

2023

CITY OF VICTORIA | Engineering &amp; Public Works

# Climate Action Orientation



COMMITTEE OF THE WHOLE | January 26, 2023



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## Climate Action Orientation Roadmap

### TODAY:

#### Climate Orientation Parts 1 & 2

- Part 1: Climate Change 101
- Part 2: Introducing the Climate Leadership Plan & High Impact Initiatives
  - Buildings
  - Mobility
  - Leadership

### February 9<sup>th</sup> COTW:

#### Climate Orientation Part 3

- Part 3: Local Climate Impacts & Adaptation

#### CLP Progress Report Update

- 2021 emissions update
- Status of CLP actions and progress towards CLP targets

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# Climate Action Orientation

## Part 1: Climate Change 101

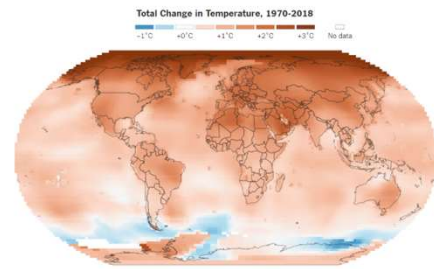
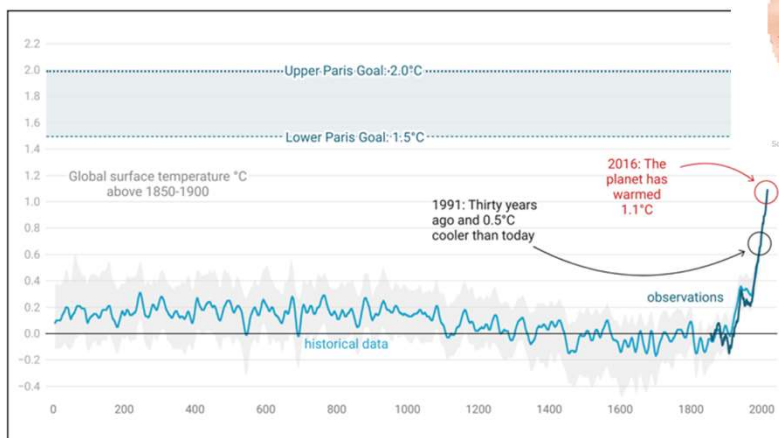


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## What is Climate Change?



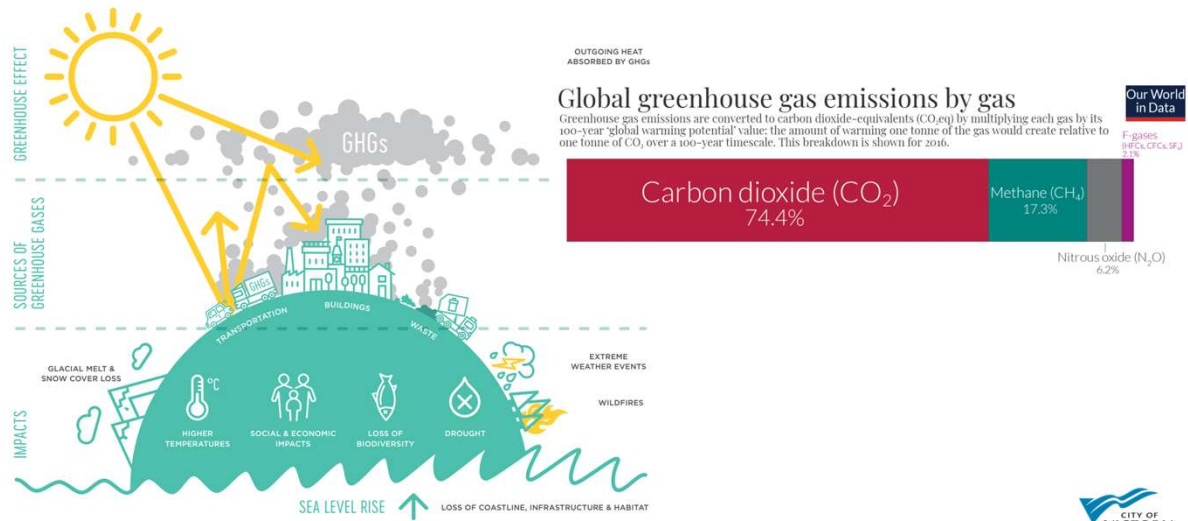
Source: NASA | By The New York Times

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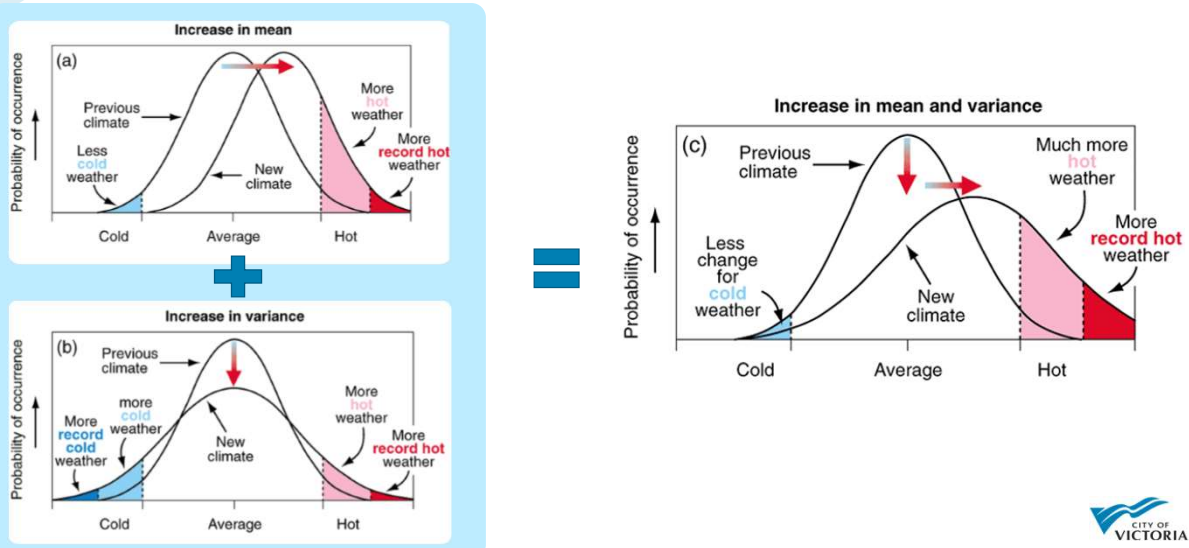
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## What is causing Climate Change?



