory Committee worked on a model that could be used to determine the economic health of the downtown. It became clear through the discussions and review that parking itself is not a direct indicator of the economic health of downtown.



- c) In short, paid on-street parking has not been found to either attract or deter potential customers and, therefore, it is not possible to develop indicators/metrics as requested by Council since there is no evidence of a direct connection.

Further, it was determined that the implementation of various parking technologies is required to provide the real time data to use in any analysis of the impact of policies. Therefore, any assessment of the impact of parking policies in general, such as turnover rates and parking availability must follow the implementation of the technology on the street.

Finally, in approving Staff Report IDE 17-80, "Parking Master Plan Implementation & Award of Wilson Street Parkade Design-Build Contract #17-050", Council approved the awarding of the contract with the understanding that on-street paid parking revenues would contribute to servicing the associated debt. However, in delaying the implementation of on-street paid parking, the associated revenues to service the capital debt would not be available and the debt gap would have to be serviced through increased tax contributions and or an increase in existing user fees.

## **Financial Implications**

An update to the Parking Financial Plan is required to provide an accurate and timely view of the state of the program. A number of assumptions have changed since the DPMP was originally approved. The key changes to the financial model since 2015 are:

1. Delay in the projected start and completion date of the Wilson Street Parkade including impact to debt servicing costs;
2. Cancellation of the Neeve Street Parkade;
3. Delay in implementation of on-street paid parking downtown;
4. Updated data to reflect 2017 actual revenues and expenses;
5. Inclusion of Baker Street Parkade costs and debt servicing.

Table 3 shows the updated financials of the Downtown Parking Master Plan.

**Table 3 - Updated Financial View**

	<b>2015 Approved Model</b>	<b>2018 Updated Model</b>
<b>City contribution (tax base)</b>	\$1.9M	\$1.9M
<b>Tax burden per \$300K household value</b>	\$29	\$29
<b>% of parking budget</b>	29%	29%
<b>Monthly permits &amp; daily rates</b>	Monthly: \$120-\$160 Daily: \$14	Monthly: \$120-\$160 Daily: \$20
<b>% of parking budget</b>	54%	52%
<b>On-street paid parking</b>	\$1.75/hr	\$2.00
<b>% of parking budget</b>	16%	18%
<b>Periphery parking permits</b>	\$65K (nominal amount)	\$65K (nominal amount)
<b>% of parking budget</b>	1%	1%
<b>Staff comments</b>	Blended scenario introduces on-street paid parking, downtown periphery parking permits and balances user-pay and City contribution.	Blended scenario introduces on-street paid parking, downtown periphery parking permits and balances user-pay and City contribution. Accounts for increase in debt servicing for Wilson and Baker Parkades

The 2018 DPMP update maintains the previously approved revenue sources from property tax, monthly permits and daily parking revenue, on-street paid parking and periphery parking permits. This scenario continues to deliver growth in the asset replacement reserve and maintains a positive balance in the operating reserve.

The financial implications of removing on-street paid parking revenue from the funding model are provided for comparison in **Attachment 1**. The removal of the on-street paid parking revenue from the funding model requires either an increase in property tax contributions up to \$1.2 million, which is equivalent to a \$18 increase per average household over the 2015 approved tax contribution for a total of \$47 per household, or an increase in permit fees up to \$90 per month for a total of \$250 per month.

As such, Staff continues to recommend the approved funding model which includes on-street paid parking, monthly permit fees and daily rates, property tax contribution and periphery parking permits.

Based on the recommended funding model, the following is recommended for the 2019 Budget:

1. That paid on-street parking be implemented on downtown streets for activation in conjunction with the opening of the Wilson Parkade, with an hourly rate of \$2.00.
2. That the permit fees in the parkades increase to \$135.00 (HST inclusive, a \$29 one time increase) in February, 2019 and continue to increase by 5% for the subsequent three (3) years; moving parkade permit fees in line with the financial model projections.
3. That the permit fees in all surface lots increase by 10% in February, 2019 and continue to increase by 5% for the subsequent three (3) years; moving surface lot permit fees in line with the financial model projections.
4. That the permit fee for the Wilson Street parkade, at its opening in 2019 be set at \$158.00 (HST inclusive) and increase at the approved rate each budget year in line with the financial model projections.

## Consultations

The results of an extensive community engagement program in 2015 supported a business model that is similar to the recommended scenario. This program was conducted from late August 2015 through to late September 2015 and resulted in 448 responses. In summary 65% of respondents supported a system where everyone contributes, this through a combination of taxation, parking permits and paid on-street parking.

With respect to on-street parking downtown, engagement results showed an even split of community opinion regarding a re-introduction of a payment system. As such, staff continues to recommend that a measured, phased approach to paid on-street parking be developed and implemented.

## Corporate Administrative Plan

### Overarching Goals

Financial Stability  
Service Excellence  
Innovation

### Service Area Operational Work Plans

Our Services - Municipal services that make lives better  
Our Resources - A solid foundation for a growing city

## Attachments

ATT-1 Downtown Parking Master Plan – Financial Scenarios & Considerations

## Departmental Approval

Greg Clark, Manager Financial Strategy Long Term Planning  
Allister McIlveen, Manager Transportation Services

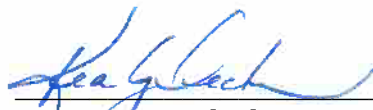
## Report Author

Jamie Zettle, Program Manager, Parking



### Approved By

Kealy Dedman, P.Eng.  
General Manager/City Engineer  
Engineering and Capital  
Infrastructure Services  
519.822.1260, ext. 2248  
kealy.dedman@guelph.ca

 for

### Recommended By

Scott Stewart, C.E.T.  
Deputy CAO  
Infrastructure, Development and  
Enterprise Services  
519.822.1260, ext. 3445  
scott.stewart@guelph.ca

## Attachment 1 - Downtown Parking Master Plan - Financial Scenarios & Considerations

	City budget			User pay budgets					
	City Contribution (tax base)	Tax burden per \$300K household value	% of parking budget	Downtown monthly permit & daily rates	% of total parking budget	Downtown paid on street parking	% of total parking budget	Downtown periphery parking permits	% of total parking budget
<b>2015 Approved scenario:</b> Blended model introduces paid on-street parking and downtown periphery parking permits	\$1.9M	\$29	29%	Monthly \$120-\$160 Daily: \$14	54%	\$.175/hr	16%	\$65K (nominal amount)	1%
<b>RECOMMENDED 2018 Update:</b> Blended model introduces paid on-street parking and downtown periphery parking permits	\$1.9M	\$29	29%	Monthly \$120-\$160 Daily: \$20 \$3.6M	52%	\$2.00/hr \$1.2M	18%	\$65K (nominal amount)	1%
<b>Alternative A:</b> No on-street paid parking, difference supported by tax increases only	\$3.1M	\$47	47%	Monthly \$120-\$160 Daily: \$20 \$3.6M	52%	No charge	0%	\$65K (nominal amount)	1%
<b>Alternative B:</b> No on-street paid parking, difference supported by permit increases only	\$1.9M	\$29	29%	Monthly \$175-\$250 Daily: \$20 \$4.8M	70%	No charge	0%	\$65K (nominal amount)	1%
<b>Alternative C:</b> No on-street paid parking, difference supported equally by tax & permit increases	\$2.5M	\$38	38%	Monthly \$130-\$160 Daily: \$20 \$4.2M	61%	No charge	0%	\$65K (nominal amount)	1%



---

Committee of the Whole

# Asset Management Program Progress and Policy Update

By Daryush Esmaili

---

May 7, 2018

# Agenda

Asset Management Progress Update

## Introduction

- Guelph's asset management mission
- Key goals

## Strategic Asset Management Policy Update

- O.Reg 588/17
- Policy revisions

## Asset Management Progress Update

- Asset management objectives
- Key initiatives

## Next Steps

- Asset management journey
- Closing remarks

# Our Asset Management Mission



“Our mission is to **protect** and **enhance** the quality of life in Guelph by:

- Making the **best possible decisions** regarding our assets
- In a way that provides **targeted levels of service** and
- **Manages risk** in a **cost-effective** manner throughout the entire asset lifecycle.”



# Goals

Asset Management Progress Update



Providing  
Satisfactory  
Levels of  
Service



Managing Risks



Optimizing Lifecycle  
Costs



Making the Best  
Possible Decisions  
About Assets



Based on a clear  
understanding of the  
long term objectives and  
purpose

Provide levels of service that meet expectations and ensure a high quality of life for the community through:

- Defining levels of service in consultation with stakeholders;
- Evaluating and communicating the cost of providing the service; and
- Quantifying the impacts of decisions on service.

# Goals

Asset Management Progress Update



Providing  
Satisfactory  
Levels of  
Service



Managing Risks



Optimizing Lifecycle  
Costs



Making the Best  
Possible Decisions  
About Assets



Based on a clear  
understanding of the  
long term objectives and  
purpose

## Key Initiatives:

- Corporate Asset Level of Service Framework

# Goals

Asset Management Progress Update



Providing  
Satisfactory  
Levels of  
Service



Managing Risks



Optimizing Lifecycle  
Costs



Making the Best  
Possible Decisions  
About Assets



Based on a clear  
understanding of the  
long term objectives and  
purpose

Managing risks through:

- Understanding risk exposure and establishing the organization's risk appetite
- Developing risk management strategies
- Implementing appropriate condition assessment, inspection, and performance evaluation strategies for all relevant assets
- **Understanding potential vulnerabilities to climate change**
- **Implementing appropriate climate change adaptation and mitigation strategies**

# Goals

Asset Management Progress Update



Providing  
Satisfactory  
Levels of  
Service



Managing Risks



Optimizing Lifecycle  
Costs



Making the Best  
Possible Decisions  
About Assets



Based on a clear  
understanding of the  
long term objectives and  
purpose

## Key Initiatives:

- Water, Wastewater and Stormwater Linear Risk Framework
- Corporate Asset Risk Management Strategy
- Solid Waste Inventory and Condition Assessment
- Wastewater Inventory and Condition Assessment
- Bridge and Structure Condition Assessment

# Goals

Asset Management Progress Update



Providing  
Satisfactory  
Levels of  
Service



Managing Risks



Optimizing Lifecycle  
Costs



Making the Best  
Possible Decisions  
About Assets



Based on a clear  
understanding of the  
long term objectives and  
purpose

Demonstrating sustainable, full lifecycle planning through:

- Quantifying and tracking the full lifecycle costs for assets;
- Ensuring budgets are supported by asset management practices; and
- Bridging the gap between capital and operational budgets.

# Goals

Asset Management Progress Update



Providing  
Satisfactory  
Levels of  
Service



Managing Risks



Optimizing Lifecycle  
Costs



Making the Best  
Possible Decisions  
About Assets



Based on a clear  
understanding of the  
long term objectives and  
purpose

## Key Initiatives:

- Enterprise asset management implementation
- Value optimization framework
- 2019-2028 Capital forecast based on available funding
- Capital planning steering committee
- Whole life costing options analysis

# Goals

Asset Management Progress Update



Providing Satisfactory Levels of Service



Managing Risks



Optimizing Lifecycle Costs



Making the Best Possible Decisions About Assets



Based on a clear understanding of the long term objectives and purpose

Ensuring accountability, transparency and engagement through:

- Documenting asset management business processes
- Publicizing asset management documents such that they are accessible to all stakeholders
- Developing stakeholder engagement strategies to ensure that internal and external stakeholders are able to participate, influence, and contribute to asset management initiatives

# Goals

Asset Management Progress Update



Providing Satisfactory Levels of Service



Managing Risks



Optimizing Lifecycle Costs

Making the Best Possible Decisions About Assets

Based on a clear understanding of the long term objectives and purpose

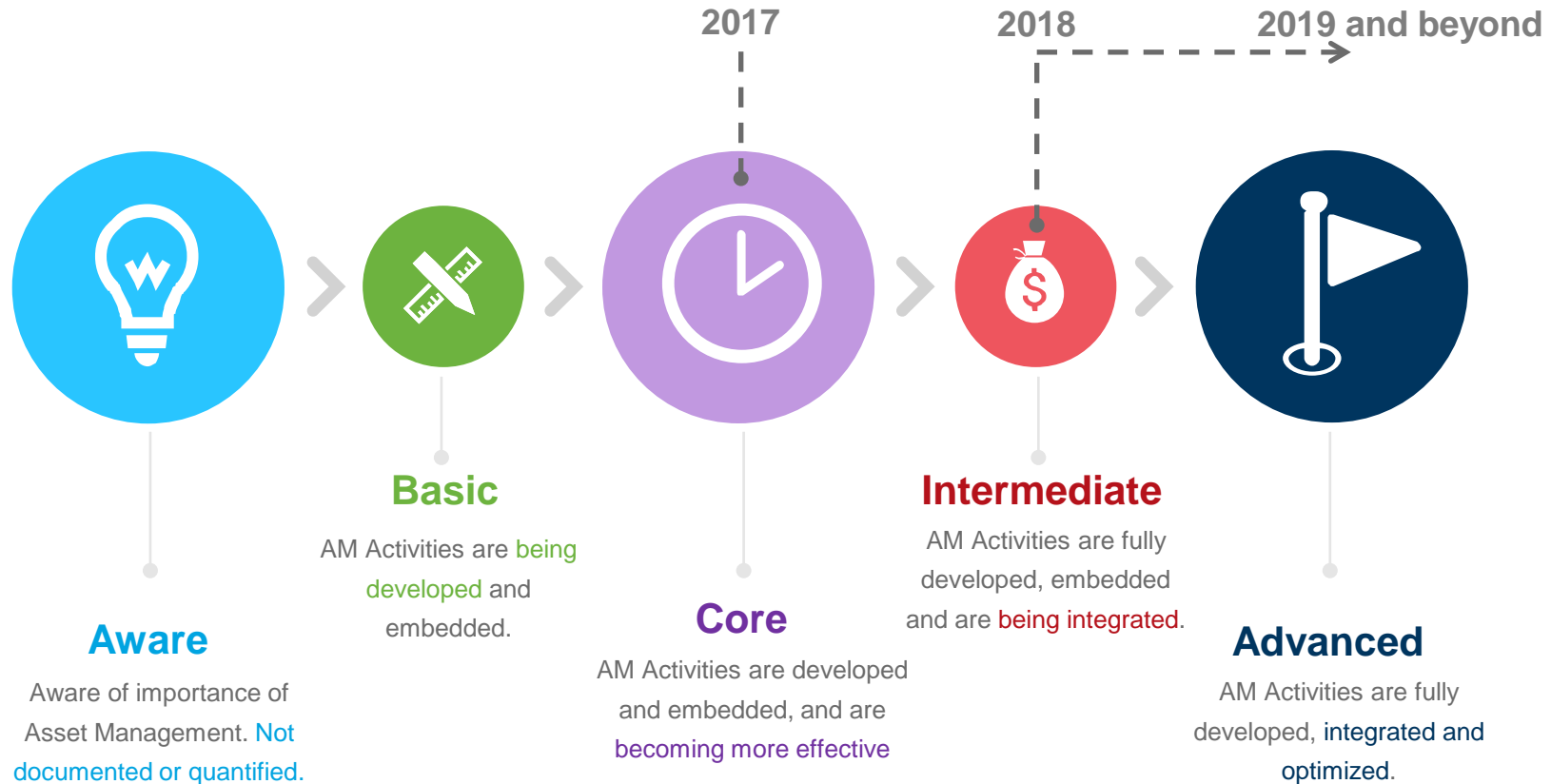
## Key Initiatives:

- Asset portfolio management plans
- Corporate asset management website ([www.guelph.ca/assets](http://www.guelph.ca/assets))
- Asset management steering committee
- Corporate asset management training for key staff across the organization



# Asset Management Capabilities

Asset Management Progress Update



# O. Reg 588/17

Strategic Asset Management Policy Update

- O. Reg 588/17 under the Infrastructure for Jobs and Prosperity Act, 2014 was posted in December, 2017.
- The regulation requires:
  - ✓ ■ A Strategic AM Policy by July 1, 2019
  - ✓ ■ An AMP (Core Assets) by July 1, 2023
  - ✓ ■ Proposed levels of service by July 1, 2024
  - ✓ ■ Annual Council presentation of Asset Management



# Key Policy Revisions

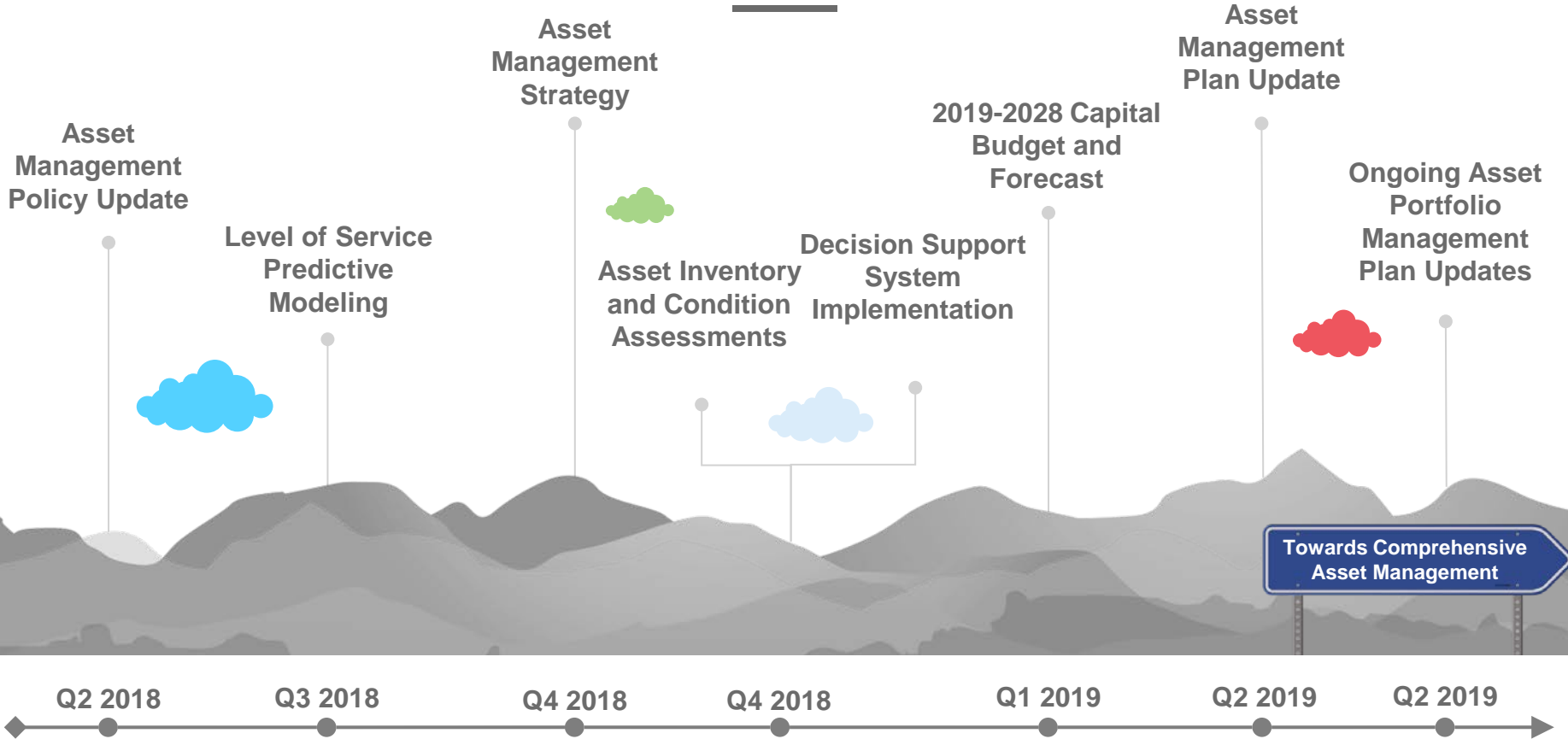
Strategic Asset Management Policy Update

- Changing the title from “Corporate Asset Management Policy” to “Strategic Asset Management Policy”
- Including an Asset Management Strategy
- Specific requirements around section 3 of the Infrastructure for Jobs and Prosperity Act, 2014.
- Incorporating vulnerabilities to climate change.
- Assigning Scott Stewart, DCAO, Infrastructure, Development and Enterprise as the Executive Lead.



# Asset Management Journey: Next Steps

Work Plan



Towards Comprehensive Asset Management

# Closing Remarks

Asset Management Progress Update

- Our asset management **maturity is advancing**.
- We are **on track** to achieve our asset management objectives.
- You will see increasing **integration** between asset management and budgeting this year and beyond.
- We are **well positioned for meeting and exceeding** the new asset management regulations.



# Thank you

Questions and Discussion



**Daryush Esmaili**

Manager of Corporate Asset and Project Management

📞 519-822-1260 x 2765

✉️ [Daryush.Esmaili@guelph.ca](mailto:Daryush.Esmaili@guelph.ca)

**Kealy Dedman**

General Manager / City Engineer

📞 519-822-1260 x 2248

✉️ [Kealy.Dedman@guelph.ca](mailto:Kealy.Dedman@guelph.ca)

---

To **Committee of the Whole**

Service Area Infrastructure, Development and Enterprise Services

Date Monday, May 7, 2018

Subject **Asset Management Program Progress and Policy Update**

Report Number IDE-2018-68

---

## Recommendation

1. That the report "Asset Management Program Progress and Policy Update," dated May 7, 2018, be received and that staff be directed to proceed with the work plan as outlined.
2. That Council approve the updated 2018 Strategic Asset Management Policy.

## Executive Summary

### Purpose of Report

The purpose of this report is to provide a progress update on the implementation of the Corporate Asset Management Program and Asset Management Policy objectives. A new Strategic Asset Management Policy is presented for approval which has been amended to align with the new requirements of O. Reg. 588/17, which were filed in December 2017.

### Key Findings

- Since 2016, the City has been rapidly advancing the City-wide asset management program. With the goal of ensuring that the City makes the best possible decisions regarding its assets, initiatives have been implemented to increase the knowledge of infrastructure, document levels of service, manage risks, and implement full lifecycle planning.
- Over that time, the City's asset management capabilities have advanced from "Basic" (2.6 out of 5) to "Core" (3.4 out of 5), when measured against the International Infrastructure Management Manual maturity index (IPWEA, 2015). The current work plan aims to advance this further to "Intermediate" at 4.6 out of 5 by 2020.
- In December 2017, *O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure* was filed, which sets out new requirements for Asset Management Planning and the Strategic Asset Management Policy. Accordingly, the City has updated the Asset Management Policy to align with the new regulated

requirements. This involved re-naming the document from “Corporate Asset Management Policy” to “Strategic Asset Management Policy” to align with the terminology in the regulation.

## **Financial Implications**

This report includes no direct financial implications; however, one of the fundamental goals of lifecycle asset management is to consider the lowest long-term cost and maximum value when making decisions. The findings from the asset management program have already provided valuable inputs to the 2018-2027 capital budget and forecast as well as the 2018 tax and non-tax operating budgets, and will inform future budgets to a greater extent as the maturity continually improves.

There are a number of initiatives currently underway which will solidify the City’s maturing direction of having the asset management plan inform capital budgeting and long-term sustainable planning.

- Staff are currently drafting a revised Capital Funding Guideline for Council endorsement through the 2019 budget process. The current model of funding capital to a limit of 20% of the operating budget is out-dated and needs to be informed by the long-term funding needs as identified in the asset management plan.
- The 2019 capital budget Programs of Work presentation will be fully aligned to the same service based presentation as the asset management plan.
- Staff are currently working on a ten-year fully funded capital forecast that will be informed by the asset management outcomes. The internal funding allocation methodology used in the development of the 2019-2028 capital budget and forecast will be fully based from the sustainable funding requirements identified in the corporate asset management plan. This funding methodology provides staff with a guideline to assist in building a long-term capital budget that addresses the highest priority needs within the constrained financial environment that the City is operating within. As previously reported, the capital needs continue to out-pace the available funding and the City’s Infrastructure Renewal Reserve Fund is depleted to near zero at the end of 2017.
- A project value optimization framework has also been developed with the intent to provide a means to quantify the benefits and costs of each project and value to stakeholders. Overall this will help ensure the best possible decisions are being made regarding our assets, based on evidence-based business cases and long term financial forecasts that support sustainability.



# Report

## Introduction

Since 2016, the City of Guelph (the City) has been rapidly advancing its corporate asset management program with the end goal of protecting and enhancing the quality of life in Guelph by making the best possible decisions regarding the asset portfolio. In March 2017, the City’s first Corporate Asset Management Plan and Policy were approved by Council, which outlined the processes and practices in place to get the maximum value from the City’s assets and ensure the delivery of City services for the foreseeable future.

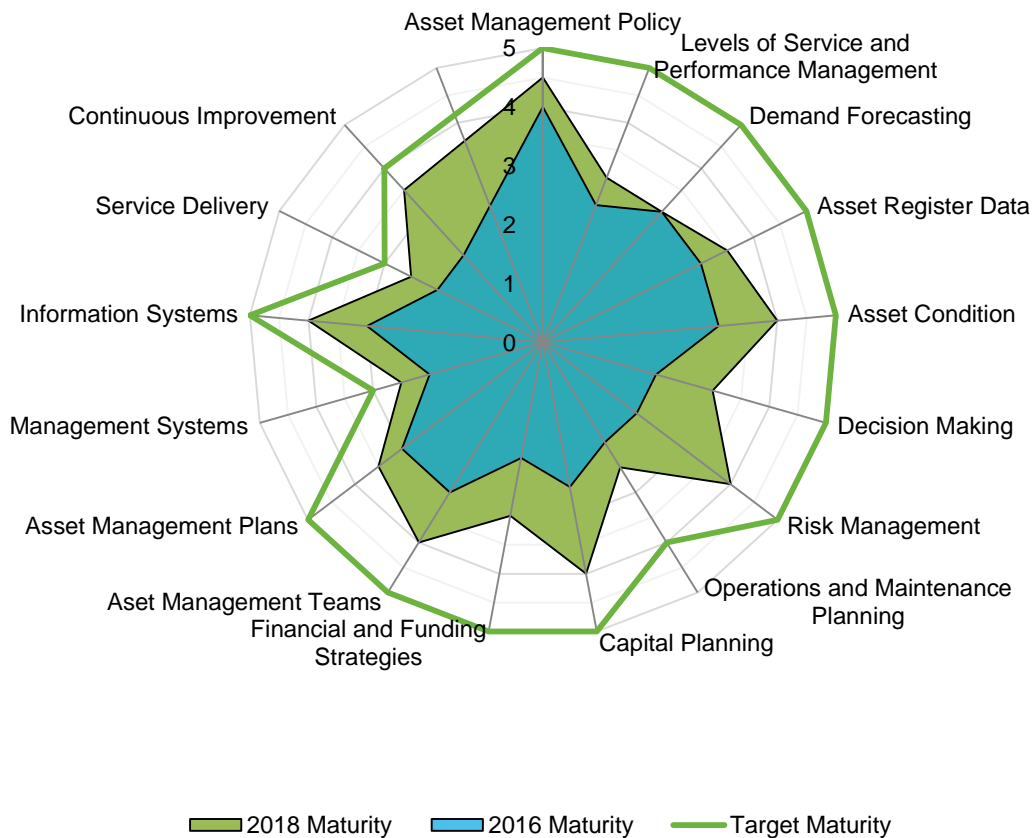
Within the 2017 Asset Management Policy (the Policy), the City made a commitment to report to Council annually on the asset management program progress. Since 2017, Ontario Regulation (O. Reg.) 588/17 (the Regulation) was filed, which set out specific requirements related to asset management policies and asset management plans. This report provides a summary of the City’s current Asset Management Program progress, as well provides a summary of changes to the Asset Management Policy to align with the Regulation. For consistency with O.Reg.588/17, the “Corporate Asset Management Policy” will be re-named to “Strategic Asset Management Policy”.

## Asset Management Program Progress

One of the goals of the first asset management plan was to establish a baseline of asset management practices to inform a work plan for continuous improvement of the asset management program into the future. In order to ensure the most appropriate execution of the Asset Management Program, a diagnostic assessment of city-wide asset management capabilities was completed according to the International Infrastructure Management Manual (IIMM) maturity index (IPWEA, 2015) to identify strengths and key opportunities for improvement. The IIMM maturity index outlines a five-stage maturity progression ranging from “aware” to “advanced” in 16 key asset management functions. The 2016 assessment baselined the City’s capabilities to be at the “basic” level (2.6 out of 5), and a detailed work plan was established to address opportunities for improvement. Target maturity levels were established, and a detailed work plan was developed in order to achieve the targets. **Attachment 1** provides a breakdown of each initiative within the work plan, the status, timelines and targeted benefits.

In 2018, an updated maturity assessment has been completed in order to evaluate progress against the 2016 baseline. **Figure 1** provides a summary of the 2016, 2018 and long term target maturity of our asset management program in each key aspect of the asset management system. As can be seen from the figure, the work over the last two years has moved the City in almost every aspect, resulting in the overall rating being in the “core” category (3.3 out of 5). The draft work plan aims to continue moving the bar further forward to “intermediate” (4.6 out of 5) by 2020.

