CLIMATE CHANGE

GREEN FLEET AND EQUIPMENT POLICY

Environmental Action Committee

October 6, 2020

MISSISSAUGA

GOALS FOR TODAY

- ✓ Background and context including quick EV's 101
- ✓ Policy Overview
- ✓ Timelines
- ✓ Comments/Discussion

CLIMATE CHANGE

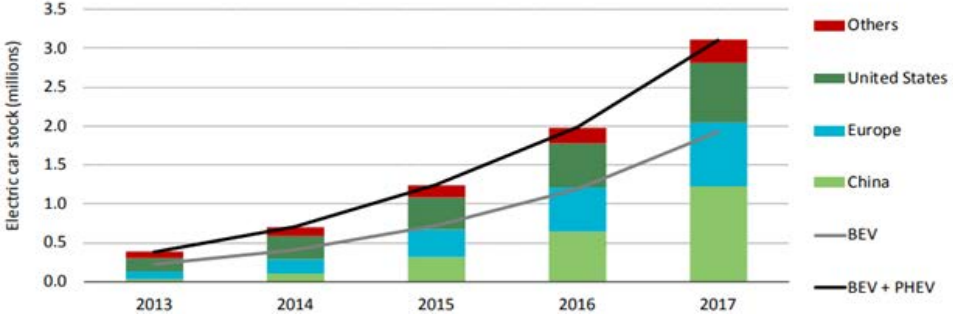
QUICK 101

EVS ARE QUICKLY BEING ADOPTED WORLDWIDE

5.3 CLIMATE CHANGE

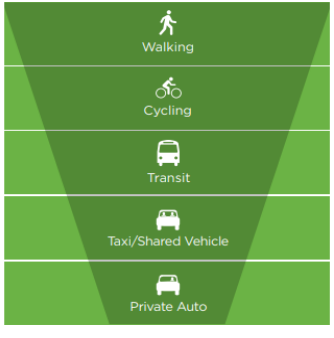
The Market Context

- Rapid growth in global EV market
- Automakers have committed $300-$400B to make available over 200 plug-in vehicle models by 2022-2023
- It is widely accepted in industry that personal vehicles in North America in the future will be larger vehicles, electric will become more common, and overall the market for personal vehicles will decrease.



Source: IEA 2018

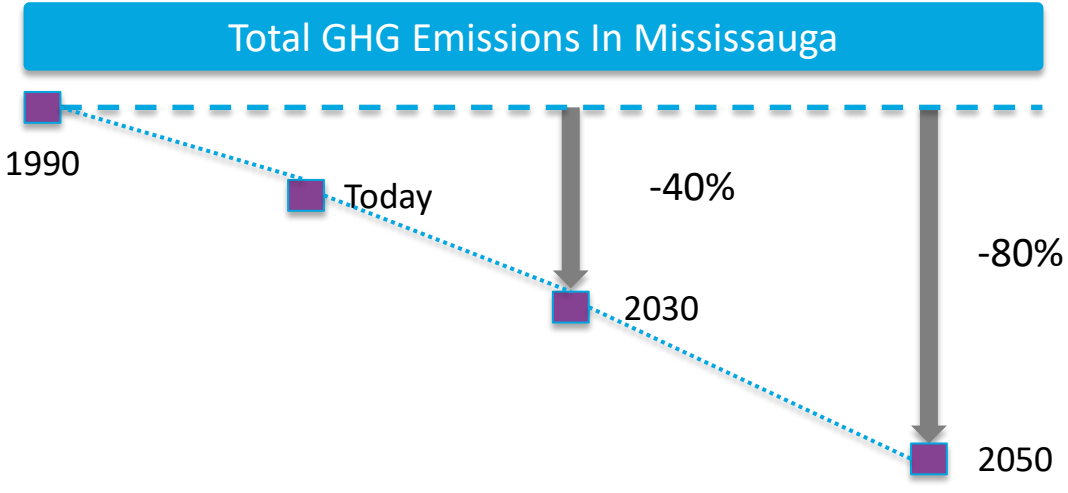
Many municipalities are prioritizing alternative modes of transportation to personal vehicles



Source: City of Vancouver, Transportation 2040: Moving Forward

CONTEXT

- Climate Change Action Plan approved by GC December, 2019
- GHG reduction targets for corporation and the community



LOW EMISSIONS MOBILITY

Action #17: Reduce Emissions from the City's Corporate and Transit Fleet

The City will lead by example by investing in low carbon and fuel efficient technologies and infrastructure, including electric vehicle charging infrastructure, for the City's corporate and transit fleets and equipment.

