# **Pivot: Net-Zero**

City of Kitchener Corporate Climate Action Plan 2.0 2024 Progress Report

1.1

# KITCHENER

April 2025

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#### 1. Introduction

The City of Kitchener has identified a corporate near-term target of achieving an 8% reduction in corporate greenhouse gas (GHG) emissions from the baseline year of 2016; as well as a long-term goal of achieving net-zero by 2050. Achieving net-zero emissions means cutting GHG emissions from human activities to as close to zero as possible, with any remaining emissions being absorbed from the atmosphere. This is the first progress report on the organization's second-generation corporate climate action plan called *Pivot: Net-Zero;* approved by Council April 22, 2024 (DSD-2024-074). The threefold purpose of this report is to track corporate GHG progress from 2016-2024, provide an update on the 19 annual progress reporting metrics (Appendix B) and the 47 action items (Appendix C), as identified in Pivot: *Net-Zero*.

#### 2. Corporate GHG Inventory

The City of Kitchener reports on GHG emissions in five corporate focus areas, presented below in Figure 1. These corporate focus areas are consistent across most, if not all municipalities. GHG emissions are calculated based on energy consumption (fuel, electricity, natural gas) and emissions factors from verified sources (these details are further described in Appendix A).



Figure 1 - 2024 Corporate GHG Emissions by Focus Area

In 2024, the City of Kitchener emitted 10,847 tonnes of GHGs (tCO<sub>2</sub>e). Ninety percent of these emissions came from two corporate focus areas – Facilities (54%) and Fleet & Equipment (36%), which is consistent distribution of corporate emissions from baseline. When we look at our corporate sources of energy within these two focus areas (Figure 2), particularly the types of fossil fuels we rely on, we see natural gas continuing to play an important role in our facilities (for space heating, and domestic hot water). Space heating alone accounts for approximately 80% of natural gas use in Facilities. While in our fleet & equipment – gasoline and diesel are significant. Gasoline is used primarily for lighter duty vehicles and diesel is used in medium and heavy-duty vehicles.



#### Figure 2 - 2024 Facilities and Fleet & Equipment GHG Emissions by Energy Type

As GHG emissions on their own can be difficult to relate to, utility costs offer an alternative way to look at energy consumption across the organization. Table 1 below outlines 2024 costs by energy source for both Facilities, and Fleet & Equipment focus areas.

Energy Source	2024 Cost
Fleet & Equipment	
Gasoline (includes gasoline and ethanol blend)	\$1,012,731
Diesel (includes petroleum diesel and biodiesel blends)	\$1,070,168
Propane – fleet & equipment	\$5,667
Fleet Total	\$2,088,582
Facilities	
Propane	\$11,598
Electricity	\$4,751,414
Natural Gas	\$1,000,120
Facilities Total	\$5,763,132
Grand Total	\$7,851,698

#### Table 1 - 2024 Utility and Fuel Costs

#### 3. Variations in GHG Intensity

When it comes to GHG emissions, not all energy sources are equal. Some energy sources are more carbon intense than others. This becomes clear when comparing energy consumption to GHG emissions for different energy sources (Figure 3). For instance, electricity is the source for 47% of our corporate energy used in 2024, yet only accounts for 12% of our corporate GHGs. Natural gas by comparison is the source of 41% of our energy used – yet accounts for 64% of our corporate GHGs. Similarly, fleet fuels account for 12% of total corporate energy used, but 23% of corporate GHGs emissions.

This data provides insight into how transitioning to lower carbon energy sources is important, why it is sound for this to be a corporate priority and how a corporate energy transition can make a significant impact on our corporate GHGs and in our corporate journey to net-zero.



Figure 3 - 2024 Energy Consumption vs. Emissions by Energy Source

#### 4. Strategic Priorities by Focus Area

#### 4.1. Facilities

Facilities are responsible for just over half of Kitchener's corporate GHG emissions (54%). 84% of these GHG emissions are due to natural gas consumption used for space and water heating - equivalent to 45% of total corporate emissions. Looking at the data with both a facility and energy type lens, enables a more granular and strategic understanding of Facilities and their contribution to corporate GHGs. Certain facility types emerge as priority areas for making impact including Arenas, Administrative Buildings and Pools (Figure 4). This is underscored by looking at the corporate Top 10 GHG emitting facilities (Figure 5), 8 of which fall into these 3 categories, including 6 within the Sport Division (Arenas and Pools).