**Figure 1. 2016, 2018 and Target Asset Management Maturity**



Through consultation with representatives from every department at the City, as well as with Council, the City established five key objectives for the corporate asset management program as part of the Asset Management Policy. The five key objectives, as well as the key initiatives that are either in progress or have been completed are summarized in **Table 1**. These initiatives correspond to key initiatives included in **Attachment 1**. As can be seen from **Table 1**, since 2016 significant foundational components of the asset management program have been completed. In particular:

- Development of a level of service framework:** Including level of service measures, targets and relationships for the full asset portfolio. This framework included the development of financial performance models to simulate the impacts of funding levels on levels of service over time. This initiative received grant funding under the Federation of Canadian Municipalities (FCM) Municipalities for Climate Innovation Program (MCIP), and is approximately 90% complete. It is expected to be complete in May, 2018.

- Development of risk management frameworks:** Developed for water, wastewater, and stormwater in detail. These frameworks use a combination of material science, statistics and business analytics to quantify risks, and recommend optimum inspection and testing programs. This project is approximately 95% complete, and is expected to be completed in May, 2018. In addition, risk models are being developed across the entire portfolio, with an expected completion date of June, 2018.
- Completing inventory data collection and condition assessments:** Conducted for roads, sewers, solid waste, wastewater facilities, and structures. These studies enable to City to analyze the assets, where they are, and what condition they are in. In addition, they provide the evidence to support business cases, as well as provide an understanding of risks and investment needs.

For a full list of initiatives, please see **Attachment 1**.

**Table 1. Summary of Asset Management Goals and Key Initiatives**

<b>Goals and Sub-Goals</b>	<b>Key Initiatives</b>
<ul style="list-style-type: none"> <li>• Provide levels of service that meet expectations and ensure a high quality of life for the community through:               <ul style="list-style-type: none"> <li>○ Defining levels of service in consultation with stakeholders;</li> <li>○ Evaluating and communicating the cost of providing the service; and</li> <li>○ Quantifying the impacts of decisions on service.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Developed Level of Service Framework for 17 asset portfolios.</li> <li>• Developed performance and financial forecasts for 17 asset portfolios.</li> </ul>
<ul style="list-style-type: none"> <li>• Managing risks through:               <ul style="list-style-type: none"> <li>○ Understanding risk exposure;</li> <li>○ Establishing the organization’s risk appetite;</li> <li>○ Developing risk management strategies; and</li> <li>○ Implementing appropriate condition assessment, inspection, and performance evaluation strategies for all relevant assets.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Developed water, wastewater, and stormwater risk management framework.</li> <li>• In the process of developing risk frameworks for 17 asset portfolios.</li> <li>• Inventory and condition assessments for roads, sewers, solid waste, wastewater facilities, and structures.</li> </ul>

Goals and Sub-Goals	Key Initiatives
<ul style="list-style-type: none"> <li>• Demonstrating sustainable, full lifecycle planning through:               <ul style="list-style-type: none"> <li>○ Quantifying and tracking the full lifecycle costs for assets;</li> <li>○ Ensuring budgets are supported by asset management practices; and</li> <li>○ Bridging the gap between capital and operational budgets.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Conducting full lifecycle analysis for the asset management plan.</li> <li>• Integrating asset management plan data into budget analysis.</li> <li>• Development of integrated capital budget.</li> <li>• Supporting the Enterprise Asset Management Implementation.</li> </ul>
<ul style="list-style-type: none"> <li>• Ensuring accountability, transparency and engagement through:               <ul style="list-style-type: none"> <li>○ Documenting asset management business processes;</li> <li>○ Publicising asset management documents such that they are accessible to all stakeholders; and</li> <li>○ Developing stakeholder engagement strategies to ensure that internal and external stakeholders are able to participate, influence, and contribute to asset management initiatives, where appropriate.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Development of <a href="http://www.guelph.ca/assets">www.guelph.ca/assets</a> to publicize asset management documents.</li> <li>• Developing consultation strategies as part of the level of service project.</li> <li>• Documenting asset system management plans for Parks and Recreation and parking.</li> <li>• Piloting an asset management certificate training program with 18 staff across the organization.</li> </ul>

## Updated Strategic Asset Management Policy

In December 2017, *O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure* was filed, which sets out new requirements for Asset Management Planning and the Strategic Asset Management Policy. The regulation necessitates that every municipality shall prepare its first strategic asset management policy by July 1, 2019. Accordingly, the City has updated the Policy to meet the new regulated requirements.

A copy of the updated Asset Management Policy is included in **Attachment 2**. The key updates to the asset management policy and rationale are as follows:

- Changing the title of the document from “Corporate Asset Management Policy” to “Strategic Asset Management Policy” to align with the terminology in *O. Reg. 588/17*.
- **Page 4:** Updating *Figure 2. Key Documents in the Asset Management System* to include an Asset Management Strategy to better align with best practices. The Asset Management Strategy documents the intended approach by which the assets and other resources will be used to achieve the agreed upon objectives within the agree Policy framework. It provides clear direction, overall intentions and rationale. In addition, the asset management strategy identifies the organizational readiness to achieve the objectives,

including identification of barriers and appropriate implementation plans to overcome the barriers.

- **Page 5:** Incorporating specific requirements around section 3 of the Infrastructure for Jobs and Prosperity Act, 2014. Incorporating a commitment to evaluate vulnerabilities to climate change as per O. Reg. 588/17, as well as Municipalities for Climate Innovation Program grant funding requirements.
- **Page 6:** An explanation of the capitalization thresholds used to determine which assets are to be included in the municipality's asset management plan and how the thresholds compare to those in the municipality's tangible capital asset policy. In addition, a summary of the relationship between Asset Management Plans, Budgets and Financial Plans.
- **Page 7:** Revision of the "Managing Risks" goal to incorporate climate change considerations.
- **Page 8:** Addition of two guiding principles related to providing opportunities for residents and other interested parties to provide input into asset management planning, as well as coordination with other municipalities.
- **Page 10:** Update to the requirements of the annual review. Update to the role of the Executive Lead.
- **Page 13:** Addition of new section: *8. Persons Responsible for Asset Management Planning*. Assigning Scott Stewart, Deputy Chief Administrative Officer, Infrastructure, Development and Enterprise as the Executive Lead as per the requirements of O. Reg. 588/17.

The above noted revisions ensure that the City's Asset Management Policy meets the regulatory requirements of O.Reg. 588/17 well in advance of the legislated deadline.

## Conclusions

Asset management provides a mechanism for reliable, repeatable and transparent decision making. However, asset management is more than just a one-off project. To realize the full benefits of asset management, the principles should be systematically developed, embedded and integrated across all departments, and be continuously improved. The 2016-2020 corporate asset management work plan aims to accomplish that goal. The first year of the work plan met the targets, and several initiatives are ahead of schedule. The initiatives are steadily engraining asset management philosophies into the way we do business, and are gradually aligning teams, processes and resources across the City towards common asset management objectives. As a result, the City is better positioned to optimize the balance between asset performance, service and asset risks that will create real value for the City of Guelph and its citizens.

## Financial Implications

This report includes no direct financial implications; however, one of the fundamental goals of lifecycle asset management is to consider the lowest long-

term cost and maximum value when making decisions. The findings from the asset management program have already provided valuable inputs to the 2018-2027 capital and operating budget, and will inform future budgets to a greater extent as the maturity continually improves. For example, the 2019-2028 capital budget will be based upon a funding allocation methodology based on sustainable funding requirements from the corporate asset management plan. This methodology bases funding allocation on asset lifecycle investment needs that minimize risks and ensure levels of service are being met.

For infrastructure renewal projects, the initial funding allocations will be based on the Corporate Asset Management Plan 100 year average forecasted need. Based upon a proportional allocation within the funding constraints, a long-range capital project forecast is to be presented in the 2019-2028 capital budget process. This forecast will indicate the realistic timing of projects over the next ten years and beyond. Through developing the risk management and level of service frameworks, the City will be well-positioned to communicate the long-term impacts of proposed budgets and funding constraints.

A fundamental component of asset management is to derive maximum value from the City's assets. With this in mind, the City has developed project value measurement tool to support the capital budget process. The tool is based upon economic principles to provide a means to quantify the benefits and costs of each project. The tool aims to measure how well the project provides value to the city in terms of achieving the objectives of internal and external stakeholders. This will be used to maximize the overall value of the capital budget project forecast and further support options and scenario analysis. The framework measures project factors related to:

- How the project will impact quality of life and liveability;
- The risks of not completing the project;
- Whether the project will support or result in economic growth or new economies;
- Whether the project will result in ongoing cost savings and efficiency, or conversely, additional costs;
- The opportunity costs of completing the project; and
- Limitations and constraints.

As work continues on the Corporate Asset Management Program, the level of sophistication and detail in both the funding allocation and project optimization is expected to increase. In addition, the integration between asset management planning and capital budgeting will only get stronger. Overall this will help ensure the best possible decisions are being made regarding our assets, based on evidence-based business cases and long term financial forecasts that support sustainability.

## Consultations

Consultation and communication are key elements of the corporate asset management program. A City-wide asset management steering committee meets quarterly to make key decisions and coordinate efforts related to the asset management program. In addition to internal consultation and follow-up reporting to Council, [www.guelph.ca/assets](http://www.guelph.ca/assets) includes an overview of asset management fundamentals, and a compendium of asset management related staff reports, the asset management policy, asset management plans and other related documents.

## Corporate Administrative Plan

### Overarching Goals

Service Excellence  
Financial Stability  
Innovation

### Service Area Operational Work Plans

Our Services - Municipal services that make lives better  
Our People - Building a great community together  
Our Resources - A solid foundation for a growing city

## Attachments

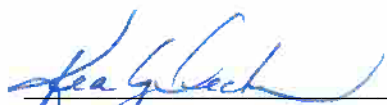
ATT-1          2016-2020 Asset Management Work Plan Initiatives  
ATT-2          Updated 2018 Corporate Asset Management Policy

## Departmental Approval

Tara Baker, General Management Finance/Treasurer  
Asset Management Steering Committee

## Report Author

Daryush Esmaili, Manager of Corporate Asset and Project Management



### Approved By

Kealy Dedman, P.Eng.  
General Manager/City Engineer  
Engineering and Capital  
Infrastructure Services  
519.822.1260, ext. 2248  
kealy.dedman@guelph.ca



### Recommended By

Scott Stewart, C.E.T.  
Deputy CAO  
Infrastructure, Development and  
Enterprise Services  
519.822.1260, ext. 3445  
scott.stewart@guelph.ca

for

## ATT-1 2016-2020 Asset Management Work Plan Initiatives

Work Plan Item	Timing	Targeted Benefits
Asset Management Governance Structure	2016 (Complete)	<ul style="list-style-type: none"> <li>• Facilitates knowledge sharing, collaboration, coordination of works, and Asset Management improvement activities.</li> <li>• Clearly defines roles and responsibilities.</li> <li>• Promotes collaboration and reduces silos.</li> </ul>
2017-2026 Capital Budget	2016 (Complete)	<ul style="list-style-type: none"> <li>• Development of detailed decision making frameworks and tools for engineering budget.</li> <li>• Development of Engineering Capital Project Inventory, to enable forecasting for 10-15 years.</li> </ul>
Asset Management Policy	2016-2017 (Complete)	<ul style="list-style-type: none"> <li>• Broadly outlines the principles and requirements for undertaking asset management across the organization in a structured and coordinated way, consistent with the organization's strategic plan.</li> <li>• Clarifies the vision, mission and objectives for Asset Management.</li> <li>• Increases awareness, priority and leadership for Asset Management.</li> </ul>
Corporate Asset Management Plan	2016-2017 (Complete)	<ul style="list-style-type: none"> <li>• Clarifies the vision for Asset Management and provides a mandate and direction for City staff.</li> <li>• Forms the basis of discussion with Council regarding the impact on levels of service and changes to the capital works budget.</li> <li>• Provides a business case for the long term financial forecasts.</li> <li>• Provides a commitment to long term planning and improvement to Asset Management.</li> </ul>
Integrated Capital Planning Process Development	2016-2017 (Complete)	<ul style="list-style-type: none"> <li>• Improved efficiency running integration analysis.</li> <li>• Optimization of approximately 60 per cent of the City's overall capital budget.</li> </ul>
Asset Hierarchy and Register	2016-2018 (in progress)	<ul style="list-style-type: none"> <li>• Provides a robust database for enabling most asset management functions.</li> <li>• Increase the confidence in recommendations and decisions.</li> <li>• Facilitate coordination between departments and service areas.</li> <li>• Improved planning of budgets due to improved historical data and analysis capabilities.</li> </ul>
Asset Full Lifecycle Costing Models	2017 (Complete)	<ul style="list-style-type: none"> <li>• Quantification of full project lifecycle costs, based on assumed unit rates for use in options analysis.</li> </ul>



<b>Work Plan Item</b>	<b>Timing</b>	<b>Targeted Benefits</b>
Asset System Management Plans	2018-2020 (in Progress)	<ul style="list-style-type: none"> <li>• Establishes long term plans (typically 20 years or more for infrastructure assets) that outline the asset activities for each asset system, and resources to provide a defined level of service in the most effective way.</li> <li>• Establishes detailed road map for future asset management activities by asset system.</li> </ul>
Asset Management Policy Update	2018 (Complete)	<ul style="list-style-type: none"> <li>• Updates to incorporate any best practices, strategic document, or regulatory changes.</li> </ul>
Corporate Asset Management Plan Update	2019	<ul style="list-style-type: none"> <li>• Updates to incorporate improvement initiatives (identified in section 6.1.1, p. 89 of the 2017 Corporate Asset Management Plan).</li> </ul>
2018-2027 Capital Budget	2017 (Complete)	<ul style="list-style-type: none"> <li>• Development and incorporation of results from asset management initiatives and asset system management plans.</li> <li>• Comprehensive, prioritized 10-15 year forecasts for all asset systems.</li> </ul>
2019-2028 Capital Budget	2018 (In Progress)	
2020-2029 Capital Budget	2019	
2021-2030 Capital Budget	2020	
Asset Responsibility Review	2017-2018 (In Progress)	<ul style="list-style-type: none"> <li>• Clear understanding of who is responsible for what aspect of the asset lifecycle.</li> <li>• Establishment of budget requirements based on defined responsibilities.</li> </ul>
Water, Wastewater, and Stormwater GIS Data Modelling	2017 (In Progress)	<ul style="list-style-type: none"> <li>• Improving the confidence in recommendations and decisions.</li> <li>• Reduce call-outs for locates in locations where there are no known assets.</li> <li>• Improve capital budgeting analysis.</li> </ul>
Enterprise Asset Management (EAM) Implementation (CMMS)	2017-2018 (In Progress)	<ul style="list-style-type: none"> <li>• Tracking of maintenance activities and resources to assets and locations.</li> <li>• Facilitates advanced lifecycle analysis of assets.</li> </ul>
Corporate Level of Service Framework	2017-2018 (In Progress)	<ul style="list-style-type: none"> <li>• Outlines the required service outputs from each asset.</li> <li>• Identifies service output targets to support organizational objectives.</li> <li>• Provides mechanism to balance the cost of service and the quality (or level) of service.</li> </ul>
Service Reviews and Corporate Accountability Framework	2017-2018 (Complete)	

<b>Work Plan Item</b>	<b>Timing</b>	<b>Targeted Benefits</b>
Water, Wastewater and Stormwater Risk Management Framework	2017-2018 (In Progress)	<ul style="list-style-type: none"> <li>• Clear understanding of risks and critical infrastructure.</li> <li>• Develops strategies to minimize the risk of catastrophic failure of assets which could cost millions to repair.</li> <li>• Develops tools to predictively forecast risks.</li> </ul>
Corporate Asset Risk Management and Prioritization Framework	2017-2018 (In Progress)	<ul style="list-style-type: none"> <li>• Enables clear evaluation and communication of risks.</li> <li>• Enables identification of critical and vulnerable infrastructure.</li> <li>• Enables development of targeted risk management strategies.</li> <li>• Enables identification of potential failures and generation of proactive capital and maintenance programs.</li> <li>• Facilitates management and tracking of levels of service</li> </ul>
Decision Support System Functional Review	2018 (Complete)	<ul style="list-style-type: none"> <li>• Identification of functional requirements for a potential decision support system.</li> <li>• Understanding of the needs prior to selecting preferred system.</li> </ul>
Asset Condition Assessment Framework Development	2018-2019 (Complete)	<ul style="list-style-type: none"> <li>• Identifies frequencies to better understand assets and levels of service.</li> <li>• Enables clear analysis of current condition of assets, which directly feeds into informed decision-making.</li> <li>• Assists in allocating funding to the most critical assets and assists in risk management.</li> </ul>
Corporate Asset Preventative and Corrective Maintenance Strategy	2018-2019	<ul style="list-style-type: none"> <li>• Establishes current maintenance activities, best practices activities, frequencies and budget impacts.</li> <li>• Aims to extend asset lifecycles through preventative maintenance strategies.</li> <li>• Maps out resource and financial requirements to meet agreed upon levels of service.</li> </ul>
Service Level Agreement Review	2018-2019 (In progress)	<ul style="list-style-type: none"> <li>• Review and development of service level agreements within the City to assist in clarifying roles and responsibilities.</li> </ul>
Level of Service Predictive Modelling	2019 (In progress)	<ul style="list-style-type: none"> <li>• Provides tools to simulate the long-term impacts of decisions on levels of service and key performance indicators.</li> </ul>
Asset Management Decision Support System	2019-2020 (In progress)	<ul style="list-style-type: none"> <li>• Facilitates faster analysis, and will result in internal analysis efficiencies.</li> <li>• AM staff can spend more time optimizing and analyzing, rather than collating data.</li> <li>• Improved confidence in analysis results.</li> </ul>

<b>Work Plan Item</b>	<b>Timing</b>	<b>Targeted Benefits</b>
Continuous EAM Improvement, Operationalization and Support	2019-2020 (In progress)	<ul style="list-style-type: none"> <li>• Support to ensure that the business processes are implemented, and ensure quality of data.</li> <li>• Development of analysis dashboards and tools.</li> </ul>
Predictive Analytics Updates and Improvements	2019-2020	<ul style="list-style-type: none"> <li>• Advances and improves tools to enable more efficient and effective analysis.</li> </ul>
Water, Wastewater and Stormwater Master Plan	2020	<ul style="list-style-type: none"> <li>• Understanding of future demands and expansion requirements.</li> <li>• Coordinated long range plan to address demand and expansion requirements.</li> </ul>
Detailed Maintenance Strategies	2020 (In progress)	<ul style="list-style-type: none"> <li>• Development of detailed maintenance strategies, standard operating procedures, and business processes to ensure successful and enduring implementation.</li> </ul>
Asset Management Maturity and Capability Audit	2020	<ul style="list-style-type: none"> <li>• Independent audit of asset management system maturity and capabilities to develop an improvement work plan for the next five years.</li> <li>• Understanding of key gaps, opportunities, and a work plan moving forward.</li> </ul>
Asset Management Performance Reporting	2020	<ul style="list-style-type: none"> <li>• Mechanisms to report progress on asset management to the Executive Team.</li> <li>• Tools, techniques and KPIs to report annual progress and opportunities.</li> <li>• Cost-benefit analysis of level of asset management sophistication.</li> </ul>

# CORPORATE ASSET MANAGEMENT POLICY



---

POLICY	Strategic Asset Management Policy
CATEGORY	Corporate
AUTHORITY	All Departments
APPROVED BY	City Council
APPROVAL DATE	
REVISION DATE	April 05, 2018

---

## 1 TERMS AND DEFINITIONS

For consistency, terminology in all official asset management documents shall be consistent with ISO 55000:2014(E) – International Standard for Asset Management<sup>1</sup>.

For the purposes of this document, the following definitions apply:

<b>Asset</b>	An Item, thing or entity that has potential or actual value to an organization.  <i>Note: Value is the importance, worth, or usefulness of something. Potential value is the value of the asset that is contingent on the occurrence of stated assumptions.</i>
<b>Asset Management</b>	Coordinated activity of an organization to realize value from assets.
<b>Asset Management Plan</b>	Documented information that specifies the activities, resources, and timescales required for an individual asset, or a grouping of assets, to achieve the organization’s asset management objectives.
<b>Asset Management System</b>	The people, processes, tools and other resources involved in the delivery of asset management.
<b>Asset System</b>	Set of assets that interact or are interrelated.

---

<sup>1</sup> ISO/IEC. (2014). ISO International Standard ISO/IEC 55000:2014(E) – Asset management – Overview, principles and terminology. Geneva, Switzerland: International Organization for Standardization (ISO).

<b>Corporate Asset Management</b>	The application of asset management principles at a corporate level to maximize consistency among diverse asset groups. Corporate asset management creates efficiency by harmonizing service levels and business processes wherever possible.
<b>Lifecycle</b>	Stages involved in the management of an asset.
<b>Level of Service</b>	Parameters or a combination of parameters, which reflect social, political, environmental and economic outcomes that the organization delivers.

## **2 BACKGROUND**

The City of Guelph is responsible for provision of a diverse array of services which are dependent on over \$4 billion in assets. An integral component of ensuring reliable service is creating an effective approach to managing existing and future municipal assets. Effective asset management aims to manage assets in a way that balances levels of service, risk, and cost effectiveness throughout the entire asset lifecycle. Ultimately, adopting effective and comprehensive asset management strategies across the organization will support the long term sustainability and efficiency while maintaining levels of service.

The City produced its first Corporate Asset Management Policy in 2013, which detailed the City's key objectives for asset management, and established a baseline that Guelph has continued to build on. In the summer of 2016, the Corporate Asset Management division was formed to coordinate the development and advancement of the City's Corporate Asset Management system.

## **3 POLICY STATEMENT**

This policy details the principles and general framework for a systematic and coordinated approach to asset management in order to achieve the organization's asset management objectives, guided by the Corporate Administrative Plan 2016-2018.

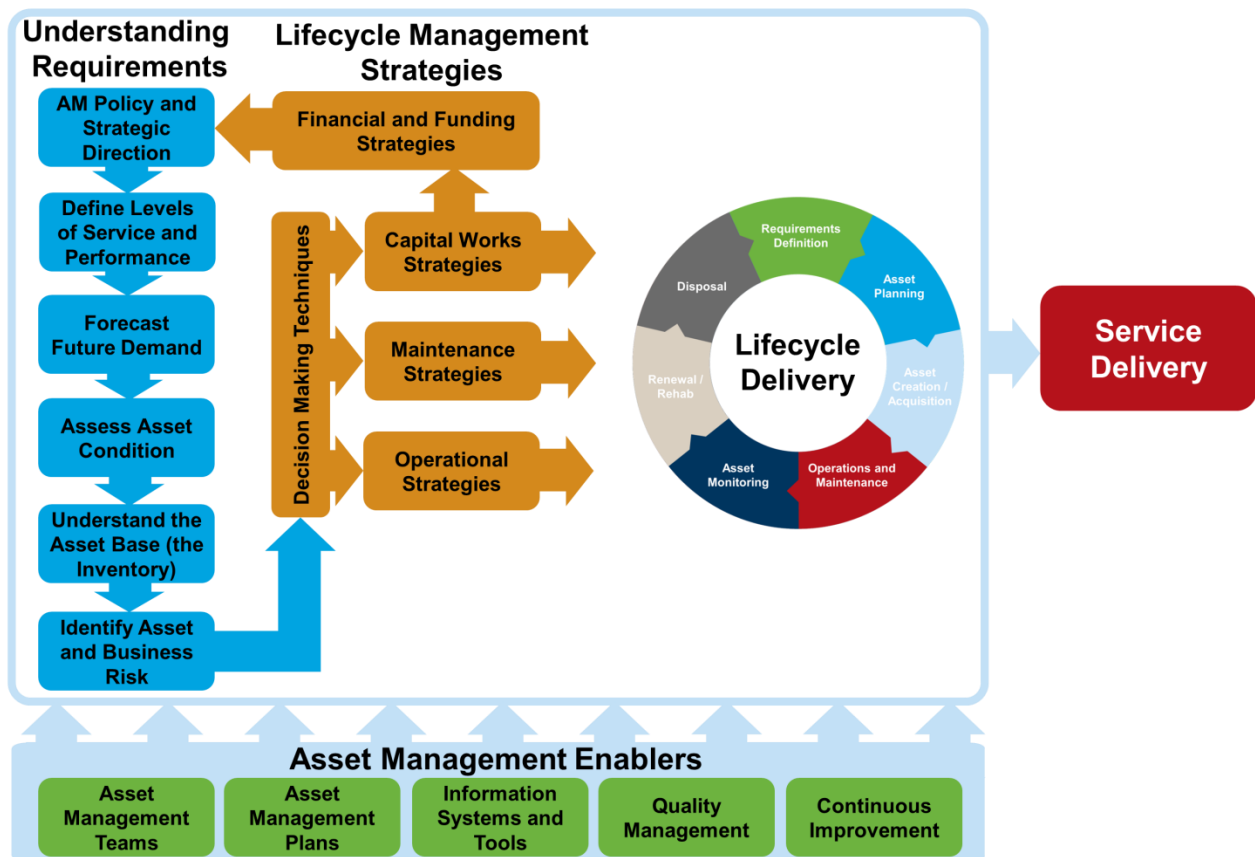
## 4 SCOPE OF THE ASSET MANAGEMENT SYSTEM

### 4.1 Components of the Asset Management System

The City’s asset management system can be categorized into the key processes and resources shown within **Figure 1**. The asset management processes include:

- **Functional Processes:** The processes involved in understanding and defining requirements, and asset lifecycle management strategies; and
- **Enabling Processes/Resources:** The supporting processes and resources that make the functional processes possible.

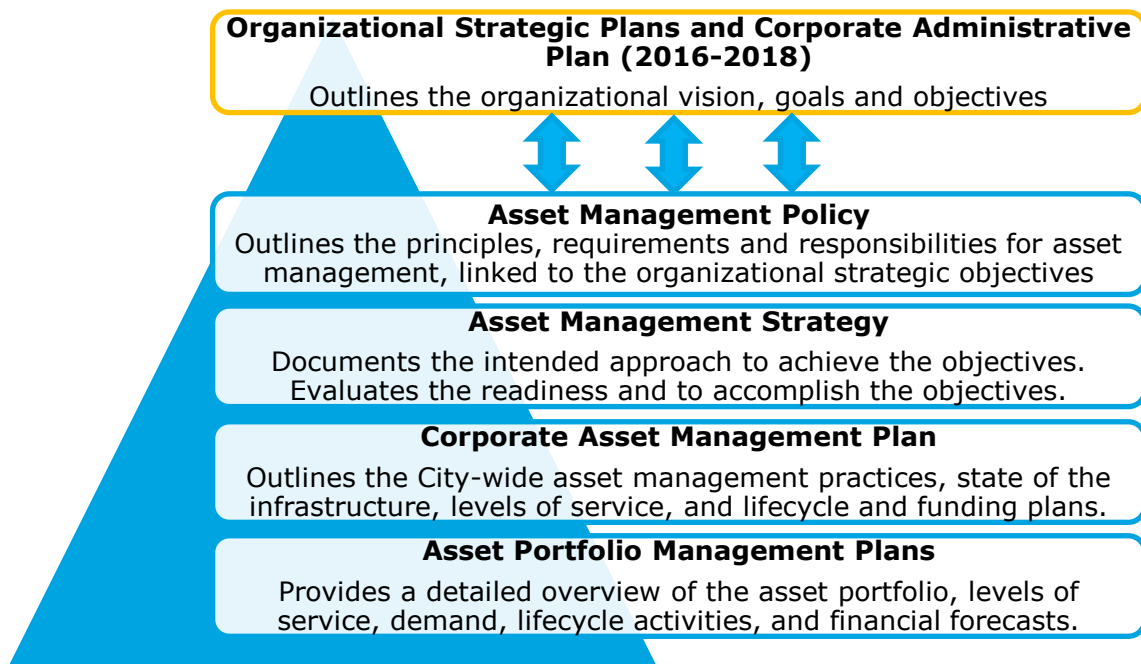
**Figure 1. The Asset Management Process**



## 4.2 Key Documents in the Corporate Asset Management System

The Asset Management System will incorporate the development and implementation of several documents. The key documents within the City’s asset management system are depicted in **Figure 2**, and described in sections **4.2.1** to **4.2.4**.

**Figure 2. Key Documents in the Asset Management System**



### 4.2.1 Strategic Asset Management Policy

The Asset Management Policy shall guide the overall direction of the asset management system, providing clear direction as to the appropriate focus and level of asset management practice expected. It shall establish the key principles, overall mission and goals for the program, and be guided by the Organizational Strategic Plan and the Corporate Administrative Plan.

### 4.2.2 Asset Management Strategy

The Asset Management Strategy documents the intended approach by which the assets and other resources will be used to achieve the agreed upon objectives within the agree Policy framework. It provides clear direction, overall intentions and rationale. In addition, the asset management strategy identifies the organizational readiness to achieve the objectives, including identification of barriers and appropriate implementation plans to overcome the barriers.

