

Transportation Transformation

Building Complete Communities and a Zero-Emission Transportation System in BC

Summary

MOST BRITISH COLUMBIANS WANT TO SEE ACTION ON CLIMATE CHANGE.

Because two-fifths of BC's greenhouse gas emissions are from transportation, this means rethinking our reliance on cars and trucks that burn fossil fuels to move people and goods large distances every day.

Most people have trouble imagining what an alternative system would look like. Not only do we rely on these forms of transportation, but they have played a central role in our prosperity. Our society has grown and evolved around car-based mobility, culminating in the post-war dream of a single-family home in the suburbs.

We argue that a zero-emissions transportation system by 2040 is both desirable and achievable. It will rely heavily on renewable electric power, shifts toward electric vehicles, and expansion of public transit and cycling infrastructure. But for the transportation system to be as efficient and enjoyable to use as a private car, we will also need to develop *complete communities*.

Complete communities exist where people do not have to travel far to meet their day-to-day needs, making it possible to walk, bike and use high-quality public transit. Mobility may be supplemented by shared or private electric cars, but a large percentage of trips would not need them. These communities include a mix of housing types (including affordable housing options), decent jobs, public services, parks and other public spaces, and commercial districts with restaurants, offices and retail outlets.

Download the full report or watch a slideshow based on this report at: www.policyalternatives.ca/transportationtransformation

By Patrick Condon,
Eric Doherty, Kari Dow,
Marc Lee and Gordon Price

April 2011



CCPA
CANADIAN CENTRE
for POLICY ALTERNATIVES
BC Office

This way of designing communities levels the playing field for seniors, youth, people with disabilities, and low-income families so they can live and move easily, even if they are not able to drive or cannot afford a car. It also means families are not forced to choose between long commutes by car and even longer commutes by transit. In addition to environmental benefits from reducing automobile emissions, these communities provide health benefits from increased walking and cycling.

We argue that a zero-emissions transportation system by 2040 is both desirable and achievable. But for the transportation system to be as efficient and enjoyable to use as a private car, we will also need to develop complete communities.

While complete communities offer a new vision of transportation and urban design, changing land uses can be a slow process. The three decades between today and 2040 are a relatively short period of time. Large new investments in alternative transportation infrastructure must support the development of complete communities, as streetcars and trains shaped pre-automobile neighbourhoods a century ago. The need for new housing for a growing and aging population also provides an opportunity for redevelopment plans that reinforce complete communities.

Complete communities are equally amenable to large urban areas, suburbs and small towns, though each will have its own particular needs and challenges. We outline key strategies to drive the transition, based on the following objectives:

- Shorten the average trip length for all modes of transportation;
- Shift auto trips to more efficient modes, such as bike trips or public transit;
- Switch to clean fuels, primarily zero-emission electricity;
- Make transportation connections seamless; and
- Integrate actions to maximize other benefits (such as improved health and safety).

Under the transportation transformation, car-dependent neighbourhoods would evolve to become complete communities, with goods and services within walking distance, zero-emission transportation alternatives, and affordable housing.

NORTH VANCOUVER VISUALIZATION
COURTESY JON LAURENZ, UBC-CALP





In complete communities, people don't have to travel far to meet day-to-day needs, making it possible to walk, bike and use high-quality public transit. These communities include a mix of housing types, decent jobs, public services, parks and other public spaces, and commercial districts with restaurants, offices and retail outlets.

KINGSWAY VISUALIZATION COURTESY DAVID FLANDERS, UBC-CALP

LARGE URBAN CENTRES: BUILDING ON THE MOMENTUM

The City of Vancouver, key zones in other Metro Vancouver municipalities, and central Victoria are already moving toward low-carbon, efficient transportation systems. The focus should be on accelerating and expanding these projects.


