Electric Mobility Strategy

Environment and Natural Areas Advisory Committee

Sustainability Division
September 16, 2020

PRESENTATION PURPOSE

To provide an overview on the District of Saanich electric mobility work and specifically focus on the Draft E-Mobility Strategy for discussion and input.

PRESENTATION OUTLINE

- E-Mobility Context & Purpose
- Developing the E-Mobility Strategy
- Electric mobility 101
- Barriers to electric mobility
- Action Plan
- Implementation & Monitoring

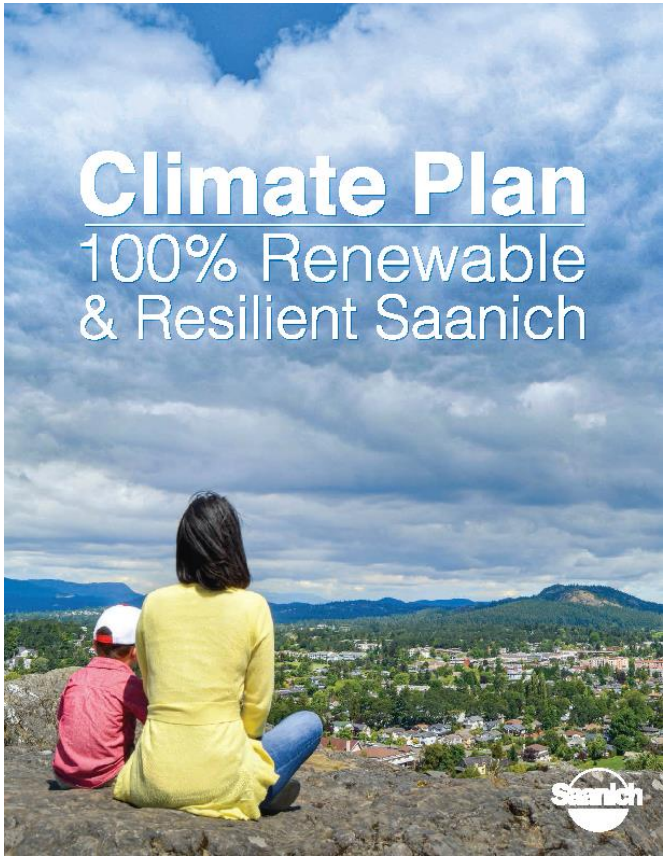
CONTEXT: CLIMATE PLAN

Plan Goals:

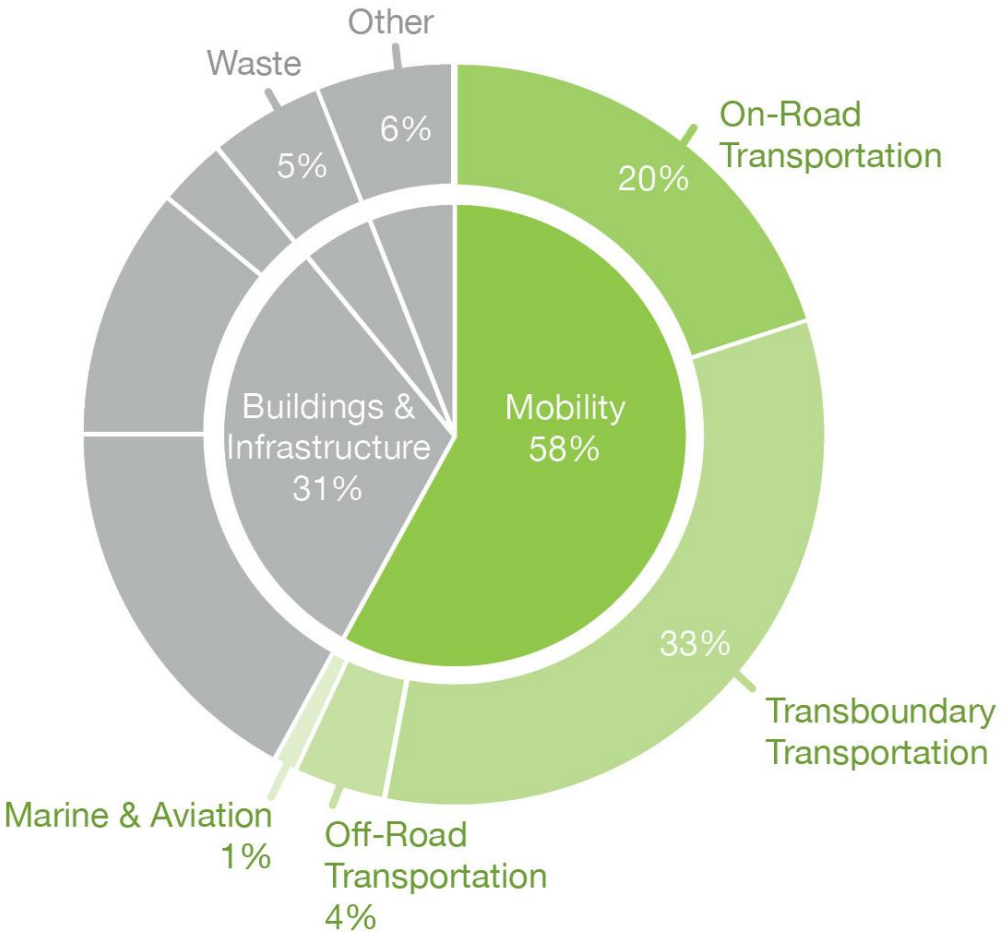
1. CUT EMISSIONS IN HALF BY 2030 AND TO NET ZERO BY 2050

