COMMUNITY CLIMATE ACTION PLAN

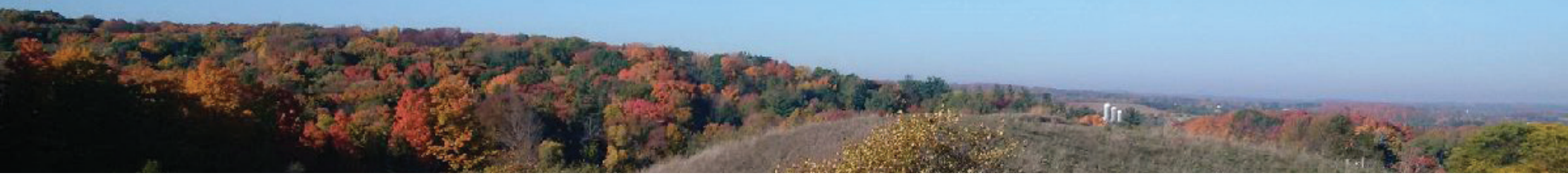
2024

KING

INDIGENOUS LAND ACKNOWLEDGEMENT

On behalf of King Township citizens, staff and visitors, we acknowledge that the Township of King sits within the Treaty Lands and Territory of the Mississaugas of the Credit First Nation and the Williams Treaty First Nation, as well as the traditional territory of the Annishinaabeg, Huron-Wendat, and Haudenosaunee peoples.

We ask everyone to reflect on the Indigenous nations that have lived on this land since time immemorial and how, as individuals, we can take steps towards reconciliation. Together, we will continue to partner with Indigenous peoples and communities to celebrate the heritage, diverse cultures, and outstanding achievements of Indigenous people; and, work towards healing a difficult past to create a more respectful future for several generations to come.



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MESSAGE FROM THE MAYOR

As Mayor of King Township, I am proud to present our new Community Climate Change Action Plan, a comprehensive roadmap designed to safeguard our environment for generations to come. Protecting the environment is not just a priority for our community; it is a responsibility we all share. Our natural surroundings are central to the way of life we cherish in King, and it is imperative that we act decisively to preserve them.

The threat of climate change is real, and its effects are already being felt in King. Over the last five years, we have experienced the repercussions of flash flooding, extreme heat waves, severe winter weather and storms that used to only occur every 100 years. Action is needed and it's needed now.

This plan represents a commitment to work to reduce our carbon footprint, enhance our resilience to climate change, and foster a sustainable future. We have already made significant strides, from implementing green energy initiatives to protecting our green spaces, but we know that more can and must be done.

We have set inspirational but realistic goals to reduce community emissions by 35% by 2030 and achieving net zero community emissions by 2050.

As you explore this plan, I encourage you to consider the role each of us can play in achieving these goals. Whether it's through reducing waste, conserving energy, or supporting local sustainability efforts, every action counts. Together, we can ensure that King Township remains not only a place of natural beauty but also a leader in environmental stewardship.

Let us continue to work hand in hand, with a shared vision of a vibrant and sustainable King Township.

Sincerely,

Mayor Steve Pellegrini
King Township

The cost of doing nothing is dangerously higher than the cost of taking action.
– ICLEI Canada

EXECUTIVE SUMMARY

The data is in from across the world and it is clear from scientific consensus that our climate on Earth, in Canada and here in King Township is changing. Whether we look to increased and extended heat waves, localized flooding, decreased frost days and increases in precipitation frequency the signal is becoming evident. The combination of the changing local weather and a warming climate have put strain and pressure on not only municipal infrastructure but citizens as well. We are all seeing the effects of the changing climate on financial assets, health and the environment.

The Township of King has pledged to become a leader in climate change mitigation and adaption. King is committed to decreasing our carbon footprint, becoming prepared for the various impacts of climate change and understanding the role we play in the world to help mitigate the effects of Climate Change.

There are steps and technologies currently available that can move us towards becoming a low carbon community. This plan contains goals, targets and actions that can help achieve our low carbon targets.

“The cost of doing nothing is dangerously higher than the cost of taking action.” – ICLEI Canada

We all have actions to take and a role to play as we combat a changing climate. We do not ask you to act alone, but work with your family, friends, neighbours and King Township staff to move together towards a low carbon future.

EXECUTIVE SUMMARY: GUIDING ELEMENTS

Vision:

The King Community Climate Action Plan (KCCAP) was developed around the vision of a low carbon community that continues to encapsulate the rural culture of King. We are a community of communities, intertwined with technology, community action, and resiliency, we will be able to bring King into the 21st century and de-carbonize our Township.

The KCCAP vision will take us to 2050, but like any successful plan, it will require regular updates, monitoring and reporting as new actions and technological advancements arise.

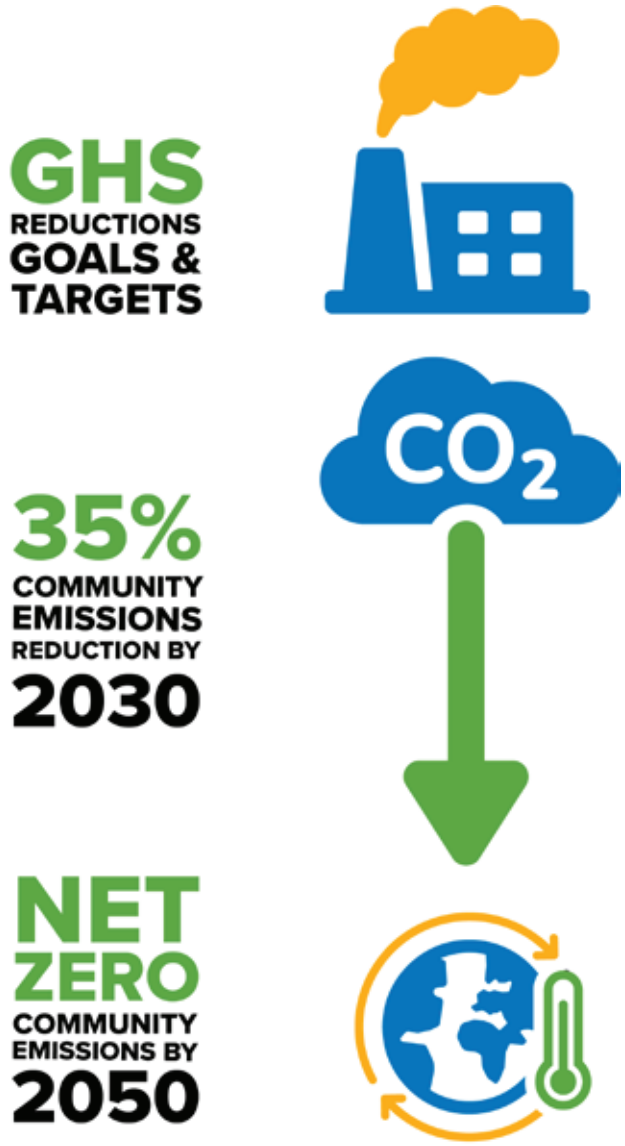
Goals & Targets:

2030 Goal: Reduce Community emissions by 35% by 2030 based on the data from the 2018 community emissions inventory including current population statistics.

2050 Goal: Achieve Net Zero community emissions by 2050.

How to get there:

King Township has developed a list of priorities and actions targeting key community sectors to reduce our community emissions. These actions are a result of community engagement and input as well as discussions with partners and relevant stakeholders. The actions are broken down by key sector and theme, and provide an approximate timeframe.



KING CLIMATE CHANGE ACTION PLAN

Introduction

The Intergovernmental Panel on Climate Change (IPCC) has urged governments and populations of the world that drastic change is needed to avoid catastrophic impacts of climate change on regional, national and worldwide levels. This call for urgent action has been echoed by Canada, Ontario, York Region, and King Township council. To respond to this urgent call to action, **King Township, alongside more than 517 other Canadian municipalities, declared a climate emergency in 2019.** Declaring a Climate Emergency is the first step in helping the Township of King address the urgency of the climate crisis, as it aids in mobilizing innovation, policy, and actions to help mitigate and adapt to climate change.

The Lake Simcoe Region Conservation Authority (LSRCA) has concluded that the average annual temperature has increased by 1.1 degrees Celsius in the last 30 years within York Region. We have seen an increase in frequency, strength and volatility of different weather events such as rain storms, snowstorms and an increase in extreme heat days. Flooding, ice storms, droughts, heat waves and an increase in invasive species are only a handful of the negative impacts that climate change will have on our community. The effects of climate change will impact communities across King in different ways and requires King staff, citizens and members of the global community to act and reduce the amount and severity of these effects that are already being seen today.

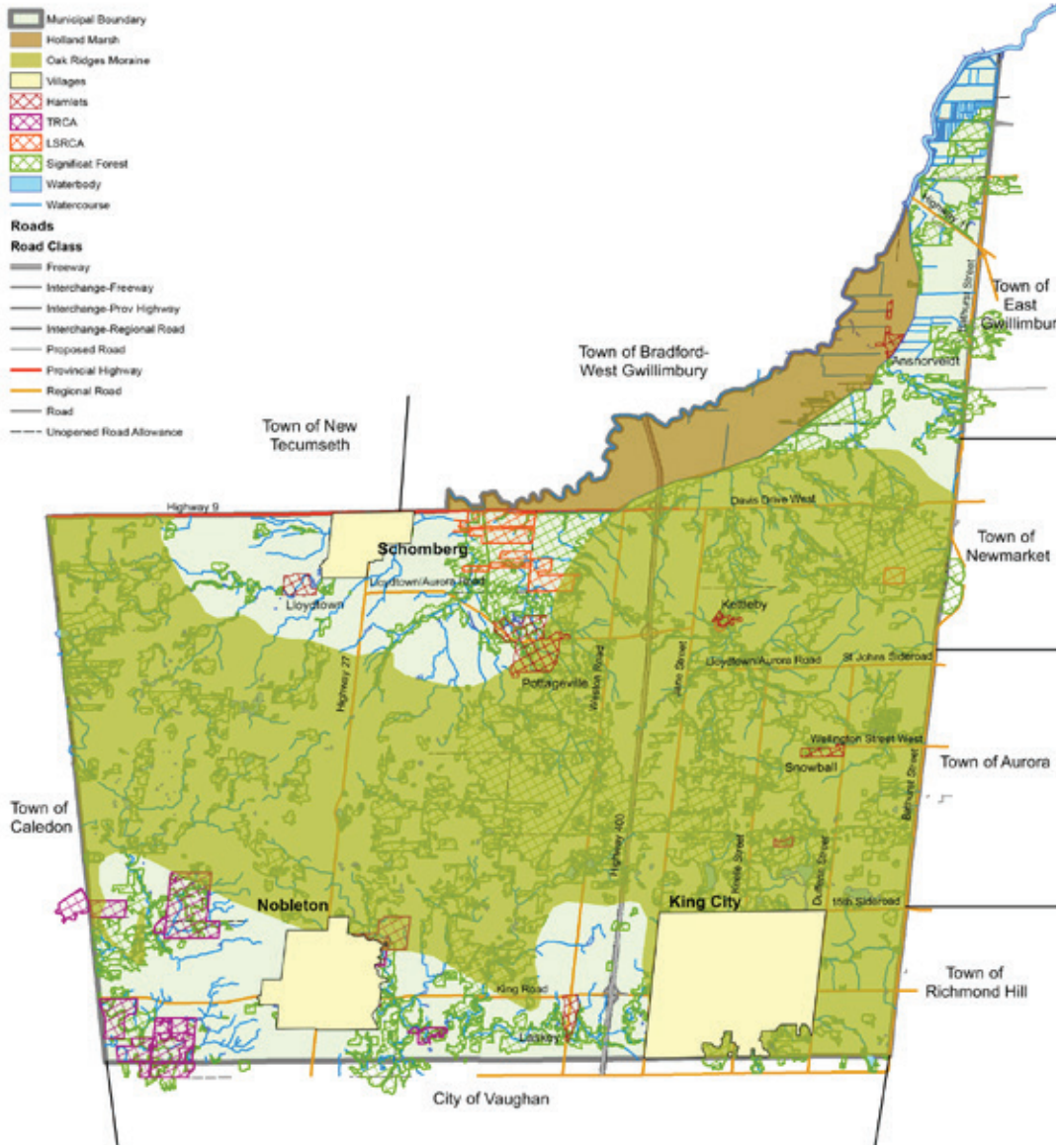


Figure 1: Geographic map of the Township of King, including population centres, environmental areas of interest with neighbouring jurisdictions labelled.

Canada's Federal Climate Report (2019) highlighted that the warming rate in Canada is twice that of the global average, with the northern regions of the country experiencing a threefold increase in warming compared to the global rate.

Climate Action is not merely a plan for future generations; rather it's an urgent necessity demanding immediate attention.

Numerous annual reports continue to emphasize the approaching point of no return, signifying humanity's impending loss in the battle against climate change and the potential drastic worsening of millions of lives.

The purpose of this document is a first step toward action. This document will help lead King in the direction of a greener, cleaner, low- carbon and more resilient future.

Collective efforts to fight the impacts of climate change are imperative over the forthcoming years, decades, and even beyond, as we strive to take substantial climate action and witness tangible transformation.

The Township of King is committed to decreasing our carbon footprint, the role we play in the world as it relates to climate change and greenhouse gas (GHG) emissions and becoming prepared for the various impacts of climate change that we are expected to see in the coming years and decades.

KCCAP PURPOSE

What is the King Community Climate Action Plan?

The King Community Climate Action Plan (KCCAP) hence forth referred to as 'the plan' is a guiding community document/framework that aims to provide information on the effects of Climate Change on King Township and outlines the different actions that need to be taken to help adapt and mitigate the adverse effects of Climate Change.

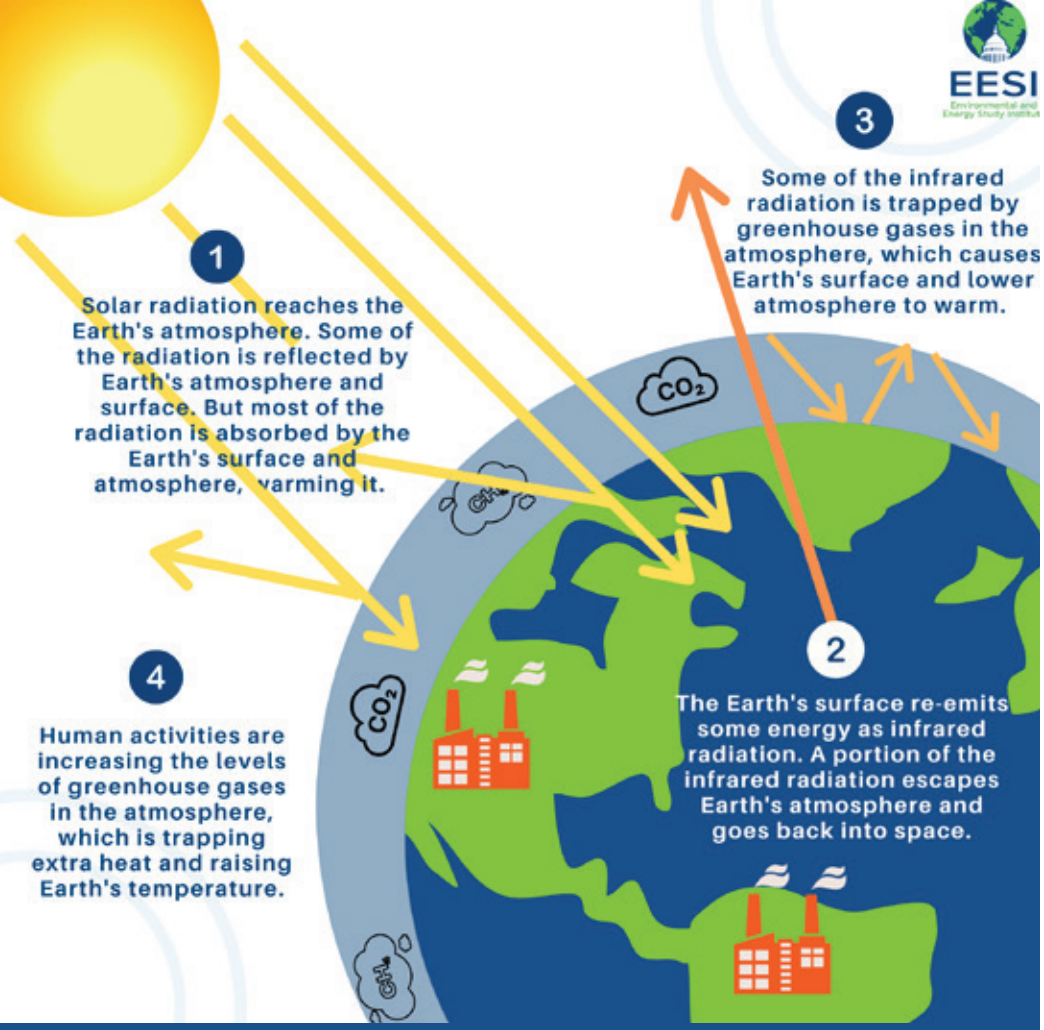
Throughout the development of this Plan, King Township took into consideration existing municipal and regional plans and strategies to ensure alignment and contribution to larger objectives and visions of King and York Region.

