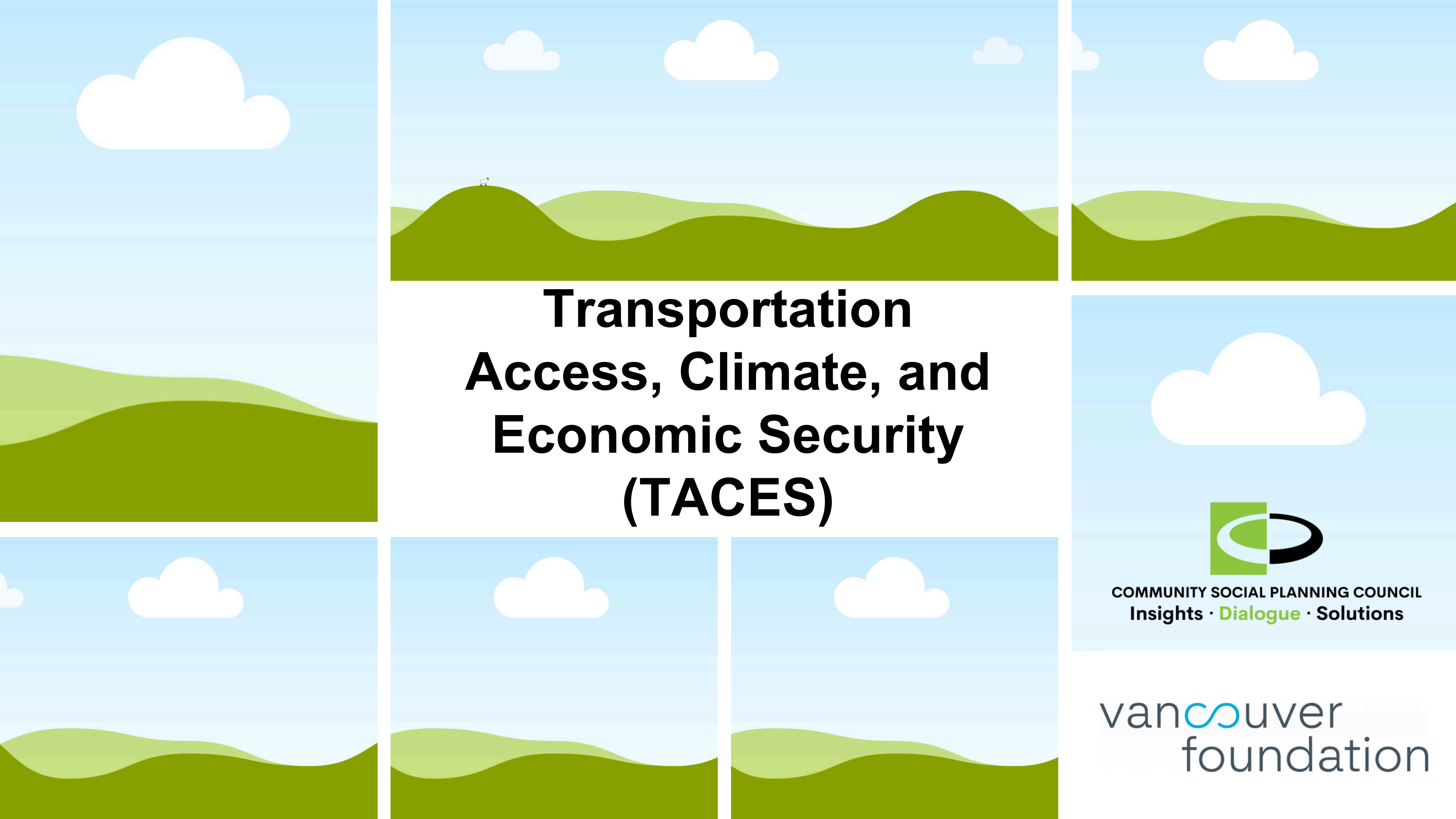




Transportation Access, Climate, and Economic Security (TACES)



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Territorial Acknowledgment

The CSPC acknowledges the Songhees, Esquimalt, Tsartlip/W̱JOŁEŁP, Tseycum/WSIᑭEM, Tsawout/SᑭÁUTW, Pauquachin/BOᑭEĆEN, T'Sou-ke, Scia'new and Pacheedaht Nations who have a historical and ongoing relationship to the land where our offices and work are based. We are grateful to be guests here and thank those who continue to steward and care for this land.