2. TRANSITION TO 100% RENEWABLE ENERGY BY 2050

3. PREPARE FOR A CHANGING CLIMATE



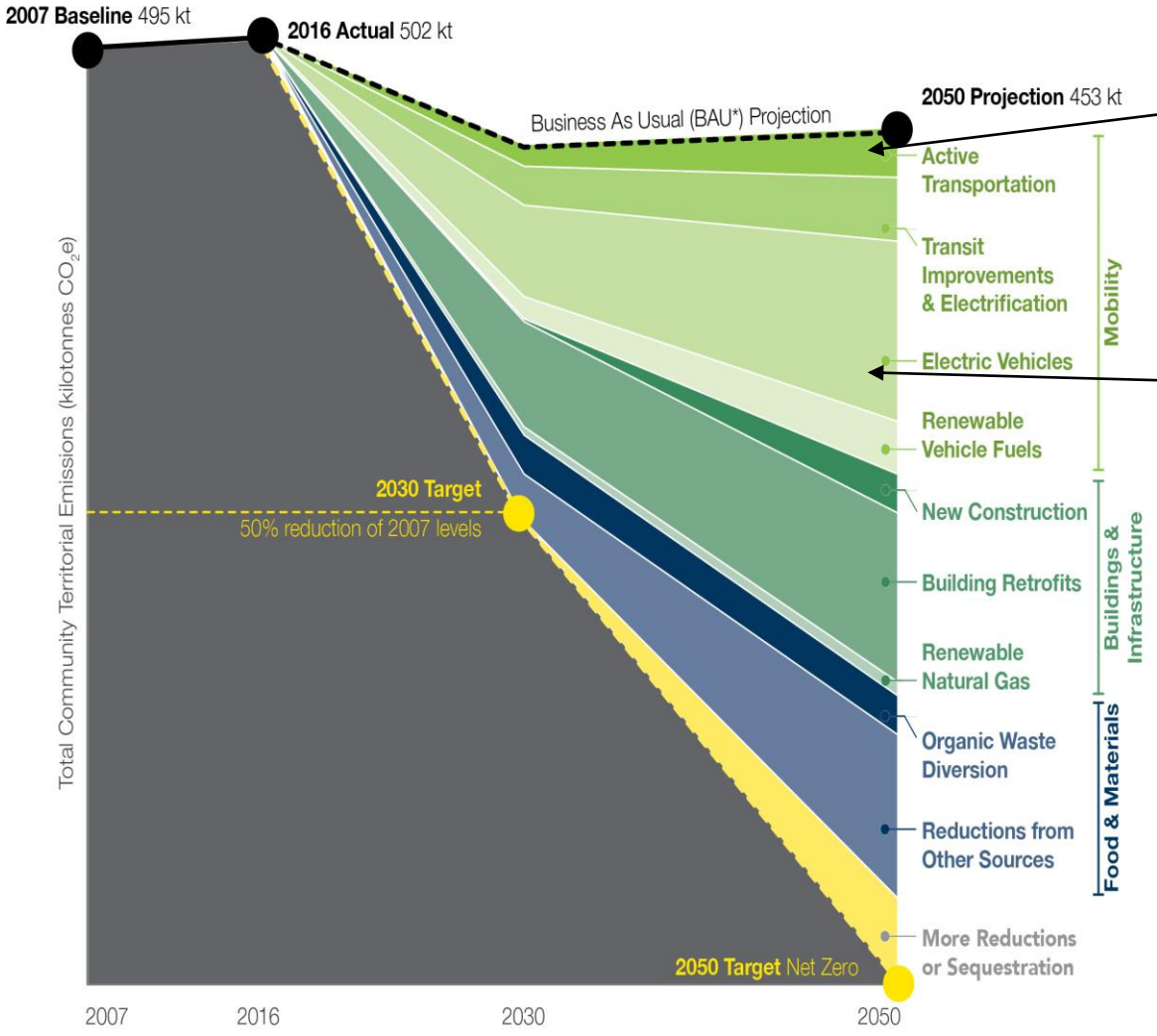
CONTEXT: PATHWAY TO TARGETS



On-road transportation = 53% of GHGs:

- Personal Vehicles (50%)
- Light trucks & SUVs (39%)
- Commercial Vehicles (10%)

CONTEXT: PATHWAY TO TARGETS



Active Transportation 5% of 2050 target

Transition to electric vehicles: 19% of 2050 target

E-Bikes & other e-mobility devices present opportunity to reach/exceed Active Transportation Plan targets

ELECTRIC MOBILITY ACTIONS

1. Electric Mobility Strategy
   - E-bikes
2. EV charging infrastructure requirements
3. Public EV charging stations
   - 20 new charging stations
   - Operational plan
   - Management policy
4. Fleet EV charging stations

