

# controlling vehicle ownership and use



Imagine your personal spending in a time of financial crisis. You would probably set a budget, giving yourself a specific amount to spend each week, seeking to manage the flow of your outgoings. This would seem an eminently effective approach – to actually plan for how much you spend? This is what Singapore has been doing for decades, seeking to manage the number of vehicles on its roads, in view of severe space constraints for urban development and ongoing concerns about the environmental impacts of traffic growth.

Singapore is a city-state with a population of 5.9 million in 2023.<sup>1</sup> It is also wealthy; derived from its history as a maritime mercantile city, and today as a centre for the financial sector and tourism in Asia. There is, therefore, much latent demand for private vehicles. The latest mode share data for trips to work is from the 2015 household survey, with private vehicle use only (i.e. cars, motorcycles and scooters) at 25%; public transport (i.e. bus and/or mass rapid transit (MRT)) at 59%; walking and cycling at 13%, and taxi/private hire at 3%.<sup>2</sup> For several years, private vehicle use has been dropping and use of public transport has been increasing. There remains, however, much potential for increased walking and cycling.

The strategic approach to urban planning and transport planning was initially developed in the 1971 Concept Plan, with the city centre, satellite new towns and industrial areas located in a ring around the coastline and central water body, separated by open spaces and linked by the highways and public transport. Updates to the Concept Plan in 1991, 2001 and 2011, a related White Paper in 1996, and a Land Transport Masterplan in 2008 and 2013, have furthered the initial approach that was set.<sup>3</sup>

The MRT system was introduced from 1987 and provided a much-improved public transport service adding to the previous bus system. Over 20 satellite

new towns have been built, accommodating much of the population of Singapore, e.g. Toa Payoh (developed from the 1960s onwards), Serangoon (1980s) and Tengah (2020s). The MRT system has subsequently developed into an extensive network. The current Long Term Plan<sup>4</sup> outlines the strategic approach to urban planning and transport, with a continued focus on polycentric growth to avoid movements into the city centre. The Land Transport Masterplan<sup>5</sup> provides the transport strategy, drawing on the 20-minute city concept and applying this to the island context. The aim is to develop a 45-minute city across the island, where access is possible to employment and wider activities across the city; and 20-minute towns, with access at the neighbourhood level to everyday activities, such as schools and local retailing.

Traffic demand management (TDM) is the real innovation in the self-described 'car-lite' approach, focused on the control of private vehicle ownership and use. Singapore introduced a road pricing system, known as the area licensing scheme (ALS), in 1975, which was initially paper-based. The ALS was replaced by electronic road pricing (ERP) in 1998. The current charges vary by the level of congestion, hence spatially and by time of day, but can be around S\$10 dollars for each gantry passed in the peak. A vehicle quota system has been in place since 1990. This involves direct management of vehicle numbers. Individuals can apply for a certificate of vehicle entitlement (COE) and a charge is set relative to demand. Only slow growth in vehicle numbers was allowed in the early years and then a cap of one million vehicles was set in 2008, which is still broadly in place today.

Imagine such a cap being imposed in London, or indeed across the UK. This measure seems so obvious for transport planners who are trying to reduce reliance upon the private car. Of course, this policy approach is rarely used in cities beyond



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TDM measures, including restrictions on vehicle ownership and use are very effective in reducing traffic volumes.

Singapore, and certainly not in the UK. The COE has varied in cost over time, but is currently expensive, at around S\$100,000 for a 10-year licence. In 2024, ownership of a typical small car, such as a Toyota Prius C, costing about S\$20,000, involved a COE of around S\$85,000, an additional registration fee of 110% (S\$22,000) and customs excise import duty of 30% (S\$6,000). So, the actual cost of owning the vehicle is about S\$133,000 (or £78,000).

The COE is linked to the vehicle, hence a second-hand car is sold with the remaining years left of the COE. COE also provides a significant income stream, estimated at S\$6.9 billion in 2016.<sup>6</sup> Alongside further income from ERP and motor vehicle tax, this can be used to fund wider infrastructure development. The management of vehicle numbers and charging for road usage have become a normalised part of transport planning in Singapore, with a general acceptance that it has been effective in managing traffic volumes. Vehicle taxation and road pricing are, however, flawed policy instruments in distributional terms. They are regressive in facilitating higher-income drivers to pay the charges and to use the relatively free-flowing roads, whilst lower or even middle-income groups are dissuaded from car ownership. This also

seems to be an accepted discourse, as a regime of truth; that the road system is prioritised for higher-income car drivers. Nevertheless, the income streams are significant and this helps fund public transport and wider infrastructure for a larger number of users. So, the system can also be viewed as a tax on car drivers for hypothecation elsewhere.

In 2012, 40% of Singaporean households owned a private car. In 2022, this figure had fallen to 34%,<sup>7</sup> which is much lower than countries with similar income levels. However, this overlooks that vehicles are shared within and between households and vehicle kilometres travelled are high, at around 18,000 km per annum.<sup>6, 8</sup> Even so, the result is that car ownership is held at low levels and there are relatively few vehicles on the roads. Singapore is therefore a very interesting model of TDM, with the potential for application elsewhere.

Alongside the management of traffic, the MRT system is being continually extended, providing an integrated and easy-to-use network that serves most of the island, facilitating good access to the city centre and satellite towns. Usage is more equitable across population groups due to the good spatial coverage and fares are relatively low (S\$2



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**The governance structure for the city-state is the episteme that facilitates innovative policy making and effective implementation, but also with limited opportunity for contestation.**

per two-hour maximum journey period). Most stations are accessible, with escalators and lifts available for people with mobility difficulties.