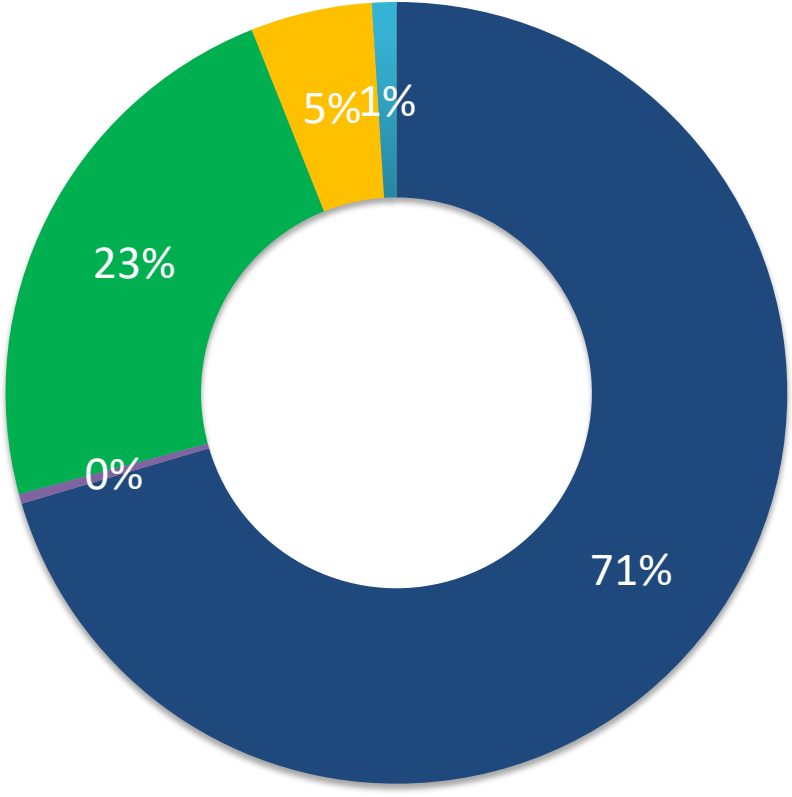
Goals Supported	
Adaptation	Mitigation
	●

Supporting Actions		Action Type	Timeline	Cost	Status	Responsibility	
						Lead	Support
17-2	Develop a green fleet policy to (1) prioritize electrification opportunities for all City fleets and equipment; and (2) continue to identify opportunities for proper vehicle allocation, route optimization, and right-sizing fleet	Policy	▬▬▭	$$	Underway	Parks, Forestry & Environment (Environment/Works Operations and Maintenance (Fleet)* *Co-Lead	MiWay, Corporate Performance & Innovation, Facilities and Property Management, Fire and Emergency Services (Capital Assets)

Two areas of opportunity:
(1) Prioritize Electrification
(2) In-Service utilization, right sizing, etc.

The policy will involve multiple stakeholders across the City.

CORPORATE GHG'S (2017)



transit
street lighting
buildings
fleet
fire services

We need to decarbonize our fleets in order to meet our GHG targets

74,300 t/eCO_2 TOTAL

VEHICLE DEFINITIONS






BEV
Battery Electric Vehicle

FCEV
Fuel Cell Electric Vehicle (hydrogen)