Figure 4 - 2024 Corporate GHG Emissions by Energy Source and Facility Type



Natural Gas Electricity

Figure 5 - 2024 Top 10 GHG Emitting Facilities

As Facilities transitions towards lower carbon fuel sources for heating, we should begin to see the carbon intensity of buildings decrease, which can be done through tracking the carbon intensity per area of building owned. In 2024, the carbon intensity for facilities was 28.5kg  $CO_2e/m^2$  (0.028t $CO_2e/m^2$ ), excluding pumping stations.

#### Generating renewable energy

The solar panels installed on the roof of the Kitchener Operations Facility generated a total of 570,263 kWh in 2024. The energy produced from these solar panels is sent back to the electrical grid.

#### 4.2. Fleet & Equipment

The Fleet Division at the City of Kitchener is an integral part of service delivery across many departments. In total, Fleet is responsible for approximately 650 on and off-road vehicles and equipment. In addition, the City of Kitchener has many smaller handheld equipment. Due to the refueling practices, it is difficult to track exactly how much fuel they use, rather the fuel used in these units is captured under the associated vehicle's fuel usage.

Fleet assets continue to grow annually. In 2024, 18 additional on and off-road vehicles and equipment were added to the inventory. However, 40 electrified assets were added through replacements including 4 electricity utility vehicles, and 37 electric handheld equipment units.

Light duty vehicles (LDVs) include cars, cargo vans, SUVs and smaller pick-up trucks and they make up 38% of our fleet assets but are only responsible for 21% of fleet emissions (Figure 6). The marketplace currently offers electric options for many LDVs. This vehicle type is most ready to transition to zero-emission options. In 2024, Fleet has a total of 22 battery electric vehicles (BEV's) in operations. By contrast, the medium and heavy-duty vehicle marketplace is limited in its offering of zero emissions vehicle options. Vehicles in this category include dump trucks, large pick-up trucks (e.g., Ford 550) and fire trucks. These two categories represent 32% of our total fleet assets and 60% of our fleet and equipment emissions (Figure 6). Therefore, even by electrifying all our light-duty vehicles, the majority of emissions from this focus area will persist until viable options present in the marketplace. Making significant and sustained corporate fleet GHG reductions will continue to be a challenge not readily remedied within the next 5 years. Fleet is working on a Sustainable Fleet Transition Strategy (Appendix C, Action 27) that will explore alternate fleet fuels including hydrogen and renewable diesel options.



#### Figure 6 - 2024 GHG Emissions by Fleet Vehicle Class (excluding small equipment)

As we transition towards lower carbon fuel sources, we anticipate seeing the carbon intensity of Kitchener's fleet decrease. Tracking the carbon intensity per kilometer driven by fleet vehicles is an effective way to show the shift away from fossil fuels. In 2024, the carbon intensity of Kitchener's fleet is at 0.55 kgCO<sub>2</sub>e/km (0.00055tCO<sub>2</sub>e/km) for on-road licensed vehicles, which are classified as light and medium duty vehicles. This metric has not been reported on in previous years and will be tracked going forward.

#### 4.3. Streetlighting

The City of Kitchener is responsible for a network of approximately 18,325 Cobra Head streetlights and 2,689 decorative post-top lights. Acknowledging the opportunity to reduce GHG emissions from electricity to power lights and for impressive cost savings, the City undertook an extensive LED conversion project, converting 15,636 of its Cobra Head streetlights, over a 2-year period from 2015-2017. Cost and energy savings were immediate and significant. In April 2017 (pre-completion), electricity use for streetlights was approximately 802,000 kWh, and the following April consumption fell to approximately 350,000 kWh. In 2022/2023, a similar project was done for all the City's decorative post-top lights, with an estimated pay-back period of 10.7 years.

Not only has the transition to LED lighting resulted in emission reductions but it has also significantly decreased the waste associated with replacing streetlight bulbs. On average, the previously used high-pressure sodium (HSP) lightbulbs were replaced every 3 years. Following the transition to LED, many of the streetlights have not been replaced since their transition in 2015, making them 10 years old and still operating.

Since the project was implemented in 2017, a sustained reduction in GHG emissions of approximately 71% has been observed. (Table 2). Streetlighting is a successful example of achieving significant and sustained GHG emissions.

#### 4.4. Staff Travel

Staff travel includes vehicle mileage claimed by employees who used a personal vehicle for work purposes only. By tracking and reporting on this category, we are able to provide a more wholistic view of staff travel related to service delivery to the community to complement fleet reporting.

Staff travel in 2024 accounted for only 1% of the City of Kitchener's total emissions, 64t CO<sub>2</sub>e. Since 2021, emissions from staff travel have increased by approximately 48%, however, there was a 19% decrease in staff travel from 2023 to 2024.