E-MOBILITY STRATEGY PURPOSE

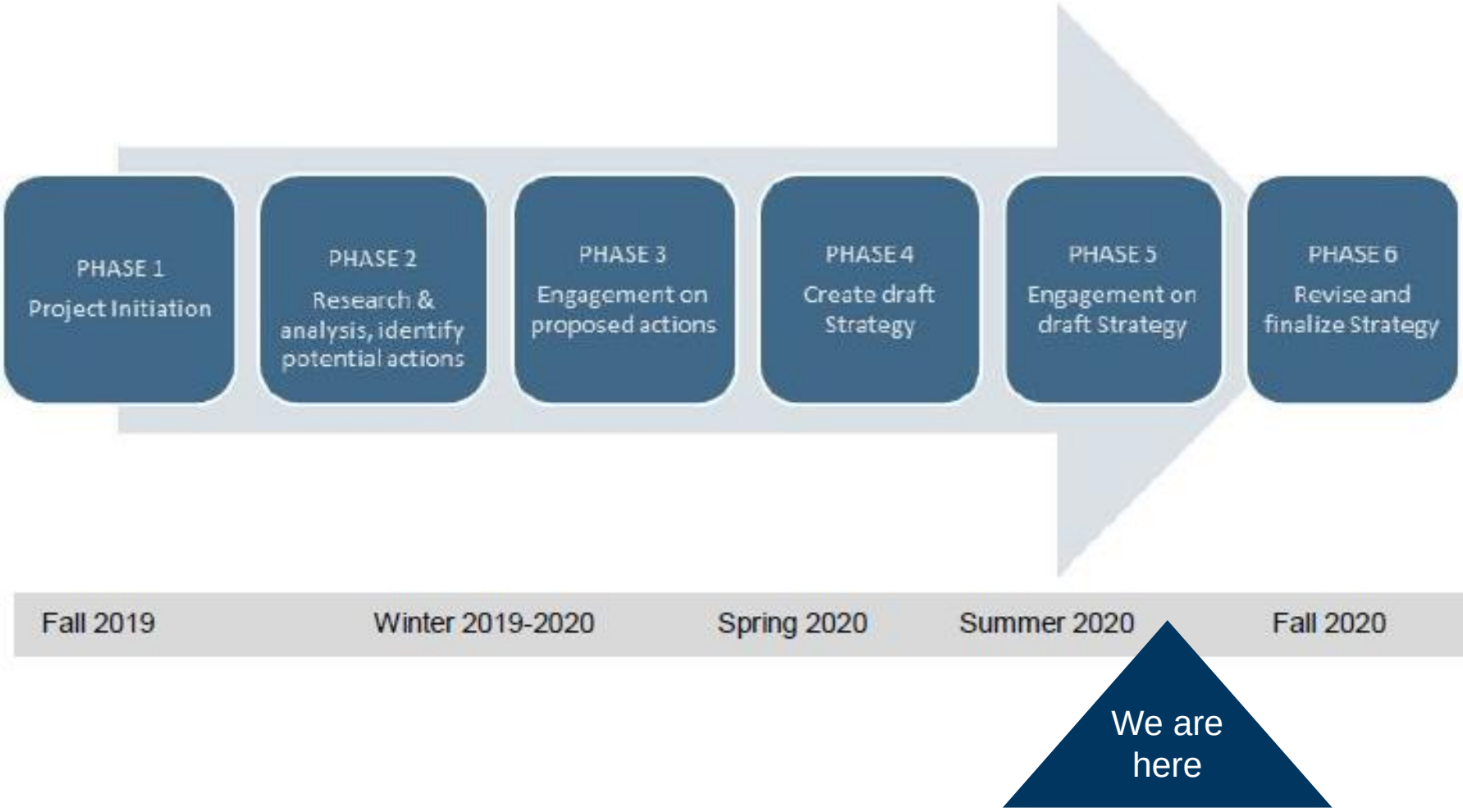
Support a rapid transition to electric vehicles (EVs) and electric bikes (e-bikes) in Saanich

38 Actions in five focus areas to achieve the following targets:

1. By 2030, 36% of all personal vehicles are EVs
2. By 2050, 100% of personal and commercial vehicles are powered by electricity or other renewable fuels
3. By 2030, 22% of trips are by active transportation
4. By 2050, 30% of trips are by active transportation

Focus: light duty vehicles – most readily available and largest impact on community-wide GHGs

E-MOBILITY STRATEGY PROCESS



E-MOBILITY STRATEGY - Engagement

- **Climate Plan Engagement**: May 2018 – Sept 2019
- **Capital Region EV & E-Bike Infrastructure Planning Project:** 2018

- **Plugging the Gaps Event** with Drive Electric Victoria: Sept 2018
- **EV Charging Infrastructure Requirements** engagement: May 2018 – May 2019
- **E-Mobility Strategy Engagement**: Feb/Mar 2020 and Sept 2020

E-MOBILITY 101 - EVs

HEV

hybrid
electric vehicle

internal combustion engine
no ability to plug in
high MPG efficiency

toyota prius

PHEV

plug-in hybrid
electric vehicle

fossil fuel and electric
ability to plug in
extended range over BEV

chevrolet volt

BEV

plug-in battery
electric vehicle

no internal combustion engine
battery only
lowest cost per km driven
zero emissions

nissan leaf

E-MOBILITY 101 – EV Charging

L1

level 1 charging
AC, 120V

same as a regular house plug
3-8 km per hour of charge time
8-12 hours for full charge
retrofit cost ~$500

use **at home** (overnight)
use **at work** (all day)

L1 charger

L2

level 2 charging
AC, 240V

requires own circuit (same as a dryer)
18-45 km per hour of charge time
4-6 hours for full charge
installation cost ~$2,500 to $15,000+

use **at home** and **at work**
use **on the go** (curbside, parking lots)

L2 home charger

DCFC

dc fast charging
variable DC voltage

requires utility (high-power)
90-150 km per half hour charge time
30 minutes for 80% charge
installation cost ~$75,000+