Special Thanks

The CSPC would like to give a special thanks to the Vancouver Foundation. We are grateful for their support throughout the TACES project. The Vancouver Foundation is not just a funder; they are true partners in this endeavor. By working closely with them, we've tackled various regional challenges around transportation and climate security.



TACES Background

Transportation Access, Climate, Economic Security project (TACES) designed and hosted three regional climate equity frameworks that embed equity in transportation decision-making. Primarily, TACES explored and tested program planning decisions that led to the best climate, accessibility, and affordability outcomes.

The three projects are:

- The E-bike Equity Program
- The Cycling Gender Gap research project
- Rethinking the Public Transit Network case study

The E-bike Equity Program was done in collaboration with the **District of Saanich** and the **UBC REACT Lab**; the Cycling Gender Gap research project was done in collaboration with the **Capital Regional District** (CRD); and the Rethinking the Public Transit Network case study was done in collaboration with the **CRD** and **Royal Roads University**.



Project Backgrounds

Saanich E-bike Equity Program

Working with local experts and drawing from existing research, the CSPC gathered and shared best practices, data sets and metrics to identify priorities and design a regionally focused climate equity framework for transportation.

This program led directly to the introduction of a provincial wide program based on stepped income-qualified rebates.

Closing the Cycling Gender Gap on Regional Trails in the CRD

Gendered Trail Use Initiative explored reasons why women and nonbinary cyclists might have used CRD trails less often than they would have liked.

The project included group walks and rides on the trail, identifying safety concerns and other barriers as they went. Those sessions were followed by focus group conversations.

Rethinking Public Transit Networks Using Climate Change Mitigation, Social Justice, and Climate Justice Lenses

To develop an analytical framework to inform the design of new transit networks that align with climate change mitigation and social justice objectives in a rapidly growing urban metropolitan region (i.e., the GVA).

To identify and compare three different transit network scenarios, which respectively align with objectives around (1) climate mitigation, (2) social justice, and (3) climate justice.

To engage regional government and transportation planners to identify the opportunities and challenges for improving Greater Victoria's transit network.