Still, there are tensions in the approaches taken to transport planning. The highway network is dense, with three and four lane highways throughout much of the urban area. There is a contradiction between providing so much highway space and managing use so strictly.<sup>9</sup> There have been many expressway projects, giving grade-separated highways between urban centres. There is landscaping of highway corridors, which improves their visual appearance. But, there are few attempts to reduce the amount of space given to vehicles, even in the historic central areas, with street space reallocation rarely attempted. Cycling provision is almost non-existent, and walking facilities could be much improved. The high cost of vehicle purchase and, thereby, restriction of this, gives car ownership high social status.

From the early 1970s onwards, Singapore set an early pace for progressive transport planning in Asia, with TDM, an extensive MRT, and integration with urban planning. For sure, road space could be reduced and there is much potential for improving active travel networks. This would improve the liveability of Singapore by addressing the physical

severance of neighbourhoods by wide highways and give space for walking and cycling. However, the current restrictions upon vehicle ownership and use are extremely effective – it is surprising that they are not more widely used in other places, beyond some of the cities in China.

Politically, Singapore is, of course, unique. Ruled as a parliamentary representative democratic republic, but with one party rule by the People's Action Party (PAP) since self-governance in 1959 and independence in 1965. This is the episteme (unconscious structure) for policy making, facilitating an effective implementation of interventions, including some participation and debate about options, but with limits and controls on contestation.

You will argue that this type of TDM is impossible in the UK, that there would be too much political and public controversy. And, probably, you would be correct. Yet, we still require a meaningful debate about new ways of reducing vehicle numbers in cities.

We face a climate crisis and experience worsening social inequity. Restrictions upon private car use could assist in resolving both of these problems. Controlling vehicle ownership and use will not be the centrepiece of any political manifesto

during the upcoming general election campaign. Nevertheless, the transition towards sustainable urban mobility is happening too slowly and the necessary debates about potential options are being avoided. The scale of interventions required to reduce transport-related greenhouse gas emissions will require some difficult discussions and probably some, as yet, unpalatable interventions. In the meantime, we are all aware that we do not sufficiently respond to the great public policy challenges that are faced.

● **Robin Hickman** is Professor at the Bartlett School of Planning, University College London. He is Director of the MSc in Transport & City Planning. e: r.hickman@ucl.ac.uk. The views expressed are personal.

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#### Notes

- 1 *Population in Brief 2023*. National Population and Talent Division, Strategy Group, Prime Minister's Office, Republic of Singapore. Sep. 2023, p.6. <https://www.population.gov.sg/files/media-centre/publications/population-in-brief-2023.pdf>
- 2 *General Household Survey 2015*. Department of Statistics, Ministry of Trade & Industry, Republic of Singapore. Mar. 2016, p.43. <https://www.singstat.gov.sg/-/media/files/publications/ghs/ghs2015/ghs2015.ashx>
- 3 T Lim: *Planning a Nation: The Concept Plan*. Biblioasia, National Library, Republic of Singapore. 1 Oct. 2014. <https://biblioasia.nlb.gov.sg/vol-10/issue-3/oct-dec-2014/singapore-concept-plan/>
- 4 *Space for Our Dreams – Long-Term Plan Review 2021*. Urban Redevelopment Authority, Republic of Singapore. 2022. [https://www.ura.gov.sg/-/media/Corporate/Planning/LTPR21/LTPR\\_publication.pdf](https://www.ura.gov.sg/-/media/Corporate/Planning/LTPR21/LTPR_publication.pdf)
- 5 *Land Transport Master Plan 2040 – Bringing Singapore Together*. Land Transport Authority, Republic of Singapore. 2019. [https://www.lta.gov.sg/content/dam/ltgov/who\\_we\\_are/our\\_work/land\\_transport\\_master\\_plan\\_2040/pdf/LTA%20LTPM%202040%20eReport.pdf](https://www.lta.gov.sg/content/dam/ltgov/who_we_are/our_work/land_transport_master_plan_2040/pdf/LTA%20LTPM%202040%20eReport.pdf)
- 6 M Diao: 'Towards sustainable urban transport in Singapore: Policy instruments and mobility trends'. *Transport Policy*, Sep. 2019, Vol. 81, 320-330. <https://www.sciencedirect.com/science/article/abs/pii/S0967070X16307508>
- 7 E Loi: '472,000 S'pore resident households owned cars in 2022, up from 459,000 a decade earlier'. Webpage. The Straits Times, 21 Nov. 2023. <https://www.straitstimes.com/singapore/transport/472k-s-pore-resident-households-owned-cars-in-2022-up-from-459k-in-2012-chee-hong-tat>
- 8 P Barter: 'Singapore's Mobility Model: Time for an Update?' In *Megacity Mobility Culture: How Cities Move on in a Diverse World*. Institute for Mobility Research (ed.). Springer, 2013, pp.225-242. [https://link.springer.com/chapter/10.1007/978-3-642-34735-1\\_12](https://link.springer.com/chapter/10.1007/978-3-642-34735-1_12)
- 9 P Barter: 'Singapore's Changing Relationship with Cars'. In S Hamnett, B Yuen (eds.): *Planning Singapore: The Experimental City*. Routledge, 2019. <https://www.taylorfrancis.com/chapters/edit/10.4324/9781351058230-8/singapore-changing-relationship-cars-paul-barter?context=ubx&refId=de520e87-3326-4604-87b5-097aebde1bee>