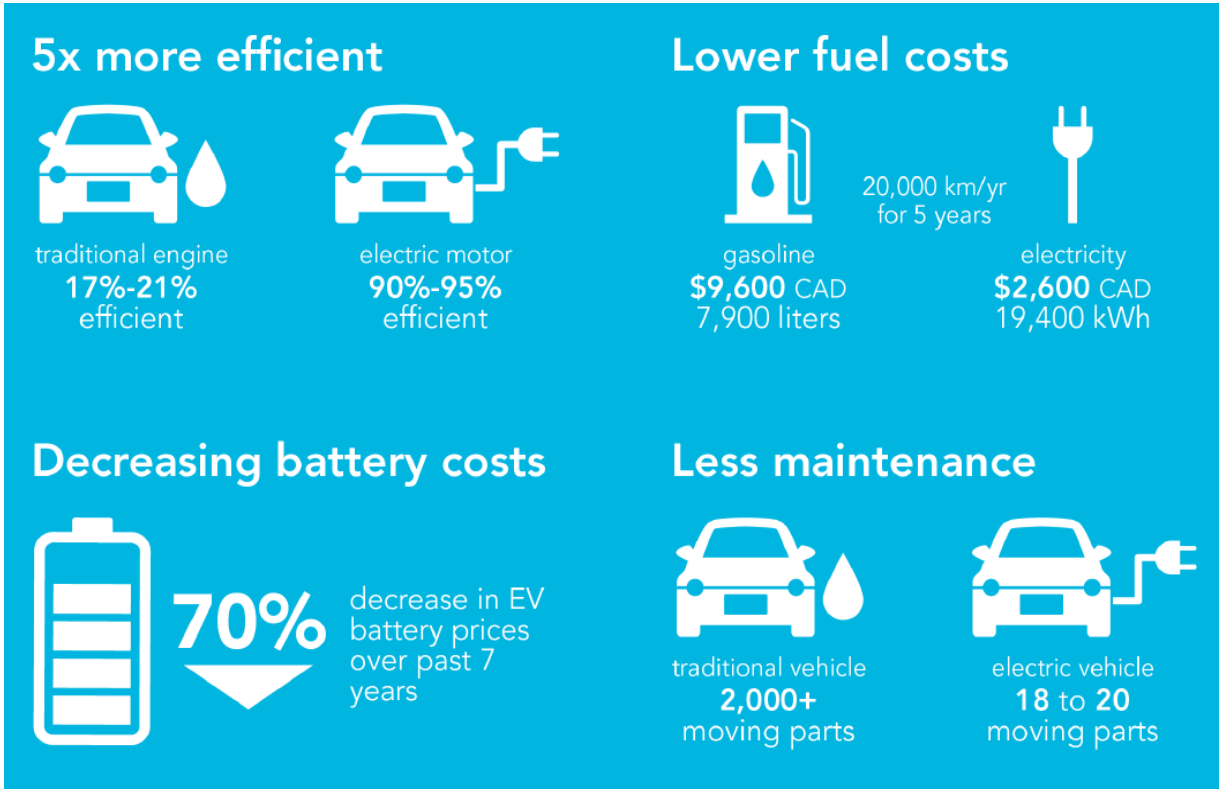
use **on the go** (fast-charge hubs)
use **on the go** (highway travel)

public DC fast charger

source: Accenture, Plug-in BC, Powertech Labs, Fleet Carma.

E-MOBILITY 101 – Benefits of EVs

- Reduced GHGs
- Increased affordability
- Cleaner air
- Electric Bikes
- Quieter streets



E-MOBILITY 101 – e-bikes & others

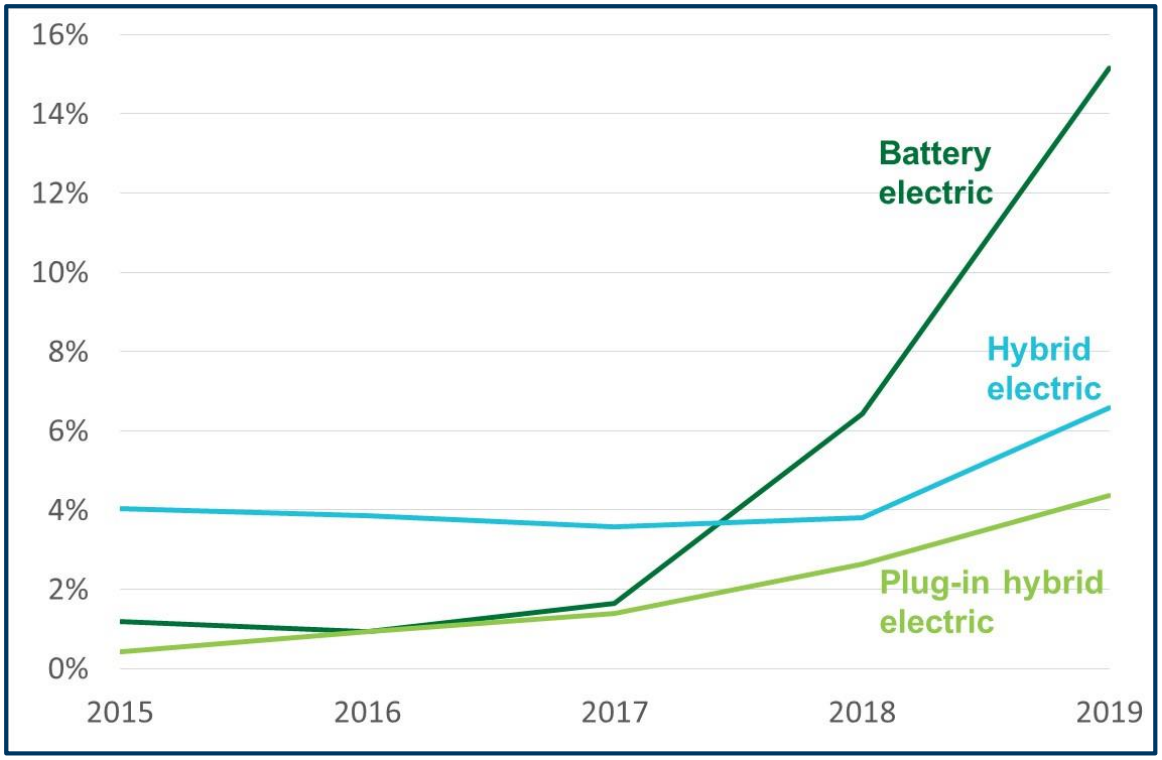
- **E-bikes** – 3 classes
  1. Pedal Assist
  2. Power-on-Demand
  3. Hybrid
- **Electric mopeds and scooters**
- **Electric Mobility scooters**
- **Mini motorcycles**
- **Electric skateboards and kick/push scooters**
- **Electric unicycles**

E-MOBILITY 101 – Benefits of e-bikes & others!