PHEV
Plug-in Hybrid Electric Vehicle

MHV
Mild Hybrid Vehicle
Non plug-in hybrid vehicle

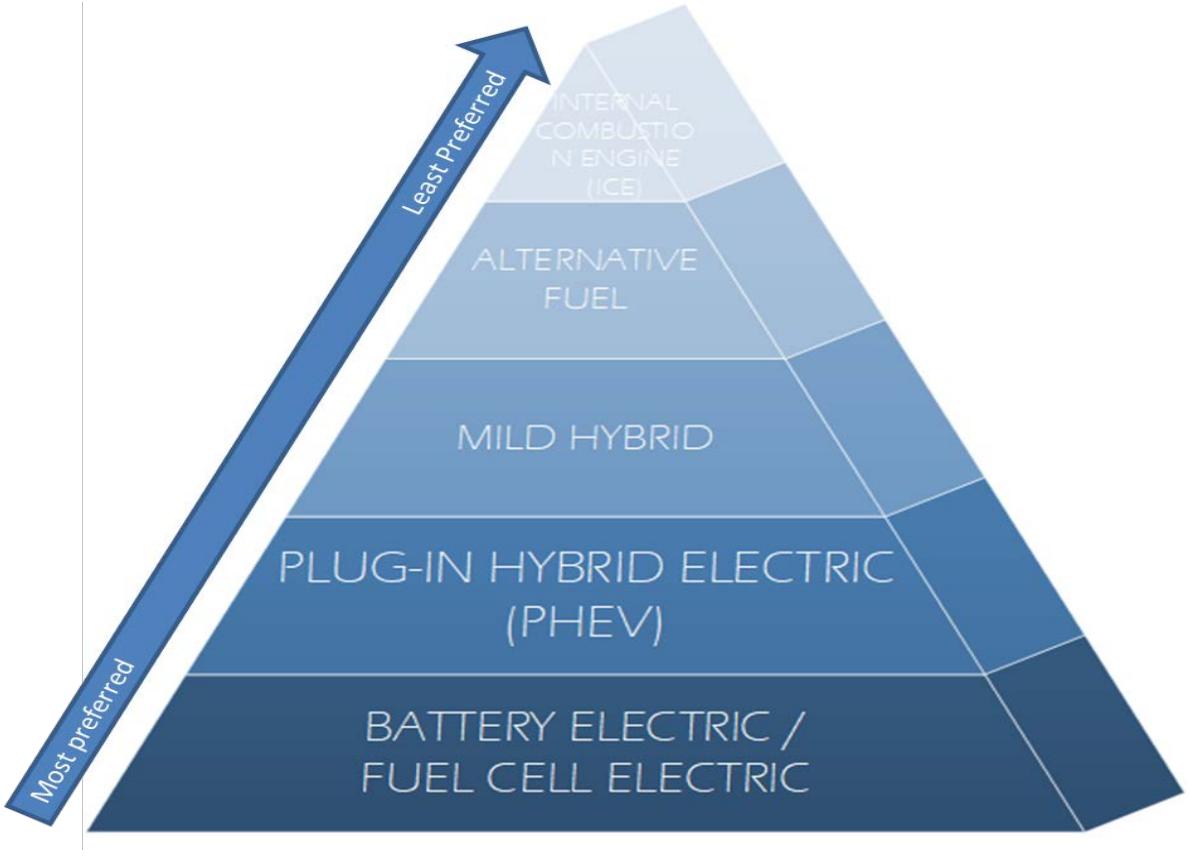
AFV
Alternative Fuel Vehicle
Combustion engine using low-emission fuels (i.e. CNG or biofuels)

ICE
Internal Combustion Engine
(Gasoline, diesel)

Zero-Emission Vehicle (ZEV)

Low-Emission Vehicle (LEV)

ZEV HIERARCHY



TYPES OF EV CHARGERS

Level 1 (One Hour of Charge ~ 8 km of Range)

All EVs come with a cord-set that plugs into a regular wall socket. This is the slowest speed of charging, but ensures that no matter where you are, you can always recharge.

Level 2 (One Hour of Charge ~ 30 km of Range)

The most common level of charging. Most EV drivers install a Level 2 charging station at home and many businesses install them for employees and/or customers. All EVs sold in North America, (with the exception of Tesla), use the same charging standard. This means that any car can use any Level 2 station across Canada and the United States.

Level 3 Charging (One Hour of Charge ~ 250 km of Range)