#### 4.5. Corporate Waste

This focus area includes waste generated at City facilities and from street level and park waste receptacles. While waste may appear to be a small part of corporate emissions (8.5%), methane from waste is much more harmful and potent than other GHGs. From 2016 – 2024, GHG emissions from corporate waste have increased by 37%, which is an 11% increase from 2023.

Waste has been on an upward trend since 2016, with a large jump observed in 2022. In order to address this issue, additional information into the City of Kitchener's waste is needed. To help fill this gap, a Corporate Waste Assessment is an action identified in Pivot: Net-Zero to assess how the City of Kitchener's corporate waste is handled and identify opportunities for improvement (Appendix C, Action 35).

#### 5. Corporate and Community Emissions

Climate Action Waterloo Region tracks community emissions across Waterloo Region. When comparing how the City of Kitchener's corporate GHG emissions contribute across the region, they account for less than 1% of all community emissions. We all play a role in reducing the GHG emissions within our community, so while this number is small, it does not undermine the importance of our Corporate Climate Action Plan and target of achieving net-zero by 2050.

#### 6. Trends

The City of Kitchener corporate GHG emissions have seen a 6% reduction overall from 2016-2024. Figure 7 illustrates this progress with the dotted red line indicating the target of reducing emissions by 8% from 2016 levels. Table 2 describes the changes in energy consumption and greenhouse gas emissions over time and shows a decline in emissions over the last 2 years.



	2016-2022		2016-2023		2016-2024	
	% Change in Consumption	% Change in Emissions	% Change in Consumption	% Change in Emissions	% Change in Consumption	% Change in Emissions
Buildings - Electricity	-13%	-41%	-10%	-34%	-10%	-34%
Buildings - Natural Gas	+4%	+4%	-6%	-5%	-12%	-12%
Fleet & Equipment	+9%	+17%	+4%	+12%	+7%	+14%
Staff Travel	N/A	N/A	N/A	N/A	N/A	N/A
Streetlighting	-61%	-73%	-61%	-71%	-61%	-71%
Waste	+15%	+15%	+26%	+26%	+37%	+37%
Grand Total	-	1%	-	-4%	-	-6%

 Table 2 - Corporate GHG Emissions vs Consumption by Focus Area

#### 6.1. Sustained GHG Reductions in Streetlighting

Significant and sustained GHG reductions are maintained in the Streetlighting focus area. This is due to the extensive, efficiency-focused LED conversion project completed in 2017 for the cobra head streetlights, and 2022 for decorative post-top lights.

#### 6.2. Service Growth and GHG's

The City of Kitchener's Facilities and Fleet operations continue to grow. Kitchener is among the fastest growing communities in Canada and likewise City of Kitchener service delivery is expanding. As we expand service delivery to the community, we acquire new buildings. The GHG reduction from 2023-2024 is in part due to a warmer winter (less demand for energy for space heating), in addition to efforts to reduce the carbon intensity of our operations.

While Fleet & Equipment has seen an increase in GHG emissions from 2016 baseline levels, assets have continued to grow on an annual basis as well. It is important to note that emissions were slightly elevated in 2022 due to COVID-19 restrictions making single occupant vehicles necessary in operations. From 2022 alone, fleet assets have increased by approximately 8%, while emissions have decreased by 3%. This is a promising trend, that may be indicating a decoupling of Fleet growth and GHG emissions that can be sustained into the future with the further implementation of Pivot: *Net-Zero* actions.

#### 6.3. Electricity Grid

Ontario's Electricity Grid is known for being "clean," with nearly 90% of electricity coming from zero emissions sources. Ontario currently has one of the lowest carbon intensity factors in the world. Between 2016 and 2024, our electricity consumption fell by 10%, however emissions fell by 34%. It is important to note the potential risks and benefits associated with changes in the carbon intensity of the electricity grid. Such changes are largely out of our control. Recently, there has been a need for high carbon intense electricity generation in Ontario that has resulted in increasing emissions factors for electricity. In 2025, the emissions factor will rise to 38gCO<sub>2</sub>e/kWh (from 30gCO<sub>2</sub>e/kWh in 2024), which would result in approximately 4% increase in emissions in our facilities emissions.

#### 6.4. Heating Degree Days

Heating degree days (HDD) is a way of quantifying energy demand to heat buildings based on outside temperatures. During colder winters with more heating degree days, it is anticipated that energy consumption for space heating (i.e., natural gas), and the associated GHG emissions, would be higher. There were 4,174 HDD in 2022 (8% increase from 2016 at 3,856HDD) and Table 2 notes a 4% increase in natural gas consumption and emissions. 2023 had 5% less HDD compared to 2016 and correspondingly 4% less natural gas emissions. In 2024 there were 3,179 HDD (-9% to 2016) and a 12% decrease in natural gas consumption and emissions. This indicates

the significant impact of variations in the annual weather on the changes observed in natural gas emissions.