Presentation Outline

1. E-mobility Policy Tools and Strategies for Local Government

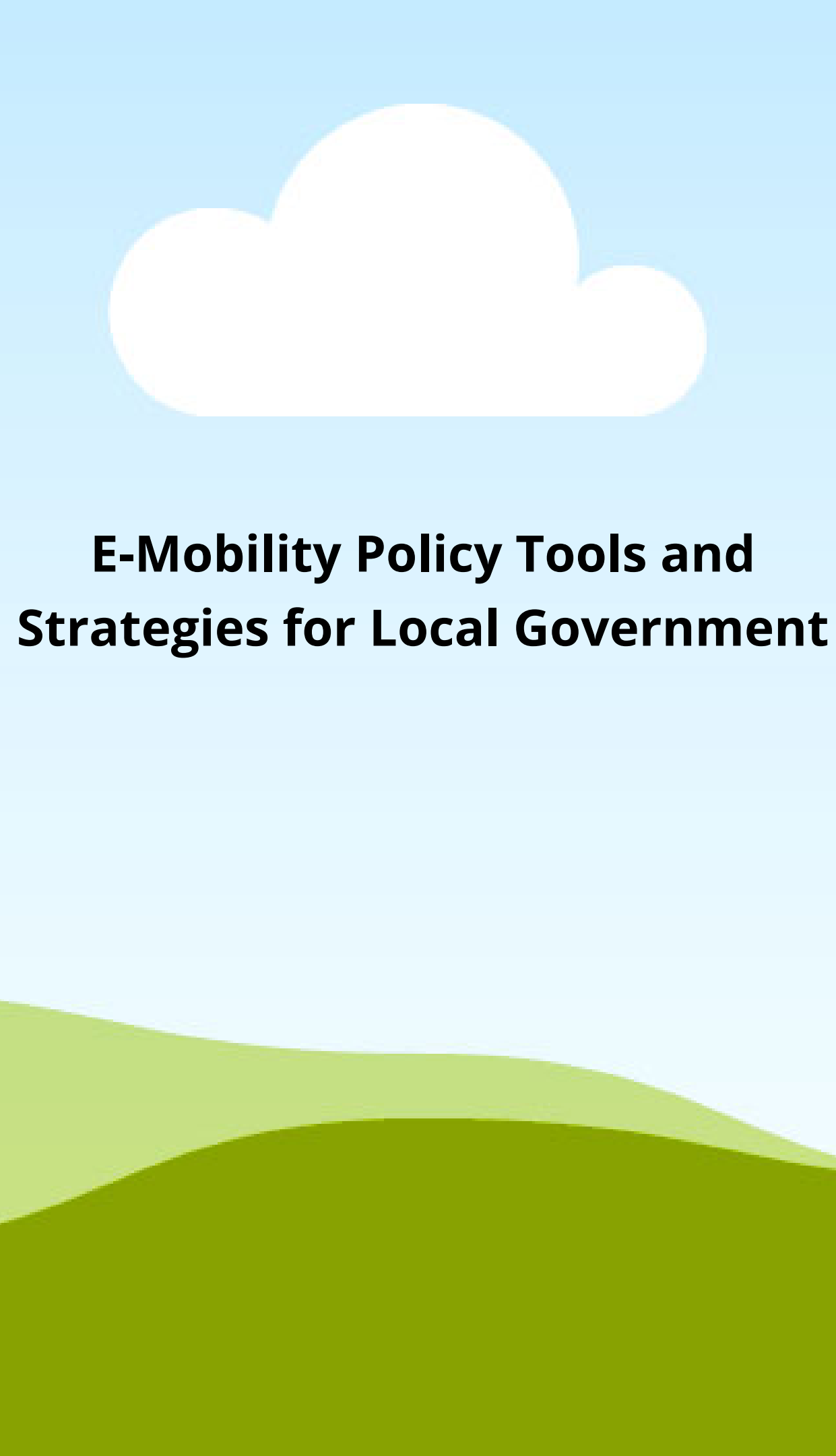
- **Why E-mobility Matters**
- **Policy Tools and Impacts**
 - Financing/Loans, Rebates
- **Improving E-mobility Infrastructure**
 - Network Sharing, Charging Stations, Secure Parking

2. Closing the Cycling Gender Gap on Regional Trails in the CRD

- **Deterrents to Cycling and Risks on the Roads and Regional Trails**
- **Enhancing Driver Awareness and Education Initiatives**
- **Male-Dominated Culture on Regional Trails**

3. Rethinking Public Transit Networks Using Climate Change Mitigation, Social Justice, and Climate Justice Lenses

- **Proposed New Transit Networks**
- **Opportunities and Challenges**
 - Governance, Planning, Climate Change Mitigation, Social Justice



E-Mobility Policy Tools and Strategies for Local Government

Why E-mobility Matters

Transportation is the leading source of greenhouse gas (GHG) emissions in Greater Victoria.

In the CRD, 87% of transportation-related GHG emissions are from passenger vehicles (cars, trucks and SUVs) (Stantec, 2020), and reducing GHG emissions will require a significant mode shift away from trips taken by internal combustion engine (ICE) vehicles.

In 2021, BC households spent \$10,870 each on transportation, of which \$10,120 was private transportation (e.g., cars, vans, trucks), and \$751 was public transportation (Statistics Canada, 2023).

E-bikes could soon become an even larger portion of the mode shift than EVs. Some Saanich bike shops report that they represent half of their sales, and that they are being bought by users to replace or supplement motor vehicle commutes and other motor vehicle trips.

CSPC collaborated with the Research on Active Transportation (REACT) lab at UBC to publish an analysis of the Saanich E-Bike Incentive Program's impact on GHG emission reduction.

The results of the REACT lab's study can be found here: <https://reactlab.civil.ubc.ca/saanich-ebike-incentives/>



E-Mobility Policy Tools and Strategies for Local Government

Policy Tools and Impacts



Financing and Loans

Governments implement various policy measures to encourage greater use of e-mobility options to replace ICE vehicle trips and reduce GHG emissions. The impacts of these policies on e-mobility and GHG emissions vary, and individuals with lower incomes, disabilities, and other disadvantages are affected differently.

