Local Government Car Parking Guideline

Western Australia

December 2020

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Introduction

CURRENT PRACTICE

Local Governments generally set minimum parking ratios for individual land uses in local planning schemes or policies to ensure that development provides sufficient parking for customers and staff onsite.

This approach aims to internalise parking demand generated by development, reduce demand on public parking, provide drivers with access to businesses, and reduce the number of vehicles cruising for parking.

KEY ISSUES

This approach causes a number of key issues, including:

- underused parking bays in non-peak periods
- more traffic, air and noise pollution
- suboptimal built form and use of land, and
- inflates the cost of new development, which is passed on to customers, tenants and home buyers.

The simplicity of calculating and enforcing minimum parking ratios using this conventional approach may continue to be useful in a range of situations, particularly where resources to conduct parking surveys are limited.

However, alternative approaches exist and Local Governments in Western Australia are beginning to adopt and apply these approaches for the benefit of local communities, business customers and workers, and developers.

WHO IS THIS GUIDE FOR?

This guide is prepared for Local Governments in Western Australia who are seeking to trial and adopt alternative approaches. The guideline aims to help Local Government Elected Members, planners, engineers, parking inspectors, rangers and facility managers when preparing and adopting parking strategies, plans and local policies.

The success of policy options provided in the guideline is highly dependent on effective parking enforcement. While enforcement is a critical element of parking management, it involves a range of separate challenges and solutions. Consequently, the guideline briefly mentions enforcement where it directly interacts with the policy options discussed but otherwise lies outside the guideline's scope.

WHO PREPARED THE GUIDE?

This guide was prepared by the Western Australian Local Government Association (WALGA) in collaboration with officers of the Local Government Car Parking Reference Group, the Department of Transport and the Department of Planning, Lands and Heritage. WALGA sincerely thanks all contributors, without which the guideline would not have been possible. This guideline will be updated at regular intervals. This version is the first iteration.

Version 1 – Friday, 4 December 2020

Contents

Appendices are available from the WALGA website.

Preparing the Guideline

WORKSHOP (2017)

Local Government Officers noted:
- minimum parking ratios are commonly applied to manage the demand for parking generated by new development but may not be the best approach
- rationale for the ratios and their evolution is uncertain, and
- parking ratios may be inhibiting optimal built form outcomes and other community objectives.

INVESTIGATION & REPORT (2018)

Review of Local Government Car Parking Requirements in Western Australia (2018) - Examination by consultant to identify the rationale used by Local Governments to set and use parking ratios. The report found that minimum ratios are poorly related to demand generated by development and may be impeding the optimal use of land and environmental, economic and social objectives.

REFERENCE GROUP (2019)

Made up of Local Government officers and representatives from key agencies, to help prepare a discussion paper and guideline.

DISCUSSION PAPER (2019)

Local Government Car Parking Discussion Paper (2019) - Outlines issues related to the application of minimum ratios and alternative approaches. Released to Local Governments and stakeholders for input.

FINAL GUIDELINE (2020)

Prepared for Local Governments seeking to trial and adopt alternative policy approaches. Draft released to Local Governments for input.

1. PARKING POLICY REVIEW

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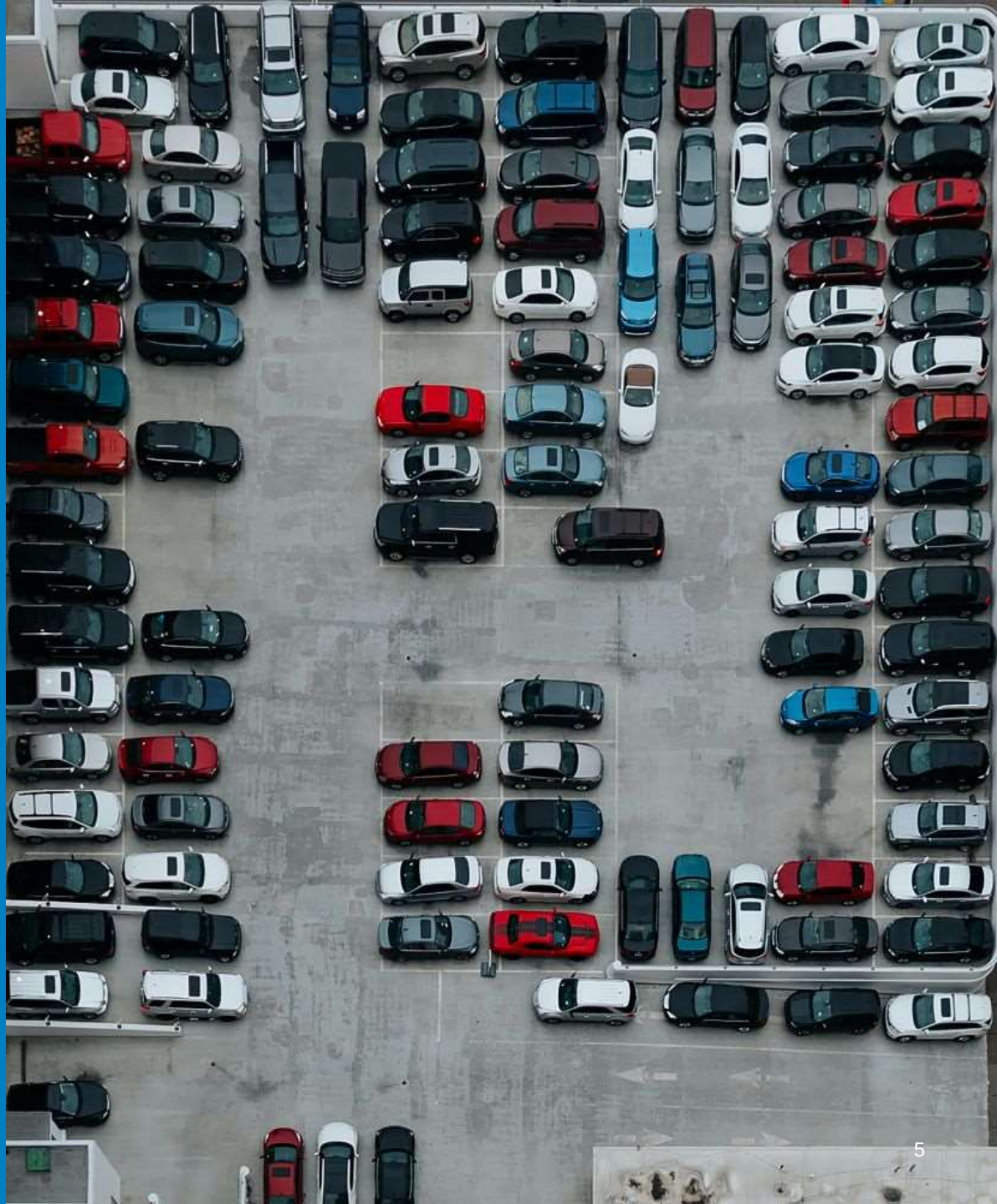

1.1 Implications of Parking Policy

"The assumption that parking is free or provided at low-cost is untrue; parking provision is expensive and paid for by users and non-users."

Many factors (both historic and current) have contributed to a culture of car dependency in Western Australia. These factors include an abundance of space; development of many neighbourhoods following widespread car ownership in the mid-twentieth century; high levels of public investment in road infrastructure; and, an abundant supply of off-street parking, usually costed at below-market land prices.

RAMIFICATIONS

Cars play an important role in supporting commercial activity and providing access to employment, education and recreation; however, incentivising high levels of car use through parking provision has a number of ramifications, which include:

- increased parking and vehicle use, which increases noise, air and water pollution, and impervious surfaces that increase urban temperatures
- increased traffic congestion and reduced public and active transport
- increased construction and business costs, which can reduce housing affordability and business viability and deter redevelopment of older buildings, particularly on small lots
- inactive and visually unappealing parking spaces between buildings
- inequitable use of public space, for example, alternative uses such as parklets, bike lanes and alfresco dining allow more people to use public space
- suboptimal use of land, limiting property tax opportunities, and
- reduced ability of authorities to consider a development application on merit in respect to location, operating hours, staffing, shared parking and a customer's tendency to park once and walk to several services.

PARKING IS NOT FREE

Additionally, assumptions that car parking is free or provided at low-cost are untrue; parking provision is expensive and paid for by users and non-users. For example, the land and construction cost of providing free parking at shopping centres is recovered through commercial rents, which in turn may be passed onto consumers in the price of coffee, food, clothes and other goods and services.

Reconsidering the way parking is provided and managed allows communities to think about using unnecessary parking space in other ways, like parklets, bioswales, alfresco dining, active transport, gardens and trees, and others, demonstrated in Figure 1 (over page).

1.1 Implications of Car Parking Policy

"Reconsidering the way parking is provided and managed allows communities to think about using unnecessary parking space in other ways."

Figure 1: Alternative uses of car parking space

1.2 Three Components of Car Parking

OFF-STREET PRIVATE PARKING

Provides exclusive use for residents, staff, customers or service vehicles and ensures that specific users are guaranteed a parking bay. Off-street private parking also helps minimise overspill into on-street parking bays and facilitates shared parking with neighbouring land uses.

ON-STREET PARKING

Includes parking on the street in a marked or unmarked bay or within the verge (if permitted). On-street parking provides easy access to destinations, helps address overspill from off-street parking, can provide buffers for pedestrians from traffic and can help reduce vehicle speeds.

OFF-STREET PUBLIC PARKING

Provided in or near town centres, either at-grade (ground level) or multi-storey and shared by different users. Local Government or commercial operators construct and operate these facilities. Off-street parking takes pressure off on-street supply, may help new development meet parking requirements, and can improve land use efficiency using multi-storey facilities.

It is important to recognise the inter-dependencies between each component, and the opportunities they offer for improving parking provision and management, by influencing supply and demand. This guideline includes a separate section on each component.

1.3 Strategic Community Objectives & Parking

"Local Governments can influence each parking component to help achieve strategic community objectives."

Local Governments can influence each parking component to help achieve strategic community objectives. For instance, changes to parking requirements for new apartment buildings can reduce development costs and in-turn, improve housing affordability.

Changes to on-street parking management can help businesses improve access to customers and improve the vibrancy, functionality and safety of town centres and public places.

Changes to off-street public parking can improve the appearance and safety of streetscapes and provide parking that enables and maximises new development and economic outcomes.

Short, medium and long term strategies can assist Local Governments to choose the right mix of parking policies to help achieve strategic objectives, including:

- reducing traffic congestion in centres
- improving access to customers, for local businesses
- improving the appearance and safety of streetscapes
- improving vibrancy and functionality of town centres and public places
- improving the economic viability of activity centres
- encouraging walking and cycling
- improving access to public transport
- improving affordable housing options
- ensuring an adequate supply of parking at times of peak demand, and
- promoting a healthy and active community.

1.4 Trends Influencing Car Parking

"Current and emerging trends indicate that parking demand is likely to plateau and may decrease over time."

Awareness of contemporary trends will assist Local Governments when considering policy options. These trends indicate that demand for parking is likely to plateau and may decrease over time, providing an opportunity for Local Governments to consider policy alternatives aimed at creating healthier and more vibrant, people-friendly communities.

PEAK CAR

Declining vehicle-kilometres travelled per capita, number of driver licenses issued, and fuel use, indicate that car use may have peaked in many countries. Many theories for these trends exist, including increased urbanisation, environmental awareness and young people acquiring a driver's license at a later age. These changes are likely to reduce demand for parking and increase demand for alternative transport modes.

PUBLIC & ACTIVE TRANSPORT REVIVAL

There has been a local and global resurgence in public transport investment which is related to a renewed demand for mixed-use, walkable urban centres. This is partly due to the capacity of rail and its ability to transport large numbers of people. Public investment in active transport is also growing. Shifting trips to non-car based transport reduces demand for parking and increases demand for other uses of space currently occupied by cars.

LIBERALISATION OF PARKING REQUIREMENTS

Many cities in the United States and Europe are relaxing minimum parking requirements or eliminating them, in recognition of the substantial direct and indirect costs associated with parking minimums. Where minimums have been removed, they have not been reintroduced.