- **Expand transit capacity and infrastructure**—High-quality, affordable public transit acts as a catalyst for transit-oriented development, where residents tend to own fewer vehicles, drive less and rely more on alternative modes. Public transit networks can be improved quickly and affordably using light rail and trolley buses.
- **Repurpose road and parking space for public transit and bicycles**—If we steadily reallocate space to walking, biking and public transit, these modes will become more attractive. Buses and light rail using dedicated lanes can move faster through traffic than cars. Similarly, separated bike lanes can create faster and safer pathways for riders, making cycling a more attractive option.
- **Make driving more expensive and transit more affordable**—To increase the cost of driving we should focus more on increasing the direct, out-of-pocket costs of taking a trip, and less on annual costs like insurance and maintenance. Distance-based auto insurance, carbon taxes and increased parking prices, in combination with low transit fares, are key parts of a pricing strategy.
- **Develop affordable housing as part of complete communities**—Affordable housing must be woven into the fabric of urban spaces, not left to the suburbs. Zoning bylaws can ensure that a certain percentage of new units are affordable. Strategic public sector investments can also accelerate change, including social housing, long-term care for seniors, libraries, and community healthcare centres.

If we steadily reallocate public space to walking, biking and public transit, these modes will become more attractive.

RETROFITTING THE SUBURBS

The large suburban areas of the Metro Vancouver and Greater Victoria, and mid-sized cities like Cranbrook and Kelowna that have suburban-like development patterns, will require more than just expanded public transit in order to be sustainable.

- **REDEVELOP MAIN STREETS AND NEIGHBOURHOOD/CITY CENTRES**—New developments should emphasize getting more people living in closer proximity to main streets and transit hubs, accompanied by a greater mix of nearby services, retail spaces and office spaces—all of which would greatly enhance the range of jobs close to where people live. The redevelopment of single-purpose shopping malls into mixed-use neighbourhood centres also presents a tremendous opportunity.
- **CREATE TRANSIT NETWORKS**—Whatever the specific modes of transportation—such as metros, light-rail trams, and trolley buses—zero-emission technology deployed in effective networks can greatly enhance service quality and efficiency. Transit investments should emphasize the development of a *frequent transit network*, where more regular service facilitates ease of movement for short and medium-distance trips (rather than primarily for feeding long-distance trips).
- **GIVE PRIORITY TO MORE EFFICIENT, LOW-CARBON MODES**—Transit lanes and traffic signal priority, combined with bike lanes and sidewalks, can make these modes safer, faster and therefore more attractive. The conversion of parking space into residential and commercial space is a major ingredient in support of new complete communities.

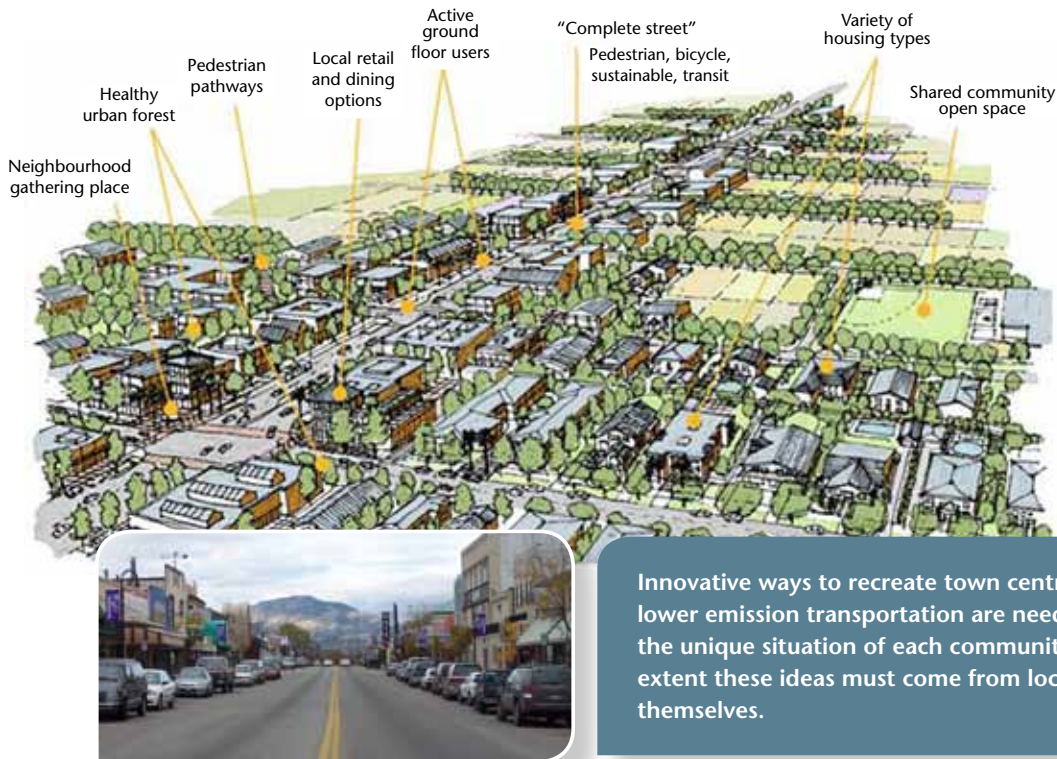


Large suburban development patterns that now require cars will need more than just expanded public transit to become sustainable.

