Lessons from Ontario's Municipal Comprehensive Reviews:

Implementing Climate Change Policy through Regional Planning

JULY 7, 2022 1:45 – 3:00 P.M.

Elevation 2.0 CIP/PIBC National Conference

environmental & urban change | YORK U | LTD | HEMSON

Why are we here?

- Federal target of net-zero greenhouse gas emissions by 2050
- Significant changes are anticipated:
  - Transition from fossil fuel to renewable energy
  - Update to building codes and municipal “green standards”
- Meeting the challenge of creating actionable climate change mitigation policy at the local level?
  - Will the policies deliver?
  - Existing communities vs new development land areas?
- Lessons from recent 2051 comprehensive plan reviews in southern Ontario

Federal Definition of Net Zero Emissions

“means our economy either emits no greenhouse gas emissions or offsets its emissions, for example, through actions such as tree planting or employing technologies that can capture carbon before it is released into the air” (Canada, 2022)

environmental & urban change | YORK U | LTD | HEMSON

Who are we?

- Nationwide presence focussed on Ontario Regional municipalities
- Growth management and long-term planning:
  - Demographics e.g., population and employment forecasts
  - Land Needs Assessment
- Policy (not approvals)
- Paying for growth (municipal finance)
- Integrating climate change into planning

Russell Mathew
Hemson

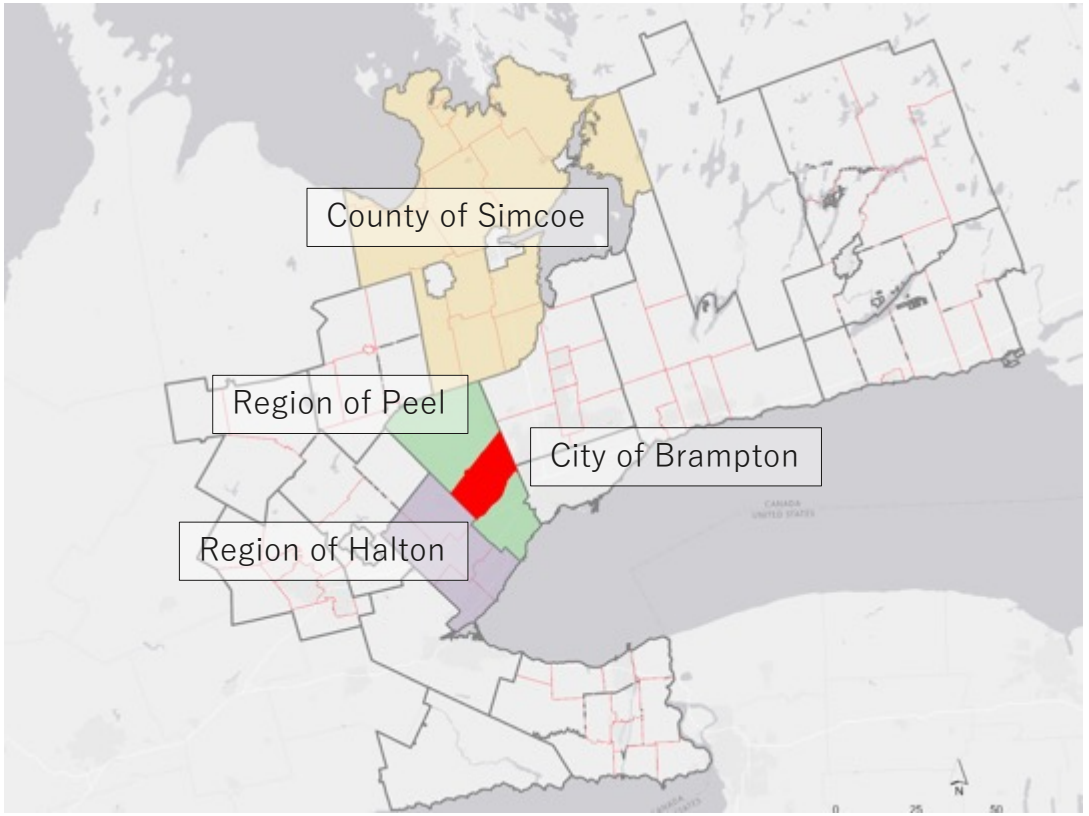
Jaclyn Hall
Hemson

Laura Taylor
LTD & York University

environmental & urban change | YORK U | LTD | HEMSON

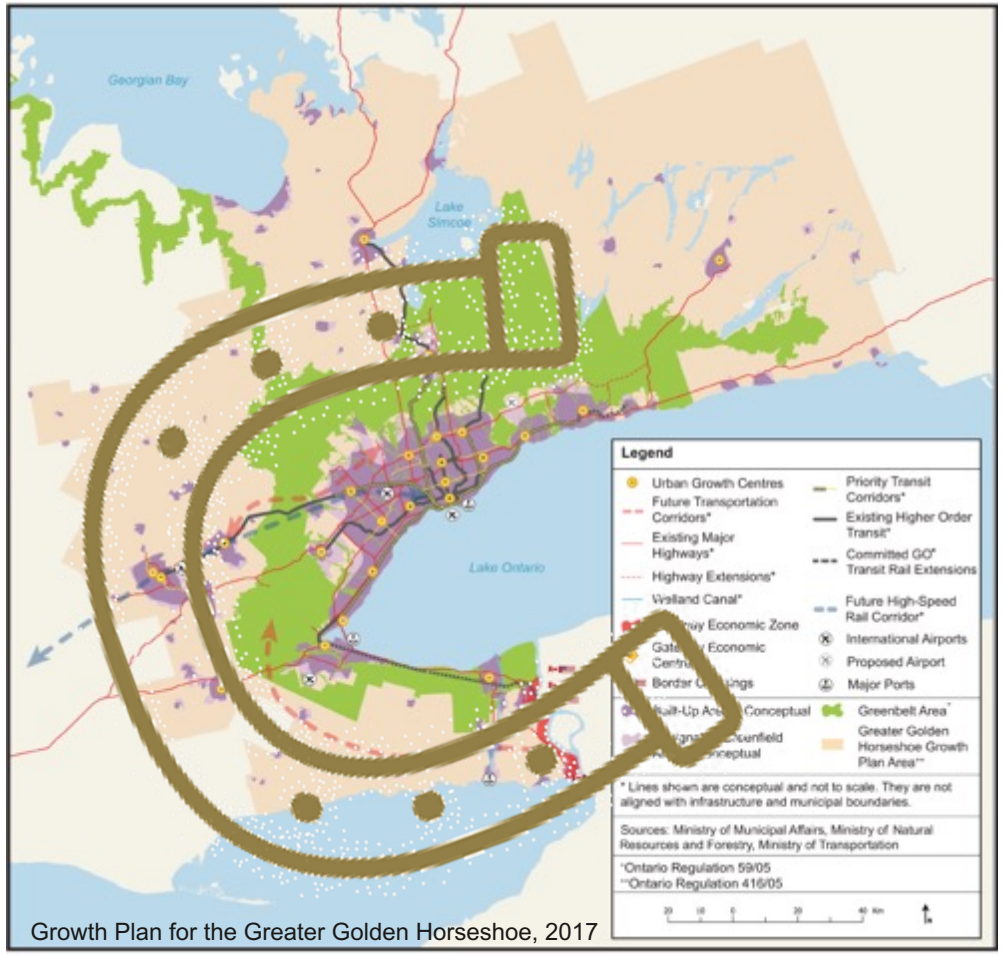
Regional planning in the Greater Golden Horseshoe (GGH)

- Known as Municipal Comprehensive Reviews (MCR)
  - Legislative requirement (Growth Plan)
  - Politics of planning for climate change
  - Different approaches
- We were involved in climate change policy in:
  - Region of Halton
  - Region of Peel & City of Brampton
  - County of Simcoe