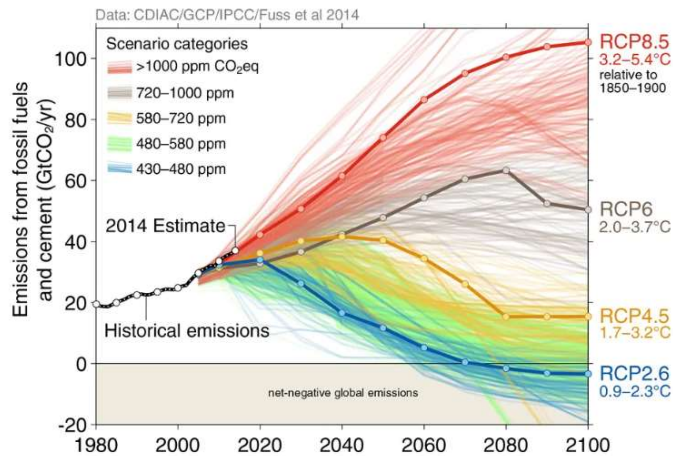
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## What are the impacts of Climate Change?

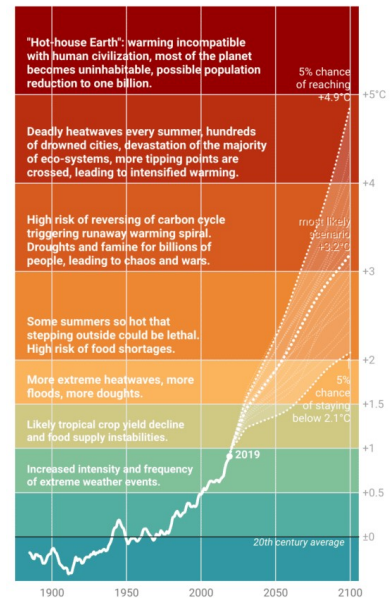


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## What are the impacts of Climate Change?



### Degrees of Global Warming



The solid line shows 5-year average of global land and ocean temperature anomalies (NOAA). Dotted lines show different percentiles of warming predictions according to Raftery et al, 2017. Inspired by The Guardian.  
Chart: Gregor Aisch, Datawrapper • Created with Datawrapper

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## Global Emissions Trajectories

### Global greenhouse gas emissions and warming scenarios

- Each pathway comes with uncertainty, marked by the shading from low to high emissions under each scenario.
- Warming refers to the expected global temperature rise by 2100, relative to pre-industrial temperatures.

Annual global greenhouse gas emissions  
in gigatonnes of carbon dioxide-equivalents

150 Gt

100 Gt

50 Gt

0

Greenhouse gas emissions up to the present

Data source: Climate Action Tracker (based on national policies and pledges as of May 2021).  
OurWorldinData.org – Research and data to make progress against the world's largest problems.

**No climate policies**

4.1 – 4.8°C

→ expected emissions in a baseline scenario if countries had not implemented climate reduction policies.

**Current policies**

2.7 – 3.1°C

→ emissions with current climate policies in place result in warming of 2.7 to 3.1°C by 2100.

**Pledges & targets (2.4°C)**

→ emissions if all countries delivered on reduction pledges result in warming of 2.4°C by 2100.

**2°C pathways**

**1.5°C pathways**

Last updated: July 2021.  
Licensed under CC-BY by the authors Hannah Ritchie & Max Roser.



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## Current Policies and Targets



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## Local Government Role



Local Government Relative Influence over GHG Emissions

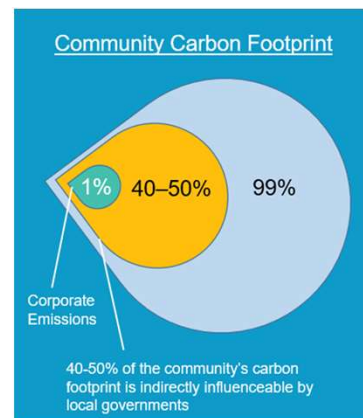
High ← → Low

Municipal infrastructure,  
buildings and fleet

Transportation network  
Land use patterns  
Solid waste  
Building efficiency  
standards

Transportation mode  
share  
Residential and business  
energy efficiency  
Food security

Air travel  
Industrial energy efficiency  
Vehicle standards  
Energy utilities



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# Questions?



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Part 2: Climate Leadership Plan & High Impact Initiatives

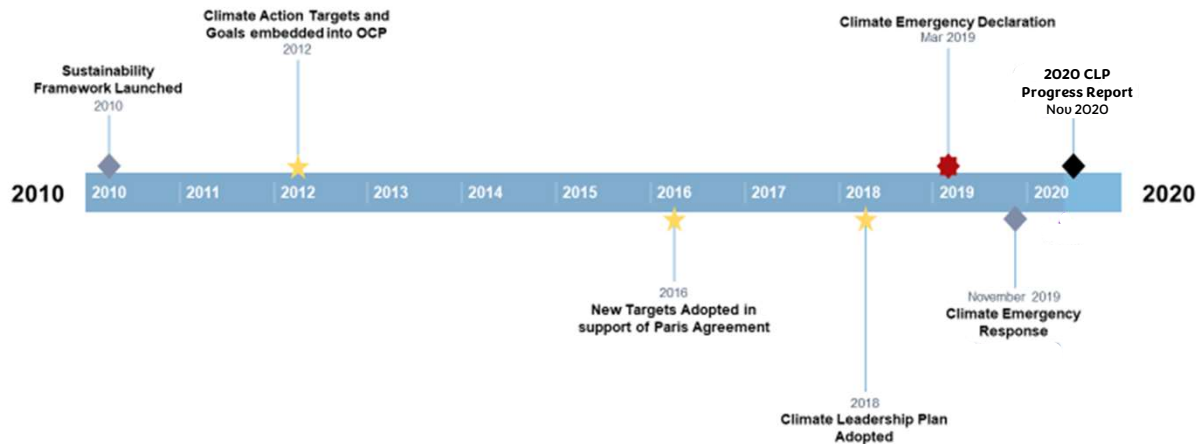


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## Climate Action Timeline



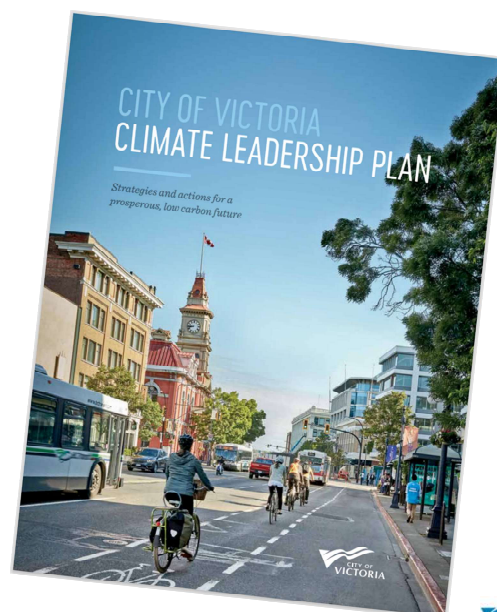
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## Climate Leadership Plan

