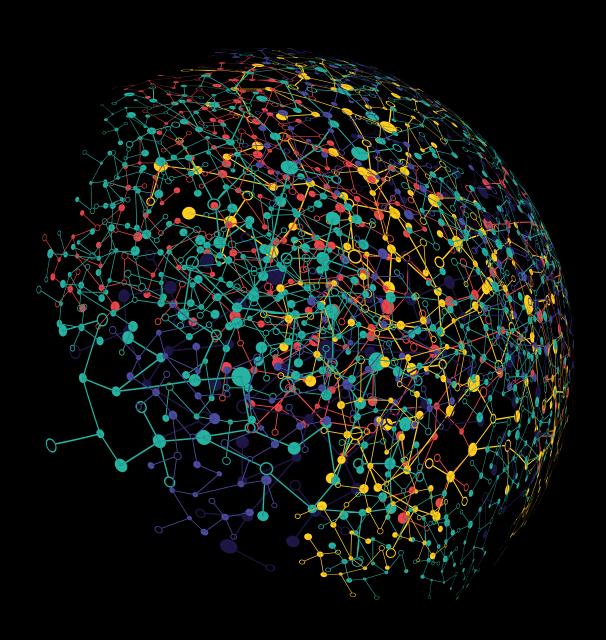
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COVID-19

Urban mobility's routes to recovery

Innovation, collaboration needed to move forward amid changing demand



Urban mobility's routes to recovery

The COVID-19 pandemic has had a profound impact on the world's urban mobility sector. Ridership and revenues have plummeted as governments and health authorities acted to contain the outbreak and businesses laid off employees or pivoted to remote work. Transit and rail operators, ride-sharing firms, cities, regulators, and commuters alike are grappling with uncertainty as they respond to the immediate crisis and plan for an unknown future.

Lockdowns, stay-at-home advisories, and physical distancing rules have meant that everyone is moving far less than they used to—and all forms of public or shared transportation have been hit hard. In Canada and around the globe, public transit and rail ridership has fallen 70 to 90 percent¹ as governments, businesses, and individuals responded in the first months of the crisis. Ride-sharing firms such as Uber and Lyft have reported 75 to 80 percent drops in gross bookings.² Inevitably, this has led to a sharp, significant drop in revenue for public transit and ride-sharing organizations alike over this same period.³

Transit providers and ridesharing firms have responded to the crisis in myriad ways in an effort to reduce costs, maintain some services, and weather the storm. Many have laid off staff, and public transit providers have reduced route capacity and frequency—or eliminated routes altogether. In Washington, DC, buses serve just 26 "lifeline" routes; San Francisco's Municipal Transit Agencies ceased rail operations and cut 70 percent of its bus network. New York's subways stopped running 24 hours a day for the first time in more than a century.⁴

The pandemic will abate, in time. Economies will rebound. But the way we live and work may be significantly and perhaps forever changed by our COVID-19 experience, which could have lasting implications for the urban mobility sector. We can't foresee the exact nature of our "new normal," nor can we predict the shape of the recovery to come. COVID-19 will likely accelerate trends that had emerged pre-crisis, such as the growing tension between the trip personalization offered by ride-sharing providers and the shared and somewhat more rigid experience of public transit. We will see the expansion of services aimed at solving urban mobility's first/last mile challenges, and new developments in microtransit, or demand-responsive transportation. And we will see more people choose to walk or cycle for work, errands, and leisure.

Scenario planning can help urban mobility organizations prepare for their recovery amid the uncertainty. A report from Monitor Deloitte's Center for the Long View asserts the essential role that scenario-based thinking will play in helping organizations determine a path forward in both the near term (18 to 24 months) and the longer term (three to five years out).5 Many potential recovery scenarios have already been developed; we explore four of them and their possible impact on mobility in this article. While the details may vary, these scenarios all assume that the pandemic won't be over soon—and that returning to the new normal will take quite some time. Our State of the Consumer Tracker dashboard shows that health and safety concerns now shape how consumers evaluate and make purchasing decisions, including those related to travel, transit, and other mobility services. Across the urban mobility sector, leadership teams should conduct their own scenario planning as part of their decision-making process in the weeks and months ahead.