- **Climate Friendly** – renewable
- **Affordable** – can replace driving, avoid traffic, save gas, insurance and maintenance
- **Accessible** – easier for longer trips, steep hills, hauling cargo or young children. Greater range of ages and abilities
- **Exercise** – you chose how much you want to peddle
- **E-bike fleets**

E-MOBILITY MARKET CONDITIONS

EV SALES



Share of new passenger car registrations in BC

BC legislated EV sales targets:

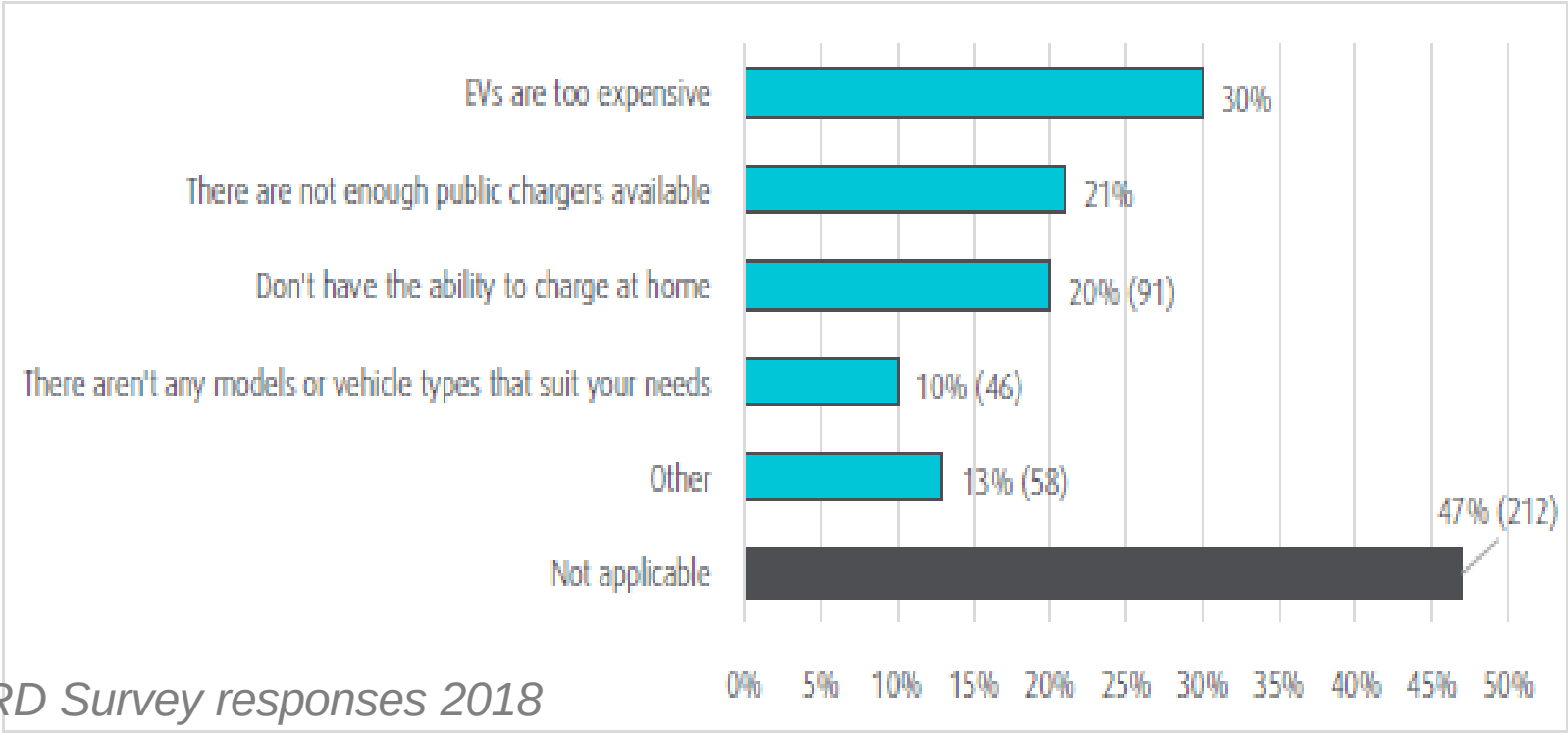
- 2025 - 10%
- 2030 - 30%
- 2040 - 100%

Share of vehicles in Saanich

	2015	2019
Hybrid	2%	3%
Electric	0.2%	1.4%

E-MOBILITY BARRIERS - EVs

- Purchase price
- Lack of knowledge and experience
- Lack of variety and model types
- Range anxiety
- Inability to charge at home or work
- Lack of public charging stations



CRD Survey responses 2018

E-MOBILITY SOLUTIONS – EVs

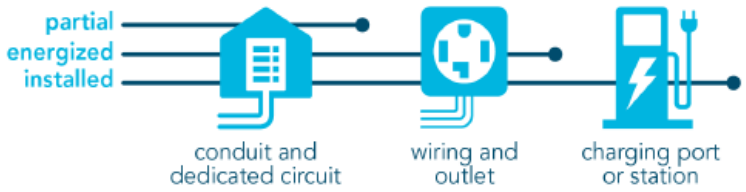
Roles for local government

Demonstrating leadership at local government locations like City Hall.

- local government fleet
- local government employee

Ensuring adequate EV charging at work and at home.