GGH is home to 10 million people, will increase to 15 million people by 2051

- Densely populated and diverse economy
  - 26% of Canada's population and economy
  - About same land area as Belgium, will equal its population and density within the decade
- Vibrant environmental and cultural landscape
  - Three Great Lakes
  - Productive farmland
  - Forests and recreational areas
  - Greenbelt and major environmental features
  - First Nations communities in outer parts of the GGH
- Area governed by comprehensive planning framework to achieve "complete communities"
  - 21 "regional" planning authorities
  - Climate change must be addressed through the planning process



Growth Plan for the Greater Golden Horseshoe, 2017

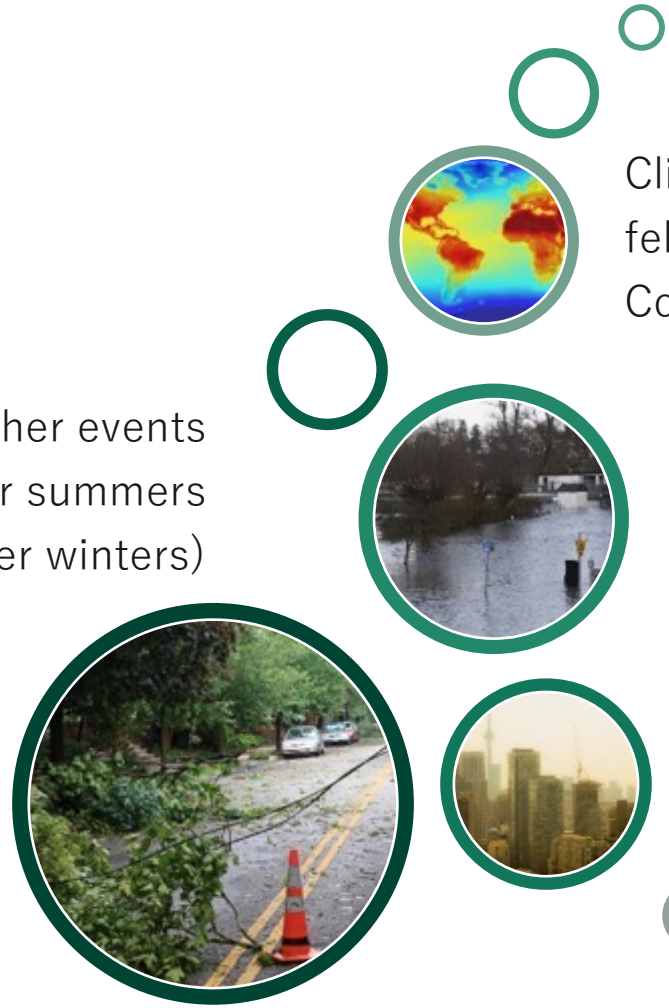
environmental & urban change | YORK U | LTD | HEMSON

Planning the next 30 years for the GGH

- Growth is concentrated mainly within the GTAH
  - Increasing shift towards medium and high-density buildings
  - Urban and suburban areas are becoming more dense
  - Strategic placement of employment areas
  - Significant infrastructure needs
- Municipalities must plan to achieve population and employment targets identified in the Growth Plan to 2051
  - Foundational basis for growth management plans, housing needs assessment, transportation master plans, infrastructure master plans and employment studies
- Climate change is a key element
  - Must be considered as part of the land-use planning process
  - Declaration of climate emergency has resulted in a greater amount of municipal action/attention

Source: Region of Halton 2019

National and GGH climate forecast



Climate change will not be felt equally across the Country

Extreme weather events (e.g., hotter dryer summers and milder wetter winters)

Significant financial implications to public and private property

Impacts to human health (e.g., reduced air quality, loss of ecosystems, overburden infrastructure)

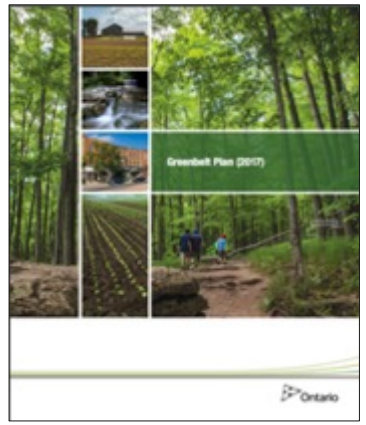
Google maps, 2022

2050 mid-century deadline looms

Paris Agreement
(United Nations Framework Convention on Climate Change)

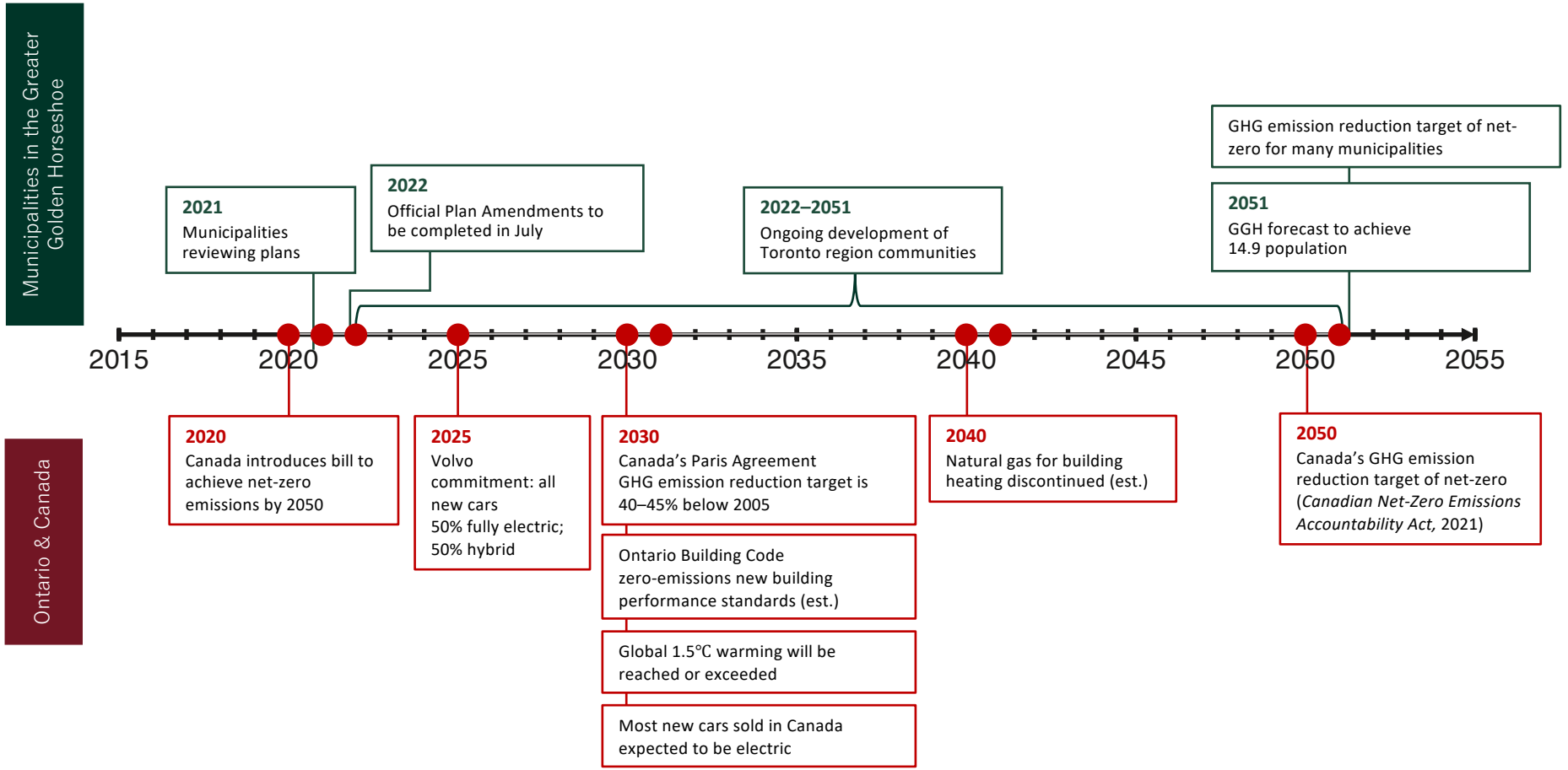
Goal of holding the increase in global temperature to 1.5°C–2°C above pre-industrial levels through reducing emissions from burning fossil fuels to net zero, as well as a commitment to adaptation planning and implementation.