The need for transit will not disappear: no major city can function properly without an efficient public transit system.⁶ But urban mobility patterns may look very different. As they turn their attention to recovery, organizations across the urban mobility sector will need to let go of long-held assumptions and orthodoxies about how they serve their cities' people—from the customer experience to operations to finance. New ideas, new partnerships, and new kinds of investment will be needed to recover and thrive in the years to come. Urban mobility providers will need to become more digital, more collaborative, more innovative, and more agile than ever before.

In this report, we offer our perspective on the changes, challenges, and critical considerations for urban mobility organizations, focusing on three areas: customer experience, operational matters, and financial impacts. Our intent is to spark a dialogue within your organization that will help you develop a recovery plan that helps put public transit and other urban mobility services right back where they belong: at the heart of our thriving cities.

Urban mobility's recovery starts with the customer

Customer demand—the return of ridership—is the driving force behind urban mobility recovery. However, it seems unlikely that riders will crowd cities' buses, subways, and rideshares any time soon.

Rebuilding customers' trust in the safety of their mobility experience will be key to driving ridership during the recovery. The Canadian Urban Transit Association (CUTA) itself notes that public transit is seen as a high-risk environment during the pandemic, as it involves large numbers of people crowded into confined spaces with limited ventilation and many common touchpoints. Given the nature of the transit environment, many potential riders are reluctant to get back on board: 24 percent of Canadians say they won't be comfortable getting on a city bus until a COVID-19 vaccine is available; 69 percent say they'll ride as long as certain conditions are met regarding cleanliness and sanitation, physical distancing rules, and mandatory mask usage.

The return of ridership will also be shaped by the fact that the changing consumer behaviours we've seen during the crisis may endure after the pandemic eases. Consumers may be slow to return to restaurants, malls, gyms, and other public venues; they may continue to buy groceries and other goods online more often.⁹ Discretionary transit use may fall as consumers opt for substitute modes of travel such as a bike or personal car, or alternatives such as working from home or teleconferencing. Even as restrictions are lifted, many would-be passengers may decide to continue working from home: a CNBG-SurveyMonkey workforce survey found that 27 percent of technology workers say they'll want to work from home permanently from now on,¹⁰ and firms such as Twitter, Square, and

Shopify are embracing the trend and allowing their employees to work from home permanently if they wish. 11,12,13 Such changes could throw traditional commuter patterns into disarray, and result in a significant drop in transit journeys overall.

However, these potential changes can't erase the fact that for many, public transit is an essential service—and a force for economic and social inclusion. People who ride to work are less likely to have the option to drive; ¹⁴ University of Toronto researchers found that low-income groups, visible minorities, and elderly people were the groups most likely to continue using transit despite pandemic-related risks. ¹⁵ For such people, transit is non-discretionary travel: there may be no alternative, or those that exist are more costly, less available, or less safe.

Recovery will require transit providers and other urban mobility players to understand and respond to the changing expectations and behaviours of their customers. Addressing customers' health and safety concerns will remain paramount. Some aspects of this, such as vaccine development and government rules around reopening the economy, are out of mobility organizations' control,. However, they can still take many steps to build customers' trust that using transit is safe and that transit operators and other mobility firms are taking precautions to protect their health and keep them safe from infection in public spaces.¹⁶



Research by Deloitte and HEC Montreal found that a clear display of cleaning and sanitation practices is the main factor that will persuade Canadians to take transit once more. Organizations will need to clearly communicate their cleaning procedures and frequency, and inform customers about when stations and vehicles were last cleaned. Mask usage and adherence to physical distancing rules will also be key to reassuring anxious passengers. Beyond this, transit operators and mobility providers could collaborate with health authorities, workplaces, retailers, the hospitality sector, schools, and others—those who drive the need to travel—to establish baseline expectations and common protocols around customer health and safety. Working together in this fashion could make a tremendous difference in rebuilding trust in urban mobility.

At the same time, organizations must adapt to the changing nature of their ridership overall. The rush hour commute may be a thing of the past as more and more people choose to work from home at least some of the time. Some people will choose to drive, bike, or walk to work instead of taking transit. Ridership demographics may shift significantly—pushing mobility organizations to recalibrate the communities they serve and the service level they deliver in this new environment.