RETURN TO THE CITY

Most cities in Australia are increasing the number of dwellings in inner city areas. Denser urban populations lead to higher levels of interaction and knowledge sharing, recognised as prerequisites for growing specialised skill sectors, also known as knowledge economies. Denser urban populations can create a tension for more roads and parking, limiting other, more productive land uses if improperly managed.

DEVELOPMENT & ADOPTION OF TECHNOLOGY

Cashless transactions, mobile phone use, data collection and processing, and wireless connectivity will influence transport behaviours. These technologies have enabled the mass rollout of

1.4 Trends Influencing Car Parking

"The growing use of on-demand services will increase the need for on-street infrastructure to support these services."

on-demand transport and delivery services, and will help rideshare and autonomous vehicle services grow. These changes provide authorities with two key opportunities: (1) use technology to optimise existing parking supplies; and (2) understand travel and parking behaviour. The influence of technology on parking demand is discussed in Appendix 4: Autonomous Vehicles.

DEMOGRAPHICS

The proportion of Australians aged 65 years and over, currently 15% (or 3.8 million), is projected to grow steadily in the coming decades, meaning that more Australians will have assisted mobility needs which may increase demand for on-demand transport. Younger generations, who are increasingly comfortable using technology, will also demand these services, reducing the need for parking. The growing use of on-demand services will increase the need for on-street infrastructure to support these services.

SUSTAINABILITY

The consideration of economy, society and the environment is becoming mainstream practice in policy and decision-making. These considerations are likely to influence the cost to provide vehicles and fuel, and associated regulations. Transport users, providers and manufacturers will adjust the way they build, own and operate vehicles in response to these evolving regulations and costs, exemplified by the evolution of hydrogen and electric fuelled vehicles. These alternative fuels will influence parking practices when used in combination with autonomous and connected technologies.

1.5 Principles of Policymaking

When formulating and adopting public policy, it is important for Local Governments to consider how well different policy options align with well-founded policymaking principles.

ADAPTABILITY

Policies are adaptable to change over time, to respond to changing consumer demands, technologies and community priorities.

FAIRNESS & EQUITY

Policies treat all landholders and residents impartially. For instance, the provision of on-street parking for car users may disadvantage others who have an interest in accessing that space for cycling, walking, alfresco dining or creating gardens and parklets.

AFFORDABILITY

Policies should represent value for money both now and in the future, and use resources responsibly.

EFFECTIVENESS

Policies make an effective, safe and positive impact and demonstrate a net community benefit. Authorities can choose from a range of indicators for measuring effectiveness: occupancy; mode share; car-use; local business revenue; commercial and retail vacancies; pedestrian activity; crash rates; and, parking fines.

PROCESS EFFICIENCY

Policies avoid introducing unnecessary or cumbersome controls that make regulation complex.

COMMUNITY ASPIRATION

Policies align with the shared hopes that residents and business owners have for the future of their community. These aspirations can vary across neighbourhoods.

1.6 Incremental Approach to Reform

*"Changes to parking policy are **likely to be more accepted when** implemented incrementally."*

Changes to parking policy can be politically unpopular with negatively affected segments of the community and are likely to be more accepted when implemented incrementally.

This approach allows the community time to adjust to small changes in parking access, as opposed to introducing sudden, substantial changes.

An incremental approach allows Local Governments time to consult, trial, measure, and evaluate if parking objectives are likely to be realised prior to adoption and broader rollout.

The following page provides an example of a phased approach to parking policy reform.

The following sections detail each policy option.

The list of policy options outlined in this guideline is comprehensive but not exhaustive and Local Governments are encouraged to undertake further research when considering these options to achieve local strategic objectives.

Incremental Approach to Policy Reform

1

TOWN CENTRE GOALS

- driver centric accessibility
- free parking at all times
- no mode shift targets

POLICY OPTIONS

- peak-demand minimum parking ratios for each land use
- discretionary discounts
- time limited on-street parking
- at-grade public off-street parking
- signage advises location of carparks
- irregular parking surveys

Conventional Approach

2

TOWN CENTRE GOALS

- multiple forms of accessibility, including active and public transport
- user-pays parking near destination
- modest mode shift targets

POLICY OPTIONS

- location-based requirements parking maximums
- grouped land uses
- paid on-street parking in peak times
- multi-storey public off-street parking
- digital technology advises location of vacant bays
- Elected Member involvement and public education
- regular parking surveys

CASE STUDIES

City of Vincent
City of Rockingham
City of Stirling
City of Melville
City of Joondalup

3

TOWN CENTRE GOALS

- active and public transport access prioritised
- park once and walk district
- strong mode shift targets

POLICY OPTIONS

- minimum requirements removed
- dynamic or demand responsive pricing
- multi-storey off-street parking, adaptable to changes in use
- mobile phone apps advise location of vacant bays
- parking benefits district
- regular Elected Member involvement and public education
- automated parking surveys

CASE STUDIES

Town of Victoria Park

2. OFF-STREET PRIVATE PARKING

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2.0 Introduction

"Minimum ratios may not reflect the surrounding context of individual development sites or the demand generated by an individual development."

Off-street private parking provides exclusive parking for residents, workers, customers or service vehicles, and aims to limit the impact that these users may have on surrounding private and public land.

MINIMUM PARKING RATIOS

Most Local Governments set minimum parking ratios (or requirements) for individual land uses in local planning schemes or policies, to ensure that parking demand generated by development is internalised and accommodated on private land.

These ratios are commonly determined by predicting peak demand for each individual land use. For example, a new shop may be required to provide one new parking bay for every 20m^2 of net lettable area, while a new restaurant may be required to provide one new parking bay for every four customers. Planning authorities usually adopt these ratios from other jurisdictions or industry guidelines, meaning that the ratios applied locally may not reflect the surrounding context of individual development sites or the demand generated by an individual development or differing community behaviours and expectations. This approach to parking regulation contributes to a number of issues, as discussed in Section 1.

As urban populations grow and demand for private and public space increases, this approach to parking regulation may compromise a Local Government's ability to meet environmental, economic or social objectives. This section outlines a range of options for modifying this conventional approach (Section 2.1) or shifting to an alternative approach (Section 2.2).

2.1 Modifying Conventional Approaches

"Local Governments intending to use discounts should clearly outline discounts and criteria in a local planning scheme or policy."

2.1.1 DISCOUNTS

Discounts applied to minimum parking requirements can help ensure that:

- parking requirements reflect the surrounding context of a development site
- minimise the creation of unnecessary parking
- improve built form outcomes, and
- help reduce development costs.

State Planning Policy 7.3: Residential Design Codes provides an example of discounts for parking applied to residential land uses. Under the policy, proponents of residential land uses located within: 800m of a train station; or 250m of a high frequency bus or light rail route; or within the defined boundaries of an activity centre, can propose a reduced parking requirement. This reduced parking requirement is a discount from the baseline requirement because car dependency, and therefore parking demand, is likely to be lower due to the availability of alternative transport. Similar concessions can apply to non-residential uses.

Local Governments intending to use discounts should clearly outline discounts and criteria in a local planning scheme or policy. Figure 2 (over page) sets out the criteria commonly applied by planning authorities.

A number of criterion refer to high frequency public transport routes. Local Governments can use the definition outlined in *State Planning Policy 7.3: Residential Design Codes*: "A public transport route with timed stops that runs a service at least every 15 minutes during week day peak periods (7:00am to 9:00am and 5:00pm to 7:00pm)". Distances are preferably calculated using the established footpath network.

To facilitate discounts, Local Governments can outline in a local planning policy that proponents seeking discounts need to demonstrate, when submitting a development application, how parking or travel demand generated by the development will be met. Standard clausing and requirements for including in a local planning policy are set out in Appendix 3.

Local Governments should note that travel behaviour change programs can be used to facilitate mode shift; however, travel plans run with the land, are usually tailored for the original occupant, can be difficult to enforce and may not achieve mode shift if other forms of transport are unavailable.

MOST COMMON CRITERIA

RAIL
The proposed development is within 800m of a rail station.

BUS
The proposed development is within 250m of a high frequency bus route or bus station.

TOWN CENTRE
The proposed development is located within the defined boundaries of an Activity Centre, Town Centre or Local Centre or zone.

PUBLIC CARPARK
The proposed development is within 400m of one or more suitable, existing public car parking places.

CYCLING
The proposed development provides end-of-trip facilities for bicycle users, and bicycle parking, in addition to facilities required under any other provision and/or is within 400m of a suitable cycling network.

SHARED
Parking bays designated as part of the development application as shared parking.

LESS COMMON CRITERIA

ON-STREET PARKING
Availability of on-street parking in the locality.

MOTORCYCLE
Every two motorcycle spaces can replace one car space, up to XX% of the minimum parking requirement.

CAR-SHARE VEHICLES
Each car share vehicle offsets five spaces (equates to a relaxation of four spaces).

MIXED-USE
The proposed development contains a mix of uses, provided that the required provision of visitor bays for each use are made available to visitors at all times.

USAGE DATA
The proposed development contains parking controls that monitor and control use through boom-gates (or similar) and ticket issuing machines.

HERITAGE
The building/place is listed on the Heritage List, Municipal Inventory or the State Register of Heritage Places (subject to the building or place being conserved to the satisfaction of Council).

2.1 Modifying Conventional Approaches

"Reciprocal parking allows non-residential uses that operate on different but nearby lots at different times, to share parking."

2.1.2 RECIPROCAL PARKING

Reciprocal parking arrangements allow non-residential uses that operate on different but nearby lots at different times to share parking. For example, reciprocal parking may occur between an office and a restaurant, where office workers use parking bays during the day and restaurant users use the same bays in the evening.

Local Governments should require relevant parties to submit reciprocal arrangements (detailed in a legal instrument) with development applications. Details commonly include parking capacity, usage times and other relevant considerations. Where businesses operate on the same lot, such as in a small complex, Local Governments would not normally require formal reciprocal arrangements.

Schedule 2 cl 77G of the *Planning Regulations Amendment Regulations 2020* provides for the application of conditions requiring shared parking arrangements and sets out important considerations for Local Governments.

2.1.3 UNBUNDLING INCENTIVES

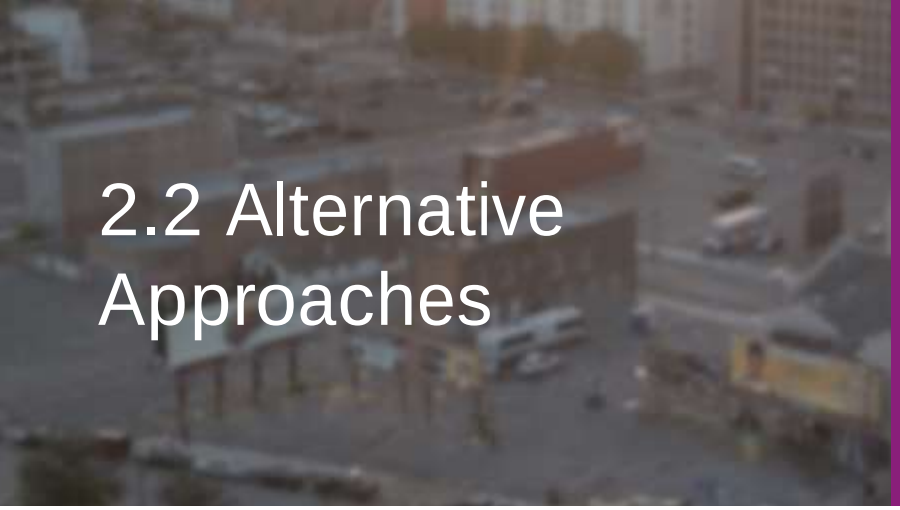
Unbundling is an approach used to exclude some or all parking bays from the strata title of a property to accommodate residential and non-residential properties that may want fewer parking bays than the minimum parking requirement or none at all.

Under this model, property owners can purchase the exclusive right to own or rent the number of parking bays needed when purchasing property from a developer or a body corporate can manage parking bays as common property.

