

## THE FUTURE IS JUST AROUND THE CORNER: AUTOMATED VALET SELF-PARKING

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In Australia there are literally tens of millions of spaces allocated to parking, taking up thousands of square kilometres of land. And soon it might all be in the wrong spot.

The primary purpose of car parks is the storage of vehicles. Considering that cars are typically parked on average for 22-23 hours of every day, it is questionable whether the current approach is sustainable.

Parking is an expensive commodity. Anecdotally parking contributes approximately 35% of the cost of retail development and 20% of the cost of office development. The parking industry is a major CBD tenant occupying approximately 20% of all CBD floor space. The car park operator is often also the single largest tenant in a CBD building. Even where parking is provided free of charge it has a significant societal cost. The actual cost is hidden in higher prices for everything else and there are hidden costs for cities, the economy, and the environment<sup>1</sup>.

This naturally leads to the question of whether we might approach the provision of parking differently?

Car parks can be unattractive for people even though they're often the first point of contact for a business. Some are dark, dirty, and often dingy places. They can take up a lot of space in highly sought-after locations using valuable land that might otherwise be used for other needs.

Most transport planners acknowledge the importance of supporting more sustainable transport. The appropriate amount of parking supplied should generally be below the unconstrained demand for parking, and the provision of shared or reciprocal parking in

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<sup>1</sup> The High Cost of Free Parking – Prof. Donald Shoup, Chicago: Planners Press, 2011.

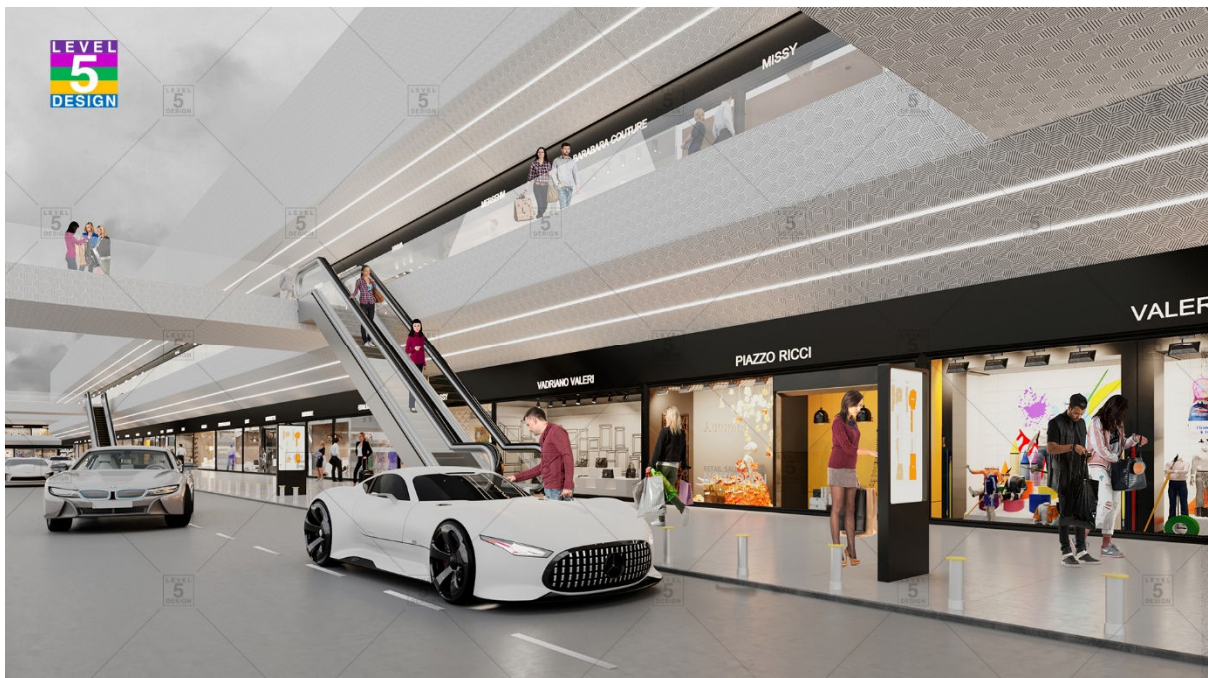
centralised locations is a more efficient and sustainable way of supplying parking. In urban planning the focus should be squarely on the needs of people and not on vehicles.

The emergence of a range of new vehicle technologies allows us to contemplate a new and some might say, revolutionary approach to the provision of parking.

Many of the world's largest vehicle technology suppliers – Tier 1 automotive suppliers such as Bosch, Valeo and Continental – have announced that they will have full self-parking technology commercially available for inclusion in new cars within the next 3 to 4 years<sup>2</sup>. This is reinforced by a recent conversation between the parking specialists at Level5design and one of the largest vehicle manufacturers in China who confirmed that self-parking technology is one of the simplest autonomous technologies to get right, and therefore not too far away from being offered as a feature.

Automated self-parking can come in many different forms and levels of functionality. We have had simple features in some cars for close to a decade that allow them to safely parallel park for us at the kerb without manual intervention. More recently cars like Mercedes, BMW and Tesla have incorporated technology for their vehicles that allows a person to park in the driveway and when activated, the car will take over and will self-park in a garage.

The form of automated valet self-parking being referred in this article is much more sophisticated. It involves dropping a vehicle off at the front entrance of the building where you are going and then the vehicle autonomously navigating itself hundreds of metres along access roads to park itself in an at-grade or multi-story car park without a human inside it. This is essentially low speed autonomous driving in confined urban environments. It is similar to current forms of valet parking but without handing over the keys and paying someone to park the vehicle for you.



