



# District of Saanich

Mitigation Workshop

November 29, 2018





# District of Saanich Climate Plan

## **Workshop Objectives**

- 1. Explore** renewable energy (RE) and GHG transition strategies for Saanich, to meet the RE and GHG targets;
- 2. Consider** impacts and trade-offs for Saanich neighbourhoods;
- 3. Prioritize** community actions.



An aerial photograph of a city, split vertically. The left half is covered by a semi-transparent white overlay. The word "Context" is written in bold black text across the center of the image, overlapping both the overlay and the city view. The city features a grid of streets, green spaces, and a large body of water in the lower center.

# Context





# Saanich has committed to:

Become a **100%**  
renewable energy  
community

Reduce greenhouse  
gas emissions **80%**  
from 2007 levels  
by 2050



# What causes Saanich's emissions?

Burning of fossil fuels by residents is primary driver:

gasoline/diesel for vehicles

natural gas/oil for home heating/hot water





# How do we reduce GHG emissions?

Increase efficiency /  
reduce demand

Switch to zero-carbon  
energy sources





# Renewables don't always reduce GHG emissions.

Saanich has access to  
low-emission  
hydroelectricity

Replacing grid  
electricity with  
renewables in BC  
doesn't significantly  
reduce GHG emissions





# Saanich is taking action.

## Active Transportation Plan

The Plan targets a 30% active transportation mode split by 2050

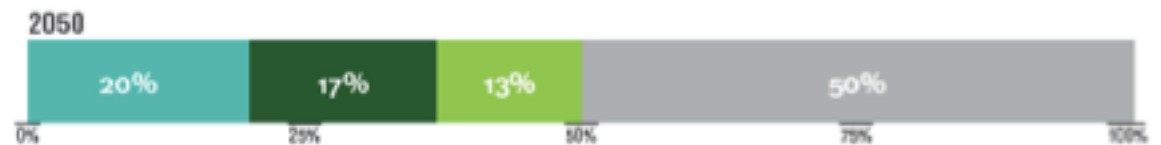


FIGURE 20 // MODE SHARE TARGETS

0% 25% 50% 75% 100%

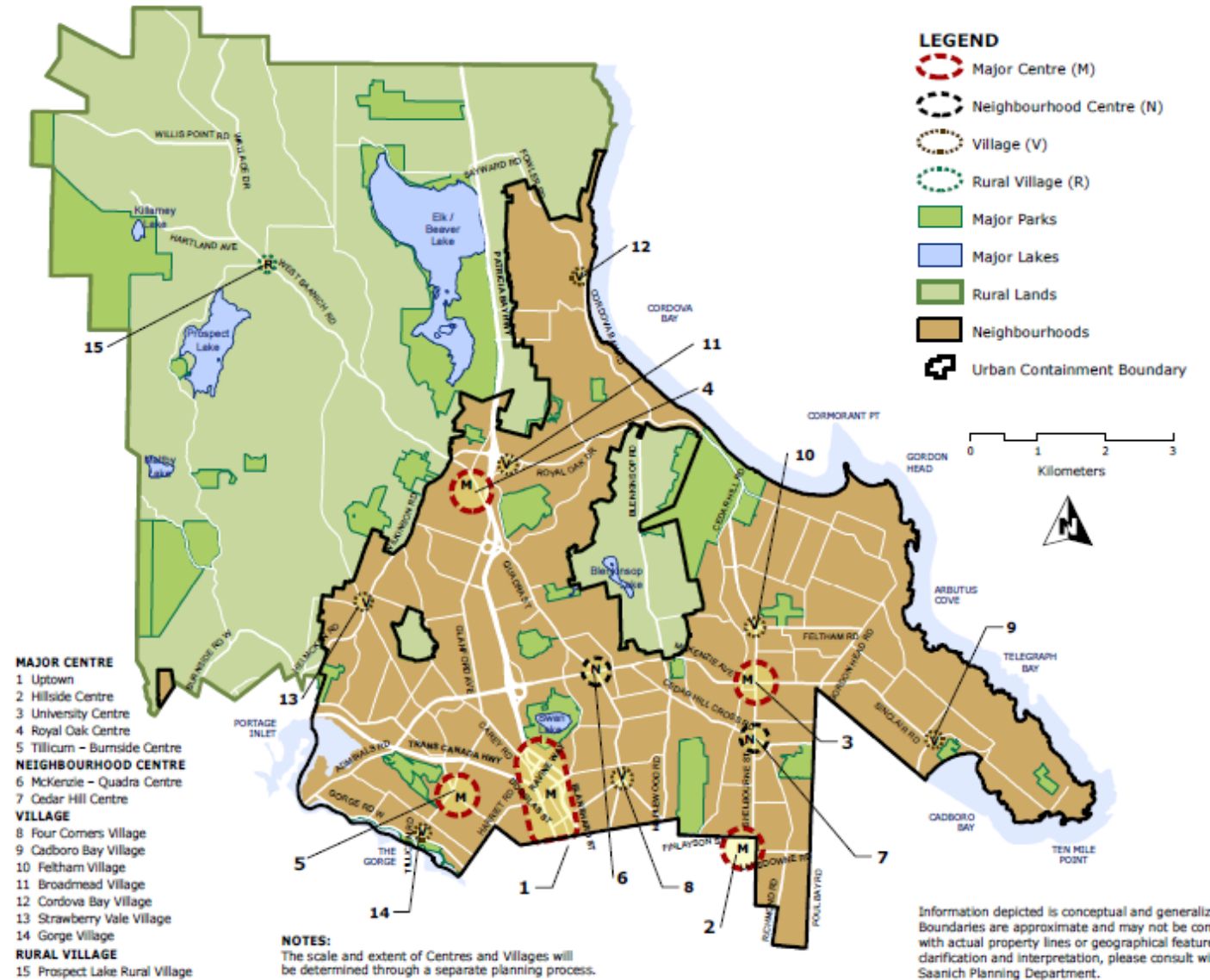




# Saanich is taking action.

## Official Community Plan

The Plan incorporates an urban containment boundary and focuses growth in centres.