Partners for Climate Protection (PCP) Protocol

The Plan is guided by the Partners for Climate Protection (PCP) program. The PCP program is managed and delivered by the Federation of Canadian Municipalities (FCM) and ICLEI - Local Governments for Sustainability. The PCP program is a network of Canadian municipal governments that have committed to reducing GHGs and to acting on climate change. Since the program's inception in 1994, over 350 municipalities have joined the PCP program, making a public commitment to reduce GHG emissions. PCP program membership covers all provinces and territories and accounts for more than 65% of the Canadian population. The program empowers municipalities to take action against climate change through a five-milestone process:
https://fcm.ca/en/programs/partners-climate-

FCM FEDERATION OF CANADIAN MUNICIPALITIES FÉDÉRATION CANADIENNE DES MUNICIPALITÉS

ICLEI Local Governments for Sustainability



GUIDE TO THE GREENHOUSE EFFECT

The greenhouse effect is a natural process in which atmospheric gases trap the sun's heat and warm the Earth's surface and lower atmosphere. This makes Earth hospitable for life.

Human activities, such as burning fossil fuels for transportation and electricity generation, are increasing the concentration of greenhouse gases in the atmosphere. This enhances the greenhouse effect, trapping extra heat in the Earth's atmosphere and slowly warming the planet.

Figure 2: By increasing the number of gasses in our atmosphere it creates a greenhouse effect, whereby trapping UV rays within earth's atmosphere and heating the planet further.

CLIMATE CHANGE: WHY KING MATTERS

Climate change stands as a universal concern impacting nations and individuals across the globe in various ways. A consensus of over 99% among scientists underscores that climate change and global warming are exacerbated by human activities. Examination of Figure 3 reveals a trend: greenhouse gas emissions measured in parts per million (PPM) have surged beyond the confines of the graph since the start of the industrial revolution. This steep escalation in emissions released into the atmosphere, stands as the fundamental driver behind the phenomenon of Climate Change.

Based on 2019 statistics, Canada accounted for a modest 1.6% of the world's emissions. Despite this seemingly small fraction of global emissions, Canada commands a position among the top 10 global emitters when considering overall emission volumes. Notably, it solidifies its rank within the top 3 in terms of emissions per capita. Although Canada's contribution to the global emission pie is less than 2%, its citizens cast substantial carbon footprints, outpacing the majority of individuals worldwide in emissions generated per person.

The scale of Canadian consumption, use and emissions of fossil fuels significantly surpasses that of most global counterparts. The onus is on Canadians, as well as every global citizen, to shoulder the responsibility of safeguarding the only planet we have.

CLIMATE CHANGE: WHY KING TOWNSHIP

King Township holds the distinction of being the largest geographic municipality in York Region. We consider ourselves fortunate to possess abundant farmland, wetlands, soil, forest cover, and villages within our boundaries. Situated atop the Oak Ridges Moraine, a pivotal natural water and land feature responsible for filtering a substantial portion of the water that sustains the Greater Toronto Area (GTA), King Township occupies a unique position. This position allows us to have an influential role in climate action, despite our proximity to larger population centers, while retaining our rural character.

King Township has the potential to emerge as a frontrunner in addressing climate change, setting an example for other municipalities to follow. This entails a commitment to pursuing provincial, federal, and international objectives and targets through a diverse array of actions that extend beyond a singular sector, encompassing a broad spectrum of areas.

The decision by King Township to formulate and prioritize this plan focusing on climate change, stems from multiple reasons. These include the global call to action by governmental bodies at all tiers to earnestly engage in substantial efforts, the declaration of a Climate Change emergency by numerous municipalities, including King Township, and the aspiration to take a leadership role in the realm of environmental stewardship and climate action.

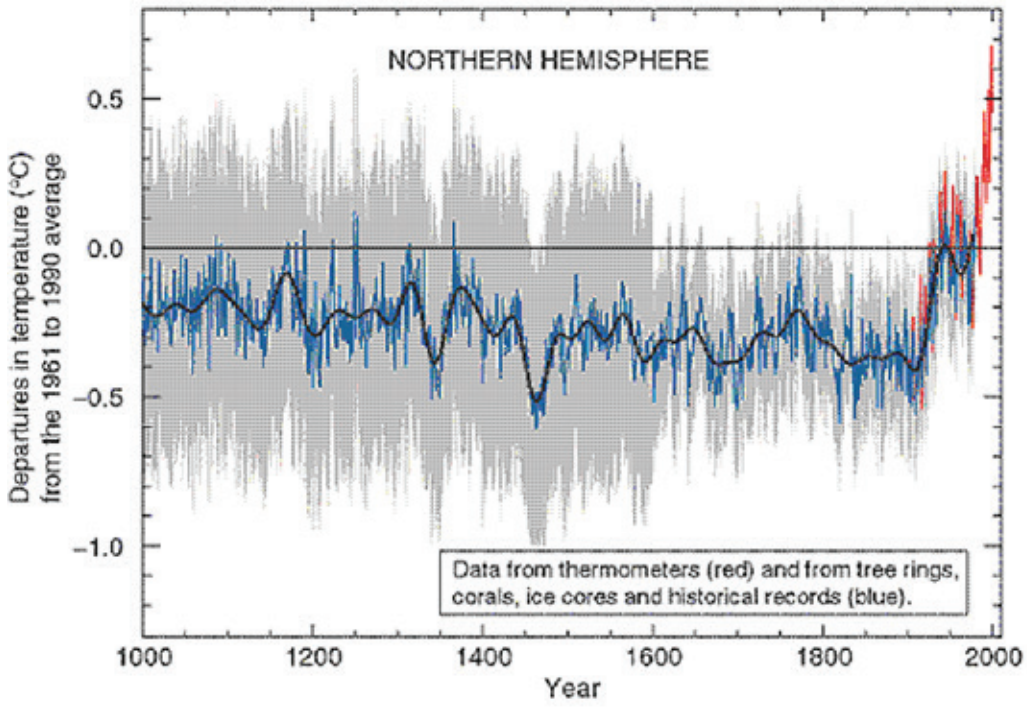


Figure 3: Northern Hemisphere temperature changes estimated from various proxy records shown in blue (Mann 1999). Instrumental data are shown in red. Note the large uncertainty (grey area) as you go further back in time. The red circle indicates an area of human history when the industrial revolution was taking place.

CLIMATE CHANGE IN KING

Why does 1.5 Degrees Celsius matter?

Utilizing scientific data provided by the Intergovernmental Panel on Climate Change (IPCC), the threshold of 1.5 degrees of warming emerges as the critical juncture at which a tipping point is reached, beyond which the consequences of climate change on the planet become irreversible. These consequences are already evident in the present day and are projected to amplify in terms of frequency, volatility, and severity. These encompass instances of record-breaking heat, extended periods of drought, instances of flooding, heightened intensity of wildfires, occurrences of natural disasters, and storm surges.

As the Earth's atmosphere steadily warms, a feedback loop is initiated, causing the planet to experience escalating temperatures at an increasingly rapid pace over time.

A Climate Emergency

In Summer of 2019 King Township Council members voted to declare a Climate Emergency. This declaration aligned King Township with more than 500 other municipalities across Canada that have sounded the alarm regarding the ongoing global climate crisis. Although King Township represents just a single municipality, the act of joining forces with other voices that have resounded strongly is the initial stride toward embarking on climate action. The present plan represents the subsequent progression from that declaration.

Changes in King Township's Climate

Over the last five years King Township has experienced the repercussions of flash flooding, extreme heat waves, severe winter weather, and storms. The trends modelled for York Region, and by extension, King, anticipate the persistence of climate change impacts into the future. Furthermore, these impacts are expected to heighten in both severity and frequency, eventually becoming the new norm.

Although King may not be susceptible to all the different extreme weather events like hurricanes, projections indicate that we will see an increase in temperatures and the number of hot days, witness drier summers and milder winters, and observe extensions in growing seasons. Moreover, we anticipate augmented precipitation, more frequent occurrences of extreme storms, and an annual air temperature rise of 3.3 degrees Celsius by the 2050s.

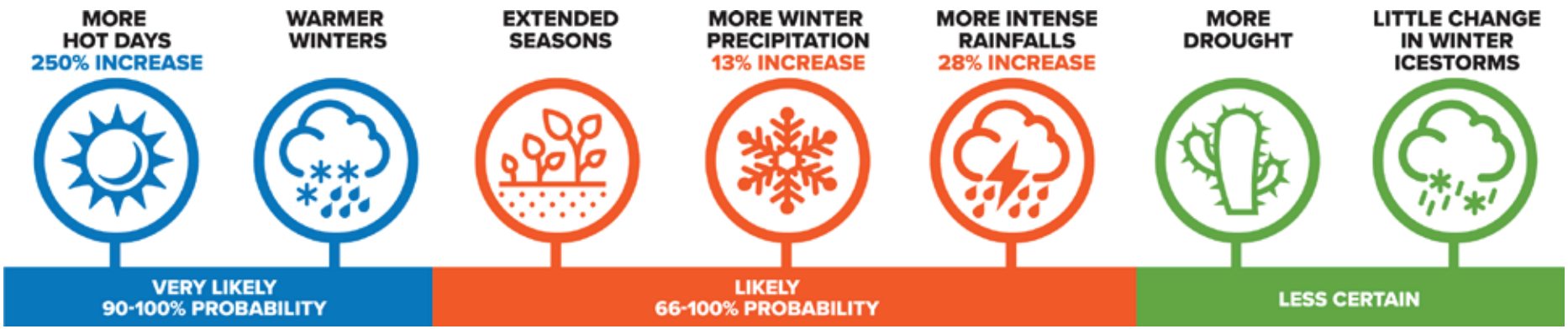


Figure 5: Projected likelihood of changes to local climate in York Region int the 2050s.

The Impacts in King and York Region?

The forthcoming impacts of climate change will have their influence on nearly every facet of life in both King and York Region. The impacts of Climate Change will force us to adapt. The failure to implement changes will be met with harsh consequences, the effects that will extend to our homes, buildings, infrastructure, natural surroundings, and agricultural sector. While specific impacts might offer opportunities for certain sectors (such as prolonged growing seasons), it is essential to emphasize that unless we adequately prepare for the impending effects through adaptation, any gained advantages could prove to be short-lived. The proactive approach laid out in this plan will enable us to enhance our preparedness for a community marked by increased warmth, elevated moisture levels, greater unpredictability, and a diminished carbon footprint.

These impacts will influence nearly every aspect of life in both King and York Region, compelling us to adapt if we fail to implement changes. These effects will touch upon our homes, buildings, infrastructure, natural surroundings, and agricultural sector. While certain impacts might present opportunities for certain sectors (such as extended growing seasons), it's crucial to note that without adequate adaptation to impending impacts, any advantages gained could be short-lived.

The objective of this plan is to initiate action prior to the impending impacts of the future taking hold, enabling us to enhance our readiness for a community characterized by increased warmth, higher moisture levels, heightened unpredictability, and a reduced carbon footprint.

CONNECTING TO KING

The Community Climate Action Plan has strong connections to existing documents within King Township. The actions and priorities outlined in this plan will bolster and strengthen current existing plans while providing opportunities for new policies and procedures as they relate to climate change in King. This plan aims to bring additional actions and priorities that support climate action and further strengthen existing plans – creating stronger and cohesive climate action on a community and corporate level.

1 King Township Official Plan: Our King (2019)

King's Official Plan (2019) directly links to the effects climate change could have on King and the need to understand, prevent, and plan for climate change corporately and with exterior partners. The Official Plan notes the importance of understanding the economic, fiscal, environmental, and social effects that a changing climate will have on the Municipality. This plan's connection to the official plan helps to provide direction, implementation measures, considerations, and take action on key elements of community-wide climate action.

2 King Corporate Strategic Plan (KCSP) (2023- 2026)

The KCCAP connects with the Corporate Strategic Plan 2023-2026 through many different priorities outlined in the KCSP. One of the top priorities for 2023- 2026 is A Green and Sustainable Future. To address this, the township is working on finding ways to adapt to the pressures of climate change while offsetting the impacts already felt by it. Further, one of the key objectives under a Green and Sustainable Future is the creation, delivery and implementation of the KCCAP. This support from the Corporate Strategic Plan gives the KCCAP the legitimacy and validity to ensure meaningful implementation of the actions throughout.

3 King Corporate Energy Management Plan (2019-2023)

While the King Community Climate Action Plan is primarily focused on community emission reductions it is important to note the connection to corporate emissions. King staff set a corporate target and goal for 2030 that is higher than the 2030 target and goal within this plan. With the transition to a greener fleet and reduction of facility emissions through energy efficiencies and deep retrofits, King can make the business case to larger public commercial buildings on the cost and emission savings associated with retrofits and fleet transitions for local businesses.

4 York Region Climate Action Plan (2022)

In 2022 York Region published their Climate Action Plan, York Region Community Climate Action Plan. We will work within the actions, goals and targets described by York Region's plan to ensure that there is a combined effort across York Region to help reach our Climate Mitigation and Adaption goals.

ALIGNMENT WITH YORK REGION

The York Region Climate Action Plan (2022)

The York Region Climate Action Plan was developed in September 2022. It is a guiding document for climate change mitigation and adaption in the region, with 20 actions for both corporate and community levels. The overarching goal of the Climate Action Plan is to reduce greenhouse gas emissions with the goal of a net-zero Region by 2050, and to increase the resiliency and capacity of the Region to respond to current and future climate events.

The York Region Climate Action Plan:

- Outlines projected impacts of climate change on York Region
- Describes and prioritizes actions needed in three priority areas:
    1. Resilient Communities and Infrastructure,
    2. Low Carbon Living, and
    3. Supporting an Equitable Transition
- Identifies the role York Region will play in implementing actions, and provides a framework for all levels of government, businesses and communities to work together.

WHAT WE ARE ALREADY DOING!

Before the Climate Action Plan, King Township had a strong history of climate action through both municipal and community efforts. The Township initiated projects like tree plantings, naturalization workshops, and building retrofits.

Community involvement has been key, with groups like Climate Action King leading climate education and mitigation efforts. They offer workshops on home retrofitting and electric vehicles, where residents can learn about and test EVs. The Township also hosts community gardens and the Schomberg Community Farm, which holds educational farming events. Additionally, the Nobleton & King City and Schomberg Horticultural Societies promote native and pollinator gardens through workshops, tours, and sales.

Below is a list of some of the actions and programs that King Township currently has in place: Waste diversion initiatives: Repair cafes, curbside giveaway days, corporate recycling program, textile diversion program

- Green yards program
- Environmental certifications: Bee City Certification and Mayors Monarch Pledge
- Community FoodCycler pilot project
- Thousands of trees and wildflowers planted with community partners and volunteers annually
- Enviromental restoration projects
- EV charger network created throughout King
- Microfit solar panel program at Trisan Centre
- Corporate building energy retrofit projects
- Zancor Centre the first Carbon Neutral Recreation Centre in Canada

And many more programs and projects are underway throughout the township. For more details on initiatives, events, and programs, visit king.ca/EnvironmentKing.

COMMUNITY INVENTORY OF GREENHOUSE GAS EMISSIONS

Baseline Year

To effectively manage King Township's Greenhouse Gas (GHG) emissions and understand how the municipality will progress moving forward, a starting point needed to be established with the most complete and up to date data as possible. The year 2018 was selected as the Township's baseline year. Data for this year is widely available, emission factors for 2018 are available and is the baseline year for the King Corporate Energy Management Plan.

In addition, given the drastic and dynamic energy usage changes in the years 2020-2021 as a result of Covid- 19, staff recommend omitting 2020-2021 as baseline due to the various lockdowns and changes to normal behaviours.