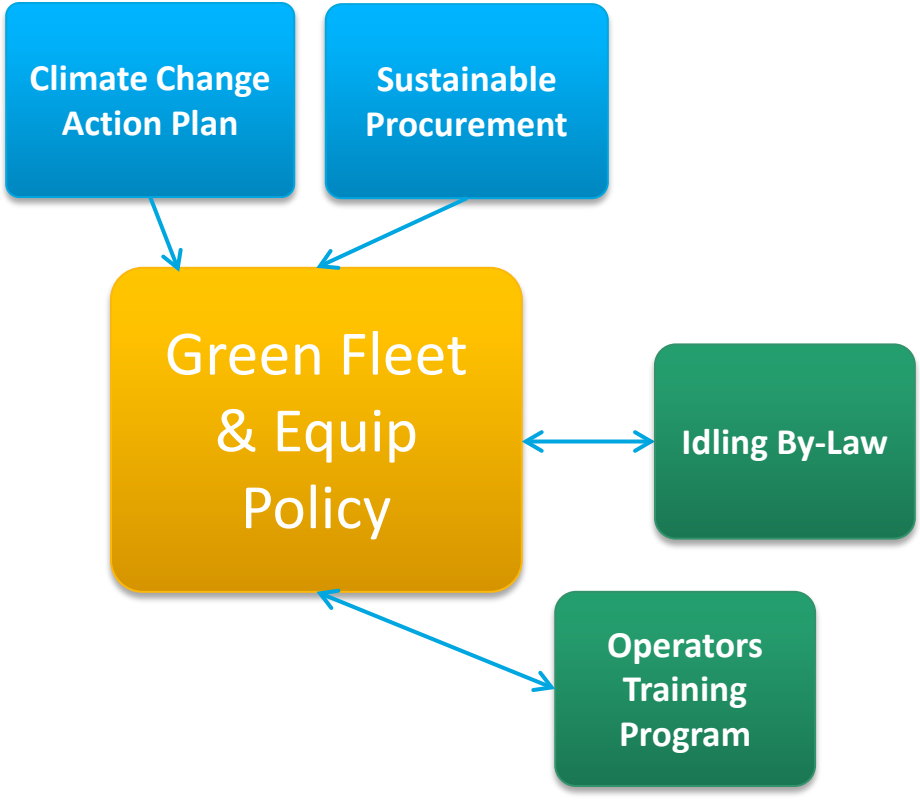
Level 3, called DC-Quick, will recharge your battery from empty to 80% in 30-45 minutes. Level 3 stations can be found along major highways throughout Canada. There are three standards of Level 3 charging: **CHAdeMO** which is used by the Asian auto manufacturers **CCS** which is used by the North American and European auto manufacturers **Supercharger** which is used by Tesla. Most Level 3 stations in North America, (with the exception of Tesla Superchargers), have both CHAdeMO and CCS. Simply pull up to the station and pick the standard your car needs.