#### 4.2.3 Corporate Asset Management Plan

The Corporate Asset Management Plan shall detail the intended asset management programs at a corporate level to allow the City to understand and target service levels and the asset portfolio's capability to meet those requirements. This plan shall be developed to meet the requirements of the Building Together – Guide for Municipal Asset Management Plans,<sup>2</sup> and the guidelines within the International Infrastructure Management Manual, 2015.<sup>3</sup>

Asset management plans are also to be developed based on consideration of principles outlined under section 3 of the Infrastructure for Jobs and Prosperity Act, 2014, and be informed by:

- An understanding of current and future asset condition, needs and costs,
- An understanding of risks and the City's ability to manage risks relating to assets, including disaster planning and any required contingency planning;
- Accessibility standards and other related standards;
- Changing demographics, including population growth or decline; and
- Ontario's land-use planning framework, including any relevant policy statements issued under subsection 3 (1) of the Planning Act, any provincial plans as defined in the Planning Act and the municipality's official plan.

As part of asset management planning, the following considerations are to be included:

- The actions that may be required to address the vulnerabilities that may be caused by climate change to the municipality's infrastructure assets, in respect of such matters as:
  - Operations, such as increased maintenance schedules;
  - Levels of service; and
  - Lifecycle management.
- The anticipated costs that could arise from the vulnerabilities described above;
- Adaptation opportunities that may be undertaken to manage the vulnerabilities described above;
- Mitigation approaches to climate change, such as greenhouse gas emission reduction goals and targets; and

---

<sup>2</sup> *Infrastructure Ontario (2016) Building Together – Guide for Municipal Asset Management Plans. Ottawa, Canada. Queen's Printer of Ontario.*

<sup>3</sup> *IPWEA (2015) International Infrastructure Management Manual. North Sydney, Australia. IPWEA.*



- Disaster planning and contingency funding.

Assets in the asset management plan are not to be subject to a capitalization threshold, and are to be included based upon judgement of whether the asset has value to the organization. The capitalization threshold applied in the municipality's tangible capital asset policy is \$10,000.

Asset management plans shall identify activities to be undertaken, with consideration of the full lifecycle of assets, for at least the ten years following the preparation of that plan or update. In addition, they will document key assumptions made within the plan. Asset management plans are to be updated at no longer than 4 year intervals.

#### **4.2.4 Asset Portfolio Management Plans**

Asset Portfolio Management Plans shall be specific, targeted plans developed through collaboration with the departments who manage each aspect of the asset lifecycles and service. These plans shall further refine the Corporate Asset Management Plan to allow a customized, targeted plan that best supports the daily functions, service and demand levels, and anticipated needs for that asset system. The asset system plans will detail budget requirements and projects that will feed into the City's overall budget.

#### **4.2.5 Relationship between Asset Management Plans, Budgets and Financial Plans**

The outcomes and background data generate through the development of the asset management plans shall form the basis for infrastructure-related long-term financial plans. During the annual budgeting process, projects and funding levels shall be reviewed against the background data and results of the asset management plans. The City's asset management planning should be aligned with any of the following financial plans:

- Financial plans related to the City's water assets including any financial plans prepared under the Safe Drinking Water Act, 2002.
- Financial plans related to the City's wastewater assets.

## **5 ASSET MANAGEMENT MISSION, GOALS AND PRINCIPLES**

### **5.1 Asset Management Mission**

Our mission is to protect and enhance the quality of life in Guelph by making the best possible decisions regarding our assets in a way that provides targeted levels of service and manages risk in a cost-effective manner throughout the entire asset lifecycle.

### **5.2 Asset Management Goals**

- Provide levels of service that meet expectations and ensure a high quality of life for the community through:
  - Defining levels of service in consultation with stakeholders;
  - Evaluating and communicating the cost of providing the service; and
  - Quantifying the impacts of decisions on service.
  
- Managing risks through:
  - Understanding risk exposure;
  - Understanding potential vulnerabilities to climate change;
  - Establishing the organization’s risk appetite;
  - Developing risk management strategies;
  - Implementing appropriate condition assessment, inspection, and performance evaluation strategies for all relevant assets; and
  - Implementing appropriate climate change adaptation and mitigation strategies.
  
- Demonstrating sustainable, full lifecycle planning through:
  - Quantifying and tracking the full lifecycle costs for assets;
  - Ensuring budgets are supported by asset management practices; and
  - Bridging the gap between capital and operational budgets.
  
- Ensuring accountability, transparency and engagement through:
  - Documenting asset management business processes;
  - Publicising asset management documents such that they are accessible to all stakeholders; and
  - Developing stakeholder engagement strategies to ensure that internal and external stakeholders are able to participate, influence, and contribute to asset management initiatives, where appropriate.

### **5.3 Guiding Principles**

The City of Guelph strives to provide exceptional municipal service and value. Asset management at the City is to be guided by the following principles:

**Service excellence:** Achieving quality and showing results.

- Adopt a whole-organization, all asset approach to asset management that holistically considers the interdependencies between asset systems and services throughout their full lifecycle;
- Meet and comply with all relevant legislation, regulatory and statutory requirements and with other requirements to which the organization subscribes;
- Corporate asset management documents are derived from, and be consistent with, the organizational strategic plan, council shared agenda, long-term municipal goals, organizational policies, budgets, financial plans, and the organization's overall risk management framework;
- Asset management documents are communicated and made available to all relevant stakeholders, including contracted service providers, where there is a requirement that these persons are made aware of their asset management-related obligations; and
- Approach asset management from a collaborative, cross-disciplinary perspective while also regularly engaging with relevant stakeholders to maximize value from the assets and services.
- Provide opportunities for municipal residents and other interested parties to provide input into the municipality's asset management planning.
- Coordinate planning for asset management, where municipal infrastructure assets connect or are interrelated with those of other municipalities, neighbouring municipalities or jointly-owned municipal bodies.

**Financial stability:** Managing our resources to achieve maximum public value.

- Ensure that asset management principles are applied to tangible and intangible assets, and that value is considered holistically, in aspects such as

financial, social (quality of life, community wellbeing, heritage) and environmental.

- Develop and implement an evidence-based, systematic approach to asset management that is transparent and customer-centric;
- Optimize asset decisions based on lowest lifecycle cost, acceptable risk levels and desired levels of service to allow for long-term planning that will enhance service and sustainability while also ensuring resilience and adaptability; and
- Provide an annual update to Council on asset management planning progress, factors affecting the ability to meet commitments outlined in the plan, and a strategy to address any shortcomings.

**Innovation:** Modernizing our services and how we work.

- Integrate asset data systems where possible to minimize duplication of effort and improve overall information confidence;
- Strive for asset management practices, processes and capabilities to be in-line with current industry best practices;
- Commitment to continual improvement in asset management, the asset management system, asset management maturity, and asset management performance;
- Performance monitoring and benchmarking internally and against other similar organizations;
- Implement and periodically review asset management documents, objectives, and requirements to ensure that they remain relevant and consistent with the organizational plans and other relevant organizational policies; and
- Annual internal reviews and an independent audit of the asset management system at no longer than 5 year intervals.

## **6 REVIEW PERIOD**

The policy is to be reviewed by the Asset Management Steering Committee annually, and following any changes in regulatory requirements, or updates to the Corporate Strategic Plan or Corporate Administrative Plan.

City Staff shall report to Council on asset management progress and on or before July 1 in each year. The annual review must address:

- The City's progress in implementing its asset management plan;
- Any factors impeding the City's ability to implement its asset management plan; and
- A strategy to address the identified factors.

## **7 ROLES & RESPONSIBILITIES**

### **7.1 Council**

- Approve the strategies and plans as proposed by the Corporate Asset Management Division by a resolution passed by the City Council;
- Serve a representatives of stakeholder and community needs; and
- Approve funding for both capital and operating budgets associated with Asset Management through the annual budget.

### **7.2 Executive Team and Executive Lead**

- Review and approve documents and strategies proposed by the Asset Management Steering Committee, where the implications are organization-wide or external;
- Endorse every asset management plan and policy;
- Participate in the process of aligning asset management strategies and plans with organizational strategies and objectives; and
- Communicate the vision of asset management at a corporate level, encourage engagement with the processes, and provide the guidance necessary to ensure alignment and integration across the organization.

### **7.3 Corporate Asset Management Steering Committee**

- Provide corporate support for asset management;
- Coordinate financial, strategic planning, information technology and asset management activity;
- Establish policies and practices that ensure uniformity of approach across the organization;
- Encourage information sharing and collaboration across departments;
- Provide a corporate pool of asset management expertise that can build capability in areas of lower experience;
- Provide input and direction to Corporate Asset Management work plans to ensure consistency with other initiatives;
- Establish and peer review asset management policies, practices, plans, and other related documents;
- Disseminate Steering Committee information within their department where necessary;
- Champion the asset management process within the respective department;
- Ensure organization-wide accountability for achieving and reviewing corporate asset management goals and objectives;
- Coordinate with other related steering committees where required; and
- Lead the effective implementation of corporate asset management initiatives.

### **7.4 Corporate Asset Management Division**

- Liaise with other departments in service areas relating to asset management, including convening asset management teams (specific to each service area), and ensuring project work is consistent with asset management objectives;
- Liaise with external stakeholders in relation to asset management matters;

- Develop an overall corporate asset management policy, strategy, and confirm the implementation plan/resource requirements;
- Coordinate the development of asset management plans and facilitate peer reviews;
- Coordinate asset management improvement programs including writing briefs for asset management improvement projects and preparing, monitoring and reporting on the overall asset management planning budgets;
- Carrying out selected asset management improvement tasks as appropriate;
- Lead the development of asset inventories, condition assessments, risk assessments and related asset management initiatives in line with industry best practices;
- Work with asset management information systems staff to ensure systems development and functionality meets asset management needs; and
- Continuous improvement of the City's Asset Management capabilities.

### **7.5 Asset System Working Groups and Service Providers**

- Provide input on needs of department, current status of assets, and current levels of service;
- Support and comply with data collection requirements related to their areas of expertise;
- Participate in the development of the Asset Management Work Plans pertaining to their areas of expertise; and
- Participate in the regular review of all documentation, data, and asset measurement tools to ensure continued relevance and applicability of existing policies and practices as pertains to their area of expertise.

## **7.6 Residents, Stakeholders and Customers**

- Participate in public information sessions, and stakeholder engagement initiatives, where possible;
- Provide feedback related to levels of service, service experience, and service expectations; and
- Notify the City, via appropriate means, when service deficiencies or failures are observed.

## **8 PERSONS RESPONSIBLE FOR ASSET MANAGEMENT PLANNING**

### **8.1 Executive Lead**

Scott Stewart, C.E.T.,  
Deputy Chief Administrative Officer  
Infrastructure, Development and Enterprise Services  
Phone: 519-822-1260, ext. 3445  
Email: [scott.stewart@guelph.ca](mailto:scott.stewart@guelph.ca)

### **8.2 Corporate Asset Management Sponsor**

Kealy Dedman, P.Eng.,  
General Manager/City Engineer  
Engineering and Capital Infrastructure Services  
Phone: 519-822-1260, ext. 2248  
Email: [kealy.dedman@guelph.ca](mailto:kealy.dedman@guelph.ca)

### **8.3 Corporate Asset Management**

Daryush Esmaili, M.A.Sc., PMP.,  
Manager of Corporate Asset and Project Management  
Engineering and Capital Infrastructure Services  
Phone: 519-822-1260 ext. 2765  
Email: [Daryush.Esmaili@guelph.ca](mailto:Daryush.Esmaili@guelph.ca)



## **9 CONTACT INFORMATION**

For more information about this policy, or questions related to asset management at the City, please contact:

Daryush Esmaili  
Manager of Corporate Asset and Project Management,  
City of Guelph  
1 Carden St, Guelph, ON, N1H 3A1  
Phone: 519-822-1260 ext. 2765  
Email: [Daryush.Esmaili@guelph.ca](mailto:Daryush.Esmaili@guelph.ca)

# Are red light cameras the answer to reducing accidents in Guelph?

Opinion Aug 09, 2016 Guelph Mercury

It may be a good time for the City of Guelph to consider installing red-light cameras at some of the city's most accident prone intersections. For whatever reason — construction season, traffic volume, summer-vacation hangover — driver patience seems to have reached a critical threshold. Lead-footed drivers are everywhere and public safety is at risk.

Three people were taken to hospital last week following two separate accidents, both of which were caused by red-light runners. The accidents happened within the same hour on opposite ends of the city, and caused close to \$50,000 in damage. It could have been far worse. Driving conditions were ideal. The drivers were not. Both were from out of town. The fact that it doesn't happen here more often is mind boggling.

Cameras are a proven deterrent, forcing drivers to be more aware and preventing many from taking a chance they might live to regret. There's no doubt the cameras have reduced property damage, prevented injury and saved lives.

City officials don't have to look far to find examples of the technology's impact on public safety. The Region of Waterloo installed cameras at 16 intersections and that municipality claims they've been able to reduce angle collisions by 27 per cent, reduce turning collisions by 60 per cent.

In a recent Mercury Tribune article about a police service plan to increase traffic enforcement, Chief of Police Jeff DeRuyter explained the difficulty of putting more resources into that area of policing. He spoke in favour of red light cameras as an alternative measure and suggested the upfront cost shouldn't be considered without community engagement and council debate.

We would argue that if public safety is a priority, then this discussion needs to happen.

Good Morning Cathy

### Background

In December 1998, the provincial government enacted Bill 102, Red Light Cameras Pilot Projects Act, 1998, to allow designated municipalities to use red light cameras for up to two years following date of proclamation. A pilot project followed which included six municipalities - the Cities of Toronto, Hamilton and Ottawa and the Regional Municipalities of Halton, Peel and Waterloo.

The matter of Red Light Cameras was discussed at City Council in 1999 and at that time no action was taken to participate in a pilot project being initiated by the Province.

In August 2004, the province passed legislation allowing the six municipalities to operate red light cameras indefinitely. In June 2007, the provincial government amended the Regulations under the Highway Traffic Act, to permit designated municipalities to use additional cameras at designated locations.

### Going Forward

As a city we look for effective and efficient ways of providing new opportunities to promote road safety as part of an integrated program and in consultation with Guelph Police Services. The ongoing discussion around red light cameras has shown the value of public debate and conversation that occurs with public policy issues such as the use of red light cameras as well as automated speed cameras. However, the use of red light cameras and other camera programs are not in our immediate plan, and would require a full review of all factors before being considered for implementation.

Cathy, if you require additional information as to how the program operates, costing etc. I can provide this to you if needed.

Hope this helps.

Regards,

Allister McIlveen | Manager of Transportation Services

**Subject: RE: Red Light Cameras**

Hi Cathy

Further to your request for additional information regarding Red Cameras please be advised of the following:

1. The fine for running a red light is \$325, which includes a \$60 victim surcharge and \$5 court cost. The municipality would keep \$260 from each charge while the province collects the rest.
2. Because the cameras can't verify who was driving the vehicle at the time of the infraction, the fines are sent to the owner of the vehicle and no demerit points are issued.
3. Intersections with Red Light Cameras are signed to provide advance warning to drivers.
4. The cameras are set to photograph vehicles that enter the intersection after the signal has turned red. Vehicles that enter on yellow and are within the intersection when the light changes to red, are not photographed.
5. The red light cameras can't detect and photograph cyclists who are red light runners. Although cyclists are subject to the same traffic signal regulations as all motorists, there is no current registration system that could verify a cyclist's identity in a photograph.

Program Costs and Process:

Program Costs:

1. A red light camera system costs approximately \$100,000.
2. The annual operating costs range from \$25,000 to \$30,000 annually;
  - a. This budget amount would cover the operations contract to maintain the infrastructure/asset and the City of Toronto and the Ministry of Transportation (MTO) administration fees. The City of Toronto provides a central processing services for the digital photos, review by officers and the processing of the infractions;
  - b. 1 camera is usually rotated through 4 intersections;
  - c. The infrastructure at each intersection is comprised of detection loops installed in the in the approach lanes and the camera box;
  - d. The camera is an industrial 35-mm camera, made for unattended operation outside. The cameras are in a box and mounted on a pole approximately 20 metres before the intersection. They are approximately 3.5 metres above the ground.

## Process

1. Digital photos are downloaded from red light camera locations and are physically transported in a secure manner to the Joint Municipal Processing centre in Toronto where they are processed for a fee;
2. All images are reviewed by a Provincial Offences Officer who verifies that a red light running offence has occurred;
3. The license plate number must be clearly identifiable and validated from the digital image;
4. An Offence Notice Form is completed and mailed to the registered owner of the vehicle;
5. The municipal court system is responsible for trials and appeals.

I hope that his answers some of your questions as to program costs and process.

Regards,

Allister McIlveen | Manager of Transportation Services

Engineering and Capital Infrastructure Services | Infrastructure, Development & Enterprise

City of Guelph

T 519-822-1260 x 2275 | F 519-822-1751

E [allister.mcilveen@guelph.ca](mailto:allister.mcilveen@guelph.ca)

## **Municipalities with Red Light Cameras (may not be complete list)**

Region of Waterloo  
City of Hamilton  
City of Toronto  
Peel Region  
Halton Region  
City of London  
City of Brantford  
City of Ottawa  
City of Sudbury  
York Region  
City of Kingston

## From the City of Toronto Website

<https://www.toronto.ca/services-payments/streets-parking-transportation/traffic-management/pavement-markings/red-light-cameras/>

# Red Light Cameras

A red light camera is a type of traffic enforcement camera that captures an image of a vehicle which has entered an intersection in spite of the traffic signal indicating red (during the red phase). By automatically photographing vehicles that run red lights, the photo is evidence that assists authorities in their enforcement of traffic laws. Generally the camera is triggered when a vehicle enters the intersection (passes the stop-bar) after the traffic signal has turned red.

Currently, there are over 300 red light cameras operated by the participating municipalities. In Toronto alone, 125 red light cameras are in operation. Changing driver behavior, reducing collisions and saving lives are the key reasons the cameras are used

## Statistics

Statistics collected from the eight municipalities suggest that drivers are getting the message that running a red light is dangerous and they are stopping for red lights. Collisions resulting in deaths and personal injuries have been reduced by more than 25 per cent and those resulting in property damage are down almost 18 per cent as a result of red light camera enforcement.

Taking a closer look at the City of Toronto locations, the number of angle collisions (those most indicative of red light running) causing death, injury or property damage have been reduced by over 60 per cent.

Red light running is a serious issue in our community. Over 40 per cent of fatalities at signalized intersections are attributed to red light running. Statistics indicate that red light cameras provide a safety benefit since collisions and injuries have been reduced at intersections where cameras are used.

- Motorists already in an intersection when the signal changes to red (when waiting to turn, for example) are not red light runners.
- Red light cameras do not replace police officers. The red light cameras are being used to complement police efforts in preventing motorists from running a red light. Stepped-up police enforcement is a substantial component of the project.
- Cameras are set so that only those vehicles that enter an intersection after the light has turned red are photographed. Vehicles that enter on amber and are within the intersection when the light changes to red are not photographed. The program is intended to photograph vehicles that enter an intersection after the signal has turned red.

- Trained officers review every picture to verify vehicle information and ensure that the vehicle is in violation. Tickets are mailed to vehicle owners only in cases where it is clear that the vehicle ran the red light.
- The registered license plate holder receives the ticket, regardless of who was driving the vehicle.
- In consultation with the Privacy Commissioner, every attempt has been made to minimize capturing members of the public in the photos.
- A red light camera system costs approximately \$150,000.
- Traffipax is the system supplier for red light cameras.
- The camera is an industrial 35-mm camera, manufactured particularly for unattended operation in an outdoor environment. The cameras are housed in a ½ metre x ½ metre x ½ metre enclosure and are mounted on a pole, 20 metres in advance of the intersection. They are mounted approximately 3.6 metres above the ground.
- Photographic detection devices are used extensively in many other countries including Australia, Austria, Belgium, Germany, Israel, the Netherlands, Singapore, South Africa, Switzerland, Taiwan, the United Kingdom and the United States. Cameras are also used in British Columbia and Alberta, Manitoba and Quebec.

### Program History

- In December 1998, the provincial government enacted Bill 102, Red Light Cameras Pilot Projects Act, 1998, to allow designated municipalities to use red light cameras for up to two years following date of proclamation
- A pilot project followed which included six municipalities – the Cities of Toronto, Hamilton and Ottawa and the Regional Municipalities of Halton, Peel and Waterloo
- 70 intersections were selected for the pilot project (38 in Toronto)
- 18 cameras were rotated throughout the 70 intersections during the pilot project (10 cameras rotated among 38 intersections in Toronto)
- Installation of the cameras is part of a program aimed at improving safety for all road users by reducing red light running at intersections
- Cameras photograph vehicles that enter the intersection after the traffic signal turns red
- Municipalities are committed to improving traffic safety for the travelling public
- The City of Toronto's cost for the pilot project was over \$7 million
- In August 2004, the province passed legislation allowing the six municipalities to operate red light cameras indefinitely
- In June 2007, the provincial government amended the Regulations under the Highway Traffic Act, to permit designated municipalities to use additional cameras at designated locations
- In January 2010, the Province of Ontario increased the fine for red light running from \$180.00 to \$325.00, recognizing that seriousness and often consequences of red light running
- In January 2017, the program was reauthorized to add over 70 new cameras over the next 5 years.
-

## **From the Region of Waterloo website**

<https://www.regionofwaterloo.ca/en/living-here/red-light-cameras.aspx>

- The Region has installed red light cameras at these intersections:

The Region's RLC program has resulted in the following outcomes:

- Reduced angle collisions caused by disobeying traffic control by 27 per cent
- Reduced turning collisions caused by disobeying traffic control by 60 per cent
- Increased rear-end collisions by 23 per cent

## **Questions and answers about red light cameras**

To pay a red light camera ticket, you can pay [online](#) or call 519-575-4400

## **City of Brantford Red Light Camera Summary**

<http://www.brantford.ca/pdfs/3.3%20Red%20Light%20Camera%20Summary%20.pdf>

## **Peel Region Red Light Camera program**

<https://www.bramptonguardian.com/news-story/6387040-peel-considering-expansion-of-red-light-camera-network/>

## **The Toronto Star**

“40% drop in the number of collisions causing a death or serious injury at intersections with camera.”

<https://www.thestar.com/news/gta/2017/09/01/new-red-light-cameras-curbing-fatal-collisions-city-says.html>

## **City of Hamilton program expansion –**

<https://www.thespec.com/news-story/6523151-more-red-light-cameras-coming-to-an-intersection-near-you/>

## **Halton Region Success**

<https://globalnews.ca/news/1470003/police-say-red-light-cameras-proving-effective-in-halton/>



# Guelph police should take Project Corridor on the road

Opinion Nov 22, 2017 Guelph Mercury

The numbers are in and they're pretty much what we expected.

Guelph Police Service spent the last two weeks pointing radar guns into traffic, checking out the data from a device called a SpeedSpy and peering into vehicle windows along Gordon Street during a traffic enforcement campaign dubbed Project Corridor.

During the blitz, police handed 200 tickets to drivers, pedestrians and cyclists for everything from speeding and distracted driving to jaywalking. Police responded to nine collisions along Gordon during the two-week period, almost all of which were preventable.

Great to know. But now that enforcement is back to normal on Gordon, won't regular drivers of that stretch just revert to their old behaviours?

We understand there are bigger priorities than traffic enforcement in a city of this size. We understand the ranks can get stretched pretty thin.

But isn't the fact that virtually every driver, cyclist and pedestrian in this city has a weekly near-miss story about one of Guelph's roads reason enough for this type of focused enforcement to continue? Maybe not on Gordon, but somewhere else in Guelph for sure. Mix it up. Keep drivers guessing. And consider permanent controls like red-light cameras for problem intersections.

If a rotating monthly traffic enforcement blitz is a possibility, our pitch for the next Project Corridor is Woodlawn Road West, also known as Highway 7.

Yes, we have a bias. The Mercury Tribune's office is on Woodlawn, a stone's throw from the Hanlon, where drivers make a right turn from the pseudo expressway and its 70 km/hour speed limit onto Guelph's auto mall.

Pedestrians and cyclists aren't often in the mix along Woodlawn, but we're shocked the accidents out here aren't more severe. It's not uncommon to see cars and trucks racing by at what must be close to 90 km/h or more.

It's inevitable lives will be lost if something isn't done to slow it down.

For lead-footed drivers hell bent on getting to their destinations as quickly as possible, this stretch is an obstacle course of vehicles doing a slow crawl at 10-20 km/h over the 60 km/h limit.

Drivers turning right who don't indicate early enough — read half a kilometre before their turn — are asking for it, and anyone turning left into the turning lane from a side street or business

during rush hour better wait it out or risk getting T-boned by a transport truck going significantly faster than it should be.

This isn't the city's fault. It's not police service's fault. Nor is it entirely the fault of drivers. This white-knuckle drive is the fault of numerous provincial governments whose failure to find the money or political will to build a new Highway 7 ignored decades-old forecasts that identified this road as the critical link between the rapidly growing municipalities of Guelph and Waterloo Region.

But that's another editorial. The new highway build, the Liberals say, is underway.

Will we get through the next five to 10 years without seeing an increase in fatalities and property damage on old Highway 7?

That's up to drivers, not police.

Because unless drivers everywhere smarten up, drive the speed limit, get off their damn phones and start being more courteous to others, we all know the carnage will continue.



## Guelph Police Service

15 Wyndham Street S., Guelph, Ontario N1H 4C6

(519) 824-1212

TTY (519) 824-1466

April 24, 2018

Guelph City Hall  
Councillor Cathy Downer, Ward 5  
1 Carden Street  
Guelph, Ontario  
N1H 3A1

Dear Councillor Downer,

The Guelph Police Service is committed to ensuring community and road safety through traffic enforcement initiatives, education and awareness campaigns. While the police have a key role in promoting road safety, we share this responsibility with all of our residents and key partners such as the City of Guelph, neighbourhood groups and our school boards.

Increasingly the Guelph Police Service has relied on additional tools to assist our officers in their work, including relying on technology. To respond to current challenges and to better meet community expectations, we need to continue to consider additional strategies to improve safety on our roads.

On behalf of the Guelph Police Service, I support the recommendation to explore the use of red light cameras to enhance our existing road safety efforts. Further, the Guelph Police Service will provide assistance and support to City of Guelph staff in assessing the feasibility of the introduction of red light cameras to our community.

Sincerely,

A handwritten signature in black ink, appearing to read "J. DeRuyter".

Jeff DeRuyter,  
Chief of Police

# Staff Report



---

To **Committee of the Whole**

Service Area Corporate Services

Date Monday, May 7, 2018

Subject **Accountability and Transparency Policy Update**

Report Number CS-2018-47

---

## Recommendation

That the proposed Accountability and Transparency Policy, included as ATT-1 to the report titled Accountability and Transparency Policy Update, dated May 7, 2018, be approved.

## Executive Summary

### Purpose of Report

To update the Accountability and Transparency Policy to reflect recent changes to related policies and to make administrative changes that ensure consistency with current City practices.

### Key Findings

The Accountability and Transparency Policy, a required policy as per section 270 of the Municipal Act, requires an update to reflect Council's adoption of a revised Code of Conduct for Members of Council and Local Boards, the Use of Corporate Resources During an Election Policy, and the Public Notice Provisions Policy. In addition, several administrative changes have been made to ensure that the policy remains up-to-date and consistent with current City initiatives and practices.

This is the first time the Accountability and Transparency Policy has been updated since its adoption in 2007.

### Financial Implications

None.

## Report

Section 270 of the Municipal Act, 2001 requires that every municipality adopt and maintain a policy with respect to the manner in which the municipality will try to ensure that it is accountable to the public for its actions and the manner in which

the municipality will try to ensure that its actions are transparent to the public. At its meeting on December 17, 2007 Council approved the Accountability and Transparency Policy to fulfill this requirement.

In order to ensure that the Accountability and Transparency Policy remains up-to-date and consistent with current City of Guelph policies, practices, and initiatives, several changes are being recommended. In addition, changes to the Accountability and Transparency Policy are required because of recent amendments to the Code of Conduct for Members of Council and Local Boards, the Use of Corporate Resources During an Election Policy, and the Public Notice Provisions Policy. The proposed changes clarify and refine the policy but do not significantly alter its intent.

A copy of the proposed Accountability and Transparency Policy, with all changes noted in red, is included as ATT-1.

### **Summary of Proposed changes to the Accountability and Transparency Policy:**

- Minor administrative and grammatical changes throughout;
- Definition of 'Council' and 'City Council' added;
- Definition of 'Committee' added;
- Definition of 'Local Board' added;
- The names of several policies and initiatives updated to reflect current practices;
- Disclosure of information section updated to align with the Public Notice Provisions Policy; and
- Procedural By-law, open meetings, and Code of Conduct for Members of Council and Local Boards sections added to reflect current practices.

## **Financial Implications**

None.