- Identifies goals and targets for 2030 & 2050
- Identifies pathways to achieve targets
- Identifies 85 actions across 5 key sectors to achieve climate goals and targets



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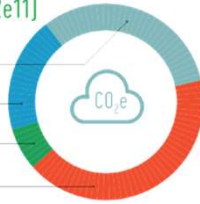


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## Victoria's Climate Challenge

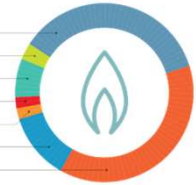
### 2017 GHG EMISSIONS BY SECTOR [387,694 tCO<sub>2</sub>e11]

32%	COMMERCIAL, INSTITUTIONAL, INDUSTRIAL, AND MULTI-UNIT RESIDENTIAL
19%	SINGLE FAMILY HOMES
9%	SOLID AND LIQUID WASTE
40%	ON-ROAD TRANSPORTATION



### 2017 GHG EMISSIONS BY FUEL TYPE

36%	GASOLINE
3%	ELECTRICITY
7%	DIESEL
2%	WOOD
2%	PROPANE
12%	HEATING OIL
38%	NATURAL GAS



### 2017 RENEWABLE AND NON-RENEWABLE ENERGY MIX

35%	RENEWABLE ELECTRICITY
8%	HEATING OIL AND PROPANE
3%	WOOD
<1%	RENEWABLE NATURAL GAS
2%	BIODIESEL AND ETHANOL
23%	GASOLINE AND DIESEL
29%	NATURAL GAS



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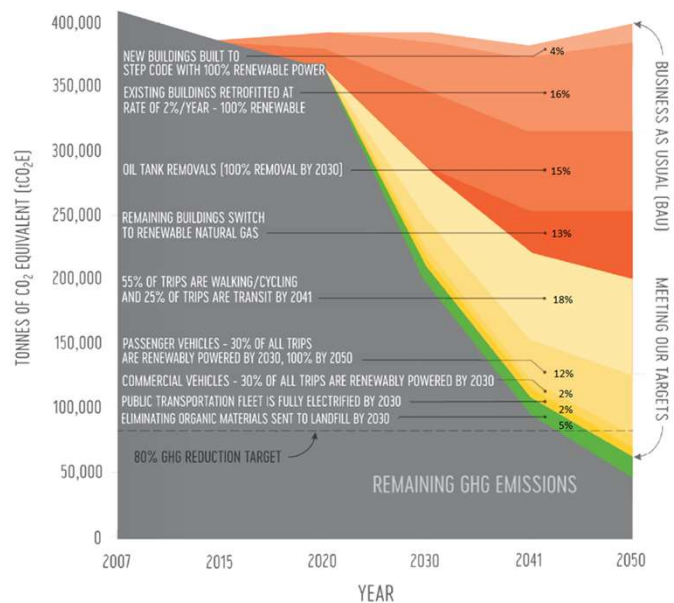


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## Pathways to 2050 GHG Reductions

### Highest impact areas:

- **Building Retrofits:** 31% of total GHG reduction potential (including oil tank removal)
- **Low Carbon Mobility:** 34% GHG reduction potential (active transportation, transit mode shift, electrification)



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## CLP Sectors

The CLP Identifies 85 actions across 5 key sectors to help achieve climate goals and targets

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### SECTOR

### CLIMATE LEADERSHIP GOALS



#### BUILDINGS

Page 24

- » All buildings are highly energy efficient.
- » All buildings are powered by renewable energy.



#### MOBILITY

Page 34

- » All Victorians have access to low carbon, high-performance and affordable multi-modal transportation.
- » Vehicles in Victoria are powered by renewable energy.
- » Smart land use minimizes transportation emissions.



#### WASTE MANAGEMENT

Page 42

- » Organic materials are managed to avoid GHG emissions.



#### MUNICIPAL OPERATIONS

Page 48

- » The City is a recognized leader in climate mitigation and adaptation.
- » The City takes integrated and informed climate action.
- » The City will provide timely and accurate data supporting strong climate mitigation and adaptation actions.



#### ADAPTING EARLY

Page 54

- » All climate-related risks to city infrastructure are minimized through early planning and action.
- » Victoria's natural environment flourishes in a changing climate.
- » All Victorians are empowered and prepared for climate impacts and emergencies.

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## Climate Emergency



- Climate action town halls



- Regulatory review of legal options



- Best practices strategy review

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## High Impact Initiatives



- Encourage the shift to Zero Emissions Vehicles through infrastructure and incentives



- Accelerate the adoption of the BC Energy Step Code (low carbon)



- Support mode shift through the expansion of active transportation infrastructure



- Develop a Building Energy Retrofit Service to accelerate climate friendly home renovations



- Support Zero Emissions Rapid Transit



- Provide incentives to transition from oil heating to heat pumps

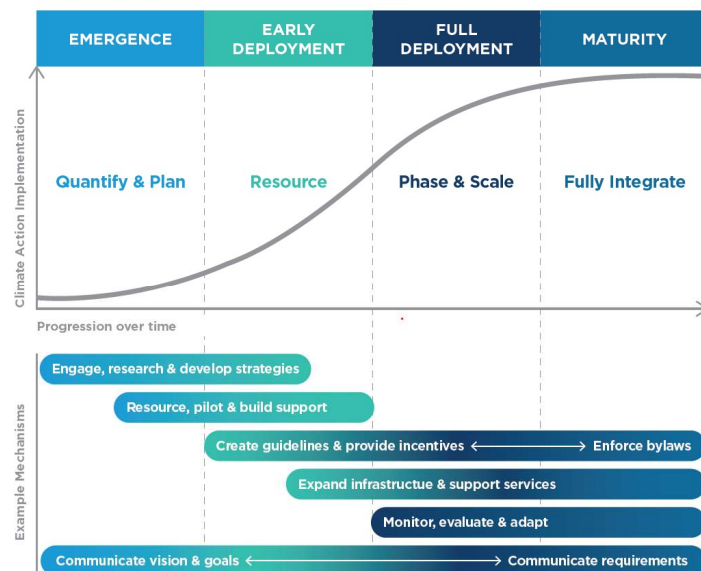
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## Climate Action Implementation