CLIMATE CHANGE

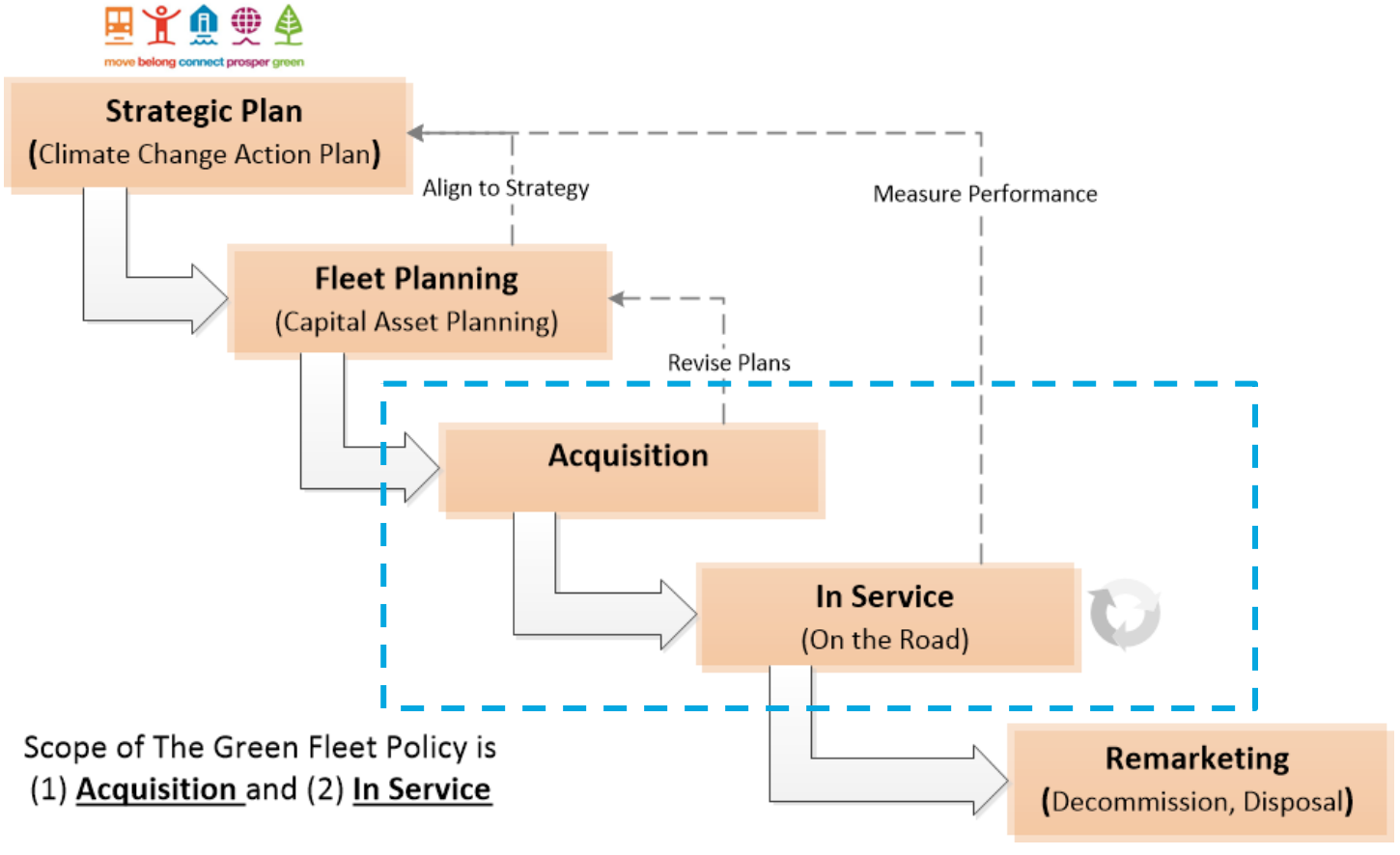
POLICY OVERVIEW

GREEN FLEET AND EQUIPMENT POLICY

- The Green Fleet Policy will complement other efforts in the City that contribute to reducing greenhouse gas (GHG) emissions.
- As a Corporate Policy, it aims to facilitate decision making that favours electrification opportunities of the City's fleet and equipment (including fire and transit).



ASSET (VEHICLE AND EQUIPMENT) LIFECYCLE



PURPOSE

This policy:

- Communicates the City's **commitment to Climate Change** and sustainable environmental stewardship (e.g. improved air quality and decreased noise pollution)
- Provides **direction to management and staff** to meet the goal of prioritizing investment in low or zero emissions City Fleet and Equipment, as defined in this policy, and improve in-service utilization of existing City Fleet and Equipment (e.g. driver behaviour training, right-sizing, upgrades to existing equipment) to reduce Greenhouse Gas emissions (GHG)
- Outlines the City's guiding principles and objectives in **managing Corporate GHG reductions from Fleet and Equipment**, and
- Identifies **roles and responsibilities** of staff for the electrification of the City's Fleet and Equipment and aligning Infrastructure (as needed)

GREEN FLEET & EQUIP POLICY - GOALS

Green Fleet and Equipment Policy

1. Prioritize electrification opportunities for all City fleet and equipment (including fire and transit) to be sustainable, market ready, and meet operational requirements.

Acquisition of Assets

2. Continue to identify opportunities to enhance the sustainability of assets in service (e.g. proper vehicle allocation, route optimization, right-sizing).