## **Consultations**

Executive Team

## **Corporate Administrative Plan**

### **Overarching Goals**

Service Excellence

### **Service Area Operational Work Plans**

Our Services - Municipal services that make lives better

## Attachments

ATT-1 Proposed Changes to the Accountability and Transparency Policy

## Departmental Approval

N/A

## Report Author

Dylan McMahon, Manager, Legislative Services/Deputy City Clerk



---

### Approved By

Stephen O'Brien  
City Clerk  
Corporate Services  
519-822-1260 ext. 5644  
stephen.obrien@guelph.ca

---

### Recommended By

Trevor Lee  
Deputy CAO,  
Corporate Services  
519-822-1260 ext. 2281  
trevor.lee@guelph.ca

# CORPORATE POLICY AND PROCEDURE



POLICY	<b>Accountability and Transparency Policy</b>
CATEGORY	Corporate
AUTHORITY	City Clerk's Office
APPROVED BY	City Council
EFFECTIVE DATE	December 17, 2007
REVISION DATE	May 28, 2018

## POLICY STATEMENT

~~The City of Guelph~~Guelph City Council acknowledges that it is responsible ~~to for~~ provide ing good government for theits community ~~stakeholders~~ in an accountable and transparent manner by:

- Encouraging public access and participation to ensure that decision making is responsive to the needs of ~~its constituents~~Guelph residents and receptive to their opinions;
- Delivering high quality services to ~~our constituents~~residents; and
- Promoting the efficient use of public resources.

Accountability and, transparency ~~and openness~~ are standards of good government that enhance public trust. They are achieved ~~through the City by~~ adopting measures ~~that ensure~~ing, ~~to the best of its ability, that all City of Guelph activities and services are undertaken utilizing a process that is open and accessible to its community stakeholders~~processes and services are open and accessible to the public. In addition ~~to ensuring openness and accessibility~~, ~~wherever possible~~, the City of Guelph ~~will~~is also committed to enging its stakeholders throughout ~~its the~~ decision making process ~~which will be open, visible and transparent to the public~~.

~~Guelph City Council also acknowledges that there will be matters that due to their very nature must be considered at meetings that are not open to the public, and when these occasions occur, the City of Guelph commits to compliance with the statutory requirements regarding closed meetings under S. 239 of the Municipal Act, 2001 (the Act).~~

## PURPOSE

The purpose of this policy is to comply with ~~Section~~S. 270 of the Municipal Act, 2001 which requires that all municipalities adopt and maintain a policy with respect

---

to the manner in which ~~the City of Guelph~~they will try to ensure that ~~it is~~they are ~~accountable and transparent to the public~~accountable to the public for its actions, and the manner in which we will try to ensure that our actions are transparent to the public. This policy will provide guidance for the delivery of the City's activities and services in accordance with the principles as outlined herein.

## DEFINITIONS

**"Accountability"** ~~means~~ t—The principle that the City of Guelph will be responsible to its stakeholders for decisions made and policies implemented, as well as its actions ~~and~~or inactions.

**"Council"** and **"City Council"** ~~mean the City of Guelph's elected representatives,~~comprised of the Mayor and Ceouncillors.

**"Committee"** ~~means~~ Committee of the Whole, advisory committee or other committee, sub-committee or similar entity.

**"Transparency"** ~~means~~ t—The principle that the City of Guelph actively encourages and fosters stakeholder participation and openness in its decision-making processes. Additionally, transparency means that the ~~municipality's~~City of Guelph decision-making process is open and clear to the public.

**"Local Board"** ~~means~~ a Local Board of the City as defined in the Municipal Act.

## POLICY REQUIREMENTS

### ~~"A"~~—Financial Matters

The City of Guelph will be open, accountable and transparent to its stakeholders in its financial dealings ~~as required under the Act~~. Some examples of how the City of Guelph provides ~~such~~ accountability and transparency in ~~its~~ financial matters, are as follows:

- ~~i~~Internal ~~and~~ /external audits;
- budgetary reporting ~~and~~ /statements;
- long-term financial planning;
- public budget approval process;
- ~~asset management~~Corporate Asset Management Plan;
- ~~purchasing/procurement~~Procurement By-law;
- Delegation of Authority By-law;
- User Fee By-law; and
- ~~disposition of surplus property~~Policy for the Sale and Disposition of Real Property Interests.



---

## **~~"B"~~—Internal Governance**

The ~~municipality's~~ City of Guelph administrative practices ensure specific accountability on the part of its employees through the following initiatives:

- commitment of senior management to ensure that administrative practices and procedures recognize City Council's commitment to accountability and transparency;~~;~~
- performance management and evaluation for employees;
- orientation ~~and~~ continuing education for both employees and members of Council;
- Code of Conduct for Staff;
- Code of Conduct for Members of Council and Local Boards;
- Use of Corporate Resources during an Election Policy;
- Hiring and Employment of Relatives Policy; and
- Joint Health and Safety Committees;
- ~~work/life balance~~
- ~~compensation/benefit~~

## **~~"C"~~—Public Participation**

The City of Guelph ensures that it is ~~open and~~ accountable and transparent to its stakeholders ~~through by implementing processes creating policies that~~ outlining how, when and under what rules meetings ~~of Council and Ceommittee occur will take place~~. Council and ~~Ceommittee~~ meetings will be open to the public, ~~when and~~ as required under the Act,<sup>7</sup> and members of the public will have an opportunity to make delegations ~~and/-~~ or submit comments in writing on specific items at these meetings. In addition, the City of Guelph has adopted a Community Engagement Framework which ensures that public engagement can be meaningful and effective by encouraging participation that is:

- inclusive not exclusive;~~;~~
- voluntary;~~;~~
- purpose driven;~~;~~
- respectful of time and financial constraints;~~;~~
- ~~open communication~~
- adaptable;~~;~~
- accessible to information and decision ~~making;~~
- respectful of ~~for~~ diverse interests; ~~and~~
- regularly evaluated. ~~These guidelines are available in the City Clerk's Office and on the City's website~~

## **~~"D"~~—Disclosure of Information**

The City of Guelph is committed to the timely disclosure of information ~~by various means including print media, websites, etc. in accordance with the Public Notice Provisions Policy~~. Notice may be provided through the following methods: ~~Some specific examples include:~~

- publication of agendas;
- posting to the City`s website;
- direct mail delivery-;
- emails;
- newspaper advertisement;
- radio advertisement;
- social media;
- postings at City Hall and/or the applicable venue; and
- any means necessary to provide an accessible notice.
- ~~The City`s website [www.guelph.ca](http://www.guelph.ca)~~
- ~~The City News Page~~
- ~~Use of various communication vehicles (newsletters, brochures, print and radio advertising, etc.)~~
- ~~A robust media relations programme~~
- ~~Direct communication with constituents (both verbal and written)~~
- ~~Development of corporate communication strategies~~
- ~~Public meetings and open houses on municipal initiatives~~
- ~~Engagement of the public through an effective public consultation process, so as to receive and not just convey information.~~

### **The Procedural By-law**

The Procedural By-law establishes the rules of order for Council and Committee meetings and ensures a fair and consistent approach to the consideration of City of Guelph business. The Procedural By-law also establishes standards in relation to notice of meetings, distribution of agendas and minutes, resolutions and voting, governance structure and appointments.

### **Open Meetings**

Guelph City Council and Ceommittee meetings are open to the public except as authorized by Section 239 (2) of the Municipal Act.

The Closed Meeting Protocol provides best practices for Council and Committees to follow when considering confidential information in a closed meeting. This protocol outlines practices which go beyond the Municipal Act`s requirements to ensure that City of Guelph business is conducted in the most openaccountable and transparent manner possible.

The City of Guelph has appointed a Closed Meeting Investigator to receive complaints relating to compliance with the Municipal Act and the Procedural By-law during closed meetings. Individuals may submit complaints if they believe that City Council violated the Municipal Act or Procedural By-law in relation to a closed meeting.

---

## **Code of Conduct for Members of Council and Local Boards**

The Code of Ceonduct for Members of Council and Local Boards (the Code) helps to ensure that members of Guelph City Council and Local Boards of the City of Guelph share a common basis for acceptable conduct.

The City of Guelph Integrity Commissioner (a third-party appointed by City Council) addresses the application of the Code. The Integrity Commissioner has the power to investigate suspected contraventions of the Code and serves as an advisor on appropriate conduct to members.

Individuals may submit complaints to the Integrity Commissioner if they believe a member of Council or a Ceommittee has contravened the Code.

# Staff Report

---

To **Committee of the Whole**

Service Area Corporate Services

Date Monday, May 7, 2018

Subject **Committee of the Whole One-year Review**

Report Number CS-2018-39

---

## Recommendation

That the Committee of the Whole governance structure be continued as outlined in report CS-2018-39, Committee of the Whole One-year Review, dated May 7, 2018.

## Executive Summary

### Purpose of Report

To provide a one-year review of the Committee of the Whole governance structure as directed by Council at the May 23, 2017 meeting and for Council to determine the City's governance structure moving forward.

### Key Findings

In September 2016, Council implemented a new governance model that transitioned the City from a Standing Committee structure to a Committee of the Whole structure. Council requested a review at the end of a six-month period.

In May 2017, the City Clerk's Office provided the six-month review to Council. The review provided statistics regarding length of meetings, comparator practices and results of a survey of Council members. It recommended that the Committee of the Whole structure remain in place with changes to the Chairing of meetings. In addition, it was recommended that a one-year review be conducted. At that meeting, the recommendations were initially defeated. However, the final decision was to continue with the Committee of the Whole model until a one-year review could be completed.

The one-year review has been completed and staff recommends the continuation of the Committee of the Whole governance structure.

If Council decides not to continue with the current governance structure, and directs staff to revert back to the Standing Committee structure, significant time will be required to make the necessary changes and a clear motion will need to be passed. A change back to the Standing Committee structure will require:

- Communicating and educating the public regarding the change;
- Establishing the Committee structure, terms of reference and meeting times;
- Appointing members of Council to each of the Committees;
- Revising the Procedural By-law and having it adopted by Council;
- Adjusting departmental and Service Area work plans to reflect new scheduling requirements;
- Setting a new meeting schedule for 2019 and obtaining Council approval for that schedule; and
- Setting new report deadlines for staff and communicating those revised timelines to all Service Areas.

All of these changes will take time to implement, gain approval and communicate. This will be particularly difficult given that the City Clerk's Office will be actively administering the 2018 municipal election. The earliest that a change back to a Standing Committee structure could begin would be with a report to Council early in the 2018 - 2022 term of Council.

### **Financial Implications**

Cost savings have been realized in agenda production and overtime hours and those savings will continue in the future as a result of the transition to the Committee of the Whole. The cost savings can be attributed to fewer agendas being printed, less staff time required to attend evening committee meetings and shorter Council meetings.

If the governance structure reverts back to a Standing Committee structure, there will be costs involved to cover increased overtime for staff attendance at meetings and to provide public education and communication. Printing and paper costs would also increase due to the production of more agendas on a monthly basis.

The City Clerk's Office would likely incur extra overtime costs in 2018 as a result of the work involved to switch the governance structure while administering the municipal election.

### **Background**

Guelph City Council implemented a Committee of the Whole governance structure beginning in September, 2016. The Committee of the Whole governance structure was implemented to provide efficient agenda production, promote an accountable and transparent government, reduce duplication between Committee and Council and provide a predictable meeting schedule.

At the June 2016 meeting when the Committee of the Whole governance model was approved, staff were directed to conduct a six-month review of the implementation

of the new governance structure and report back to Council. The timelines of this six-month review ran from September 2016 when Committee of the Whole was first implemented to the end of February 2017. Staff believed the six-month transition period did not offer a comprehensive term for review given that the first few Committee/Council cycles could be seen as an adjustment phase. As such, it was proposed that an analysis and review of a full calendar year cycle of Committee of the Whole be conducted with a corresponding report back to Council. Staff has completed that one-year review and their recommendations and findings are contained within this report.

### **Need for a Governance Structure**

A stable and predictable governance structure is important for efficient, accountable and transparent governance. The City's current governance structure is a Committee of the Whole model. At the May 2017 Council meeting, members of Council were divided regarding their view of the best governance structure and requested that staff review the Committee of the Whole structure and report back.

In response, staff conducted a comparison of the last full year of Standing Committee meetings (2015) with the first full year of Committee of the Whole meetings (2017).

Staff's assessment of the effectiveness of the Committee of the Whole includes the following:

- Statistical data relating to meetings;
- Statistical data relating to costs;
- Input from members of Council;
- Input from a public stakeholder group; and
- Input from staff members.

Although there were some valid issues and concerns raised by various stakeholders, staff believe that transitioning away from the Committee of the Whole governance model is not the best course of action. Staff are therefore recommending continuing the Committee of the Whole governance model with adjustments made to how Committee of the Whole meetings are chaired.

### **Start Time of Committee of the Whole Meetings**

Some Council members believe the 2:00 p.m. start time of Committee of the Whole meetings may be a barrier for public engagement for those who have other daytime commitments. The majority of Council did not see this as an issue because delegations can also be made at the monthly evening Council meeting and the start time for the Committee of the Whole is the same as half of the previous Standing Committees.

The number of delegates presenting at the various Standing Committees in 2015 (51) is comparable to the number of delegates presenting to Committee of the Whole in 2017 (45) which indicates the start time is not an issue for delegates.

City Clerk’s Office staff have not received any communication from the public, including the public stakeholder group when specifically asked, that the start time of the Committee of the Whole is an issue or concern. When asked, only one member of Council advised that they had received any feedback regarding the start time being an issue.

City Clerk’s Office staff have met with Rogers production personnel and they have been supportive of the Committee of the Whole transition. Having a single Committee of the Whole meeting monthly, instead of four or more Standing Committee meetings, allows Rogers to broadcast Committee meetings. Despite this, Rogers has been unable to broadcast all of the Committee of the Whole and Council meetings.

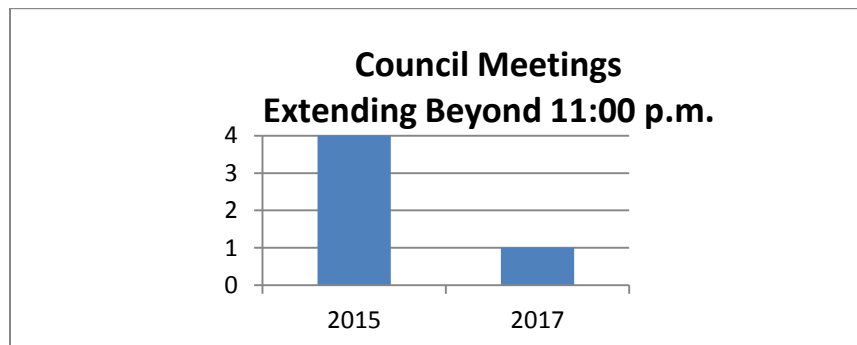
Budget approval was received for live streaming as part of the 2018 budget and staff are working toward implementing a live streaming system in the Council Chambers by the end of 2018.

### **Length of Committee of the Whole Meetings**

The City’s Closed Meeting Investigator, in their recent report on a December 2015 meeting, stated that:

“It is acknowledged that it can be understandably difficult to resist going ‘just a little longer’– but continuing to 1:40 a.m. is rarely ideal.”

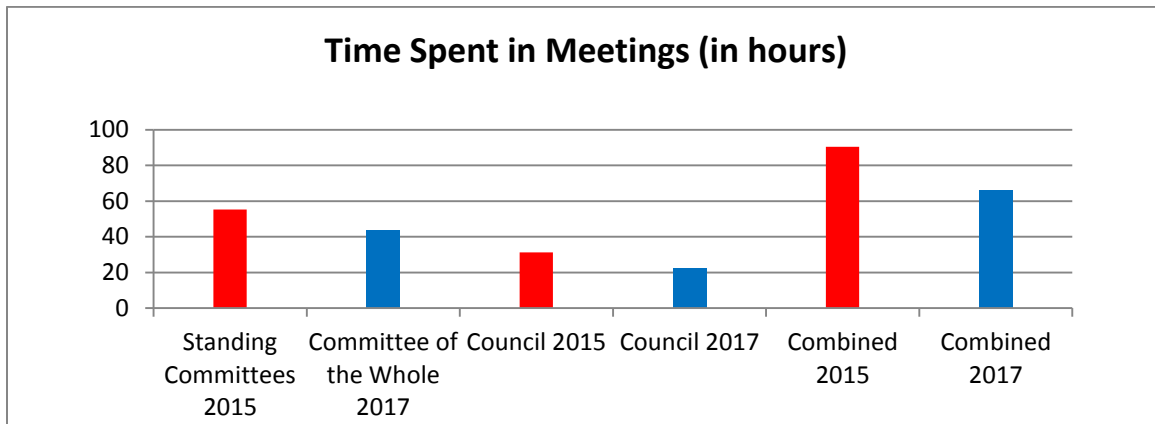
This highlights the benefit of an earlier start time so that Committee of the Whole and Council have the appropriate time needed to address their agendas.



Some Council members noted that Committee of the Whole meetings are lengthy. Council members acknowledged that they could reduce meeting time by requesting information from staff in advance of meetings and by reducing their commentary during meetings. It was also noted that an increased number of recognition presentations to staff which could possibly be reduced by announcing them under the Chair and Staff Announcements. These suggestions could possibly be addressed during orientation of the new term of Council.

Although Committee of the Whole meetings may be lengthy, Council meetings were consistently shorter in length in 2017; and the overall result is fewer meetings than under the Standing Committee governance structure and less total time spent in meetings on a monthly basis. It should be noted that shorter meetings and less time in meetings may not be perceived as a positive outcome.

Data indicates fewer hours have also been spent in Committee of the Whole meetings versus Standing Committee meetings.

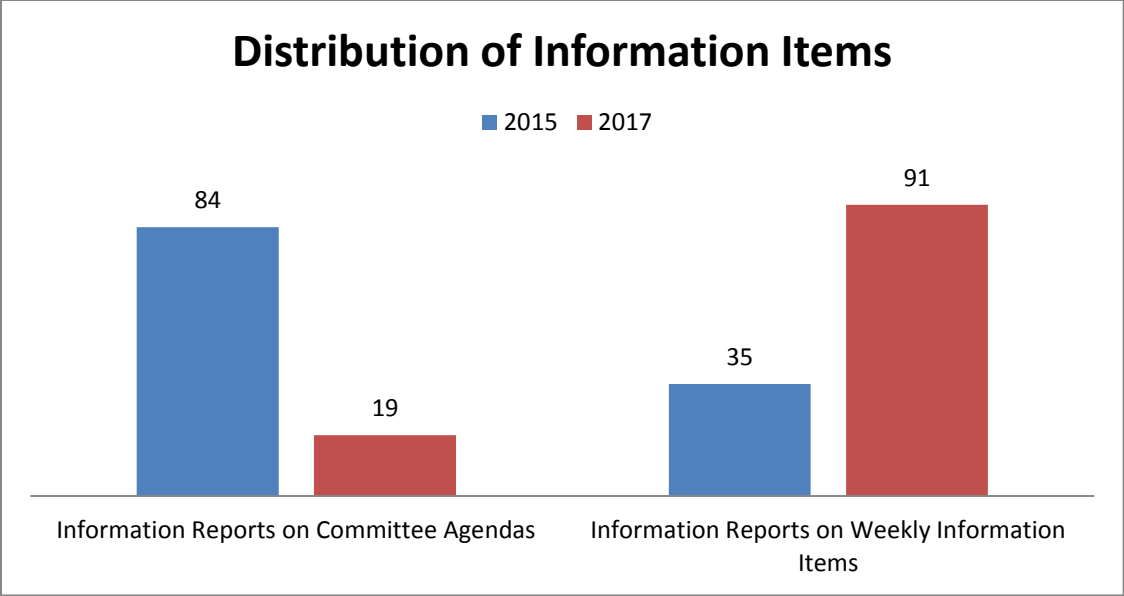


Due to the length of the meetings, the start time, and the attendance of all members of Council at the Committee of the Whole meetings, it was noted that it might be easier for a member to miss a meeting or leave early as there would not be a quorum issue if they do not participate on a particular matter or vote.

Another component to the reduction of time spent in meetings is a result of the recommendation made at the time the change to the Committee of the Whole structure that directed Information Reports to be placed within the Weekly Information Items and removed from Council and Committee of the Whole agendas.

In 2015, 84 Information Reports went to Committee or Council meetings and only 35 reports were placed in the Weekly Information Items package. In 2017, 19 Information Reports went to Committee of the Whole or Council and 91 reports were placed in the Weekly Information Items package. Only 2 of the 91 reports were placed on a subsequent Council meeting agenda by a member of Council. This resulted in saving the time associated with the discussion of 89 Information Reports at Committee of the Whole.





**Delegations at Committee and/or Council meetings**

There was concern that duplication of delegations could occur between Committee and Council meetings. Despite this, there has been a reduction in the number of delegations speaking to both Committee and Council. In 2017, the number of delegations speaking at both Committee and Council meetings was 45% lower than the number of delegations that spoke at Committee and Council under the previous structure. Staff believes this is partly due to all members of Council being present at Committee of the Whole and Council rather than a subset of Council at Standing Committees.

The overall number of delegations in 2017 was lower, but this could be attributed to the particular issues discussed in a given year, rather than any particular governance structure decision.

As directed by Council in June 2016, delegates are advised that they may also submit their comments in writing and/or register as a delegate at the Council meeting. In doing so, delegates now have two distinct opportunities to be heard by all elected officials which gives them the option of speaking to all of Council during the day or in the evening. In 2017, only five delegations chose to speak at Committee of the Whole and then again at Council regarding the same matter.

<b>NUMBER OF DELEGATIONS</b>		
	2015	2017
<b>Standing Committees</b>	51	n/a
<b>Committee of the Whole</b>	n/a	45
<b>Council</b>	52	29
<b>Total</b>	<b>103</b>	<b>74</b>

## **Chairing of Committee of the Whole meetings**

The Chairing of Committee of the Whole meetings is an area that all members of Council agreed needs improvement; however, the solutions suggested by Council were diverse. The individual at the centre of the Council horseshoe in the Council Chambers has most commonly served as Chair and there is familiarity of this from the perspective of the public. However, the Service Area Chair structure deviates from this and causes confusion on the part of the public, members of Council and staff in recognizing and addressing the appropriate Chair. It is common for the public, members of Council and staff to address the incorrect person as the Chair during a meeting given the switching of Chairs two or more times throughout a meeting. Comments from members of Council support this. It should be noted that the current voting technology in the Council Chambers does not allow for Councillors to change locations during a meeting because votes are tied to a seating configuration and the voting system cannot be changed mid-meeting to reflect seat changes. This makes it difficult to have a Councillor move to the centre of the horseshoe where the Chair would normally sit.

The Council horseshoe is configured such that City Clerk's Office staff are seated next to the Chair to facilitate discussions on procedural matters between the Chair and Clerk. When Chairs are located away from the centre of the Council horseshoe it makes this communication difficult. The perception of who is Chair and managing the meeting is integral to good meeting flow, efficient, accountable and transparent governance and to establishing confidence in the legislative process.

A strong consensus from Council, public stakeholders and City Clerk's Office staff is that one Chair should be in place for an entire meeting. This could be achieved by appointing rotating Chairs in any number of ways. However, most members of Council noted that the Mayor as Chair would be the simplest and preferred solution. With this in mind, some members of Council did express concern about the reduction of responsibility and influence of Service Area Chairs.

The only negative issue noted by the public stakeholder group was related to the changing of Chairs during Committee of the Whole meetings. They recommended that one person act as Chair in the meeting and had no preference as to whether that was the Mayor or another member of Council. They noted confusion during meetings regarding who staff, the public and other members of Council should be addressing at any given point in the meeting. This affects the predictability of Committee of the Whole meeting flow and the efficiency and transparency of the governance system.

## **Role of the Service Area Chair**

Similar to the responses received at the six-month review of the Committee of the Whole, Council members again expressed that the role of the Chair at the Committee level has changed. Previously, Standing Committee Chairs brought forward the work of their Committee at the following Council meeting. This has changed given that all members are now present at Committee of the Whole and

Council meetings and do not necessarily require items to be formally introduced at a Council meeting.

Some Councillors expressed a preference of having a single member of Council maintaining a linkage to a Service Area as is the current practice.

The Executive Team indicated Service Area Chairs are beneficial to moving the various agenda items through the legislative process and would prefer to keep the role of the Service Area Chair as it is currently.

Due to the above-noted considerations, staff recommend adjusting the structure of the Committee of the Whole meetings such that all items brought forward by a Service Area are dealt with before moving on to the next Service Area items, regardless of the presence of delegations or presentations. A short break between each Service Area portion of a Committee of the Whole meeting will allow the Service Area Chair to move to the centre of horseshoe and give City Clerk's Office staff the opportunity to update the seating positions noted in the voting equipment. This will resolve much of the confusion caused by Service Area Chairs remaining in their regular seats during Committee of the Whole meetings.

There is a diverse interpretation of the role of a Chair by Council, staff and the public and City Clerk's Office staff will provide training for Council during the 2018-2022 Council term orientation.

## **Public Engagement**

City Clerk's Office staff, with the assistance of Community Engagement, reached out to the same public stakeholder group that was involved with the Meeting Management Review in 2016. This stakeholder group includes representatives from the Guelph Chamber of Commerce, Downtown Guelph Business Association, local media and a number of citizens familiar with Council/Committee meeting processes and who have delegated under both governance structures.

The group was sent a survey, invited to a public forum and encouraged to provide their comments/concerns via email, telephone or in person. There was very little formal feedback received and the only issue raised by the public stakeholder group was the Chairing of the Committee of the Whole meetings as previously noted.

After review of the statistical data, input from members of Council, the public stakeholder group and the Executive Team, staff recommends that the City continue with the Committee of the Whole governance structure with the above-noted break between Service Area portions of an agenda.

## **Financial Implications**

Cost savings have been realized in agenda production and overtime and these savings will continue as a result of the transition to Committee of the Whole. As a result of changes, the City Clerk's Office and Information Technology overtime

budgets have also been reduced. It should be noted that some savings are due to the moving of Information Reports to the Weekly Information Items and the reduction of hard copy agendas being produced. In 2015, there were 43 hard copies of each agenda printed compared to 18 copies in 2017.

There will be costs involved for public education and communications if Council reverts back to a Standing Committee structure, as well as increased overtime costs for multiple departments due to staff attendance at meetings as well as the educational and communication requirements.

<b>Average Number of Agenda Pages Printed</b>		
	2015	2017
<b>Standing Committees</b>	97	n/a
<b>Committee of the Whole</b>	n/a	80
<b>Council</b>	142	43
<b>Overall Average Total</b>	<b>103</b>	<b>74</b>

	<b>2015 Result</b>	<b>2017 Result</b>
<b>Agenda Printing Costs</b>		
<b>Printing</b> (physical costs)	\$12,278.53	\$1,945.29
<b>Staff Time</b> (labour costs)	\$9,504.57 for 134 agendas (12,310 pages) =\$70.93/agenda (avg)	\$5,495.85 for 93 agendas (6,160 pages) = \$59.10/agenda (avg)

## Consultations

City Clerk’s Office staff worked with the Community Engagement staff to conduct the public stakeholders meeting and survey. City Clerk’s Office staff met with each member of Council individually through Q4 of 2017. Staff also had discussions with members of the Executive Team and members of the Corporate Management Team.

Should Council change the current governance structure, City Clerk’s Office staff will meet with the Community Engagement and Communications staff to develop a communication strategy; meet with Executive Team members to establish time frames for meetings, report deadlines, staffing and other administrative details; hold information meetings as necessary for staff across the organization; and will utilize social media and the City website to communicate the changes to the public. A report back regarding the timing of any such transition would occur early in the 2018-2022 term of Council.

# Corporate Administrative Plan

## Overarching Goals

Service Excellence

## Service Area Operational Work Plans

Our Services - Municipal services that make lives better

Our People - Building a great community together

## Attachments

ATT 1 - [Meeting Management Review Report](#)

ATT-2 - [Six-Month Committee of the Whole Recap Report](#)

## Report Author

Dolores Black, Council Committee Coordinator



---

### Approved By

Stephen O'Brien

City Clerk,

Corporate Services

519-822-1260 ext. 5644

[stephen.obrien@guelph.ca](mailto:stephen.obrien@guelph.ca)

---

### Recommended By

Trevor Lee

Deputy CAO

Corporate Services

519-822-1260 ext. 2281

[trevor.lee@guelph.ca](mailto:trevor.lee@guelph.ca)

# Staff Report



---

To **Committee of the Whole**

Service Area Corporate Services

Date Monday, May 7, 2018

Subject **2017 Operating Variance Report and Surplus and Deficit Allocation**

Report Number CS-2018-14

---

## Recommendation

1. That the report titled 2017 Operating Variance Report and Surplus and Deficit Allocation, dated May 7, 2018, be received.
2. That the Tax Supported surplus of \$3,546,195 be allocated to the reserves and reserve funds as follows:

Tax Rate Operating Contingency Reserve (180)	\$1,164,826
City-owned Contaminated Sites Reserve Fund (155)	\$1,000,000
Efficiency, Innovation and Opportunity Fund (351)	\$1,000,000
WSIB Reserve (330)	\$231,369
Police Operating Contingency Reserve (115)	\$150,000
<b>Total</b>	<b>\$3,546,195</b>

3. That the Water Services surplus of \$745,149 be allocated to the Water Capital Reserve Fund (152).
4. That the Wastewater Services surplus of \$2,636,206 be allocated to the Wastewater Capital Reserve Fund (153).
5. That the Stormwater Services surplus of \$1,071,110 be allocated as follows:

Stormwater Contingency Reserve (359)	\$321,900
Stormwater Capital Reserve Fund (165)	\$649,210
<b>Total</b>	<b>\$971,110</b>

6. That the Ontario Building Code (OBC) deficit of \$35,319 be funded from the Building Services OBC Stabilization Reserve Fund (188).
7. That the Court Services deficit of \$51,680 be funded from the Court Contingency Reserve (211).