Typical suburban development patterns separated people from work, schools, shopping and services, forcing them to use cars for almost everything. New developments should emphasize getting more people living in closer proximity to main streets and transit hubs, accompanied by a greater mix of nearby services, retail and office spaces.

LANGLEY VISUALIZATION COURTESY UBC DESIGN CENTRE FOR SUSTAINABILITY





Innovative ways to recreate town centres and provide lower emission transportation are needed to reflect the unique situation of each community, and to a large extent these ideas must come from local residents themselves.

SMALLER COMMUNITIES AND RURAL AREAS

Rural areas and small towns are extremely difficult to serve with conventional transit, because people are so widely dispersed. Many of the lowest-income households in BC are in rural areas, including First Nations people living on reserves. Unlike urban centres and suburbs, many rural communities are not growing, but their populations are aging, and need more accessible transit options and a greater concentration of public services, retail outlets and other amenities nearby.

- **REDEVELOP NEW MAIN STREETS AND TOWN CENTRES**—Development strategies should aim to recreate town centres that reduce the distance between housing, services and jobs. Higher-density housing along the main routes into town could replace, over time, what currently tends to be highway-oriented commercial uses. Public sector investments could serve to anchor residential, public, and commercial services in the centres of many small towns instead of in a few large regional centres.
- **EXPAND REGIONAL TRANSIT OPTIONS**—Private electric vehicles will be a major strategy for lowering GHG emissions in rural areas. However, investments in improving low-carbon mobility options, including affordable electric passenger rail and bus services, would facilitate reduced automobile use for longer trips by both urban and rural residents.
- **SEEK INNOVATIVE ALTERNATIVES**—New ways to provide lower emission transportation are needed to reflect the unique situation of each community, and to a large extent these ideas must come from local residents themselves. Local adaptation to higher fuel prices is a key point where communities can be engaged to develop plans that increase resilience to external shocks.



Investments in improving low-carbon mobility options, including affordable electric passenger rail and bus services, would facilitate reduced automobile use for longer trips by both urban and rural residents.

MOVING FREIGHT

Greenhouse gas emissions from freight transportation are estimated at anywhere from one-third to one-half of total transportation emissions. Movement of freight by truck in BC has grown much more than movement by rail over the past couple of decades.

Movement of freight by truck in BC has grown much more than movement by rail over the past couple of decades.

- **REDUCE, REUSE, RECYCLE AND RE-LOCALIZE**—Reducing freight shipment must ultimately be linked to reductions in wasteful production and consumption of disposable products, and a switch to “closed-loop” production systems that re-use, re-manufacture and recycle waste products. Support for BC agriculture and manufacturing for local consumption is needed to reduce the overall distances that food and goods travel.
- **PURSUE CLEAN ENERGY AND MORE EFFICIENT ALTERNATIVES**—Switching to clean energy sources may be quicker and more cost-effective for freight than passenger transport since electric trains are less expensive to buy and operate than diesel, and many countries are rapidly electrifying their rail networks. Intermodal freight systems have a long history in BC, and need to be optimized to ensure that goods move by low-carbon modes, such as rail and short sea shipping, until near their final destination.

Switching to clean energy sources may be quicker and more cost-effective for freight than passenger transport since electric trains are less expensive to buy and operate than diesel, and many countries are rapidly electrifying their rail networks.



DIALOGUE AND DOLLARS

An aggressive approach to the transportation transformation should include a rapid start: \$2 billion per year—about 1% of BC's GDP—in new investment for 10 years. Maximizing local access to zero-emissions transit, designed more for short and medium-length trips within complete communities, must be a top criteria for allocating funds.

Making this transportation plan happen will ultimately come down to two things: political will and leadership, backed by commitments to greatly increase the funding of transit and transportation infrastructure; and, public acceptance and buy-in to the details of plans at a very local level.