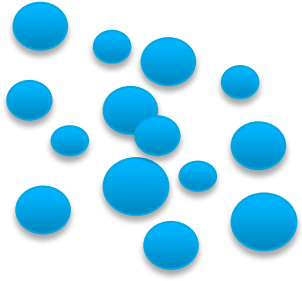
Optimizing Current Operations

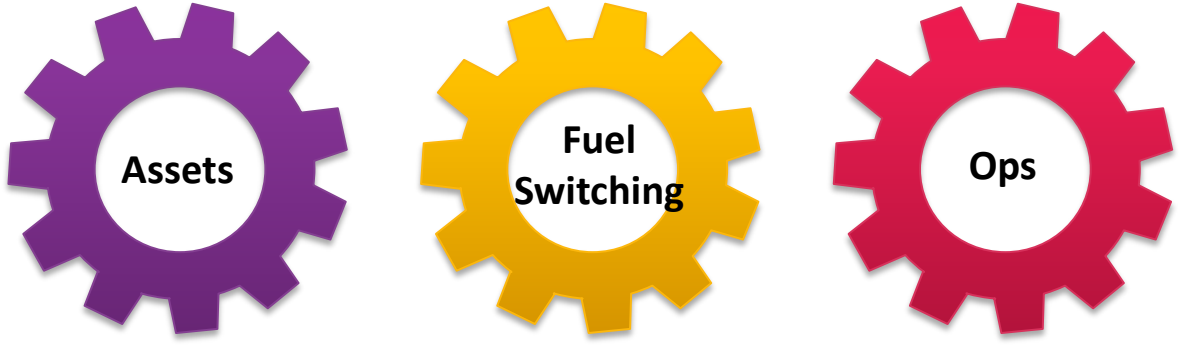
OVERVIEW

5.3 CLIMATE CHANGE

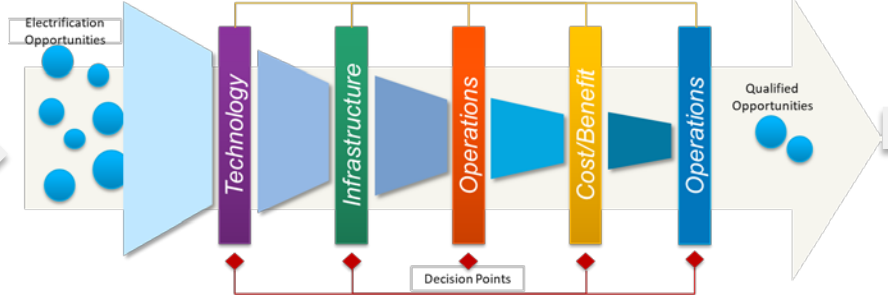
Optimizing Current Operations

Current Assets in Service





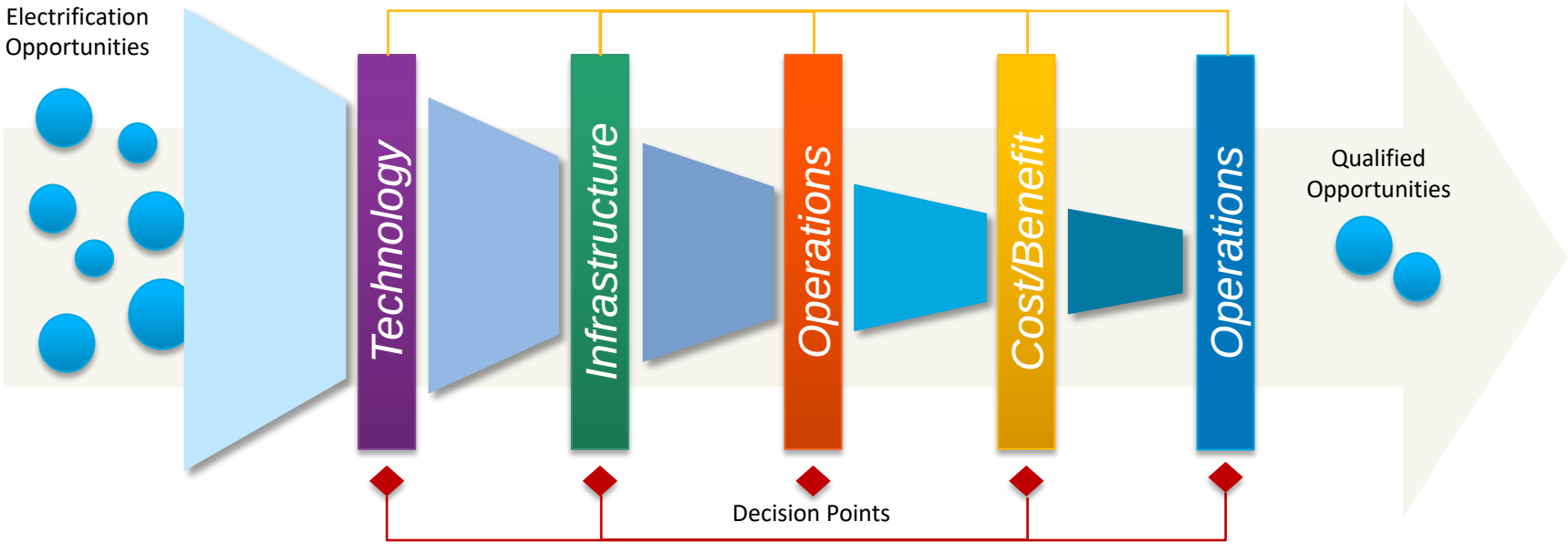
Acquisition of Assets



New Assets in Service

+ Infrastructure

PART 1 – ASSET ACQUISITION



PART 1 – ASSET ACQUISITION

Electrification Opportunities

Technology Readiness

- ✓ *Proven Technology*
- ✓ *Assets Availability*
- ✓ *Vendor Support*
- ✓ *Parts Availability*

Infrastructure Availability/ Readiness

- ✓ *Readiness*
- ✓ *Energy load*
- ✓ *Energy Profile*
- ✓ *Cost*
- ✓ *IT/Networking*

Operational Requirements

- ✓ *Specifications*
- ✓ *Usability*
- ✓ *Skills Upgrade*
- ✓ *Ops Changes*

Cost/Benefit

- ✓ *Capital Costs*
- ✓ *Operational Savings/Impact*
- ✓ *GHG's saved*
- ✓ *Staff resources*