## **Executive Summary**

### **Purpose of Report**

To provide the 2017 year-end operating position of the City's tax supported and non-tax supported departments subject to any adjustments resulting from the year-end external audit. Additionally, this report serves as Council's opportunity to approve the allocation of the 2017 surplus and deficit as outlined in the Council-approved Surplus Policy and in accordance with the General Reserve and Reserve Fund Policy.

### **Key Findings**

The preliminary net operating result for tax supported departments is a surplus of \$3,546,195 or 1.0 per cent of the 2017 total tax supported gross expenditures. This surplus is larger than projected at Q3 and City departments improved by \$1,818,360. Additional savings were realized beyond those forecasted and revenues were higher than projected.

Staff are pleased with this result and that this is the first year in the last five, that the City departments are in a favourable budget position. This evidence reinforces that the Council-approved 2017 budget corrections have had the intended effect of right-sizing the City's budget.

The preliminary net operating result for non-tax supported departments is a surplus of \$4,265,466 or 6.2 per cent of the 2017 total non-tax supported budget. This surplus is larger than projected at Q3 and during the 2018 budget process some budget realignments were approved by Council. Staff will continue to challenge assumptions and rate models where appropriate through the 2019 budget development to ensure the budget reflects current actual trends.

ATT-1 Operating Budget Variance Based on December 31, 2017 provides the actual year-end results by department.

Some notable significant variance drivers are:

- a) Higher revenue from supplementary taxation, stormwater rates, and water and wastewater basic and consumption usage.
- b) A favourable year-end position for compensation due to the naturally occurring recruitment process for hiring vacant positions, difficulty in sourcing skilled staff, and other compensation related savings.
- c) A favourable variance in the Shared Services budget realized by the County of Wellington and Guelph Police Services.
- d) A favourable year-end position for hydro mainly due to energy efficiency measures and subscription of the City's two largest facilities to the Provincial Fair Hydro Plan and the Industrial Conservation Initiative (ICI).

e) An unfavourable variance in Environmental Services due to increased third-party returned recyclable costs, haulage costs, and payment-in-lieu of taxes for the organics facility at Solid Waste.

### Financial Implications

The year-end operating position and the reserve and reserve fund positions are important factors considered in determining the City's overall fitness as assessed by an external credit rating agency. This credit rating affects the price in which the City can issue debt and therefore impacts the affordability of long-term capital projects for the tax and rate payers of the City.

Through the Reserve Fund Policy Update and Realignment in September 2017, the City now has identified measurable targets for our funds which have enabled an evidence-based recommendation for the operating budget surplus transfer. The benefit of this cannot be emphasized enough as it moves the City further along the maturity path of strategic financial management. Over the last few years, the financial stability of the City has been improving through right-sizing of budgets, updating financial policies, and focusing on long-term financial planning.

## Report

Council received the 2017 Q3 operating variance report on November 27, 2017. At that time staff projected a year-end favourable surplus of \$2,384,500 for tax supported operating departments, and \$2,494,000 projected year-end surplus for non-tax supported operating departments. The year-end forecast was based on September actuals and best estimates for the last quarter of 2017. The chart below shows the Q3 year-end projection compared to the actual year-end results.

Table 1: Q3 Year-end Projection Compared to Actual Year-end Results

	<b>Q3 Projected Year-end Position</b>	<b>Year-end Variance Including Reserve Transfers for December 31, 2017 (\$)</b>
<b>Tax Supported</b>		
City Departments	\$1,315,500	\$(502,860)
General Revenues and Expenses	\$(1,350,000)	\$(1,628,957)
Local Boards	\$(750,000)	\$(279,280)
Grants, Outside Boards and Agencies	\$(1,600,000)	\$(1,135,098)
<b>Total Tax Supported</b>	<b>\$(2,384,500)</b>	<b>\$(3,546,195)</b>
	<b>Q3 Projected Year-end Position</b>	<b>Year-end Variance Including Reserve Transfers for</b>



		<b>December 31, 2017 (\$)</b>
<b>Non-tax Supported Budgets</b>		
Water	\$(500,000)	\$(745,149)
Wastewater	\$(1,312,000)	\$(2,636,206)
Ontario Building Code (OBC)	\$(39,000)	\$35,319
Court Services	\$7,000	\$51,680
Stormwater	\$(650,000)	\$(971,110)
<b>Total Non-tax Supported</b>	<b>\$(2,494,000)</b>	<b>\$(4,265,466)</b>
(Brackets indicate a favourable variance)		

Key drivers that changed between the Q3 forecast and year-end include: greater compensation, utility, and fuel savings than projected; improved financial position for environmental services due to increased sales for recyclable materials; capital recovery projection in Public Services was lower than actual capital recoveries realized; and additional supplementary taxation revenue greater than projected.

The year-end operating variance report provides information on the year-end position prior to the completion of the annual external audit and provides recommendations for the allocation of any surplus or funding of any deficit.

As part of the City's regular variance reporting process, departments were asked to provide comments on their financial results for the year ending December 31, 2017. The following chart provides a high-level summary for the year-end position of the City's tax supported and non-tax supported operations. More detailed information is provided in ATT-1.

Table 2: Summary of Operating Variance for December 31, 2017

	<b>Total 2017 Annual Budget (\$)</b>	<b>Year-end Variance Including Reserve Transfers for December 31, 2017 (\$)</b>	<b>Variance for December 31, 2017 (%)</b>
<b>Tax Supported</b>			
City Departments	\$122,962,389	\$(502,860)	(0.4%)
General Revenues and Expenses	\$(201,931,282)	\$(1,628,957)	(0.8%)
Local Boards	\$49,362,909	\$(279,280)	(0.6%)
Grants, Outside Boards and Agencies	\$29,605,984	\$(1,135,098)	(3.8%)
<b>Total Tax Supported</b>	<b>\$0</b>	<b>\$(3,546,195)</b>	<b>(1.0%)</b>
<b>Non-tax Supported Budgets</b>			
Water	\$0	\$(745,149)	(2.6%)

Wastewater	\$0	\$(2,636,206)	(8.5%)
OBC	\$0	\$35,319	1.2%
Court Services	\$0	\$51,680	2.5%
Stormwater	\$0	\$(971,110)	23.0%
<b>Total Non-tax Supported</b>	<b>\$0</b>	<b>\$(4,265,466)</b>	<b>(6.2%)</b>
(Brackets indicate a favourable variance)			

During the 2017 budget process, the City embarked on a journey to correct and right-size its operating budgets so that they reflect historical actual trending and are supported by business drivers. The approved 2017 budget right-sized some of the perennial budget variances and further progress was made during the 2018 budget. This is the first year in the last five that the City tax supported departments finished in a surplus position. This has allowed the City to reduce its reliance on year-end transfers from reserves to offset deficits and moves the City further along the continuum towards financial sustainability and stability.

Included in the year-to-date net expenditures are reserve transfers. The reserve transfers were completed in accordance with the Council approved General Reserve and Reserve Fund Policy or transfers were approved by Council during the year. Table 3 summarizes the reserve transfers.

Table 3: Summary of Reserve Transfers

Department	Reserve	Transfer To/(From) Reserve	Purpose
Environmental Services	Tax Rate Operating Contingency (180)	\$(360,000)	Operating Costs – organics processing
Environmental Services	Legal/Insurance (193)	\$(100,000)	Insurance recovery – fire at Material Recovery Facility
Operations	Environment and Utility Contingency (198)	\$500,000	Winter control operating savings transferred to mitigate future costs related to extreme weather
Legal, Realty and Risk Services	Legal/Insurance (193)	\$(85,380)	Litigation and insurance claim expenses in excess

			of budget
Shared Services (County)	Social Housing Contingency (208)	\$521,800	Funds held for the unspent 2017 capital budget related to Social Housing

## Variance Drivers Overview

### Corporate Variance Drivers

The identified drivers below were significant, resulting in variances in both the Non-tax Supported and Tax Supported departments and the Local Boards and Shared Services.

#### 1. Revenues

Supplementary taxation revenue of \$2,700,000 was favourable compared to budget due to the collective effort of staff working in conjunction with the Municipal Property Assessment Corporation (MPAC) to ensure properties that should be included on the assessment roll are assessed and included in a timely manner. The increase in assessment will partially offset the increase in payment-in-lieu of taxes for City-owned properties in Environmental Services and Water Services that were assessed during the year.

Additionally, higher than anticipated water and wastewater revenues as a result of increased growth in water demand, and agreement-driven revenues related to pre-treated effluent.

#### 2. Compensation

Overall compensation was a favourable \$920,500 or 0.5 per cent of total compensation (tax and non-tax supported budgets collectively) at year-end net of budgeted salary gapping of \$1.8 million due to natural delays in hiring for vacant positions, difficulty in sourcing skilled staff mainly in Transit and Operations, and other compensation related savings.

The favourable position was experienced despite a Workplace Safety and Insurance Board (WSIB) unfavourable variance of \$1,110,000 of which approximately \$600,000 represented a one-time cost related to the Presumptive Legislation claim. Given the risk and potential significant cost of Presumptive Legislation claims (related to firefighters), Council approved the 2018 operating budget which included an increase for WSIB costs. The City is also renewing the actuarial valuation for the WSIB liability for the 2017 audited statements due to the claims assessed in 2017.

In order to maintain Council approved service levels with the number of vacancies experienced in 2017, additional overtime was incurred

(predominantly due to driver shortages in Transit) as well as external contract staffing resources were used (predominantly in Operations) to ensure citizens received expected service levels.

### 3. Hydro

Overall hydro was \$1,276,000 favourable or 12.8 per cent below budget (tax and non-tax supported budgets collectively). Facilities Management staff worked to implement energy efficiency measures including building organizational awareness, facility LED) lighting retrofits, recommissioning of facility HVAC systems, preventative maintenance, and cogeneration at the West End Community Centre.

As part of the Fair Hydro Plan and the Industrial Conservation Initiative (ICI), the Province re-allocated the global adjustment charges amongst the different classifications of electricity users. The City's two largest facilities (Class A customers), the Wastewater Treatment Facility and the Waste Resource Innovation Centre, benefited from subscribing to the ICI, and realized cost savings which were included in the 2018 operating budget.

With the help of third-party consultants who monitor the energy markets more closely, the 2018 budget was adjusted to forecasted energy rates and used historical data to reflect the implemented energy efficiency measures. Staff continue to monitor the impact of the Provincial strategies and programs on City budgets.

### 4. Fuel

Diesel costs across the Corporation were \$370,200 or 7.5 per cent lower than budget (tax and non-tax supported budgets collectively). The variance was a result of the actual average fuel price being \$0.93/litre compared to the budgeted average fuel price of \$1.01/litre.

The diesel savings mainly occurred in Transit and Operations. Since December 2017, fuel prices are continuing to trend higher and early market indications project significant increases are anticipated to occur during the summer of 2018.

### 5. Repairs and Maintenance

An overall net budget deficit of \$1,020,000 attributed mainly to buildings, and vehicle repairs and maintenance.

a) Building

The building maintenance variance is due to repairs at City Hall, as well as repairs and general maintenance at several other City-owned facilities.

b) Vehicle Repairs and Maintenance

Vehicle repairs and maintenance were higher than budgeted which is a direct link to the vacant positions in the Operations department. The limited skilled labour pool available to work resulted in an increased number of external repairs. The age of the Operations and Transit fleet also contributed to the increased repairs and maintenance costs which will be partially addressed in 2018 through the replacement of 24 conventional and six mobility transit buses.

## Department Specific Variance Drivers

### Tax Supported

#### Infrastructure, Development and Enterprise Services

Environmental Services unfavourable \$672,429

For three consecutive years, Environmental Services has experienced unfavourable variances as it works through a service review and assessing the third-party contracts. Budget adjustments and in-year mitigation measures have been undertaken while minimizing the impact on operations. In the second quarter, Council approved a recommendation to offset the variance caused by increased organic waste processing costs and lost revenue due to a fire by allocating \$360,000 from the Tax Rate Operating Contingency Reserve (180) and \$100,000 from the Legal/Insurance Reserve (193). The transfers from the reserves enabled Solid Waste Services to operate without significant impact on service delivery.

The major drivers of the variance are as follows:

- Increased third-party returned recyclable costs due to increased tonnage and lower capture rates;
- Retroactive payment-in-lieu of taxes for 2015, 2016, and 2017. The 2018 budget was adjusted to reflect the new assessment value; and
- Higher than planned contracted waste haulage costs due to increased tonnage.

#### Public Services

Operations favourable \$572,502

Due to mild weather in the beginning of 2017, Winter Control experienced a favourable \$503,287 year-end position mainly due to fewer after-hours and weekend weather events resulting in lower temporary wages, and overtime.

Included in the final year-to-date net expenditure is a transfer to the Environment and Utility Contingency Reserve (198) with the intention of protecting against future volatile operating expenditures related to winter control and other extreme natural or weather events. For example, the mild winter trend does not appear to be continuing in the first half of 2018.

### **Local Boards and Shared Services**

County of Wellington (Social Services) favourable \$1,120,399

The favourable variance is due to lower than projected Ontario Works caseload at 0.6 per cent below the previous year's level. Social Housing experienced a favourable year-end variance mainly due to higher than budgeted rent receipts, lower utility costs and lower than budgeted Community Homelessness Prevention Initiative (CHPI) spending.

At year-end, there were a number of ongoing capital projects with unspent budget totalling \$521,800. This is not unique to 2017, and historically the City accounts for the Social Services capital budget as part of the City's operating budget which creates tax rate volatility risk for the capital projects that span more than one fiscal year. Effective for 2017, staff have changed this accounting practice and will now segregate the capital and operating budgets and spending. This mirrors the way in which the County of Wellington manages the services and will align the presentation of financial results between the two organizations. Further, it will remove the risk associated with carrying multi-year capital projects in the operating budget. For this reason, due to the change in the accounting treatment, \$521,800 of the unspent 2017 capital budget has been transferred to the Social Housing Contingency Reserve (208) to be applied against 2018 capital spending.

### **Non-tax Supported**

#### **Infrastructure, Development and Enterprise Services**

Stormwater Services favourable \$971,110

In 2017, Stormwater successfully transitioned from a tax supported service to a non-tax supported utility. The Stormwater year-end surplus is mainly due to higher than budgeted actual impervious (paved) area measurements which have been reported to Council through the year. Impervious area measurement units increased by 21,000 from the original forecast resulting in an additional \$1,150,000 in revenue. In July 2017, Council received report IDE 2017-87 titled Stormwater Service Fee – Credit Program Feasibility and approved a stormwater credit program with the objective of financially rewarding customers who reduce stormwater runoff quantity or improve the runoff quality that is discharged from their property. The report recommended that a portion of the additional revenue from the revised impervious area measurement units be dedicated towards the financial incentive program. The recommendations from that report were included in the 2018 operating budget. On-site management of stormwater can reduce the long-term costs of the City's Stormwater Services program.

## Allocation of the 2017 Operating Surplus and Deficit

In accordance with City Council's approved Year-end Operating Surplus Allocation Policy, a primary consideration for the allocation of any year-end surplus is to transfer funds to operating reserves to smooth future volatility in operating costs and tax increases. This is provided as a general guideline and may be superseded in order to address more immediate financial needs as identified by the City Treasurer. Also allowed under this policy is consideration for Local Boards to submit a request via a letter to the Chief Financial Officer/Treasurer for their year-end operating surplus to be allocated back to their operations. This request should be evaluated against all other competing priorities. Council however has the ultimate authority to approve the year-end transfers for the City as a whole.

The surplus/deficit allocation recommendations are heavily influenced by the General Reserve and Reserve Fund Policy review that was received by Council in September 2017. Through the Reserve Fund Policy Update and Realignment in September 2017, the City now has identified measurable targets for our funds which have enabled an evidence-based recommendation for the operating budget surplus transfer. The benefit of this cannot be emphasized enough as it moves the City further along the maturity path of strategic financial management.

### Surplus Allocation Recommendations

For 2017, the City has returned an operating surplus in the Tax Supported, Water, Wastewater, and Stormwater budgets. In accordance with the Council approved Year-end Surplus Allocation Policy, the following recommendations are being made:

- 2017 Tax Supported Operating Surplus: \$3,546,195 (A)
- 2017 Water Services Operating Surplus: \$745,149 (B)
- 2017 Wastewater Services Operating Surplus: \$2,636,206 (C)
- 2017 Stormwater Operating Surplus: \$971,110 (D)

(A) Tax Supported Operating Surplus Allocation - \$3,546,195

It is recommended that the surplus be allocated to reserves that are below the recommended target or had funds withdrawn to alleviate financial pressures in the current or future budget year. The recommended allocation is as follows in Table 4:

Table 4: Tax Supported Operating Surplus Allocation

<b>Reserve</b>	<b>Recommended Allocation</b>	<b>Reserve Balance after Allocation</b>
Tax Rate Operating Contingency Reserve (180)	\$1,164,826	\$8,273,883
City-owned Contaminated Sites Reserve Fund (155)	\$1,000,000	\$1,015,265
Efficiency, Innovation and Opportunity Fund (351)	\$1,000,000	\$4,093,390
WSIB Reserve (330)	\$231,369	\$ 3,133,385
Police Operating Contingency Reserve (115)	\$150,000	\$150,000
<b>Total</b>	<b>\$3,546,195</b>	

Tax Rate Operating Contingency Reserve (180): The 2018 Dedicated Infrastructure Levy was 50 per cent funded from the tax rate operating contingency reserve through Council decision in the 2018 budget. Staff is recommending that \$1,164,826 of the 2017 surplus be used to replenish the reserve.

City-owned Contaminated Sites Reserve Fund (155): This reserve fund is intended to manage the costs of monitoring and remediating environmentally contaminated sites. The City has several sites that will need to be remediated in the short-term to achieve corporate planning objectives (e.g. Baker, Fountain, and 200 Beverley Street). The province introduced Public Sector Accounting Board (PSAB) 3260 in 2015, which requires the City to report the liability associated with the clean-up of contaminated sites on the financial statements. The reserve fund should maintain a balance of 10 per cent of the \$27 million outstanding liability (or \$2.7 million); however there is currently only \$15,265 in the reserve fund. It is recommended that \$1 million of the 2017 operating surplus be allocated to the contaminated sites reserve bringing the funded status to 38 per cent and mitigating corporate risk in the event work on these sites is required prior to the planned timelines.

Efficiency, Innovation and Opportunity Fund (351): The balance in this reserve was reduced by \$3 million in 2017, primarily due to leveraging this reserve fund to obtain a federal Provincial Transit Infrastructure Fund (PTIF) grant which was used to replace 30 buses (conventional and mobility). The staff recommended transfer of \$1,000,000 from 2017 surplus to this reserve fund will help to replenish it for the funding that was used for PTIF matching in 2017. Given the bi-lateral funding agreements signed recently by the federal and provincial governments, staff are expecting to need additional funds for matching purposes in 2018 and 2019.

WSIB Reserve (330): This reserve is required to set aside funds throughout the service life of an employee to fund the expected future cost of WSIB claims. Human Resources budgets an annual contribution through the compensation provision based on historical estimates and experience but relies on the WSIB Reserve in years where the actual costs out-pace budget. The General Reserve and Reserve Fund Policy has identified the reserve balance target of 50 per cent of the



outstanding WSIB liability. Despite transferring \$650,000 from the general compensation reserve to the WSIB Reserve in September 2017, the WSIB Reserve remains significantly underfunded at 55 per cent of the recommended balance. Staff recommends allocating an additional \$231,369 to the WSIB Reserve to further top up this reserve given the risk of Presumptive Legislation changes and other current claim experience. Council Report CS-2018-16 General Reserve and Reserve Fund Statement 2017 also recommends transferring \$813,053 from compensation contingency to the WSIB Reserve bringing the collective funded status to 83 per cent.

Police Operating Contingency Reserve (115): As indicated above, and as described in ATT-2 Letter from GPS Board, \$150,000 is being requested to be transferred to the Police Operating Contingency Reserve. Staff supports this request because it streamlines the budget process for the Guelph Police Services Board in being able to fund one-time expenses with their contingency reserve rather than requesting these funds from the City's tax rate operating contingency reserve. This is consistent with how the City will utilize the operating contingency reserve in the future as our budgeting systems will be able to capture one-time budget requests from the base. Looking forward, this reserve will also support the GPS as the City moves towards a multi-year budget framework. The recommended reserve policy would limit the total Police Contingency Reserve to a maximum of one per cent of the GPS budget.

(B) Water Services Operating Surplus Allocation - \$745,149

It is recommended that the surplus be allocated to Water Capital Reserve Fund (152) and be utilized to finance future capital projects.

The balance of the Water Capital Reserve Fund (after commitments) will be \$29,701,149 after the recommended allocation.

(C) Wastewater Services Operating Allocation - \$2,636,206

It is recommended that the Wastewater surplus be allocated to Wastewater Capital Reserve Fund (153) and be utilized to finance future capital projects.

The ending balance of the Wastewater Capital Reserve Fund (after commitments) will be \$40,916,537 after the recommended allocation.

(D) Stormwater Services Operating Surplus Allocation - \$971,110

It is recommended that the Stormwater surplus be allocated as outlined in Table 5.

Table 5: Stormwater Services Operating Surplus Allocation

Stormwater Contingency (359)	\$321,900
Stormwater Capital (165)	\$649,210
<b>Total allocation</b>	<b>\$971,110</b>

The Stormwater Contingency Reserve provides funding to meet emergency and unplanned funding needs for Stormwater Operations in order to avoid an operating deficit or fluctuations in the stormwater rate. The reserve is deficient and considerably below the recommended target of 10 percent of annual gross operating expenditures. The ending balance after the recommended allocation will bring the reserve to the recommended benchmark, and the surplus difference will be allocated to the Stormwater Capital Reserve Fund.

The ending balance of the Stormwater Contingency Reserve and Stormwater Capital Reserve Fund (after commitments) will be \$421,900 and \$209,329 respectively after the recommended allocation.

### Deficit Allocation Recommendations

For 2017, the City had an operating deficit in the Ontario Building Code (OBC) budget of \$35,319 and Court Services budget of \$51,680.

To fund the OBC deficit, a transfer from the Building Services OBC Stabilization Reserve Fund (188) will be made in accordance with the provincial legislation. The balance of the reserve (including commitments) will be \$2,780,859 after the transfer.

To fund the Court Services deficit, a transfer from the Court Contingency Reserve (211) will be made. The balance of the reserve will be \$484,127 after the transfer.

## **Financial Implications**

The year-end operating surplus represents one-time funding that cannot be relied on to recur on an ongoing basis, as such; these year-end surpluses should only be allocated to fund one-time, non-recurring expenditures. Actual financial results vary from year-to-year based on various external and internal factors. It is therefore not recommended that year-end surplus be used to reduce future tax rate impacts. The budget process includes the review of actual spending trends and considers future need requirements; collectively determining the budget required in any given year to meet the Council-approved service levels. Financial policies are in place to allow the City to manage any surplus or deficit in a fiscally responsible manner.

## **Consultations**

Departments are responsible for managing their programs according to municipal standards and within the approved budget. The responsibility of monitoring the operating budget is shared by the operating departments and the Finance Department. Department Managers were provided financial reports based on their actual revenue and expenditures to December 31, 2017 with which they provided a year-end commentary in consultation with the Finance Department.

## Corporate Administrative Plan

Budget monitoring and variance reporting are aligned with the City's strategic objectives. Providing Committee and Council with quarterly variance reports specifically aids the achievement of the following Corporate Administrative Plan directions:

### Overarching Goals

Financial Stability  
Service Excellence

### Service Area Operational Work Plans

Our Services - Municipal services that make lives better  
Our Resources - A solid foundation for a growing city

## Attachments

ATT-1            Operating Budget Variance based on December 31, 2017  
ATT-2            Letter from GPS Board (PENDING)

### Report Author

Ron Maeresera



---

### Approved By

Tara Baker, CPA, CA  
GM Finance & City Treasurer  
Corporate Services  
519-822-1260 ext. 2084  
[tara.baker@guelph.ca](mailto:tara.baker@guelph.ca)

---

### Recommended By

Trevor Lee  
Deputy CAO,  
Corporate Services  
519-822-1260 ext. 2281  
[trevor.lee@guelph.ca](mailto:trevor.lee@guelph.ca)

**ATT-1 to report CS-2018-14**

**Operating Budget Variance based on December 31, 2017**

Department	Variance for Dec 31, 2017 (\$): (Favourable) / Unfavourable	Variance for Dec 31, 2017 (%)	Transfer To/(From) Reserve (included in YTD Net Expenditures)
<b>TAX SUPPORTED</b>			
<b>CAO</b>			
MAYOR AND COUNCIL	\$ (41,214)		
CAO ADMINISTRATION	\$ (75,141)		
STRATEGY, INNOVATION & INTERGOVERNMENTAL SERVICES	\$ 1,713		
LEGAL, REALTY AND RISK SERVICES	\$ (138,116)		\$ (85,380)
INTERNAL AUDIT	\$ 6,704		
CORPORATE COMMUNICATIONS	\$ (44,206)		
BUSINESS PROCESS MANAGEMENT (BPM)	\$ (20,424)		
<b>SUB-TOTAL CAO</b>	<b>\$ (310,684)</b>	<b>(5.0%)</b>	<b>\$ (85,380)</b>
<b>INFRASTRUCTURE, DEVELOPMENT &amp; ENTERPRISE</b>			
IDE ADMINISTRATION	\$ 3,844		
PLANNING, URBAN DESIGN, AND BUILDING SERVICES	\$ (149,748)		
FACILITIES MANAGEMENT	\$ 181,024		
ENGINEERING & CAPITAL INFRASTRUCTURE SERVICES	\$ (173,559)		
ENVIRONMENTAL SERVICES	\$ 672,429		\$ (460,000)
BUSINESS DEVELOPMENT & ENTERPRISE SERVICES	\$ (113,565)		
<b>SUB-TOTAL INFRASTRUCTURE, DEVELOPMENT AND ENTERPRISE</b>	<b>\$ 420,425</b>	<b>1.8%</b>	<b>\$ (460,000)</b>
<b>PUBLIC SERVICES</b>			
PS ADMINISTRATION	\$ 4,624		
PARKS & RECREATION SERVICES	\$ 11,616		
CULTURE, TOURISM & COMMUNITY INVESTMENT	\$ 277,686		
GUELPH TRANSIT	\$ 180,879		
OPERATIONS	\$ (572,502)		\$ 500,000
FIRE SERVICES	\$ (116,132)		
GUELPH-WELLINGTON PARAMEDIC SERVICES	\$ (156,623)		
<b>SUB-TOTAL PUBLIC SERVICES</b>	<b>\$ (370,452)</b>	<b>(0.4%)</b>	<b>\$ 500,000</b>
<b>CORPORATE SERVICES</b>			
CS ADMINISTRATION	\$ (50,724)		
HUMAN RESOURCES	\$ 353		
INFORMATION TECHNOLOGY	\$ 101,139		
CITY CLERK'S OFFICE	\$ (8,228)		
FINANCE	\$ (284,689)		
<b>SUB-TOTAL CORPORATE SERVICES</b>	<b>\$ (242,149)</b>	<b>(2.1%)</b>	
<b>TOTAL CITY DEPARTMENTS (excl Financing)</b>	<b>\$ (502,860)</b>	<b>(0.4%)</b>	<b>\$ (45,380)</b>
<b>GENERAL AND CAPITAL FINANCING</b>	<b>\$ (1,628,957)</b>	<b>(0.8%)</b>	
<b>TOTAL CITY DEPARTMENTS (incl Financing)</b>	<b>\$ (2,131,817)</b>	<b>(2.7%)</b>	<b>\$ (45,380)</b>

Department	Variance for Dec 31, 2017 (\$): (Favourable) / Unfavourable	Variance for Dec 31, 2017 (%)	Transfer To/(From) Reserve (included in YTD Net Expenditures)
<b>LOCAL BOARDS</b>			
GUELPH POLICE SERVICES	\$ (296,559)		
GUELPH PUBLIC LIBRARY	\$ 22,694		
THE ELLIOTT COMMUNITY	\$ (5,415)		
<b>SUB-TOTAL LOCAL BOARDS</b>	<b>\$ (279,280)</b>	<b>(0.6%)</b>	
<b>OUTSIDE BOARDS &amp; AGENCIES</b>			
WDG PUBLIC HEALTH COUNTY (SOCIAL SERVICES)	\$ (1,120,399)		\$ 521,800
<b>SUB-TOTAL OUTSIDE BOARDS &amp; AGENCIES</b>	<b>\$ (1,120,398)</b>	<b>(4.1%)</b>	<b>\$ 521,800</b>
<b>GRANTS</b>			
GRANTS - SPECIAL PROJECTS	\$ (14,700)	(0.6%)	
<b>Subtotal Grants, Local and Outside Boards &amp; Agencies</b>	<b>\$ (1,414,378)</b>	<b>(1.8%)</b>	<b>\$ 521,800</b>
<b>TOTAL TAX SUPPORTED</b>	<b>\$ (3,546,195)</b>	<b>(1.0%)</b>	<b>\$ 476,420</b>
<b>NON TAX SUPPORTED</b>			
WATER SERVICES	\$ (745,149)	(2.6%)	
WASTEWATER SERVICES	\$ (2,636,206)	(8.5%)	
ONTARIO BUILDING CODE	\$ 35,319	1.2%	
COURT SERVICES	\$ 51,680	2.5%	
STORMWATER SERVICES	\$ (971,110)	(23.0%)	
<b>TOTAL Non Tax Supported</b>	<b>\$ (4,265,466)</b>	<b>(6.2%)</b>	



## Guelph Police Services Board

PO Box 31038, Willow West Postal Outlet, Guelph, Ontario N1H 8K1

Telephone: (519) 824-1212 # 213 Fax: (519) 824-8360

TTY (519) 824-1466 Email: board@police.guelph.on.ca

April 19, 2018

Mayor Cam Guthrie  
Guelph City Hall  
1 Carden Street  
Guelph, ON N1H 3A1

Your Worship:

At its meeting on April 19, 2018, the Guelph Police Services Board was advised that there is an anticipated year end surplus in the Guelph Police Service 2017 operating budget. The Board passed the following motion:

**THAT** the Guelph Police Services Board forward a request to City Council that \$150,000 of the 2017 year-end surplus be transferred to a Police Operating and/or Capital Reserve.