Emission factors and relevant data pertaining to the calculation of emissions and energy expenditure are taken from the Environment Canada's National Inventory Report 1990-2018: Greenhouse Gas Sources and Sinks in Canada. Please see the Methodology section on page 16 for more details.

Community Inventory

A community emissions inventory is an accounting of emissions produced by a given community based on the source of the GHG emissions. This can include residential housing, local industrial plants, businesses, and the vehicles we drive.

This inventory method looks at the energy and pollutant sources of a community and determines where emissions are sourced from.

The basic community GHG inventory includes only climate change considerations for King Township without consideration for the Region as a whole.

Community energy uses were calculated for 2018 and reported by sector (Residential, Transportation, Agriculture, Waste-Municipal Solid Waste and Waste Water). The 2018 Community GHG inventory for this plan was completed by Greenscale Inc. Data was provided by King Township and various utility companies, and Greenscale Inc. completed analysis of the data to produce a community emissions report. Please see the methodology section for a specific breakdown of each sector from pages 18-25.

King Township Population Demographics

Methodology – Greenhouse Gas Emissions (CO_2e) by Sector

In order to best determine an accurate GHG inventory of King Township, relevant sectors were broken down as follows: Residential, Commercial/ Industrial, Transportation, Agriculture, and Waste (Municipal Solid Waste and Waste Water). The purpose of this inventory is to better understand the baseline data and to make recommendations on how to mitigate and adapt to climate change in King Township. This inventory will cover aspects of Scope 1 and entirely Scope 2 emissions.

Scope 3 emissions (other indirect emissions) fall outside of the overall scope of this Plan and given timing and resources are unable to be considered. This omission falls into common trend with other municipalities' climate plans. However in future emissions reporting there may be the ability to add Scope 3 emissions if the additional data needed is available.

Scope 1 Emissions

Direct greenhouse gas emissions are produced by sources that an organization/entity owns or controls.

Scope 2 Emissions

Indirect greenhouse gas emissions related to purchased energy (electricity, district heating and cooling) that are a consequence of an organization or entities activities but physically occur at sources that another organization/entity owns or controls.

Scope 3 Emissions

Indirect greenhouse emissions that are the result of activities or sources not owned or controlled by an organization or entity, but that the organization indirectly impacts its 'value' chain found upstream and downstream of the organization/entity.

This inventory was completed by Greenscale Inc. 2023. The methodology for obtaining the emission report for each sector was provided by Greenscale Inc in *King Township Community GHG Inventory Report -2018- Supplemental Information 2023*.

EMISSION INVENTORY

Emissions by Sector

Emissions for the Plan were broken down into sectors to better delineate sources and organize applicable priorities, actions, and goals for each.

The Sectors are as follows:

RESIDENTIAL SECTOR

COMMERCIAL/BUSINESS & INDUSTRIAL SECTOR

AGRICULTURAL SECTOR

TRANSPORTATION SECTOR

WASTE (MUNICIPAL SOLID WASTE AND WASTEWATER)

EMISSION INVENTORY: RESIDENTIAL SECTOR, COMMERCIAL/BUSINESS & INDUSTRIAL SECTOR

RESIDENTIAL

Residential emissions are based on residential homes within King, including those properties that reside on agricultural land. According to the Canadian Federal Government, homes and buildings contribute 13% of the country's total emissions.

As of the 2016 Canadian Census, King had 8,145 private dwellings with nearly 87% of the total housing stock (as of 2016) being single detached homes.

Kings' population in 2016 was 24,512 with an increase in 2018 to 26,697 residents, increasing by 4.1% per year.

Unlike some sectors within this Plan that can require complex or larger capital funding, reducing emissions in residential homes is achievable through readily available and affordable technology for heating, cooling, and electricity. This enables a gradual shift to net-zero energy consumption. Residential homes are in a unique position where the actions that can be taken to move to a low- carbon household are at homeowner's fingertips.

- Solar PV(Photo Voltaic solar panels- converting sunlight to energy) has become more affordable by the decade.
- The use of new technology such as battery walls, air, and ground source heat pumps. Changes to provincial building codes make it a simpler road map to achieve net-zero energy or as close as one can get to it.

Moving into the future, updated municipal and provincial building standards that relate to climate change and energy efficiency would be an effective way for developers to build more, energy-efficient, Net Zero-ready homes and buildings instead of homeowners having to make retrofits in the future.

Actions listed later in this document (see Page 33) were chosen to move King's homes and the residential sector as a whole, in the direction of meaningful GHG and energy reductions. This reduction of emissions and energy will lead to lower energy bills and community emissions, increased community resilience, and a low carbon future.

INDUSTRIAL SECTOR

Although King does not have a significant industrial sector, various industries do exist. Heavy machinery and manufacturing industries in King have a limited impact on community emissions compared to other sectors. Despite this, the industrial sector can make notable emission reductions through energy-efficient upgrades to large systems including HVAC, equipment efficiency, transitioning to electric vehicles, and incorporating renewable energy into facilities.

COMMERCIAL/BUSINESS SECTOR

The commercial and business sector are based on consumption of energy and associated emissions with King's local businesses, large consuming facilities and commercial residential places such as multi level resident complexes. Much like the residential sector and in some cases to the advantage, buildings are much easier to retrofit and reduce consumption of energy and thus reduce emissions than other sectors. Through new and evolving technology in conjunction with support and funding from many levels of government and private industries the ability to retrofit commercial buildings is becoming more attainable.

Methodology

Residential, Commercial/Business, & Industrial sectors are all calculated based on the same criteria. Data from Hydro One® and Enbridge Gas® was collected by King Township. Estimates for light fuel oil and propane consumption were made based on Ontario's total per capita use in 2018, as detailed in Table 3-8 of the Report on Energy Supply and Demand in Canada (Statistics Canada, 2021)

This consumption data was converted to energy use (GJ) using energy conversions prescribed by the Canada Energy Regulator (CER 2021). Subsequent GHG emissions (tCO2e) calculations leveraged emission factors from the 2018 National Inventory Report (ECCC 2020).

Residential buildings like multi-level residential apartments and condominiums have data that is aggregated by the street address, not independent units, and fall under the business and commercial sectors.

EMISSION INVENTORY: AGRICULTURAL SECTOR

AGRICULTURAL SECTOR

King is known for its vast rolling hills of horse farms, the Holland Marsh "The Salad Bowl of Ontario" and its overall rural agricultural aesthetic. With ~333 square kilometers of land, 3 villages and several hamlets, King is widely known for its agricultural heritage. Based on the climate modeling and assumptions, it is likely that the farming practices of King will have the opportunity to pivot in several directions based on animal husbandry versus commercial farming. There are many actions that farmers can take to help adapt and mitigate climate change. The actions vary depending on the type of farming that is being undertaken. A few examples are:

- New technology such as micro anaerobic digestors.
- Advancements in farming practices.
- Operational changes with the ability to rotate crops within a single growing season.
- Updated land management practices- which could play a key role in sequestering (storing) carbon in the earth.

See pages 40-42 for a more extensive and comprehensive list of action items to complete.

Methodology

Agriculture emissions derive primarily from the enteric fermentation and manure management processes linked to livestock. Emission factors for both these processes were referenced from the National Inventory Report (ECCC 2020). King supplied the total livestock count for the Region. Detailed enteric and manure management emission factors, coupled with the comprehensive livestock numbers from King Township, can be found in the 2018 Community Supplemental Report (2023).

Emissions stemming from crops and other agricultural activities typically necessitate data collection in instances of land-use alterations. Such changes might involve the conversion of forests to cropland, the transformation of cropland into pasture, or the redevelopment of agricultural land for other purposes. Due to the absence of data regarding land-use shifts related to agricultural crops, this aspect hasn't been incorporated into the agricultural sector emissions.

EMISSIONS INVENTORY: TRANSPORTATION SECTOR

TRANSPORTATION SECTOR

Transportation is a significant source of greenhouse gas (GHG) emissions for both businesses and citizens across North America. While global vehicle fuel efficiency has improved over the years, the shift from small cars to mid-sized SUVs by personal drivers counteracts these gains due to the larger size and reduced fuel efficiency of the latter.

Given King's geographical size, location relative to the Greater Toronto Area, and information provided by the Canadian census, most working residents commute outside of King Township. Over 80% of those commuting residents use a personal vehicle, with less than 5% of the total commuting pool carpooling. Based on King's proximity to major highways and commuting corridors (HWY 400) many drivers are commuting to larger metropolitan areas for places of work with 60% of commuters, driving for 30 minutes or longer to get to work. The emissions created using fossil fuel burning vehicles (otherwise known as tail-pipe emissions), have the largest impact on the community's inventory, understanding that a resident commuting to Toronto for example is not directly burning tail-pipe emissions in King.

Methodology

Transportation data is based on gasoline and diesel fuel sales sold at 11 fuel stations within the borders of King Township. This data was purchased from an industry specific consulting firm. Fuel sales data determines the specific fossil fuels purchased (gas vs. diesel) and its associated emissions. The fuel data used to calculate this sector was fuel purchased within King Township, it is assumed that majority of this fuel consumption was done by residents for personal transportation.

Greenscale collected the data provided to them and the data was then translated into energy use (GJ) following the energy conversions prescribed by the Canada Energy Regulator (CER 2021). GHG emissions (tCO2e) were then deduced using the emission factors from the 2018 National Inventory Report (ECCC 2020).

Staff understand that an unknown percent of fuel would be purchased from drive through commuters and residents of adjacent municipalities. The data collected falls under scope 2 emissions and has been included as there is no accountable way to determine non-King consumers. Given improvements in vehicle emissions over the last 10 years (vs the previous 10 year's fuel efficiency) and varied fuel efficiency based on driving habits, the emissions were calculated using the total fuel volume consumed and thus burned by combustion engines.

Looking Forward

Over the next decade, the Transportation sector in North America and globally is poised for a transformation, shifting from fossil fuel vehicles to Electric Vehicles (EVs) and alternative fuels. While this shift won't happen overnight, it will significantly impact emissions in King, York Region, and Ontario.

It's crucial for organizations, municipalities, regions, and individuals to embrace alternative energy transportation, particularly EVs, to combat climate change. However, the broader 21st-century paradigm of multiple personal vehicles for various purposes needs revaluation. Transitioning to safe, affordable, equitable, and reliable public and mass transportation is pivotal for national climate action. This can involve incentives for carpooling, public transit, car-sharing services, high-speed mass transit, or other emerging options.

While this solution may not suit everyone, the dual approach of reducing fossil fuel usage in vehicles and promoting sustainable transportation is crucial for a low-carbon future. Implementing such a system requires tailoring to specific regions and areas to meet users' needs equitably and environmentally.

EMISSION INVENTORY: MUNICIPAL SOLID WASTE AND WASTEWATER SECTOR

SOLID WASTE

Municipal Solid Waste (MSW) refers to recyclables, compostable materials, and garbage from households, businesses, industry and more that is disposed of. This waste can be end of life or a product of planned obsolescence or consumer trends of getting the newest item on the market. MSW in King is handled by a waste contractor and taken to regional waste depots and landfills. As waste breaks down in landfills or on alternative sites, greenhouse gas emissions are released into the atmosphere, most commonly in the form of methane. This release of methane is significantly more “dense” than carbon, having a greater effect on global warming by trapping more radiation in our atmosphere, increasing the Earth’s temperature.

Downstream emissions are emissions generated after an item/product or service leaves the organization or entities control or power. For example, after you dispose of waste in a landfill, it will then break down and potentially emit methane at a later time.

King Township is measuring its downstream emissions of solid waste based on the 2018 solid waste tonnage provided by GFL Environmental Inc (King’s waste contractor). King Township does not currently operate a solid waste facility within the municipal boundaries.

Waste collected by GFL is processed by the regional municipality (York Region) through waste depots or waste to energy centres with which York Region is partnered.

Waste sent to Durham York Energy Centre contributed to providing power to over 3000 homes and providing heat via steam to over 6000 homes. The Durham York Energy Centre (DYEC) helps to make use of residual waste that cannot be processed further by turning waste into energy while significantly reducing the number of emissions associated with municipal solid waste if sent to landfills.

The diagram below showcases the Energy from Waste Process that is done at facilities like DYEC.

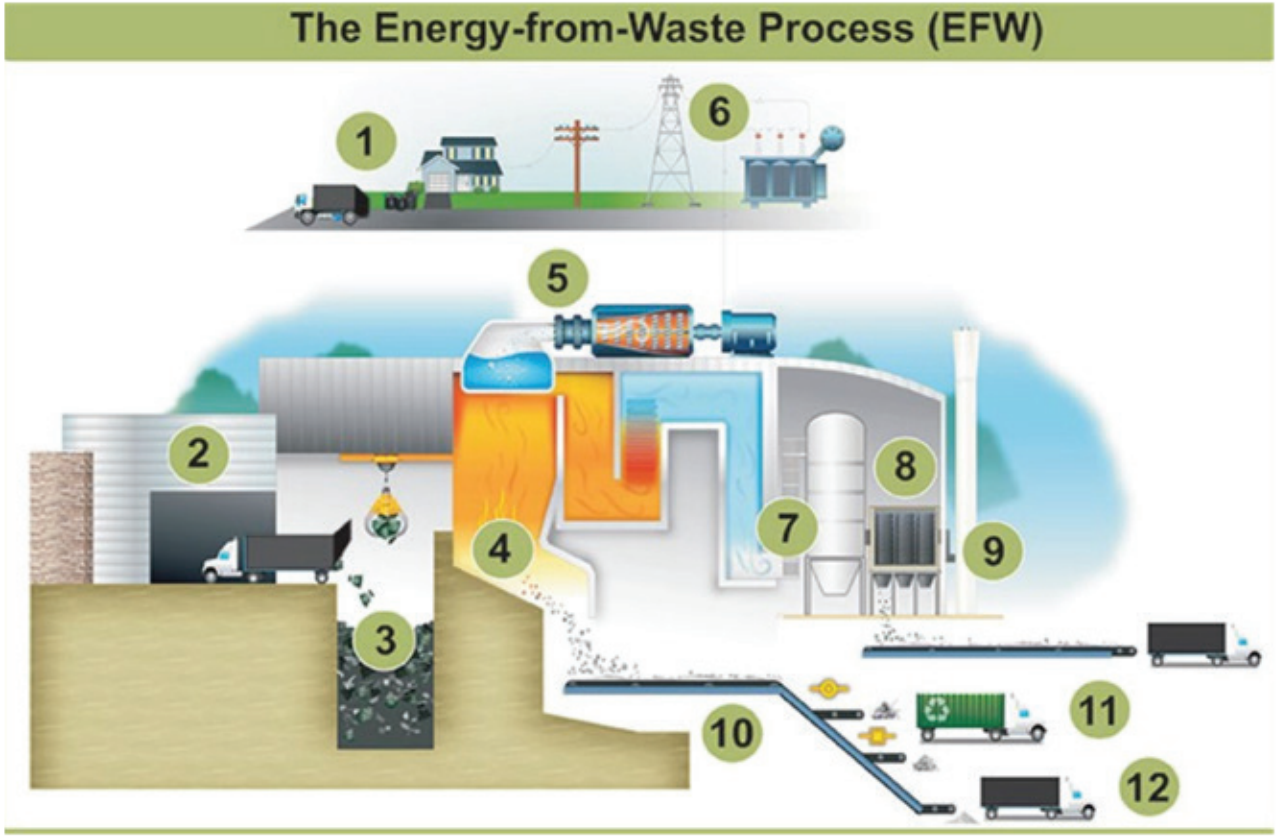


Figure 6: A step-by-step illustration of how Waste to Energy facilities process waste and convert it to a productive resource. On the left of the image, each numbered bullet briefly explains the correlating number on the figure.

The Legend:

1. Waste is collected by local waste contractors.
2. Waste is dumped from garbage trucks into a large pit.
3. A giant claw on a crane grabs the waste and dumps it in a combustion chamber.
4. The waste (fuel) is burned, releasing heat.
5. The heat turns water into steam in a boiler.
6. The high-pressure steam turns the blades of a turbine generator to produce electricity (for local homes).
7. State-of-the-art emissions control systems cool and collect combustion gases.
8. Control systems clean previous combustion gases.
9. An air pollution control system removes pollutants from the combustion gas before it is released through a smoke stack.
10. Metals like steel and aluminum are recovered from the combustion chamber.
11. Recovered metals are recycled.
12. Residual materials from combustion are beneficially reused or disposed of in a landfill.

Methodology

Greenscale Inc. calculated the solid waste community emissions. York Region processes the Township's waste through DYEC facility, whom reports their data annually, Greensacle averaged out the emissions based on the total amount of waste that enters the DYEC facility from King Township.

