
Parking management

Introduction

Parking, for cars and cycles, is an integral part of the transport network. Until recently, however, its influence on demand has not really been understood.

Historically, car parking has been considered from a supply side perspective in three ways:

- providing enough parking to attract customers – it was believed the closer they could park, the better for business
- providing enough spaces to ensure vehicles are not parked in local streets or in other businesses' car parks
- providing parking as a way of raising revenue.

However, the supply and pricing of parking can dramatically affect the way people travel to a specific location.



Traditional style main street parking

Objective

Parking availability	<p>The availability and cost of parking can be a key determinant of whether the car is used for a particular journey.</p> <p>Providing free or low-cost parking can have consequences for the road network, particularly in terms of congestion. It can also impact on the number of people using alternatives, such as public transport. Road controlling authorities and regional councils therefore have an interest in managing parking. However, the statutory function to enforce parking and require specific parking ratios lies with local authorities.</p> <p>To reduce car dependence, and in particular single-occupant car trips, and thus increase the attractiveness of alternative travel modes, through parking management.</p>
Cost	<p>The provision of parking is essentially a cost to the provider, as it is likely that the space set aside for parking could be used to much greater effect, eg office or retail spaces attract a greater premium than parking spaces, even though businesses demand at least some parking for company vehicles.</p>
Car dependence	<p>The availability of unlimited free parking at a destination often operates to make it more attractive to travel by car and less attractive to use possible alternative modes. Unlimited car parking can therefore contribute to increasing car dependence.</p> <p>In addition, locations where ample parking is provided, but access by other modes is difficult or impossible, creates an equity issue, as those without access to a car are precluded from visiting, shopping or working at the location. Congestion can also be created on the surrounding network as more and more vehicles, often single-occupant cars, travel to a site. This can have major consequences for the road network and the viability of public transport in the surrounding area.</p> <p>Where parking is managed in conjunction with the provision and promotion of alternative travel modes, car dependence – and particularly the single-occupant car trip – can be reduced.</p> <p>Education and communication will be an important part of this process. For example, people who feel parking is a right, rather than a service, need to be educated about the cost to provide, manage and maintain parking spaces.</p>
On-road car parking – disadvantages	<p>Allowing for parking on roads can create hazards, with distracted drivers looking for parking spaces. It also takes up valuable space that may be better used for:</p> <ul style="list-style-type: none"> • moving traffic, particularly for bus or cycle priority lanes • giving more room to pedestrians, enabling them to move at their own pace • providing green space and seating that creates a more pleasant environment and in turn increases building values • cycle lanes that avoid conflict between parking vehicles and opening doors.

On-road car parking – advantages

On-road parking does have some advantages:

- It creates ‘friction’ for vehicles driving past. Drivers will generally slow, or prepare to slow, if another vehicle is manoeuvring to park or where doors could be opened.
- On-road parking takes up less space than off-road parking, as the road space is used for circulating and manoeuvring.

Acceptance

Unlike a number of other measures, measures to manage parking are better understood and accepted by the public, particularly where there are charges for on-street parking. The public, in this case, is used to the price of parking changing, and even its availability. In this way, parking management has the ability to create lasting pricing signals to change travel behaviour, while remaining generally accepted by the public.

Benefits

Congestion reduction	Actively reducing car parking availability at certain destinations will encourage drivers to consider using other modes such as public transport or active modes. This can be used to reduce congestion levels.
Support land-use policy	Managing the availability of car parking in urban areas can support local land-use policies. Higher densities and intensification can be supported by providing high-quality public transport links to them and reducing car parking availability.
Liveability	Community liveability relates to the environmental and social quality of an area as perceived by residents, employees, customers and visitors. Aspects such as noise, local pollutants, attractiveness of streets and opportunities for recreation and social interaction all contribute to the liveability of an area. The ease with which residents can travel as pedestrians or by bike represents a critical component of liveability. Reducing car parking spaces in certain areas will contribute to their liveability.
Reduced costs	Providing free car parking is a huge cost for employers and retailers and is likely to have a negative impact on public transport patronage. Charging for parking or reducing the number of parking spaces greatly reduces costs.

Strategic interventions for parking management

Introduction

Some parking management options available are summarised below. Parking policies will achieve maximum impact if neighbouring authorities adopt similar parking management policies, for consistency across the wider region where work, shopping and leisure trips are likely to be interdependent.

Increasing cycle parking

While there are a number of options for cycle parking provision, its introduction will need to be site specific.

Cycle parking should meet the needs of everyone who uses it and should reflect the length of time cycles are expected to be parked. Where cycle parking is short stay, use ‘Sheffield’ stands. Where it is expected to be long stay, use covered stands, secure cage parking or locker parking.

Overall, cycle parking should be:

- visible and well sited
- accessible and easy to use
- safe and secure with attractive design
- fit for purpose and, where appropriate, covered
- well managed and maintained
- consistently available.
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Cycle parking - Amsterdam, Netherlands

Strategic interventions for parking management contd

Linking parking standards to public transport accessibility

In areas where public transport services have a good coverage and are frequent, car parking requirements can be reduced. This operates to support the attractiveness of public transport where it is a viable option for those travelling to the area. It also recognises that ‘a one size fits all’ approach to car parking standards is not appropriate, as many areas of New Zealand simply do not have viable alternatives to the car.