# Compact buildings are more efficient.



Single Family (average)

**~1.1** tCO<sub>2</sub>e/person

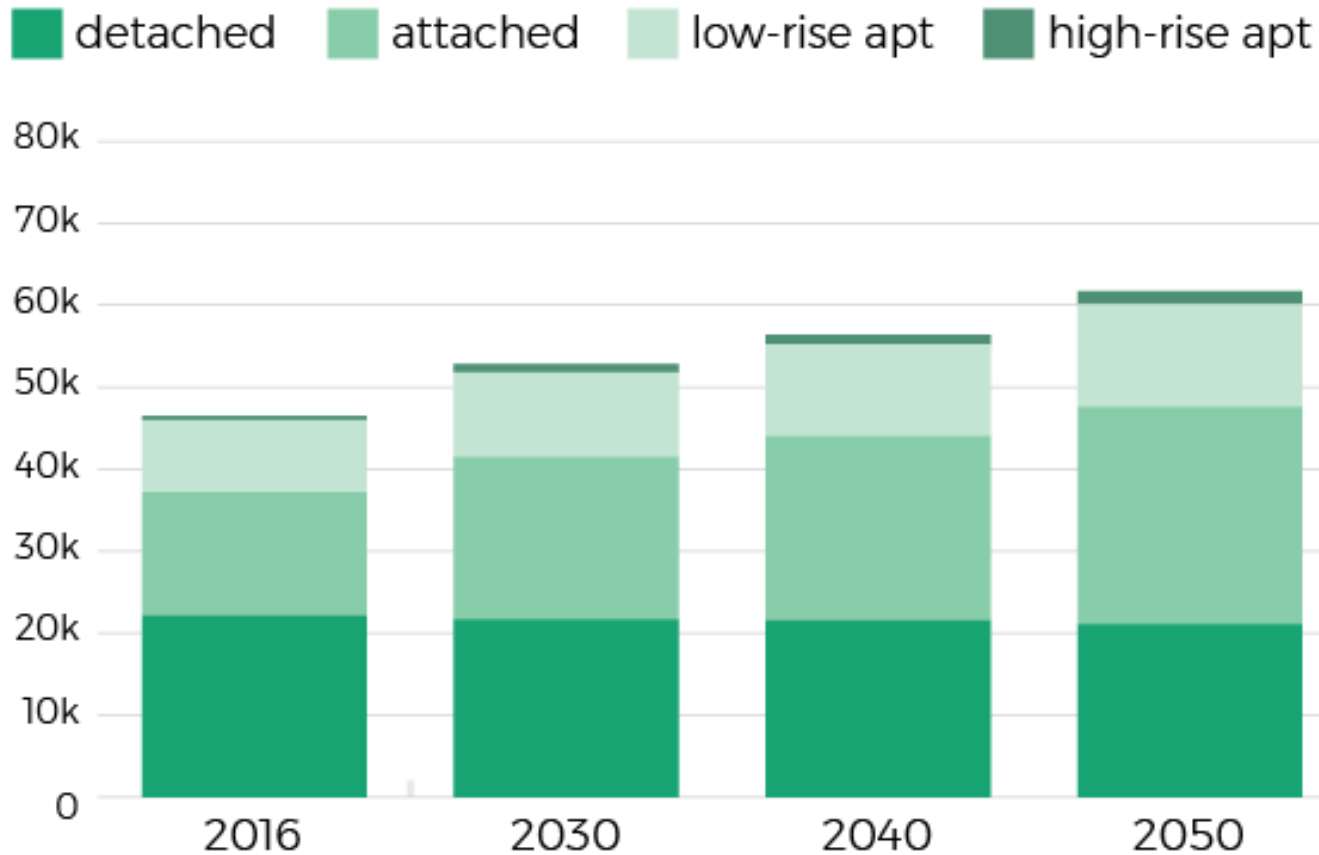


Low-Rise Multi Family (average)