#### 7. Threats to reaching our reduction target

When we set our corporate baseline year in 2016 the carbon intensity of the Ontario electricity grid was low. The carbon intensity of the Ontario energy grid is now increasing. A 4% increase in Kitchener facilities emissions is anticipated for 2025. This anticipated increase is due to a more carbon intense electricity grid in Ontario that has resulted in increasing emissions factors for electricity. While positive changes to the electricity grid have benefited the City of Kitchener's emissions in the past, this is not anticipated into the future.

There has been a 2% reduction in corporate GHG emissions annually since 2022. This has occurred despite growth in our service delivery to the community. If we were to extrapolate based on historical data alone, and try to predict the future, one might conclude that we are on track to reach the short-term target of an 8% reduction by 2026 from the 2016 baseline year. Historical trends however are not predictive.

Several external factors outside of our control (see section 6) threaten our ability to reach our 8% GHG reduction target, including variation in energy consumption and heating degree days. When looking ahead to our 2025 reporting, it is probable that there will be an increase in overall corporate GHGs. The first months of 2025 were marked by significant cold weather and heavy snowfall. Energy use for both space heating in our facilities and snow clearing is anticipated to be higher than previous years. Despite modest, incremental emissions reductions to date, we cannot confidently state that these reductions will be sustained into the future.

#### 8. Calls to Action

Focussing energies where we can, to make an impact on corporate GHGs is the best way to protect our organization from external threats and disruptions while building resiliency towards meeting our long-term net-zero goal. Our capital and operating decision-making today needs to prioritize deep GHG reductions. We need to prioritize the 3 pathways of energy conservation, fuel switching, and generating renewable energy. Lastly, continued advocacy to other levels of government and industry to support these pathways is important.

#### 9. Appendices

#### 9.1. Appendix A – Corporate GHG Inventory - Methodology & Adjustments

#### 9.1.1. Methodology

GHG emissions have been calculated using consumption data collected from utility bills for electricity and natural gas, and from FLINT for fleet fuels. Table A1 below outlines the emission factors used to convert consumption data into GHG emissions for 2024. The most up to date emission factors published by the Governments of Canada and Ontario have been used. For staff travel, an average emission factor based on a variety of makes and models was used.

Energy Source	Unit	Emission Factor (KgCO <sub>2</sub> e /unit)
Electricity	kWh	0.03
Natural Gas	m <sup>3</sup>	1.93
Biodiesel 5	L	2.70
Diesel	L	2.71
Ethanol Blend (10%)	L	2.24
Gasoline	L	2.32
Propane	L	1.54
Electricity	L	0.03
Staff Travel	km	0.19
Waste	mt	481.70

Table A '	1 -	Emission	Factors
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#### 9.1.2. Assets in GHG Inventory

To track and report on our Corporate GHG emissions consistently from year to year, it is important to have a well-defined inventory of assets and sources that are included and updated in corporate GHG reporting. Table A2 below outlines the assets and sources reported on in each focus area.

Table A 2 - Assets and Sources	included in GHG Inventory
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	Sources
Focus Area	
Facilities	85 facilities
	All on-road heavy, medium, and light duty vehicles and off-road
Corporate	equipment (loaders, backhoes etc.) that use 6 different types of fuel.
Fleet & Given the process by which small handheld equipment is re-f	
Equipment	difficult to accurately track their fuel consumption and therefore
	handheld equipment is not included in the GHG inventory for fleet.
Streetlights	Outdoor Streetlights
Wasta	Waste collected from city facilities and street level / park waste
Waste	receptacles including large Moloks.
Staff Travel	Staff mileage claims for work-related, personal-vehicle use.

#### 9.1.3. Adjustments

#### Fleet Data

This report includes adjustments to the 2023 data as it was presented in the DSD-2024-074 Report. In this report 2023 Fleet & equipment data attributes have been updated. At the time of reporting 2023 data, the FLINT database was undergoing an update which resulted in fleet attribute changes. These changes resulted in vehicles not being included in the 2023 corporate GHG calculations. As a result, the adjustments in this report include adding previous vehicles omitted in the original 2023 calculations reported. Table A3 indicates the changes to the 2023 fleet data as reported in this 2024 report.

Category	Previous 2023 Data	Updated 2023 Data	Difference
GHG emissions (tCO <sub>2</sub> e)	3,692 tCO <sub>2</sub> e	3,848 tCO2e	4%
Vehicle Count (on & off road)	580	648	10%
Small Equipment Count	549	570	4%

Table A 3 - Fleet & Equipment Data Adjustments

These adjustments result in approximately 4% more emissions in this fleet category and 157 tCO<sub>2</sub>e total corporate emissions. The major finding in the 2023 report, however, remains true that growth was experienced in the focus area and this expansion has not resulted in commensurate growth in corporate GHGs. The decoupling of growth and GHGs in this focus area remains true for 2023 and 2024 data.