2051 Planning horizon for southern Ontario municipalities
Compliance with the Provincial Policy Statement,
Growth Plan and the *Greenbelt Plan*



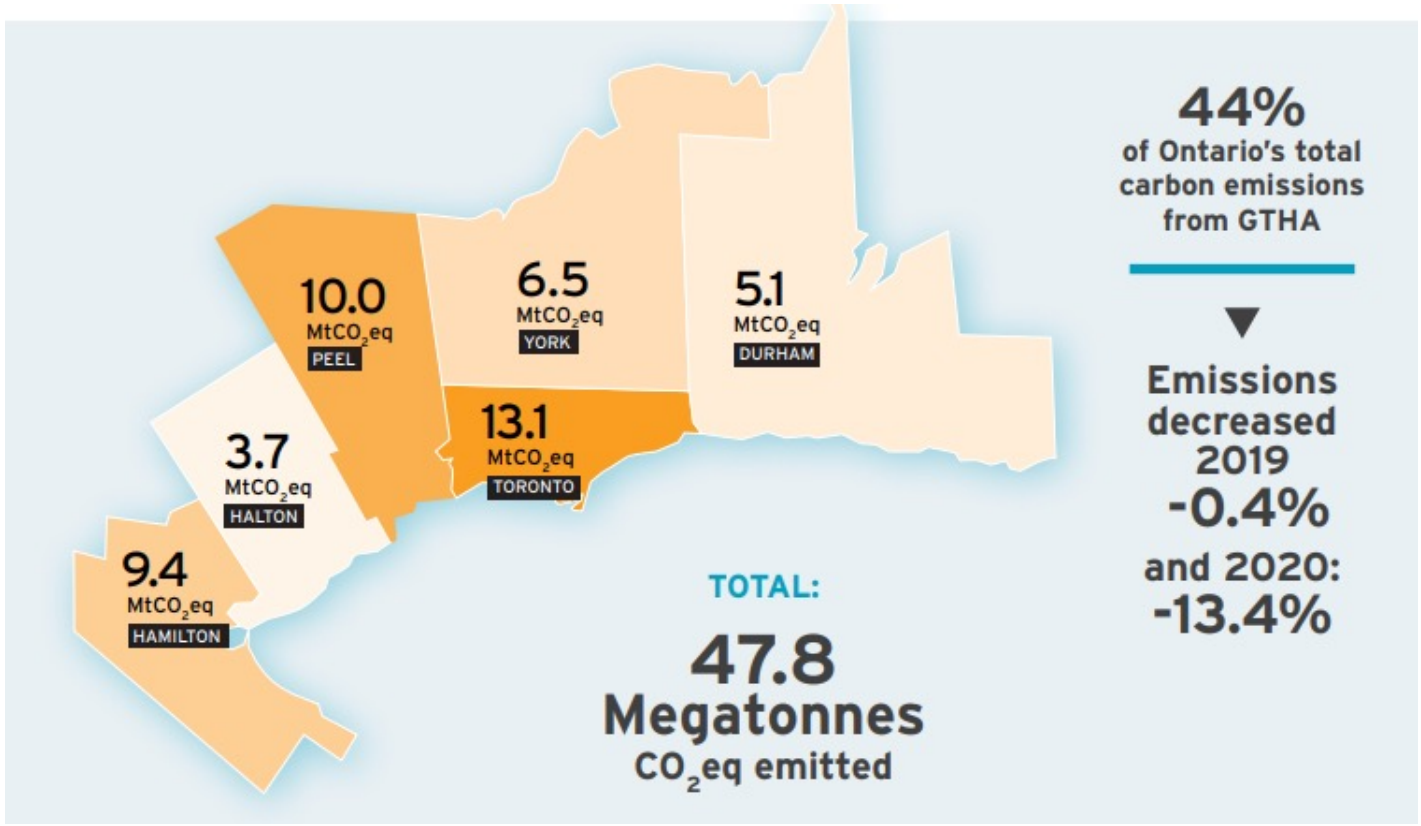
environmental & urban change | YORK U | LTD | HEMSON

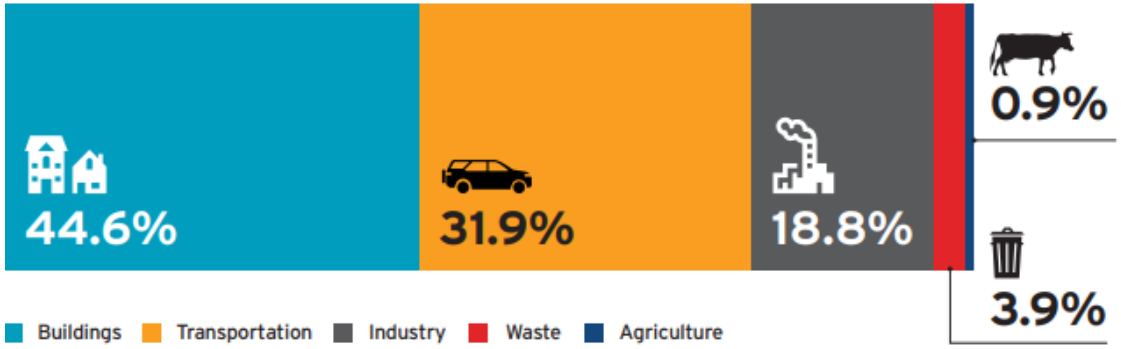
2050 timeline for municipal climate action