**~0.6** tCO<sub>2</sub>e/person



## Residential unit mix



Source: CAN tool land use model

**Most buildings  
in 2050 have  
already been  
built.**

Almost all net new  
residences will be  
apartment or  
townhouses

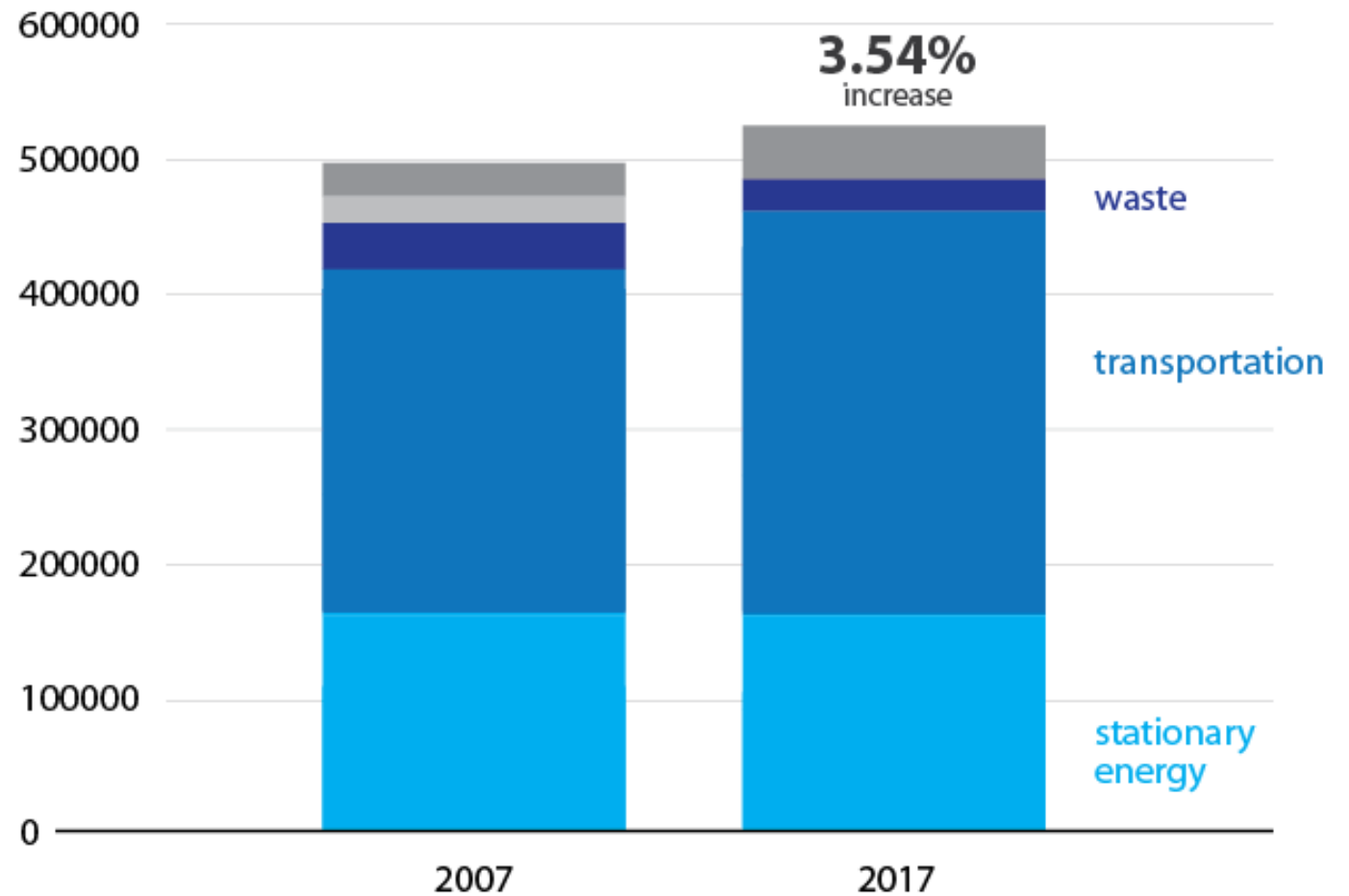


# Emissions are still rising.

The 2010 Saanich Climate Action Plan targeted a 33% reduction in emissions by 2020.

Emissions have increased **3.54%** since 2007.

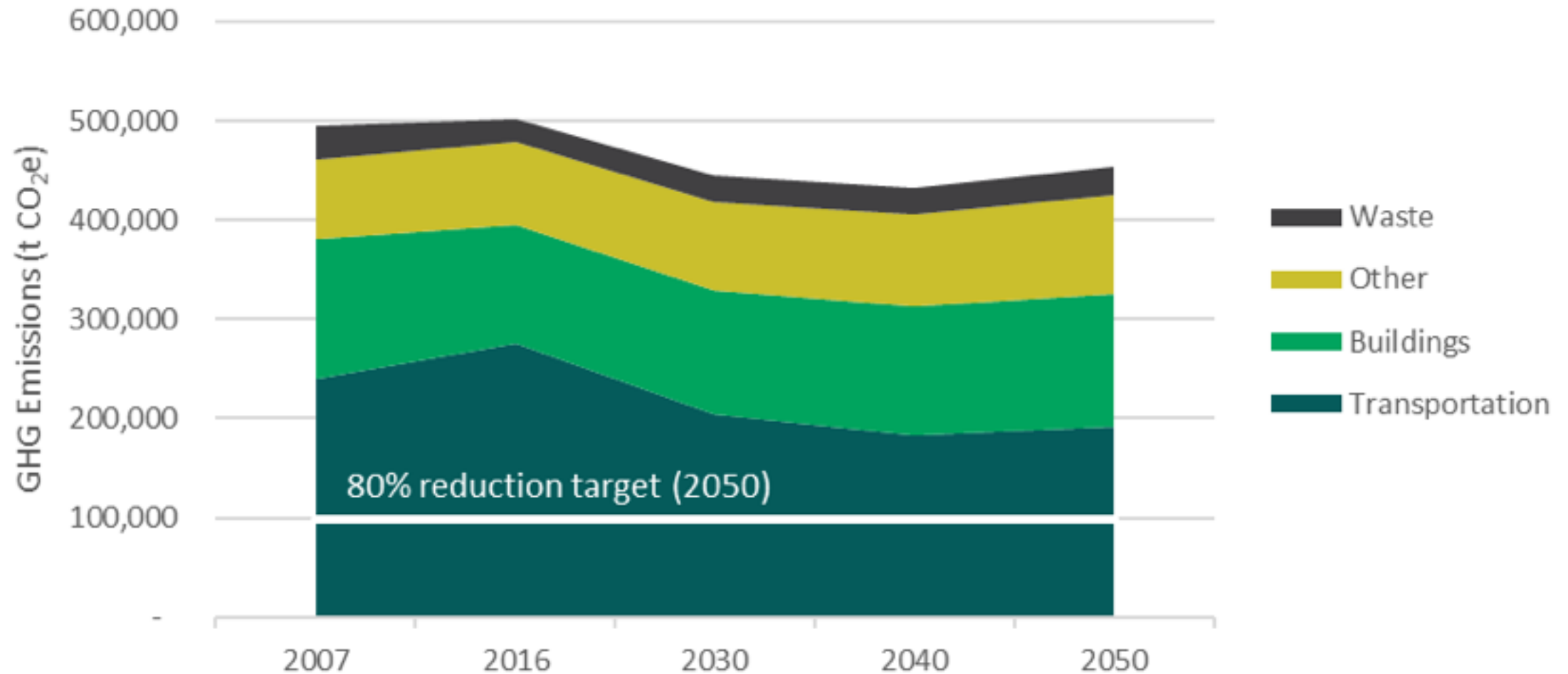
Saanich GHG emissions comparison 2007-2017