These sort of features will not be available for use on public roads until the Commonwealth Government puts in place the regulations and modifies existing legislation to accommodate safe autonomous driving in the more complex environment of public roads. That is not

<sup>2</sup> <https://www.youtube.com/watch?v=hdhllQd65Xo>

expected in the next 12 months despite the COAG Transport Infrastructure Council committing to a phased reform program to enable Level 3 'conditionally automated' vehicles to operate safely and legally on our roads by 2020<sup>3</sup>. But within the confines of privately owned and operated sites such as office parks, shopping centres, residential apartment complexes and the like, where the vehicle is able to operate at low speeds entirely off-road, then advanced valet self-parking is entirely feasible.

The fact is that people will soon be buying vehicles manufactured overseas with automated valet self-parking technology and they will want to make use of the technology. Why pay for a vehicle with this form of advanced technology and not use it?

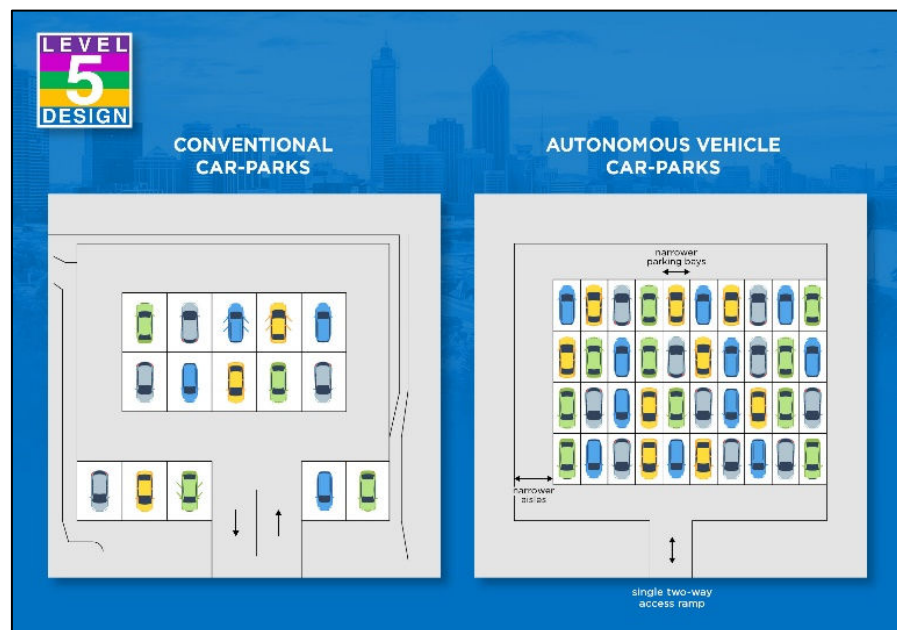
Consequently, those facilities that are enabled for valet self-parking will be the first to benefit.

This technology promises to have a dramatic impact on parking. Now is the time for us to start thinking about devoting less space to parking within buildings and centres, and more space to people and places.

Thought should also be given to the separation of vehicle storage from customer and user experience. If people do not have to enter car parks then they can be put in different locations and designed differently.

Investigative work that Level5Design has done reveals that parking facilities specifically designed for connected self-parking cars can take up 60% less space than traditional parking lots. This is because they can be designed for car storage only without the need to accommodate the safe movement of large numbers of people. There can

be significant savings on building footprints, ceiling heights, and physical elements such as finishes, stairs, elevators, boom gates and so on. Without the presence of people there is no need for lighting and security needs also change. And because there is no need for the opening of car doors, and connected autonomous vehicles can manoeuvre in less space, it means that more vehicles can be accommodated in the same space. Parking can be provided more cheaply, and it can be provided away from high value and sensitive areas.



<sup>3</sup> [https://www.infrastructure.gov.au/transport/land-transport-technology/files/FAQ-connected\\_and\\_automated\\_vehicles.pdf](https://www.infrastructure.gov.au/transport/land-transport-technology/files/FAQ-connected_and_automated_vehicles.pdf)

A typical centralized self-parking facility in the future might look something like the artistic impression given below.



In this scenario parking is designed purely for storage and public places are designed for people. The interface zone becomes the designated pick-up and drop-off area, which naturally needs to be larger to accommodate the future change in demand. Parking can be more efficiently located in shared centralized parking storage facilities that have provision for electric vehicle charging and other vehicle servicing options.

These drop off and pick up zones become an increasingly important part of the building fabric and present new opportunities for convenient retail and commercial activities. Examples might include:

- Coffee and convenience retailing
- Advertising screens
- Event ticketing and management
- Florist, news, lotto, and gift services
- Concierge services
- Travel arrangements
- Banking / auto tellers

Level5design believes that the focus in the future will be on occupying people while their car arrives and ensuring they've no reason to be delayed once it does arrive. No-one will be happy if their car is caught in congestion at pick-up and drop-off areas.

What should you take from all of this?

- Valet self-parking technology will soon be available, and we need to be ready to embrace it
- The current approach to parking provision and design within our buildings and centres is inefficient, expensive, and unsustainable
- There will be a need to redefine and repurpose some existing car parking
- There is a major opportunity to redesign the user 'experience' in our buildings, centres, and other facilities and to separate it from car storage
- There will be a need to increase short term parking supply in key locations, particularly for drop off and pick up activities.