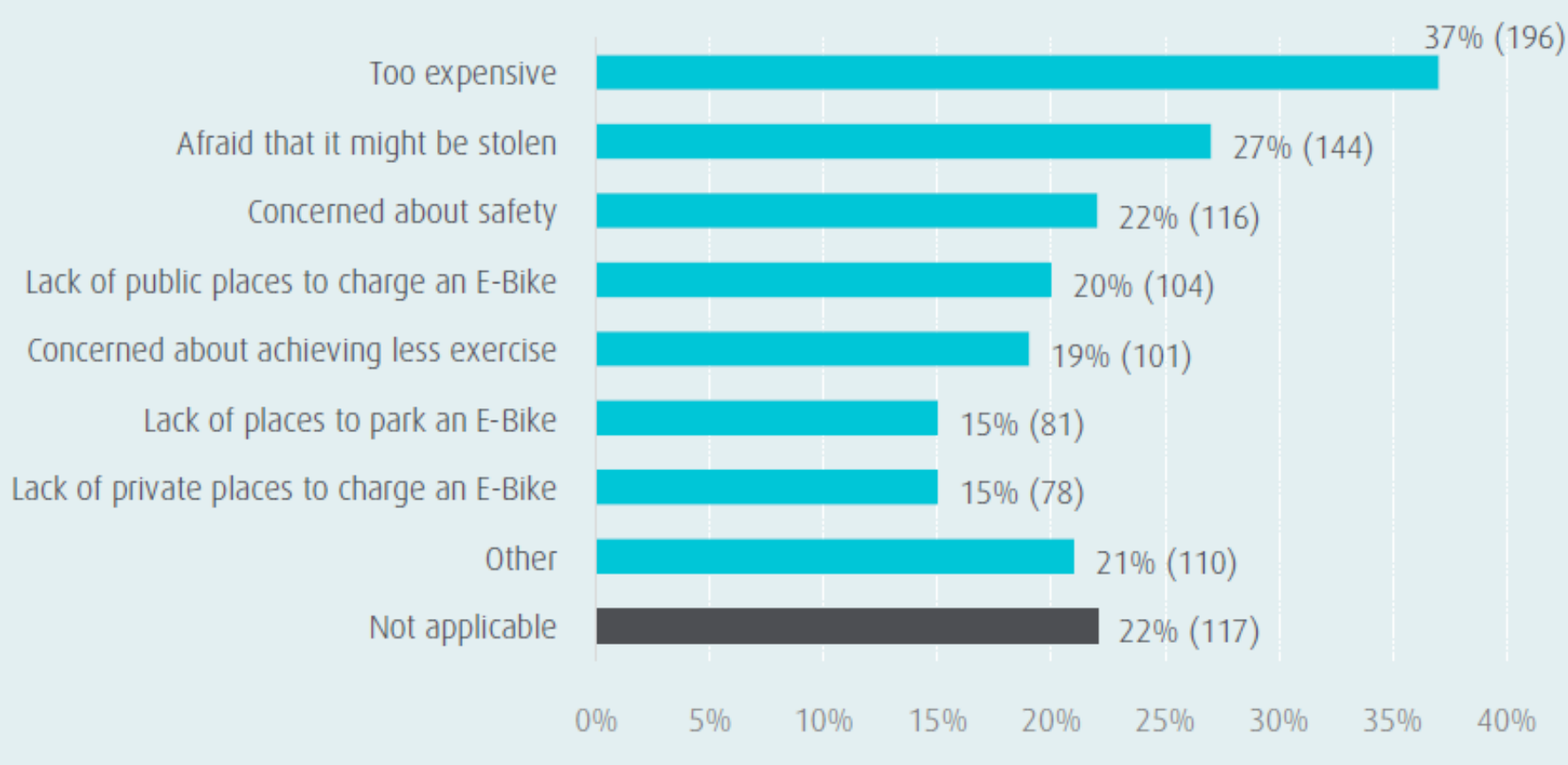
- new single family and duplex
- new multi family
- retrofits



Ensuring publicly accessible charging on the go.

- city-owned network
- commercial ev stations
- dcfc corridor network

E-MOBILITY BARRIERS – E-Bikes



CRD Survey responses 2018

E-MOBILITY SOLUTIONS – E-bikes

- **Cycling infrastructure –** renewable
- **E-bike incentive programs**
- **Education programs –** including rentals and demos
- **Land use planning –** for compact, complete communities
- **Provincial Motor Vehicle Act Pilot projects:**
  - Zero-emission mobility devices
  - Pilot speed limit reductions

E-MOBILITY ACTION PLAN

Support a rapid transition to electric vehicles (EVs) and electric bikes (e-bikes) in Saanich

38 Actions in five focus areas:

1. Electric Vehicles (EVs)
2. E-Bikes (& other e-mobility devices)
3. Home & Workplace Charging
4. Public Charging Network
5. District Leadership