# Current policy and planning is not enough.

BAU modeling projects a 9% reduction from 2007 GHG emissions by 2050 under current conditions.





An aerial photograph of a city, likely Seattle, showing a dense urban grid, green spaces, and a large body of water in the background. The left half of the image is covered by a semi-transparent white overlay.

# Key Questions



# What is...

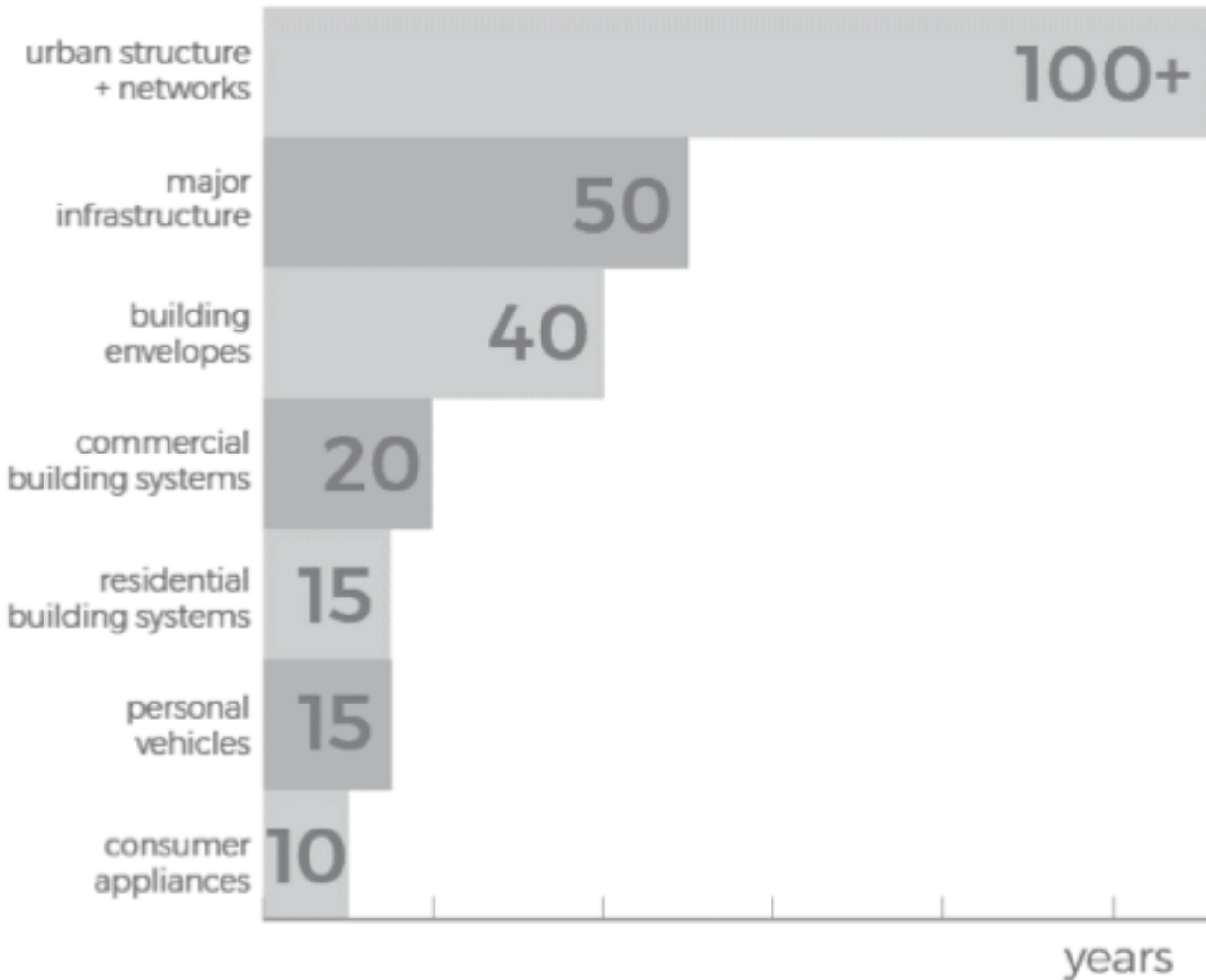
**Strategic:** achieves climate goals; ready-made policy