***-CARRIED-***

The Guelph Police Services Board would respectfully request consideration of the aforementioned recommendation by Guelph City Council.

I look forward to hearing from you.

Sincerely,

A handwritten signature in cursive script that reads "J. Sorbara".

Judy Sorbara, Acting Chair

Copies: Tara Baker, General Manager/City Treasurer, City of Guelph  
Jeffrey DeRuyter, Chief of Police

# Staff Report



---

To **Committee of the Whole**

Service Area Corporate Services

Date Monday, May 7, 2018

Subject **2017 Year-end Capital Variance**

Report Number CS-2018-15

---

## **Recommendation**

That the 2017 Year-end Capital Variance Report (CS-2018-15), dated May 7, 2018, be received.

## **Executive Summary**

### **Purpose of Report**

This report provides a summary of the 2017 spending compared to the approved budget, and highlights significant capital project activity and milestones. This report also serves to notify of any deviations from the approved capital plan.

### **Key Findings**

On an annual basis, the City approves the Capital Budget which is the City's plan to take care of what it owns and plan for future growth. The 2017 Capital Budget focused on renewing existing infrastructure and systems to ensure the community's health and safety, and to meet legislative requirements while balancing affordability for the community with current capital and infrastructure needs. Council approved a \$92.9 million 2017 Capital Budget and through the year approved an additional \$21.5 million through special motion and/or received additional sources of funding.

This report reflects the 2017 spending of \$96.4 million and fourth quarter spending of \$45.6 million; an increase in spending over the third quarter by \$23.9 million and a total increase over 2016 by \$11.5 million.

Below is the capital activity for 2017. Details are provided in ATT-1.

2016 Carry-over budget	\$169,400,000
2017 Capital budget, approved	\$92,860,300
2017 Additional approved funding	\$21,509,595
2017 Closed projects (funding returned to reserve funds)	<u>(\$17,452,525)</u>
Total available capital funding for 2017	\$266,317,370
As of December 31, 2017:	
2017 Capital spending	<u>(\$96,420,781)</u>
2017 Carry-over budget	\$169,896,589
Open purchase orders	<u>(\$73,286,505)</u>
Uncommitted 2017 Capital Budget	\$96,610,084

The City had a very active and successful year advancing critical projects that have had a positive impact on the daily life of city residents and businesses. The City opened the newly renovated Victoria Road Recreation Centre, leveraged Federal funds to replace 24 conventional and six mobility transit buses, received Council approval for the Wilson Street parkade in the downtown, received approval for replacing the City's entire streetlight inventory with more cost-efficient LEDs, and made significant progress on the York Trunk Sewer/Paisley-Clythe Feeder Main project.

Further, through the leadership of the City's Complex Capital Committee, staff have been focusing internally on making the capital procurement process more efficient and timely. A corporate review of the construction procurement process was undertaken, redundancies were removed, templates and procedures were created, and training was offered for project managers. This was a significant body of work that increased productivity and provided tools and resources to staff to better manage their capital project portfolio.

### **Financial Implications**

Ongoing monitoring of capital spending ensures that projects are delivered as intended and that any financial impacts are addressed proactively.

## **Report**

### **Current Year Spending**

For 2017, the total spending from capital accounts was \$96.4 million compared to \$84.9 million in 2016 and the fourth quarter spending was \$23.9 million higher than the third quarter. The increase in spending was expected as the linear infrastructure and work in open spaces continued to progress throughout the fall. The most significant driver this year was the arrival of 24 conventional and six mobility transit buses, valued at \$14.9 million. These buses are part of the funding provided by the Federal government in 2017 known as the Public Transit Infrastructure Fund (PTIF).



Open purchase orders saw a significant increase in the fourth quarter versus the third quarter in the amount of \$10.5 million. This was expected given the early approval of the 2018 Capital Budget in November as well as the Wilson Street Parkade purchase order that was also issued in that month.

Further to the approval of the 2017 Capital Budget, additional capital funding was approved and/or received for the following projects during the year:

Solid Waste Equipment Replacement Insurance recovery from facility fire in 2016	\$506,200
St. Georges Square Lighting Upgrade Approved by Council May 1, 2017	\$76,300
Groundwater Protection Contribution from GRCA	\$90,600
IT Fibre Data Network Approved by Council June 26, 2017	\$500,000
Wilson Street Parkade, Bridge and Street Phase III Approved by Council July 24, 2017	\$8,935,000
LED Streetlight Approved by Council July 24, 2017	\$8,000,000
Eramosa Water Upgrade Approved by Council December 4, 2017	\$2,490,000
Developer Contributions to Linear Infrastructure Per approved development agreements	\$911,495
	<b>\$21,509,595</b>

As part of an ongoing capital reprioritization process, Wastewater Services closed two previously approved projects that were moved to a future year's forecast for a total of \$16.14 million; this returned funding of \$12.14 million to the Wastewater Development Charge Reserve Fund and \$4.0 million to the Wastewater Capital Reserve Fund. The budget for the Hanlon Creek Business Park was reduced by \$879,000 to reflect recent Council direction. Numerous additional projects were closed at the end of 2017 thereby returning \$430,000 of funding to various other capital reserve funds.

## **Uncommitted**

The uncommitted balance has been reduced by \$53.9 million over the third quarter to \$96.6 million, which was expected due to the issuance of the Wilson Street Parkade purchase order and the early issued purchase orders related to the 2018 planned work.

There are a number of reasons for the magnitude of the uncommitted balance including projects still in the planning stages that have not yet been awarded, projects delayed or projects that are currently under review for future requirements. This balance represents capital projects that are approved but do not yet have a purchase order issued. Staff are actively working to assess these projects and implement strategies to support better cash flow management.

## **Program of Work Activity and Variance Highlights**

Below are highlights, not comprehensive summaries, of the various programs of work. ATT-1 provides a full summary of the capital activity for 2017.

Please note that this reporting follows the 2017 programs of work and has not yet been updated for the revised 2018 programs of work that Council approved as part of the November 2, 2018 Capital Budget. In preparation for the 2019 Capital Budget, further refinement of the programs of work has occurred to align the reporting to a fully serviced-oriented structure that is aligned with the reporting of Corporate Asset Management. The first 2018 tri-annual capital report will reflect the 2019 format, which will provide consistent and clear messaging through the development of the 2019 Capital Budget.

### **Active Transportation**

The active transportation program of work includes the budget for Transit, and implementing the initiatives of the Cycling Master Plan, Trails Master Plan and sidewalk needs assessments.

The active transportation program of work had spending of \$16.5 million in 2017: \$14.9 million for the purchase of 24 conventional and six mobility transit buses, \$1.1 million for transit terminal upgrades and equipment replacement and \$493,000 for Northview Trail, sidewalk needs assessments and the design of the active transportation network.

The uncommitted balance includes approximately \$550,000 to complete the Silvercreek Trail extension work which is ongoing and also number of significant community engagement exercises, including the Guelph Trail Master Plan Phase 2.

### **Building Expansion, Renewal and Upgrades**

This program of work includes renovations and maintenance of City facilities, building condition assessments, structural repairs, minor upgrades and expansions or new facilities.

The higher spending this year relates to two of the City's current Tier-1 projects and significant facility renovations. A high-level fourth quarter progress report on these projects can be found in the Information Report, IDE-2017-124, Tier-1 Projects fourth quarter 2017 Status Update. [https://guelph.ca/wp-content/uploads/CapitalProjectSummaryQ4\\_Dec2017.pdf](https://guelph.ca/wp-content/uploads/CapitalProjectSummaryQ4_Dec2017.pdf)

The Guelph Police Service (GPS) headquarters renovation is progressing as planned and spending for 2017 totalled \$9.9 million. The project is progressing within budget and scope. The schedule is currently being reviewed and an updated schedule is to be provided in the Tier 1 Project Portfolio second quarter 2018 Status Update. More information is available at [guelph.ca/gpsreno](http://guelph.ca/gpsreno).

As previously reported, the Victoria Road Recreation Centre (VRRC) had a successful grand re-opening event on Saturday, June 24, 2017. 100 per cent of the original approved budget has been spent to date and warranty related deficiencies are in the process of being addressed. The project is expected to be fully closed and completed by the end of 2018. More information is available at [queph.ca/construction](http://queph.ca/construction).

In addition to the major facility renovations, there has been spending of \$2.2 million on other building renewal and lifecycle projects at various other City facilities including a new fire alarm system in the Sleeman Centre and the East and West Parkades. Work began on transforming the McCrae Coach House into a space that can be used to provide additional programming. Work on the Evergreen Seniors Centre facility and parking lot has also been planned for the summer of 2018.

The uncommitted balance remains significant at \$20.1 million. A total of \$8 million relates to the recently approved LED streetlight upgrade project, \$3.5 million relates to later phases and contingency budgets for the GPS headquarters renovation project and approximately \$6.6 million for corporate building renewal and structural projects. Finally, there is \$3.4 million for the South End Community Centre (SECC) design.

### **Contaminated Sites**

This program of work includes projects that maintain, mitigate or remediate the estimated 43 City-owned properties that are potentially contaminated.

In May 2016, Council directed staff to establish a partnership with two entities for the purpose of redeveloping 200 Beverley Street. The 2017 budget included \$1.25 million to advance this initiative and remediate the site. To date, the City has advanced phase 1 and phase 2 environmental assessments for the purpose of achieving a Record of Site Condition for the property from the Ministry of Environment and Climate Change. Parallel to this work, the City and its development partner ARQi are cost sharing the creation of an Urban Design Master Plan, which will serve to scope future planning and development applications.

Further, work has begun on the removal and clean-up of the fuel tank at 45 Municipal Street (Operations Department). In addition to the clean-up, a new above-ground fueling system will be installed.

### **Downtown Implementation**

This program of work primarily includes budget for projects that support the implementation of the Downtown Secondary Plan. This is a complex plan that requires the alignment of projects and partnerships between the City, private landowners, institutions and downtown businesses.

Significant work was carried out on improving aging infrastructure within the downtown core, including the Arthur Street Trunk Sewer (\$4.3 million), Wilson Street reconstruction Phase II (\$1.3 million), and structural lifecycle work at the

West Parkade (\$781,000). Phase II of Wilson Street, from Carden to MacDonnell, was completed and a re-opening celebration was held November 18, 2017, while the West Parkade and Arthur Street Truck Sewer projects continue into 2018.

The Wilson Street Reconstruction and Parkade project hit a significant milestone in July 2017 as Council approved an expanded parkade structure with 496 parking spaces as well as awarded the design and build contract totaling \$20.4 million to The Newton Group. The amended budget includes Phase III Wilson Street road reconstruction work and work associated with the Norfolk Pedestrian Bridge, which will enable staff to move forward with completing all related Wilson Street projects in an efficient and connected manner. Construction on the parkade began in early February 2018 and progress is being made on the site. More information is available via [quelph.ca/construction](http://quelph.ca/construction).

In July 2017, Council approved the Baker District Redevelopment Project as a priority program of work to further implement the Downtown Secondary Plan. A Tier-1 project steering committee has been formed and is providing oversight for the connected projects within the downtown realm and includes the Baker District Redevelopment Project. Four potential developers were short listed from an original list of 10 submissions, and these developers will be asked to respond to the Request For Proposal (RFP) issued in April 2018. This will be the second step in a four step process previously communicated to Council. Staff will be back in July 2018 with the results of the RFP.

The total of \$7.5 million uncommitted as at December 31, 2017 is primarily resulting from two projects: the Baker District and contingency for the Wilson Street Reconstruction and Parkade.

### **Full Corridor Reconstruction**

This program of work includes capacity or condition upgrades to wastewater, stormwater and water infrastructure along with full replacement of the road, sidewalk, and other adjacent infrastructure within the municipal right-of-way. When a project appears in this program, it has been deemed that the optimum option is to replace the underground infrastructure and fully reconstruct the corridor from lifecycle, risk, level of service and financial perspectives.

Significant progress continued on the York Trunk Sewer/Paisley-Clythe Feeder Main (\$7.5 million in spending) as work advanced east from the Covered Bridge to the F.M Woods Pumping Station. The current phase was completed in December 2017 with the reconstruction of Waterworks Place Road and final infrastructure connections at Lyon Park and the F.M. Woods Pumping Station. The final surface asphalt will be laid in May 2018.

Reconstruction of Metcalfe Street from Speedvale to Eramosa (\$3.0 million) was undertaken. Underground services and base asphalt were completed while surface asphalt, sod and driveways are to be completed in spring 2018. This project is being 75 per cent funded through Federal and Provincial governments through the Clean Water and Wastewater Fund grant.

A total of \$7.5 million is outstanding as a result of project delays due to regulatory processes and land access as well as tendering budget challenges. Pending tendering and awarding of major projects includes: Niska Road Upgrades at \$2.6 million (expected 2018 tender) and Woodlawn Road West at \$2.5 million (expected spring 2018).

The early approval of the 2018 Capital Budget provided the final funding portion to allow two key projects to be successfully tendered before year-end. These projects were Phase 2B of the York Trunk Sewer/Paisley Feeder Main with a budget of \$12.9 million and Bristol Street Reconstruction with a budget of \$3.0 million.

### **Information Technology Innovation**

This program of work provides budget for three key corporate functions: remediation of critical technology infrastructure, enhancing both internal and external access to information, and modernizing systems to improve functionality.

Significant lifecycle of equipment, including laptop/desktops, network and server assets and telephone sets was completed (\$1.4 million). As well, progress on reimplementation and upgrade of the City's Work Management System, WAM, was accomplished. Completion is expected in fourth quarter 2018, including improved integration with financial and asset management systems.

### **Open Spaces**

The open spaces program of work encompasses budget to support public engagement, lifecycle, refurbishment and master planning for the City's existing 112 parks and associated amenities as well as building new parks and park amenities.

In 2017, the construction of the washroom and change room facility at Eastview Park started over the summer and carried into the fall with façade and internal mechanical work being completed in early 2018 (\$2.2 million). Additionally, significant new and lifecycle renewal of sports fields and related infrastructure occurred over the summer and fall (\$500,000). Further, work continued at Victoria Road Northview and Ellis Creek parks, including construction of new park amenities.

New open space projects require significant planning, study, internal stakeholder review and community engagement which can only commence upon approval of the Capital Budget. Many of these activities are necessary before construction or implementation of the approved projects can begin. A number of significant community engagement exercises are currently underway or beginning in 2018, including the Parkland Dedication By-law update. Further detail on current Open Space Planning projects will be circulated to Council on April 13, 2018 in report PS-2018-18.

### **Road and Right of Way**

This program of work captures the city-wide road restoration and resurfacing program and the expansion and improvements of the road surface including road

widening, installation of turning lanes, and the design and installation of bike facilities.

The annual asphalt program to preserve the lifespan of roads was completed in the third and fourth quarters of the year with \$1.7 million spending. As well, road and sidewalk work totalling \$1.7 million on Eastview Road was completed in the last half of the year to improve the road to an urban cross section and provide an active transportation link.

### **Stormwater**

The stormwater program of work involves controlling the quantity and quality of rainfall and melted snow that runs off of roofs, driveways and roads, which ends up in the city's waterways and storm sewers. Stormwater management systems represent valuable public assets that provide many community benefits, including pollution control and flood protection. The City's stormwater management system includes storm sewers, pipes, roadside ditches, watercourses, culverts, bridges, swales, catchbasins, outfalls, ponds and other water quality treatment facilities.

Significant pond rehabilitation work was undertaken in 2017 (\$700,000) through the stormwater rate funding and federal and provincial infrastructure funding through the Clean Water Wastewater Fund (CWWF). Part of this work included the removal of 3,000 cubic metres of sediment from three stormwater management ponds allowing for ongoing flooding and water quality control. About 400 cubic metres of this sediment was diverted to the Grand River Conservation Authority's Burford Tree Nursery as part of a reuse pilot study. This pilot offers the potential to provide long-term benefits to the City as sediment reuse is a more environmentally and financial sustainable option, due to tipping fee cost savings and conservation of landfill space.

Delays in approvals for the zoning by-law amendment have delayed construction of the new Snow Disposal Facility (\$5.0 million); this is the primary reason for the uncommitted balance in this program of work.

### **Vehicle and Equipment**

The vehicle and equipment program of work provides budget for the lifecycle and growth needs for the City's corporate vehicle and equipment inventory. These assets are needed across the entire City to deliver critical services including Emergency Services, winter maintenance, and open spaces maintenance.

The total spending of \$10.0 million, of which \$3.4 million was spent during the fourth quarter, was heavily weighted on Emergency Services related lifecycle purchases. Replacement of Fire, Paramedic and Police vehicles and equipment of \$6.0 million included: radio infrastructure (\$1.8 million), vehicles (\$2.1 million) and IT equipment (\$438,000).

The uncommitted balance of \$6.2 million is mainly attributable to \$5.1 million in fleet vehicle replacement that was delayed due to a number of staff vacancies. In

mid-2017, a contract staff person was brought in to clear up the backlog. As of the second quarter 2018, the backlog has been completed.

### **Wastewater Plant and Equipment**

This program of work encompasses both renewal and growth-related activities to support the City's sanitary sewer network and pump stations as well as the central wastewater treatment centre.

Although 2017 spending totalled only \$663,800, to date, Wastewater Services has initiated work on \$6.4 million in capital projects including Ferric Building Upgrades, Digester #3 Structural Repairs, Facility Generators, and Aeration Blower Efficiency Upgrades.

An uncommitted balance of \$12.7 million exists for Wastewater Services and the above-noted projects account for approximately half of this balance. The asset inventory and condition assessment project to be completed by the third quarter 2018 will inform and support the prioritizing of projects moving into 2019. The results of the biosolids planning tender to be released by the second quarter 2018 will inform the update to the business case for the Biosolids Facility upgrade. In addition to biosolids management, this tender is also looking for opportunities to leverage off site storage which could positively impact the storage required to be built on site. The details of the Wastewater Treatment Plant Phase 2 Expansion are pending MOECC feedback on the re-rating application expected by second quarter 2018.

### **Water Services Plant and Equipment**

This program of work consists of projects that deliver on two key Water Service goals: supply, treatment and protection of the City's water and conservation and efficiency of water-related initiatives.

To date, Water Services has tendered and started to implement the following construction contracts contributing to the capital spending of \$9.4 million and awarded purchase orders of \$6.1 million. Projects include the Burke Well treatment and pumping facility upgrades, Phase 3 of District Metered Area Construction, Speedvale Water Tower Repainting and Operational Upgrades, F.M. Woods Pumping Station Valve Train Replacements, F.M. Woods Pumping Station Transformer Upgrades, and Glen Recharge Flow Meter Installation.

Water Services staff had also released tenders for piping improvements and inspections, and based on pricing and limited market response, will be re-releasing this work for tender in 2018.

The uncommitted balance of \$14.6 million includes projects to be tendered in 2018 for Emma and Water Street wells; Helmer well facility upgrades; Park Station upgrades, University well upgrades and F.M. Woods Pumps 4 and 5 Valve and Piping Replacements. Additionally, land acquisition and construction costs to be incurred following completion of a Municipal Class Environmental Assessment for treatment and process upgrades at Clythe well are valued at \$7.3 million. Further,

construction costs associated with the F.M. Woods Facility Upgrades will be incurred in 2018 due to continued scoping of this complex project to address operational risks at this critical water supply facility. The remaining balance is a combination of budget available for the later phases of the Burke Well treatment and pumping facility, groundwater protection, new supply and conservation and efficiency programs.

## **Financial Implications**

Ongoing monitoring of capital spending ensures that projects are delivered on schedule and as intended and that any financial issues that arise are dealt with in a proactive manner by Management and Council.

## **Consultations**

Corporate Management Team

## **Corporate Administrative Plan**

### **Overarching Goals**

Service Excellence  
Financial Stability

### **Service Area Operational Work Plans**

Our Resources - A solid foundation for a growing city  
Our Services - Municipal services that make lives better

## **Attachments**

ATT-1 Capital Spending as of December 31, 2017

## **Report Author**

Greg Clark, CPA,CMA  
Manager, Financial Strategy and Long-term Planning



---

### **Approved By**

Tara Baker, CPA, CA  
GM Finance & City Treasurer  
Corporate Services  
519-822-1260 Ext. 2084  
[tara.baker@guelph.ca](mailto:tara.baker@guelph.ca)

---

### **Recommended By**

Trevor Lee  
Deputy CAO  
Corporate Services  
519-822-1260 Ext. 2281  
[trevor.lee@guelph.ca](mailto:trevor.lee@guelph.ca)



Capital Spending as of December 31, 2017

<b>Program of Work</b>	<b>2017 Available Funding</b>	<b>2017 Actual Spending</b>	<b>December 31, 2017 Balance</b>	<b>Open Purchase Orders</b>	<b>Uncommitted Budget</b>
Active Transportation	18,906,783	16,459,781	2,447,002	1,451,680	995,322
Bridges & Structures	5,165,286	1,131,813	4,033,473	692,698	3,340,775
Building Expansion, Renewal & Upgrades	52,926,777	19,953,702	32,973,075	11,984,169	20,988,906
Contaminated Sites	3,233,181	301,625	2,931,556	1,898,221	1,033,335
Downtown Implementation	37,123,936	8,128,326	28,995,610	21,502,972	7,492,638
Full Corridor Reconstruction	38,347,136	15,807,148	22,539,988	16,337,528	6,202,460
Hanlon Creek Business Park	264,683	218,930	45,753	45,000	753
Information Technology Innovation	7,462,435	3,203,828	4,258,607	1,453,342	2,805,265
Open Spaces	6,904,452	4,156,492	2,747,960	840,148	1,907,812
Planning & Studies	8,543,884	1,359,049	7,184,835	2,360,252	4,824,583
Road & Right of Way	6,989,353	4,241,555	2,747,798	871,219	1,876,579
Stormwater	8,259,348	1,086,010	7,173,338	574,071	6,599,267
Vehicle & Equipment	21,596,300	10,033,717	11,562,583	5,367,176	6,195,407
Wastewater Collection	2,711,333	305,692	2,405,641	1,051,705	1,353,936
Wastewater Plant & Equipment	13,862,206	663,800	13,198,406	510,407	12,687,999
Water Distribution Network	3,951,395	11,699	3,939,696	259,460	3,680,236
Water Plant & Equipment	30,068,882	9,357,614	20,711,268	6,086,457	14,624,811
<b>Total</b>	<b>266,317,370</b>	<b>96,420,781</b>	<b>169,896,589</b>	<b>73,286,505</b>	<b>96,610,084</b>

# Staff Report



---

To **Committee of the Whole**

Service Area Corporate Services

Date Monday, May 7, 2018

Subject **2017 Reserve and Reserve Fund Statement**

Report Number CS-2018-16

---

## Recommendation

1. That the City's General Reserve and Reserve Fund Policy be amended to reflect the following as at December 31, 2017:
  - a. The addition of the Paramedic Services Provincial Capital Reserve Fund (360);
  - b. The consolidation of the Police Equipment Reserve Fund (115) into the Police Capital Reserve Fund (158);
  - c. The repurposing of the Police Equipment Reserve Fund (115) to a Police Operating Contingency Reserve; and
  - d. The addition of the Library Operating Contingency Reserve (102).
2. That effective January 1, 2018, the Transportation Demand Management Reserve Fund (350) and the Information Technology Reserve Fund (210) be closed and removed from the City's General Reserve and Reserve Fund Policy.
3. That \$813,053 be transferred from Compensation Contingency Reserve (131) to the WSIB Reserve (330) to align these reserves with the targets identified in the General Reserve and Reserve Fund Policy.
4. That the Waterworks Capital Reserve Fund (152) and the Waterworks Contingency Reserve (181) be renamed Water Capital Reserve Fund (152) and Water Contingency Reserve (181).

## Executive Summary

### Purpose of Report

The purpose of this report is to provide an annual statement of the closing balances and activity of the City's collective reserves and reserve funds for the 2017 year. It also evaluates the condition of the accounts against the approved targets identified in the City's General Reserve and Reserve Fund Policy as well as seeks approval to add new accounts where appropriate, and remove inactive accounts where necessary.

## Key Findings

This is the second annual Reserve and Reserve Fund Statement and the first year that the City has been able to present the funded status of the City's financial holdings. Through the CS-2017-19 Reserve and Reserve Fund Review and Policy Update in September 2017, the City now has identified measurable targets for all funds which have enabled an evidence-based recommendation for the operating budget surplus transfer. The benefit of this can't be emphasized enough as it moves the City towards a strengthened financial position.

A pillar of the City's Corporate Administration Plan is a focus on Our Resources, and more specifically, maximizing value from assets and financial stability. The results of the aforementioned reserve and reserve fund review, coupled with the 2017 financial results, demonstrate notable progress towards these Corporate goals. The City successfully increased the 2017 reserve and reserve fund balance of \$252 million, before commitments, by \$4.6 million or approximately two per cent over 2016.

The non-tax supported reserves and reserve funds continue to meet or exceed the recommended targets. The current status of these reserve funds is the result of the successful implementation of a long-term capital plan and financial sustainability model that the City is endeavoring to replicate for the tax supported business.

The Tax Supported Capital Reserves and Reserve Funds continue to be the most underfunded of the City's holdings. The limited balance in these reserve funds could impact the City's level of service, reduce the ability to respond to opportunities for grants or infrastructure projects, as well as limit the amount of debt the City can utilize in accordance with the City's Debt Management Policy. For this reason, staff will be recommending that a portion of the 2017 tax supported operating surplus be allocated to these reserves and reserve funds.

As discussed during the 2018 Budget, there is an increased risk of escalating WSIB costs due to the recent Presumptive Legislation changes and this is evidenced by the City's 2017 \$1.1 million over budget result. These legislative changes allow for a greater right of benefit for certain firefighter related claims and the potential cost of this to municipalities is a considerable. To address this, staff are recommending a transfer of \$813 thousand from the Compensation Contingency Reserve (131) to the WSIB Reserve (330) to ensure funds are available if this WSIB upward cost trending continues. Further, it is also being recommended that a portion of the 2017 tax supported operating surplus be allocated towards this reserve for the same reason. After all recommended transfers, this reserve will have a balance of \$3.1 million or 83 per cent of target.

Finally, staff are recommending the creation of three new Program-specific Reserves: Police Operating Contingency Reserve (115), Library Operating Contingency Reserve (102), and Paramedic Services Provincial Capital Reserve (360). The contingency reserves will serve to improve the Local Board budget development process related to one-time funding requirements and facilitate the

proposed future implementation of a multi-year budget methodology. The latter reserve will create the structure to better manage the provincial component of funding received for Paramedic capital lifecycling from the Ministry of Health and Long-term Care.

### Financial Implication

Reserves and reserve funds are established by Council to assist with long-term financial stability, operating and capital budgeting and to absorb unexpected shifts in revenue or expenditures.

The reserves and reserve funds after commitments represents the true amount of funding available for contingency and capital planning. It is used to determine debt capacity limits and influences the City's credit rating score on an annual basis. The actual closing balance of the collective reserves and reserve funds before commitments is what is reported on the City's annual Audited Financial Statements.

### Report

Reserves and reserve funds are established by Council to assist with long-term financial stability, operating and capital budgeting and to absorb unexpected shifts in revenue or expenditures. The City has both reserves and reserve funds.

**Reserves** are established for a pre-determined use and are applied at the discretion of Council for that purpose. **Reserve Funds** are restricted by statute or by Council discretion and must be segregated from general revenue.

The City has 62 reserves and reserve funds that collectively have a closing balance of \$252 million and an uncommitted balance of \$104 million as at December 31, 2017 (see ATT-2 Reserve and Reserve Fund Activity for complete details). Of this, the uncommitted balance of \$77 million is non-tax supported, \$24 million is tax supported and \$2.5 million is obligatory.

The following report provides an update on key reserves and reserve funds that experienced noteworthy activity or have critical balances.