Maximum parking standards

By using planning criteria that set out a maximum parking standard or maximum number of spaces for a particular facility, alternative modes of transport become more desirable and the land otherwise used for parking can be used for a other purposes. Maximum parking standards can be applied across a central urban area or linked to a new development where there is good access to public transport. As a consequence, there may be a higher demand for the existing on-street parking, which will need to be managed. The advantage of this approach is the developer cannot ‘over-provide’ parking and thus unnecessarily encourage more car trips, including single-occupant trips, where realistic transport alternatives exist.

Time restrictions and charging

This involves applying either time restrictions or charges to contribute to local objectives. For example, time restrictions or charges can be set to discourage all-day commuter parking in central urban areas but encourage short-stay visitor and shopper parking. Commuters are then more likely to use alternative modes of travel to the car. The appropriate balance between long-stay and short-stay parking will need to be considered at the local level, as will the balance between car parking charges and public transport fares.

Shared parking allocations

Sharing parking allocations is an option that can be applied where developments located in close proximity have differing uses and their peak parking demands do not coincide. For example, an office development located beside a cinema or leisure complex could provide considerably fewer parking spaces than would have been expected if they had been located in isolation. Each could make use of the car parking of the other facility to accommodate demand during their peak operating times.

Strategic interventions for parking management contd

Parking information and signing systems

In urban areas, these help reduce the congestion caused by motorists driving round looking for a parking space and they also maximise the use and efficiency of the parking resource. Options range from permanent signage that indicates the location of car parks, to real-time variable message signs (VMS) that indicate which car parks have space at the current time.

Parking safety security measures

Safety and security measures are a feature of good parking design. Adequate lighting and clear pedestrian routes into, out of and through the parking area should be prerequisites. Additional measures include closed circuit television (CCTV) coverage and customer help points.



Secure on street bicycle parking.

Case study – Nottingham workplace parking levy

Workplace Parking Levy

A Workplace Parking Levy (WPL) is a charge on the provision of workplace parking places to be paid by the employer to the local authority. Nottingham City Council is the first local authority in the UK to introduce such a levy. It is intended to be part of an overall transport package, in line with local and regional transport policy.

The East Midlands Development Agency estimated that congestion was costing the local economy around £160 million in lost time and revenue every year, with more than half of this cost falling to local business. Commuters accounted for about 70% of congested peak traffic.

The WPL levy came into force in April 2012. Employers providing more than ten workplace parking places to liable categories of user (except disabled parking bays for Blue Badge holders and other limited exemptions) were levied at £288 per place per year, rising to £334 per place from April 2013.

The WPL is intended to encourage commuter travel planning and for employers to better manage their car parks. Employers are more likely to introduce or improve staff travel planning schemes, and manage their car parks effectively, which should have a positive impact on reducing traffic growth.

Money raised from the Workplace Parking Levy is ring fenced for local public transport improvements. The WPL provides funding for extensions to the existing tram system, the redevelopment of Nottingham Railway Station, and sustaining and developing the supported Link bus network, as well as parking management support measures.

In its first year of operation, the levy raised around £7.6 million, from more than 3,000 premises around the city. The bulk of this went towards funding lines 2 and 3 of Nottingham's Tram system.



For more information see <http://mynottingham.gov.uk/wpl>

Case studies continued

Shared parking in Copenhagen, Denmark

The City of Copenhagen has come up with an innovative solution to providing parking spaces for both cyclists and car drivers.

Flex parking was trialled in 2011 in front of a busy local high school. Many students and staff cycle to the Ingrid Jespersen High School, which is located in a residential area.

Five parking spaces in front of the school were allocated to each group at different times of the day: cyclists used the spaces between 7am and 5pm, while car parking was allowed for the remainder of the day.

The flex parking scheme was well received by students, staff, parents and local residents, and is now being rolled out in 7 other schools. The City of Copenhagen has earmarked a further 17 locations, including supermarkets and other schools, for flex parking.

Rich Sorro Commons, San Francisco, California (USEPA, 2006)

Rich Sorro Commons is a mixed-use project with 100 affordable units and approximately 10,000 square feet of ground floor retail. Conventional standards would normally require 130–190 parking spaces for such a building, but it was constructed with only 85 parking spaces, due to proximity to high-quality public transport services, the provision of two carshare parking spaces in the building, and the fact that the building provides affordable housing, with tenants who are less likely to own a car. Reduced parking supply freed up space for a childcare centre and more ground-level retail stores. Removing 17 spaces allows the project to generate \$132,000 in additional annual revenue (300 square feet per space at \$25.80 per square foot in rent), making housing more affordable. Two carshare vehicles are available to residents, giving them access to a car without the costs of ownership – a particularly important benefit for low-income households.