**Feasible:** control vs. influence; context administration

**Desirable:** aligns with community values



## typical lifespans of urban elements



**Some strategies will have longer impacts.**

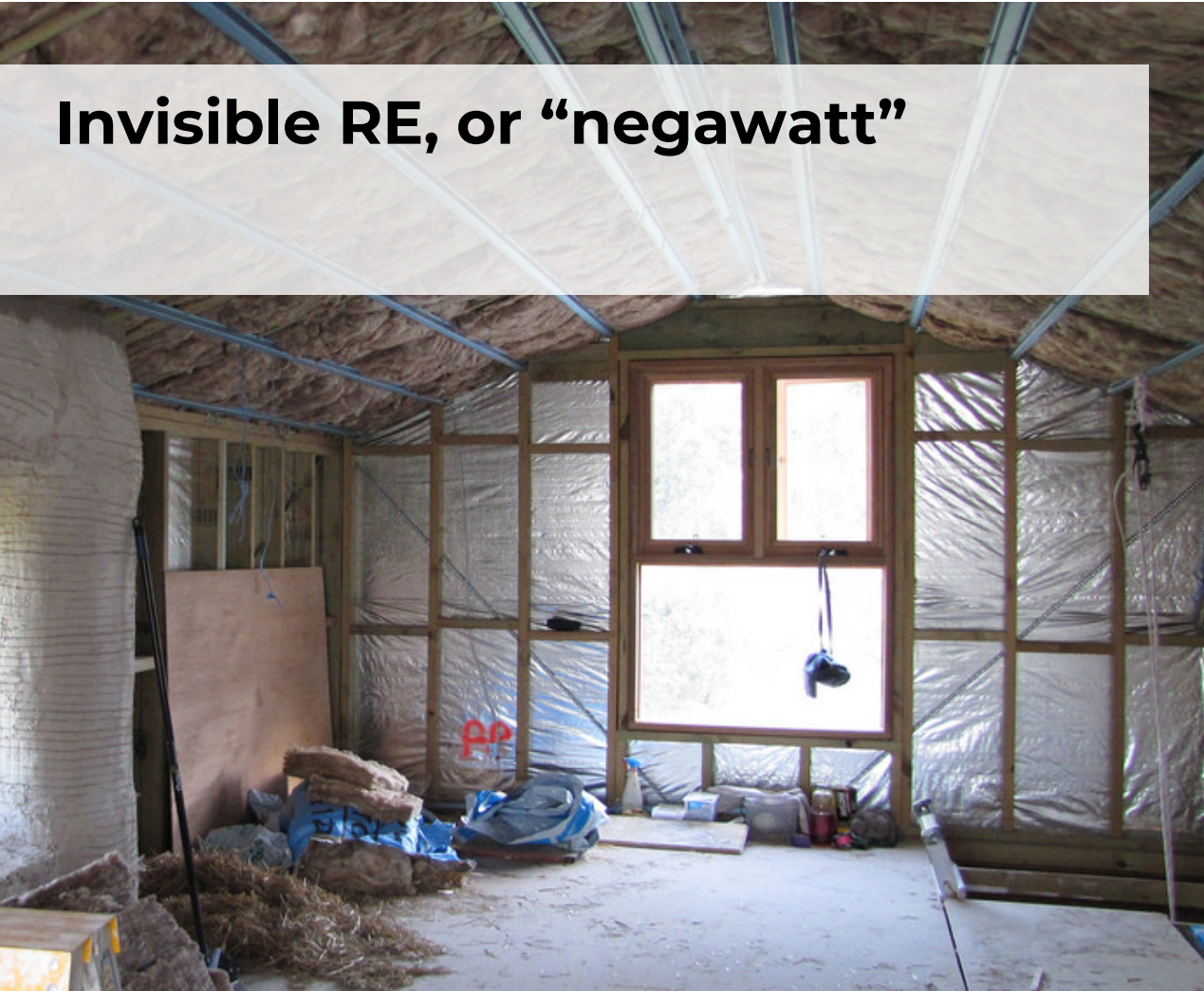
Infrastructure with long lifespans amplifies impacts and missed opportunities.





# Reduced demand and/or Increased Renewable Energy supply

**Invisible RE, or “negawatt”**



**Visible RE**





# ? Retrofits + New construction

Energy efficient new construction is feasible and cost-effective, but limited by projected growth.

**Retrofits**



**New Construction**







# Behaviour change + Technology

Changes in behaviour and technology reduce emissions, support community resilience, and achieve goals in different ways.

**Behaviour**



**Technology**





# Trends matter.

Negative feedback loops, consumption patterns, and disruptive trends can impact emission reductions.

**On-demand mobility:** 42% of ride-hailing trips would have been on public transit; 12% would have been walking or cycling

(2017, Metro Boston) <https://www.mapc.org/farechoices/>



## Ride-hailing is pulling people off public transit and clogging up roads

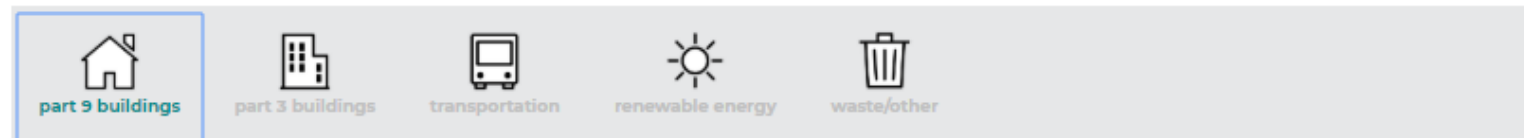
Uber and Lyft have made getting places easier than ever, but their convenience appears to be having an unintended side effect on cities: more traffic.