Greenscale found that in 2018, the DYEC facility processed a total of 140,775 tonnes of waste, leading to net emissions of 0.5 kg CO2e per tonne of waste (DYEC, 2018). Greenscale calculated that King Township contributing 2,582 tonnes to this solid waste collection, the resultant emissions from the township's solid waste equate to 1,283 tonnes of CO2e.

WASTE WATER

For this community emissions inventory, Greenscale Inc. (2023) calculated the emissions associated with Waste Water through analysing various sources of data.

The 2018 wastewater emissions were derived using the 2006 IPCC guidelines, which were later revised by the 2019 Guidelines for Waste Water Treatment and Discharge. King Township's wastewater is processed at three distinct facilities: Duffin Creek, Nobleton, and Schomberg. In this initial report, only the 2018 data from Duffin Creek was accessible (DCWPCP, 2018). As a result, emissions estimations were made by assuming Duffin Creek's operational performance mirrored that of Nobleton and Schomberg. Emissions from Duffin Creek, calculated on a per capita basis, were then extrapolated to King Township's population to ascertain total wastewater emissions.

For Duffin Creek, specific emission factors were chosen in alignment with the technologies used across all three wastewater treatment sites. The updated Canadian metric (0.36 kgCH4/kg BOD) for peak methane potential informed the facility-specific value (ECCC 2020). The conversion from CBOD5 to BOD5 for computational purposes was presumed to hold a 1.16 ratio, as supported by literature (DEQ, 2021; Washington State Department of Ecology, 1998). Based on this methodology, King Township's 2018 wastewater related GHG emissions amounted to 0.57 t CO2e.

To gauge the potential impact of estimates for Nobleton and Schomberg, the average effluent reported from Duffin Creek (2.3 mg/L) was raised to both the 5 mg/L objective and the 10 mg/L operational limits (DCWPCP, 2018). However, given wastewater's minimal emissions, even if effluents from Nobleton and Schomberg reached their operational ceilings, the aggregate wastewater contribution would only rise to 2.46 tonnes CO2e. This represents a change of less than 0.001% in community-wide emissions, signifying that any inaccuracies in wastewater estimates are unlikely to skew the broader trends observed in the community GHG Inventory.

COMMUNITY EMISSIONS GRAPHICS

By Sector: 2018

SECTOR	ENERGY CONSUMPTION (GJ)	GHG EMISSIONS (t CO2e)
RESIDENTIAL	1,486,712	59,758
COMMERCIAL	2,062,052	22,283
INDUSTRIAL	120,988	4,695
CORPORATE BUILDINGS & STREETLIGHTS	34,965	867
TRANSPORT FUELS	1,659,929	119,719
SOLID WASTE	0.000	1,283
WASTEWATER	0.000	2.46
AGRICULTURE	0.000	10,963
CORPORATE FLEET TRANSPORTATION	8,924	633
TOTAL	5,373,569	220,204

By Source: 2018 excluding corporate emissions

SOURCE	ENERGY CONSUMPTION (GJ)	GHG EMISSIONS (T CO2E)
ELECTRICITY	659,896	5,586
NATURAL GAS	2,910,220	74,787
GASOLINE	1,473,854	106,688
DIESEL	186,075	13,032
HEATING OIL	23,122	1,735
PROPANE	**76,514**	**4,628**
TOTAL	**5,329,681**	**206,455**

Sector Based Emissions

RESIDENTIAL
27.3% OF EMISSIONS
59,758 TONNES CO_2E GHG EMISSIONS

COMMERCIAL
10.2% OF EMISSIONS
22,283 TONNES CO_2E GHG EMISSIONS

INDUSTRIAL
2.1% OF EMISSIONS
4,695 TONNES CO_2E GHG EMISSIONS

COPRORATE
0.7% OF EMISSIONS
1,452 TONNES CO_2E GHG EMISSIONS

AGRICULTURE
5.0% OF EMISSIONS
10,963 TONNES CO_2E GHG EMISSIONS

TRANSPORTATION
54.7% OF EMISSIONS
119,719 TONNES CO_2E GHG EMISSIONS

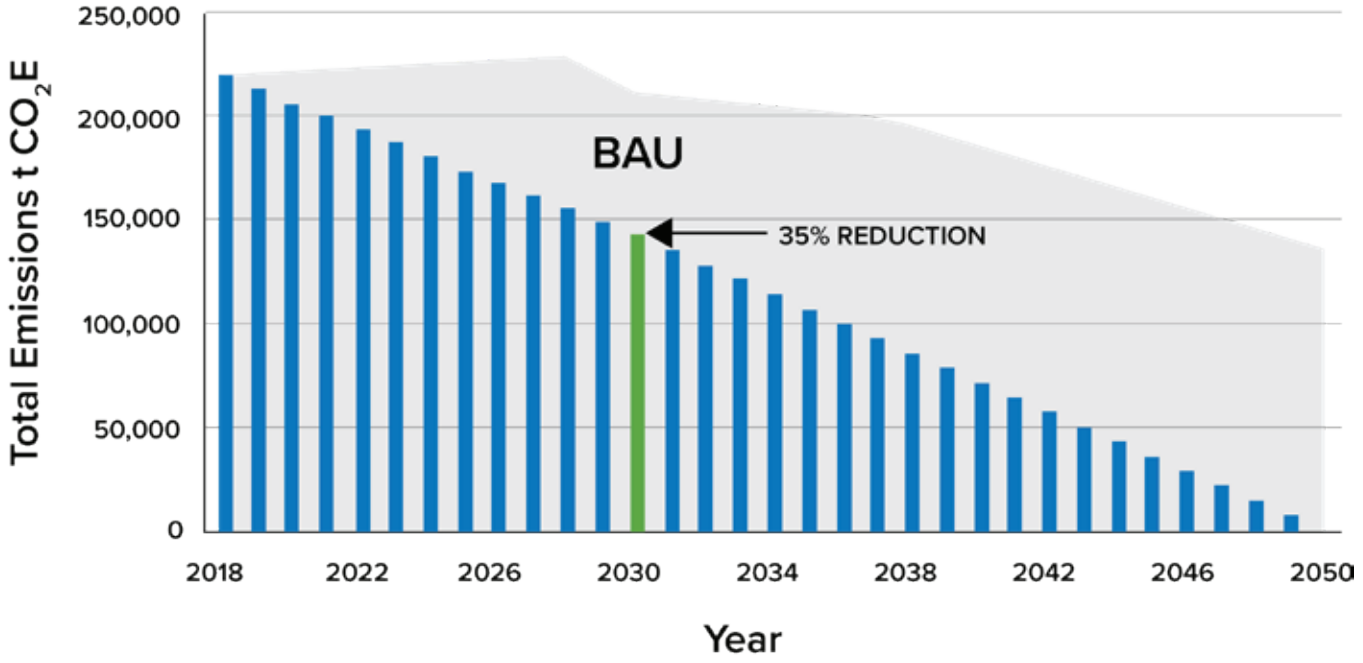
SOLID WASTE
0.6% OF EMISSIONS
1,283 TONNES CO_2E GHG EMISSIONS

Township emissions are captured within the Corporate Energy Management 2019-2023 Plan

Business as Usual

The “King Township GHG Projections and Target Reductions Report - 2018 - 2050” created for King Township by Greenscale Inc. details the projected greenhouse gas (GHG) emissions based on existing trends, known as the Business as Usual (BAU) scenario, and contrasts this with a reduction scenario aiming for a 35% reduction in emissions by 2030 and net-zero emissions by 2050. The initial phase of the report establishes the BAU scenario by analyzing historical energy use and emissions data up to 2018 across residential, commercial, industrial, and transport fuels sectors. The projected changes in emissions up to 2030 are extrapolated from this data, incorporating anticipated technological advancements, demographic changes, and expected policy developments.

The methodologies for calculating future emissions involve extending the rate of change observed up to 2018 to 2030, followed by applying improvements in technology, population growth, and potential policy shifts, mostly anticipated between 2025 and 2030. Beyond 2030, the report assumes a continuation of trends without significant new policy interventions. These calculated projections form the basis for establishing the reduction scenario, providing a data-driven framework for King Township to assess and plan for its GHG reduction targets.



OBJECTIVE, GOALS AND TARGETS

Objectives, Goals & Targets

King Township has an overarching objective of becoming a low carbon, sustainable community within York Region and Canada. King will work to collaborate with like-minded municipalities, developers, partners and organizations that strive to decarbonize and push to become Net Zero over time.

The goals and targets that follow define timelines to implement action items requiring a focussed effort by staff, council, and the community to support and work towards creating low carbon communities of the future.

Community Climate Action Plan Goals & Targets:

Community targets and goals are being set in alignment with regional, provincial, and federal targets/goals. Keeping this in mind the science and research made available by bodies such as the IPCC have informed many decisions and choices within this document. It is important to understand when considering the following goals and targets that these reductions will require the community as a whole to begin this transition to a low carbon future. King staff, support, and resources will be key pillars of reaching these targets but changes on a house-by-house, business-by-business, and farm-by-farm basis will also be required and public buy-in is essential.

King is building toward a low carbon future and staff are excited to make this journey with everyone.

Research and data collected throughout the plan comes from sources such as the IPCC (Intergovernmental Panel on Climate Change) and the WHO (World Health Organization) as well as academic research and best practices routed from other municipalities. Staff understand the importance of ensuring this plan, goals, and its associated targets are rooted in science and the direction that all levels of government need to move to reach a low carbon future.

2030 Goal

King Township has set a 35% community emissions reduction goal based on the data resulting from the 2018 community emissions inventory including current population statistics.

2050 Target

King Township set a Net Zero emission target by 2050.

This target will require financial support, resources and infrastructure from the municipality to reach this target. Existing buildings in King Township will have to transition from current energy and fossil fuel usage to Net Zero standards, supplemented by renewable energy sources and carbon credits where applicable. Additionally, transportation within King will need to become fully electric or alternative energy and sustainable public transportation will need to be promoted to be able to reach the 2050 target. The actions outlined in this plan are the initial recommendations to meet the 2050 target and 2030 goal requiring regular updating every 5 years. Annual monitoring, reporting and any additions of actions as needed will be completed by staff between the updates.

Reaching Net Zero Emissions will likely require carbon offsets near 2050 to mitigate the remaining emissions that have not been transitioned to decarbonization.

COMMUNITY ENGAGEMENT AND CONSULTATION

It was integral for the success for the King Community Climate Action Plan that community engagement was a central tenet in the creation of the plan. This plan had several consultation avenues some of which were very successful while others had not gotten the outreach desired. The KCAP was developed throughout the year(s) of 2020- 2023, the delay of the timeline for the completion of the plan was due to the global Covid-19 pandemic and internal staffing changes. The pandemic did not allow in person engagement methods so for 2020-2021 engagement and consultation was focused to online efforts. Many alternative engagement efforts were implemented during the pandemic (2020- 2021) including:

- SpeaKING page was created to update community members and collect feedback
- 2 Public Virtual Open Houses with Q&A sessions reaching climate dedicated residents
- Stakeholder engagement meeting conducted with sector experts, as a Climate Action Plan Advisory Council (2 meetings)
- Digital SpeaKING survey was live for 3 weeks
- 294 survey respondents in total gave feedback
- 540 users aware and 350+ users engaged on SpeaKING project site
- KCAP was taken to council with a public presentation that can be found on SpeaKING along with a draft of the Climate Action Plan
- Social media & print media advertisements and announcements

In 2023 in person consultation and engagement was able to continue with a focus on meaningful participation from previously underrepresented groups while also collecting general feedback from the community at various events and facilities. Throughout the Spring and Summer 2023, staff ran in person educational campaigns and booths at: community events, school events, libraries, and Cold Creek camps. Additionally a digital survey was created that focused on youth consultation on climate action within King Township.

King Township hosted a variety of events, workshops and programs that provided opportunity to promote, educate and gain feedback from citizens for the King Climate Action Plan. The table below highlights events staff attended.

Maple Syrup Fest	**March 11th**
Earth Week	**April 7th – 23rd (22nd Community Clean Up)**
Nobleton Plant Sale	**May 13th**
Victoria Day	**May 22nd**
Schomberg Agricultural Fair	**May 25th - May 28th**
King City Craft Beer & Food Truck Festival	**June 10th**
Nobleton Garden Workshop	**June 26th**
Cold Creek Disc Golf Grand Opening	**July 8th**

Throughout the events staff created a campaign in which citizens could write down their ideas, projects, concerns, and thoughts relating to climate change action in King Township on a “leaf” cutout. A total of 276 leaves were collected from the events, libraries, and schools throughout King Township.

Approximately a total of 1000 people have participated in some form of community engagement and consultation for the KCCAP.

Summary of what we heard from the "Leaf Engagement Project"

Out of the 276 leaves collected there was a lot of repeated ideas and concerns. Some of the highlighted ideas were:

- More pollinator gardens in King Township
- More walking trails and bike lanes throughout the Township
- More educational workshops on lowering your emissions
- Community compost program
- More community gardens

When engaging with children in schools about climate change and the natural environment the key focus of the leaf engagement project is to get the kids to think about nature and the parts they love in the natural environment. This practice to get them to think about the aspects they love about nature will hopefully help them make that connection to needing to protect the environment and become good stewards to help fight against climate change.

Summary of the 2021 Climate Action Survey

90.1%
of survey respondents are concerned about climate change and its impacts on King.

91.4%
of survey respondents feel that the actions of individuals can make a positive global impact on emissions reductions.

72%
of respondents stated their next vehicle would be a EV or PHEV.

64%
of respondents households are willing and ready to take climate action.

59%
of respondents want aggressive emissions targets in line with the IPCC.

21%
want targets in line with upper tier levels of government.

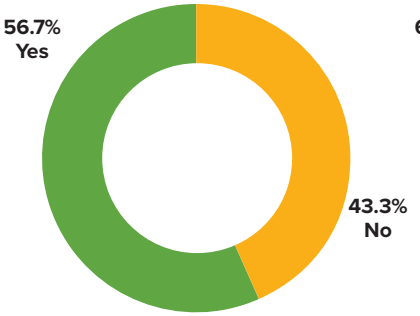
HOUSEHOLDS WILLINGNESS TO ACT ON CLIMATE CHANGE

64.4% of people willing to take action.

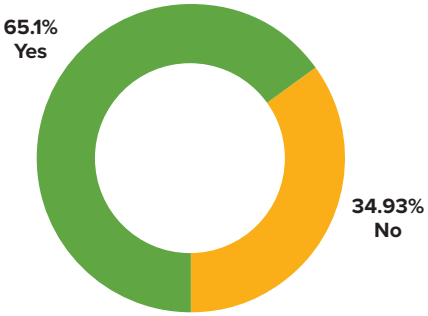
4.1% of people NOT willing to take action.

10.7% of people say it depends of what is needed of them.

20.6% of people say they are willing to take action to some degree.

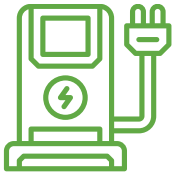


HOUSEHOLDS EXPERIENCING FLOODING OR WEATHER-RELATED DAMAGES IN THE LAST 10 YEARS



HOUSEHOLDS EXPERIENCING LOSS OF TREES TO DISEASE, PESTS, OR INVASIVE SPECIES IN THE PAST 5 YEARS

A significant portion of respondents expressed interest in acquiring an EV (Electric Vehicle) or PHEV (Plug-in Hybrid Electric Vehicle) for their next purchase, whereas the remaining respondents hesitated, citing concerns and a lack of information as barriers to making a decision.

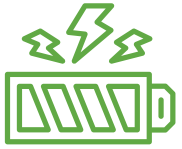


Location of charging stations

Pricing (of vehicles, public charging pricing, and infrastructure)

More choice in EV models

Range Anxiety (specifically in winter)



Battery life and safety of charging EV battery at home

2023 Youth Survey

In 2023 King Staff created another survey, this time with the focus on Youth in King. We had 24 participants for the survey with great feedback and comments on the Climate Action Plan.

83%
of participants are worried about climate change and the oncoming impacts.

90%
approximate number of participants who want to get involved in climate action in King Township.

43%
stated they would get involved depending on the project.

65%
of participants of the survey stated that they want more climate action in their school.

75%
of participants want to see their school get more involved with Community Clean Up events.

81%
of participants want to see their school get more involved with tree planting.

ARE YOU WORRIED ABOUT CLIMATE CHANGE AND YOUR OWN FUTURE?