Prior to the mid-1990s, all car bays in multiple dwellings were commonly unbundled and managed as common property; however, the current market for bundled parking in residential development in Western Australia is strong, even on sites within walking distance to public transport and shopping centres. Planning authorities can incentivise unbundling, although there are few examples of successful implementation.[1]

SOURCES

[1] *Gold Coast City Council City Parking Plan* (2015) adopted an unbundling incentives policy but was recently discontinued.



2.2 Alternative Approaches

*"Grouping land uses with **similar parking demand into categories, helps rationalise** the number of different ratios."*

2.2.1 GROUP LAND USES & RATIOS

Grouping land uses with similar parking demand into categories, helps rationalise the number of different parking ratios in planning schemes and policies. This approach simplifies the application process for proponents and planning authorities. Grouping land uses can also reduce the number of change-in-use applications. For instance, if the existing and proposed new use falls into the same category, the parking requirement for the new use would not change, meaning parking would no longer be a relevant planning matter requiring assessment.

Below is an example of grouped land use categories with similar parking requirements. Some land uses may require their own ratios, e.g. serviced apartments and hotels.

A number of Local Governments in Western Australia have implemented this option. Section 7 provides a case study explaining the City of Vincent's approach.

EXAMPLE:

GROUP 1
Medical Centre, Consulting Room, Vet Centre

GROUP 2
Amusement Parlour, Office

GROUP 3
Child Care Premises, Club Premises, Cinema/Theatre, Family Day Care, Nightclub, Place of Worship, Reception Centre, Recreation-Private

GROUP 4
Fast Food Outlet, Lunch Bar

GROUP 5
Restaurant/cafe, Small Bar, Tavern

GROUP 6
Shop, Betting Agency, Convenience Store, Restricted Premises

GROUP 7
Civic Use, Fuel Depot, Industry, Bulky Goods, Showroom, Transport Depot, Motor Vehicle, Boat or Caravan Sales, Warehouse / Storage

SOURCES

Adapted from the City of Vincent's *Planning and Building Policy Manual, Policy No: 7.8.1: Non-Residential Development Parking Requirements*

2.2 Alternative Approaches

"Local Governments in Western Australia have applied parking maximums for non-residential and residential uses."

2.2.2 PARKING MAXIMUMS

Local Governments can set a maximum supply limit on the number of parking bays provided for an entire location or for individual land uses within a location, to accommodate the local road network capacity and/or encourage the use of public and active transport.

The State Government encourages planning authorities to use parking maximums in activity centres[2] and precincts.[3] Local Governments in Western Australia have applied parking maximums for non-residential uses[4] and for residential uses as a variation to the residential design codes.[5]

Effective on-street parking management is critical for preventing parking overspill where authorities introduce maximums.

Parking maximums are most successful in locations with access to frequent public transport and planning authorities often remove minimum requirements where maximums are introduced.

Section 7 provides a case study explaining the City of Rockingham's approach to applying parking maximums in local activity centres.

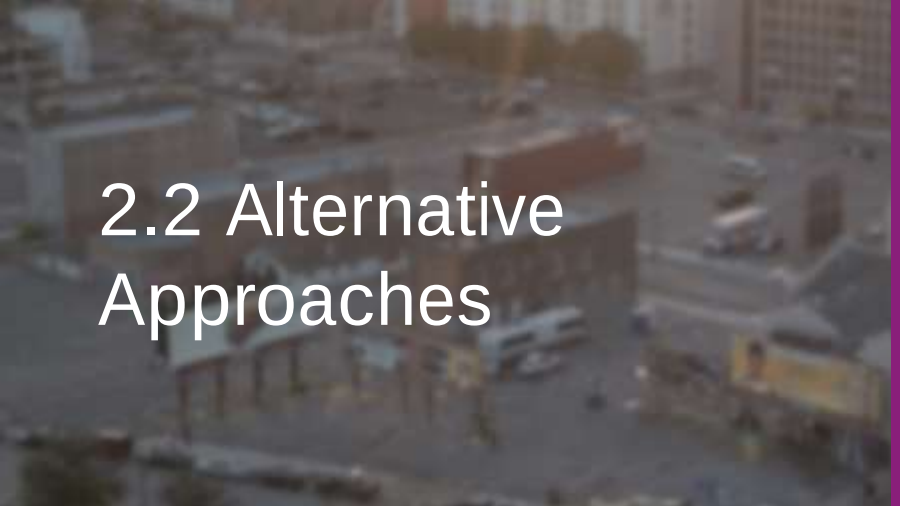
SOURCES

[2] *Parking Guidelines for Activity Centres (Department of Transport 2016)*

[3] *Draft State Planning Policy 7.2: Precinct Design* (Western Australian Planning Commission 2019)

[4] City of Vincent, City of Rockingham and City of Subiaco

[5] City of Fremantle



2.2 Alternative Approaches

"Location-based requirements, allow Local Governments to account for variations in parking supply and demand at different locations."

2.2.3 LOCATION-BASED REQUIREMENTS

Some Local Governments in Western Australia have shifted away from setting minimum parking requirements based on predictions of peak demand for individual land uses and instead, set minimum requirements according to a particular location's parking demand and supply.

This approach, known as location-based parking requirements, allows Local Governments to take a more nuanced approach to setting parking requirements to account for variations in parking supply and demand at different locations.

The approach recognises that parking behaviour cannot be predicted by land use but is influenced by a wide range of factors that are difficult to measure and consistently determine across context. These factors include the availability of public parking, lot sizes, state of the local economy, and the types of businesses within the centre.

Location-based requirements are usually set at a flat rate per square metre of net lettable or gross floor area, e.g. five parking bays per 100 square metres of net lettable area, and applied to all non-residential land uses.

The City of Stirling has set location-based requirements for each of its neighbourhood and local centres and can adjust these requirements as supply and demand changes in each location. Section 7 provides a case study explaining the City's approach.

The City of Vincent has taken a slightly different approach. The City grouped land uses with similar parking demand into ten groups then set minimum and maximum parking requirements for each group according to the City's different built-form areas, considering parking supply in each area. Each group of land uses has a different minimum and maximum which changes according to built-form area.[6]

SOURCES

[6] City of Vincent's *Planning and Building Policy Manual, Policy No: 7.8.1: Non-Residential Develojment Parking Requirements*

2.2 Alternative Approaches

"Some authorities have removed parking minimums and allow developers and businesses to decide how many parking bays are required."

2.2.4 REMOVING OFF-STREET REQUIREMENTS

Authorities in some locations have removed parking minimums and allow developers to decide how many parking bays are required for their buildings to be leasable and meet customer needs. This approach is most common in areas where existing parking is under-utilised. In London, the removal of parking minimums reduced the amount of parking supplied by new development to 52% of the previous minimum requirement. The City retained its parking maximums.[7]

The New Zealand Government announced in 2020 that planning authorities must remove minimum parking requirements from all urban areas of greater than 10,000 people.[8] In Australia, the City of Greater Bendigo (Victoria) adopted a plan to remove parking requirements from its city centre zone.[9]

The removal of minimum requirements may seem like a dramatic shift in approach; however, change is likely to be gradual, as homes and businesses are slowly developed or redeveloped. Authorities who have removed minimum requirements have not reintroduced them.

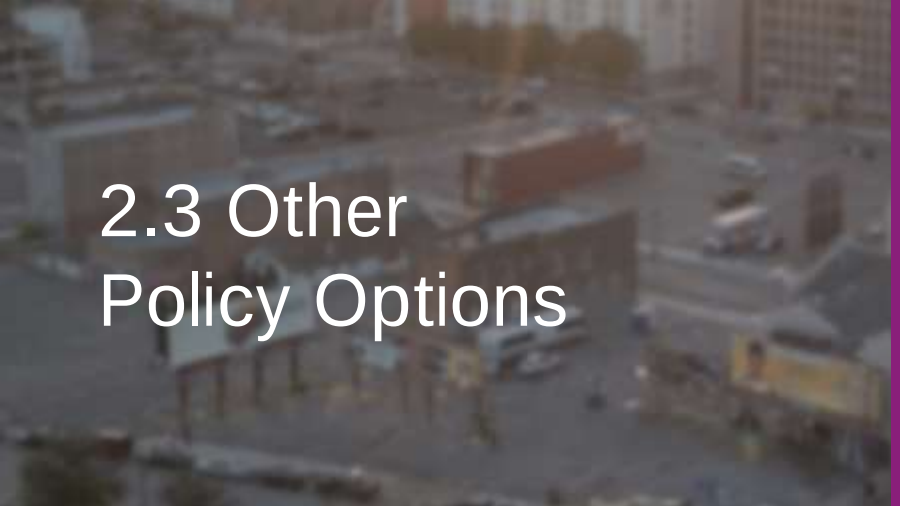
Local Governments who remove off-street requirements to encourage mode shift away from car use should be aware that mode-shift may be limited without access to frequent public transport or where parking options are abundant.

SOURCES

[7] *Putting a Gap on Parking* (Shoup 2015)

[8] *National Policy Statement on Urban Development 2020* (New Zealand Government 2020)

[9] Council Minutes, City of Greater Bendigo (6 May 2020)



2.3 Other Policy Options

*"To achieve profitability, car **sharing operators require high vehicle utilisation and therefore, require high population densities."***

2.3.1 CAR SHARING

Local Governments can support car-sharing operators to reduce parking demand by providing on-street or off-street bays for share cars or by encouraging the provision of share car bays in new development.[10] Examples in New South Wales demonstrate that one car share bay can reduce individual private parking demand by five car bays.

Local Governments can charge car share operators[11] but generally, these operators request the free use of parking space to achieve financial viability. Providing public space to private operators at no cost raises issues of fairness and equity and may favour some operators over others, if spaces are not provided to all operators.

To achieve profitability, car sharing operators require high vehicle utilisation and therefore, require high population densities.

Allocating on-street parking bays to car sharing may lead to resident and business owner complaints, due to the perception of reduced availability of parking for staff and customers.

To alleviate these concerns, Local Governments can allocate off-street car sharing bays adjacent to public land or require new development to locate these bays on-site.

Car share operations result in less overall car use and ownership and therefore, drivers who choose not to use a car share service still benefit from the reduction in competition for road space and parking.[12]

SOURCES

[10] City of Vincent's *Planning and Building Policy Manual, Policy No: 7.8.1: Non-Residential Development Parking Requirements*

[11] The City of Melbourne charges $5,400 per space in the Hoddle grid and $3,800 per space, per year outside of the Hoddle grid.

[12] For more information see *The Impact of Car Share Services in Australia* (Phillip Boyle & Associates 2016)

2.3 Other Policy Options

*"Car stackers are an emerging **design response aimed at fitting more parking bays into smaller** spaces."*

2.3.2 CAR STACKERS

Car stackers are an emerging design response aimed at fitting more parking bays into smaller spaces.

When assessing proposals that include car stackers, Local Governments should consider:

- the capacity of the stacker to accommodate all vehicles that need to access the development and whether or not the stacker causes obstruction[13]
- relevant safety standards[14]
- the Department of Fire and Emergency Services car stacker guideline,[15] and
- maintenance considerations.

SOURCES

[13] The City of Newcastle (NSW) includes the following provision in its local planning framework: "Stack parking, including mechanical devices, occurs only where it can be demonstrated that it will be operationally efficient and not cause unreasonable obstruction" in *Traffic, Parking and Access* (City of Newcastle, accessed online Aug 2020).

[14] *AS5124:2017 Safety of Machinery - Equipment for Power driven parking of motor vehicles - Safety and EMC requirements for Design, manufacturing, erection and commissioning stages*.

[15] *GL-14: Fire Safety in Car Stacker Systems* (Department of Fire and Emergency Services 2017)

3. ON-STREET PARKING

WALGA

Local Government
Car Parking Guideline
December 2020

3.0 Introduction

*"Changes to private off-**street parking provision and management will affect demand** for parking on the street."*

Changes to private off-street parking provision and management will affect demand for parking on the street and in off-street public parking facilities.