The long-term costs for owning and operating an e-bike are a fraction of those for a motor vehicle. But lower-income individuals are unlikely to possess the disposable income required to purchase the e-bikes. However, a loan can spread the cost of the e-bike over a few years, making it easier to purchase.

There is a legitimate concern that loan programs could add to the debt trap facing many lower-income individuals (e.g. if they have existing loans for other goods/services). Standard lending criteria should be adequate to prevent excess debt, and an e-bike purchase may represent an opportunity to sell a car and retire a car loan, which can help lower-income individuals improve their financial standing.

In the summer of 2023, the provincial government provided \$600,000 of incentives for low-income individuals using the Saanich E-bike Incentive model.

([Rebates make new e-bike purchases more affordable](#) | [BC Gov News](#))



E-Mobility Policy Tools and Strategies for Local Government

Policy Tools and Impacts

Rebates

The long-term cost savings and benefits of e-bike ownership cannot be realized by lower-income individuals if the initial price remains too high to afford. A key element of the Saanich E-Bike Incentive Pilot Program was the development of two key tools: 1) tiered rebate levels linked to household income and size. The three-tiered incentive amounts provided were \$350, \$800, and \$1600; and 2) income testing that respected the individual’s right to privacy.

The tables below outline the total funds distributed by the Saanich E-bike program per tier (1) and the impact of the subsidies relative to the price of an e-bike (2).

1	Total incentive recipients	Total funds	% funds
\$350 tier	183	\$65,050	21%
\$800 tier	105	\$84,000	27%
\$1600 tier	101	\$161,000	52%
Totals	389	\$308,850	

2	Average cost	% of cost subsidized
\$350 tier	\$3197	11%
\$800 tier	\$2783	29%
\$1600 tier	\$2581	62%



E-Mobility Policy Tools and Strategies for Local Government

Improving E-mobility Infrastructure



Charging Stations and Range Anxiety

There are already well over 100 charging stations in Greater Victoria listed on [plugshare.com](https://www.plugshare.com), and many households have access to a gasoline vehicle for long trips. However, many renters and condo/townhouse-dwellers do not have access to home-based charging, and those who cannot charge at a workplace every day have a rational concern for range issues.

- This is also an equity problem, as those most affected by range anxiety are disproportionately people with lower incomes. For people with lower incomes, the lack of home charging facilities is a significant barrier to EV usage.

Network Sharing

Transportation-sharing/short-term vehicle rental apps like Modo and Lime can be an effective substitute for gasoline vehicle ownership. 31% of Modo rideshare members reported that membership enabled them to ‘car-shed’ (i.e., get rid of their primary or secondary vehicle), and 23% avoided purchasing a vehicle entirely (Modo, 2020).

- E-bike sharing can also serve as part of a multi-modal sustainable transportation system, connecting with major transit stops. These bikes could be used as a ‘last mile’ transportation option, facilitating commutes from rural or suburban areas into the city