### STAGES OF CLIMATE ACTION MATURITY



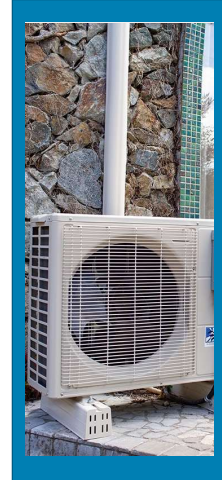
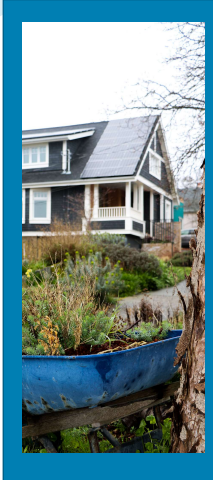
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Adapted from the CleanBC 2030 Roadmap

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## High Impact Initiatives – Buildings



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## Heat Pump Incentive Program

**Fall 2018** - City of Victoria joined the CleanBC Municipal Top-up Program, offering \$350 to switch from fossil fuel systems to heat pumps

**April 2020** - Increased offering to \$2,000 (plus \$500 for panel upgrade)

**August 2022** - Municipal funds exhausted (\$450,000 in incentives were provided)

266 homes transitioned from fossil fuel heating to heat pumps (157 oil, 107 natural gas, 2 propane)

GHG CONTRIBUTION BY BUILDING TYPE AND HEATING SOURCE



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## Heat Pump Incentive Program

- Up to \$11,500 in current rebates available to homeowners today without City top-ups
- For income qualified households, up to \$9,500 in advance and thousands more for other energy efficiency upgrades
- The City continues to heavily promote Provincial and Federal incentives



Approximately 500-550 residential oil heating systems and 9,800 total residential natural gas connections remain in Victoria

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## Heat Pump Incentive Program

- Program has been a success and outreach/promotion has been key to that success
- Continued outreach required to maintain momentum and counter popular misconceptions and extensive natural gas advertising
- Recently launched Climate Friendly Homes awareness campaign to promote electrification solutions



I'm an energy-efficient, **zero-emissions home** and I don't burn fossil fuels for heat, hot water, or cooking.

Hi! I'm a **climate friendly** home.  
Get to know me at [victoria.ca/climatefriendly](https://victoria.ca/climatefriendly)



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## Regional Home Retrofit Service

- The process of organizing retrofits and taking advantage of incentives is complex and represents a major barrier to homeowners
- Regional retrofit service to help homeowners
- Concept piloted in partnership with the District of Saanich and the CRD
- CRD launched the Home Energy Navigator in Nov 2022



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## home energy NAVIGATOR

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

### Regional Home Retrofit Service

#### Program Highlights:

- Free program with focus on fuel switching
- Retrofit information and implementation support from an energy concierge
- Rebate navigation
- Virtual home energy consultation
- Quote reviews
- Customized retrofit roadmaps

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## BC Energy Step Code

Timeline for Energy Efficiency Regulatory Requirements in the BC Building Code  
Here's what the province's CleanBC plan will mean for new-construction requirements.

2032

STEP 5

STEP 4

NET-ZERO ENERGY-READY

UP TO:  
80%

2027\*

STEP 4

STEP 3

40%

2022\*

STEP 3

STEP 2

20%

\* NEW TIMELINES

 PART 9  
BUILDINGS

 PART 3  
BUILDINGS

Energy-efficiency improvement  
above 2018 BC Building Code  
requirements

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## BC Carbon Pollution Standards

### Carbon Pollution Standards

1. Measure-only (2022)
2. Medium carbon (2024)
3. Low carbon (2027)
4. Zero-carbon ready (2030)



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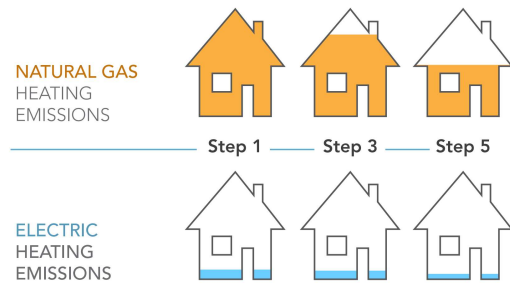


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## Technical Review - Key Conclusions

- All new construction needs to use 100% renewable energy by 2025 to meet CLP modelled emissions reductions
- The Step Code can result in buildings that produce significant emissions over their lifetime because it is fuel agnostic
  - Natural gas has 17 times higher global warming potential than electricity

### GREENHOUSE GAS EMISSIONS BY HEATING TYPE



Source: Metro Vancouver Climate 2050 Roadmap: Buildings (Oct. 2021)

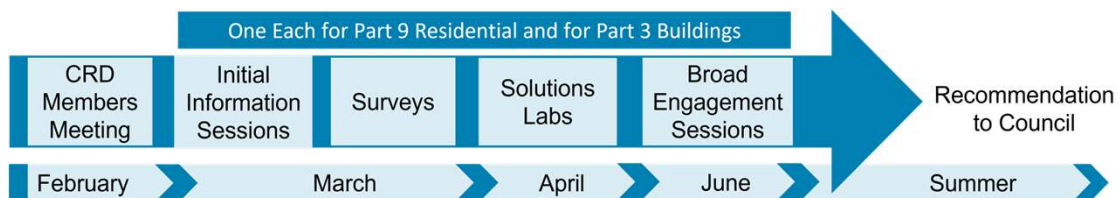
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## Engagement Process for Step Code

### 2022 Regional Engagement Timeline



\*Part 9 residential buildings are residential buildings which are three stories or less, 600m<sup>2</sup> or smaller;  
Part 3 buildings are all buildings larger than three stories and/or larger than 600m<sup>2</sup>.