#### **Global Warming Potentials**

In March 2024, the Climate Change and Environment Committee passed a motion "that the CCEC supports the recommendation that for future GHG reduction project analysis [global warming potential] GWP 20 emission factors (as it's amended) be used to calculate GHG emissions, in place of GWP 100." GWP 20 emission factors are useful when looking at the impact of GHG's that have a shorter lifetime in the atmosphere, such as methane (CH<sub>4</sub>), while GWP 100 emission factors focus on gases with a longer lifetime, specifically carbon dioxide (CO<sub>2</sub>). Following this recommendation, staff investigated making this switch and have decided to not move forward with the use of GWP 20 emission factors. The rationale behind this decision is in part due to the prominence of CO<sub>2</sub> in the City of Kitchener's corporate GHG emissions, as well, to stay consistent with larger organizations for reporting purposes. While natural gas usage plays a large role in the City of Kitchener's GHG emissions, when burned, it mainly releases CO<sub>2</sub>. The main CH<sub>4</sub> emissions from natural gas are a result of leaks during

transportation and storage, which is considered an upstream emission, and is not within the scope of the City of Kitchener's Corporate GHG inventory. In addition, continuing forward with the GWP 100 emission factors will allow the City of Kitchener to stay aligned with the reporting frameworks we have committed to report to annually, including the Sustainable Waterloo Region Impact Network and Partner's for Climate Protection.

Туре	Metric	2024 Value	Data Sources
Corporate	Total Annual Consumption by Energy Source (GJ)	38,876,227 GJ	Utility (Gas and Electricity) Bills provided by utility; Fuel consumption provided by Fleet Systems Specialist pulled from FLINT.
Corporate	Total Annual GHG Emissions by Energy Source (t CO <sub>2</sub> e)	10,847 tCO2e	Consumption data by energy source multiplied by applicable emission factor from verified source.
Corporate	Total Annual GHG Emissions by Corporate Focus Area (t CO <sub>2</sub> e)	Facilities: 5,832 tCO <sub>2</sub> e Fleet & Equipment: 3,913 tCO <sub>2</sub> e Staff Travel: 64 tCO <sub>2</sub> e Streetlights: 139 tCO <sub>2</sub> e Waste: 926 tCO <sub>2</sub> e Total: 10,873 tCO <sub>2</sub> e	Consumption data by focus area multiplied by applicable emission factor from verified source.
Corporate	Annual Renewable Energy Generated (kWh)	570,263 kWh	Metered by Enova
Corporate	% of Annual Energy Consumed from Fossil Fuels	53%	Energy consumed (GJ) from fossil fuels (natural gas, fleet fuels, propane) divided by total energy consumed (GJ) x 100.
Corporate	Annual Total Utility Cost	\$7,851,698	Total cost of electricity, natural gas, propane, diesel, and gasoline for the assets included in GHG inventory.
Corporate	Corporate Spending on Carbon Pollution Pricing	\$708,103	Annual Fleet and Facilities GHG emissions (tonnes CO <sub>2</sub> e) x minimum national carbon price for reporting year ( <u>Carbon Pollution Pricing</u> ). Does not include emissions from electricity.

9.2. Appendix B – Annual Progress Reporting Metrics

Туре	Metric	2024 Value	Data Sources
Corporate	Social Cost of Carbon	\$2,892,484	GHG emissions from all sources (tonnes CO <sub>2</sub> e) x Environment and Climate Change Canada's yearly estimate for social cost of carbon (\$/tonne) (ECCC Social Cost of GHGs)
Fleet & Equipment	Total Energy Use by Fuel Type	Gasoline: 8,946,590 GJ Ethanol (10% blend): 17,514,625 GJ Diesel: 10,037,559 GJ Biodiesel: 20,332,671 GJ Propane: 257,389 GJ Electricity: 67,223 GJ Total: 57,156,057 GJ	Fuel Quantities x applicable conversion factor (L x GJ/L)
Fleet & Equipment	GHG Per KM	0.00055 tCO2e/km (0.55kgCO2e/km)	Total Fleet GHGs / total KM driven (for on-road passenger vehicles)
Fleet & Equipment	% of fleet and equipment that are zero emissions	11% (176 units)	# of ZEV emission vehicles & equipment / total fleet assets (all categories)
Fleet & Equipment	% of Light-duty fleet that is zero- emissions	7% (18 units)	# of ZEV emission vehicles / Light-duty vehicles (cars, SUVs, Van & Chassis< 4,500 kg)
Fleet & Equipment	Annual Fuel Cost	Gasoline: \$338,391 Ethanol (10% blend): \$674,340 Diesel: \$334,445 Biodiesel: \$735,723 Propane: \$5,667 Total: \$2,088,566	Total annual cost of all fleet fuels (gasoline, ethanol 10, diesel, biodiesel blends, propane) – from Fleet Systems Specialist via Flint
Facilities	Annual Utility Costs	Electricity: \$7,782 Natural Gas: \$5,908 Propane: \$11,598 Total: \$5,763,132	Total cost of electricity, natural gas and propane associated with Facilities in GHG inventory via utility bills