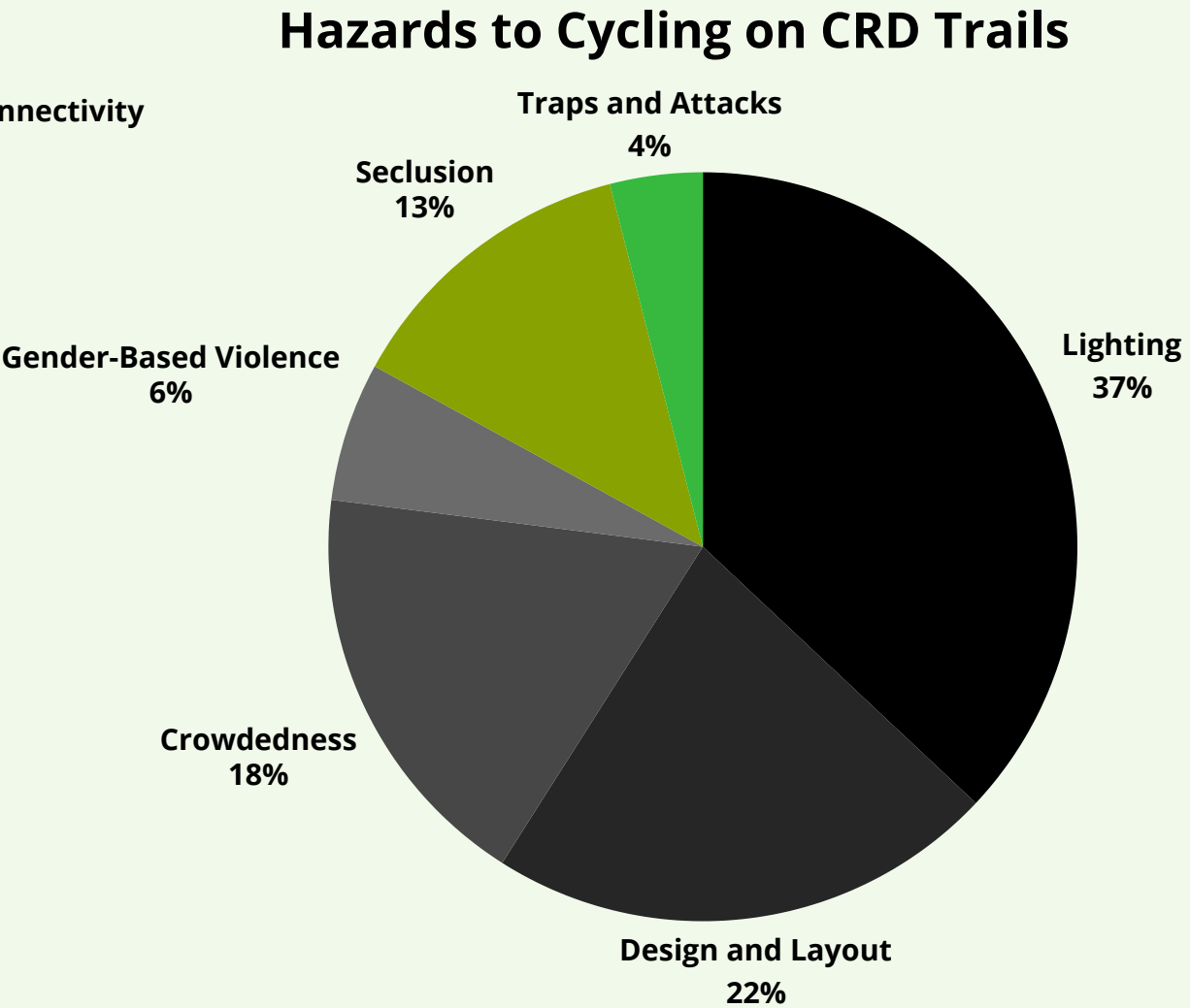
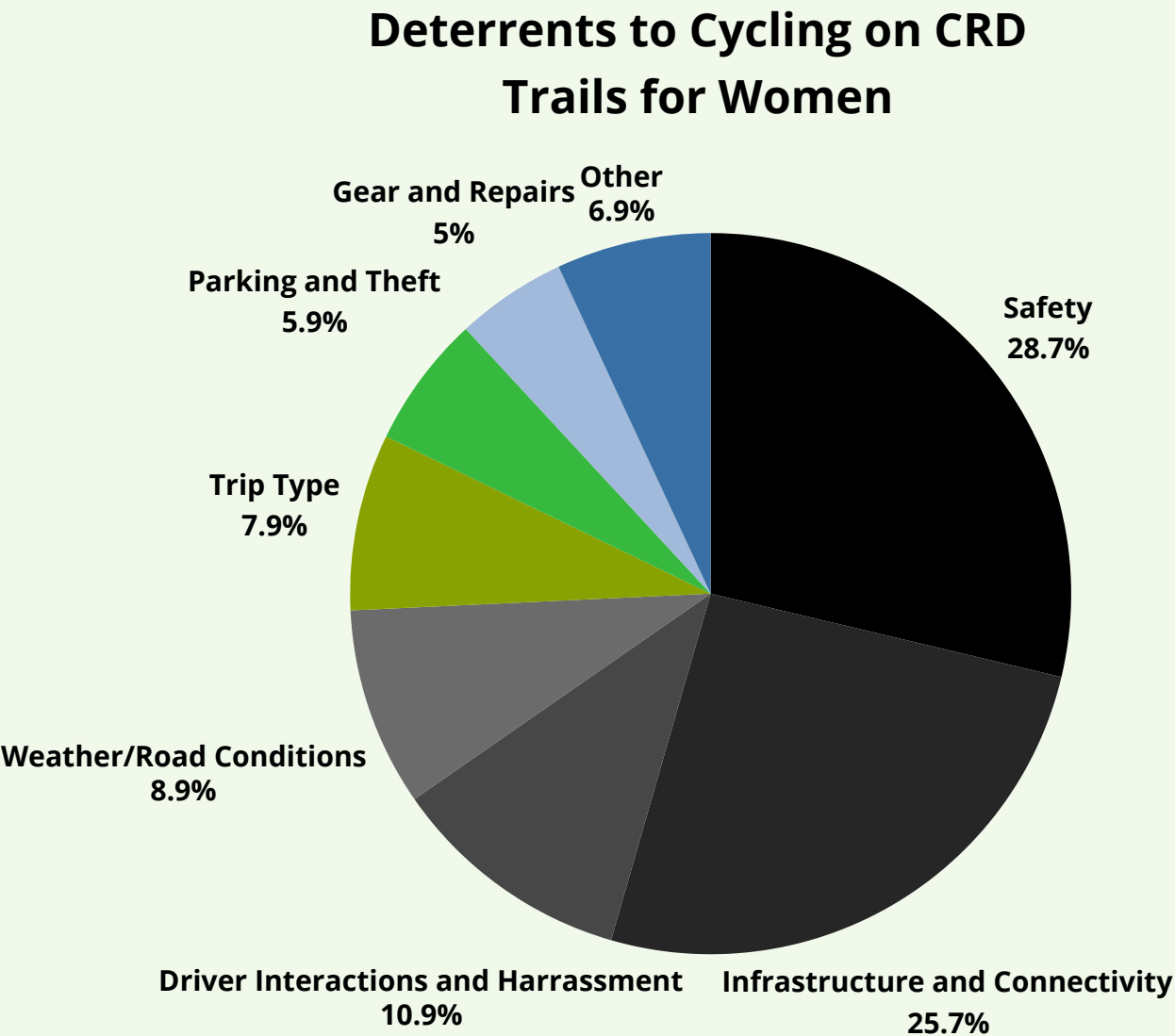
Secure Parking