District of  
Saanich | **CAN**tool  
*climate action navigator*



### CHOOSE STRATEGIES



### PART 9 BUILDINGS

#### New Construction

- Step Code Implementation: Step 5 by 2020 [...]
- Zero-Carbon Building Mandate: by 2032 [...]

#### Retrofits

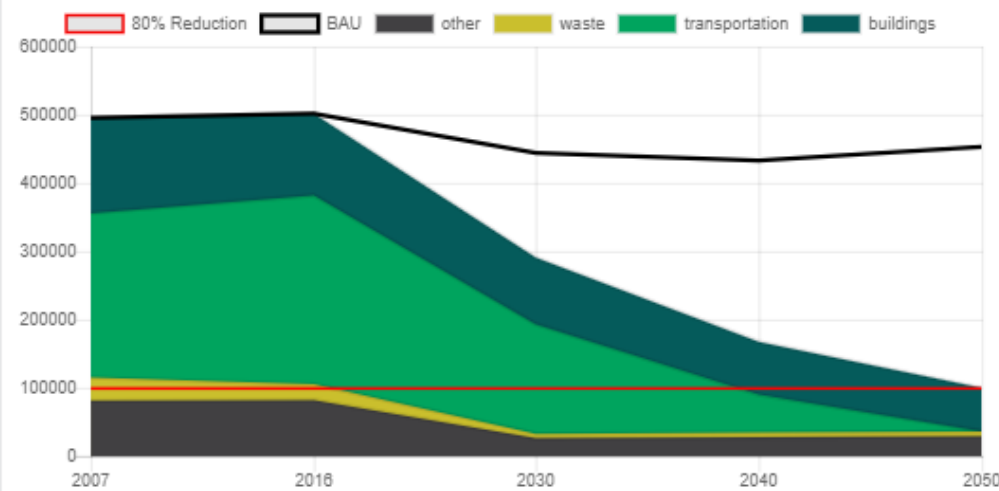
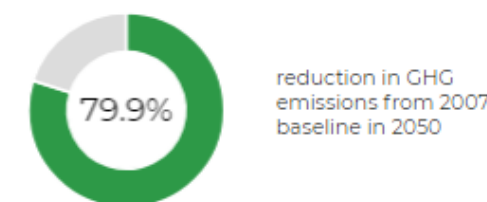
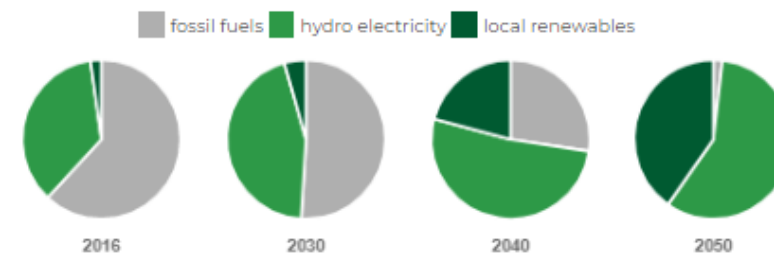
- Oil to Heat Pump Conversion: 100% by 2030 [...]
- Envelope Upgrades: 20% by 2050 [...]
- Low Carbon System Upgrades: 20% upgraded by 2050 [...]

CANtool is an interactive web tool for exploring and evaluating municipal climate action scenarios.

### RESULTS

supply   demand   info

#### supply



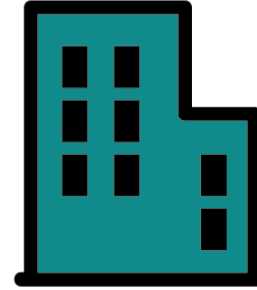


# STRATEGIES

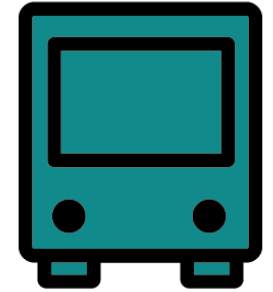
Emission reduction strategies are defined for each sector and can be selected and adjusted by the user.