L. Taylor/J. Hall

GTAH emissions from buildings and transportation





TAF, 2021

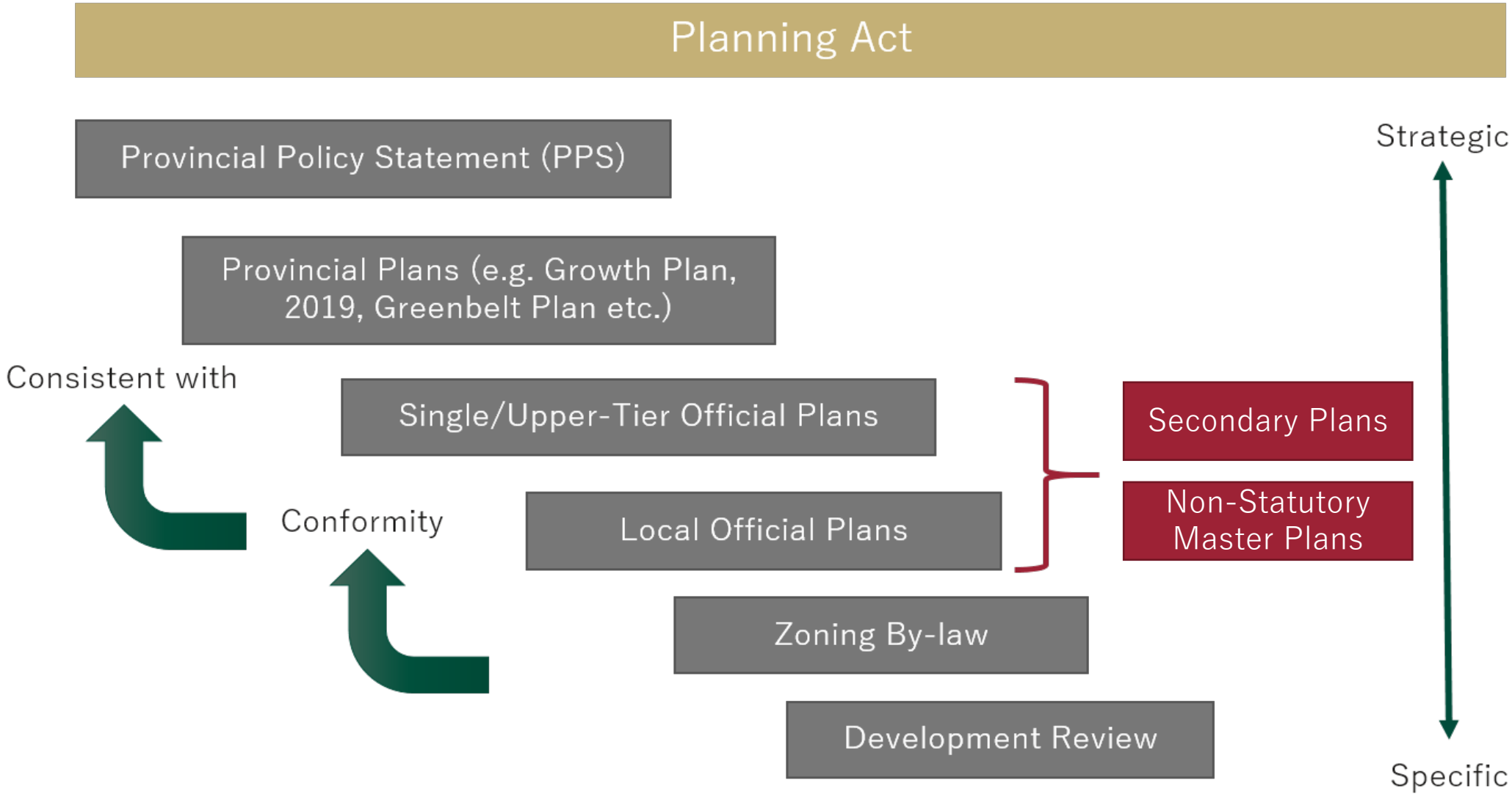
Completed by the Toronto Atmospheric Fund Greenhouse Gas Emissions Inventory for the Greater Toronto and Hamilton Area December 2021

Excludes Simcoe and other “outer ring” municipalities in the GGH

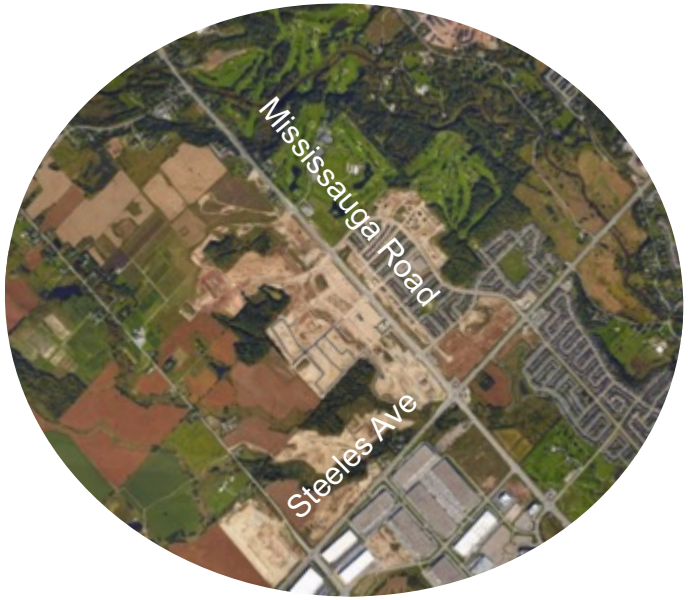
Buildings and transportations sectors are the biggest GHG emitters

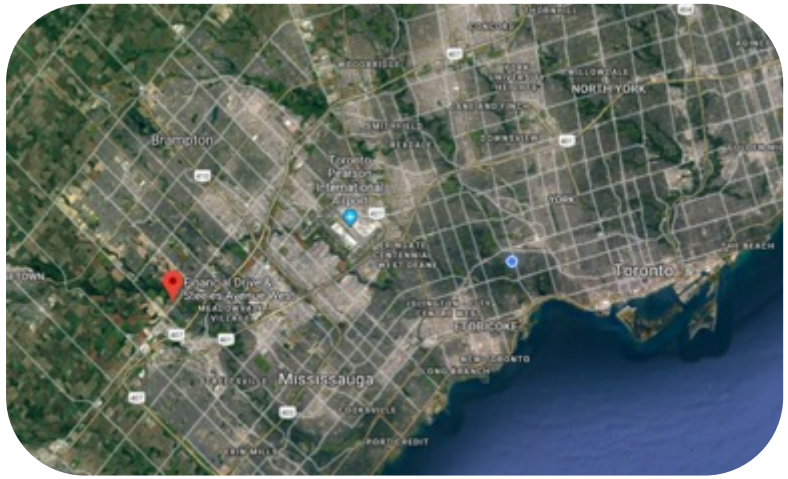
environmental & urban change | YORK U | LTD | HEMSON

Planning Framework in Ontario



Cities and GHGs



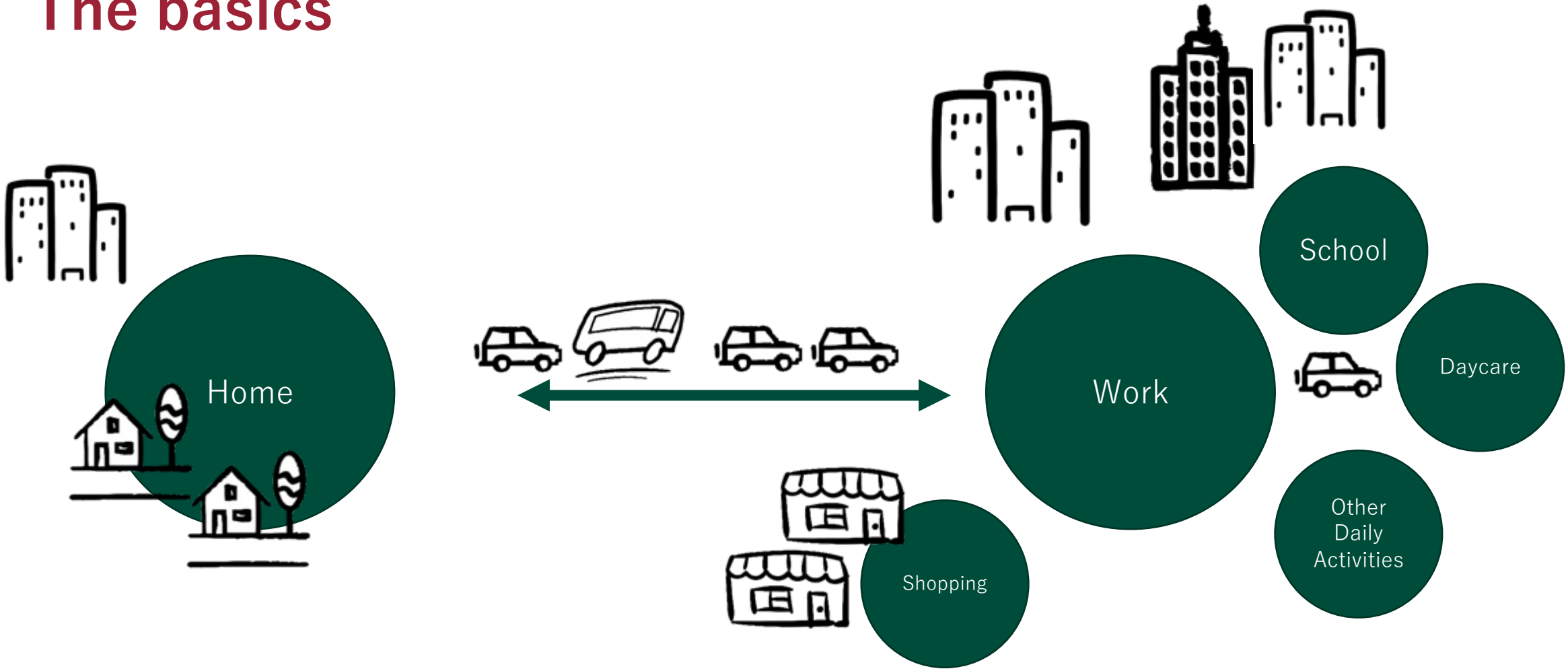


Cities and Climate Change, Laura Taylor, 2022

City of Brampton (looking north, just north of Highway 407)
L. Taylor April 2016

environmental & urban change | YORK U | LTD | HEMSON

Growth management and comprehensive planning: The basics



To reduce transportation emissions drastically reduce trips by fossil-fueled vehicles