Туре	Metric	2024 Value	Data Sources
Facilities	Energy Use by Facility	203,903 GJ	Utility consumption x applicable conversion factor (unit of energy x GJ/unit of energy)
Facilities	GHG per area (m <sup>2</sup> )	28.5kg CO <sub>2</sub> e/m <sup>2</sup> (0.028tCO <sub>2</sub> e/m <sup>2</sup> )	Total facilities GHG s/ total area of facilities owned (excludes pumping stations).
Facilities	GHGs by Facility	5,832 tCO <sub>2</sub> e	-
Facilities	Energy use by Facility Type	Arenas: 62,147 GJ Administrative Buildings: 43,000 GJ Culture & Entertainment: 28,751 GJ Pools: 25,409 GJ Community Centers: 13, 082 GJ Fire Station: 7,565 GJ Pumping Station: 6,967 GJ Libraries: 5,714 GJ Parking Garage: 3,401 GJ Sports Facilities: 3,085 GJ Golf Course: 29, 25 GJ Park & Cemeteries: 1,859 GJ	-
Facilities	GHGs by Facility type	Arenas: 1,675 tCO <sub>2</sub> e Administrative Buildings: 1,216 tCO <sub>2</sub> e Pools: 981 tCO <sub>2</sub> e Culture & Entertainment: 823 tCO <sub>2</sub> e Community Centers: 400 tCO <sub>2</sub> e Fire Station: 256 tCO <sub>2</sub> e Sports Facilities: 118 tCO <sub>2</sub> e Libraries: 116 tCO <sub>2</sub> e Golf Course: 91 tCO <sub>2</sub> e Pumping Station: 58 tCO <sub>2</sub> e Parking Garage: 39 tCO <sub>2</sub> e Park & Cemeteries: 34 tCO <sub>2</sub> e	

Focus Area	Action	Budget Year	Target Completion	Lead Division	Project Manager	Progress Update
Facilities	1. Design and Implement a Corporate Energy Management Program	N/A	2027	Facilities Management	Luke Reesor- Keller	The actions below make up this program. Some dates have been amended.
Facilities	2. Continue to build out and integrate corporate energy management practices and team	N/A	2027	Facilities Management	Luke Reesor- Keller	The actions below make up this program. Some dates have been amended.
Facilities	3. Assess NRCAN 50001 Ready Navigator	2024	Complete	Facilities Management	Luke Reesor- Keller	COMPLETED - NRCAN 50001 is a very involved and process heavy approach. Not recommended for full implementation at COK. Information / practices can be incorporated into policy. FM staff are currently part of a SEM Energy Management municipal cohort – a better fit for COK.
Facilities	4. Develop Energy	2025	2027	Facilities Management	Luke Reesor- Keller	On track.

### 9.3. Appendix C – Summary of CorCAP 2.0: *Pivot Net-Zero* Actions

	Management Policy					
Facilities	5. Establish an Energy Management Monitoring System	N/A	2025	Facilities Management	Luke Reesor- Keller	To accommodate the integration of new data sources and refinement dashboard specifications, the timeline for this action item has been adjusted.
Facilities	6. Establish a Facilities Energy Management Technical Advisory Committee	N/A	2025	Facilities Management	Chris Leishman	In progress.
Facilities	7. Develop a Corporate Green Building Standard	2026	2027	Facilities Management	Luke Reesor- Keller	Background information collected; internal input process is being developed. High Performance Development Standard will inform this standard once complete.
Facilities	8. Complete a facilities GHG reduction pathway for a suite of high priority facilities	2024	2027	Facilities Management	Luke Reesor- Keller	City Hall study is nearing completion. Studies for the KOF and AUD will be started in 2025. Additional facilities to be identified.
Facilities	9. Develop an Arenas Strategy	2024	2025	Sport	Bob Cheyne	CSD Developing scope and project charter.

