# TRAFFIC EVAPORATION:

## Why planners need to understand climate impacts of reallocating road space

By Eric Doherty


**SUMMARY**

The B.C. government's climate plan update calls for reducing vehicle travel by 25% by 2030, and other provinces may soon adopt similar targets. This could be a transformative change, as governments have been planning to accommodate more and more cars for over a century. Planners have a professional obligation to take action to meet climate targets, and road space reallocation to trigger traffic evaporation is an effective way of meeting vehicle travel reduction targets.

**SOMMAIRE**

La mise à jour du plan climatique du gouvernement de la Colombie-Britannique prévoit une réduction de 25 % des déplacements en véhicule d'ici 2030, et d'autres provinces pourraient bientôt adopter des objectifs similaires. Il pourrait s'agir d'un changement transformateur, puisque les gouvernements se préparent depuis plus d'un siècle à accueillir de plus en plus de voitures. Les urbanistes ont l'obligation professionnelle de prendre des mesures pour atteindre les objectifs climatiques, et la réaffectation de l'espace routier pour déclencher l'évaporation du trafic est un moyen efficace d'atteindre les objectifs de réduction des déplacements en véhicule.


Traffic evaporated when Zurich created a network of transit lanes and transit-only streets. Photo by Eric Doherty

The BC government's 2021 climate plan update included a bold new transportation target with big implications for planners across Canada. The *CleanBC Roadmap* calls for reducing "distances travelled in light-duty vehicles by 25% by 2030, compared to 2020."

This is an absolute Vehicle Kilometres Travelled (VKT) reduction target, and is even more ambitious than Scotland's 2020 groundbreaking target of reducing VKT 20% by 2030.[1]

In the past, many jurisdictions banked mainly on electric cars to meet climate targets. Now, the standard for climate leadership is

shifting to include substantial reductions in total automobile travel, which is most commonly achieved through road space reallocation to trigger traffic evaporation.

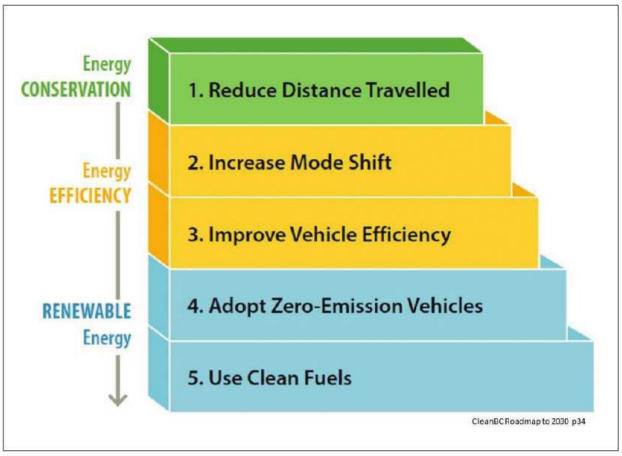
## THE ROLE OF PLANNERS

Governments have been planning to accommodate more and more cars for over a century. But planners have been preparing to support and implement bold and effective climate initiatives.

The CIP's *2018 Policy on Climate Change Planning* asserts that responding to the climate crisis "requires immediate and committed action [and] a drastic shift in the way our communities are built and function." Crucially, this Policy also establishes that planners have a professional obligation to "advance policies and regulations" to meet governmental climate targets. The CIP's *Model Standard of Practice for Climate Change Planning* goes a step further and asserts that "planners must play a leadership role in enabling a climate-neutral society."

Recent modeling shows that reducing automobile travel is essential for avoiding the worst consequences of global heating; it is not feasible to reduce GHG emissions from transportation fast enough to meet our Paris climate commitments just by switching to electric cars.[1] Part of the reason for this is that electric vehicles are carbon intensive to build. Another factor is that there are practical limitations on how quickly new mines for the minerals needed for batteries can be built and how quickly renewable electricity production can be increased.

The definitive Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report on climate mitigation states with high confidence that "transformative changes in the transport sector [including] systemic infrastructure changes that enable behavioural modifications and reductions in demand for transport services that can in turn reduce energy demand are needed to meet climate targets."[2] But effective action requires knowledge not just of what needs to be done, but also the most effective ways of achieving goals.




B.C.'s updated climate plan puts reducing distances travelled at the top of the action list

## ROAD SPACE REALLOCATION AND TRAFFIC EVAPORATION

Almost all planners are familiar with the evidence for *induced traffic*. If you expand roads, highways, and parking lots you get more traffic. Less well understood is that congestion is self-limiting – if congested highways and roads are left as-is, traffic volumes will stay close to where they are. However, climate leaders are aiming for dramatically reduced traffic and not the unsustainable and unpleasant status quo.

This riverside park in Paris was a traffic choked expressway until recently. Photo by Eric Doherty

Amsterdam's network of wide bike and roll routes required reallocating a lot of road space, and resulted in substantial traffic evaporation. Photo by Eric Doherty


Long-distance highway bus service, such as BC Transit's BC Bus North service, is complementary to road space reallocation in urban areas.
Photo: *https://bcbus.ca/bcbn-niac-indigenous-arts/*

There are many ways of reducing VKT and car ownership in and near urban areas including road tolls, residential and commercial parking policy, and providing car share services. But the very effective policy of reallocating road space to trigger traffic evaporation is often overlooked or downplayed. The extensive evidence for traffic evaporation was summarized in the *Municipal Engineer* paper "Disappearing traffic? The story so far" two decades ago. The article states that when "reallocating road space from general traffic, to improve conditions for pedestrians or cyclists or buses... significant reductions in overall traffic levels can occur."[2] In fact, large reductions in traffic levels are normal with well-planned road space reallocation projects.[3] (The term *traffic evaporation* has now largely replaced the term *disappearing traffic.*)

This is the paradox of investing in subways and elevated metros as a climate action. Metros provide excellent public transit service but usually do not reallocate road space, so in isolation tend to increase mobility rather than dramatically reduce traffic volumes and resulting GHG pollution. Changes on the surface are needed to realize the climate action potential of underground transit lines.