83.3% YES

16.7% NO

DOES CLIMATE CHANGE IMPACT YOUR DAILY LIFE?

62.5% YES

37.5% NO

WOULD YOU BE INTERESTED IN BEING INVOLVED IN CLIMATE CHANGE RELATED PROJECTS CREATED BY KING TOWNSHIP?

65.2% YES

17.4% NO

17.4% I DON'T KNOW

DO YOU THINK YOUR SCHOOL SHOULD DO MORE ACTIONS TO MITIGATE CLIMATE CHANGE?

65.2% YES

17.4% NO

17.4% I DON'T KNOW

WHAT LARGE AND SMALL ACTIONS WOULD YOU LIKE TO SEE AT YOUR SCHOOL?

Tree Planting – **81.3%**
Community Clean Up – **75%**
Pollinator Garden – **68.8%**
Anti-idling – **56.3%**
Battery Recycling – **56.3%**
Composting Program – **56.3%**
Bike to school day – **50%**
Outdoor Classroom – **50%**
School Vegetable Garden – **50%**
Litterless Lunches – **50%**
Textiles Recycling – **31.3%**
Animal Rescue – **6.3%**
Milk Bag Mat Project – **6.3%**
Electric School Bus Programs – **6.3%**

TAKING ACTION

During the Community Climate Action Plan development process, a variety of actions were identified to help King move towards a resilient, low-carbon future. Through public engagement and consultation as well as internal deliberation, these actions were refined and prioritized to guide climate action in the community.

Based on the community emission inventory outcome, the action items are categorized by sector, with each individual action sub-categorized into a specific theme. The themes represent many important aspects of King Township's future in addressing Climate Change while strengthening ongoing community initiatives and the corporate vision. However, actions can fit in multiple sectors as shown in Appendix A- The Master List of All Actions.

While these action items are an important step to decarbonizing our community and moving toward a net-zero Township, additional priorities and actions will be required throughout this process. Amendments will be added into the plan as we report on and monitor the implementation and progress of the action items.

As King saw in 2020, with Covid-19, events can occur that will change the way we move forward and react to situations. Allowing the plan breathing room to adapt to changing policies, events and science provides the best opportunity to move to a low carbon community.

Sustainable Movement

Actions to support & increase Plug in Hydro Electric Vehicle/ Battery Electric Vehicle (PHEV/BEV) and Alternative Fuel Vehicles adoption by community members, businesses, and corporate fleet. Promote & support the transition to sustainable transportation & movement within King and out.

Our Natural Environment

Actions to increase, restore and protect natural environments, reduce emissions associated with agriculture and promote resilient land-use practices.

Engage & Empower

Actions to give residents of King the capacity to take individual climate action, respond to impacts, and build a culture around climate action.

Tomorrow's Energy & Green Infrastructure

Actions to aid in the transition and implementation of local community-scale renewable energy and improve energy efficiency. The integration of climate mitigation technologies and services.

In addition to presenting the recommended action items for each sector, the KCCAP outlines elements associated with each action. The plan outlines: the objective, the action, implementation method, the theme, partnerships, timeline, and potential cost.

Objective
Initiatives that will be undertaken to achieve net-zero goals in each sector.

Action
Detailed activities required to support the actions.

Theme
Represent the key areas of focus for action items that the Township prioritized.

Community Role
Activities that community members, businesses, organizations and individuals can do to help achieve the action.

Municipal Role
The role King Township will have in the implementation process.

Partnership Opportunity
Names of potential partners to with on each action during any part of the process of research, planning and implementation.

Expected Funding Level
Visualized using a scale of dollar signs $-$$$$$. The single dollar sign $ = anything under $10,000, double dollar sign $$= $10,000 - $50,000, triple dollar sign $$$= $50,000 - $100,000, quadruple dollar sign $$$$ = $100,000 - $250,000, quintuple $$$$$ = $250,000 and above.

Given the expected inflation, cost of goods and fluctuating costs of relevant technology (Example; annual decreasing cost of solar panels, increased cost of computing chips), actions and projects that are on the border of funding levels may see fluctuations over time.

Timeframe
King does not have the capacity or the financial resources to implement all priorities and action items immediately. Actions have been separated into three different categories for the implementation of projects and initiatives:

Short Term: Present time 1- 3 years
Short-term actions and priorities are items that can begin an action phase immediately or within 1 year to reach a community-wide carbon reduction by target dates, goals, and objectives.

Mid Term: 3-7 years
Mid-term actions and priorities will require research, study, and funding. These actions will require more time to implement due to one or several restrictions: Limited staff resources, financial resources and/or current technological limitations relating specifically to King Township.

Long Term: 7-15 years
Long-term actions and priorities are identified as actions that are needed/required to reach long term targets by the Township and the community, however, in the current time frame, resources, funding, and technology are limited. These actions are commonly larger community capital projects or transformations such as district heating at the neighbourhood scale (using local energy to heat local homes), local utility-scale renewable energy, or transformations to local building codes to require implementation of green infrastructure.

ACTIONS

Residential and Community Sector

Sector based emissions reduction potential by **2050**: **102,467 TCO2e**

OUR NATURAL ENVIRONMENT

Objective: Support the protection, restoration, and enhancement of natural systems to foster climate resiliency.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Develop Invasive Species Management Strategy.	Ongoing	**Project Support** • Monitor and report invasive species • Volunteer for Invasive Species Clean Up • Participate in the Green Yards Program • Contribute to Citizen Science Projects	**Project Lead** • Provide educational resources to the community to inform residential landowners funding opportunities to control invasives • Offer Educational Workshops to the Community to learn about the impacts of invasive species and best management practises	• Ontario Nature and the Ontario Invasive Plant Council • Community groups TRCA • LSRCA • York Region Invasive Species Working Group • Ontario Invasive Plant Council • EDDMAPS • Nature Conservancy of Canada • Ontario's Invasive Species Awareness Program	$$
Protect and Restore wetlands and naturalized areas to provide critical habitat, increase flood risk resilience and sequester carbon.	Short to Mid Term	**Co-Lead** • Support backyard habitat creation initiatives to protect native biodiversity • Create a rain garden, pollinator habitat • Volunteer to help with Wetland Restoration projects • Report wildlife sightings using INaturalist • Protect wetlands on private property	**Co-Lead** • Enhancing and creating pollinator habitat throughout the Township • Provide support, guidance, and mapping of wetland areas. • Identify and implement priority restoration areas on public land. • Create educational campaigns about naturalization and restoration opportunities for community members • Work with Public Works and Roads to identify road ecology restoration opportunities within proximity to wetlands • Work with private landowners to identify potential collaborative restoration projects • Private landowners and community groups	• Community Groups • TRCA • LSRCA • York Region • Ducks Unlimited • Ontario Streams • Nature Groups/Committees	$$

Residential and Community Sector

OUR NATURAL ENVIRONMENT

Objective: Support the protection, restoration, and enhancement of natural systems to foster climate resiliency.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Increase tree canopy coverage and protection in King Township.	Ongoing	**Co-Lead** • Plant trees/shrubs and wildflowers on your property • Do not cut down healthy trees on your yard unless dead or hazardous • Monitor the health of your trees • Volunteer at community plantings to help grow King's tree canopy	**Co-Lead** • Identify and secure funding to support planting initiatives • Identifying and prioritizing planting locations on public land • Community resource sharing- host workshops with planting partners to share information with residents • Ensure tree planting requirements are executed through new construction • Replace street and boulevard trees • Offer annual community planting engagement opportunities	• Community Groups • TRCA • LSRCA • York Region • Volunteer Groups • LEAF • Ontario Streams • Local Nurseries • Local schools and businesses	$$$- $$$$
Inventory Township Natural Assets by 2026.	Short Term	**N/A**	**Project Lead** • Work consultants to create Natural Asset Inventory for the Township • Apply for funding • Use Natural Asset Inventory to help shape policies in the Township	• Municipal partners and consultants • TRCA • LSRCA • Ducks Unlimited	$-$$
Increase connectivity of natural areas.	Long Term	**Co-Lead** • Naturalize your lawn and yards while following municipal bylaws • Attend workshops to learn more about habitat creation and native gardening • Create a pollinator garden or butterfly garden • Report potential areas of concern for Species At Risk (SAR) • Partake in Citizen Science led projects	**Co-Lead** • Provide support and funding for plantings • Provide land for increased connectivity • Facilitate conversation between private landowners and partners. • Species at risk monitoring • Wildlife mortality associated with road ecology	• York Region • TRCA • LSRCA • Community Groups • LEAF • Pollinator Partnership • Local Nurseries • Lake Simcoe South Mater Gardeners	$$$

Residential and Community Sector

TOMORROW'S ENERGY & GREEN INFRASTRUCTURE

Objective: Transition and implementation of local community scale renewable energy.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Investigate the use of local-community scale renewable/ district energy.	Mid Term	**N/A**	**Project Lead** • Staff to provide resources and educational material • Staff to work with partners on feasibility, scale and implementation programs • Find and apply for funding	• Federal Government • Provincial Government • IESO • Local utility providers (Hydro One) • York Region • Third Party Organization	$$$

TOMORROW'S ENERGY & GREEN INFRASTRUCTURE

Objective: Transition King to a low carbon Net Zero community over time.

Investigate the implementation of a PACE/LIC financing pilot for home, agricultural and business/ commercial energy retrofits.	Near to Mid Term	• Engage with Citizen Science Opportunities	**Project Lead** • Offer educational workshops and webinars and conduct marketing of the pilot project • Apply for funding • Work with partner organizations • Undertake project and roll out of pilot	• Federal Government • Provincial Government • Private Industry • TRCA • LSRCA • GMF Fund	$$-$$$$$
Provide resources & tool kits for homeowners, businesses, and residents of King to transition to Net Zero over-time.	Short to Mid Term	**Co-Lead** • Participate in education workshops • Research ways in which you can lower your energy emissions in your own home	**Co-Lead** • Staff to provide toolkit to community members • Work with 3rd party organizations to host workshops and webinars to help broaden education	• Community Groups, Businesses, Residents • Utility Providers • TRCA • LSRCA	$
Provide resources on energy benchmarking & audits for King residents.	Long Term	**Project Lead** • Plan energy audits for your home/ business • Apply for grants and funding to complete energy audits • Attend educational workshops	**Project Support** • Staff to support and give resources and education on energy benchmarking and audits	• Private industry • Community Groups • TRCA • LSRCA	$

Residential and Community Sector

ENGAGE & EMPOWER

Objective: Empower Climate Action in the Community.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Annual Community Climate Awards recognizing members of the community who are leaders of climate action.	Mid Term	**Co-Lead** • Commit to reducing emissions and your ecological footprint • Report to the Township climate action you are doing in your own life • Participate in Environment King led events and workshops • Join King Environment Action Team (KEAT)	**Co-Lead** • Staff to support and facilitate awards and organize event • Review applicants and make award decisions • Promote event and garner interest. • Seek sponsors and funding for future awards	• Economic Development • Local community groups affiliated with the Township of King • Local Schools • Residents and businesses • LSRCA	$
Promote and encourage climate education and conservation behavioral change.	Ongoing	**Co-Lead** • Being open to changing behaviour and habits to adapt to new sustainable/environmental norms • Learning the simple solutions and behavioural changes that are needed to conserve energy, the natural environment and help mitigate climate change	**Co-Lead** • Partner with local organizations to offer workshops, seminars and programs to the community • Provide Experiential Learning Opportunities	• TRCA • LSRCA • Local environment and climate change organizations	$

Commercial/ Business & Industrial Sector

Sector based emissions reduction potential by **2050: 42,086 TCO2e**

TOMORROW'S ENERGY & GREEN INFRASTRUCTURE

Objective: Develop and Implement Climate Conscious Infrastructure.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Implementation/ Upgrades to Green Infrastructure.	Short to Mid Term	**Project Lead** • Identify grants and funding available to implement green infrastructure projects for your Business • Start small, investigate projects that are low budget but have high environmental impact ie. Changing lawn from European Grasses to Clover • Implement bird friendly designs into new buildings and structures	**Project Support** • Share funding resources and incentives with the community • Host educational opportunities for businesses to learn how to utilize green infrastructure	• Economic Development • King departments outside of community services • Conservation Authorities • Local Developers • LEAF • Nature Canada • Fatal Lights Awareness Program	$$-$$$$
Invest and implement low-impact developments.	Long Term	**Project Lead** • Explore implementing LID at your businesses and residential dwellings ex. Rain Gardens, Permeable Pavers, Rainwater Harvesting, Bioswales	**Project Support** • Encourage implementation of LID in Business • Continue Community Rain Barrel Sales through Green Yards Program • Sharing LID funding opportunities and educational workshops • Support any businesses in implementing LIDs	• TRCA • LSRCA	$$-$$$
Improve water and wastewater infrastructure.	Long Term	**Project Lead** • Explore implementing water conservation and wastewater conservation technologies and products.	**Project Support** • Create educational workshops on the different water and wastewater infrastructure system that businesses can implement • Promote water conservation at home	• TRCA • LSRCA • King Chamber of Commerce	$$$

Commercial/ Business & Industrial Sector

OUR NATURAL ENVIRONMENT

Objective: Develop and Implement Climate Conscious Infrastructure.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Expansion of the Green Development Standards.	Short Term	**Project Lead** • Adhere to King Green Development Standards when developing new infrastructure.	**Project Support** • Staff to work on expanding the Green Developments to be applicable to all types of developments	• King Growth Management	$
Develop a climate leaders' hub to celebrate and share resources with local businesses.	Mid Term	**Project Lead** • Share successes with King Township to post online • Nominate Busineses, corporations, or individuals	**Project Support** • Create online portal to promote climate leaders • Share resources with community to help achieve their climate change goals	• King Chamber of Commerce	$

Agriculture Sector

Sector based emissions reduction potential by **2050: 18,657 TCO2e**

TOMORROW'S ENERGY & GREEN INFRASTRUCTURE

Objective: Encourage low-GHG energy alternatives on Farms.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Investigate feasibility & provide resources on micro to small scale anaerobic digestion for on farm agricultural use.	Mid to Long Term	**Project Support** • Familiarize yourself with small scale agricultural organization	**Project Lead** • Staff to apply for funding and provide resources to interested parties and seek locations for ideal pilot projects to demonstrate technology	• Private Industry • TRCA and LSRCA • Farming associations • York Agricultural and Agri-Food Advisory Committee	$-$$$
Explore onsite renewable energy production options.	Mid Term	**Co-Lead** • Explore onsite renewable energy production options on your farm/ property	**Co-Lead** • Staff to explore and apply for funding and provide resources to interested parties. • Seek locations for pilot projects to demonstrate the technology	• Sustainable Agricultural Organizations	$-$$$
Explore options to incentivize manure management and biogas recovery as an alternative fuel source.	Mid Term	**Co-Lead** • Familiarize yourself with manure management and biogas recovery	**Co-Lead** • Identify grant funding opportunities and potential partnerships	• Ontario Soil and Crop Improvement Association • TRCA • LSRCA • Sustainable agricultural organizations	$-$$$

Agriculture Sector

ENGAGE & EMPOWER

Objective: Develop educational partnership with agricultural community and partners to support long-term climate smart practices.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Promote co-learning and networking opportunities for sustainable and resilient agriculture, energy efficiency, crop diversification, new technologies, and water conservation.	Short to Mid Term	**Project Support** • Attend educational programs • Volunteer to showcase any sustainable technology or innovation that you have on your farm • Share your knowledge and expertise	**Project Lead** • Staff to explore and apply for funding and provide resources to interested parties. Seek locations for pilot projects to demonstrate the technology	• LSRCA • TRCA • York Region • York Agricultural and Agri-Food Advisory Committee • Holland Marsh Growers Association • Schomberg Community Farm • Muck Crops Research Station	$
Connect organizations with Farmers to help increase yield.	Mid Term	**Project Support** • Participate in networking sessions to share your own experiences and successes as well as learn from others.	**Project Lead** • Host networking sessions for farmers and organizations	• Ducks Unlimited • York Agricultural and Agri-Food Advisory Committee • Sustainable Agricultural Organizations • ALUS • Muck Crops Research Station	$