Facilities	10. Develop a Pools Strategy	2026	2026	Sport	Bob Cheyne	Not yet started. Work is anticipated to start soon and is considered on track for the intended completion date.
Facilities	11. Develop a Facilities Acquisition Strategy	2025	2026	Facilities Management	Luke Reesor- Keller	Not yet started. Although the FM Asset Management Project Manager has been working with Real Estate and Legal to streamline a facility acquisition process.
Facilities	12. Develop a Facilities Decommissioning Strategy	2025	2026	Facilities Management	Luke Reesor- Keller	Not started. Although the FM Asset Management Project Manager has been working with Real Estate and Legal to streamline a facility demolition process.
Facilities	13. Develop a Corporate Solar Strategy	2024	2026	Facilities Management	Luke Reesor- Keller	FM is working in partnership with the KU Energy Transition Strategy. KU will be working with an outside agency to gather data on City owned properties/assets that may allow for energy generation and sales in addition to on-site energy generation that can be used at City facilities. The data collected will allow FM to move forward with a facilities-based strategy.

Facilities	14. Monitor and assess the expanding Cold Water Ice Pilot	2024	In progress	Sport	Bob Cheyne / Luke Reesor- Keller	In progress.
Facilities	15. HVAC Fuel Switching Modelling	2023	In progress	Facilities Management	Luke Reesor- Keller	8 projects currently in the design phase with construction being staged over 2026-2028. More will be added over time.
Facilities	16. Complete legislated O.Reg 25/23 Reporting	N/A	Complete	Facilities Management	Luke Reesor- Keller	Completed.
Fleet & Equipment	17. Update Fleet Asset Management Plan	2024	Complete	Fleet	Matthew Lynch	AMP submitted to AM. Identified gaps include Charging Stations and Fuel Tanks. Working to add these into the next update.
Fleet & Equipment	18. Continue to leverage fleet telematics data and support drivers	Ongoing	Ongoing	Fleet / FUWG	NA	Continuing to explore the data and reporting.
Fleet & Equipment	19. Continue Fleet User Working Group	Ongoing	Ongoing	Fleet	Matthew Lynch	Ongoing.
Fleet & Equipment	20. Revise and update Corporate	N/A	2024	Fleet / FUWG	Matthew Lynch	Not yet started.

	Fuel Efficiency Policy (#316)					
Fleet & Equipment	21. Continue to support efficient fleet driver behaviors	N/A	ongoing	Fleet / FUWG	Matthew Lynch	Can possibly tie telematics data to Policy 316. Need to ensure supervisors are given proper guidance and direction to address violations.
Fleet & Equipment	22. Advance right-sizing efforts	N/A	ongoing	Fleet / Sustainability Office	Matthew Lynch	Ongoing – nothing formalized yet.
Fleet & Equipment	23. Continue to explore further route optimization	2025	2026	Fleet / FUWG	Matthew Lynch / Darren Becks	Continuing to explore technology and telematics data (Demo sidewalk technology). Links to Fleet Innovations – Joint Initiative with City of Waterloo.
Fleet & Equipment	24. Continue Fleet Equipment Review Process	Ongoing	Ongoing	Fleet	Evan Zinn	Equipment Review process on going. Larger changes to come with a new fleet business system.
Fleet & Equipment	25. Continue Fleet and Equipment Electrification	Ongoing	Ongoing	Fleet	Evan Zinn	Working towards an EV light duty fleet, first ½ tonne pickup trucks being implemented this year (2025). Off road light duty vehicles still being targeted for Electric change. Looking to add an Electric Commercial Turf mower.

Fleet & Equipment	26. Develop EV Charging Station Asset Management Plan	Start / Budget Year / Completion - 2025	2025	2025	Evan Zinn	Map Layer/Data Attributes have been set up. Yet to build maintenance program. Working with FM/Chargepoint on repair and service of the charging stations.
Fleet & Equipment	27. Develop Sustainable Fleet Strategy	Start / Budget Year / Completion - 2025	2025	2025	Matthew Lynch / Evan Zinn	Consultant led – 2025 Budget Approved – Next step to develop RFP.
Fleet & Equipment	28.Continue to use Biodiesel 5 and Biodiesel 20	Ongoing	Ongoing	Fleet	Matthew Lynch	Continue to review/plan with Transit Petroleum city fuel provider for next steps. Currently still using Biodiesel 5 and 20.
Fleet & Equipment	29. Test renewable diesel	2024	2024	Fleet	Matthew Lynch	Fleet working with Transit Petroleum on using renewable diesel (dependent on supplier).
Fleet & Equipment	30. Continue to use propane as a transition fuel for medium and heavy-duty vehicles	Ongoing	Ongoing	Fleet	Matthew Lynch	Currently evaluating the ROI. Vendor and OEM support has been a challenge.