Some actions replicate or are similar to Climate Plan actions

Actions also support mode shift targets in the ATP

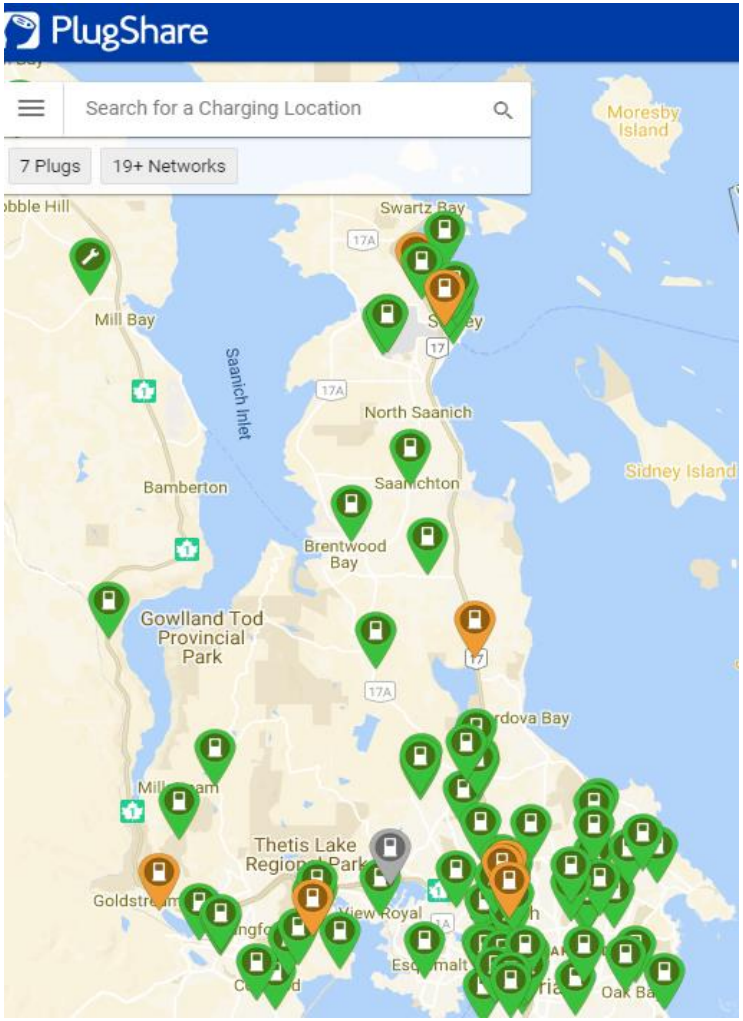
EV CHARGING INFRASTRUCTURE REQUIREMENTS

- Approved by Council – September 30, 2019
- Bylaw adoption – August 10, 2020
- In effect September 1, 2020
- Technical Bulletin – online

Single-Family, Duplex and Townhouse	Multi-Family Development	Institutional, Commercial & Industrial
Require 1 on-site parking space per unit to be energized (Level 2)	Require all off-street parking spaces to be energized (Level 2), excluding visitor parking	Require 0-5% of parking spaces to be energized (Level 2) + some EVSE, depending on building use

PUBLIC EV CHARGERS

- Key for EV uptake
  - Most EV owners charge at home, but
  - Workplace and public charging also needed
- Saanich public chargers meet 2 needs:
  - Charging on the go – daytime, short term
  - Charging for EV owners without access to home charging - overnight



NEW PUBLIC EV CHARGERS

- 20 new public level 2 charging stations
- Funding from ZEVIP + Council Strategic Initiatives Contingency Fund
- Installation complete by end of 2021

Site	Charging stations	
	Existing	New
Cedar Hill Golf Course	2	2
Cedar Hill Rec Centre	2	2
Gordon Head Rec Centre	2	
G. R. Pearkes Rec Centre	2	2
Saanich Commonwealth Place	2	4
Municipal Hall	2	2
Municipal Hall Annex		2
Beckwith Park		1
Cadboro Gyro Park		2
Hampton Park		1
Mount Douglas Park		2

PUBLIC EV CHARGERS - MANAGEMENT

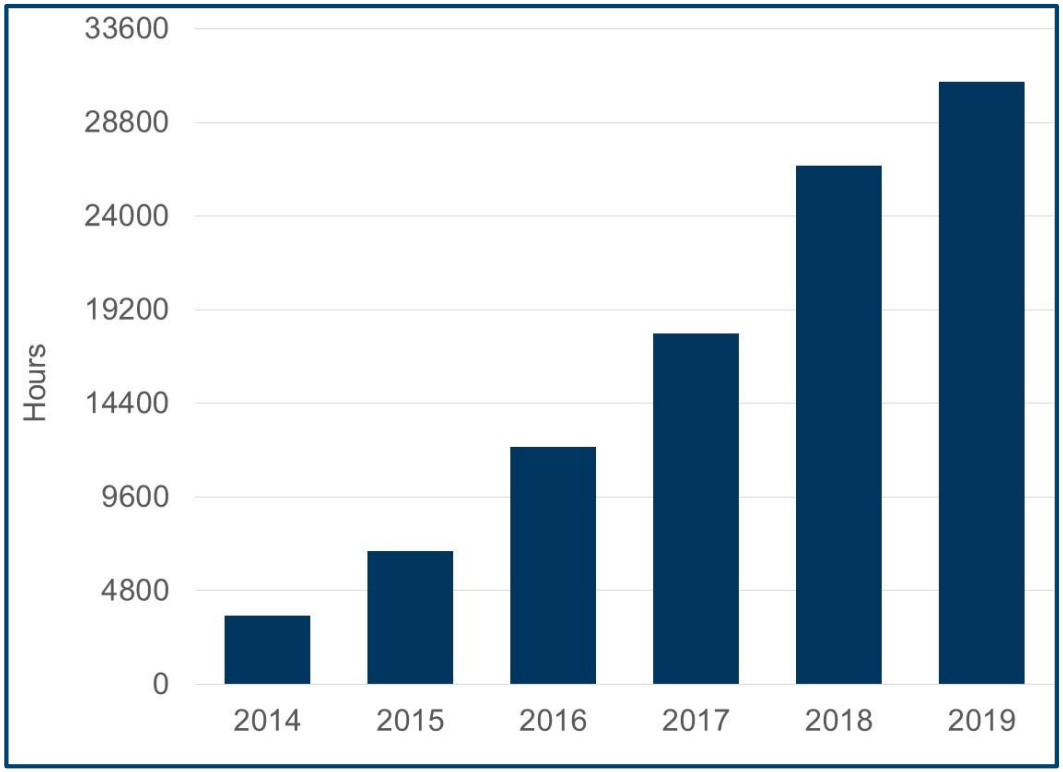
Saanich currently has 12 public level 2 EV charging stations at key facilities

Average daily use per charger (Apr 2019-Mar 2020):

Low: 2.3 hours

High:12.9 hours

Annual use of Saanich public EV charging stations (hours)



PUBLIC EV CHARGERS - MANAGEMENT

USER FEE

- Proposed user fee: $1 per hour
  - Consistent with Esquimalt & Victoria
  - Comparable to other BC municipalities
  - Recommended in CRD EV + E-bike Infrastructure report
  - Review after 1 year
  - Revenue used to offset costs of operating charging stations
  - Charging stations can charge fees with card or app