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## Current Council Direction

- Harmonize local Step Code adoption with Provincial adoption schedule
- Focus local regulation advancement on carbon pollution standards

### Part 9 Residential Buildings

**Move 1:** July 1, 2023  
Low Carbon

**Move 2:** January 1, 2025  
Zero Carbon Ready

### Part 3 Buildings

**Move 1:** July 1, 2024  
Low Carbon

**Move 2:** July 1, 2025  
Zero Carbon Ready

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## The Year Ahead: Addressing Emissions from Existing Buildings

- Launch Strata Energy Advisor
- Complete a Part 3 Retrofit Strategy
- Pilot incentivizing market rental MURB decarbonization using property tax exemptions
- Benchmarking large buildings
- Support the expansion of the 2030 Resiliency District
- Pilot new peer-to-peer engagement

### 2017 GHG EMISSIONS BY SECTOR

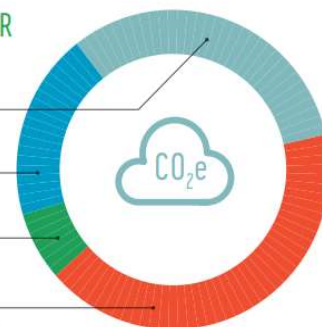
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19% SINGLE FAMILY HOMES

9% SOLID AND LIQUID WASTE

40% ON-ROAD TRANSPORTATION

Figure 1: City of Victoria GPC Compliant Inventory, 2017



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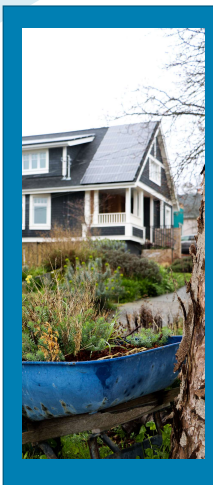


# Questions?



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## High Impact Initiatives - Mobility



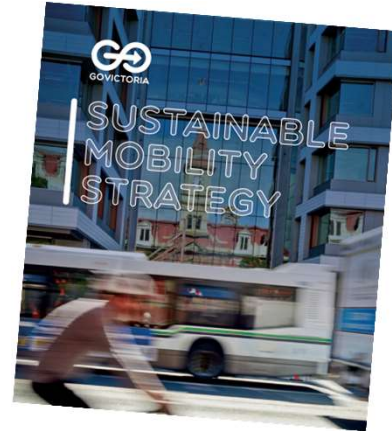
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## Go Victoria – Sustainable Mobility Strategy

- Adopted in 2019
- Policies and actions support emissions reductions and climate change adaptation
- \$17 million in the 2023 Draft Financial Plan for Transportation capital projects
- Continued emphasis on infrastructure, regulations, partnerships, programs and education to:
  - **Support mode shift to public transit, walking, cycling and other low carbon options**
  - **Manage transportation demand**
  - **Encourage electrification of private, shared and commercial vehicles**
  - **Adapt infrastructure to a changing climate**



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## Plans into Action

- Highest investments in public transit, walking, cycling and shared mobility
- The only municipality that charges for public parking
- Continued growth in sustainable mode share for both commuting and all trips with an increasing population
- Largest EV public charging network
- Most established TDM programs for new development
- **Compact and complete land use patterns reinforce connected mobility with housing and services**

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## Mobility Policies for Climate Action

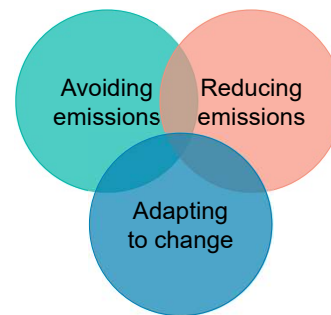
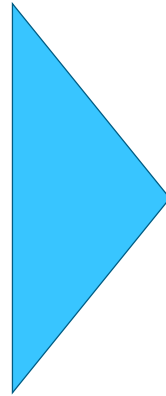
Integrate land use and transportation

Align our networks

Embrace multi-modal level of service

Value right of way

Operate and maintain our assets



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## Transportation Maturity

### Full Deployment:

- Cycling Network
- Crosswalks and Sidewalks
- Road Paving

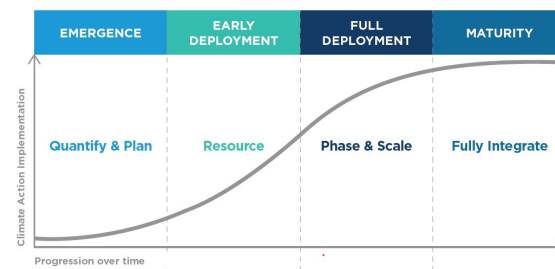
### Early Deployment:

- Vision Zero
- Traffic Calming
- Modernized Traffic Signals System
- Shared Mobility
- Secure Bike Parking

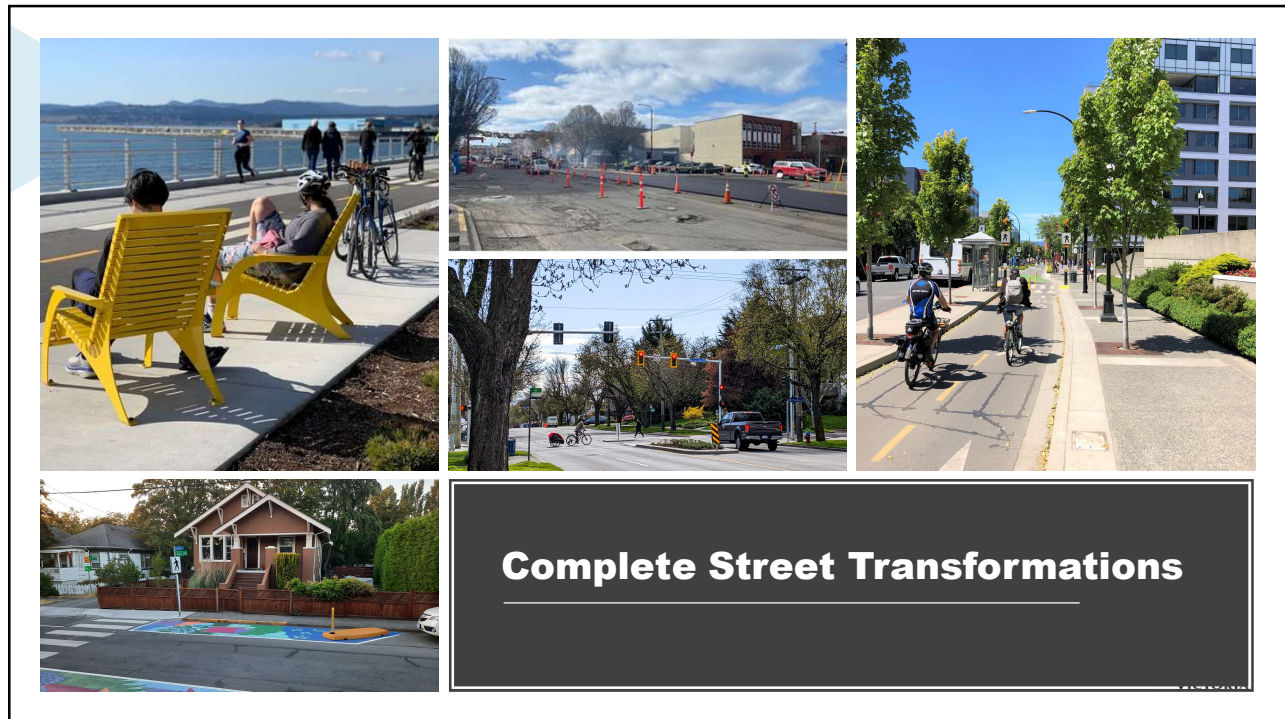
### Emergence:

- Story Telling and Data Reporting
- Updated On-Street Parking Management
- Equity Seeking Project Selection
- Policy, Procedures and Bylaws
- Legislated Engineering Requirements

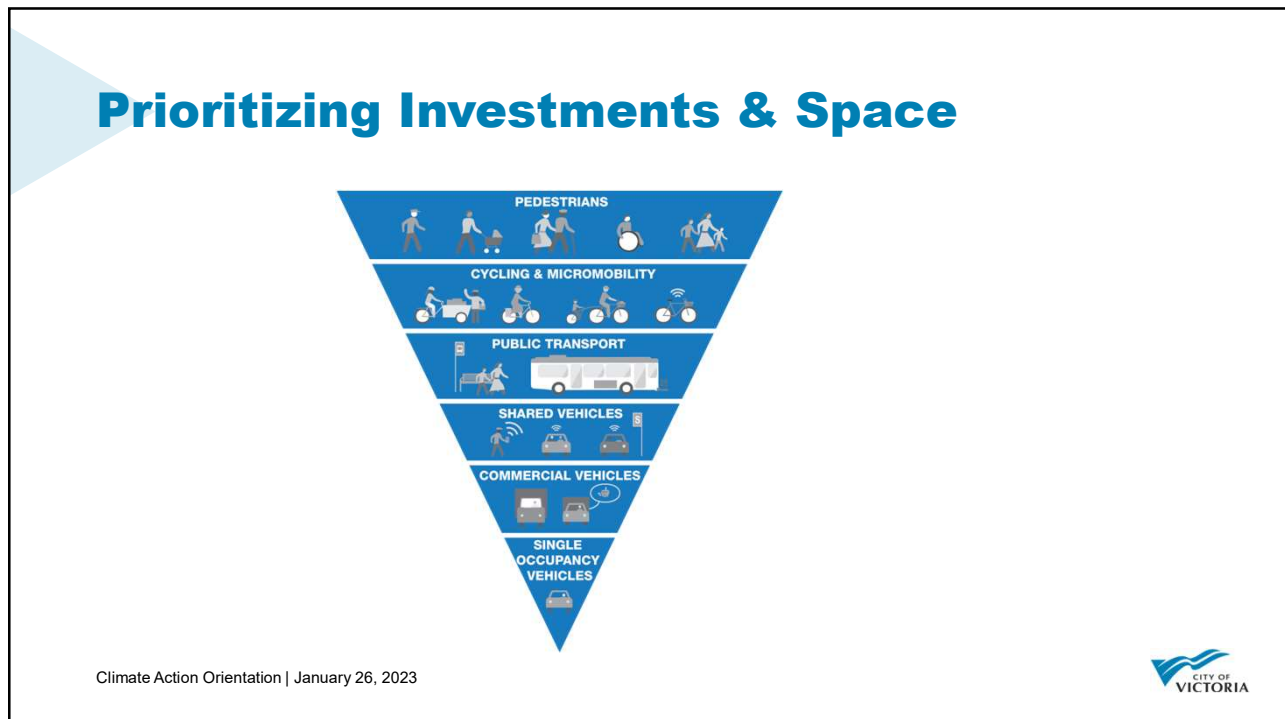
### STAGES OF CLIMATE ACTION MATURITY



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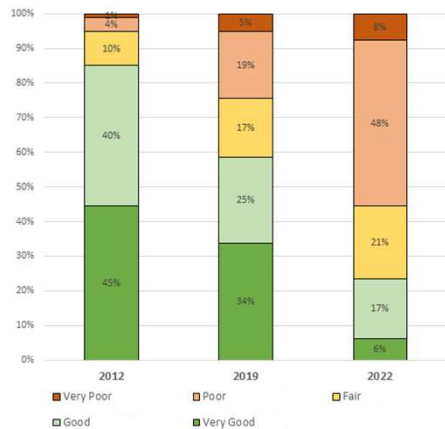
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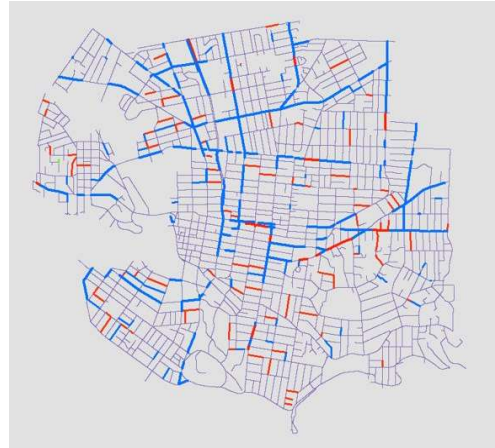
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## Maintaining Our Roads for All Users

Road Condition Over 10 Years



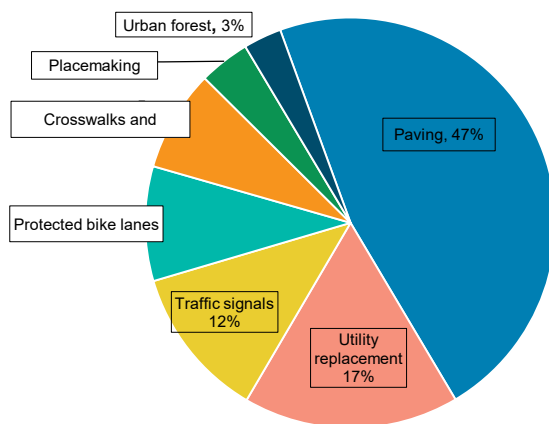
DRAFT 5-year paving strategy



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## Complete Streets – Makes Good Cents

**Government Street North - \$4.3M**



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## NOW: Transit

- **Infrastructure Expansion**
  - Transit stops, shelters and intersections
  - Pedestrian accessibility and public realm treatments
- **Asset renewal and technology integration**
  - Road paving
  - Traffic signal upgrades
  - Support bus EV charging stations
- **Transit focused program expansion**
  - Eco-pass for new developments
  - Youth Universal Bus Pass Program



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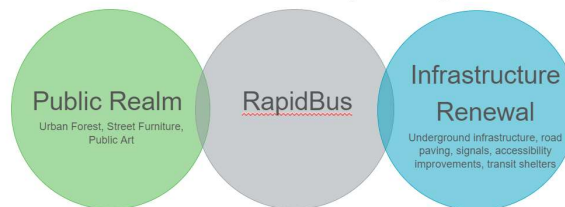