Agriculture Sector

ENGAGE & EMPOWER

Objective: Support Local food systems and community Agriculture.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Explore the implementation of a Community Farmers Market.	Long Term	**Project Support** • Potentially set up booth at Farmers Market • Express support and interest to have a Farmers Market in King	**Project Lead** • Apply for Funding • Carry out Project • Work with internal departments, local community groups, businesses and recruit volunteers • Marketing of Community Farmers Market • Integrate local food vendor opportunities into community events	• York Region Food Network • KEAT • York Agricultural and Agri-Food Advisory Committee • Holland Marsh Growers Association • Schomberg Community Farm • King Chamber of Commerce	$$
Launch a Sustainable Farm Tour.	Mid Term	**Co-Lead** • Participate in Farm Tours • Share with the Community and Township any sustainable practises you do on your farm • Share information with the Township to be highlighted in the climate stories	**Co-Lead** • Engage residents and local farmers to explore various agricultural practises throughout King • Promote sustainable garden designs and innovative farming practises (pollinator gardens, rain gardens etc.) • Promote local food production and regenerative farming practises • Engage local schools • Incorporate into King Camps and environmental programming where feasible	• Economic Development • York Region Farm Association • York Region Environmental Alliance • York Region Food Network • Schomberg Community Farm • Agricultural Society • Horticulture Society and Local Garden Clubs • ALUS	$
Create a Urban Harvest Program (Gleening).	Mid Term	**Co-Lead** • Participate if you have a property or farm that has fruit and vegetables that would go unutilized at the end of the season or would be plowed under after harvest • Volunteer to become a Harvest volunteer	**Co-Lead** • Secure funding to establish an urban harvest program • Identify locations where feasible on municipal property to plant fruit trees • Create promotional and marketing material and conduct farmer/property outreach to gauge participation interest	• York Region Food Network • Agricultural Society • Food Bank	$$

Agriculture Sector

ENGAGE & EMPOWER

Objective: Support Local food systems and community Agriculture.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Expand and promote Community Seed Saving and Lending Program in partnership with the King Township Public Library.	Mid Term	**Project Support** • Access seeds from the Schomberg Public Library • Contribute your saved seeds to the library for others to sign out for free • Share information with gardening friends	**Project Lead** • Conduct annual inventory and update seed list • Conduct promotion and marketing • Share resources with Schomberg Community Farm and King City Community Gardeners. • Explore the expansion of the program to work with landowners who have seeds that could be collected. • Offer free workshops to educate and engage the community on seed saving basics	• King Township Public Library • King City & Nobleton Garden Club • Schomberg Community Farm • King City Community Gardeners • Seedy Saturdays • York Region Food Network • Horticultural Society • Seeds of Diversity	$
Support and Foster Community Gardens / Food Forests. Explore opportunities to integrate additional community garden locations.	Short term	**Project Support** • Secure a garden plot for the growing season • Become a garden volunteer	**Project Lead** • Oversee King City Community Garden registration • Create a survey to gauge community interest in Community Gardens • Secure funding to expand the King City Community Garden	• Schomberg Community Farm • King City Community Gardeners • Kinsland Community Garden	$

Transportation Sector

Sector based emissions reduction potential by **2050: 214,073 TCO2e**

TOMORROW'S ENERGY & GREEN INFRASTRUCTURE

Objective: Increase EV, PHEV/BEV adoption by community members, businesses, and corporate fleets.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Install and Expand King Township's Electric Vehicle Charging Network throughout King municipal properties.	Ongoing	**N/A**	**Project Lead** • Complete a feasibility study of locations around the Township where EV chargers can be located • Promote EV charging network • Further installation of EV charging stations and location signs at municipal facilities • Host EV workshops and events • Identify opportunities to partner with local businesses to install EV charging infrastructure in urban areas	• Natural Resources Canada • Hydro One • Ontario Power Generation • ChargePoint • Plug in Drive • Climate Action King	$$-$$$
Support King businesses transition to EV through staff and fiscal (grant) support: CIP 2021	Ongoing	**Project Lead** • Integrate EV charging stations at your business • Apply for EV Charging Station Loans and Grants from different funders	**Project Support** • Provide guidance, support, grant funding opportunities and resources	• Private businesses and commercial vendors in village cores • Climate Action King	$$-$$$

Transportation Sector

SUSTAINABLE MOVEMENT

Objective: Increase EV, PHEV/BEV adoption by community members, businesses, and corporate fleets.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Connection & Extension of King Trails to promote Active Transportation.	Long Term	**Project Support** • Utilize active transportation trails around King • Join public discussions and engagement about the creation and extension of trails	**Project Lead** • Implementation of the Active Transportation Strategy • Work with landowners and partners to extend trail systems • Facilitate extension projects • Support local hiking groups	• York Region • Conservation Authorities • Nature Conservancy of Canada • Oak Ridge's Trail Association • York Region Smart Commute	$$-$$$
Increase/ improve cycling and walking infrastructure.	Long Term	**Project Support** • Utilize cycling and walking infrastructure within the Township • Join public discussion and engagement about the creation and extension of cycling and walking infrastructure	**Project Lead** • Applying for funding • Develop standards for active transportation routes and cycling infrastructure	• York Region Smart Commute • TRCA	$$$
Develop educational campaign to prioritize active transportation and public transit, particularly for trips under 5km	Mid Term	**Project Support** • Integrate more active or public transit into your daily routine • Challenge yourself to bike or walk more in your daily life	**Project Lead** • Apply for Funding • Research and create the educational campaign and marketing • Promote Smart Commute • Explore Bike Share Pilot Program Options • Install Bike Repair Stations throughout the community	• York Region Smart Commute • Local Businesses and Schools • Chamber of Commerce	$

Transportation Sector

SUSTAINABLE MOVEMENT

Objective: Increase EV, PHEV/BEV adoption by community members, businesses, and corporate fleets.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Develop Anti Idling campaigns to improve compliance with local anti-idling laws	Short Term	**Project Support** • Limit the amount of time your car idles	**Project Lead** • Work with internal departments to create Anti Idle By-Laws. Undertake social media campaign to promote.	• Clean Air Partnership • York Region • Climate Action King	$
Provide support to businesses, organizations and schools to create anti-idling policies	Short Term	**Project Lead** • Businesses and school owners create Anti-Idling policies amongst their organizations. • Promote Anti- Idling information and education on the importance of reducing ildling in your car.	**Project Support** • Work with internal and external stakeholders to create standard Anti- Idling policies around King Township • Promote schools within King that are supporting Anti Idling initiatives	• Local Schools • York Region Smart Commute • York Region Environmental Alliance	$

Waste (Municipal Solid Waste and Wastewater)*

Sector based emissions reduction potential by **2050: 2021 TCO2e**

ENGAGE & EMPOWER

Objective: Increase public awareness and education of climate smart transportation methods and habits.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Investigate the adoption & implementation of the York Region circular economy waste model.	Short to Mid Term	**N/A**	**Project Lead** • Investigate adoption of regional waste models • Identify areas of opportunity to incorporate circular economy tenants and year by year time frame of implementation at scale.	• York Region	$-$$
Support individuals, community stakeholders, businesses, and industry efforts to reduce waste through circular economy initiatives.	Short Term	**Project Lead** • Implement composting at home. • Participate in one of the many Township waste diversion programs (Textile Diversion, Battery Recycling, Electronic Recycling, Repair Cafes,Curbside Giveaway Days, Community Clean Up) • Utilize the King Township Lending Library Service • Become a vendor at the Community Indoor Yardsale	**Project Support** • Promote Circular Economy Month and Waste Reduction Week annually. • Provide community waste diversion initiatives and services • Explore opportunities for corporate repurposing of materials	• York Region • NewMakeIt • Electronic Product Recycling Association (EPRA) • TerraCycle • King Township Public Library • Diabetes Canada • York Region Single Use Plastic Working Group • Partners in Project Green	$
Explore Hazardous Waste Disposal.	Mid Term	**Project Support** • Utilize Recycle Coach to identify how to dispose of items classified as hazardous waste • Utilize battery collection bags and dispose of batteries at community centres and local libraries • Do your part to ensure hazardous waste does not end up in the landfill	**Project Lead** • Identify potential partnerships to integrate hazardous waste collection into existing waste diversion initiatives • Promote proper handling and disposal of hazardous waste including paints, solvants, light bulbs and batteries	• Product Care Recycling • Aevitas • Terracycle • Recycle Coach	$-$$

** Actions already done in Township of King to support a Circular Economy: Textile Diversion, Battery Recycling, Electronic Recycling Events, Repair Cafes*

Waste (Municipal Solid Waste and Wastewater)

ENGAGE & EMPOWER

Objective: Increase Diversion of Organic Waste.

ACTION	TIME FRAME	COMMUNITY ROLE	KING TOWNSHIP ROLE	(POTENTIAL) PARTNER(S)	FUNDING LEVEL
Develop waste diversion educational opportunities for individuals and businesses.	Short to Mid Term	**Project Support** • Participate in workshops and community events involving waste diversion education • Volunteer at Waste Diversion Events • Eliminate Single Use Plastics at your business or household • Share your success stories with us to share with the public	**Project Lead** • Create educational material around waste diversion • Provide volunteer opportunities through King Environment Action Team (KEAT) • Offer backyard composters at affordable rates through Green Yards Program • Highlight local businesses supporting innovating composting solutions	• TRCA • York Region • Local Food Waste Composting and Recycling Organizations Cathy Crawly Composters (Vermicomposting) • York Region Food Network • Local Food Waste Composting and Recycling Organizations • EnviroWorld	$
Work with Waste Services to support food waste reduction efforts.	Mid Term	• Educate and practise waste diversion at home	**Project Lead** • Internally work to strategize ways to decrease organic waste at the curbside • Resource sharing through marketing and signage throughout the township • Continue to offer backyard composter sales	• Public Works • Foodcycler Science	$
Create community composting pilot project.	Short Term	**Co-Lead** • Volunteer to be a part of community composting pilot • Share opinions and feedback about your own composting habits	**Project Lead** • Implement a community composting program • Partner with organizations to subsidize community composting • Highlight success stories from community organizations • Gauge community interest through online survey	• York Region Food Network • Local Food Recycling Organizations	$-$$
Implement/Enhance Composting program at Cold Creek and Community Gardens.	Mid to Long Term	**N/A**	**Project Lead** • Work with internal stakeholders to set up a composting program	• Local Food Recycling Organizations • York Region Food Network • Schomberg Community Farm	$-$$

NEXT STEPS

IMPLEMENTATION

For King Township to move forward in developing and implementing the actions outlined in the King Community Climate Action Plan, a strategic approach is needed. To successfully implement The Plan, working together with community, government, institutions, and businesses is imperative.

In the 2019 report developed by the Clean Air Partnership, examining climate action implementation in Ontario municipalities, they outlined four cross-sectoral drivers of climate action: funding, community partnerships, staff capacity, and strategic prioritization. The report also highlighted that low-climate literacy was a large barrier to successful implementation within Ontario Municipalities.

King Township will adopt five drivers to successfully implement the King Community Climate Action Plan. The fifth driver that has been identified and incorporated into the implementation strategy is "effectively engaging and educating community" to ensure that this Plan remains community centered and driven.

1. **SECURING FUNDING**
2. **BUILDING COMMUNITY PARTNERSHIPS**
3. **CAPACITY**
4. **STRATEGICALLY PRIORITIZING CLIMATE INITIATIVES**
5. **EFFECTIVELY ENGAGING AND EDUCATING COMMUNITY**

With the approval of this plan, staff will move to begin working with partners and the community to implement programs where possible within the time frames listed previously. Further work will likely be required for many actions such as further development of programs, estimations of program costs, multi-year business plans and working with designated partners for roll out.

Staff will carry out this plan in a phased and measured approach working with the community and partners to best utilize available resources. Staff will immediately begin implementation of short-term actions and look to receive funding where necessary. Suggested actions that would benefit from immediate funding include:

- Creation of a community composting pilot project to rescue organic curbside collection and foster waste reduction alternatives.
- Promoting and educating the community on alternative modes of transportation (carpooling, transit, active transportation)
- Undertake a feasibility study for a PACE/LIC financing pilot project for home energy retrofits within King. If feasible continue implementation of a pilot program for a set number of King residents interested in onboarding into the prescribed program.
- Offer educational workshops on various subjects for each of the sectors.
- Create a Climate King webpage with a 'Climate Stories of King' community engagement piece and resource sharing.
- Create a King Climate Online Toolkit for King residents to understand how climate change will affect them and what individuals can do to reduce their carbon footprint in King.

1 SECURING FUNDING

The actions outlined within the KCCAP are the initial steps needed to take place to reach our objectives goals and targets. These actions will require varied financial resources and support from council regarding budgetary decisions and capital planning. It is expected that staff will be actively identifying and applying to funding opportunities provided by all levels of government and private entities, such as utility providers, non-governmental organizations and public organizations. It will be crucial for the success of this plan that community partners and delivery agents will be sought and confirmed.

Given the Federal Government's dedication toward funding, mitigating and adapting to Climate Change, and the greater emissions reduction efforts, as well as agreeing to the global push to decarbonize by 2050; funding opportunities are available to assist forward-thinking, low-carbon projects.

King Township can capitalize on current and future funding to support Climate Actions projects such as:

- Natural Resources Canada- Zero Emission Vehicle Infrastructure Program
- Natural Resources Canada - Zero Emission Vehicle Awareness
- Natural Resources Canada – Climate Change Adaptation Program
- FCM- Green Municipal Fund
- TD Friends of the Environment Foundation
- Tree Canada- Community Tree Grants
- York Region Greening Action Partnership Fund
- York Region Disaster Mitigation and Adaptation Fund RFP
- Invasive Species Centre - Invasive Species Action Fund

It is recommended by King staff that moving forward, King creates a Community Climate Fund that utilizes the associated cost savings from corporate climate/emission reduction projects to carry on projects for the community.

Additionally, many of the resources required for actions laid out in the plan do not require large capital influxes but instead staff resources and time. During the time that a funding program is set up, staff will be actively seeking external funding, implementing short-term non-capital resource-intensive actions (as listed in Implementation Section), and using available internal funding to carry climate-based actions forward.

Funding Implications for Council

It is recommended by staff that King requests a funding program in the 2025/2026 budget process for actions and initiatives laid out in the plan. This funding would give staff the resources needed to kickstart resource-intensive actions and provide in-lieu funding for outside grant applications requiring a contribution.

2 BUILDING COMMUNITY PARTNERSHIPS

To effectively implement climate-based initiatives and reduce greenhouse gas emissions, climate action needs to be a shared responsibility between local governments and community organizations. These include utilities companies, non-governmental organizations, conservation authorities, educational institutions, and other interested parties. Developing long-term partnerships, whether local in origin or expanding beyond the Township, is key to having effective implementation of the King Community Climate Action Plan, as partnerships leverage the skills and expertise of different organizations.

The following partnerships have already been established and will continue to expand over the implementation process; King Environment Action Team (KEAT), Climate Action King, Toronto and Region Conservation Authority, Lake Simcoe Region Conservation Authority, Ontario Streams, Schomberg Community Farm, Dufferin Marsh Nature Connection, and Seneca College King Campus.

3 ADDITIONAL RESOURCES AND CAPACITY

Having adequate municipal staff to coordinate climate initiatives, liaise with community partners, coordinate outreach, raise awareness of ongoing climate programs, and apply to and administer grants is integral to successfully implement the King Community Climate Action Plan. Dedicated climate staff will also increase the capacity to integrate greenhouse gas reduction objectives into a greater number of municipal policies, plans, and programs. As well, utilizing student employment opportunities and internships to help with environmental projects and initiatives also allows the Township to gain new and cutting-edge ideas from the students.

It is recommended that Township Council continue to support the funding for Climate Change and Environmental Programming as it is integral to the successful implementation of the King Community Climate Action Plan.

4 STRATEGICALLY PRIORITIZING CLIMATE INITIATIVES

To effectively manage the implementation of the KCCAP and use resources efficiently, it is necessary to prioritize a subset of climate initiatives to focus efforts and resources for each Council term. Prioritizing climate initiatives makes it easier to secure funding, gain wider support from decision makers, and maximize climate benefit.

5 EFFECTIVELY ENGAGING & EDUCATING COMMUNITY

The KCCAP is a community focused plan. King Township is committed to facilitating ongoing engagement and participation about climate action in the community and we believe that we cannot achieve a carbon zero future without the participation of ever member in the community. Communication, education, and outreach efforts will work to continually raise awareness of climate change impacts, facilitate knowledge sharing among community members, encourage action, develop community partnerships, and celebrate successes.

REPORTING AND MONITORING

King Township will regularly monitor and report on the progress of this plan, the development of actions, and reaching milestones, goals, and targets.

Reporting, monitoring, & updating timelines

King Staff will provide an annual report card to Council (to be received as information) on the progress of the plan priorities and actions. The report card will address action-specific metrics of success and determine the status of the action, based on the completion: Behind Schedule, Ahead of Schedule, On Track, Ongoing, Achieved, Future Action. The first report card will be made available in 2025.