1. **Reduce car commutes to work and school**
   - Reduce distance between home and work/school
   - Make public transit a viable option
   - Make walking and cycling viable options
   - Diversify regional employment types

2. **Reduce car trips for everyday activities**
   - Reduce distance between home and shopping/services
   - Diversify and distribute centres
   - Make walking and cycling viable options

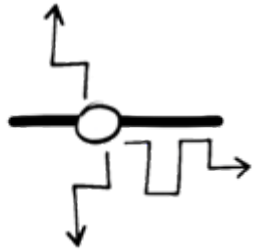
3. **Phase in fully electric vehicles**
   - Major car makers follow Canada's commitment to reducing emissions
   - Individual car-buyers' choice

Land use implications

Situate homes and various types of employment in close proximity

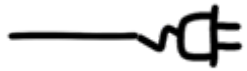
Make employment lands accessible by transit

Create transit hubs



Design roads to prioritize transit and active transportation

Increase residential densities to reduce land use, shorten distances

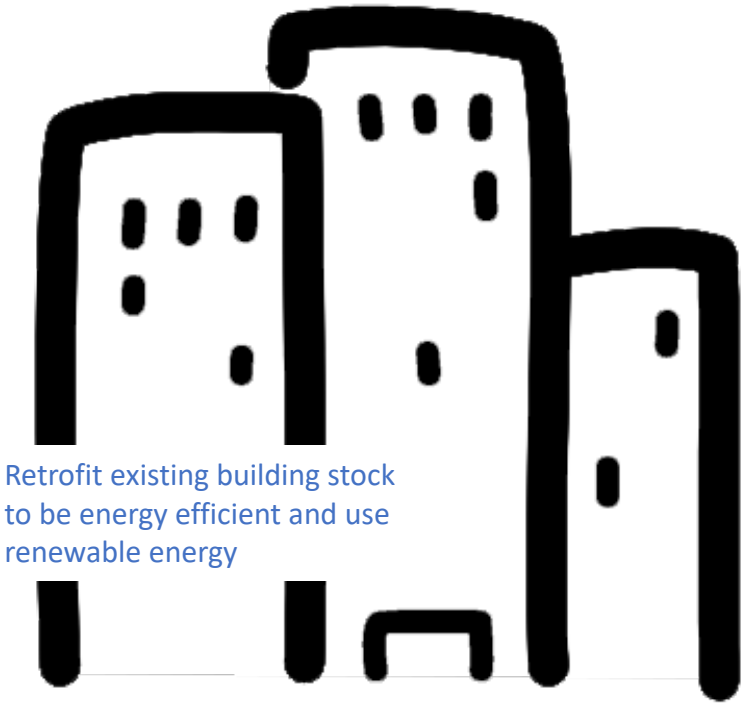


Charging stations required

Cities and Climate Change, Laura Taylor, 2022

environmental & urban change | YORK U | LTD | HEMSON

To reduce building emissions make new builds net zero



Retrofit existing building stock to be energy efficient and use renewable energy

1

Develop **district energy**

- Identify locations for district energy hubs
- Design infrastructure

2

Generate **renewable energy locally**

- Identify regional sites for renewables (solar, wind)
- Encourage site-level renewables

Phase out **heating with natural gas**

- Transitional fuel?
- Need for systemic change
- Individual home- and building-owner choice

Land use implications

Turn urban growth centres and community urban centres into energy production and distribution hubs

Plan for community connections (energy storage and feed-in)

Identify rural areas suitable for large-scale renewable energy production

Include renewables in site and building design

Phase in renewables (solar, wind)

environmental & urban change

YORK

LTD

HEMSON

Climate policy basics

- Integrate Climate Change into all Areas of Municipal Responsibility
- Adopt a Stand-Alone Climate Change Action Plan
- Adopt Emissions Targets
- Plan for Resiliency
- Political Support
- Monitor Policies Over Time
- Focus on Public Education and Consultation
- Support Collaboration

See: Boswell, Greve & Seale, 2019, *Climate Action Planning: A Guide to Creating Low-Carbon, Resilient Communities*

Ontario/GGH municipalities generally

- Provincial Policy Statement and provincial plans require climate change mitigation to be included in local official plans
- Most municipalities have undertaken some form of emissions reduction strategies

Corporate Emissions Strategies

- Reduce emissions from municipal operations

Community Emissions Strategies

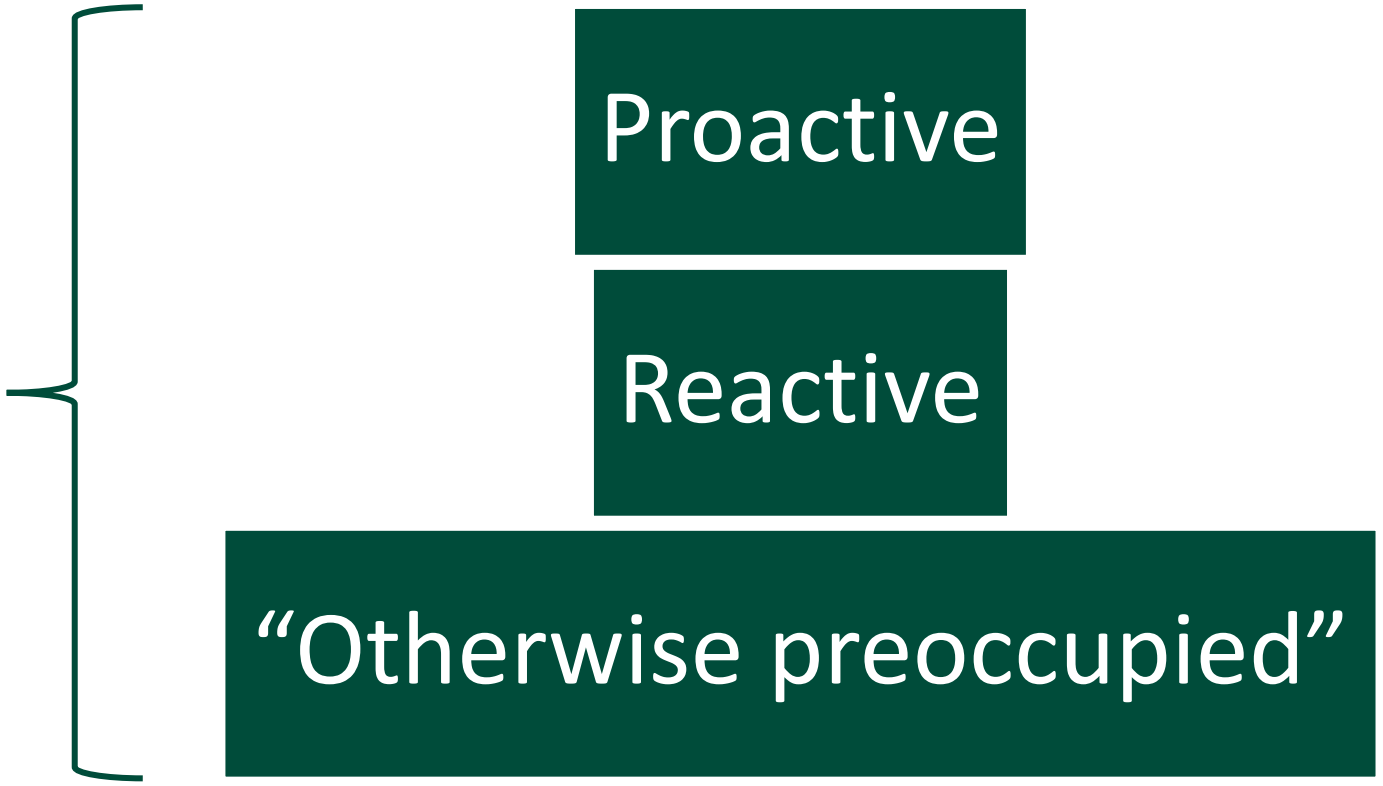
- Reduce emissions from individuals and employers (e.g., homes, transportation, industries etc.)