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## NEXT: RapidBus Implementation



*Douglas Street will be the central downtown transit street serving Victoria and the Capital Region*



BC Transit and City Staff are ready to deliver transformational investments that achieve multiple objectives for Douglas Street and deliver on this vision

**Update to Council Summer 2023**

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## NOW: Cycling

### • AAA network expansion

- 2023 delivery of Kimta, James Bay X 3, Fort East and Gorge Road AAA projects
- Bay Street West and Blanshard Downtown Cycling Improvements
- Future corridor projects & spot improvements driven by asset renewal, development activity and inter-municipal coordination

### • End of trip amenities

- Enhanced bicycle parking programs
- Borrow a Bike Lock Program

### • Education & Encouragement Programs

- Project 529 registration, Go by Bike Week, skills courses



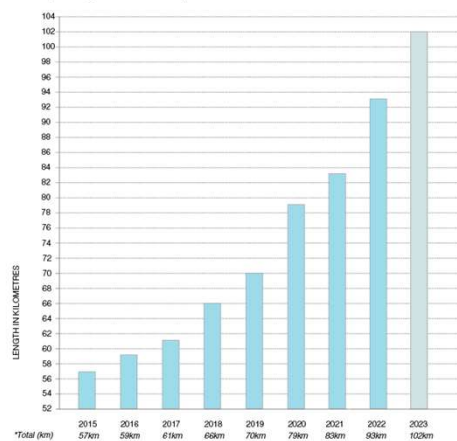
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## NEXT: Continued Network Expansion

Annual Cycling Network Improvements



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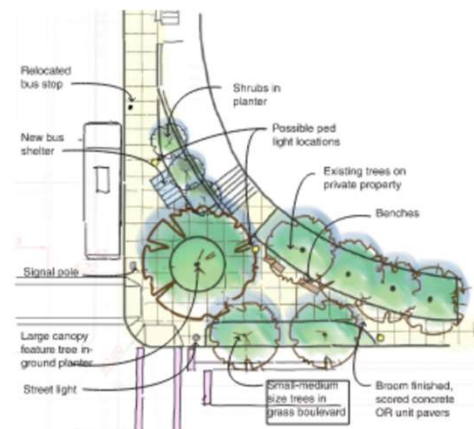
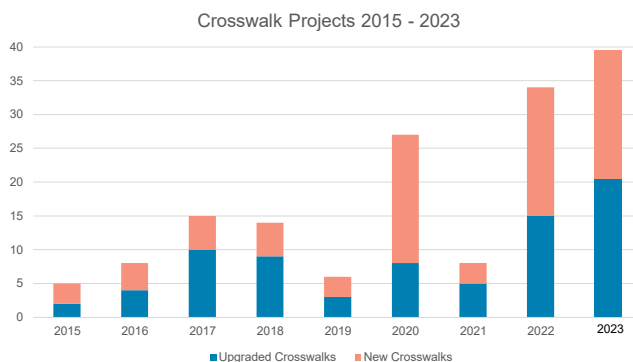
## NOW: Walking and Rolling

- **Expansion of pedestrian networks**
  - New Sidewalk & Pathway projects
  - New & Upgraded Crosswalks
- **Investments in accessibility and placemaking**
  - Removing sidewalk obstructions
  - Curb cuts
  - Tactile domes
  - Accessible pedestrian signals
  - Amenities – washrooms, water fountains, public seating
  - Public art
  - Neighbour Hubs



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## NEXT: Walking and Rolling



Conceptual Design of new Pocket Plaza at Quadra and Caledonia

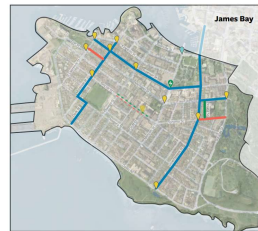
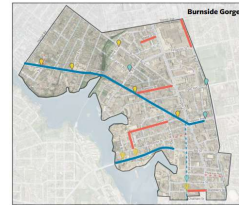
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## Delivering on Low Carbon Mobility

Transportation Capital Projects  
2022-2023



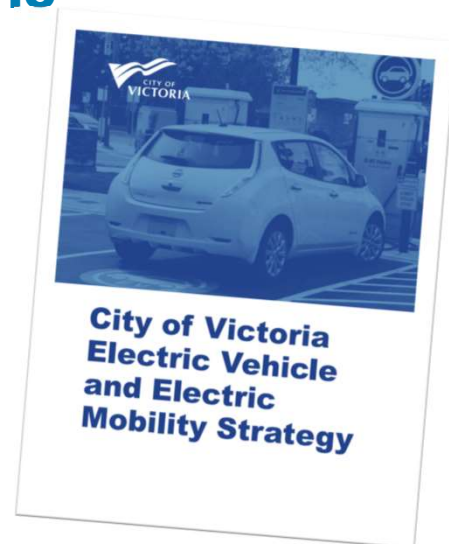
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## Electric Vehicle and Electric Mobility Strategy

- Adopted in 2022
- Policies and actions support the transition to low carbon mobility and the City's target of 30% of personal vehicles to be electric by 2030
- \$1 million in the 2023 Draft Financial Plan for expansion of public EV charging network
- The Strategy includes considerations for investments in public infrastructure for electric vehicles, e-bikes and other e-mobility devices



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## Electric Vehicle and Electric Mobility Strategy

### PHASE 1: Public Charging Network

- Neighbourhood Fast Charging
- All-day charging at work
- On-the-go top-up charging options



DC Fast Charging

34+ Charging Ports



Level 2

650+ Charging Ports

### PHASE 2: Incentives for Whole-Building Retrofits

- Encourage whole building retrofits of existing buildings through incentives



EV Ready Retrofits

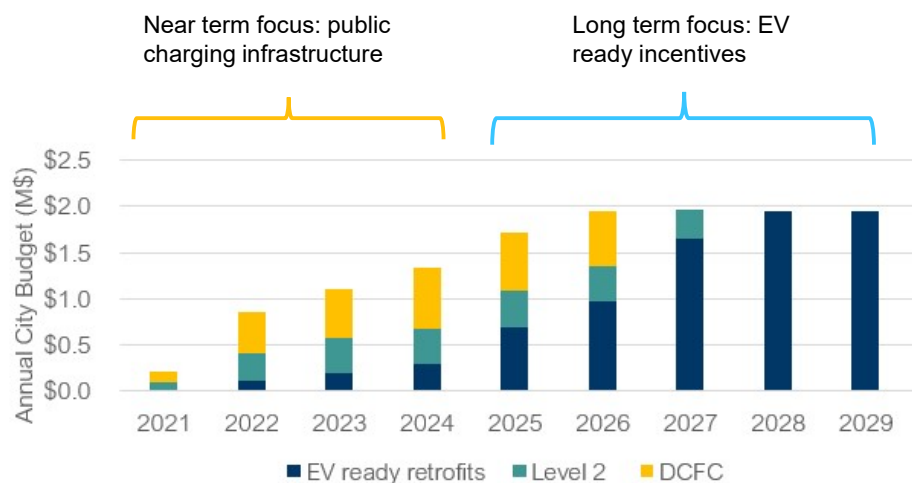
The strategy also includes incentives for E-Bikes and other E-Mobility Devices