This section looks at options for improving the management of on-street parking. Section 4 discusses public off-street parking facilities.

OUTCOMES

Well-designed and managed on-street parking is inexpensive to provide compared with off-street parking and helps Local Governments to:

- provide convenient access to local businesses and residences
- reduce the number of cars cruising for parking, reducing noise and air pollution and driver frustration
- reduce vehicle speeds in main streets
- provide a barrier between pedestrians and passing traffic, and
- increase parking bay turnover and activate streets.

As Western Australia's population increases and development in urban areas intensifies, effective on-street parking management will become more critical.

Local Governments in Western Australia have introduced Parking Local Laws supported by a variety of policies to improve on-street parking management. This section discusses those policies.

It is important to note that these policies would have no effect without first introducing a Parking Local Law.

3.1 Kerb Hierarchy
3.2 Time Limits

*"The first step to effective on-**street** parking management is to prioritise kerb use by establishing a kerb-user hierarchy."*

3.1 KERB HIERARCHY

Once a Local Government has allocated space for on-street parking after considering alternative uses, the first step to effective on-street parking management is to prioritise kerb use by establishing a user hierarchy in consultation with the local community and a cross-section of specialisations such as urban designers and design engineers.

Depending on the location, priority kerbside users may include delivery and service vehicles, ACROD parking, taxis, buses and rideshare services, short-term business customers and residential visitors. The growing uptake of autonomous vehicles is also likely to increase demand for kerbside space to accommodate passenger drop-off and pick-up.

Generally, it is preferable to prioritise on-street parking for short-term users who wish to access local businesses, in preference to long-term users such as commuters and staff, who may occupy parking bays all-day. Encouraging businesses to provide worker parking in off-street facilities gives customers access to the most convenient bays and can be achieved by offering workers lower cost parking passes.

More information is available in Austroads' *Guide to Traffic Management*.

3.2 TIME LIMITS

Local Governments can use time limits to accommodate prioritised kerbside users. For instance, shorter time limits encourage parking bay turnover, increasing the number of customers able to conveniently access local businesses. Time limits can also encourage shifts to other transport modes or to off-street parking bays.

3.3 Pricing

"Paid parking can be an effective way of managing on-street parking supply."

Local Governments using time limits need to consider: average occupancy data; times of the day to impose limits; and, the need for clearways in peak times.[16]

SOURCES

[16] For a recent example see *Bayswater Town Centre: Short-term Parking Management Plan* (City of Bayswater 2019).

3.3 PRICING

In Western Australia, the Council of each Local Government must make decisions about parking fees in accordance with s.6.16 and s.6.17 of the *Local Government Act 1995*.

The adopted parking fees must be included in the Schedule of Fees and Charges, included in the Local Government's budget and made publicly available on Local Government websites.

3.3.1 CONVENTIONAL PRICING

Generally, Local Governments that introduce paid parking may consider:

- allocating a zero dollar per hour charge in low demand periods, rather than free parking with no ticket, to discourage a sense of entitlement to free parking
- pricing on-street parking higher than off-street parking to encourage short-term usage and increase parking bay turnover
- providing access to information about vacant parking through signage and apps, and ensure the provision of adequate pay machines or phone services, to improve customer convenience.[17]
- reinvesting revenue into streetscape improvements and alternative transport to demonstrate the benefit of paid parking to the local community and businesses
- establishing a local parking management committee, including local businesses, to help refine the paid-parking program and educate the community about the program's benefits, and
- trialling the impact of fees prior to permanent introduction. Trials may include public education, lenient enforcement such as warnings, control areas to compare trial sites, and occupancy, customer and local business surveys.

3.3 Pricing

"Authorities should set prices at a rate that achieves 10-15% parking bay availability."

Best practice on-street parking management suggests that pricing should be set at a rate that achieves 10-15% parking bay availability on any block at most times.

Varying prices between periods of high and low demand, using Dynamic Pricing or Demand-Responsive Pricing options, discussed below, is more likely to achieve this objective than flat pricing.

Section 7 provides a case study explaining the City of Melville's approach to paid on-street parking in activity centres.

SOURCES

[17] For example, see "Smart Parking installs parking solution for world's most sustainable shopping centre" (Parking Australia, accessed online Aug 2020)

3.3.2 DYNAMIC PRICING

Dynamic pricing is the term used to describe an approach where parking fees and free-parking periods are variably applied to accommodate parking demand changes experienced within a day or during a week.

For instance, in off-peak periods, free parking periods may be longer or parking fees lower, to increase parking demand. During peak-demand periods, free parking periods can be reduced or parking fees increased, to encourage parking turnover. Dynamic pricing can be an effective approach for achieving 10-15% parking bay availability.

Section 7 provides a case study explaining the Town of Victoria Park's trial.

3.3.3 DEMAND-RESPONSIVE PRICING

Demand-responsive pricing is an extension of dynamic pricing. Demand-responsive pricing requires regular review of parking occupancy, e.g. monthly, and decisions to adjust the schedule of fees if occupancy for a particular area is found to be outside the objective range.

Demand response pricing is often reliant on digital technology to identify and communicate real-time locations of available parking bays, requiring substantial capital investment in technology and maintenance. The Gold Coast City Council and the City of San Francisco have implemented this option.[18]

SOURCES

[18] "ParkInCentre Schemes (PICS)" (Gold Coast City Council) and "SFpark Pilot Program" (San Francisco Municipal Transportation Agency) online Aug 2020

3.4 Parking Benefits Districts

"Parking benefits districts can help reduce community concerns with paid parking."

3.4 PARKING BENEFITS DISTRICTS

Local Governments can establish parking benefit districts to allocate revenue from parking fees and fines to make public realm improvements, such as street cleaning, tree planting, lighting and crime prevention, within the location where the fees and fines were collected.

This approach can help revitalise town centres and reduce community opposition and concerns often associated with the introduction of paid parking.[19]

In Western Australia, the mechanism that would allow this to occur is a reserve fund, into which the transfer of all or a proportion of revenue from the location would be directed, for later expenditure in that area.

The reserve fund should be supported by a Council policy, detailing the purpose and operation of the fund.

A committee of representatives from the Local Government, local businesses and the community could be established to make recommendations to Council during budgeting processes, as to how the reserve fund might be spent.

Council might then make a decision during the annual budgeting process about the withdrawal of funds from a reserve account and the allocation of those funds to projects that accord with the purpose of the reserve fund.

SOURCES

[19] For more information see "Parking Benefit Districts" (LA Metro 2020). For an Australian example see, "ParkInCentre Schemes (PICS)" (Gold Coast City Council 2020).

3.5 Residential Permits
3.6 Enforcement

"A transition approach to residential permits might involve providing free permits to an address until a change in ownership."

3.5 RESIDENTIAL PARKING PERMITS

Changes to parking management in main street areas will create parking overspill in nearby residential areas. In these areas, it is common for authorities to implement a free or paid permit system, enabled through Parking Local Laws, to exempt residents from having to pay higher on-street parking fees.[20]

Permits are commonly allocated by address, as opposed to a particular resident, have an expiry date after which time an address would need to reapply, are not applicable in non-permit areas, do not guarantee parking availability, are considerate of existing on-site parking space, and are often limited to a certain number per address.

When setting the fee, Local Governments should consider the value of the public asset used, any administration and enforcement costs, and choosing an amount that discourages people from applying for unnecessary permits.[21]

A transition approach might involve providing free permits to an address until that address changes ownership.

SOURCES

[20] For example, see "Precinct Parking" (Town of Claremont, accessed online Aug 2020)

[21] For more information see s 8.10 of *Guide to Traffic Management Part 11: Parking* (Austroads 2017)

3.6 ENFORCING OFF-STREET PARKING LAWS

Communities often attribute increased demand for on-street parking to residents of new and higher density housing; however, studies show that on-street parking demand is often attributable to residents of detached housing. These residents often have sufficient access to off-street parking in garages and driveways; however, these areas are commonly used for storage or other uses.

Authorities who approve the construction of a new dwelling with a garage technically approve the use of the garage for storing motor vehicles. Where a garage is used for other purposes, landholders may be in breach of health and building approvals.

In situations where garage use conflicts with the original approval and vehicles associated with the dwelling are parking off-site and causing issues, Local Governments should educate residents about the effects of misuse and that the misuse may breach an approval, prior to considering the enforcement of an approval.

4. OFF-STREET PUBLIC PARKING

WALGA

Local Government
Car Parking Guideline
December 2020

4.0 Introduction

"Multi-storey parking can improve land use efficiency through aggregation of parking at one particular site."

Public off-street parking can be provided at-grade (ground level) or as multi-storey buildings and is usually operated by a public authority or commercial operator. Operators may fund and reserve these facilities for the exclusive use of nearby businesses or make them available to the broader public. Multi-storey parking often includes other uses such as hotels or ground floor commercial. [22]

FUNCTIONS

These facilities provide four main functions:

- Take pressure off on-street parking supply and management
- Improve streetscape amenity where appropriately located
- Improve land use efficiency through aggregation of parking at a particular site, and
- Provide an alternative for businesses unable to provide on-site parking.

CHALLENGES

These facilities can encourage car use, concentrate foot traffic in certain areas to the detriment of other areas, and often require land in high-demand locations, which could be used for other purposes.

The most significant challenges for Local Governments looking to construct multi-storey carparks are the substantial construction and maintenance costs, and the risk of redundancy caused by the uptake of rideshare services and autonomous vehicles.

The allocation of land for off-street parking should be identified in strategic planning documents, such as integrated transport strategies, so that suitable land can be allocated and infrastructure development funding secured.

LARGE ACTIVITY CENTRES

Local Governments seeking guidance on parking for large shopping centres and tertiary institutions should refer to guidelines prepared by the WA Department of Transport. [23]

SOURCES

[22] Prahran Square in the City of Stonnington (Victoria) is a $60+ million carpark that includes 10,000 square metres of multi-functional urban parkland, sitting above 500 parking bays.

[23] *Parking Guidelines for Large Shopping Centres* (Department of Transport 2018) and *Parking Guidelines for Tertiary Educational Institutions* (Department of Transport 2017).

4.1 Funding

"Aside from general revenue, Local Governments have two main funding options: hypothecation and cash in lieu."

Construction and maintenance costs depend on a number of factors: design fees, land and construction costs, loan servicing, maintenance costs, enforcement, opportunity costs of land use and finance, and induced traffic demand and road maintenance.

Given these potentially substantial costs, Local Governments looking to construct public off-street facilities should first optimise the use of existing parking and put strategies in place to reduce parking demand. Reducing parking demand can be achieved by implementing on-street parking policies and encouraging the use of alternative transport modes through investment and education.

Local Governments contemplating off-street parking facilities may need to comply with s.3.59 of the *Local Government Act 1995* depending on the value of the proposal.

Aside from general revenue, Local Governments have two main funding options: cash in lieu and hypothecation.

4.1.1 HYPOTHECATION OF REVENUE

Local Governments can hypothecate funds from alternative revenue streams into off-street public parking using an appropriate legislative and policy framework. For example, Local Governments may apply a specified area rate under s.6.37 of the *Local Government Act 1995*, to raise funds in a particular locality to provide or increase parking in that locality.

Alternatively, Local Governments can allocate revenue received from on-street parking to a reserve account established for the purpose of funding off-street parking. Section 7 provides a case study explaining the City of Joondalup's approach to funding, designing and constructing the Reid Promenade Multi-Storey parking facility using revenue hypothecated from on-street parking.

The central Perth parking control area is another example, governed by the Perth *Parking Management Act 1999* (PPMA). The PPMA requires that all non-residential parking bays are licensed and a licensed fee paid to the Office of State Revenue. Fees are used to finance free bus services and to construct bus, cycle and pedestrian infrastructure.

Funds from cash-in-lieu payments are generally hypothecated to construct additional parking, or public transport and active transport infrastructure.

4.1 Funding

"Regardless of the funding option chosen, it is important that funds are administered within a transparent planning framework."

4.1.2 CASH-IN-LIEU

Cash-in-lieu is an important approach for ensuring that development proponents help to meet parking and transport needs where new development generates parking demand that cannot be met on site.