Community Energy Plans

- Delivery and use of energy within a geographic area

How are municipalities doing?

Three types of municipalities



environmental & urban change | YORK | LTDS | HEMSON

Proactive

- Policies related to energy and emissions reduction through the planning process:
  - Regional municipality and local municipalities in sync
  - Energy and emissions integrated into all levels of policy and development review
    - City-wide energy reduction plan
    - Community energy reduction Plan for Heritage Heights Secondary Plan
    - Integrated Energy Strategy required at Block Plan stage
- Support for policy implementation
  - e.g., district energy facilities

Reactive

- Council declares a “climate change emergency”
- Shifting priorities during MCR process
- Response to intense public involvement and oversight
- Policy framework emerging, implementation less certain

“Otherwise preoccupied”

- Meeting minimum compliance requirements of provincial policy framework
- Energy and emissions reduction strategies punted to subsequent planning exercises
- Roles of upper-tier and lower-tiers municipalities still being worked out

Proactive example: Heritage Heights Secondary Plan, City of Brampton

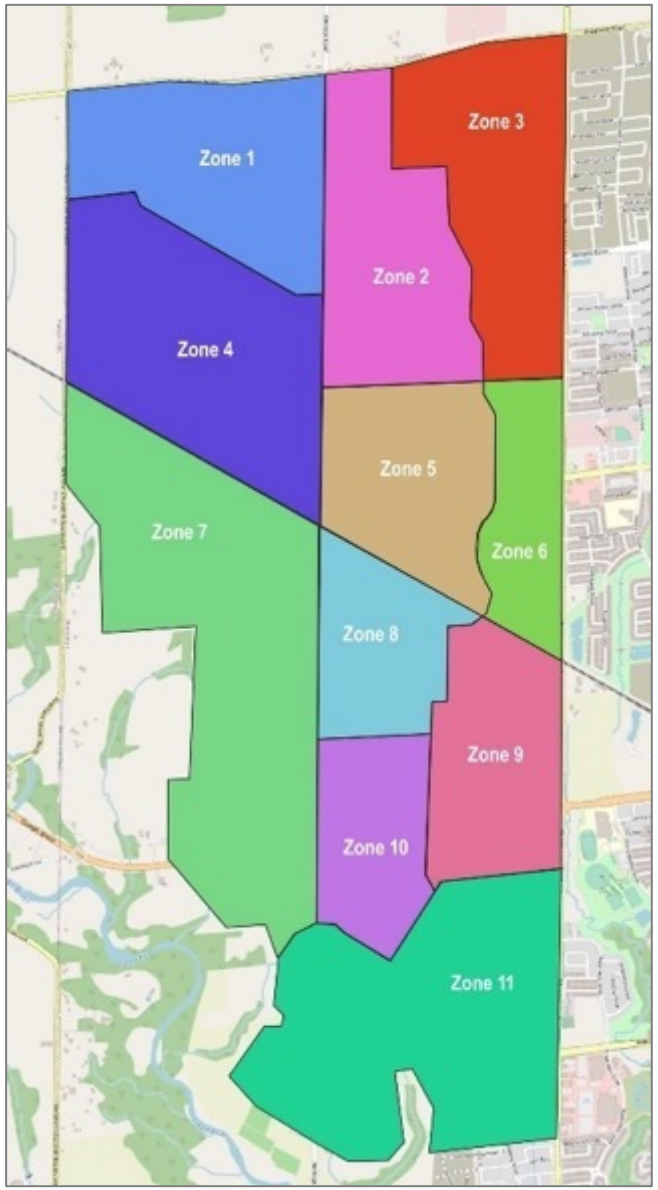


Figure 4: Overlay of Spatial Planning Zones and the Heritage Heights Conceptual Land Use Plan (Garforth, Farbridge, LTD, & Hemson, *Heritage Heights Community Energy Feasibility Study*, 2021)

environmental & urban change | YORK U | LTD | HEMSON

Translating Energy Planning to Policy: Planning Tools

Planning Tools	Planning and Policy Framework Considerations
Official Plan	• Develop general policies regarding energy and emissions based on city-wide plan
Secondary Plan	• Develop policies informed by an area-specific Community Energy Plan • Identify potential location for future energy infrastructure (e.g., district energy networks and energy centres) • Set out development phasing and implementation measures, such as energy considerations required for tertiary plans and development approvals (e.g., responsibilities and timing for infrastructure)
Block Plan	• Include detailed community structure and infrastructure considerations • Recognize carbon sequestration through parks/natural heritage features • Include requirement for Integrated Energy Master Plan to implement the CEP
Zoning By-law	• Include energy regulations by zone, especially related to height and setbacks of energy infrastructure (e.g., renewable energy technology, ground source geo-thermal systems, etc.) • Include guidance for on-site renewables “as of right”
Plan of Subdivision/Site Plan	• Include CEP implementation objectives
Design Guidelines	• Include guidance on sustainable building and neighbourhood design and materials as well as location and scale of on-site renewable energy and district energy interconnections • Include guidance on integrating low-carbon transportation outcomes into the built form.
Green Standard/Development Assessment	• Incorporate CEP performance metrics

From: *Heritage Heights Community Energy Feasibility Study*, 2021

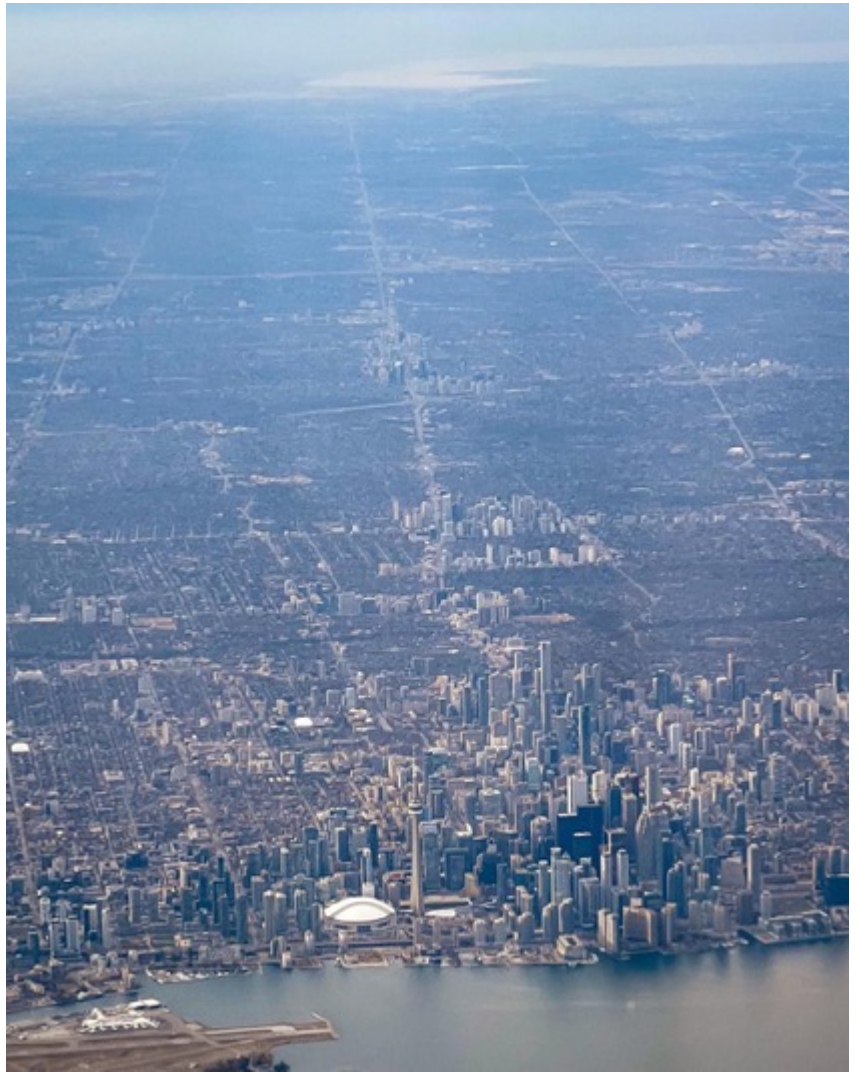
Translating Energy Planning to Policy: Other Tools