Funding

- ✓ *City Budget*
- ✓ *Government Grants/Funding programs*

PART (2) OPTIMIZING CURRENT OPERATIONS

Optimizing Current Operations

Asset Management

- ✓ *Vehicle Utilization*
- ✓ *Maintenance & Repairs*
- ✓ *Repurposing Assets*
- ✓ *Life Expectancy*

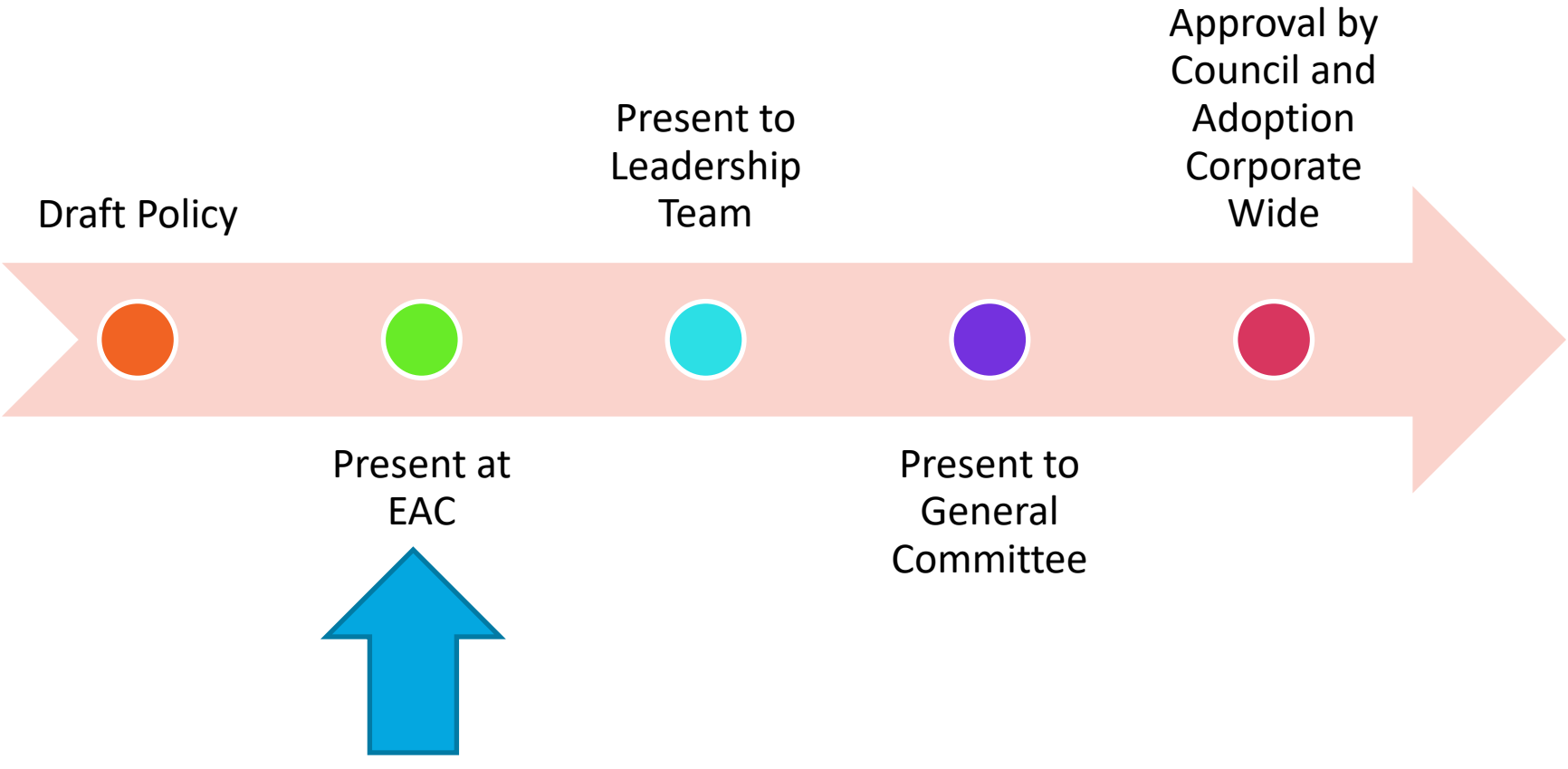
Operations Management

- ✓ *Routes Optimization*
- ✓ *Driving Behavior/Idling*
- ✓ *Right Sizing*
- ✓ *Awareness & Training*
- ✓ *Updating By-Laws/Policies*