To improve access to safe and secure parking, municipalities can use the development approval process to encourage secure parking facilities in private buildings. This can be achieved by:

- Fast-tracking development applications that include robust e-bike and bike storage;
- Implementing planning and zoning standards to require multi-family dwellings and non-residential buildings to provide a certain number of e-bike storage stalls; and
- Reducing car parking requirements for developments that incorporate adequate e-bike parking.

Closing the Cycling Gender Gap on Regional Trails in the CRD

Infrastructure and connectivity issues emerged as major recurring themes throughout the study. Many participants revealed that they avoid using the Galloping Goose trail due to existing infrastructure limitations. The narrowing of the trail and its mixed-use nature - despite being perceived as a dedicated bike route to avoid cycling on unprotected service roads - has led many to completely avoid the trail and opt for riskier alternatives.





Closing the Cycling Gender Gap on Regional Trails in the CRD

Enhancing Driver Awareness and Education Initiatives

Rapid infrastructure changes have occurred in the city to accommodate cycling, but there is a notable gap in driver awareness and understanding of how to share the road effectively. This lack of awareness creates an uncomfortable environment for cyclists, particularly for women and LGBTQ+ individuals facing additional barriers.

To address these concerns and foster a safer cycling environment, there is a need for enhanced driver education and awareness campaigns. Key areas of focus should include:

- **Sharing the road** - emphasize that cyclists have the legal right to share the road with vehicles.
- **Safe passing** - educate drivers on the importance of safe passing practices to ensure cyclists' safety.
- **Awareness of cyclist behaviours** - help drivers understand common cycling behaviours such as hand signals and lane positioning.
- **Vulnerability of cyclists** - raise awareness about the vulnerability of cyclists and the potential consequences of unsafe driving practices.
- **Infrastructure awareness** - educate drivers on new infrastructure changes, such as bike lanes, sharrows, and dedicated cycling paths.



Closing the Cycling Gender Gap on Regional Trails in the CRD

Male-Dominated Culture on Regional Trails

Prominent issues such as aggressive and entitled drivers, as well as perceived gender and class-based issues lead to a lack of respect for women and LGBTQ+ individuals when cycling.

