

Cities need to innovate to improve transportation and reduce emissions

25 November 2019, by Shauna Brail



Singapore is known as an example of forward-thinking urban transit planning; vehicle ownership permits are limited and available by lottery. Credit: Shutterstock

Mobility is essential to urban life. It contributes to people's ability to access work, food, education, leisure and more. It also contributes to climate change.

According to [C40 Cities](#), cities are both a significant source of challenge in the climate crisis, responsible for 70 percent of the world's CO₂ emissions, and the place where actions can make the greatest difference.

Transportation is one of the [leading contributors of greenhouse gas emissions](#) and air pollution worldwide. Given the role that cities play in [climate change](#), we need to re-think and plan for a future in which cities work intentionally to direct change.

[Sixty-four percent of all vehicle kilometers traveled on a global basis are in cities](#), and this is anticipated to grow exponentially.

Finding alternatives

To address the stubborn challenge of reducing transportation-based emissions, cities need to lean on car-free alternatives such as [public transit](#) and

active transportation. They also need to effectively engage with [private firms](#) to leverage disruptive transportation technologies, such as ride-hailing apps. Amongst urban pundits, there is tension between these two.

My research on [ride-hailing, regulation](#) and [cities](#) suggests, however, that both strategies are necessary.

Car-free or car-lite?

There is no one-size-fits-all solution.

In Paris, Mayor Ana María Hidalgo successfully [eliminated cars from the River Seine's quayside](#). This strategy is enabled by extensive investment in public [transit](#), improved features for pedestrians and [significant political will](#).

In Singapore, the government is moving towards a ["car-lite" society](#). In this unique [city-state](#), the right to purchase a private automobile is granted by lottery and the government caps the total number of vehicles permitted to operate. In addition, Singapore boasts a globally admired [public transit system](#), with continuous building of transit stations, integrated bus networks and strong transit connections to mixed-use neighborhoods.

Vancouver has implemented a strategy to encourage active transport —walking and biking —by investing in public realm improvements and protected bike lanes. The [Greenest City Action Plan](#) established a goal of having 50 percent of trips by walking, bicycle and transit by 2020, representing a 10 percent increase from 2008. The city exceeded this goal, reaching 53 percent in 2018.

[Sidewalk Labs](#) is proposing that private automobiles be prohibited in Toronto's Quayside neighborhood. If the city approves, then active transportation, public transit and a system of

shared vehicles would be the primary mobility options in this proposed community.

Cities approach the wicked challenge of reducing transportation-based greenhouse gas emissions in different ways. There are however three strategic directions in which many places have found success in changing transportation options, travel behavior and ultimately, transportation-based emissions.

1. Conducting pilot studies.

Pilot **studies** (also known as trials) are an increasingly popular way for governments to test out whether and how an idea might work in practice. Pilots can be limited in terms of geography, and also can have a limited period of time in which testing is conducted.

The [King Street Pilot in Toronto](#) is an outstanding example of a transportation pilot developed by the city. Initially implemented as a trial in fall 2017, the initiative prioritized transit on a 2.6 km stretch of a congested downtown thoroughfare. As the city's busiest surface transit route, limiting cars and privileging transit sped up commute times and made the street more appealing to cyclists while keeping pedestrian volume essentially the same.

Establishing the transit priority of the route resulted in a 16 percent increase in ridership overall. In a fall 2018 survey, seven of every 100 riders indicated that they had switched from traveling by car, to traveling on the King Street streetcar. On April 16, 2019, the King Street Pilot was made permanent.

Transit agencies are also experimenting with innovative technologies to increase ridership and efficiency. On-demand bus hailing essentially uses the algorithms and technologies that underlie ride-hailing apps, and applies it to public transit routes. In September 2017, Belleville, Ont. replaced its nighttime bus service on some low ridership routes with an on-demand bus-hailing system. The [pilot saw an increase of 300 percent in ridership](#), while the number of kilometers driven per vehicle declined by 30 percent.

2. Looking for workarounds

Sometimes, firms make decisions to look for workarounds in order to test emerging transportation options. For example, [autonomous vehicles](#) are not allowed on public streets in New York. However, private streets have private rules. [An autonomous vehicle pilot running on private roads in the Brooklyn Navy Yards](#) is an opportunity to test the technology, build public trust in driverless cars and prepare for a possible future in which self-driving cars are permitted to operate on public streets.

Taking a page out of the workarounds playbook, [Bird Scooters launched a trial in Toronto's Distillery district in Sep. 2019](#). Though roundly criticized for testing scooters on the Distillery District's cobblestone streets, the firm was attracted by the fact that the Distillery is private property. They thereby evaded government regulations. While the firm may have been hoping to help encourage the city to permit scooters on Toronto's streets, the city elected to do the opposite —unlike Edmonton, where the scooters are in use. Shortly after the scooter trial, [council voted to prohibit scooters on city streets and sidewalks until further study](#).

Partnerships

Innovation in transportation requires significant and concerted effort, investment, specialized expertise, and the participation of people from different sectors.

One common thread running through all of the above examples is partnerships with universities. From the King Street Pilot, to Belleville's on-demand bus hailing system, Brooklyn's autonomous vehicles and —most likely—the City of Toronto's upcoming study on scooters, universities and university researchers are involved. University partnerships span the full spectrum of transportation innovation: from development of autonomous technology, software and algorithms to the study of travel behavior, air quality, efficiency and best practices in regulation.

Only with intentional and strategic effort can we hope to move the needle on transportation-based emissions while also ensuring that people have access to the mobility resources they need.

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