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## EV Infrastructure Investment Profile



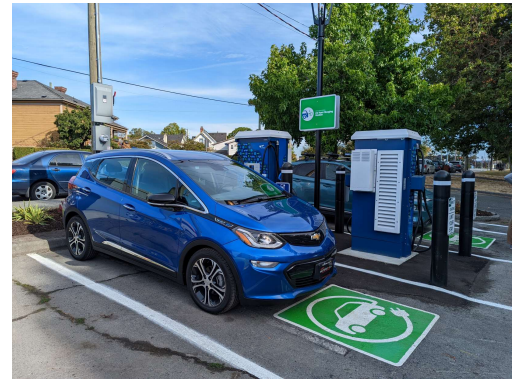
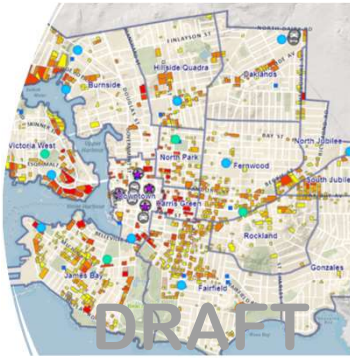
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## Public Charging Network – Fast Charging



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## Public Charging Network – Level 2



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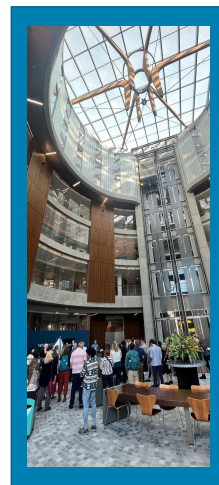
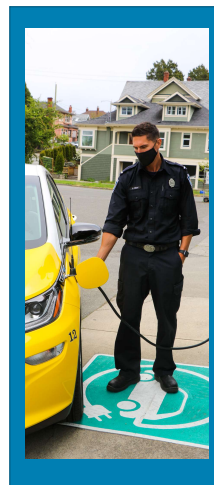
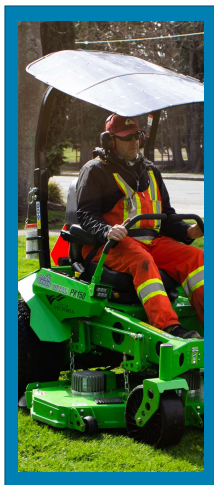
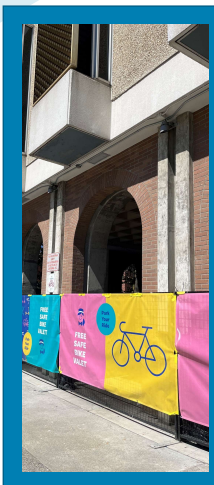
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# Questions?



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## Other Initiatives - Leadership



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## Corporate Emissions

### 2040 Corporate Emissions Targets

- All City facilities are powered by 100% renewable energy
- 80% of the City fleet is electrified or renewably powered

### Corporate Energy and Emissions Management Plan (CEEMP)

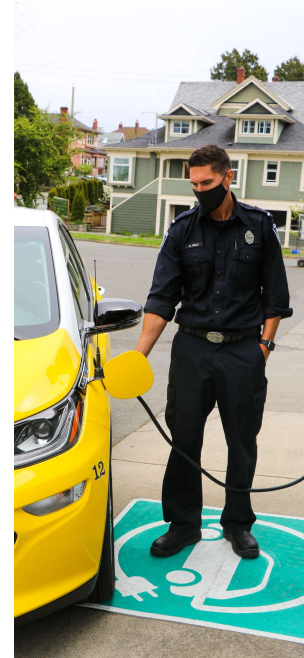
- Emissions reduction pathways

### Green Fleet Plan

- A capital forecast for fleet (EV and non-EV) has been included in the 2023 Draft Financial Plan

### Green Buildings Plan (currently planned for 2023)

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## Climate and Equity Community of Practice

**A Community of Practice:** a group of people who share a common concern, set of problems or an interest in a topic and who come together to fulfill both individual and group goals.

- Connecting people
- Introducing collaborative processes
- Capturing and sharing existing capacity
- Enabling enhanced dialogue around projects that intersect multiple strategic objectives (climate, equity, social planning, etc.)



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## Successful Grant Funding

- Since 2020, the City's Climate Action Program has successfully applied for **\$4,850,000** in funding through Provincial and Federal grant programs
- The City has also collaborated on successful regional grant applications that brought in an additional **\$1,000,000** in funding



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## Involved in BCUC Proceeding

The City is intervening in a BCUC hearing regarding FortisBC Energy Inc.'s proposed revisions to its renewable gas program

- One of seven local governments
- The aim is to ensure that Fortis' proposed program will treat existing customers equitably and align with the City's goals to achieve 80% emissions reductions and 100% renewable energy by 2050



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## Regional Partnerships and Collaboration

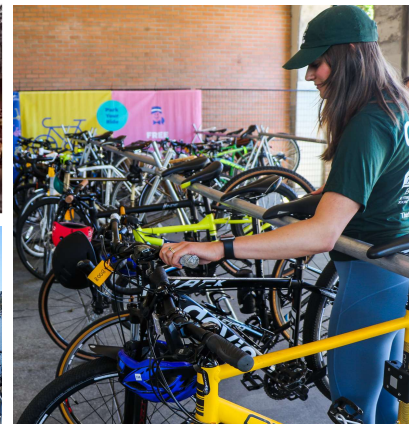
- The City works collaboratively with other municipal climate action staff throughout the region to avoid duplication of efforts
- The City participates in regional partnerships including research initiatives with local universities and colleges



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### Showcasing Successes

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# Questions?



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**2023**

CITY OF VICTORIA | Engineering and Public Works

## Climate Action Orientation

COTW February 9<sup>th</sup>

### Part 3: Local Climate Impacts and Adaptation

#### The 2022 CLP Progress Report:

- Where we are at with emissions reductions
- Progress we are making with targets and actions

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