Case studies continued

Centralised parking (USEPA, 2006)

To encourage downtown development, the Chattanooga Area Regional Transit Authority developed peripheral parking garages with a free shuttle service. By constructing parking facilities at either end of the business district, the system intercepts commuters and visitors before they drive into the city centre, reducing traffic problems. Free shuttle buses are financed through the garages' parking revenues. They depart from each garage every five minutes all day, every day, and pass within walking distance of most downtown destinations. The electric-powered shuttles transport approximately one million riders each year, making shuttle-served property attractive to businesses. Since 1992, when the shuttle service began, over \$400 million has been invested in the downtown area, including a major freshwater aquarium, over 100 shops and 60 restaurants.

Cycle parking at Perth train stations

Licence plate surveys have revealed some commuters drive less than 400 metres to park at crowded Perth train stations each morning.

Park-and-ride facilities at Murdoch, Cockburn and Bull Creek stations are often full by 7.15am, resulting in motorists parking illegally or driving to their destination rather than catching public transport.

The State Government is rolling out a \$50 million expansion of train station car parks, adding an extra 3000 bays along the Mandurah and Joondalup lines. In addition, 37 train stations are being upgraded to install secure bicycle parking cages, providing storage for up to 978 bicycles in total. It is hoped that this will encourage those living only a few hundred metres from the station to cycle instead of drive.

A cage of 21 bicycles takes up the same area as three car parking bays. People can pre-register to use a bicycle cage at their local train station, then access it for free using their public transport smart card. The aim is to have bicycle parking located closer to station entries than any other car parking bays (except disabled access).

One problem, however, is that local street networks don't always support good walking or riding connection to train stations. At Bull Creek station, some houses are only 260 metres from the station in a direct line, but require a walk of up to 1570 metres along the footpath.

(Adapted from: Department of Infrastructure and Transport, Australia (2013) Access to Public Transport; supporting active travel in Australian communities, Ministerial Statement

https://www.infrastructure.gov.au/infrastructure/mcu/urbanpolicy/active_travel/files/infra1874_mcu_active_travel_report_final.pdf

York Parking Information

The first phase of a parking information system project introduced in York, UK, will monitor traffic flows in each of the city's car parks and inform a central computer of any spare capacity. Real-time information will be relayed to a network of roadside variable message signs at key locations, providing motorists with early warning if a car park is full and where alternative parking is available. Information will also be supplied through a dedicated website. The local authority said it had been 'astonished' by the results of a study it undertook into ways to increase parking capacity, which found over half of the city's parking spaces were unused on most days. The council's executive member for transport commented, 'The problem most of the time is not that there is a lack of space, but that motorists simply don't know where the spaces are'.

Complementary measures

Road pricing	Adding an additional cost to the use of road reduces the supply of vehicles using the network. This in turn reduces demand on car parking spaces.
Public transport	Public transport is an alternative to private car use. Increase in public transport patronage will reduce the demand on car parking spaces. Providing parking
Cycling	Cycle parking uses far less space than car parking. Converting existing car parks into dedicated cycle parks provides parking space for more people within the same area of land. Policy and facilities that encourage cycling reduce the demand on car parking spaces.
Walking	Measures to increase walking will reduce car parking required. CBD areas with high quality walking environments require less street parking as pedestrians are able and comfortable to walk further distances.
Accessibility	The process of improving accessibility identifies the areas where there are improvements needed to the car parking space allocation for mobility and access reasons. Accessibility improvements will also mean that those without access to a private car for transport may be catered for through Public transport, walking or cycling. This may lead to a restructuring of the space assigned for parking needs.
Urban design	Quality urban design provides community space and open space for people ahead of parking space for cars. Where parking is required alternative transport modes will be considered and then the location of car parking facilities will be considered. Features such as permeable surface of parking areas and art included into the design of bicycle stands can improve the urban design characteristics of a necessary parking space.
Travel planning	Travel planning reduces the number of parking spaces required as individuals choose alternatives to private car use.
Traffic management systems	Traffic management systems can provide information about parking availability and better control flows of vehicles towards appropriate parking facilities.
Traveller information systems	Information about park and ride and other services can also be provided through various traveller information systems. This can reduce the demand for parking spaces.

Other policies addressed

Congestion	Providing high levels of cheap car parking leads to a greater use of private vehicles and increased congestion. Congestion can be reduced by limiting the availability of car parking spaces, increasing the cost of car parking spaces and converting car parks to cycle parking spaces or public transport facilities.
Economic efficiency	Free flowing traffic, reduced congestion and appropriate access improves economic efficiency. Managing the parking arrangements can positively help economic efficiency.
Public health	Public health improvements can be attributed to the reduction in public car parking spaces and the conversion of this space to other types of use, particularly pedestrian or cycle facilities.
Land use	Land use policy needs to have a high consideration of parking facilities.

Further information

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<http://www.ite.org/Membersonly/annualmeeting/2006/AB06H3701.pdf>

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USEPA (2006) *Parking Spaces / Community Places: Finding the Balance through Smart Growth Solutions*, Development, Community, and Environment Division (DCED), US Environmental Protection Agency

www.epa.gov/smartgrowth/parking.htm).