### Tax Supported Corporate Reserves

Year-end balances

		2017	2016
180	Tax Rate Operating Contingency	\$7,109,057	\$6,809,257
131	Compensation Contingency	\$4,824,950*	\$5,414,393
198	Environment and Utility Contingency	\$2,050,000	\$750,000
193	Legal and Insurance	\$2,714,867	\$1,555,199
208	Social Housing Contingency	\$521,800	-
184	Insurance (consolidated with #193 Legal)	-	\$2,145,048
		<b>\$17,220,674</b>	<b>\$16,673,897</b>

\*includes the proposed transfer of \$813,410 to WSIB #330

Overall, the Tax Supported Corporate Reserves have maintained comparable balances from 2016. The collective balance in these reserves is 7.2 per cent of the City's own-source revenue, which is slightly below the municipal best practice of eight to 10 per cent of own source revenues.

Notable reserve activity is as follows:

**Tax Rate Operating Contingency Reserve (180)** – This reserve is required to provide the City sufficient liquidity and cash flow and to offset extraordinary and unforeseen corporate expenditures in order to mitigate fluctuations to the tax rate. In 2017, \$360 thousand was approved to be transferred from this reserve to offset an unfavourable variance relating to the operations at the organics facility.

**Compensation Contingency Reserve (131)** – This reserve manages operating budget variances relating to employee benefits and other compensation related costs. The 2017 year-end balance is \$5.6 million which is \$813 thousand above the target identified in the General Reserve and Reserve Fund Policy. For this reason, staff are recommending that these excess funds be transferred to the underfunded WSIB Reserve (330), leaving the final reserve balance at \$4.8 million.

**Environment and Utility Contingency Reserve (198)** – This reserve was repurposed in 2017 with the intention of protecting against volatile operating expenditures relating to energy, fuel, winter control and other weather related events. In 2017, Phase 2 of the Reserve and Reserve Fund review and policy development recommended that \$800 thousand be transferred in from excess funds in the Legal and Insurance Reserve (193). An additional \$500 thousand was transferred in from savings realized in the 2017 winter control operating budget. The year-end balance of \$2.05 million is 64 per cent of the reserve balance target identified in the General Reserve and Reserve Fund Policy; a betterment from 2016.

**Legal and Insurance Reserve (193)** – In September 2017, Council approved two notable transactions: the consolidation of the previously separate Legal Reserve (184) and Insurance Reserve (193); and an \$800 thousand transfer to the newly created Environment and Utility Contingency Reserve (198).

Further, in 2017 \$100 thousand was transferred to offset lost revenue relating to a fire at Solid Waste Resources, and \$86 thousand was transferred to fund legal and insurance claim costs in excess of budget. This is in accordance with the General Reserve and Reserve Fund Policy.

The 2017 year-end balance of \$2.7 million is slightly above the approved General Reserve and Reserve Fund Policy target of \$2.5 million that is based on historical legal expenses and insurance claims.

**Social Housing Contingency Reserve (208)** – This reserve was created as part of the 2018 budget, for the purpose of managing the County’s Social Housing Capital program. In 2017, staff transferred \$522 thousand to the reserve which reflects the County’s unspent capital budget at the end of 2017. This new approach to accounting for the City’s share of capital costs will improve transparency, reduce the volatility risk and improve long-term financial planning for future investments in the County’s Social Housing Capital program.

**Tax Supported Program Specific Reserves**

Year-end balances

		<b>2017</b>	<b>2016</b>
100	Accumulated Sick Leave (Fire)	\$5,752,694	\$5,475,150
101	Accumulated Sick Leave (Police)	\$4,020,973	\$4,113,957
330	WSIB	\$2,902,016*	\$1,452,220
338	Paramedic Retirement	\$1,041,725	\$655,018
195	Election Costs	\$518,150	\$399,856
345	Westminster Woods	\$35,000	\$35,000
		<b>\$14,270,558</b>	<b>\$12,131,201</b>

\*Includes proposed transfer of \$813,053 from Compensation Contingency #131

**Program Specific Compensation Reserves (100, 101, 330 and 338)** - The City maintains reserves to fund the cost of certain employee benefits that are incurred today, but payable in the future. These liabilities are generated through legislation and terms of collective agreements. The City is achieving the necessary balances for most of these reserves, except for the WSIB Reserve (330) which was \$1.68 million underfunded at year end. This is despite a Council approved \$650 thousand transfer in September 2017 from excess funds in the Compensation Contingency Reserve.

The risk of this funding deficiency is evidenced by the City’s actual WSIB claim experience in 2017 as city-wide WSIB costs were \$1.1 million over budget. The recent legislative changes that give a greater right of benefit to firefighters, referred to as Presumptive Legislation, is a contributing driver to the City’s increasing costs. Approximately \$600 thousand was attributable to this Presumptive Legislation in 2017 alone.

Given the increased risk of escalating WSIB costs, staff are recommending a transfer of \$813 thousand from the Compensation Contingency Reserve (131) to the WSIB Reserve (330) to ensure funds are available if this WSIB upward cost trending continues. Further, it is also being recommended that a portion of the 2017 tax supported operating surplus be allocated towards this reserve for the same reason. After all staff recommended transfers, this reserve will have a balance of \$3.1 million or 83 per cent of target.

## Tax Supported Strategic Reserves

Year-end balances before commitments

		2017	2016
119	Affordable Housing	\$884,052	\$793,714
122	Redevelopment Incentives	\$6,614,546	\$3,131,231
194	Downtown Improvements	\$230,819	\$332,204
352	Greenhouse Gas	\$120,610	\$147,883
179	Strategic Initiatives	\$616,283	\$663,053
332	Industrial Land	\$(15,682,906)	\$(6,845,618)
		<b>\$(7,216,596)</b>	<b>\$(1,777,533)</b>

Other notable reserve activity:

**Redevelopment Incentives Reserve Fund (122)** – This reserve has a balance of \$6.6 million, but all of it is committed to Council-approved redevelopment projects that have signed legal agreements with the City. In 2017, as part of the reserve realignment project, \$1.3 million was consolidated into this reserve from four previous reserves that were used to track this program.

Further, as part of the long-term funding strategy for the Tax Increment Based Grants (TIBG's) \$2.1 million, net of 2017 grant payments, was transferred to this reserve as part of the City's 2017 budget. In 2017, Tax Increment Based Grants were paid to the developers of Market Commons at 5 Gordon Street and the Plaza at 40 Wellington Street.

**Industrial Land Reserve Fund (332)** – In 2017, the City realized \$1.8 million in land sale revenues at the Hanlon Creek Business Park (HCBP); however the \$10 million loan for this project came due in December 2017 which resulted in a final year-end balance of negative \$15.7 million. The City owns land assets in the HCBP that are backing this over-drawn position. A closed staff report (IDE-2018-43) was received by Council on March 26, 2018, which gave staff direction with respect to the HCBP project.

## Tax Supported Program Specific Reserve Funds

Year-end balances before commitments

		2017	2016
<b>Operating</b>			
135	Museum Donations	\$150,020	\$92,669
356	Public Art	\$152,411	\$151,102
205	Community Investment	\$89,278	\$89,278
138	Library Bequests	\$433,130	\$370,150
<b>Capital</b>			
157	Library	\$883,413	\$899,117
115	Police Operating Contingency (previously Police Equipment)	\$0*	\$0*

158	Police	\$3,929,657	\$6,143,138
162	Sleeman Centre Naming Rights	\$27,964	\$34,306
189	Sleeman Centre	\$26,955	\$50,739
340	River Run	\$165,057	\$108,192
<b>To Be Closed</b>			
350	Transportation Demand Management	\$23,741	\$23,296
210	Information Technology	\$847,858	\$847,858
<b>Consolidated into other reserves and closed in 2017</b>			
206	Building Operations Maintenance (consolidated with #180 Tax Rate Operating Contingency)	-	\$82,400
136	McCrae House (consolidated with #135 Museum Donations)	-	\$24,275
137	Moon-MacKeigan Artifact (consolidated with #135 Museum Donations)	-	\$15,906
154	Capital Strategic Planning (consolidated with #150 Infrastructure Renewal)	-	\$16,584
178	Tree Donation (transfer to a capital project and closed)	-	\$(60)
355	Greening (transfer to a capital project and closed)	-	\$581
357	Brownfield Community Improvement Plan (consolidated to #122 Redevelopment Incentives)	-	\$92,498
192	Heritage Incentives (consolidated to #122 Redevelopment Incentives)	-	\$3,517
358	Downtown Tax Increment Based Grant (consolidated to #122 Redevelopment Incentives)	-	\$1,338,389
		<b>\$6,729,485</b>	<b>\$10,383,936</b>

\*2017 & 2016 Police Equipment balances consolidated into Police Capital (158)

Program specific reserves and reserve funds are used to allocate funding for certain, Council-approved, purposes. Most of the program specific reserves and reserve funds do not have established balance targets, but the balances are managed to ensure sufficient funding for the program they support.

Notable reserve fund activity:

**Police Capital (158)** – The decrease year-over-year of this reserve is the net of \$5.1 million of approved capital spending offset by \$2.9 million of approved funding transferred from operating through the 2017 Budget.



Recommended new reserves and reserve funds:

### **1. Local Boards Operating Contingency Reserves**

The Guelph Police Services (GPS) Board has requested that a portion of their operating surplus be allocated to a GPS Contingency Reserve (see ATT-3 Letter from GPS Board). Staff are supportive of this request in 2017 for a number of reasons:

- This addresses a budget process flow challenge that was identified during the 2018 budget development relating to accessing reserves to facilitate one-time expenditures. As the City has completed the General Reserve and Reserve Fund Policy update in 2017, the City's Tax Rate Operating Contingency Reserve will be utilized more frequently through the budget process to manage one-time budget impacts on the property tax rate. The City's Local Boards require a similar reserve structure as the City to achieve standardization of the budget process.
- From a forward looking perspective, operating contingency reserves will become more critical as the City moves towards a multi-year budget methodology in the years to come and again the Local Boards will require operating contingency reserves that mimic the City's structure.
- Historically, the City was not in a financial position to allocate surplus to the Local Boards for their needs, but given the improvement financial position, an allotment from the GPS surplus is affordable.

Based on the above reasoning, Staff would recommend a consistent approach to both GPS and Guelph Public Library (GPL) with respect to creating the following operating contingency accounts:

#### **Police Operating Contingency - previously Police Equipment (115) –**

To be repurposed and renamed to Police Operating Contingency Reserve and used to manage one-time operating expenditures for police services exclusively. Transfers to and from this reserve will be recommended by the GPS Board and Council will retain full approval authority.

It is also recommended that the prior to the repurposing as described above, the Police Equipment Reserve Fund be consolidated into the Police Capital Reserve Fund (158).

#### **Library Operating Contingency (102) –**

This will be a new reserve used to manage one-time operating expenditures for library services exclusively. Transfers to and from this reserve will be recommended by the GPL Board and Council will retain full approval authority.

## 2. Paramedic Services Provincial Capital Reserve Fund (360)

It is recommended that a reserve be created to manage funding from the Ministry of Health and Long-Term Care that is intended to cover part of the cost of lifecycle replacement relating to Paramedic Services. This is to be used to fund paramedic capital replacement projects up to 50 per cent of cost.

The following policy amendments are recommended to be approved and reflected in Appendix A of the General Reserve and Reserve Fund Policy:

NAME	PURPOSE	TARGET BALANCE	SOURCE OF FUNDS	USE OF FUNDS	AUTHORITY /TIMING
Paramedic Services Provincial Capital Reserve Fund #360	To fund the City's capital replacement cost of Paramedic capital projects within the limitations as set by the Ministry of Health.	No established maximum limit, reserve balance must be positive.	Funding is allocated to the municipality at a rate equal to 50% of annual depreciation of Paramedic assets.	To fund the City's portion of Paramedic capital replacement costs.	Council approved in-year or through the Capital Budget.
Library Operating Contingency Reserve #102	To mitigate fluctuations to the tax rate for planned one-time operating budget impacts. To offset extraordinary and unforeseen Library expenditures.	Not more than 1% of the Library annual operating budget.	Council approved surplus allocations transfers at year-end.	To offset budget deficits arising from unforeseen, extraordinary, expenditures.  To fund one-time operating budget requests.	As recommended by the Guelph Public Library Board and approved by Council through the Operating Budget or year-end surplus / deficit allocation.
Police Operating Contingency Reserve #115	To mitigate fluctuations to the tax rate for planned one-time operating budget impacts. To offset extraordinary and unforeseen Police expenditures.	Not more than 1% of the Police annual operating budget.	Council approved surplus allocations transfers at year- end.	To offset budget deficits arising from unforeseen, extraordinary, expenditures.  To fund one-time operating budget requests.	As recommended by the Police Services Board and approved by Council through the Capital Budget.

Recommended reserves to be closed:

1. **Information Technology Reserve (210)** – Was originally created to manage the licensing requirements relating to information technology. Staff has realized that the preferred approach to funding this type of expenditure is through the capital budget process. It is therefore recommended that the Information Technology Reserve (210) be closed in 2018 subsequent to the funding being transferred to the 2018 approved capital projects.
2. **Transportation Demand Management Reserve Fund (350)** – Was originally created in response to one-time grant funding received in 2009. This funding has been fully committed through the 2018 capital budget and as such, it is recommended that this reserve fund is closed subsequent to the funding being transferred to the capital projects.

### Tax Supported Strategic Reserve Funds

Year-end balance before commitments

		2017	2016
155	City-owned Contaminated Sites	\$532,755	\$79,958
150	Infrastructure Renewal	\$19,663,107	\$22,488,206
156	Growth	\$1,009,457	\$4,525,909
159	City Building	\$1,340,596	\$1,814,899
351	Efficiency, Innovation and Opportunity	\$5,613,619	\$8,690,168
164	Roads Capital (transferred to #150 Infrastructure Renewal)	-	(\$23,630)
331	Road Widening (transferred to #150 Infrastructure Renewal)	-	\$894,981
	<b>Total</b>	<b>\$28,159,534</b>	<b>\$38,470,491</b>

The balance of the Tax Supported Strategic Reserve Funds dropped \$10.6 million from 2016. These reserve funds continue to be the most underfunded compared to the targets recommended in the General Reserve and Reserve Fund Policy. This could impact the City's level of service, reduce the City's ability to respond to opportunities for grants or infrastructure projects, and reduce the total debt-to-reserve ratio prescribed in the City's Debt Policy. Staff recommend that a portion of the 2017 tax-supported operating budget surplus be allocated to capital for this reason.

Notable reserve fund activity is as follows:

**City-owned Contaminated Sites Reserve Fund (155)** – This corporate capital reserve fund is to be used to manage liabilities associated with City-owned environmentally contaminated sites. The target balance for this reserve fund is 10 per cent of the total liability reported on the City's financial

statements that is based on the estimated cost of remediation. As of December 31, 2017, the City-owned Contaminated Sites Reserve Fund is \$2.6 million underfunded. This shortfall is a significant risk as the City may be compelled to remediate by other levels of government or local property owners could be impacted by the sites. Staff is recommending that a portion of the 2017 tax supported surplus be directed here to bring this funding closer to target.

**Infrastructure Renewal Reserve Fund (150)** – This is used to fund the replacement and rehabilitation of the City's tax supported infrastructure. It also funds all tax supported debt servicing including principle and interest. The target balance in this reserve fund is \$20 million, based on an average annual capital requirement. After prior year commitments have been applied, the balance in the reserve fund is almost zero, representing a \$20 million shortfall from the target. The City is addressing this funding shortfall through the Dedicated Infrastructure Levy strategy.

**Growth Capital Reserve Fund (156)** – This reserve fund is used to fund shortfalls in growth-related capital funding relating to exemptions, reductions and limitations mandated by the Development Charges Act, 1997 and the exemptions prescribed by the City's Development Charge By-law.

In 2017, \$770 thousand was transferred out of the Growth Capital Reserve Fund (156) to growth related capital projects and \$2.16 million was transferred to the Development Charge (DC) reserve funds to compensate for lost collections from the DC exemptions incurred. There was no corresponding contribution to the reserve fund through the 2017 budget, thereby depleting the balance in the reserve fund by \$3.5 million to \$1 million before commitments. This is significantly below the recommended target of \$2.8 million or 25 per cent of annual DC collection for all tax supported DC services. The Capital Transfer Allocation Policy approved by Council in 2017, will enforce a 10 per cent allocation of annual capital funding towards this reserve fund which will address this concern.

**Efficiency, Innovation and Opportunity (EIO) Reserve Fund (351)** – Is intended to provide funding for corporate investment opportunities that generate efficiencies and/or savings. The balance in this reserve fund dropped \$3 million in 2017, primarily due to significant spending on transit related expenditures that were as a result of leveraging the Public Transit Infrastructure Fund (PTIF) program to allow the City to purchase 24 conventional and six mobility transit buses. The uncommitted balance in the EIO Reserve Fund is \$3 million, and there is a 10 year repayment plan in place totalling \$2.0 million relating to approved energy projects. Given the recent announcement for the bi-lateral funding agreements signed by the federal and provincial governments, staff are expecting to need additional funds for matching purposes in 2018 or 2019 and as such are recommending part of the 2017 year-end surplus be directed to this reserve fund.

## Non-Tax Supported Program Specific Operating Reserves

Year-end balance before Commitments

		2017	2016
181	Water Contingency	\$3,897,285	\$3,039,638
182	Wastewater Contingency	\$4,733,839	\$3,843,790
359	Stormwater Contingency	\$100,000	-
211	Court Contingency	\$535,807	\$467,772
105	Wastewater Contingency (transferred to #182 Wastewater Contingency)	-	\$890,049
106	Water Contingency (transferred to #181 Water Contingency)	-	\$857,647
		<b>\$9,266,931</b>	<b>\$9,098,896</b>

The balance in Non-tax Supported Program Specific Reserve increased by \$200 thousand in 2017, and in total, is sufficiently funded in excess of the target identified in the General Reserve and Reserve Fund Policy. These balances will be included into the 2019 non-tax supported rate modelling used in the development of the budget.

The implementation of the stormwater user pay structure in 2017 required the creation of a Stormwater Contingency Reserve (359) to provide for emergency and unplanned expenditures and protect against fluctuations to the rate. \$100 thousand was approved in the 2017 budget to initiate the Stormwater Contingency Reserve.

## Non-tax Supported Program Specific Capital Reserve Funds

Year-end balance before commitments

		2017	2016
152	Water Capital	\$48,752,083	\$46,869,743
153	Wastewater Capital	\$66,260,042	\$59,269,539
165	Stormwater Capital	\$1,771,090	\$9,989
120	Courts Capital	\$1,143,249	\$1,131,613
353	Waterworks Development Charge Exemption (transferred to #152 Water Capital)		\$524,157
354	Wastewater Development Charge Exemption (transferred to #153 Wastewater Capital)		\$713,119
		<b>\$117,926,464</b>	<b>\$108,518,160</b>

The Non-Tax Program Specific Capital Reserve Funds increased \$9.6 million in 2017 to a total of \$127 million, before the application of prior year capital commitments. \$27.3 million was transferred to the Non-Tax Program Specific Capital Reserve Funds from non-tax supported sources and \$19.5 million was used to fund projects approved in the non-tax capital budget. \$2.3 million was transferred to the Water (311) and Wastewater (312) Development Charge reserve funds to offset the lost revenue from legislated DC exemptions.

As detailed in ATT-1, Reserve and Reserve Fund Targets, the Non-Tax Supported Program Specific Capital Reserve Funds collectively exceed the policy targets. The

current status of these reserve funds is the result of the successful implementation of a long-term capital plan and financial sustainability model that the City is endeavoring to replicate for the tax supported business. This enables flexibility in capital project management, reduced debt costs, and the ability to leverage other levels of government funding.

### Obligatory Reserve Funds

Year-end balances before commitments

		2017	2016
300	Parkland Dedication	\$3,642,743	\$3,068,889
301	Downtown Parkland Dedication	\$612,957	\$540,545
188	Building Services OBC	\$2,875,272	\$2,859,925
342	Dedicated Gas Tax	\$-	\$(179,021)
343	Federal Gas Tax	\$11,896,564	\$7,955,799
311 - 327	Development Charge Reserve Funds (15)	\$46,661,031	\$39,705,271
		<b>\$65,688,566</b>	<b>\$53,951,408</b>

Obligatory Reserve Funds are established when a provincial statute requires that revenue received for specific purposes is to be segregated from the general revenues of the municipality. Obligatory Reserve Funds are to be used solely for the purpose prescribed for them by statute. The City has Obligatory Reserve Funds for Development Charges, Cash-in-lieu of Parkland, Building Services and Gas Tax.

Notable reserve fund activity is as follows:

**Downtown Parkland Dedication Reserve Fund (301)** – Is intended to manage the monies needed to provide parkland to the population growth downtown. Cost estimates generated through the Downtown Secondary Plan, identified that \$4.3 million of cash-in-lieu funds were required to purchase the desired downtown parkland by 2022. To date, there is \$613 thousand in the reserve fund, and it is considered to be significantly underfunded. This variance is due to slower than anticipated redevelopment and this should be considered when evaluating the capital budget and forecast. Additionally, there is currently a Parkland Dedication By-law review being undertaken that will inform the funding strategy and collections for this projected reserve fund deficiency.

**Development Charge Reserve Funds (311-327)** – Increased from \$39.7 million to \$46.7 million in 2017. This increase was the result of increased collections, a reduction in capital expenditures, and the inclusion of accessory apartments in the Development Charge (DC) exemption entry.

The DC exemption entry is required to top up the DC reserve funds for the lost collections resulting from legislated and Council approved exemptions and prescribed through the DC Exemption Policy. This policy supports the direction of being transparent regarding the tax and rate cost of growth related capital. Through the detailed work being completed on the DC

Background Study, it was noted that exemptions relating to accessory apartments had not been included in the annual exemption entry which was rectified in 2017. The total DC exemption transfer from both non-tax and tax supported sources is \$5 million in 2017.

DC collections increased slightly over 2016, however spending in 2017 was \$5.7 million less than spending in 2016. The 2017 Development Charge Reserve Fund Statement Report, CS-2018-45, is a legislated requirement that will be received by Council in May 2018 and will include a full report of all DC activity.

## **Financial Implications**

Reserves and reserve funds are established by Council to assist with long-term financial stability, operating and capital budgeting and to absorb unexpected shifts in revenue or expenditures.

## **Consultations**

Not applicable.

## **Corporate Administrative Plan**

### **Overarching Goals**

Financial Stability

Service Excellence

### **Service Area Operational Work Plans**

Our Resources - A solid foundation for a growing city

## **Attachments**

- |       |   |
|-------|---|
| ATT-1 | Reserve and Reserve Fund Target                               |
| ATT-2 | Reserve and Reserve Fund Activity                             |
| ATT-3 | Guelph Police Board Request for Operating Contingency Reserve |

## Report Author

Christel Gregson  
Sr. Corporate Analyst Development Charges and Long-term Planning

*Tara Baker*

*Trevor Lee*

---

### Approved By

Tara Baker, CPA, CA  
GM Finance & City Treasurer  
Corporate Services  
519-822-1260 Ext. 2084  
tara.baker@guelph.ca

---

### Recommended By

Trevor Lee  
Deputy CAO,  
Corporate Services  
519-822-1260 Ext. 2281  
trevor.lee@guelph.ca



Reserve and Reserve Fund Target  
as at December 31, 2017

NAME	#	PURPOSE	TARGET BALANCE	TARGET	UNCOMMITTED BALANCE	(UNDERFUNDED) SUFFICIENTLY FUNDED	FUNDING STRATEGY	
<b>TAX SUPPORTED</b>								
<b>RESERVES</b>								
<b>OPERATING</b>								
<b>CORPORATE</b>	TAX RATE OPERATING CONTINGENCY	180	To provide cash flow and working capital, provide sufficient liquidity, offset extraordinary and unforeseen corporate expenditures. To mitigate fluctuations to the tax rate for planned one-time operating budget impacts.	8-10% of own source revenue less other tax-supported corporate operating contingency reserves.  Reserve balance cannot fall below \$5 million in order to maintain sufficient corporate liquidity.	7,912,723	7,109,057	(803,666)	Operating base budget contributions and annual surplus allocations.
	COMPENSATION CONTINGENCY	131	To manage operating budget variances relating to employee benefits and other compensation related costs including: Medical / Dental benefits, Short-term and Long-term Disability Severance, Employee Assistance Program (EAP), Arbitration related costs, Regulatory audit decisions, Joint Job Evaluation Committee, Pay Equity.	2.5% of total annual corporate salary and benefit budget.	4,824,950	5,638,003	813,053	Annual monitoring of actual benefit costs compared to budgeted estimates. Annual compensation benefit budget reflects adjustments for historical experience.  Year-end surplus transfers as required.
	ENVIRONMENT AND UTILITY CONTINGENCY	198	To offset the impact of volatile operating expenditures relating to energy, fuel, winter control and other weather related events.	Up to 25% of three year average hydro & winter control expense.	3,244,995	2,050,000	(1,194,996)	Operating base budget contributions and annual surplus allocations.
	LEGAL/INSURANCE	193	To manage operating budget variances relating to external legal expenditures and settlements, large insurance claims, insurance deductible costs and other costs not recoverable through insurance (lost revenue, business interruption).	Average of the past five years legal and insurance claims.	2,497,332	2,714,867	217,535	Automatic transfer of external legal and insurance claim cost variances year-to-year. Operating base budget contributions and annual surplus allocations.
	SOCIAL HOUSING CONTINGENCY RESERVE	208	To manage variances relating to social housing capital costs.	No established maximum limit, reserve balance must be positive.	0	521,800	521,800	No funding strategy required.
	POLICE OPERATING CONTINGENCY	115	Pending approval	Pending approval	0	0	0	No funding strategy required.
	ACCUMULATED SICK LEAVE (FIRE)	100	To set aside funds over the service life of an employee to fund sick leave hours that are payable in the future.	Minimum = 95% of the Liability for Sick Leave.	5,207,502	5,752,694	545,193	Annual compensation budget allocation for this reserve.
ACCUMULATED SICK LEAVE (POLICE)	101	To set aside funds over the service life of an employee to fund sick leave hours that are payable in the future.	Minimum = 95% of the Liability for Sick Leave.	3,928,466	4,020,973	92,507	Annual compensation budget allocation for this reserve.	
WSIB	330	To set aside funds throughout the service life of an employee to fund the expected cost of WSIB claims.	Minimum = 50% of the WSIB Liability.	3,767,995	2,088,963	(1,679,032)	Annual compensation budget allocation for this reserve.  Year-end surplus transfers.	

Reserve and Reserve Fund Target as at December 31, 2017

	NAME	#	PURPOSE	TARGET BALANCE	TARGET	UNCOMMITTED BALANCE	(UNDER FUNDED) SUFFICIENTLY FUNDED	FUNDING STRATEGY
PROGRAM SPECIFIC	PARAMEDIC RETIREMENT	338	To set aside funds over the service life of an employee to fund the future cost of a retirement benefit payment. Paramedic employees hired before July 1, 2010 receive a lump sum retirement benefit based on years of service.	Equal to the long-term funding plan required to fund retirement payments over the remaining service life of the paramedics.	655,018	1,041,725	386,707	Annual compensation budget allocation for this reserve.
	ELECTION COSTS	195	Established to amortize the cost of a municipal election over four years, rather than expensing the entire amount in the year of the election.	Prior election cost total plus accumulated annual inflation to be achieved by next election year.	524,000	518,150	(5,850)	Annual operating budget allocation for this reserve.
	WESTMINSTER WOODS	345	This reserve is required, as per the Licence Agreement (September 2006) between the City and Westminster Woods Ltd.	\$35,000	35,000	35,000	0	No funding strategy required.
STRATEGIC	AFFORDABLE HOUSING	119	To provide incentives to developers that encourage the creation of affordable rental units.  REFER TO SEPARATE COUNCIL APPROVED POLICY.	As mandated by the affordable housing strategy to be approved by Council 2017. No target is identified because Council did not approve the funding strategy in the 2018 budget.	0	884,052	884,052	Proposed funding strategy was not approved by Council in the 2018 budget.  Future strategy will need to be developed.
	REDEVELOPMENT INCENTIVES (3)	122	Redevelopment Incentive program aimed at encouraging redevelopment of brownfield sites, heritage sites and high density developments in the downtown.	Please see the TIBG fiscal impact schedule for the program funding requirements (based on committed and completed projects). Balance must be positive.	0	0	0	Long-term Council approved financial strategy in place through annual operating budget contributions to this reserve.
	DOWNTOWN IMPROVEMENT	194	Downtown CIP incentive program supports private sector investments in the form of façade improvement, feasibility studies and large scale renovations.	Reserve is intended to accommodate longer-term grant commitments over a year-end.	0	6,677	6,677	As approved annually through the operating budget.
	GREENHOUSE GAS	352	To earmark revenues from the sale of Greenhouse gas credits for improvements to the Eastview Landfill.	No established maximum limit, reserve balance must be positive.	0	67,159	67,159	Currently under review.
	STRATEGIC INITIATIVES	179	To fund the implementation of the Corporate Administration Plan (previously Corporate Strategic Plan).	No established maximum limit, reserve balance must be positive.	0	53,404	53,404	Annual operating budget allocation for this reserve.
	INDUSTRIAL LAND	332	To fund the development of the Hanlon Creek Business Park.	Value of future land sales must be equal to or greater than cost of servicing less life to date land sales.	0	(15,943,112)	(15,943,112)	Proceeds from City-owned industrial lands are automatically transferred to this reserve. The City holds land assets that will be sold to recover this deficiency.  Council received a strategy update in March 2018 regarding this Reserve Fund.