Critical questions for urban mobility leaders

- What does "trust" look like to commuters? How do we deliver on that trust? How do we ensure we meet the health and safety concerns of commuters?
- How will the rising adoption of remote working, online education, online shopping, and the like affect how people choose to live and move? What are the potential shifts in mobility patterns in our city or region, and how will that affect the customers served by transport operators?
- What are our scenarios for the post-pandemic recovery and beyond? What is the impact of these scenarios on public transit, rail, and private first/last mile operators such as ride-, car- and bike-sharing providers? What is the opportunity for more active, sustainable mobility choices that could lead to rethinking how our city streets and roads are configured?
- Are new tools and techniques needed to enhance the monitoring of commuter sentiment and behaviour changes as government relax lockdown measures?



Operational resilience and agility key to recovery

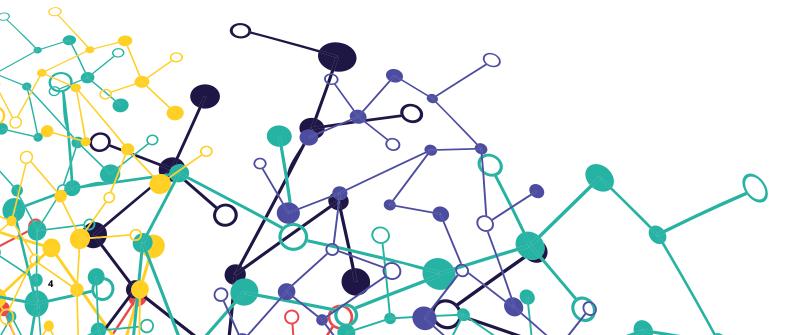
Urban mobility organizations' operational decisions during the recovery and beyond will inevitably be shaped by customer demand—and customer expectations.

Protecting the health and safety of passengers and workers alike is the most obvious operational change in the urban mobility sector. This will need to be maintained, if not enhanced, for the foreseeable future. In Wuhan, China, for example, front-line transit staff must be equipped with personal protective equipment, and every bus is disinfected before it leaves the depot and after it returns; buses on higher-risk routes, such as to and from airports, are disinfected more frequently.¹⁸

Improved cleaning is just the beginning. Organizations will need to re-examine every aspect of their operations through a health-and-sanitation lens. Vehicle passenger densities will need to be redetermined; touchless systems may need to replace physical touchpoints; more "intrusive" options, such as temperature sensors or other monitoring technology, may be warranted. Even the flow of passengers through stations will need rethinking, to allow sufficient physical-distancing room for commuters. Inbound travellers may no longer be able to disembark from both sides of the train, for example, while outbound commuters may no longer be able to crowd platforms waiting to embark.

At a system-wide level, changes to customer demand will require mobility organizations to reconsider their operational assumptions. They will need to adjust to reduced capacity and lower ridership, and determine how to run a system in such an environment. The traditional rush hour, with thousands packed into buses, subways, and light rail cars across the city twice daily, may be a thing of the past. Transit will need to be "de-densified"; route frequency may need to increase. Some communities may reduce or even abandon transit; others will continue to rely on it. Mobility operators across the sector will need to update their ability to forecast demand and adjust route planning and staffing in response.

Moreover, mobility players will need to be able to update their forecasts and planning far more quickly than ever before. Recovery is unlikely to proceed at a steady, even pace. Local or regional coronavirus outbreaks may lead to the reimposition of protective measures, with transit agencies and others forced to adjust routing, staffing, and cleaning protocols in a highly agile way. Investments in digital twins and other operational technologies could make this task easier, by enabling organizations to model operational changes in real time and pinpoint and address potential bottlenecks or other problems before they occur in the real world. Transit operators in particular will need to upgrade and improve their ability to collect, analyze, and act on customer and operational data—and to use these data-driven insights to provide a better customer experience and maker smarter, more agile operational decisions.