Including cash-in-lieu provisions in local planning schemes allows Local Governments to require a payment from development proponents in return for modifying the parking requirement, to compensate for parking shortfalls. Local Governments direct the received revenue to constructing off-street parking facilities or parking demand reduction measures such as active and public transport systems.

Criticism of cash-in-lieu schemes is common and usually directed at the range of different methods applied by authorities to calculate cash-in-lieu; poor accountability of funds; and, the absence of a clear strategy for how funds are to be used.

Local policies can help limit exposure to criticism by outlining calculation methods, criteria for allowing discounts and indicating how funds will be spent in the local area. Contributions from a particular area should be spent within the same locality. Fixing the cash-in-lieu amount for a particular area, with indexed increases, can provide certainty to proponents and may be more efficient to administer.

Local Governments usually calculate cash-in-lieu contributions by adding the cost of land for a parking space with the additional cost of construction and multiplying the sum by the number of required parking bays.

Some Local Governments also apply a community-benefit reduction factor to reduce the contribution amount where the development or expenditure of the contribution creates a substantial community benefit.[24]

Regardless of the funding option chosen, it is important that funds are administered within a transparent planning framework.

SOURCES

[24] City of Melville and City of Canning

Note: The *Planning Regulations Amendment Regulations 2020* proposed a number of exemptions to cash-in-lieu and requirements for authorities to prepare a cash-in-lieu expenditure plan. These changes were not gazetted at the time of publishing this guideline.

4.2 Adaptable Parking Structures

"Local Governments who construct public off-street facilities need to consider the potential for decreases in parking demand."

Local Governments who construct public off-street facilities need to consider the potential for decreases in parking demand due to the uptake of rideshare services and in time, autonomous vehicles.

When designing multi-storey structures to accommodate potential decreases in demand, it is important to consider using increased floor to ceiling heights and removable ramps to allow parking facilities, or portions of these facilities, to be repurposed.[25]

Local Governments can also require new developments to provide parking space that is adaptable and easily repurposed using similar design considerations. Local Governments can also prohibit stand-alone car parks in certain zones or require that car-parking developments sleeve parking with other uses such as commercial or retail.[26]

Other options include adopting local policies that allow parking bays on private land to be used for alternate purposes such as "parklets" and "alfrescolets".

SOURCES

[25] Multi-storey carparks and parking floors in commercial buildings have been repurposed to accommodate residential and other uses. "Multistorey car parkin in US transformed into designer micro-apartments" (The Guardian, accessed Aug 2020) and "Premier business address stretches former carpark" (101 Collins, accessed Aug 2020).

[26] The City of Melbourne's Central Melbourne Design Guide (2018) includes provisions that require new podium parking structures to be designed with floor heights of at least 3.5 metres, within the lower 20 metres of a building, to enable future adaptation.

5. COMMUNITY EDUCATION

5.1 Key Messages

*"Public education and **awareness raising is a critical element of transitioning smoothly** to alternative approaches."*

Local Governments can use websites, videos, brochures and events to demonstrate alternative uses of car parking and communicate the following five key messages (from "Parking Myths Busted", Town Team Movement 2019).

1. COST OF PARKING

Land used for parking could be used by communities in many other ways (see Section 1.1 and Appendix 2 for more information).

2. FREE PARKING MAY LIMIT ACCESS TO CUSTOMERS

In busy locations, free parking encourages people to stay longer, reducing bay turnover and limiting access to other potential customers. Effective on-street management, including time limits and paid parking, can increase bay turnover and the number of people able to access local businesses.

3. PARKING PROBLEMS ARE GOOD FOR BUSINESS

Parking problems are often a sign that a main street or local centre is popular. Effective parking management can help increase bay turnover and reduce the time it takes to find a bay. Paid parking can also provide revenue to help communities invest in street improvements such as seating, cleaning, lighting, trees, graffiti removal, crime prevention and events.

4. LARGE AMOUNTS OF PARKING IS NOT GOOD FOR AMENITY

Parking can affect the amenity of a place and the feasibility and sustainability of development. For instance, land required to meet minimum parking requirements is often similar in size to the amount of land occupied by the building (see Figure 3). Additionally, large carparks increase urban air temperatures and can be unsafe for pedestrians.

Figure 3: Land required to meet minimum parking requirements is often similar in size to the amount of land occupied by the building.

5. PARKING DOES NOT NECESSARILY ENCOURAGE VISITATION

The value of a destination lies in what it offers to visitors and is not always determined by how much parking is available. The most popular cities in the world are those with interesting and pedestrian friendly streetscapes with multiple transport options.

6. ADDITIONAL RESOURCES

WALGA

Local Government
Car Parking Guideline
December 2020

6.1 Resources

"The Austroads Guide is an excellent source of guidance on parking policy, data and surveys, and parking control."

Planning and Development Act 2005 – Section 69 and Schedule 7 allows Local Governments to include new development requirements, including parking provision, in local planning schemes and local planning policies.

Local Government Act 1995 – Section 3.5 allows Local Governments to make and enforce on-street parking local laws.

State Planning Policy 7.3 Residential Design Codes Volume 1 – Part 5 outlines the design principles for residential parking and the deemed-to-comply minimum quantity of parking spaces to be provided by new types of residential development.

State Planning Policy 7.3 Residential Design Codes Volume 2 – Section 3.9 provides objectives, acceptable outcomes and design guidance for parking in new apartment developments.

Planning and Development (Local Planning Scheme) Regulations 2015 – Proposed changes to these Regulations in 2020 included a number of car parking related matters. At the time of publishing this guideline, those changes had not been gazette or released.

Draft State Planning Policy 7.2: Precinct Design – Design Element 3: Movement, of the policy's guidelines, emphasises the need for precincts to supply an appropriate amount of parking, design that facilitates amenity and access, and adaptable design to accommodate emerging technologies.

Australian Standard 2890 for Parking Facilities – Stipulates dimensions and requirements for parking bays and design in a range of situations, including parking for people with disabilities, as well as pedestrian access, sign posting, line marking, lighting and landscaping.

Austroads Guide to Traffic Management Part 11 (Parking) – An excellent source of information on parking policy, supply and demand, data and surveys, on- and off-street parking and parking control. Austroads is a consortium of road and traffic agencies.

Parking Guidelines for Tertiary Education Institutions (Department of Transport)

Parking Guidelines for Large Shopping Centres (Department of Transport)

Guidelines for Preparation of Integrated Transport Plans (Department of Planning, Lands and Heritage) – Considers parking in the overall transport picture.

Access and Parking Strategy of Health Campuses in the Perth Metropolitan Area (Department of Health) – Information on how accessibility by different modes influences parking needs.

CASE STUDY 1: GROUPED LAND USES

Local Government
Car Parking Guideline
December 2020

City of Vincent

"Development proponents and City staff generally find the grouped requirements easier to interpret."

In 2017, the City of Vincent engaged parking specialists to review its parking requirements. The review was commissioned in response to parking surveys which identified that the City's existing parking requirements exceeded peak-demand requirements in its high activity precincts. Part of this review required the specialists to group the City's existing parking requirements into fewer categories, to simplify the development application process for City staff and development applicants.

IMPLEMENTATION

First, specialists reviewed and modified the City's parking requirements according to supply and demand in different locations. They then grouped land uses with similar requirements, resulting in ten different land use groupings. For instance, parking requirements are now the same for: restaurants/cafes, small bars and taverns. Similarly, the same parking requirements have been set for child care centres, clubs, cinemas/theatres, family day cares, nightclubs, place of worship, reception centres, and private recreation and uses. Some of the metrics were also revised to enable land use groupings, e.g. some land uses shifted from a gross lettable area metric to a per-person metric.

Amalgamating parking requirements into similar categories had the potential to create land uses with a lower than optimal parking requirement, leading to parking shortfalls. However, given that parking was generally oversupplied in high activity precincts, the risk of parking shortfalls was considered low.

OUTCOMES & LESSONS

The outcome of grouped parking requirements on overall parking supply across the City is likely to be negligible; however, the intention of grouping requirements in the City's local planning policy was to simplify the development application and assessment process for applicants and staff. Development proponents and City staff generally find the grouped requirements easier to interpret than the previous policy.

Grouping land uses can also reduce the number of change in use applications. For instance, if the existing and proposed new use falls into the same parking requirements grouping, the parking requirement for the new use would not change, meaning parking may no longer be a relevant planning matter requiring assessment.

SOURCES

City of Vincent's *Planning and Building Policy Manual, Policy No: 7.8.1: Non-Residential Development Parking Requirements*

CASE STUDY 2: MAXIMUMS AND CASH-IN-LIEU

Local Government
Car Parking Guideline
December 2020

City of Rockingham

"The City decided a proactive and strategic approach to providing and managing parking would help achieve community objectives."

The City of Rockingham recognised there was a significant risk that developer-led parking arrangements may produce an oversupply of bays that would compromise the achievement of vibrant, people friendly urban precincts in its City Centre and Waterfront Village.

The City decided that a proactive and strategic approach to providing and managing parking in these locations would help achieve the City's objectives, particularly positive built form outcomes.

Consequently, through initiation and adoption of the City's Activity Centre Plan in 1995 (reviewed in 2009), the City sought to identify the quantum of parking needed, the required split between private and public parking, and parking maximums to limit private parking provision and maximise on-site built form.

Cash-in-lieu provisions allowed the City to establish a fund to expend on the construction of additional parking when utilisation triggers were reached, where minimums could not be achieved on site.

IMPLEMENTATION

Two of the City's local planning policies clearly set out the principles for parking management in these locations: (1) Planning Policy 3.2.1 – Development Policy Plan – City Centre Sector; and (2) Planning Policy 3.2.5 – Development Policy Plan – Waterfront Village. These principles include:

i. Where possible provide public parking in preference to private parking.

ii. Maximise the amount of on-street, short-term parking, subject to traffic and pedestrian safety and other urban design considerations.

iii. Provide off-street public parking facilities within easy walking distance of commercial, retail, entertainment and other facilities, but limit vehicle access to carparks where such traffic would be in conflict with high levels of pedestrian movement.

In addition to these policies, in December 2017 the City adopted the "Community Plan – Rockingham Strategic Centre Public Parking" (CPS). The CPS provides a strategic approach to the management and provision of public parking within the City Centre and Waterfront Village.

Private off-street parking requirements for the City Centre and Waterfront Village our set in the City's local planning scheme, which defines parking minimums, parking maximums and mandatory cash-in-lieu provisions.

City of Rockingham

*"The City has proactively **encouraged mode shift away** from private cars."*

Non-residential maximum parking rates are based on the following factors: the expected ultimate yield floor space for each centre; the likelihood for reciprocal parking (such as between night-time and daytime uses); and, surveys from existing public parking areas.

Cash-in-lieu of required parking is a standard condition of development approval for new development in these centres. For commercial development, the scheme requires that not less than 60% of the minimum number of required bays is to be provided as a cash payment. This condition, combined with the parking maximums, helps achieve a built form outcome not dominated by at-grade parking.

The cash-in-lieu calculation includes the cost of constructing multi-storey (not at-grade) parking. The calculation does not include land cost, as the City holds land in both activity centres for building future multi-storey public car parks. Cash-in-lieu payments are directed to a reserve account used for the future provision of public parking on these sites. The City's scheme constrains the use of these payments for purposes other than parking provision. For example, the account cannot be used to fund demand management approaches such as alternative transport modes. The cash-in-lieu payment must be made prior to occupation of the development.

MEASURES

The City undertakes occupancy and duration of stay surveys in the City Centre and Waterfront Village. It uses the proportion of occupied parking to monitor the effectiveness of its parking management. The triggers for management action are illustrated on the following page.

When occupancy regularly breaches 85% of parking supply, the City will review its management actions. In the first instance, this review will consider parking controls such as modified time limits and fees or investment in public and active transport networks. The City will consider investing in additional public parking where these measures are unlikely to be effective.