Fleet & Equipment	31. Continue hydrogen research collaboration with University of Waterloo	Ongoing	Ongoing	Sustainability Office	Anna Marie Cipriani	Staff presented at two workshops hosted by the University of Waterloo's Institute for Sustainable Energy. Staff continue to support researchers especially in the area of understanding what role Hydrogen may play in the energy transition of municipal medium and heavy-duty fleet vehicles.
Fleet & Equipment	32. Test Hydrogen co- combustion technology	2025	2025	Fleet	Matthew Lynch / Evan Zinn	Hybrid kits to be installed and tested in 2025.
Fleet & Equipment	33. Continue to assess and evaluate potential of other lower carbon fuels	Ongoing	Ongoing	Fleet	Matthew Lynch / Evan Zinn	Reviewing new information on Hydrogen option from Cummins. Ties to the Sustainable Fleet Strategy.
Fleet & Equipment	34. Ready organization for fleet integrated renewable energy storage	2026	2026	Fleet	Evan Zinn	Aim for grant funding for this. Recent meeting with Aux Hydro One group on opportunities, will continue to explore.

Corporate	35. Corporate Waste Assessment	2025	2026	Sustainability Office	Anna Marie Cipriani / Fionnula Wade	Not yet started.
Corporate	36. Continue corporate membership in TravelWise Program	Ongoing	Ongoing	Transportation	Alison Carlyle	The City of Kitchener continued to be a member of the TravelWise program in 2024. In June, the City promoted the region-wide Bike Month contest. Staff were encouraged to travel to work sustainably in June for a chance to win one of 3 bikes from TravelWise. In 2024, the City of Kitchener also introduced an additional \$25/month reimbursement on monthly transit passes for employees.
Corporate	37. Develop Corporate Climate Change Literacy Modules	Ongoing	Ongoing	Sustainability Office	Anna Marie Cipriani / Fionnula Wade	First module completed and uploaded to LMS for staff use.
Corporate	38. Continue partner relations and explore new opportunities	Ongoing	Ongoing	Sustainability Office	Anna Marie Cipriani	Staff continue to explore partnerships highlights in 2024 include University of Waterloo's Institute for Sustainable Energy and GreenHouse.

Corporate	39. Continue to implement new climate change inclusive TOR for Advisory Committee	N/A	Complete	Sustainability Office	Anna Marie Cipriani	Embarking on a second successful term with the new TOR.
Corporate	40. Update City's Impact Network Commitment	Ongoing	Ongoing	Sustainability Office	Anna Marie Cipriani / Fionnula Wade	The City continues to be a member of SWR's Impact Network. It is anticipated that the City's goal will be updated in 2026 once the timeframe for the original goal of 8% by 2026 has passed.
Corporate	41. Continue annual reporting into SWR's Annual Member Survey	Ongoing	Ongoing	Sustainability Office	Anna Marie Cipriani / Fionnula Wade	Annual emission reporting is uploaded annually following it being presented to council around April.
Corporate	42. Continue to report to into FCM PCP	Ongoing	Ongoing	Sustainability Office	Anna Marie Cipriani / Fionnula Wade	This report will be submitted for renewed milestone 5 (corporate scope).
Corporate	43. Continue Corporate Reporting on Progress to Net- Zero	Ongoing	Ongoing	Sustainability Office	Anna Marie Cipriani / Fionnula Wade	This report is the first progress report on this goal.
Corporate	44. Assess expanding opportunities	N/A	2025	Financial Planning &	Ryan Hagey	Funding requests for Net-Zero will be assessed against other corporate needs.

	within our control to fund the Net-0 anticipated funding gap			Asset Management		
Corporate	45. Review Energy Management Reserve Fund Policy	N/A	2027	Sustainability Office	Anna Marie Cipriani / Luke Reesor - Keller	New policy in place.
Corporate	46. Continue corporate admin grants support	N/A	Ongoing	Financial Reporting & ERP Solutions	Tyler Harding	The finance team continues to provide grant application support to departments while working towards implementing standardized processes and procedures.
Corporate	47. Continue advocacy for climate action	N/A	Ongoing	Office of Mayor & CAO	Shannon Weber	Advancing policy and funding priorities for net-zero infrastructure (i.e., KIRC) and for programs such as SDG Idea Factory. Ongoing work through associations such as the Federation of Canadian Municipalities to continue the Green Municipal Fund, Green & Inclusive Buildings Fund, Disaster Adaptation & Mitigation Fund and other

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			initiatives to support climate-resilient
			and sustainable infrastructure.