Houses +  
townhomes



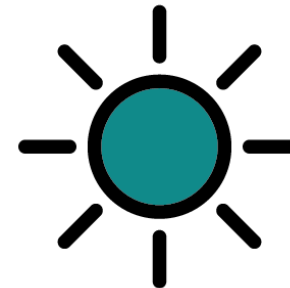
Apartments +  
commercial  
buildings



transportation



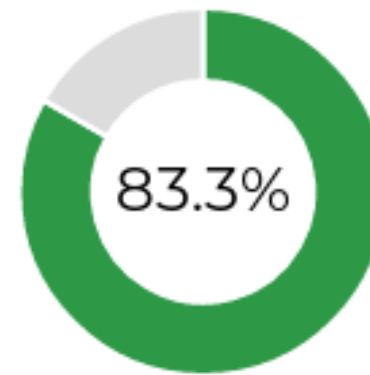
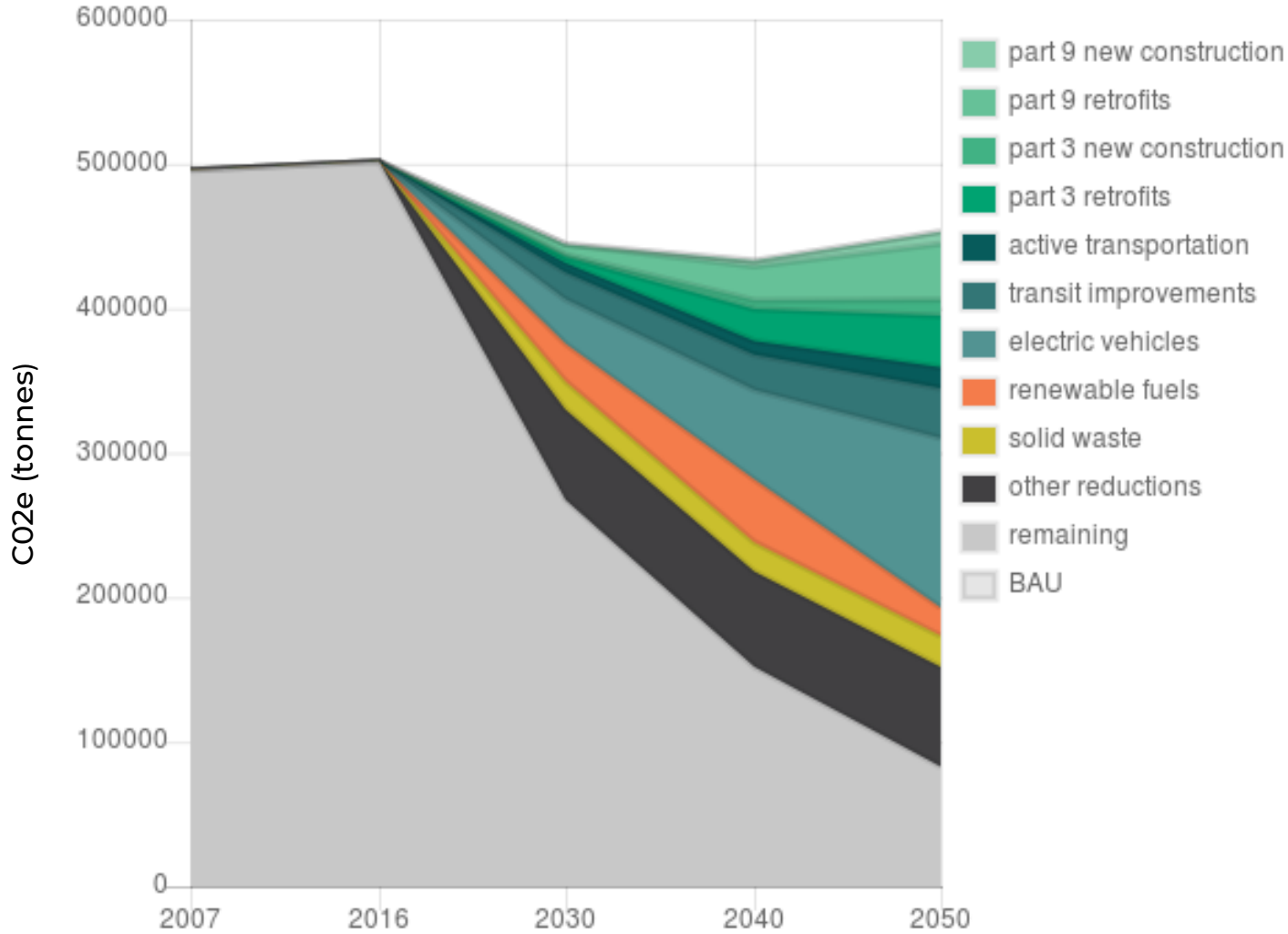
waste



renewable  
energy

# Multiple pathways to targets

All require many actions across community



reduction in GHG emissions from 2007 baseline in 2050



# CANtool demonstration

District of Saanich CANtool | Climate Action Navigator

## CHOOSE STRATEGIES



### PART 9 BUILDINGS

New Construction

- Step Code Implementation: Step 5 by 2020 [...]
- Zero-Carbon Building Mandate: by 2032 [...]

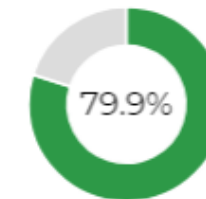
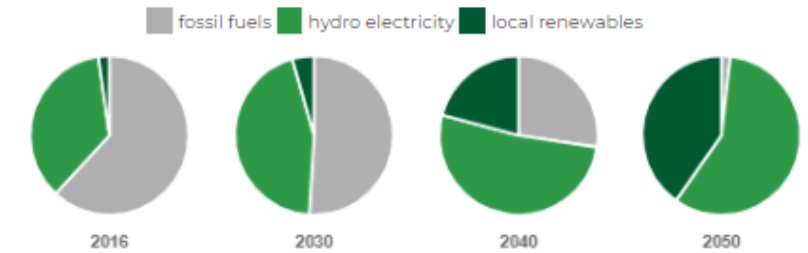
Retrofits