The International Transport Forum notes that road space reallocation is more common in cities than tolling as "citizens and local administrations are less prone to contesting road space reallocation than road pricing, as no cash payments are involved."[4]

In the past two decades, road space reallocation for transit lanes, protected bike and roll lanes, pedestrian priority streets, and wider sidewalks has become a widely accepted part of climate action in larger cities like Paris, Seoul, and Bogotá. These measures are often popular in cities, even when controversial in outer suburbs. Despite this, Dario Hidalgo, a Bogotá based civil engineer, notes that, "While traffic evaporation has been well-documented for more than 20 years, most decision- and opinion-makers are still under the impression that reducing car lanes will make traffic worse."[5]

Hidalgo notes that traffic evaporation is simply a matter of people making different choices in response to changes in their environment. If it becomes faster and more pleasant to travel by public transit, walking and bicycle, a large proportion of people will change how they travel. In the longer term, people also choose to own fewer cars once they are driving less.

The reduction in GHG footprint is real and immediate, and the effect can increase over time as reduced driving translates into reduced car ownership. In the future the many road space reallocation projects undertaken during the COVID pandemic will provide fresh evidence, but pandemic related changes in travel behaviour make it difficult to draw early lessons.

Ignorance of traffic evaporation is still commonplace. However, things are changing fast. In Paris, which was once choked with cars, traffic is down about 45% since the the municipality started reallocating road space in 2001. Paris has turned a national expressway into a very popular riverside park, allocated more space to bike lanes than car traffic on the major crosstown route Rue de Rivoli, repurposed thousands of on-street parking spots to wider sidewalks and bike lanes, and is planning to transform their inner beltway into an urban boulevard with bus lanes.[6] Much of this was opposed by suburban politicians outside of the city, and the national government went to court in an unsuccessful attempt to block turning the expressway into a park.

Since walking, cycling, rolling, and public transit are so much more space efficient than private automobiles, road space reallocation often creates recreational spaces without impairing mobility. The most famous example of this is the 2005 Cheonggyecheon Restoration Project, which removed a busy elevated expressway and restored a long-buried stream to create a treasured linear park through Seoul. The project was accompanied with road space reallocation to create a network of bus lanes, and since a well-designed bus lane can carry as many people as five car lanes, the reported congestion reduction is not that surprising. Seoul has gone on to demolish multiple freeways.[7]

Many cities are looking to emulate the success of Paris and Seoul. Vancouver's 2020 Climate Emergency Action Plan calls for reallocating at least 11 percent of road space to "walking, cycling and transit [to] greatly reduce dependence on fossil fuels through a reduction in vehicle ownership and kilometres travelled by vehicle."[8] Vancouver already shows evidence of gradual traffic evaporation through measures including the addition of signalized pedestrian and cycling crossings across arterial roads (reallocating space for a percentage of time), transit priority measures, and diversionary traffic calming on residential streets (both to create bike and roll routes, and to reduce traffic neighbourhood wide). In 2012 traffic volumes into downtown were down 20 percent, and traffic entering the city was down 5 percent, from historical highs.[9]

To meet BC's 2030 traffic reduction target, most BC municipalities will need to adopt targets at least as strong as Vancouver's, and act immediately. Planners outside BC should consider how to advance road space reallocation in advance of provincial VKT reduction targets, which will likely become more common.

## THE END OF HIGHWAY EXPANSION

The BC government had billions of dollars of highway expansion projects planned when they adopted their VKT reduction target. Now these projects, which were intended to accommodate increased traffic, have lost their main justification. Investing these billions in transit, walking, rolling, and cycling projects that reallocate road space would advance many sustainable transportation objectives including making transportation more affordable.

In the summer of 2021, before the BC government adopted a VKT reduction target, the Capital Regional District unanimously approved a policy calling on the provincial and federal governments to reallocate funding from highway expansion to transit and active transportation in Greater Victoria.[10] The surprise was not that the core municipalities supported this, but that all suburban and rural municipalities also did. Shifting funds from highway expansion to public transit may be less controversial than many would expect.

Traffic evaporation through road space reallocation has been well documented in urban and suburban areas, including small cities, where there is a significant amount of congestion. In rural areas, providing appealing public transportation alternatives to driving on longer trips would be complementary. BC's climate Roadmap notes that Indigenous peoples are calling for improving public transportation in rural areas. To meet BC's ambitious traffic reduction target, and meet the needs of rural and Indigenous communities, a public bus network will have to be better and more affordable than Greyhound Bus service was before it was shut down in 2018. Frequent and affordable bus and passenger rail service between communities across Canada would also make it more likely that people living in urban areas will willingly choose to own fewer cars.

The continuous series of recent climate disasters, including the 2021 heat wave that killed over 600 people in BC, shows why planners must take their professional obligation to "advance policies and regulations" to meet climate targets seriously. Reducing VKT by a quarter in less than a decade is the kind of action needed, and planners have a duty to advance effective policies including road space reallocation to trigger traffic evaporation.

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