- **INVOLVE THE PUBLIC IN CREATING SOLUTIONS**—Public participation in decision-making will be essential to making the transition toward a zero-emission transportation system. And meaningful participation is impossible without an informed citizenry with a basic understanding of the options available. Going beyond standard consultation exercises should include the use of deliberative, visualization processes (charettes).
- **REALLOCATE FUNDS**—A substantial proportion of needed funding must be reallocated from carbon-intensive infrastructure spending on highway, bridge, deep-sea port and airport expansions. It would be extremely difficult to create a zero-emission transportation system in only 30 years without this shift in investment.
- **INNOVATIVE NEW FINANCING**—An increase in transit capacity and other low-carbon infrastructure requires either increases in funding from senior levels of government, increases in existing taxes, or new sources of revenue at the regional level. BC's carbon tax would appear to be an ideal revenue source. A new financing model should also seek to capture some of the lift in property values arising from transit investments and up-zoning, on and near main streets and transit nodes.

RESPONSIBILITY FOR REDUCTIONS IN GHG EMISSIONS cannot, for both moral and political reasons, fall inappropriately on the poor, on the old, and on working families. The emergence of automobile-dominated communities and regions has created burdens for these groups. Strategies must be found that simultaneously reduce social exclusion and negative health outcomes.

Our 30-year initiative is aimed at transforming communities of all sizes, and how people and goods move across the province. This rapid evolution must increase affordable housing choices, availability of jobs, transportation options, and, ultimately, quality of life.

A zero-emission transportation system is both plausible and achievable with existing and near-term technologies. And if we start right away, and others do the same in other parts of the world, we might have just enough time to transform our transportation system in a way that vastly improves mobility, health, communities, and social justice.



An aggressive approach to the transportation transformation should include a rapid start: \$2 billion per year—about 1% of BC's GDP—in new investment for 10 years.



THE CLIMATE JUSTICE PROJECT

The Climate Justice Project is a multi-year initiative led by CCPA and the University of British Columbia in collaboration with a large team of academics and community groups from across BC. The project connects the two great “inconvenient truths” of our time: climate change and rising inequality. Its overarching aim is to develop a concrete policy strategy that would see BC meet its targets for reducing greenhouse gas emissions, while simultaneously ensuring that inequality is reduced, and that societal and industrial transitions are just and equitable.



The Wilderness Committee is Canada’s largest membership-based, citizen-funded wilderness preservation organization. We work for the preservation of Canadian and international wilderness through research and grassroots education. The Wilderness Committee works on the ground to achieve ecologically sustainable communities.

341 Water Street (4th Floor)
Vancouver, BC V6B 3W2
604.683.8220 | toll free:
1-800-661-9453
info@wildernesscommittee.org

www.wildernesscommittee.org

By Patrick Condon, Eric Doherty, Kari Dow, Marc Lee and Gordon Price

The report benefitted immensely from comments made at a draft stage by Shannon Daub, Seth Klein, Sarah Leavitt, Todd Litman, Margaret Mahon, Maged Senbel and Ben West, as well as three anonymous peer reviewers.

The Climate Justice Project is supported primarily by a grant from the Social Sciences and Humanities Research Council through its Community-University Research Alliance program. Thanks also to Vancity and the Vancouver Foundation.

The CCPA also received funding from Industry Canada’s Contributions Program for Non-Profit Consumer and Voluntary Organizations. The views expressed are not necessarily those of Industry Canada or the Government of Canada.

This report is available under limited copyright protection. You may download, distribute, photocopy, cite or excerpt this document provided it is properly and fully credited and not used for commercial purposes. For information visit www.creativecommons.org.

Copyedit and design: Nadene Rehnby and Pete Tuepah, www.handsonpublications.com

ISBN 978-1-926888-62-0



CCPA
CANADIAN CENTRE
for POLICY ALTERNATIVES
BC Office

The Canadian Centre for Policy Alternatives is an independent, non-partisan research institute concerned with issues of social and economic justice. Founded in 1980, it is one of Canada’s leading progressive voices in public policy debates. The CCPA is a registered non-profit charity and depends on the support of its more than 10,000 members across Canada.

1400—207 West
Hastings Street
Vancouver BC V6B 1H7
604.801.5121
ccpabc@policyalternatives.ca

www.policyalternatives.ca