Further investment in other innovative technologies and approaches will also need to be considered, from drones and Al-based remote temperature sensing to autonomous last-mile delivery and digital dashboards. 19 Data-driven tracking and scheduling systems could fundamentally change the future of transit operations. In Suzhou, China, for example, a smart transit platform analyzes crowd distribution inside buses in near-real time and identifies passenger volume in each vehicle through smart transit cards; this information was made available to the public during the pandemic to allow them to stagger travel times. Elsewhere in China, mobility operators have introduced on-demand shuttle bus lines to help essential workers get to their jobs. Powered by mobile apps and designed to respond to new commuting patterns, the system creates a new route once a demand threshold is passed—with reserved seats for all passengers.²⁰ Hong Kong's Mass Transit Railway rolled out a robot designed to disinfect trains and stations, complementing regular cleaning regimens.²¹ Transit agencies around the world are also likely to consider how to team with mobility-as-a-service (MaaS) organizations to provide first/last mile services to and from transit hubs, or business-to-business relationships with employers.

Critical questions for urban mobility leaders

- What is the operational impact of new cleaning, sanitation, and physical distancing measures on our operations? Are there changes to worker and commuter etiquette that need to be established and incentivized? Are there opportunities to partner with other service providers to standardize and apply similar protocols that could build customer confidence while allowing for operational efficiencies and scale?
- As potential scenarios and shifts in commuter travel patterns are defined, what are the operational implications and opportunities for rethinking how mobility services are designed and integrated? Are there opportunities to aggressively adopt more dynamic service models while harmonizing services across municipalities within dense urban regions? Are there opportunities to standardize partnerships and fare structures between public transit systems, and potentially private first/last mile operators, to improve the overall agility and efficiency of mobility systems in our urban centres?
- What new partnerships and tools may be needed to operate in a more agile, flexible manner to shift services as commuter mobility choices and sentiment evolve?

Public transit funding and investment in a post-COVID-19 world

Public transit provides a strong backbone to the urban mobility options offered to commuters. The "great repression" of demand for transit services caused by the pandemic has resulted in massive operating deficits for public transit providers, especially in Canada, where they rely more on farebox recovery than their US peers do. Public transit also faces longer-term revenue concerns: it's not clear how quickly ridership will return to pre-COVID-19 levels, if indeed it ever does.

Public transit's immediate and longer-term revenue shortfalls create a number of challenges for organizations, cities, regulators, and governments. The first step is to understand the factors that will hold back transit demand. Employment is a key driver of transit use, and more than three million jobs were lost in Canada between February and April this year. Rising reliance on remote working is also contributing to lower transit demand. Perceptions that public transit is a relatively high-risk environment for coronavirus transition are keeping many users away. Non-work-related trips (e.g., for shopping or sporting events) comprise a significant proportion of transit use, and it's uncertain how quickly those activities and trips will return. Finally, people have more mobility options available to them, and reductions in the relative costs of those alternatives may work against transit usage.

Transit operators will need to determine which of these factors driving the revenue drop are cyclical or temporary, such as the drop in employment, and which may be more permanent, such as the shift to remote working. These factors pose different financial challenges for transit operators, and they will require different financial responses. And they may require mobility organizations, regulators, and governments to challenge assumptions and conventional wisdom about how public transit is funded in Canada, including the traditional balance between subsidies and farebox recovery. Changing transit funding models may in turn lead to the rethinking of other orthodoxies, such as the role of the private sector and future capital investments.

Transit operators have taken steps to reduce their operating costs during the crisis, but in many cases, these have not been enough to compensate for the drop in revenues. Provincial governments should take the lead in helping transit organizations address these gaps through some form of financial support, perhaps aided by the federal government. CUTA, for one, has petitioned the federal government for \$400 million per month in financial aid to Canada's transit sector.²² Such support would enable public transit operators to continue delivering services while allowing them time to adjust and prepare for recovery in the new normal.

In considering the longer term, transit organizations and others in the mobility ecosystem need to work together to understand the operational impacts—and financial implications—of changing customer needs, behaviours, and expectations. Networks and service levels will need to be optimized; new, more efficient service delivery models may need to be introduced, including outsourcing. Fare structures will need to be re-examined to boost ridership, improve off-peak travel, and make transit a competitive alternative to other forms of transport, especially personal vehicles. Investments in digital and other technologies may also be needed to deliver the mobility services a post-pandemic world demands.