- Oil to Heat Pump Conversion: 100% by 2030 [...]
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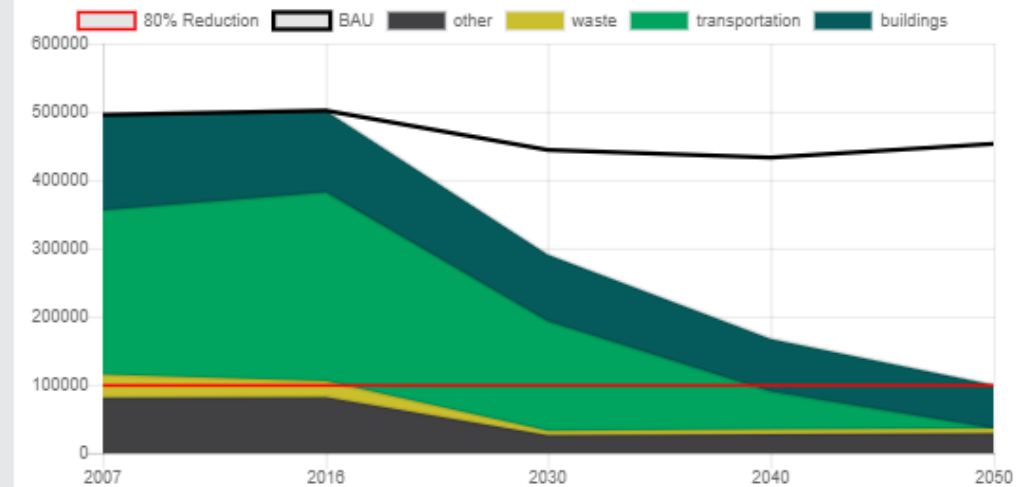
## RESULTS

supply   demand   info

supply



reduction in GHG emissions from 2007 baseline in 2050





## STEP CODE

### BC Energy Step Code

Strategy Targets:



**Require New  
Buildings to be  
more efficient**

**Estimated  
reduction:**

**2.4%**

reduction in GHG  
emissions beyond BAU





STEP CODE

BC Energy  
Step Code

Strategy Targets:



**Require New  
Buildings to be  
Zero Carbon by  
2032**

**Estimated  
reduction:**

**3.9%**

reduction in GHG  
emissions beyond BAU



## ENVELOPE RETROFITS



Strategy Targets:

**Upgrade 90% of  
Existing Building  
Envelopes by 2050**

**Estimated  
reduction:**

**3.7%**

reduction in GHG  
emissions beyond BAU





## SYSTEM RETROFITS



Strategy Targets:

**Low Carbon Energy  
in 75% of Existing  
Buildings by 2050**

**Estimated  
reduction:**

**11.8%**

reduction in GHG  
emissions beyond BAU



# ACTIVE TRANSPORTATION



Strategy Targets:

## Achieve Active Transportation Targets by 2050

**Estimated  
reduction:**

**2.9%**

reduction in GHG  
emissions beyond BAU





# TRANSIT IMPROVEMENTS



Strategy Targets:

## Achieve Transit Targets by 2050

**Estimated  
reduction:**

**2.5%**

reduction in GHG  
emissions beyond BAU



# TRANSIT IMPROVEMENTS



Strategy Targets:

## Achieve Transit Targets by 2050 with Electric Buses

**Estimated  
reduction:**

**6.9%**

reduction in GHG  
emissions beyond BAU





# ELECTRIC VEHICLES



Strategy Targets:

## 90% of Vehicles Electrified by 2050

### Estimated reduction:

# 22.6%

reduction in GHG  
emissions beyond BAU



SOLAR PV



Strategy Targets:

**20% of Homes have  
Solar PV by 2050**

**Estimated  
reduction:**

**0.1%**

reduction in GHG  
emissions beyond BAU





# RENEWABLE FUELS

## 100% of Remaining Fuel is Renewable



Strategy Targets:

Propel™

## Estimated reduction:

# 4.9%

reduction in GHG  
emissions beyond BAU



# WASTE REDUCTION



Strategy Targets:

**Achieve 100%  
Diversion of  
Organic Waste by  
2050**

**Estimated  
reduction:**

**4.3%**

reduction in GHG  
emissions beyond BAU





## CONSUMPTION REDUCTION



Strategy Targets:

**80% Reduction in  
Personal and  
Industrial  
Consumption**

**Estimated  
reduction:**

**14.0%**  
reduction in GHG  
emissions beyond BAU



Available early 2019 for residents to  
explore and provide feedback





Saanich CANtool

# 100% RE neighbourhood exercise

- 1. Discuss:** Which strategies most excite you? Choose 3-4 and tape to the map.
- 2. Draw:** consider visible changes you would make to the neighbourhood to reduce emissions while enhancing livability and community resilience. Name the neighbourhood. Identify where you would choose to live.
- 3. Report back:** what are the top 3 priorities? Name one key barrier, one policy tool, and one important partner.

Saanich CANtool

# 100% RE neighbourhood exercise


**How can we build desirable and resilient communities, together?**

1. Consider the feasibility and desirability of strategies in Saanich neighbourhoods.
2. Identify barriers and opportunities, and prioritize actions at the neighbourhood scale.






# BUILDINGS

 **STEP CODE**

**BC Energy Step Code**



Strategy Targets:

 **SYSTEM RETROFITS**



Strategy Targets:

 **ENVELOPE RETROFITS**



Strategy Targets:

# TRANSPORTATION

 **ACTIVE TRANSPORTATION**





Strategy Targets:

 **TRANSIT IMPROVEMENTS**




Strategy Targets:


 **ELECTRIC VEHICLES**




Strategy Targets:


# RENEWABLES

 **RENEWABLE FUELS**



Strategy Targets:

 **SOLAR PV**



Strategy Targets:

# WASTE

 **WASTE REDUCTION**



Strategy Targets:

 **CONSUMPTION REDUCTION**



Strategy Targets:



An aerial photograph of a suburban neighborhood. A road runs vertically through the center, with a pond to its right. The area is filled with houses, trees, and green spaces.

# Thank you

Duncan Cavens  
Nicole Miller  
Ellen Pond

[duncan@c2mp.ca](mailto:duncan@c2mp.ca)  
[nicole@c2mp.ca](mailto:nicole@c2mp.ca)  
[ellen@c2mp.ca](mailto:ellen@c2mp.ca)

