

Why above-ground parking may be the best bet in the age of self-driving cars

Haider-Moranis Bulletin: Parking standards should be revised, or we may end up with surplus underground parking, which may be difficult to repurpose



Because autonomous vehicles will require less space for parking, underground structures could become redundant.

Peter J. Thompson / National Post

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Advances in transportation technology are transforming the way we travel. App-based ride-hailing and car-sharing are just a few examples. In future, autonomous vehicles (AVs) will revolutionize the very contours of mobility. Not only will AVs be able to drive themselves, they will also be able to park themselves.

Self-parking vehicles are expected to transform the architectural and structural designs of high-rise buildings. The cumulative effect of mobility innovations will reduce the demand for parking. Hence, if parking standards for new high-rise buildings are not revised, we might end up with surplus underground parking, which may be difficult to repurpose.

[A recent report](#) by Ryerson University's Urban Analytics Institute (of which Murtaza Haider was a co-author) explored the impact of innovations in transportation technology on the future demand for parking. The report observed that the current practice of requiring a fixed minimum number of parking spots in underground lots is likely to result in an eventual oversupply of parking.

Furthermore, minimum parking standards may also be contributing to housing affordability challenges because the cost of an underground parking spot varies between \$50,000 and \$100,000 in places where land values are high.

Recent research has shown that automobile ownership is lower in high-rise buildings that facilitate carsharing. Furthermore, younger cohorts have readily adopted ride-hailing while exhibiting a lower proclivity for car ownership than older cohorts. A decline in car ownership implies a decline in the demand for traditional parking spaces.

Whereas parking demand is likely to decline in the future, the demand for travel is expected to increase. The counterintuitive assertion stems from the way AVs are likely to operate. AVs may try to avoid expensive parking costs by deadheading back to the origin of the trip or another location offering inexpensive parking. This will result in additional zero occupancy trips that will be an additional contribution to traffic volumes.

Also, AVs will spend more time travelling while they serve the mobility needs of passengers whose trip origins, destinations and trip times vary. Thus, mobility patterns of AVs will have more in common with taxi cabs than the private automobiles that are parked most of the time.

However, that's not all. Because AVs could communicate with each other, they may be parked in tandem in several rows. When required, AVs will move by themselves to allow other vehicles to leave. Thus, they will require a reduced amount of space for parking.

The construction industry has long been advocating for flexibility in minimum parking standards. The industry contends that providing underground parking is an expensive proposition that raises the price of dwellings in multi-residential buildings. With large cities struggling with housing affordability, the provision of underground parking could impede achieving the affordability goals.

The Ryerson University report recommends that cities consider revising the minimum parking standards in light of the expected decline in the demand for parking space.

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It also suggests building above-grade parking in multi-residential buildings instead of underground parking. “Provision of above-grade parking is less expensive and at the same time allows for the repurposing of parking spaces if space becomes redundant in the future,” the report argued.

The report listed examples of above-grade parking structures repurposed after space was no longer required for parking. In Cincinnati, Ohio, a parking garage was converted to a hotel featuring 239 rooms, an art gallery and several other amenities. The adaptive reuse of the garage was financially more feasible than a complete teardown.

Similarly, Northwestern University in Evanston, Ill., retrofitted a parking garage to develop an entrepreneurial innovation centre equipped with classrooms and shared meeting spaces.

Because these parking structures were above ground, it was possible to find alternative uses for them. Had this space been underground, repurposing alternatives would have been seriously limited.

Parking structures must be designed to allow for alternative uses in the future. Higher ceilings, gentler sloping slabs and placement of elevator banks and staircases are some of the design considerations needed for the future transformation of parking spaces.

Skylines in large Canadian cities will showcase many more high-rise buildings in the future. Adjusting parking standards will help future-proof buildings by embracing flexibility in design.