Community Service Staff will provide information and updates to the public on the progress of actions and priorities on an annual basis.

Staff will review and update the plan every 5 years and will include the following:

- Updated community emissions inventory
- Updated forecast of GHG emissions
- Reporting on progress and/or completion of short-term actions
- Updates on targets, and where we are at with achieving them
- Updates on the progression of mid-term actions
- Additions, removals, and updates to priorities and actions

5-year rolling updates will occur in this interval based on staffing resources, the required time for sufficient implementation of actions, and time (years) needed to see reductions or increases in community emissions.

The next KCCAP review will occur in 2029.

LIMITATIONS AND CONSIDERATIONS

As has been mentioned throughout this plan, there are several gaps in data, time and resources as it relates to both the emissions inventory, actions, priorities and the future outlook of this plan.

Gaps in the Emissions Inventory

The community emissions inventory was calculated and created by Greenscale Inc. (2023). This emissions data was collected by King Township staff from utility companies and third-party data agencies. It is understood by both staff and Greenscale Inc. that the inventory is as accurate as possible given the data that was available. However, there are still gaps where in the future data can be improved upon and expanded on. It is important to note that the inventory is under continual annual improvement but there is high confidence in the largest emitters.

Gaps include:

- When it comes to the heating of homes, it is understood that many rural residents heat their home solely off heating oil. Given restraints in contacting small-scale fuel providers servicing villages within King, the ability to acquire this data was limited. This gap is also evident with residents and buildings heated via propane. The methodology for calculating heating oil use was done through using the Ontario population averages and King's population data. It should be understood that it is an estimation.
- The wastewater data also has limitations. The data used did not include Nobleton and Schomberg wastewater facilities but used population data and information from the Duffin Creek Water Pollution Control facility to make informed assumptions.

Other emissions omitted from the inventory include:

- Through highway traffic (400 Series Highway & Highway 27)
- Emergency Services emissions from a regional level (calculated on a regional scale), emissions sequestered by the natural environment.
- Land- use change emissions
- Food emissions

Gaps in Actions and Future Priorities

Given the priorities and actions addressed in the plan, it is evident that sectors such as 'Industrial' and 'Commercial' are not being as actively prioritized as other sectors when it comes to emissions mitigation and adaptation in the short and mid-term. Given the inventory and currently available technology to combat emissions, there was a need to prioritize areas within the plan that would have the largest impact overall on the community emissions. These sectors will need review in upcoming iterations of the plan to best ensure that all aspects of the King community are doing their part and are supported in the transition to a low carbon future.

THE ROAD AHEAD

The road ahead is not a simple one. The meaningful actions we must take to prevent the global temperature rise and curb emissions is as important as any other threat we as humans face. Working together, the King community can prosper and benefit from the climate actions outlined within this plan. We live in unique times and how we come together will not only affect us but generations of the future to come. Creating healthier more sustainable communities, protecting and preserving our natural resources, promoting active and sustainable lifestyles, and supporting a stronger more resilient King for all, will allow King Township to thrive.

The actions outlined in this plan require King Staff, Council and the community to work collaboratively over the coming years. Together, we can make King a green climate leader.

GLOSSARY DEFINITIONS AND ACRONYMS

Anthropogenic: describes a process or result generated by human beings.

Anthropogenic Climate Change: The Theory of Anthropogenic Climate Change is that humans are causing most of the current changes to the climate by burning fossil fuels such as coal, oil, and natural gas.

Business as Usual: This term is commonly used in climate action planning when modeling what the impacts of climate change, unchecked temperature rises, and mitigation and adaptation measures would yield in emissions if ignored.

Carbon Dioxide: Carbon dioxide (CO2) is the most common GHG emitted by human activities, in terms of the quantity released and the total impact on global warming. As a result, the term "CO2" is sometimes used as a shorthand expression for all greenhouse gases.

Carbon Sequestration: is the process of removing carbon from the atmosphere and storing it in a fixed molecule in soil, oceans or plants. An organism or landscape that stores carbon is called a carbon sink. An organism or landscape that emits carbon is called a carbon source.

Climate: is the weather of a place averaged over a period of time, often 30 years. Climate information includes the statistical weather information that tells us about the normal weather, as well as the range of weather extremes for a location.

Greenhouse Gas: A greenhouse gas (or GHG for short) is any gas in the atmosphere which absorbs and re-emits heat, and thereby keeps the planet's atmosphere warmer than it otherwise would be. The main GHGs in the Earth's atmosphere are water vapour, carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O) and ozone. GHGs occur naturally in the Earth's atmosphere, but human activities, such as the burning of fossil fuels, are increasing the levels of GHG's in the atmosphere, causing global warming and climate change.

Low Impact Development (LID): refers to systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration or use of stormwater in order to protect water quality and associated aquatic habitat.

PACE/LIC: The property assessed clean energy (PACE) model and Local Improvement Charge (LIC) are innovative mechanisms for financing energy efficiency and renewable energy improvements on private property. PACE programs allow a property owner to finance the up-front cost of energy or other eligible improvements on a property and then pay the costs back over time through a voluntary assessment. The unique characteristic of PACE assessments is that the assessment is attached to the property rather than an individual.

Net-Zero: is achieved through the reduction of anthropogenic emissions of greenhouse gases with the goal of balancing emissions produced and emissions removed from the atmosphere. It is important to note that net-zero emphasizes a commitment to reducing greenhouse gas emissions as much as possible.

Climate Change Adaptation: refers to the adjustments societies or ecosystems make to limit the negative effects of climate change or to take advantage of opportunities provided by a changing climate. Adaptation can range from farmers planting more drought-resistant crops to coastal communities evaluating how best to protect themselves from sea level rise.

Climate Change Mitigation: refers to efforts to reduce or prevent the emission of greenhouse gases. Mitigation can mean using new technologies and renewable energies, making older equipment more energy efficient, or changing management practices or consumer behavior. It can be as complex as a plan for a new city, or as a simple as improvements to a cookstove design. Efforts underway around the world range from high-tech subway systems to bicycling paths and walkways.

CO2e: "Carbon dioxide equivalent" or "CO2e" is a term for describing different greenhouse gases in a common unit. For any quantity and type of greenhouse gas, CO2e signifies the amount of CO2 which would have the equivalent global warming impact.

Ecosystem Services: are the benefits or "services" an ecosystem contributes to human life, such as clean water and the decomposition of organic matter.

GLOSSARY DEFINITIONS AND ACRONYMS

Flora: the plants of a particular region, habitat, or geological period.

Fauna: the animals of a particular region, habitat, or geological period.

Offset: The reduction of greenhouse gas emissions to compensate for emissions made elsewhere.

Resilience: means strengthening the ability of human and non-human systems to withstand and respond to changes in the earth's climate, and thought of as a way to bridge the conceptual divide between mitigation approaches to climate change on the one hand and adaptation approaches on the other.

Scope 1 Emissions: Direct GHG emissions produced by sources that an organization owns or controls.

Scope 2 Emissions: Indirect GHG emissions related to purchased energy (electricity, district heating and cooling) that are a consequence of an organization's activities but physically occur at sources that another organization owns or controls.

Scope 3 Emissions: Indirect greenhouse emissions that are the result of activities or sources not owned or controlled by an organization or entity, but that the indirectly impacts the organizations value chain, found upstream and downstream of the organization/ entity.

Weather: is the day-to-day state of the atmosphere, and its short-term variation in minutes to weeks.

BAU: Business as usual.

CIP: Community Improvement Plan

FCM: Federation of Canadian Municipalities

GHG: Greenhouse Gas (emissions)

IPCC: International Panel on Climate Change; is the United Nations body for assessing the science related to climate change.

KCCAP: King Community Climate Action Plan

KPI: Key Performance Indicator

LIC: Local Improvement Charge

LID: Low Impact Development

LSRCA: Lake Simcoe Region Conservation Authority

NRcan: (Department of) Natural Resources Canada.

NCC: Nature Conservancy Canada

MTO: Ministry of Transportation Ontario

PACE: Property Assessed Clean Energy (model)

PCP: Partners for Climate Protection; A program from the Federation of Canadian Municipalities.

PV: Photovoltaics

PCP: Partners for Climate Protection; A program from the Federation of Canadian Municipalities.

tCO2e: Metric tonnes of carbon dioxide equivalent

TRCA: Toronto Region Conservation Authority

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APPENDIX A: LIST OF ALL ACTIONS

This is a list of all implementation actions from the plan with sub- categories outlining their impact on GHG emissions and the metrics used to track their success.

Emission impacts were put together with help using Climate Neutral software.

IMPLEMENTATION ACTION	TIME FRAME	EMISSIONS IMPACTS	METRICS OF SUCCESS
NATURE-BASED SOLUTIONS			
Develop Invasive Species Management Strategy.	Ongoing	This action is focused on adaptation and will not directly affect emissions	• Amount of invasive species removed • # of species identified • # of invasive species removal events/ projects
Protect and Restore wetlands and naturalized areas to provide critical habitat, increase flood risk resilience and sequester carbon.	Short to Mid Term	Protection and restoration will ensure that existing sinks of carbon are maintained for future generations.	• # of restoration projects • Size of area “restored” • # of new wetlands created • # of natural areas identified for future protection & preservation
Support conservation and rehabilitation of ecological systems in rural areas.	Ongoing	Conservation and rehabilitation will preserve and expand existing carbon sinks.	• # of Acres conserved • # of Acres rehabbed
Increase Tree Canopy Coverage and protection in King Township.	Ongoing	Tree planting will create new carbon sinks and an increased canopy coverage resulting in improved shading for homes which reduces electricity consumption for cooling.	• # of Trees and Wild Flowers planted • # of volunteers at community tree planting events
Inventory Township Natural Assets by 2026.	Short Term	This action is focused on adaptation and will not directly impact emissions.	• Completion of Natural Asset Inventory
Increase connectivity of natural areas.	Long Term	Connectivity of natural areas ties together with active transportation and works to reduce emissions from the transportation sector. As well increased natural connectivity.	• # of areas identified for connection • additional kms of trails connected • # of private and public meetings facilitated • # of conservation/ natural connections increased between landowners and partners

APPENDIX A: LIST OF ALL ACTIONS

IMPLEMENTATION ACTION	TIME FRAME	EMISSIONS IMPACTS	METRICS OF SUCCESS
NATURE-BASED SOLUTIONS			
Explore support for regenerative farming to reduce emissions from land-use.	Long-Term	Is a conservation effort that supports carbon sequestration and biodiversity.	• # of workshops and educational tools for community members
Expand and promote Community Seed Saving and Lending Program in partnership with the King Township Public Library.	Mid term	Work to improve feedstock quality and efficiency. Included under Feedstock efficiency in mitigation model.	• # of seeds in the program
THEME: TOMORROW'S ENERGY & GREEN INFRASTRUCTURE			
Investigate the use of local-community scale renewable/ district energy.	Mid Term	District Energy systems provide low-carbon heating and cooling for homes where housing density allows for practical connections to the system. A DE study can be conducted to determine potential areas for application. Where DE is not applicable, other renewable solutions such as heat pumps can be applied. Significant potential Impact on emissions.	• Grant funds received for feasibility study and program design • # of locations where local renewable energy (at neighbourhood scale) is feasible • # of residents and business interested in local renewable energy • Consultation with utility providers on successful future implementation • Determination of best type(s) of renewable energy for King Township

APPENDIX A: LIST OF ALL ACTIONS

IMPLEMENTATION ACTION	TIME FRAME	EMISSIONS IMPACTS	METRICS OF SUCCESS
THEME: TOMORROW'S ENERGY & GREEN INFRASTRUCTURE			
Investigate the implementation a PACE/LIC financing pilot for home, agricultural and business/commercial energy retrofits.	Short to Mid Term	Home retrofits leading to enhanced energy efficiency and reduced emissions. To achieve targets, homes will need to operate at high efficiency. Significant Reducing Impact.	• # of buildings interested in a pilot program • Research on PACE/LIC pilots in municipalities across Ontario • Average emission reduction per • $ grant funding received for program development • $ Capital funding received for implementation • # of businesses retrofitted • Tonnes of GHG saved • # of buildings interested in a pilot program • Research on PACE/LIC pilots in municipalities across Ontario • Average emission reduction per
Provide resources & tool kits for homeowners, businesses, and residents of King to transition to Net Zero over-time.	Short Term	Resources lead to increased home efficiency.	• Community interactions • # of users that take the toolkit • # of community member consultation, meetings and engagement on toolkits
Provide resources on energy benchmarking & audits for King residents.	Long Term	Has great impact on increased home efficiency and energy reduction.	• # of people that receive resources • # of residents that have completed energy audits • # of residents that do energy retrofits
Implementation/ Upgrades to Green Infrastructure.	Short Term to Mid Term	Green infrastructure standards set the stage for high-efficiency new builds and low-carbon neighbourhoods.	• # of Green infrastructure Projects • # of upgrades to Green Infrastructure products
Invest and implement low-impact developments.	Long Term	Low-carbon development leads to increased energy efficiency and decreased emissions in the residential sector.	• # of investments in low- impact developments • # of projects implemented
Improve water and wastewater infrastructure.	Long Term	Would reduce municipal corporate emissions.	• # of water and wastewater infrastructure projects • # of improvements to wastewater and water

APPENDIX A: LIST OF ALL ACTIONS

IMPLEMENTATION ACTION	TIME FRAME	EMISSIONS IMPACTS	METRICS OF SUCCESS
THEME: TOMORROW'S ENERGY & GREEN INFRASTRUCTURE			
Expansion of the Green Development Standard.	Short Term	Green infrastructure standards set the stage for high-efficiency new builds and low-carbon neighbourhoods.	• # of Green Development Standard applications submitted
Investigate feasibility & provide resources on micro to small scale anaerobic digestion for on farm agricultural use.	Mid to Long Term	Works to reduce emissions from manure on farms with livestock operations. Significant Reductions.	• # of farmers interested in small scale anaerobic digestion systems • # of digesters being used in King • Reduction of energy usage annually • Amount of energy, fuel, compost created
Explore onsite renewable energy production options.	Mid Term	Large impact on emissions by switching to renewable energy production.	• # of renewable energy projects implemented • # of farms interested in onsite renewable energy projects • Amount of potential emissions saved
Explore options to incentivize manure management and biogas recovery as an alternative fuel source.	Mid Term	Utilization of renewable natural gas reduced on-farm emissions from buildings and equipment.	• Amount of grant funding available • # of case studies to use for education • # of people interested in potentially exploring projects
Investigate District Energy / Renewable Supply.	Mid Term	Significant emissions reductions from a low carbon energy supply via district energy or heat pumps.	• $ grant funding received for system development • # of locations where local renewable energy (at neighbourhood scale) is feasible • # of residents and business interested in local renewable energy • Consultation with utility providers on successful future implementation • Determination of best type(s) of renewable energy for King Township

APPENDIX A: LIST OF ALL ACTIONS

IMPLEMENTATION ACTION	TIME FRAME	EMISSIONS IMPACTS	METRICS OF SUCCESS
THEME: ENGAGE AND EMPOWER			
Annual Community Climate Awards.	Short Term	Green infrastructure standards set the stage for high-efficiency new builds and low-carbon neighbourhoods.	• # of people submitted and for awards • Climate Awards turnout numbers • Level of climate action being taken by the community • # of awards given out
Promote and Encourage Climate Education and Conservation Behavioral Change.	Ongoing	This action enables energy conservation and reduction.	• # of resources and workshops created and implemented • # of participants at educational events
Promote co-learning and networking opportunities for sustainable and resilient agriculture, energy efficiency, crop diversification, new technologies, and water conservation.	Short to Mid Term	Reduces emissions in the agricultural sector through improved feed stock efficiency.	• # of participants at different co-learning opportunities • # of different learning opportunities offered and created
Connect organizations with Farmers to help increase yield.	Mid Term	Contributes to optimized feed stock.	• Amount networking opportunities to connect organizations and farmers • # of participating farmers and organizations
Explore the implementation of a Community Farmers Market.	Long Term	Local food initiatives work to reduce emissions from community food supply (Scope 3).	• # of interested people and vendors in a farmers market • Public uptake
Launch a Sustainable Farm Tour.	Mid Term	Education around sustainable farming practices help reduce emissions related to the agriculture sector.	• # of tours delivered • # of tour participants • Farm-owner feedback
Create a Urban Harvest Program (Gleening).	Mid Term	Reduced emissions from community food supply (Scope 3).	• Amount of land used for Urban Harvest program • # of people participated in Urban Harvest Program
Support and Foster Community Gardens / Food Forests. Explore opportunities to integrate additional community garden locations.	Short term	Helps to reduce Scope 3 emissions from purchased food.	• # of community gardens / food forests in the township • Amount of food harvested at community garden/ food forests • # of participants and volunteers at the community gardens