The City has proactively encouraged mode shift away from private cars. The City has improved its cycle path network, including to the train station, and has improved end-of-trip facilities for staff and visitors at its premises. Parking management and improved provision of alternative transport seem to be having a positive effect on controlling parking demand.

The City has also experimented with drone surveys, which revealed that parking closest to the urban centres are often heavily used while bays further away generally have availability.

City of Rockingham

"Parking maximums, cash-in-lieu conditions and active public parking management combine to avoid creating an oversupply of parking."

OUTCOMES

The City's approach to parking within the City Centre and Waterfront Village balances on-site private parking and public parking provision, founded on projections of city centre development.

The City considers that customer and visitor parking is more likely to occur on-street and within public parking stations rather than within development sites.

Parking minimums ensure a base on-site parking supply. Parking maximums, standard cash-in-lieu conditions and active public parking management combine to avoid creating an oversupply of parking that can compromise built form.

At present, this approach is achieving the supply of on-street parking and public parking areas within a well-connected transport network that includes a bus shuttle link to the Rockingham Station.

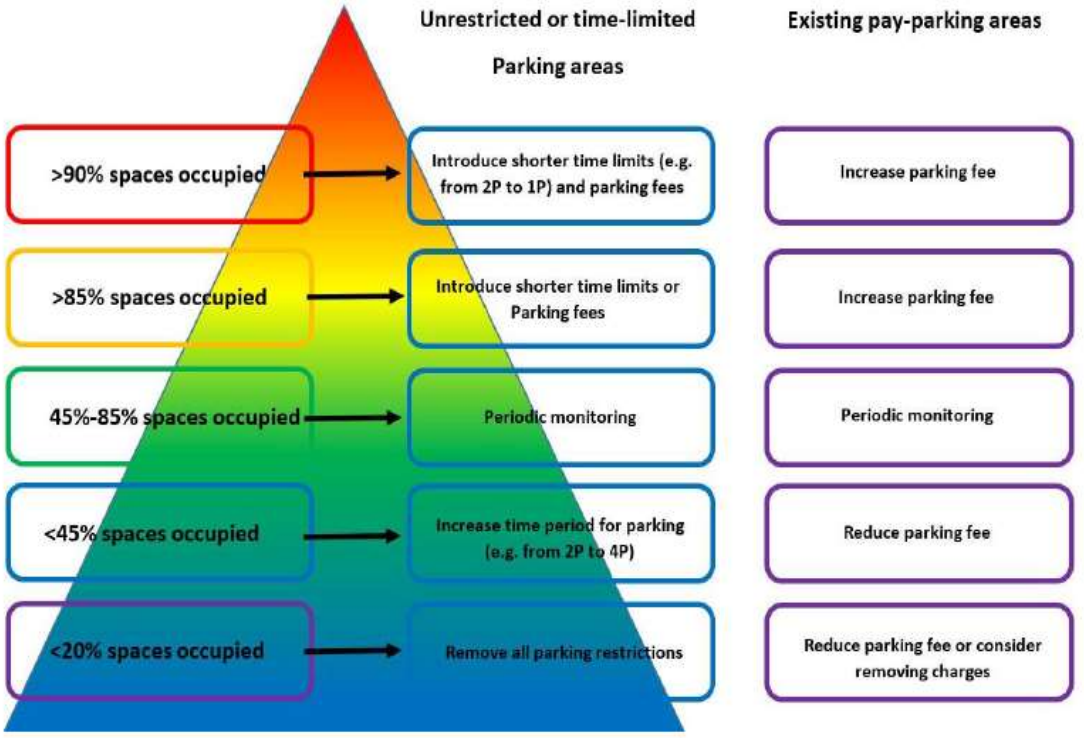


Figure 4: The City uses occupancy triggers to identify management actions.

City of Rockingham

"Cash-in-lieu is based on the cost to construct multi-storey parking and the Rawlinson Handbook."

The City has evolved its parking rates and other controls over time in response to planning requirements. It has also refined its cash-in-lieu calculations, to remove ambiguity.

For example, the scheme makes clear that cash-in-lieu is based on the cost to construct multi-storey parking and that the Rawlinson Handbook will be the source for estimating construction costs.

This approach has reduced ambiguity in cash-in-lieu calculation; however, proponents regularly attempt to negotiate and challenge these requirements, largely without success.

LESSONS

Quality activity centre plans help justify parking policy settings. These plans provide an important framework for decision-making to achieve city centre objectives. The intended built form should be identified in an activity centre plan, along with public parking objectives. Together, these measures help decision-makers justify the range of parking rates and parking management techniques applied an activity centre.

Clearly outline the benefits of cash-in-lieu, how it is calculated and have supporting documentation for how and when it will be spent. Developers often consider cash-in-lieu an unnecessary impost. Local Governments should be aware of, and able to explain, its benefits, such as maximising lot yield. A local planning policy can support cash-in-lieu provisions in a scheme. The policy should include cash-in-lieu calculations, preferably allowing for multi-storey parking costs and using a reputable pricing source such as Rawlinson Handbook. The policy should also include details on how cash-in-lieu will be spent and triggers for expenditure, such as timeframes or occupancy rates.

Be cautious about removing parking rates from a local planning scheme. Some Local Governments have removed parking rates from local planning schemes and included these rates in local planning policies. While this approach provides flexibility to Local Governments, the City's experience is that parking rates in local planning policies may be more difficult to defend if challenged by proponents.

Maximums can help to complement built form objectives. The City is an example of a Local Government who has been proactive in taking a "vision and validate" approach, rather than "predict and provide". The City has a vision for the built form it wants to achieve and it does not want amenity compromised by an over-supply of at-grade parking. Maximums have helped to limit the amount of space used for parking and allowed a greater portion of each lot to maximise development and attain desired built form.

CASE STUDY 3: LOCATION-BASED REQUIREMENTS

WALGA

Local Government
Car Parking Guideline
December 2020

City of Stirling

*"Surveys indicated that setting **parking requirements for individual land uses was likely to be causing a** parking oversupply."*

The City of Stirling has a large number of different sized neighbourhoods and local shopping centres, resulting from post-war development patterns. The City noticed that many of these centres experienced a high level of customer activity and low commercial vacancies; however, many had low or decreasing activity levels and appeared to be struggling to attract customers.

The City identified parking as a potential barrier to small business development and reactivation in local centres. Parking in many centres seemed to be fully utilised while others seemed to have a large oversupply. In 2017, the City engaged specialised consultants to: (1) conduct parking occupancy surveys at all local and neighbourhood centres; and, (2) recommend options for resolving any identified parking issues.

The occupancy surveys indicated that setting parking requirements for individual land uses, through the City's planning framework, was likely to be causing a parking oversupply while adding significant costs to new development and constraining new business activity in many centres.

The consultants proposed location-based ratios as an alternative approach, to accommodate different factors affecting parking activity at each neighbourhood and local centre. The City ultimately grouped all neighbourhood and local centres into five tiers, based on parking demand and supply at each centre, and adopted a flat, location-based, minimum parking rate for each tier, irrespective of the centre's land use mix.

IMPLEMENTATION

Council adopted this new policy direction as an amendment to the City's parking and access local planning policy in 2019. Three years of survey data gave Council confidence in the parking rates proposed by the City's administration.

The City grouped all neighbourhood and local centres into three categories, based on each centre's current level of parking supply, as follows:

1. High level of supply (5.5 bays per 100m² and above)

2. Medium level of supply (3.5 - 5.4 bays per 100m²), and

3. Low level of supply (0 - 3.4 bays per 100m²).

The City then divided each category into high-utilisation and low-utilisation centres, based on peak parking utilisation rates derived from the occupation surveys. This process ultimately resulted in five different tiers of neighbourhood and local centres based on the parking supply and demand (or utilisation) at each centre.

City of Stirling

"An average occupancy of 75% or more within any given centre is a trigger for reviewing the parking requirement for that centre."

The City applied a minimum parking ratio per 100 m^2 of gross floor area for each of the five tiers, ranging from two bays per 100 m2 to eight bays per 100 m^2. These parking requirements apply to all land uses within the centre equally, effectively making a location-based parking requirement rather than a conventional land-use-based requirement. Outside of the centres, conventional parking requirements based on land use are still applied. The highest location-based requirement, eight bays per 100 m^2, is no higher than the parking requirement applied for the 'Shop' land use outside of these centres.

Prior to implementation, the City's strategic planning team worked with other staff, such as statutory planners, to demonstrate the benefits associated with this unconventional approach and resolve potential implementation challenges.

MEASURES

Three years of parking utilisation surveys undertaken at each centre informed the local planning policy revision. The City continues to survey parking utilisation on an annual basis, at each centre, with the intention to monitor whether or not parking conditions have changed since the City started applying the location-based requirements.

An average occupancy of 75% or more within any given centre is a trigger for reviewing the parking requirement for that centre and whether or not the centre should change tiers to a higher or lower requirement.

The City plans to modify the survey methodology in order to monitor parking behaviour, to include occupancy time and purpose of visit.

OUTCOMES

Applying a location-based parking requirement for all land uses in a centre has simplified the development assessment process for proponents and the City. Furthermore, a special provision in the policy effectively waives the requirement to provide additional parking for change of use applications that propose to increase the non-residential floor area by no more than 50%. Where parking is the only relevant planning consideration of such proposals, this provision effectively removes the requirement for these proposals to seek development approval.

Consequently, the location-based parking requirements and the special provision have simplified the planning assessment process, reduced the number of applications processed, and in many cases substantially reduced development costs for small business.

City of Stirling

"This approach uses location-based parking supply and demand data to identify evidence based parking requirements."

The City's surveys have not identified any significant change to parking occupancy at any of the centres since the policy's adoption. Given that there has been new development in some centres, this result indicates that the parking requirements are appropriate for current conditions, which may be due to the three years of data collected to identify the parking requirements and / or the policy's recent adoption.

In time, the City expects parking utilisation rates to increase in lower tier activity centres, which require lower rates of parking provision, as new development enters these centres.

LESSONS

Investing resources in regular occupancy surveys is critical for identifying and analysing location-based parking requirements. Three years of survey data gave officers confidence in the parking rates recommended to Council for adoption. Continued annual surveys help the City assess the appropriateness of current parking requirements and provide evidence for modifying the requirements if necessary. These surveys can be completed by external consultants or in-house.

Location-based parking requirements may help reduce development costs and revitalise struggling neighbourhood centres. It is too early to state if the City's approach has encouraged activity in underperforming centres; however, it is clear that local businesses now have greater flexibility to adapt to the changing needs of communities serviced by these centres, due to simplified assessment processes and, in most cases, lower development costs.

Local Governments can use location-based parking data to design parking requirements that suit local context. Conventional minimum parking ratios, commonly determined for individual land uses by predicting peak demand or adopted from other jurisdictions, can cause parking oversupply, constrain development and lead to suboptimal built form outcomes.

The approach applied by the City uses location-based parking supply and demand data to identify evidence based parking requirements, which reflect local context.

This alternative policy approach has helped the City work toward achieving a balance between encouraging and supporting small business while ensuring adequate parking supply at each centre.

CASE STUDY 4: PAID PARKING IN ACTIVITY CENTRES

WALGA

Local Government
Car Parking Guideline
December 2020

City of Melville

*"The City commenced an **education program in conjunction with the resolution to** introduce paid parking."*

The Riseley Activity Centre is a mixed-use centre located in the City of Melville. In 2015, the City resolved to prepare a parking management plan for the centre. Businesses surveyed during the early stages of plan preparation expressed concern over a parking shortfall for customers and staff; however, parking surveys indicated an occupancy rate of 77% during peak times and that public parking within a short walk was underutilised.

The parking management plan also identified that 70% of centre parking was privately owned and managed, creating a patchwork of management approaches and confusion for users. Anecdotal evidence also suggested that commuters were using the centre's parking to park and ride to Perth's city centre.

The plan identified that parking supply was not being used optimally and the key issue to resolve was management of existing supply.

IMPLEMENTATION

In 2016, the Council adopted the Parking Management Plan. A short-term action of the plan (within two years) included the introduction of paid parking in certain areas. This decision was made to deter commuter parking, increase turnover and availability of prime parking bays, and encourage active and public transport choices.