Fuel Switching

- ✓ *Sourcing Alternative Fuel*

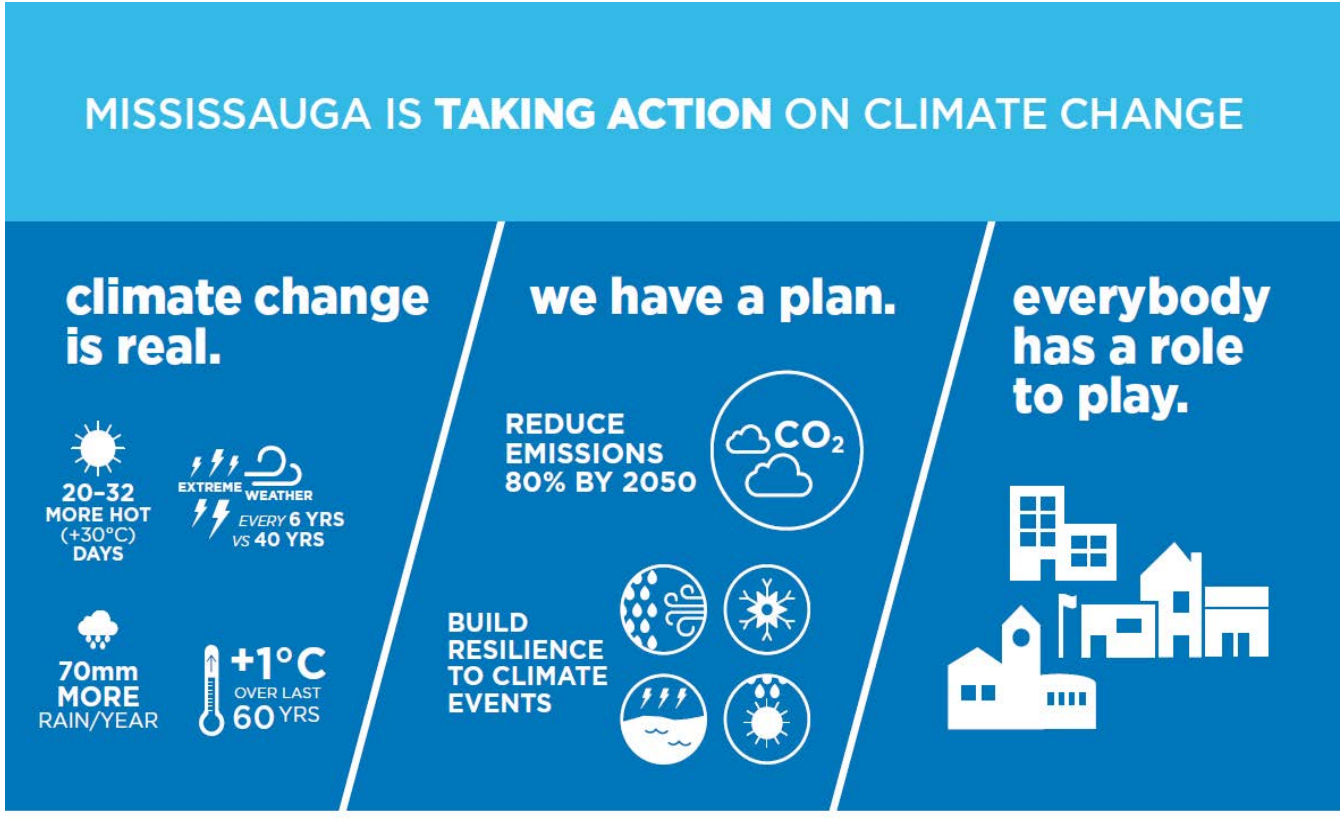
TIMELINE + NEXT STEPS



CLIMATE CHANGE

COMMENTS/QUESTIONS?

THANK YOU!


MISSISSAUGA IS TAKING ACTION ON CLIMATE CHANGE
climate change is real.
20–32 MORE HOT (+30°C) DAYS
EXTREME WEATHER
EVERY 6 YRS VS 40 YRS
70mm MORE RAIN/YEAR
+1°C OVER LAST 60 YRS
we have a plan.
REDUCE EMISSIONS 80% BY 2050
CO2
BUILD RESILIENCE TO CLIMATE EVENTS
everybody has a role to play.
The Climate Change Action Plan is built around a central vision that Mississauga will be a low carbon and resilient community, with the long-term goal of becoming a net-zero community. It focuses on mitigation and adaptation – with 21 key actions delivered over 10 years.
THECLIMATECHANGEPROJECT.CA
the CLIMATE CHANGE project
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