APPENDIX A: LIST OF ALL ACTIONS

IMPLEMENTATION ACTION	TIME FRAME	EMISSIONS IMPACTS	METRICS OF SUCCESS
THEME: ENGAGE AND EMPOWER			
Investigate the adoption & implementation of the York Region circular economy waste model.	Short- Mid Term	Waste reduction and diversion from landfill help eliminate emissions in transportation of waste and landfill emissions (Scope 2 and Scope 3).	• # of participants at waste reduction events and activities • Waste Diversion Tonnage from events and initiatives
Support individuals, community stakeholders, businesses, and industry efforts to reduce waste through circular economy initiatives.	Short Term	Waste reduction and diversion from landfill help eliminate GHG emissions in transportation of waste and landfill emissions (Scope 2 and Scope 3).	• # of resources and workshops created and implemented • # of participants at educational events
Local Composting initiatives	Short Term	Local composting reduces organic content sent to landfill leading to reduced Methane emissions.	• Amount of public interest in composting programs • # of people that participate in community composting pilot
Explore Hazardous Waste Disposal	Mid Term	Waste reduction and diversion from landfill help eliminate GHG emissions in transportation of waste and landfill emissions (Scope 2 and Scope 3).	• Amount of public/ internal interest in Hazardous waste initiatives • Tonnage of Hazardous waste collected if feasible
THEME: SUSTAINABLE TRANSPORTATION			
Expand King Township's Electric Vehicle Charging Network throughout King municipal properties.	Ongoing	EV charging infrastructure at municipal properties will help promote EV adoption. Included under EV adoption in mitigation model.	• # of locations in King with charging stations. • Station used vs GTHA Averages • # of unique users • # of GHG emissions saved
Support King businesses transition to EV through staff and fiscal (grant) support: CIP 2021	Ongoing	Support and resources lead to increased EV adoption and reduced emissions. Included under EV adoption in mitigation model.	• # of businesses installing charging stations. • Level of interest/ resources provided to private businesses

APPENDIX A: LIST OF ALL ACTIONS

IMPLEMENTATION ACTION	TIME FRAME	EMISSIONS IMPACTS	METRICS OF SUCCESS
THEME: SUSTAINABLE TRANSPORTATION			
Connection & Extension of King Trails to promote Active Transportation.	Long Term	Improving the King trail system will increase ridership and offset vehicle based trip through increased modal split.	• # of kms extended • Total trail travel distance increases
Increase/improve cycling and walking infrastructure.	Long Term	Cycling infrastructure contributes to enhanced modal split. Included under active transportation in mitigation model.	• # of kms of new bike lanes • # of kms of new sidewalks • # of kms of new trails
Develop educational campaign to prioritize active transportation and public transit, particularly for trips under 5km.	Mid- Term	Education and awareness is critical to gaining the participation in active transport for emissions reductions. Included under active transportation.	• # of educational interactions • Survey results
Develop Anti-idling campaigns to improve compliance with local anti-idling laws.	Short- Term	High impact on reduction of emissions produced by cars.	• Creation of potential bylaw • Enforcement tracking and details of the potential bylaw • Number of community members, businesses and organizations that participate in anti-idling campaigns
Provide support to businesses, organizations and schools to create anti-idling policies	Short - Term	High impact on reduction of emission produced by cars.	• Number of community members, businesses and organizations that enact anti- idling policies

APPENDIX B:
KING TOWNSHIP MITIGATION MODEL 2.28

This emission mitigation model was completed by using Climate Neutral Software. It outlines the emission reduction potential of all the actions within the KCCAP.

Methodology of the Model

This tool is intended to provide high level estimates of GHG emissions reductions from various mitigation strategies. The emissions reduction potential of a given strategy is modelled by specifying its participation rate and efficacy variables. The participation rate specifies the percentage of the subsector upon which the action is applied. The Emissions Savings variable specifies the percentage emissions reduction percentage achieved through action.

M = E x P x S

where M = mitigation achieved per year through action, E = emission component on which mitigation action is acting, and S = emissions savings percentage. The mitigation for each strategy is calculated for each of the 2030, 2040, and 2050 horizon years. This mitigation level is then compared to the BAU scenario and the target pathway to evaluate if planned measures are sufficient to meet the desired target outcome.

Assumptions and reasoning used for determining these participation and efficacy variables should be identified in the modelling notes. Please see further documentation on the King website for more information.

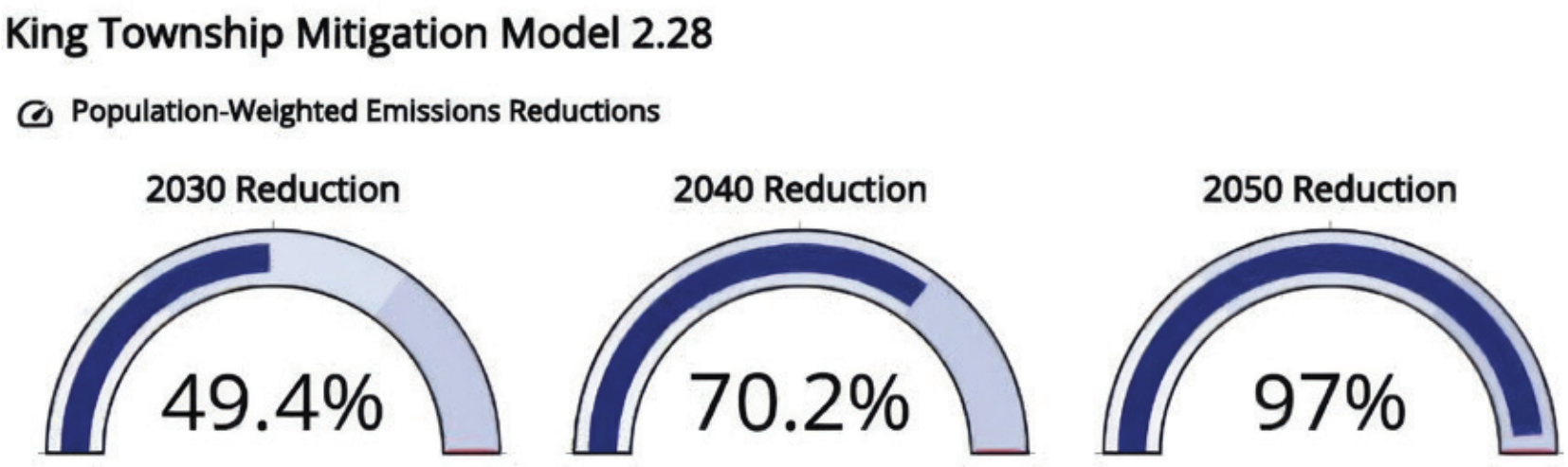

Figure 1. This figure shows the percentage of the potential reduction of emissions for each target year. It shows by completing the actions within the KCCAP we will achieve our emission targets.

APPENDIX B:
KING TOWNSHIP MITIGATION MODEL 2.28

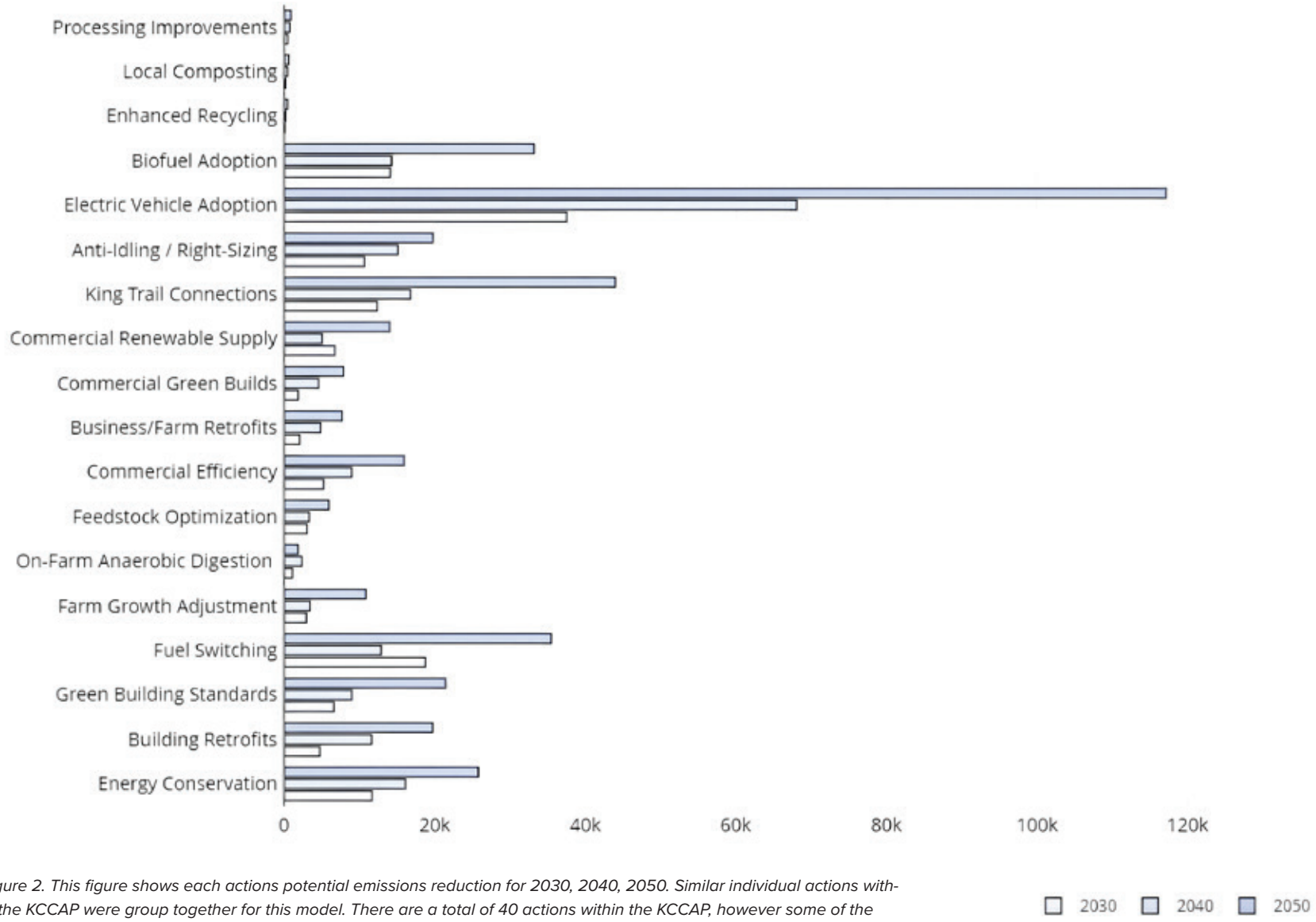

Figure 2. This figure shows each actions potential emissions reduction for 2030, 2040, 2050. Similar individual actions within the KCCAP were group together for this model. There are a total of 40 actions within the KCCAP, however some of the actions are focused on climate adaptation and not represented in this emissions reduction model, as well as some actions are engagement focused and do not have a quantifiable effect on reduction of emissions.

APPENDIX B:
KING TOWNSHIP MITIGATION MODEL 2.28

ACTION	MITIGATION 2030	MITIGATION 2040	MITIGATION 2050
Energy Conservation	11,656	16,122	25,798
Building Retrofits	4,756	11,608	19,735
Green Building Standards	6,620	8,990	21,449
Fuel Switching	18,753	12,904	35,485
Farm Growth Adjustment	2,976	3,447	10,875
On-Farm Anaerobic Digestion	1,119	2,388	1,853
Feedstock Optimization	3,023	3,344	5,929
Commercial Efficiency	5,268	8,968	15,946
Business/Farm Retrofits	2,060	4,843	7,700
Commercial Green Builds	1,868	4,576	7,887
Commercial Renewable Supply	6,741	5,071	14,027
King Trail Connections	12,380	16,805	43,986
Anti-Idling / Right-Sizing	10,678	15,125	19,794
Electric Vehicle Adoption	37,532	68,060	11,7112
Biofuel Adoption	14,124	14,293	33,182
Enhanced Recycling	83	180	471
Local Composting	173	454	641
Processing Improvements	491	759	908

Figure 3: This table shows how much Tonnes of GHG emissions each action saves annually (TCO2e saved annually)

APPENDIX B:
KING TOWNSHIP MITIGATION MODEL 2.28

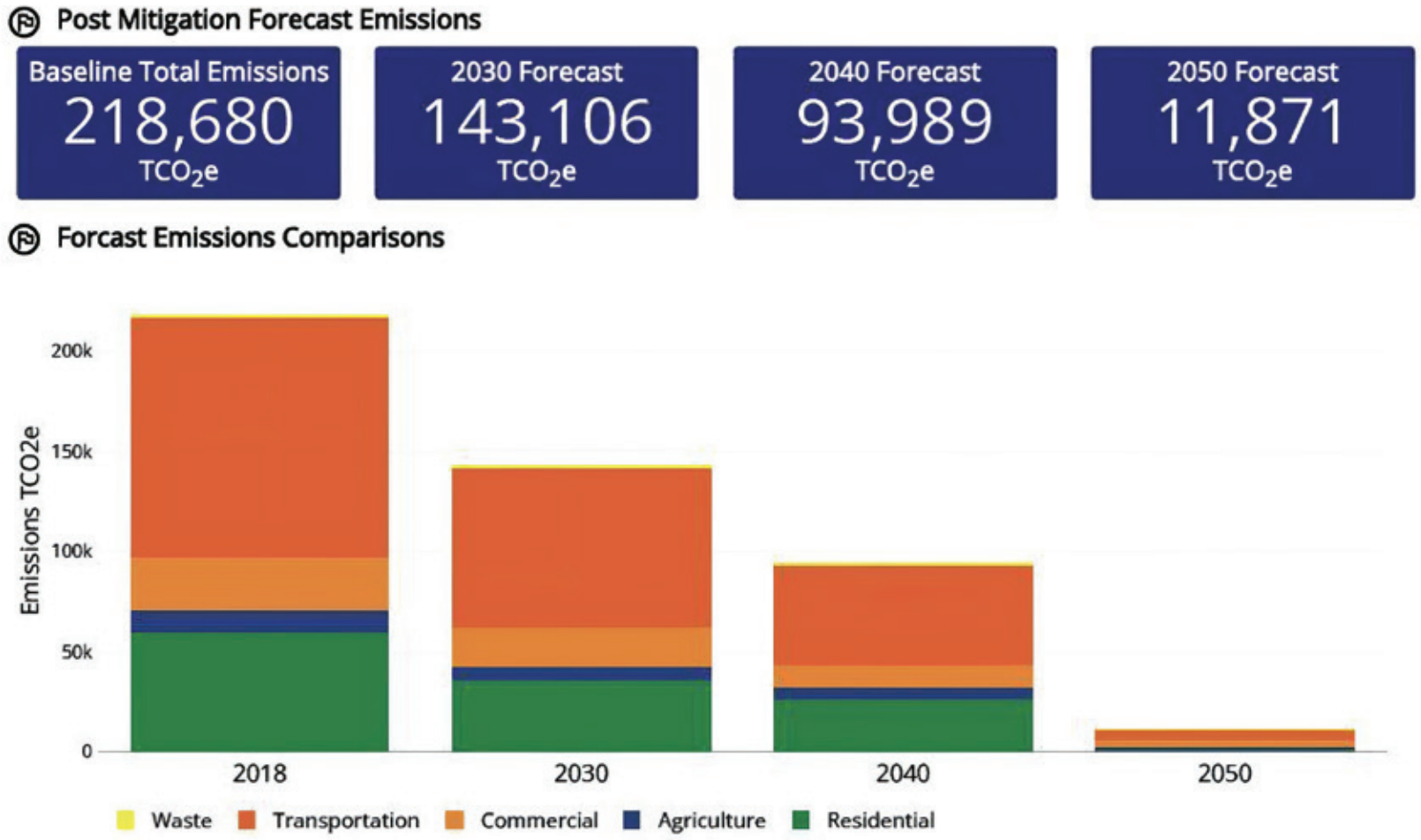

Figure 4: This figure shows the forecasted GHG emissions reduction for each target year in Tonnes of GHG emissions (TCO2e)