This culture has created an environment that prioritizes speed and competitiveness, which can be intimidating and discouraging for women and LGBTQ+ individuals, leading to their underrepresentation in the cycling community.

When most visible cyclists are men, it can create a perception that cycling is primarily a male activity, which makes it more challenging for women and LGBTQ+ individuals to envision themselves as part of the cycling community.

It is important to promote a more inclusive and diverse cycling culture that goes beyond just speed and competitiveness. Encouraging a wider range of cycling activities, such as social rides, community events, or group rides that focus on enjoyment and camaraderie rather than competition, can help to create a more welcoming environment for women and LGBTQ+ individuals.



Rethinking Public Transit Networks Using Climate Change Mitigation, Social Justice, and Climate Justice Lenses

Proposed New Transit Networks

Optimizing the efficiency and accessibility of Greater Victoria's public transit network was identified as a key priority. Rather than constructing extensive new infrastructure, it is best to leverage existing infrastructure to its full potential to improve sustainability outcomes and minimize waste.

Transit accessibility also considers the convenience of parking near bus stops, which facilitates better multi-modal travel that involves both private vehicles and public transportation. This is a particularly important consideration with respect to major transit hubs.

The proposed networks were strategically designed to improve accessibility in areas identified as high and medium importance in accordance with zoning maps.

- In doing so, the transit system serves the specific needs and priorities of different regions.

Proposed transit redesigns include but are not limited to:

- Transitioning all buses to electric;
- Introducing bus rapid transit (BRT) routes between downtown Victoria and Swartz Bay;
- Subsidy policies that provide bus tickets for low-income individuals and seniors.



Rethinking Public Transit Networks Using Climate Change Mitigation, Social Justice, and Climate Justice Lenses

Opportunities and Challenges pt.1



Governance

31.7% of transit funding is provided by the province, with the remainder of the funds coming from property tax levies, passenger fees, advertising revenues, and fuel tax. However, funding constraints have forced the province to prioritize existing service demands over expansion plans, which impacts the ability to enhance:

- Rapid bus services
- Frequency of highly used transit routes.

The research project also held stakeholder engagement sessions, which included discussions and decisions on bus stop locations and transit infrastructure enhancements. Stakeholder engagement is done prior to implementing significant changes in the public transit system.

Planning

Transportation planning involves consideration of multiple modes of travel, which raises questions about who benefits most in terms of access to buses and alternative modes of travel. Balance is needed between attracting new ridership and optimizing routes for existing commuters. Stakeholder engagement sessions revealed a difference in understanding between key members on the definition of transit accessibility.

- One participant noted that bus stops must be within a 15min walk from residences to be accessible.
- Another participant argued that a 150m walking distance to bus stops was the best accessibility measure.
- However, BC Transit states that a 400m distance for more than 85% of residents is an adequate measure of accessibility.



Rethinking Public Transit Networks Using Climate Change Mitigation, Social Justice, and Climate Justice Lenses

Opportunities and Challenges pt.2



Climate Change Mitigation

Transportation is a significant contributor to GHG emissions. Reducing emissions through a shift to sustainable transportation will require implementing various strategies, such as:

- Promoting opportunities for active modes of transportation
- Improving public transit
- Shared mobility solutions; and
- Increasing EV usage.

Social Justice

Demographic considerations are crucial to meet social justice objectives, particularly strategies that reduce transportation costs for low-income individuals, seniors, and individuals with disabilities. Some bus routes that may not yield significant climate benefits due to lower ridership could still play an important role in social justice by providing essential transportation services to certain communities, such as routes that provide service to First Nation communities.

- Although these routes may not contribute substantially to climate action goals due to lower population densities, they are important in terms of social justice and equity, illustrating how climate change mitigation and social justice objectives do not completely align in public transit network design work.

Concluding Comments

TACES brings together individuals and organizations with experts in climate, transportation, and equity, to collaborate on strategies that ensure climate action in transportation also advances equity and supports a just transition.

Transportation is the leading source of climate pollution in the CRD, primarily due to passenger vehicles. Additionally, it is the second highest household expense after shelter, which significantly impacts regional affordability. TACES advocates for multi-modal transportation systems that are affordable, sustainable, efficient, safe, inclusive, accessible, and user-friendly.



Project Partners

The CSPC would also like to thank our project partners, whose continued support made the TACES project possible.

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