PUBLIC EV CHARGERS MANAGEMENT

TIME LIMITS

- Existing Time Limits:
  - 3-hour time limit currently in place but not enforced
- Proposed:
  - 3-hour time limit during the day/operating hours
  - Enforced with $30 fine
  - $30 fine also applies to parking non-EV in EV Parking Space

PUBLIC EV CHARGERS MANAGEMENT

PUBLIC SUPPORT

Saanich E-Mobility Strategy survey, Feb-Mar 2020:

- 93% support action to “Review management options for District-owned public EV chargers, such as time limits and fees, to ensure optimal use of chargers”

CRD survey 2018

- “How much would you consider is a reasonable fee per hour for public charging?”
- 66% considered fee of at least $1 per hour reasonable

4. FLEET EV CHARGERS

NRCan Grant Application

- 264 vehicles, includes 20 garbage trucks and 4 fire engines
- 19 of these are EVs and 2 electric Zambonis
- Grant application - 24 x Level 2 EV Charging Stations
    - Municipal hall
    - Public works yard
    - 3500 Blanshard
    - Public Safety Building (Police)
    - Fire Station #1
- Fleet Strategy – due 2021

NEXT STEPS

- Funding & Resources for E-Mobility Strategy
- Final Engagement & Survey
  - Survey available at www.saanich.ca/climateplan
  - Closes 27 September
- Presentation to Council for approval
  - Expected October 2020

Questions?

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Additional Information

ACTION PLAN - EVs

Action	Description	Time
EV1	Advocate to provincial and federal governments to maintain EV incentive programs	2020-25 high
EV2	Increase awareness of EVs through a comprehensive communications campaign	2020-23 high
EV3	Explore E-mobility requirements and incentives for business licenses and fees	2020-21 med
EV4	Encourage and support regional organizations to convert their fleets to Zero Emission Vehicles (ZEVs) (Climate Plan Action M3.7)	2020-25 med
EV5	Support car sharing organizations to electrify their fleet	2021-23 med
EV6	Explore land use planning policy and bylaw changes that support future car dealership needs as vehicles electrify	2023-25 low
EV7	Explore the potential for EVs to act as backup power supply	2023-25 low

ACTION PLAN – E-bikes

Action	Description	Time
EB1	Accelerate implementation of the Active Transportation Plan (Climate Plan Action M1.1).	2020-25 high
EB2	Plan compact, complete communities and focus density in nodes and corridors	2020-25 high
EB3	Identify and plan for infrastructure to ensure the safety of e-bike riders and others	2020-25 high
EB4	Advocate to the provincial and federal governments for an e-bike incentive program not linked to Scrap-It	2020-22 high
EB5	Provide ‘top-up’ incentives to augment provincial/ federal e-bike incentive programs if required	2020-22 high
EB6	Pilot an e-bike incentive/trial program (Climate Plan Action M1.2).	2020-22 high
EB7	Increase awareness of E-bikes through a comprehensive communications campaign	2020-23 high

ACTION PLAN – E-bikes cont'd

Action	Description	Time
EB8	Support lower speed limits on residential streets (Climate Plan Action M1.7).	2020-23 high
EB9	Review and update the Building Bylaw to consider amendments that support e-bikes	2021-23 med
EB10	Review and update the Zoning Bylaw to consider amendments that support e-bikes	2021-23 med
EB11	Advocate to BC Transit and the CRD to update their infrastructure design guidelines to support e-bikes	2021-23 med
EB12	Develop policies and infrastructure to support other kinds of e--mobility in collaboration with the Province and regional partners	2021-23 med

ACTION PLAN – Home & Workplace Charging

Action	Description	Time
H+W1	Monitor Saanich EV Infrastructure Requirements for New Developments and share knowledge regionally	2020-25 high
H+W2	Create guidelines for 100% EV-ready feasibility studies in existing multi-unit residential buildings	2020-21 high
H+W3	Promote incentives for EV charging infrastructure	2020-23 high
H+W4	Provide additional ‘top-up’ incentives to augment provincial/ federal EV charging infrastructure incentives for existing MURBs if required	2021-22 high
H+W5	Explore need for and provide incentives for EV charging infrastructure feasibility studies in existing MURBs if required	2021-22 high

ACTION PLAN – Home & Workplace Charging cont'd

Action	Description	Time
H+W6	Provide EV charging infrastructure education for MURBs	2020-21 med
H+W7	Advocate for Right to Charge legislation. (Climate Plan Action M3.6).	2020-21 med
H+W8	Identify and address potential policy barriers to EV infrastructure in existing buildings	2020-21 med
H+W9	Support workplace EV charging	2021-23 med
H+W10	Support dedicated EV charging access for car shares near MURBs	2022-23 low
H+W11	Explore other financial approaches to overcome the capital cost barrier to EV charging	2022-23 low

ACTION PLAN – Expand Public Charging Network

Action	Description	Time
PN1	Identify priority areas in Saanich for the provision of additional public EV charging stations	2020-22 high
PN2	Work with BC Hydro and the provincial and federal governments to install more Level 3 DC fast charging stations in Saanich	2020-22 high
PN3	Explore how to encourage private sector investment in new EV charging infrastructure	2021-25 med
PN4	Embed EV charging considerations in Saanich planning processes	2021-23 med

ACTION PLAN – Saanich Leadership

Action	Description	Time
Lead 1	Develop a fleet strategy to reduce corporate emissions. (Climate Plan Action L3.1)	2020-21 high
Lead 2	Convert all light-duty fleet vehicles to zero-emissions vehicles. (Climate Plan Action L3.2).	2020-25 high
Lead 3	Develop an e-bike fleet program (Climate Action L3.3).	2020-22 med
Lead 4	Implement a Climate Friendly Commuter Program and improve bike parking at all Saanich facilities (Climate Action L2.1).	2020-22 med