Fifty percent of the income received through paid parking within the centre was to be allocated to local public realm improvements, in consultation with local businesses and landholders. Requiring that users of parking pay for some parking costs aligned with the City's parking strategy, adopted in 2014, which supported the principle of user pays.

In conjunction with the resolution to introduce paid parking, the City commenced an education program. Brochures were delivered to local businesses and residents, as well as pavement stickers, to encourage members of the community to make smarter parking choices.

However, due to City staff changes and the time required to procure and install paid parking meters, the rollout of paid parking was delayed until 2019. By this time, support for paid parking garnered by community engagement in 2016 had waned. This delay had consequences for implementation.

Landowners and residents were notified that new parking arrangements would soon be introduced for City owned bays and updated educational brochures were provided to all businesses.

City of Melville

"A three-month amnesty period was adopted, where no fines were issued for infringement."

Initially, the City introduced a free first hour period. Previously, these bays were free with two-hour time restrictions. Parking meters required license plate details to prevent users from parking once and moving bays to extend their free parking period. A three-month amnesty period was adopted, where no fines were issued for infringement.

Shortly after commencing, a selection of local businesses submitted a number of petitions. These petitions complained that the parking changes did not accommodate staff needs. Petitioning businesses requested the removal of all paid parking and other restrictions on City bays. Interestingly the City received minimal complaints from customers. Businesses reported some initial disquiet among their customers; however, customers quickly became accustomed to ticketed parking.

In response to these petitions, in February 2020 the City adopted free parking for the first three hours for all City bays. All day parking fees for City bays were also halved.

MEASURES

The City's objective for City owned bays is 85% occupancy during peak parking demand. City staff conduct regular occupancy surveys. Overall occupancy in the centre is below 85%; however, centrally located parking is often at capacity while parking within a short walk is mostly under-utilised.

OUTCOMES

Anecdotal evidence suggests there has been a short-term increase in the use of public transport by local employees and reduced commuter parking in prime bays, freeing the most convenient bays for centre users. Complaints from local businesses also reduced following the introduction of first 3hr free parking. Long-term outcomes are as yet unknown.

LESSONS

Parking management in city centres can be challenging, particularly where there is a mix of publicly and privately owned bays. Ideally, parking should be managed consistently across a centre, regardless of parking bay ownership.

Communicate the benefits of paid parking to local businesses prior to and throughout implementation, potentially through Travelsmart officers. Benefits may include involving local businesses in decisions on how and when parking fees are used to improve public areas.

Use parking fees to make streetscape improvements as soon as possible, to demonstrate the benefits of charging for parking, e.g. improved seating and signage.

City of Melville

"Timing is critical. Support for parking management can diminish between the time a new approach is supported and implementation."

Projects could be funded before parking revenue is received, to immediately demonstrate value.

The timeframe between adoption and implementation is critical. Support for parking management can diminish between the time a new approach is supported and implementation.

Identify local champions who support new approaches. These champions can help communicate benefits throughout the local business community.

Survey data that informs management needs to be comprehensive. Surveys should include a mix of peak and non-peak periods, weekends and weekdays. Business surveys should remain anonymous to other businesses, to ensure forthright responses and representation of the entire centre.

CASE STUDY 5: DYNAMIC PRICING

WALGA

Local Government
Car Parking Guideline
December 2020

Town of Victoria Park

*"The parking plan sets out four **escalating actions for implementing parking demand** management."*

The Town of Victoria Park has a vision to be a vibrant, healthy and sustainable urban community and recognises that transport planning, and in particular parking, will be a significant factor in achieving this vision.

In 2012, the Town adopted a Parking Management Plan (PMP) which emphasises the positive influence that demand management practices, such as paid parking, can have on creating vibrant and active town centres and ensuring equitable access to on-street parking.

During the plan's preparation, the Town's administration held workshops to explain the benefits of parking management practices to Elected Members. Consequently, the PMP enjoyed strong Council support. Further workshops with Elected Members helped maintain support for demand management approaches.

The PMP sets out four escalating actions for implementing parking demand management.

Level 1 – Unmanaged Parking

This requires Officers to respond to public complaints of illegal or unsafe parking only, but parking is otherwise unmanaged. This level of management costs the Town to provide enforcement, but equitable access to the Town's limited parking spaces is not managed.

Level 2 – Formalisation of Parking Bays

If parking data such as customer, safety and traffic flow concerns demonstrate that intervention is required, formalised parking controls are implemented. This consists of minimal management such as marked bays and identified no stopping/parking areas (signs and lines). Minimal enforcement is required with drive-by inspections by Officers.

Level 3 – Restrictions on parking by time or customer group

If parking data such as customer, safety, traffic flow and length of stay concerns demonstrate that further intervention is required, the third level of parking management, restricted parking, is implemented. These restrictions consist of time restricted and/or permit bays which require regular timed inspection and technology such as the Town's Licence Plate Recognition (LPR) vehicle.

Level 4 – User Paid Parking

If parking data such as parking review counts demonstrate that further intervention is required, for example if there are perceived parking shortages in the subject area, the final level of user pays parking is implemented. This is subject to Council endorsement and investment is made into user pays parking infrastructure.

Town of Victoria Park

*"The trials tested two factors: **shorter free parking periods and** higher hourly fees."*

Transitioning between these management actions is triggered by occupancy data, safety and traffic engineering considerations, feedback from the public and businesses, and observations from parking officers. The ultimate objective is to achieve 10% parking bay availability at all times, even in peak periods.

In 2018, occupancy data collected from several parking hotspots along Albany Highway indicated that level four management, or paid parking, was no longer consistently achieving a 10% occupancy target. This finding led to requests by Elected Members to test the effectiveness of existing controls and consider the potential of new controls. The Council resolved to conduct a trial to test the effect of a dynamic pricing model. This model would vary parking fees and free-parking periods at different times of the day to reflect changes in demand. For instance, in off-peak periods the Town would trial longer free parking periods or lower parking fees to increase demand. Conversely, during high demand periods the Town would trial reduced free parking or higher parking fees to encourage a reduction in demand.

The trials would help the Town assess the effectiveness of introducing changes to free parking periods and pricing along Albany Highway, to improve access to parking and local businesses. The trial's findings would also inform future PMP updates.

IMPLEMENTATION

In April 2019, the Town commenced a six month trial at a number of locations along Albany Highway. This is understood to be the first trial informing dynamic pricing to be undertaken by a Local Government in Western Australia.

A number of questions helped guide the trial:

- What is the influence of pricing on parking occupancy?
- What is the influence of pricing on parking turnover, i.e. length of stay?
- What is the impact of free parking periods on occupancy?
- When is peak and off-peak parking demand?

Albany Highway is a major dining precinct that experiences consistently high demand for parking at lunch and dinner times.

The trials tested two factors to identify their potential effect on occupancy during these peak demand periods: shorter free parking periods (trial 1); and, higher hourly fees (trial 2). Parking Officers helped identify the hourly parking fees and specific times to trial.

Town of Victoria Park

"The Town identified control locations, to ensure that any observed differences were not caused by external factors."

The Town intentionally did not release the specific trial locations or the tested variables. This approach prevented any potential impact on normal parking behaviour and hence, ensured data integrity.

The Town also identified control locations to ensure that any observed differences were not caused by external factors such as special events or school holidays.

The Town used its online channels and in-person visits to local businesses, to inform the community of the trial. During the trial period, vehicles with expired parking tickets were given a warning rather than an infringement; however, vehicles without a ticket and those that did not comply with parking related safety laws were issued an infringement, in accordance with the Town's usual practices.

Town of Victoria Park

*"The dynamic pricing model **positively affected parking** behaviour in both trial locations."*

Following completion of the trials, the Town released the locations, variables tested, and results to the community and local businesses.

MEASURES

Data was collected using three methods:

- In-ground sensors in parking bays
- Parking user feedback (via Bang the Table software)
- Business owner feedback (via in person questionnaires)

The Town installed in-ground parking bay sensors. These sensors provided minute by minute occupancy data for each day (a 24 hour period) over the length of the trials. The regularity of the data, and the removal of human error from data collection, improved the level of confidence in the parking trial's influence on parking behaviour. The Town's Officers processed and analysed the data. Visualisation and data summaries helped explain the findings to council, businesses and the local community.

OUTCOMES

The Town found that the dynamic pricing model positively affected parking behaviour in both trial locations. The data revealed parking bay availability increased during peak periods, while use of parking bays in off-peak periods also increased, in both locations. These findings indicate that parking users in these locations are willing to adjust their behaviour in response to: (1) changes in the length of free parking periods; or, (2) changes in parking fees.

Currently any surplus collected from parking fees services a loan taken by the Town to finance the new parking infrastructure. As the loan will be paid at the end of the 2019/20 financial year it is planned that any ongoing surplus will be directed to a place improvement reserve and invested back into the same area the income was generated.

Over the course of the trials, the Town identified an overall 8% increase in the number of cars parked in the trial locations, demonstrating that the trials helped improve accessibility to the trial locations and surrounding businesses.

The Town was initially concerned that parking users may find different pricing at different times to be confusing; however, the trial showed little evidence of this. Local businesses reported that customers seemed to understand the differences in pricing and free parking periods and generally adapted quickly to dynamic pricing and free periods.

Additionally, complaints from the local community decreased and Council seemed to have a greater level of ownership over the approach and more

Town of Victoria Park

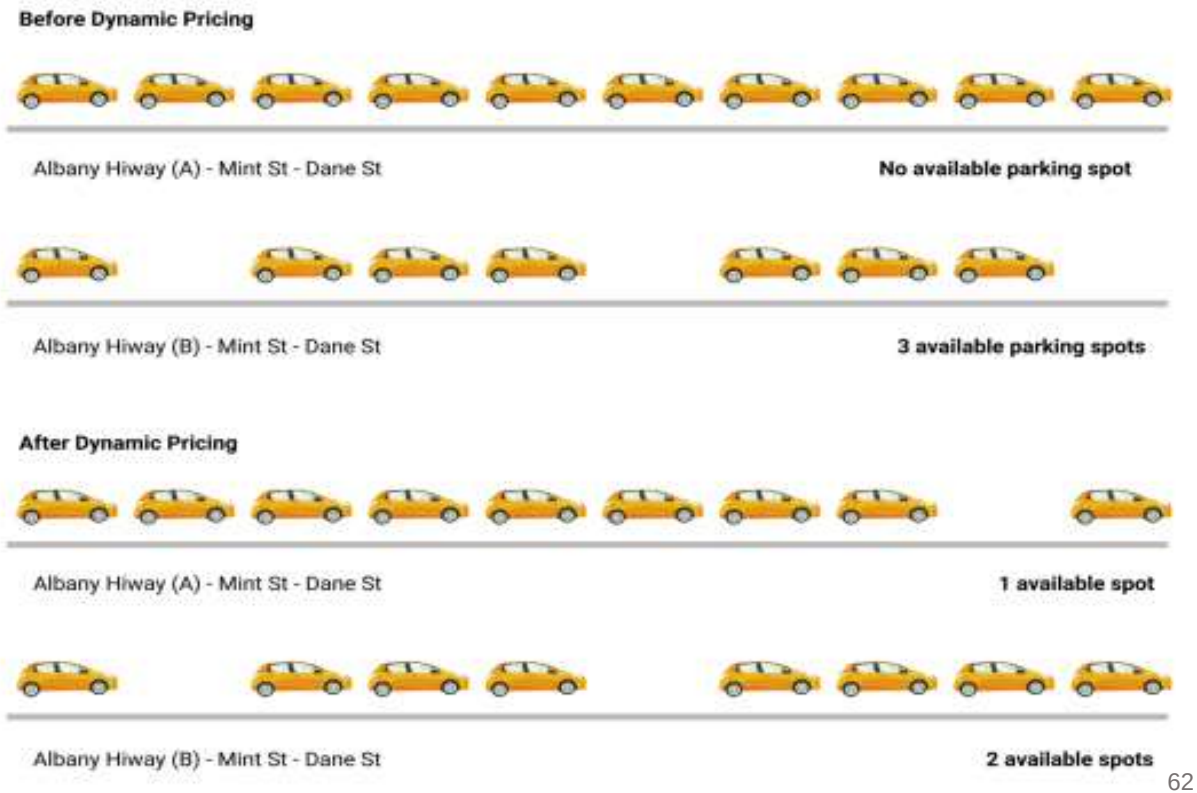
*"Dynamic pricing resulted in a **13% increase in overall bay usage, compared with the same** period in the previous year."*

confidence in directly addressing community complaints and questions. This higher level of ownership and confidence to address complaints is likely attributable to the administration's regular involvement of Council throughout the trial period.