Tools/Instruments	Planning and Policy Framework Considerations
Transportation and Transit Master Plan	• Integrate CEP energy policy
Active Transportation Master Plan	• Integrate CEP energy policy
Ontario Building Code	• All development in Ontario is required to meet the minimum building code requirements. • Policy can provide guidance to achieving standards greater than the building code, however these are difficult to enforce. Incentives through Community Improvement Plan (CIPs) can be explored to close the gap.
Integrated Energy Master Plans	• Require an energy strategy and energy modelling to be addressed through Community Block Plan or other development approvals, especially for zones where energy centres and DE network connections are required.
Financial Incentives	• Develop programs for new construction. • Provide information and support processes for grant applications. • Include in Community Improvement Plans
Voluntary Standards and Ratings	• Encourage developments to meet industry performance standards and ratings
Public Education and Community Consultation	• New governance approaches to support a fundamentally different planning and permitting approach to all aspects of the built environment

From: *Heritage Heights Community Energy Feasibility Study*, 2021

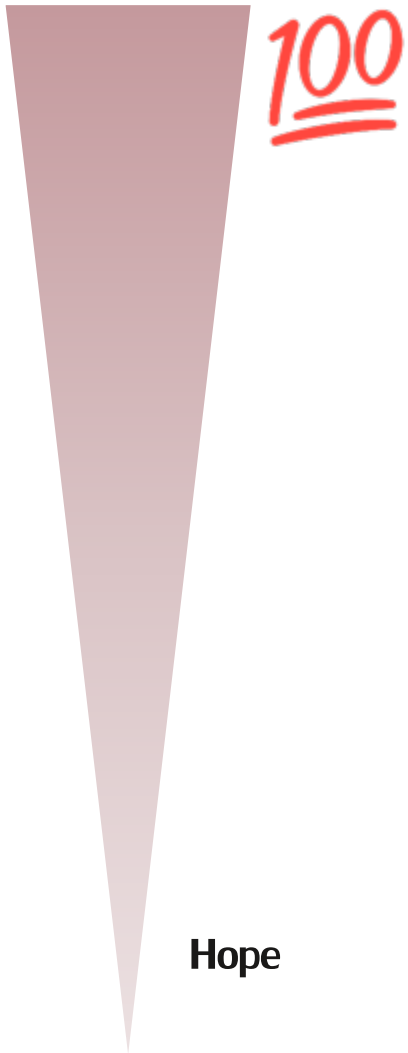
Planning one piece of a larger puzzle

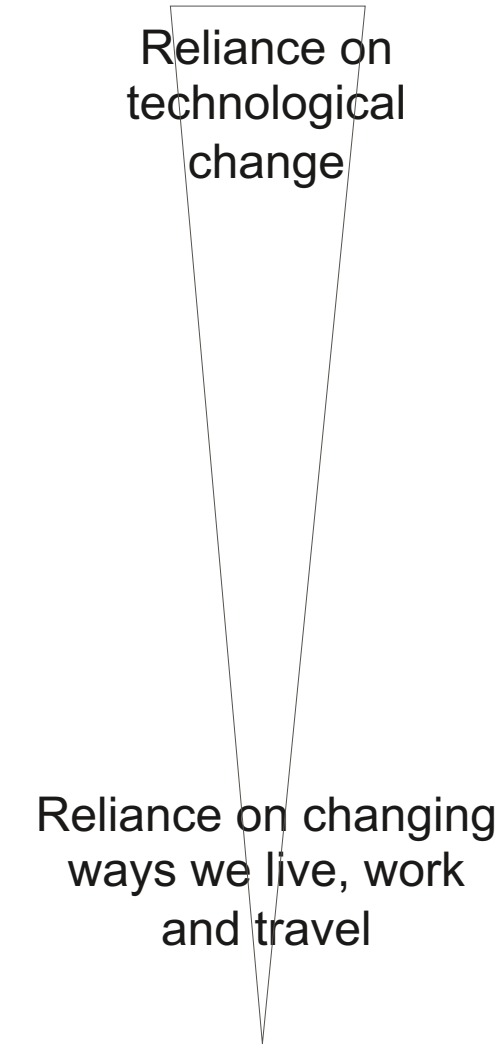
- Much of the transition is outside of the planning process:
  - Much is up to developers and builders
  - Building codes are important
  - Energy sector is pivoting
  - Municipal finance implications
  - Everyday lifestyle choices

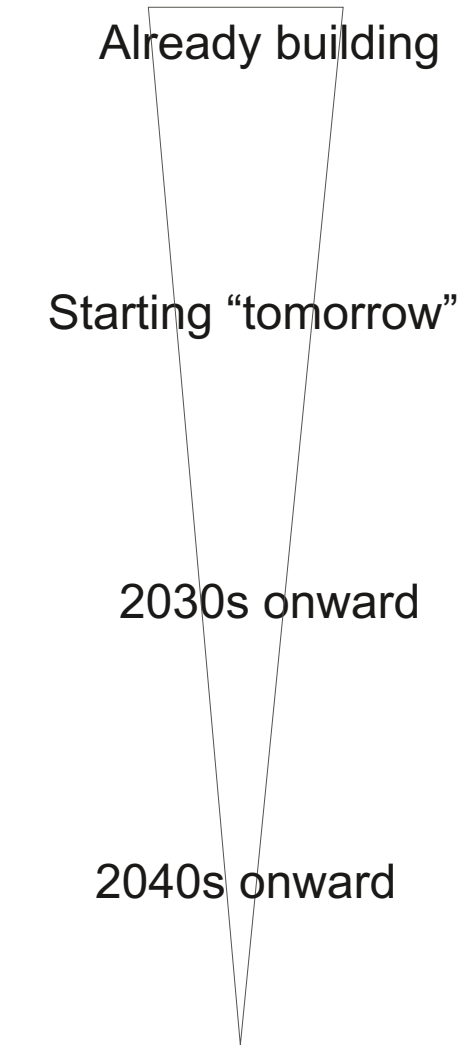


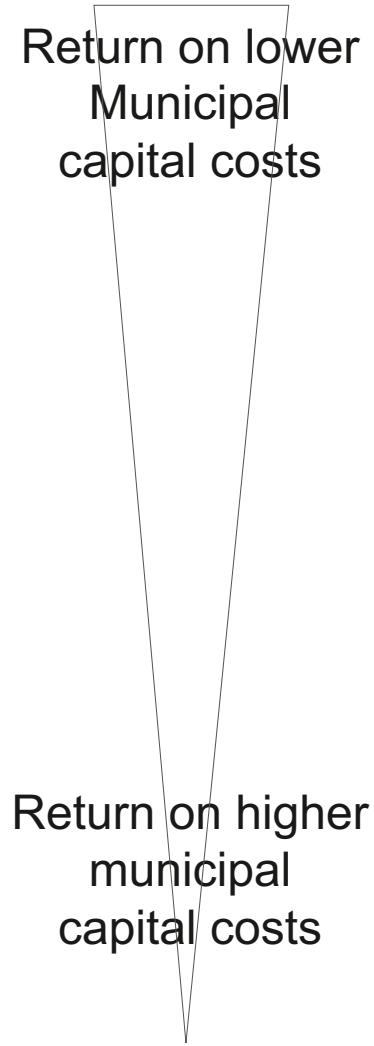
Yonge Street from Lake Ontario to Lake Simcoe