The business case for major capital investments will need to be re-examined as well. At a minimum, adaptation to the realities of providing public transit in a post-pandemic world may be needed. In some cases, capacity expansions may need to be reconsidered, as changing customer demand calls into question the need for new lines, fleet upgrades, and more. Less capital-intensive alternatives may better suit a world of reduced, changed demand. Projects may need to be reprioritized in response to supply chain constraints as companies and economies restart. However, it's also important to recognize that Canada has historically underinvested in public transit, relative to the transit investments seen in our cities' peers around the world. The system expansions planned for cities such as Toronto and Montreal will help close the gap; should these capital investments be suspended because of COVID-19, our cities risk falling further behind their global counterparts.

As public policymakers reorient themselves for a changed world, public transit funding itself will need to be revisited. New revenue tools will be needed, from fuel tax levies to road tolls and beyond. A new balance between subsidies and fare recovery may need to be reached. While provincial governments are primarily responsible for making these changes, other players across the urban mobility ecosystem will need to work together to champion and help design a new transit funding model for a post-pandemic world.

Critical questions for urban mobility leaders

- How will COVID-19-driven changes to commuter demand affect funding requirements for public transit organizations? Are there opportunities to address long-standing shortfalls in how services are funded, recognizing that transit operators may require shortterm relief while they work to better understand longer-term changes in commuter mobility needs and choices?
- Before COVID-19, Canada's major urban centres were dealing with untenable levels of congestion and rising commute times. While the permanency of changes to commuter patterns is not yet fully understood, it's clear that transit infrastructure investments will play a significant role in our economic recovery. However, given government's responsibility toward taxpayer value, how should current investment plans and their accompanying business cases be reviewed, validated, and monitored in a post-COVID-19 world? How can current investment plans reflect current uncertainties while encouraging innovations that enable more flexible, agile service provisioning in the future?
- What heightened level of collaboration is needed among public policymakers, public and private operators of mobility services, and commuters to enable the recovery of urban mobility options that optimize taxpayer value while enabling an urban mobility ecosystem that is inclusive, accessible, sustainable, and supports the economic viability of our regions and cities?

Why transit matters

Public transit services are critical to the economic fabric of Canada's urban, suburban, and ex-urban communities. Canadians rely on public transit to get to work, school, shopping, and recreation; labour markets depend on transit connectivity to ensure businesses have access to the workers they need.

The new mobility options that have appeared in recent years simply can't match public transit's cost efficiency, high capacity, and safety. Only walking and bicycling can beat its environmental footprint. And public transit is a major contributor to equity and inclusion for low-income groups, visible minorities, and other disadvantaged people in our communities.

As well, careful planning for transit corridors and stations can support the land-use objectives of municipal, regional, and provincial governments.

Innovation and collaboration are needed to drive urban mobility's recovery and transformation

The global COVID-19 pandemic represents one of the most significant challenges to ever confront the urban mobility sector, from transit operators and ride-sharing firms to cities, regulators, and transit customers.

The sector has responded to the crisis in many ways. Organizations have worked hard to reduce costs, maintain essential levels of service, and protect the health and safety of their customers and workers. Yet even as they've done so, they cannot escape the fact that the crisis has sent ridership and revenues plummeting, with no certainty that either will return to pre-pandemic levels in the months or years to come.

The pandemic will ease in time. Our cities—the economic engines of our nation—will restart. Life will return to a new normal. Transit and other mobility providers will continue to play a vital role at the heart of it all. But urban mobility will look quite different, because it must. Across the sector, organizations will need to abandon

assumptions and orthodoxies about how commuters choose to live and move, and embrace new ideas and approaches—from customer experience to operations to how these mobility options are funded.

Our cities will recover, and a resilient, sustainable system of urban transportation options and service providers will play a key role in their recovery. Urban mobility will adapt and evolve to reflect the realities of a changed world and changed customers. By working together, organizations across the sector will reimagine urban mobility for a post-pandemic 21st century: agile, responsive, and continuing to deliver outstanding service to those who rely on it most.



Contacts

Yvonne Rene de Cotret

Canadian Transport and Future of Mobility Leader yrenedecotret@deloitte.ca

Mario Iacobacci

Canadian Transport Economics Leader miacobacci@deloitte.ca **Ian Davidson**

Canadian Urban Mobility Leader

idavidson@deloitte.ca

Simon Dixon

Global Public Transport Leader

sidixon@deloitte.co.uk



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