Reserve and Reserve Fund Target as at December 31, 2017

NAME	#	PURPOSE	TARGET BALANCE	TARGET	UNCOMMITTED BALANCE	(UNDER FUNDED) SUFFICIENTLY FUNDED	FUNDING STRATEGY	
<b>TAX-SUPPORTED (RESERVE FUNDS)</b>								
<b>OPERATING</b>								
<b>PROGRAM SPECIFIC</b>	MUSEUM DONATIONS (3)	135	To fund Museum and McCrae house operating or capital projects, including artifacts.	No established maximum limit, reserve balance must be positive.	0	150,008	150,008	No funding strategy required.
	PUBLIC ART	356	To accumulate funds for the purpose of investing in public art.	No established maximum limit, reserve balance must be positive.	0	152,396	152,396	No funding strategy required.
	COMMUNITY INVESTMENT	205	To support community programs and initiatives.	No established maximum limit, reserve balance must be positive.	0	89,278	89,278	No funding strategy required.
	TRANSPORTATION DEMAND MANAGEMENT	350	Develop strategies to move the modal split within the City towards Council targets.	No established maximum limit, reserve balance must be positive.	0	23,739	23,739	No funding strategy required.
	INFORMATION TECHNOLOGY	210	To fund software licence replacement.	No established maximum limit, reserve balance must be positive.	0	847,858	847,858	Annual operating budget allocation for this reserve.
	LIBRARY BEQUESTS	138	To fund one-time library related capital or operating expenses.	No established maximum limit, reserve balance must be positive.	0	433,091	433,091	No strategy required.
<b>CAPITAL</b>								
<b>PROGRAM SPECIFIC</b>	LIBRARY	157	To assist in financing the cost of construction, reconstruction or acquisition of Library assets.	No established maximum limit, reserve balance must be positive.	0	575,653	575,653	No strategy required.
	POLICE	158	To assist in financing the cost of construction, reconstruction or acquisition of Police assets.	No established maximum limit, reserve balance must be positive.	0	1,964,169	1,964,169	No strategy required.
	SLEEMAN CENTRE NAMING RIGHTS	162	To fund capital projects at the Sleeman Centre.	No established maximum limit, reserve balance must be positive.	0	27,961	27,961	No strategy required.
	SLEEMAN CENTRE	189	To fund non-lifecycle capital projects at the Sleeman Centre.	No established maximum limit, reserve balance must be positive.	0	16,923	16,923	No strategy required.
	RIVER RUN	340	To fund capital projects at the River Run.	No established maximum limit, reserve balance must be positive.	0	146,016	146,016	No strategy required.
<b>STRATEGIC</b>	INFRASTRUCTURE RENEWAL	150	To provide funds for the replacement and rehabilitation of the City's infrastructure	Annual capital transfer equal to 100 year average total tax supported asset replacement cost.  Balance equal one year's worth of tax supported capital requirement based on ten year average.  **To be further refined through the work of the Asset Management Office.	20,000,000	2,852	(19,997,148)	Council approved 10 year capital levy to increase capital funding to a sustainable level.  Dedicating 80% of the annual capital budget transfer to infrastructure renewal funding.  Asset Management Office strategies for capital replacement prioritization, service level standards and long-term asset replacement plans.
	CITY-OWNED CONTAMINATED SITES	155	Allocation of funds to manage liabilities associated with City-owned environmentally contaminated sites.	10% of the current outstanding liability.	2,686,000	15,265	(2,670,735)	Funded through capital reserve transfers on an annual basis. Annual planned costs of monitoring, assessments and clean up are budgeted as required.
	GROWTH	156	To provide funds to cover shortfalls in growth related capital funding relating to exemptions, reductions and limitations mandated by the Development Charge Act, 1997 and exemptions prescribed by the City's DC By-law.	25% of annual DC collections (based on three year average before exemptions).	2,800,000	(61,354)	(2,861,354)	Dedication of 10% of the annual capital levy to support growth related projects.  Refinement of costing model and the tax cost of growth through the DC Background Study in 2018.

Reserve and Reserve Fund Target as at December 31, 2017

NAME	#	PURPOSE	TARGET BALANCE	TARGET	UNCOMMITTED BALANCE	(UNDER FUNDED) SUFFICIENTLY FUNDED	FUNDING STRATEGY	
CITY BUILDING	159	To fund enhancements to City assets that are non-growth related and not asset renewal, including those related to accessibility.	Average 10 year annual requirement.	4,000,000	21,941	(3,978,059)	Dedication of 10% of the annual capital levy to support City Building related projects. Utilizing debt to cash flow significant City Building projects.	
EFFICIENCY, INNOVATION AND OPPORTUNITY FUND	351	To provide funding for corporate investment opportunities that generate efficiencies and/or savings or avoided costs that may be repaid to the reserve in full or part over a period of time.	Minimum \$5 million	5,000,000	3,093,390	(1,906,610)	Subject to budget approval, an annual operating transfer to invest in efficiency and cost avoidance projects. Annual approved repayment plans for certain capital related projects such as energy. Current repayment plan over 10 years totals \$2 million.	
<b>NON-TAX SUPPORTED - RESERVE FUNDS</b>								
<b>OPERATING</b>								
PROGRAM SPECIFIC	WATER CONTINGENCY	181	To meet emergency and unplanned funding needs for Water Operations in order to avoid operating deficits or fluctuations in the rate.	10% of annual gross operating expenditures.	3,045,000	3,897,285	852,285	Annual budget surplus transfers.
	WASTEWATER CONTINGENCY	182	To meet emergency and unplanned funding needs for Wastewater Operations in order to avoid an operating deficits or fluctuations in the rate.	10% of annual gross operating expenditures.	3,095,100	4,733,839	1,638,739	Annual budget surplus transfers.
	STORMWATER CONTINGENCY	359	To meet emergency and unplanned funding needs for Stormwater Operations in order to avoid an operating deficit or fluctuations in the rate.	10% of annual gross operating expenditures.	421,900	100,000	(321,900)	Annual budget surplus transfers.
	COURT CONTINGENCY	211	To meet emergency and unplanned funding needs for Courts in order to avoid an operating deficit.	8 - 10% of City's share of Court's gross operating expenditures.	390,200	535,807	145,607	Annual budget surplus transfers.
<b>CAPITAL</b>								
PROGRAM SPECIFIC	WATER CAPITAL	152	To assist in financing the capital program for waterworks.	Annual capital transfer equal to 100 year average total waterworks asset replacement cost; Balance equal to the average 3% of total waterworks asset replacement cost.  **To be further refined through the work of the Asset Management Office.	18,465,000	28,956,000	10,491,000	10 year capital plans that are supported by the Asset Management Office practices and policies. Annual sustainable budget transfers and year end budget surplus.
	WASTEWATER CAPITAL	153	To assist in financing the capital program for Wastewater.	Annual capital transfer equal to 100 year average total wastewater asset replacement cost. Balance equal to the average 3% of total wastewater asset replacement cost.  **To be further refined through the work of the Asset Management Office.	18,018,000	38,280,331	20,262,331	10 year capital plans that are supported by the Asset Management Office practices and policies. Annual sustainable budget transfers and year end budget surplus.  Significantly above targeted balance due to delays in executing needed capital work.

Reserve and Reserve Fund Target as at December 31, 2017

	NAME	#	PURPOSE	TARGET BALANCE	TARGET	UNCOMMITTED BALANCE	(UNDER FUNDED) SUFFICIENTLY FUNDED	FUNDING STRATEGY
PRC	STORMWATER CAPITAL	165	To assist in financing the capital program for Stormwater.	Annual capital transfer equal to 100 year average total stormwater asset replacement cost. Balance equal to the average 3% of total stormwater asset replacement cost.  **To be further refined through the work of the Asset Management Office.	16,746,000	(439,881)	(17,185,881)	10 year capital plans that are supported by the Asset Management Office practices and policies.  Annual sustainable budget transfers and year end budget surplus.  Stormwater became a rate supported utility in 2017 and a long-term rate plan is in place to bring stormwater capital funding to sustainable levels.
	COURTS CAPITAL	120	To assist in financing the capital program for the Provincial Offences Act (POA) Court operations.	Under review - to be based on the outcome of the Asset Management Plan work.	0	1,118,870	1,118,870	Under review and will be finalized as part of the on-going Asset Management review.
<b>OBLIGATORY RESERVE FUNDS</b>								
CORPORATE	PARKLAND DEDICATION	300	Created in accordance with subsection 42 (14) and (15) of the Planning Act for the purpose of requiring the payment of cash-in-lieu of conveyance of land for a park or other public recreation purpose.	2018 update to the City's Parkland Dedication By-law will provide information needed to determine appropriate target.	0	3,625,823	3,625,823	Currently under review.
	DOWNTOWN PARKLAND DEDICATION	301	Created in accordance with subsection 42 (14) and (15) of the Planning Act for the purpose of requiring the payment of cash-in-lieu of conveyance of land for a park or other public recreation purpose in the downtown.	25% of the planned parkland purchase cost in accordance with the Downtown Secondary Plan.	1,065,137	612,900	(452,237)	Manage planned projects within the funding envelope available.
	BUILDING SERVICES OBC STABILIZATION	188	As mandated by O.Reg.305/03 of the Building Code, a building services stabilization reserve fund is required for managing fluctuations in City building activity that may impact operations.	One year operating expenditure (based on five year average).	3,069,730	2,816,178	(253,552)	Annual rate reviews and adjustments to maintain cost recovery level.
	DEDICATED GAS TAX	342	Monies received from the Provincial government that are to be used to support increased public transportation ridership and investments in the renewal and expansion of public transportation.	No established maximum limit, reserve balance must be positive.	0	(225,181)	(225,181)	No funding strategy required.
	FEDERAL GAS TAX	343	Infrastructure construction, renewal or enhancement within 17 eligible categories.	No established maximum limit, reserve balance must be positive.	0	1,306,279	1,306,279	No strategy required.
	DEVELOPMENT CHARGES	311 to 327	As prescribed by the DCA, 1997, reserve funds are used to facilitate the collection of development charges from growth within the City and the funding of capital infrastructure required to accommodate that growth.	Reserve fund balance must be zero by build out and debt interest cannot exceed 20% of annual DC revenues.	0	(5,644,728)	(5,644,728)	Debt fund cash flow gaps; Adjust capital plan to match estimated projections; Revisit growth targets and rate development as part of the 2019 DC Background Study.

Reserve and Reserve Fund Activity

December 31, 2017

Reserve and/or Reserve Fund	Opening Balance	Interest	Transfers			Development Charge Collections	Other External Contributions	Debt Servicing	Closing Balance	Prior Year Commitments	Balance After Commitments	Proposed Transfers	Balance After Proposed Transfers	
			From/(To) Operating	(To)/From Capital	Between Reserves and Reserve Funds									
<b>TAX-SUPPORTED</b>														
<b>RESERVES</b>														
<b>Corporate</b>														
180	Tax Rate Operating Contingency	6,809,257	-	238,000	-	61,800	-	-	-	7,109,057	-	7,109,057	7,109,057	
131	Compensation Contingency	5,414,393	-	813,410	-	(589,800)	-	-	-	5,638,003	-	5,638,003	(813,053)	4,824,950
198	Environment and Utility Contingency	750,000	-	500,000	-	800,000	-	-	-	2,050,000	-	2,050,000	-	2,050,000
193	Legal/Insurance	1,555,199	-	(185,380)	-	1,345,048	-	-	-	2,714,867	-	2,714,867	-	2,714,867
208	Social Housing Contingency	-	-	521,800	-	-	-	-	-	521,800	-	521,800	-	521,800
184	Insurance	2,145,048	-	-	-	(2,145,048)	-	-	-	-	-	-	-	-
197	HR Negotiations	-	-	60,200	-	(60,200)	-	-	-	-	-	-	-	-
<b>Total</b>		<b>16,673,897</b>	<b>1,948,030</b>	<b>1,948,030</b>	-	<b>(588,200)</b>	-	-	-	<b>18,033,727</b>	-	<b>18,033,727</b>	<b>(813,053)</b>	<b>17,220,674</b>
<b>Program Specific</b>														
100	Accumulated Sick Leave (Fire)	5,475,150	-	277,545	-	-	-	-	-	5,752,694	-	5,752,694	-	5,752,694
101	Accumulated Sick Leave (Police)	4,113,957	-	(92,984)	-	-	-	-	-	4,020,973	-	4,020,973	-	4,020,973
330	WSIB	1,452,220	-	(13,257)	-	650,000	-	-	-	2,088,963	-	2,088,963	813,053	2,902,016
338	Paramedic Retirement	655,018	-	386,707	-	-	-	-	-	1,041,725	-	1,041,725	-	1,041,725
195	Election Costs	399,856	-	118,295	-	-	-	-	-	518,150	-	518,150	-	518,150
345	Westminster Woods	35,000	-	-	-	-	-	-	-	35,000	-	35,000	-	35,000
<b>Total</b>		<b>12,131,201</b>	-	<b>676,305</b>	-	<b>650,000</b>	-	-	-	<b>13,457,506</b>	-	<b>13,457,506</b>	<b>813,053</b>	<b>14,270,559</b>

Reserve and/or Reserve Fund	Opening Balance	Interest	Transfers			Development Charge Collections	Other External Contributions	Debt Servicing	Closing Balance	Prior Year Commitments	Balance After Commitments	Proposed Transfers	Balance After Proposed Transfers	
			From/(To) Operating	(To)/From Capital	Between Reserves and Reserve Funds									
<b>Strategic</b>														
119	Affordable Housing	793,714	-	100,000	-	(9,662)	-	-	-	884,052	-	884,052	884,052	
122	Redevelopment Incentives	3,131,231	-	2,418,330	-	1,164,985	-	-	-	6,714,546	6,714,546	-	-	
194	Downtown Improvements	332,204	-	(101,385)	-	-	-	-	-	230,819	224,142	6,677	6,677	
352	Greenhouse Gas	147,883	2,977	125,000	(155,250)	-	-	-	-	120,610	91,180	29,430	29,430	
179	Strategic Initiatives Industrial	663,053	-	(46,770)	-	-	-	-	-	616,283	562,879	53,404	53,404	
332	Land	(6,845,618)	-	1,321,105	52,107	-	-	-	(10,210,500)	(15,682,906)	45,751	(15,728,657)	(15,728,657)	
<b>Total</b>		<b>(1,777,532)</b>	<b>2,977</b>	<b>3,816,280</b>	<b>(103,142)</b>	<b>1,155,323</b>	<b>-</b>	<b>-</b>	<b>(10,210,500)</b>	<b>(7,116,595)</b>	<b>7,638,498</b>	<b>(14,755,093)</b>	<b>-</b>	<b>(14,755,093)</b>

**RESERVE FUNDS**

**Program Specific**

<b>OPERATING</b>														
135	Museum Donations	92,669	2,296	(2,546)	17,419	40,181	-	-	-	150,020	-	150,020	150,020	
356	Public Art	151,102	2,871	-	(1,562)	-	-	-	-	152,411	-	152,411	152,411	
205	Community Investment	89,278	-	-	-	-	-	-	-	89,278	-	89,278	89,278	
138	Library Bequests	370,150	7,599	55,382	-	-	-	-	-	433,130	-	433,130	433,130	
350	Transportation Demand Management	23,296	445	-	-	-	-	-	-	23,741	-	23,741	23,741	
210	Information Technology	847,858	-	-	-	-	-	-	-	847,858	-	847,858	847,858	
<b>CAPITAL</b>														
157	Library	899,117	16,862	360,000	(392,567)	-	-	-	-	883,413	304,776	578,637	578,637	
115	Police Operating Contingency (formerly Police Equipment Reserve Fund)	2,927,043	42,383	1,000,000	(2,416,118)	(1,553,307)	-	-	-	0	-	-	-	
158	Police	3,216,096	52,903	1,800,000	(2,894,249)	1,754,907	-	-	-	3,929,657	1,965,488	1,964,169	1,964,169	
162	Sleeman Centre Naming Rights	34,306	589	56,840	(63,771)	-	-	-	-	27,964	-	27,964	27,964	
189	Sleeman Centre	50,739	735	15,547	(40,066)	-	-	-	-	26,955	9,934	17,021	17,021	
340	River Run	108,192	2,585	70,345	(16,064)	-	-	-	-	165,057	18,848	146,209	146,209	
136	McCrae House	24,275	-	-	-	(24,275)	-	-	-	-	-	-	-	
137	Moon-MacKeigan Artifacts	15,906	-	-	-	(15,906)	-	-	-	-	-	-	-	
154	Capital Strategic Planning	16,584	-	-	-	(16,584)	-	-	-	-	-	-	-	
178	Tree Donation	(60)	-	-	60	-	-	60	-	-	-	-	-	
192	Heritage Incentives	3,517	-	-	-	(3,517)	-	-	-	-	-	-	-	
206	Building Operations Maintenance	82,400	-	(20,600)	-	(61,800)	-	-	-	-	-	-	-	
355	Greening	581	-	-	(581)	-	-	-	-	-	-	-	-	
357	Brownfield CIP	92,498	-	-	-	(92,498)	-	-	-	-	-	-	-	
358	Downtown TIBG	1,338,389	-	-	-	(1,338,389)	-	-	-	-	-	-	-	
<b>Total</b>		<b>10,383,936</b>	<b>129,267</b>	<b>3,334,967</b>	<b>(5,807,498)</b>	<b>(1,311,187)</b>	<b>-</b>	<b>60</b>	<b>-</b>	<b>6,729,485</b>	<b>2,299,046</b>	<b>4,430,439</b>	<b>-</b>	<b>4,430,439</b>

Reserve and/or Reserve Fund	Opening Balance	Interest	Transfers			Development Charge Collections	Other External Contributions	Debt Servicing	Closing Balance	Prior Year Commitments	Balance After Commitments	Proposed Transfers	Balance After Proposed Transfers
			From/(To) Operating	(To)/From Capital	Between Reserves and Reserve Funds								
<b>Strategic</b>													
155	City-owned Contaminated Sites	79,958	5,796	475,533	(121,030)	92,498	-	-	-	532,755	517,490	15,265	15,265
150	Infrastructure Renewal	22,488,206	409,339	22,930,563	(17,855,124)	322,312	-	-	(8,632,190)	19,663,107	19,660,255	2,852	2,852
156	Growth	4,525,909	52,363	(8,959)	(771,157)	(2,161,092)	-	-	(627,606)	1,009,457	1,070,811	(61,354)	(61,354)
159	City Building	1,814,899	29,850	2,615,298	(1,449,657)	-	-	-	(1,669,794)	1,340,596	1,318,655	21,941	21,941
351	Efficiency, Innovation and Opportunity Fund	8,690,168	135,309	203,080	(3,414,938)	-	-	-	-	5,613,619	2,520,229	3,093,390	3,093,390
164	Roads Capital	(23,630)	-	-	-	23,630	-	-	-	-	-	-	-
331	Roads Widening	894,981	-	-	-	(894,981)	-	-	-	-	-	-	-
<b>Total</b>		<b>38,470,490</b>	<b>632,657</b>	<b>26,215,515</b>	<b>(23,611,906)</b>	<b>(2,617,633)</b>	-	-	<b>(10,929,590)</b>	<b>28,159,534</b>	<b>25,087,440</b>	<b>3,072,094</b>	<b>3,072,094</b>
<b>Total Tax Supported</b>		<b>75,881,991</b>	<b>2,712,931</b>	<b>35,991,098</b>	<b>(29,522,546)</b>	<b>(2,711,698)</b>	-	<b>60</b>	<b>(21,140,090)</b>	<b>59,263,656</b>	<b>35,024,984</b>	<b>24,238,672</b>	<b>24,238,672</b>

**NON-TAX SUPPORTED**

<b>RESERVES</b>													
<b>Program Specific</b>													
<b>OPERATING</b>													
181	Water Contingency	3,039,638	-	-	-	857,647	-	-	-	3,897,285	-	3,897,285	3,897,285
182	Wastewater Contingency	3,843,790	-	-	-	890,049	-	-	-	4,733,839	-	4,733,839	4,733,839
359	Stormwater Contingency	-	-	-	-	-	-	-	-	100,000	-	100,000	100,000
211	Court Contingency	467,772	-	68,035	-	-	-	-	-	535,807	-	535,807	535,807
105	Wastewater Contingency (old)	890,049	-	-	-	(890,049)	-	-	-	-	-	-	-
106	Water Contingency (old)	857,647	-	-	-	(857,647)	-	-	-	-	-	-	-
<b>Total</b>		<b>9,098,896</b>	-	<b>68,035</b>	-	-	-	-	-	<b>9,266,931</b>	-	<b>9,266,931</b>	<b>9,266,931</b>

<b>RESERVE FUNDS</b>													
<b>Program Specific</b>													
<b>CAPITAL</b>													
152	Water Capital	46,869,743	904,550	12,970,000	(10,857,444)	(1,134,765)	-	-	-	48,752,083	19,796,083	28,956,000	28,956,000
153	Wastewater Capital	59,269,539	1,187,467	13,250,000	(6,939,886)	(507,078)	-	-	-	66,260,042	27,979,711	38,280,331	38,280,331
165	Stormwater Capital	9,989	16,848	2,947,168	(1,658,020)	565,623	-	-	(110,519)	1,771,090	2,210,971	(439,881)	(439,881)
120	Courts Capital	1,131,613	21,519	403,296	(16,102)	-	-	-	(397,076)	1,143,249	24,379	1,118,870	1,118,870
353	Waterworks Development Charge Exemption	524,157	-	-	-	(524,157)	-	-	-	-	-	-	-
354	Wastewater Development Charge Exemption	713,119	-	-	-	(713,119)	-	-	-	-	-	-	-
<b>Total</b>		<b>108,518,159</b>	<b>2,130,385</b>	<b>29,570,464</b>	<b>(19,471,453)</b>	<b>(2,313,496)</b>	-	-	<b>(507,595)</b>	<b>117,926,465</b>	<b>50,011,144</b>	<b>67,915,321</b>	<b>67,915,321</b>



Reserve and/or Reserve Fund	Opening Balance	Interest	Transfers			Development Charge Collections	Other External Contributions	Debt Servicing	Closing Balance	Prior Year Commitments	Balance After Commitments	Proposed Transfers	Balance After Proposed Transfers
			From/(To) Operating	(To)/From Capital	Between Reserves and Reserve Funds								
<b>Total Non Tax Supported</b>	<b>117,617,055</b>	<b>2,130,385</b>	<b>29,638,499</b>	<b>(19,471,453)</b>	<b>(2,313,496)</b>	-	-	<b>(507,595)</b>	<b>127,193,395</b>	<b>50,011,144</b>	<b>77,182,251</b>	-	<b>77,182,251</b>

**OBLIGATORY RESERVE FUNDS**

<b>Corporate</b>														
300	Parkland Dedication	3,068,889	63,490	-	509,164	-	-	699,812	-	3,641,543	15,720	3,625,823	-	3,625,823
301	Downtown Parkland Dedication	540,545	10,912	-	61,500	-	-	61,500	-	612,957	-	612,957	-	612,957
188	Building Services OBC Stabilization	2,859,925	54,253	-	(38,906)	-	-	-	-	2,875,272	59,094	2,816,178	-	2,816,178
342	Dedicated Gas Tax	(179,021)	-	2,881,354	(2,702,333)	-	-	-	-	-	225,181	(225,181)	-	(225,181)
343	Federal Gas Tax	7,955,799	177,516	7,530,400	(3,767,151)	-	-	-	-	11,896,564	10,590,285	1,306,279	-	1,306,279
<b>Total</b>		<b>14,246,137</b>	<b>306,170</b>	<b>10,411,754</b>	<b>(5,937,725)</b>	-	-	<b>761,312</b>	-	<b>19,026,335</b>	<b>10,890,280</b>	<b>8,136,055</b>	-	<b>8,136,055</b>

<b>Development Charges</b>														
311	Water	25,178,771	546,348	-	(4,706,909)	1,661,857	6,443,174	-	(89,835)	29,033,406	16,829,393	12,204,013	-	12,204,013
312	Wastewater	16,350,805	371,016	-	(2,928,727)	1,222,805	4,679,732	-	(82,565)	19,613,065	5,463,277	14,149,788	-	14,149,788
313	Stormwater	(1,510,229)	(28,008)	-	(24,379)	23,285	88,733	-	-	(1,450,598)	513,529	(1,964,127)	-	(1,964,127)
314	Services Related to a Highway	(16,097,851)	64,707	-	(984,005)	658,071	2,635,183	-	(363,381)	(14,087,277)	4,065,189	(18,152,466)	-	(18,152,466)
315	Fire Services	(1,262,849)	(20,238)	-	(378,300)	54,774	214,450	-	(13,414)	(1,405,577)	42,699	(1,448,276)	-	(1,448,276)
316	Library	2,686,527	55,614	-	-	86,808	363,570	-	-	3,192,519	-	3,192,519	-	3,192,519
317	Transit	597,988	14,408	-	(179,425)	99,718	392,471	-	-	925,159	245,704	679,455	-	679,455
318	Administration	1,136,078	17,811	-	(721,637)	62,575	251,955	-	-	746,782	2,890,603	(2,143,821)	-	(2,143,821)
319	Indoor Recreation	12,629,859	255,027	-	(695,190)	412,128	1,727,725	-	-	14,329,548	3,179,340	11,150,208	-	11,150,208
320	Parks	3,438,747	59,878	-	(3,403,124)	538,279	2,257,252	-	-	2,891,031	3,145,693	(254,662)	-	(254,662)
323	Parking	5,594,998	109,489	-	(404,848)	134,802	544,824	-	-	5,979,265	9,891,217	(3,911,952)	-	(3,911,952)
324	Police Services	(6,655,464)	(3,097)	-	(4,309,443)	77,043	307,886	-	(186,710)	(10,769,785)	6,039,115	(16,808,900)	-	(16,808,900)
325	Paramedic Services	(1,380,009)	(26,103)	-	-	5,403	21,351	-	-	(1,379,358)	-	(1,379,358)	-	(1,379,358)
326	Courts	(77,979)	(1,430)	-	-	1,422	4,755	-	-	(73,233)	-	(73,233)	-	(73,233)
327	Health Unit	(924,120)	(17,103)	-	-	10,905	46,402	-	-	(883,917)	-	(883,917)	-	(883,917)
<b>Total</b>		<b>39,705,271</b>	<b>1,398,317</b>	-	<b>(18,735,987)</b>	<b>5,049,873</b>	<b>19,979,461</b>	-	<b>(735,905)</b>	<b>46,661,031</b>	<b>52,305,759</b>	<b>(5,644,728)</b>	-	<b>(5,644,728)</b>

<b>Total Obligatory Reserve Fund</b>	<b>53,951,408</b>	<b>1,704,487</b>	<b>10,411,754</b>	<b>(24,673,712)</b>	<b>5,049,873</b>	<b>19,979,461</b>	<b>761,312</b>	<b>(735,905)</b>	<b>65,687,366</b>	<b>63,196,039</b>	<b>2,491,327</b>	-	<b>2,491,327</b>
--------------------------------------	-------------------	------------------	-------------------	---------------------	------------------	-------------------	----------------	------------------	-------------------	-------------------	------------------	---	------------------

<b>TOTAL Grand Total</b>	<b>247,450,454</b>	<b>6,547,803</b>	<b>76,041,351</b>	<b>(73,667,711)</b>	<b>24,679</b>	<b>19,979,461</b>	<b>761,372</b>	<b>(22,383,589)</b>	<b>252,144,418</b>	<b>148,232,167</b>	<b>103,912,250</b>	-	<b>103,912,250</b>
--------------------------	--------------------	------------------	-------------------	---------------------	---------------	-------------------	----------------	---------------------	--------------------	--------------------	--------------------	---	--------------------



## Guelph Police Services Board

PO Box 31038, Willow West Postal Outlet, Guelph, Ontario N1H 8K1

Telephone: (519) 824-1212 # 213 Fax: (519) 824-8360

TTY (519) 824-1466 Email: board@police.guelph.on.ca

April 19, 2018

Mayor Cam Guthrie  
Guelph City Hall  
1 Carden Street  
Guelph, ON N1H 3A1

Your Worship:

At its meeting on April 19, 2018, the Guelph Police Services Board was advised that there is an anticipated year end surplus in the Guelph Police Service 2017 operating budget. The Board passed the following motion:

**THAT** the Guelph Police Services Board forward a request to City Council that \$150,000 of the 2017 year-end surplus be transferred to a Police Operating and/or Capital Reserve.

***-CARRIED-***

The Guelph Police Services Board would respectfully request consideration of the aforementioned recommendation by Guelph City Council.

I look forward to hearing from you.

Sincerely,

A handwritten signature in cursive script that reads "J. Sorbara".

Judy Sorbara, Acting Chair

Copies: Tara Baker, General Manager/City Treasurer, City of Guelph  
Jeffrey DeRuyter, Chief of Police