Certainty of results from planning varies by scale









environmental & urban change | YORK U | LTDS | HEMSON

We know how to deliver at the subdivision level

Subdivisions & Neighbourhood Plans

- Easements for new utility models & EV charging
- Local active transportation
- New building code goals and regulations

Community plans

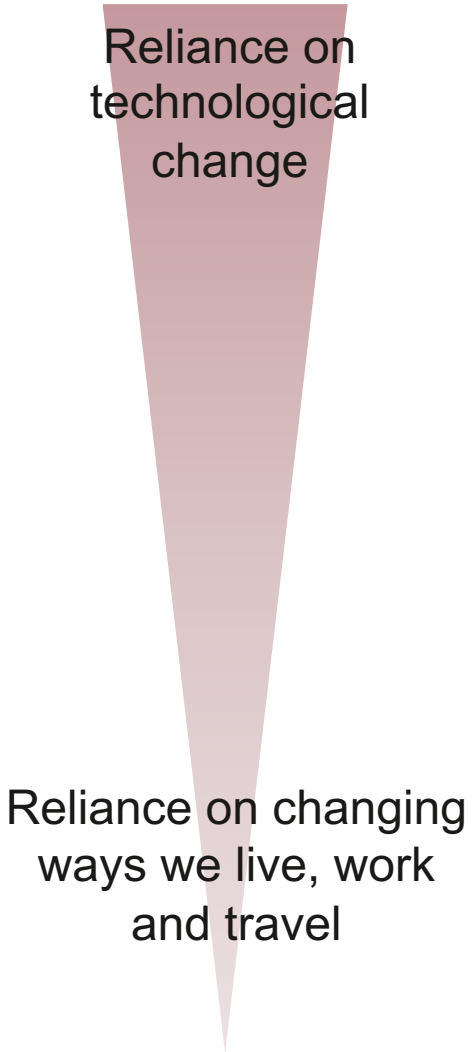
Local municipal plans

- Sites for district heating or EV “gas stations”
- New electricity infrastructure and rights-of-way
- Municipal infrastructure for higher and lower density areas

Regional plans

- Most growth in high-density residential and office
- Transit oriented, not just transit adjacent, communities
- Conveniently ignore the high GHGs from cement

Live / work / travel changes less certain than new technology



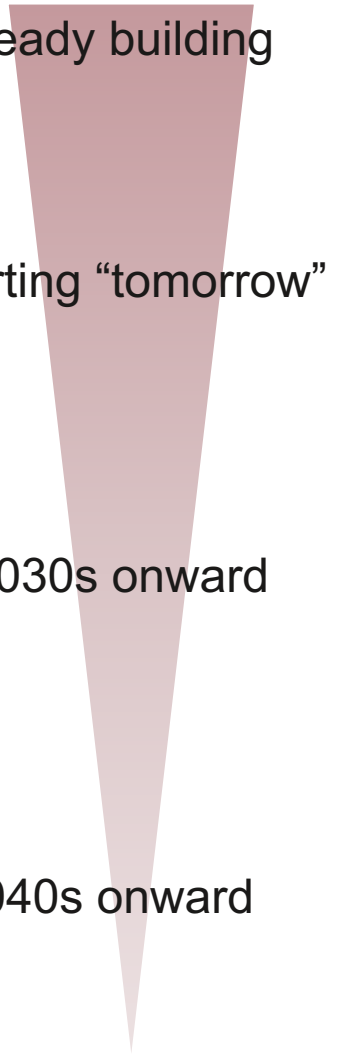
- Shift to EVs is happening
- Geothermal and district heating becoming more economic
- Building code net zero is likely achievable for most

It may well happen, but:

- Little evidence of young households shifting *en masse* to permanent apartment living
- Despite planners' certainty, not clear high density living and transit access result in high transit use
- Even less indication that employment will be attracted to high density areas outside of historic downtowns

environmental & urban change | YORK U | LTD | HEMSON

New regional plans may take decades to hit ground



Already building

- EV charging already on streets and in parking garages
- Complete streets popping up everywhere

Starting “tomorrow”

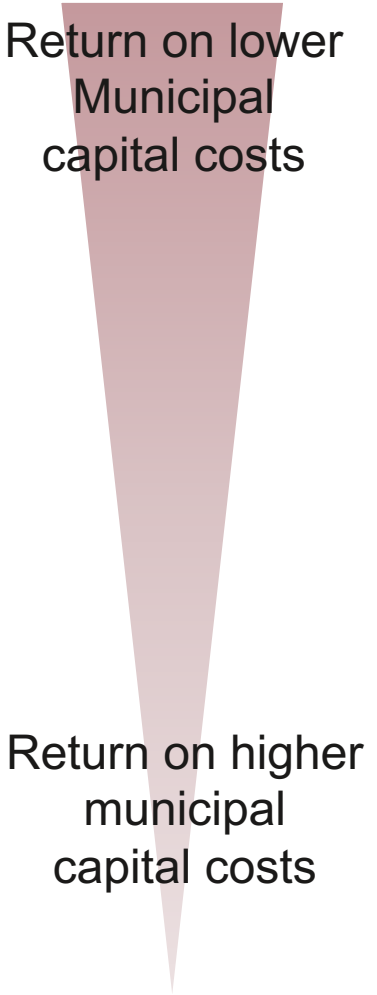
- Site reservation (or dedication) for utilities “easy” to do
- Net zero building codes will likely be in 2030s

2030s onward

- Greenfield areas now being built were mostly planned in mid-2000s
- New high-density communities now in planning will not be substantially developed until late 2030s or later

2040s onward

Intensification areas and new high density communities often more capital intense



- Subdivision level infrastructure mainly developer-built approval conditions and dedications
- Difficult to secure enough park land in higher density areas

- Intermediate level infrastructure mainly funded by fees on new development
- Dense places can be more costly, but hard to raise fees

- Retrofitting piped infrastructure often very costly
- Transit infrastructure is enormously expensive with little funded from development fees

We have done a quick energy transition before

- Following first oil crisis in 1974:
  - Eastern half of North America used almost entirely oil heating into the 1970s
  - Very large share of buildings converted to natural gas within 5 years
  - Nearly the entire fleet of North American automobiles was replaced by about 1980 at double the fuel efficiency

Greatest uncertainty is us and what we want

- Uncertainty of the larger scale plans comes from the public itself
- The “market is us” after all
- Willingness to change ways of living
- Truly changing transportation modes
- Interest in living in complete communities

Market economy and democracy can be very inconvenient

What we know so far from GGH regional planning process

- We are out of time to meet 2050 emissions targets (all new builds must be near net-zero)
- Planning can be proactive so as not to impede innovation
- Good planning is as important as ever
- Regional municipalities and local municipalities not in sync
- Public education and participation still important

Thank you!

Comments? Questions?

- Laura Taylor (taylorL9@yorku.ca/ltaylor@laurataylordesigns.ca)
- Jaclyn Hall (jhall@hemson.com)
- Russell Mathew (rmathew@hemson.com)