Following the positive trial outcomes, Council agreed in December 2019 to apply dynamic pricing on all parking bays along Albany Highway. Broader implementation of dynamic pricing has resulted in a 13% increase in overall parking bay usage, compared with the same period in the previous year.

Due to the success of the trials and broader rollout, the Town's administration is exploring the potential to trial a floating pricing structure that responds to demand coupled with a real-time, parking availability heat-map.

Freely providing this information would allow the community to have a greater level of ownership over when they choose to access the precinct, and where to park if driving.



Town of Victoria Park

"Parking users are adaptable to changing conditions, such as dynamic pricing."

LESSONS

Trials are critical for testing new approaches prior to implementation - The trials allowed the Town to test an alternative approach and modify the approach in response to collected data prior to broader adoption. This method gave administration the confidence to make recommendations to Council before switching approaches. It also gave Council a greater understanding of potential outcomes, leading to greater confidence in broader adoption.

Quality data helps influence decision-making - The Town adopted a number of robust and objective data collection methods, which gave administration and Council confidence in the data and the trial outcomes. First, the Town selected a number of control sites and concealed their location to maintain data integrity. Second, the Town installed electronic sensors in each bay to collect occupancy data every minute over 24 hours to reduce the potential for human error in data collection. These methods provided a strong evidence base that helped the administration make informed recommendations to Council.

Regular involvement of Council and a broad range of staff instilled ownership and confidence in the pricing model across the organisation - Previous Elected Members supported the Town's Parking Management Plan and Movement Network Strategy; however, the Town's current Elected Members indicated they did not have a sense of ownership over these documents or recommendations. The Town's administration involved Elected Members and a representation of cross-departmental staff before, during and after the trials, to explain their purpose and provide opportunities for input. The Town's Administration attributes much of the success of the trials to this organisational engagement.

Strategic documents need to embed and reinforce management actions - The Town's dynamic pricing model was a progression from the four steps of parking demand management recommended within the Town's Parking Management Plan and Movement Network Strategy. These documents provided a clear strategic pathway toward parking demand management solutions, as a priority over supply-side management solutions.

Parking users are adaptable to changing conditions, such as dynamic pricing - The trial demonstrated that pricing changes and free periods throughout the day encouraged patrons to park at off-peak times while increasing parking usage. The small number of complaints received indicates that parking users adapted to the new model with minimal interruption.

CASE STUDY 6: PUBLIC OFF-STREET PARKING

WALGA

Local Government
Car Parking Guideline
December 2020

City of Joondalup

"Interviews, surveys, and regional population forecasts, indicated strong demand for the construction of a multi-storey carpark."

In 2012, the City of Joondalup investigated the viability of constructing a multi-storey carpark at one of its existing at-grade carparks in the city centre. The City's strategic community and financial plans were the drivers for the investigation. These plans outlined the City's intention to meet the needs of a growing business and residential community by ensuring the city centre had an adequate supply of car parking.

Two surveys helped inform the investigation: in-person interviews with users of the existing at-grade car parks; and, drop-off-and-collect local business surveys. A high response rate of 75% of the approximately 300 invited businesses showed a strong level of interest in how parking the City would supply and manage parking.

The interviews and surveys, combined with regional population forecasts, indicated strong demand for the construction of a multi-storey carpark that was accessible, safe, pays for itself, stimulates economic growth and was affordable to users.

The City's on-street paid parking program, introduced to the city centre in 2008, gave the City confidence that on-street parking was efficiently used, further justifying investment in a multi-storey carpark. The accumulation of financial surpluses resulting from an effective on-street parking enforcement program placed the City in a strong financial position to progress the carpark.

IMPLEMENTATION

In 2015, the City constructed the Reid Promenade Car Park in the city centre. The carpark is the largest construction project the City has undertaken to date.
Key features of the carpark include:

- Multiple Storeys – The facility has 566 parking bays over five storeys, located on a pre-existing, 141 bay, at-grade carpark owned by the City. Five-storey construction meets minimum height requirements for new development in the city centre.
- Project Manager – Following Council's approval of the business case, the City employed a project manager with extensive experience in designing and constructing multi-storey carparks.
- Ticketless Parking - A ticketless system allows users to pay fees by entering their license plate at the pay station.
- Support Staff - The City employs two parking officers to provide immediate support and improve safety for users.

City of Joondalup

"Fees accommodate casual and long-term users by offering hourly, daily, monthly and annual rates for local businesses."

- Flexible Fee Structure – Fees accommodate casual and long-term users by offering hourly, daily, monthly and annual rates for local businesses.

- Opening Hours and Costs - 6am to 8pm weekdays. Hourly parking costs started at $1.00 and have increased by 20 cents each year to $1.80 per hour in 2020

Original construction cost estimates were ~$19 million or $49,400 per bay, with a 24-year payback period. The actual construction cost was ~$17 million or $30,000 per bay. Surpluses derived from the collection and enforcement of paid parking within the city centre, from 2008 to 2015, provided 50% of the costs ($8.5m), the remaining $8.5m was financed using borrowings. The City's financial business case modelled a 40-year asset life; however, the expected structural life of the building is 80 to 100 years.

During construction, the City provided regular updates to local businesses and residents, to help users of the pre-existing carpark understand likely disruption times.

The City also created a brand – "Joondalup City Parking (JCP)" – to promote parking as a business within the City. Local advertising was undertaken, helping to increase community awareness and utilisation.

MEASURES

The ticketing system provides accurate daily usage data. The City regularly monitors revenue and operating costs. Regular occupancy surveys of on-street parking help the City monitor the effect of the carpark on on-street parking usage.

OUTCOMES

The carpark is achieving its original objective: to provide a facility that is safe, pays for itself, stimulates economic growth, is affordable to users and improves accessibility to Joondalup's city centre.

The break-even utilisation for 2019/2020 was 71% capacity, which is relatively high, as the City opted to use full-time staff at the facility to maintain high customer experience.

The original business case assumed that short-stay users would use the facility rather than all-day users. However, surveys indicate that the majority of users are actually all-day users with an average length of stay of seven hours, i.e. they are likely to be commuters. User destinations are generally 100 to 500 metres from the carpark.

By the year 2037-2038, the City expects to achieve a positive cash flow, several years earlier than projected.

City of Joondalup

*"The carpark's relatively low **building height and siting behind a hotel ensures an acceptable** built form outcome."*

This result is due to lower capital costs, cheaper finance, and higher than expected occupancy. Higher occupancy is in part due to construction of the Prime House building and relocation of the Department of Water and Environmental Regulation (DWER) offices.

The carpark has helped stimulate economic growth by allowing commuters to leave vehicles in an affordable and secure off-street facility, which has helped to improve on-street parking bay turnover. Higher on-street turnover is likely to benefit local businesses.

The carpark's relatively low building height and siting behind a hotel ensures an acceptable built form outcome, which is particularly important given its proximity to residential apartments. In 2016, the carpark was awarded best Outstanding New Car Park Development at the Australian Parking Industry Awards.

City of Joondalup

*"Management of on-**street parking helped ensure that existing parking bays were used efficiently, prior to investing in additional off-**street bays."*

LESSONS

On-street parking management helped fund and justify the project - The City has charged and enforced paid on-street parking in the city centre since 2008. Management of on-street parking ensured that these bays were used efficiently prior to investing in additional off-street bays. On-street parking charges and fees were critical sources of project finance.

Specialised project managers can improve project viability – The City's project manager reviewed the original plans and with architects, redesigned the facility to accommodate 173 more bays and reduce costs by $2.4m. These savings resulted in a 39% lower cost per bay than originally projected. The project manager also supervised contracts and ensured smooth implementation.

Stated preference data provides an indication of how users think they will behave and may be a useful indicator of future demand but should be used cautiously; actual behaviour may differ - The stated preference data in this example, collected from existing parking users and local businesses, provided an indication of demand that helped the City refine usage projections. Local Governments should be cautious in relying on this data to prove a business case and instead, use it to refine a business case.

Remote management may significantly reduce operating expenses – Two fulltime staff operate the carpark from 6am to 8pm. The City felt a responsibility to ensure public safety at its facilities so considered staffing a necessary expense; however, it comes at a significant cost. Remote management would reduce costs but may compromise public perceptions of safety.

Consider disruptive technologies and the need for adaptive design - Disruptive technologies are likely to reduce demand for parking so design should consider opportunities for adapting the structure to accommodate alternative future uses. Adaptive measures such as higher ceilings and additional services can add significant costs. While the City did not consider adaptive measures in its original business case, because disruptive technologies were not an obvious consideration in 2012, the City has since estimated that such measures would add ~33% to construction costs.

Take time refining the operating model – Spending time to identify the appropriate mix of parking options (hourly, daily, monthly and annually) has helped the City accommodate a variety of users and secure longer-term tenants.

Allow a long lead-time - A multi-storey carpark is a significant construction project requiring a two year lead-time.

APPENDIX 1 – POLICY OPTION ADVANTAGES & DISADVANTAGES

WALGA

Local Government
Car Parking Guideline
December 2020

Off-Street Private Parking

*"This appendix outlines the key **advantages and limitations of** each policy option."*

DISCOUNTS

- ✓ Relatively easy to implement with minimal change to planning instruments.
- ✓ Reduces development costs and improves access to affordable housing.
- ✓ Enables higher quality streetscapes and building design by maximising lot space.
- ✓ Promotes a healthy and active community by encouraging shifts to active transport.
- ✓ Promotes fairness, equity and affordability for residents who do not own vehicles and instead use public or active transport.
- • Requires authorities to exercise greater discretion and administration, which may inhibit process efficiency until normalised.
- • Precinct-wide on-street parking management may be needed to address potential overspill issues.

CHANGE OF USE EXEMPTIONS

- ✓ Removes the risk of parking requirements thwarting otherwise viable developments.
- ✓ Enables higher quality streetscapes and urban design by maximising lot space for other facilities.
- ✓ May increase demand for public transport and improve precinct vibrancy.
- ✓ May help authorities achieve process efficiencies, by simplifying planning requirements.
- • May increase demand for offsite parking and on-street parking management.
- • May raise questions of equity and fairness to nearby landholders who, in the past, may have been required to meet minimum parking requirements.
- • May lead to unintended consequences in terms of land use mix in a precinct, resulting in parking supply issues.

GROUP LAND USES AND RATIOS

- ✓ Helps reduce potentially unnecessary regulation, simplifying development assessment.
- ✓ Likely to simplify change-of-use applications.
- • Fails to address the inherent issues related to transferring minimum requirements from other locations
- • Unlikely to reflect local context, such as the different needs of communities which are well serviced by public and active transport networks and those which have higher car dependency.

Off-Street Private Parking

*"This appendix outlines the key **advantages and limitations of** each policy option."*

RECIPROCAL PARKING

- ✓ Likely to help decrease development costs by optimising the use of existing parking supply.
- ✓ Improves affordability for landholders, as maintenance costs are shared.
- ✓ More efficient use of urban land, particularly where arrangements are made to share multi-storey facilities.
- • Requires authorities to exercise greater discretion and administration, to ensure conditions can be and are being complied with.
- • Reciprocal arrangements may become redundant where operating hours or land uses change.

UNBUNDLING INCENTIVES

- ✓ Helps to ensure that the true cost of car parking is transparent.
- ✓ Promotes fairness, equity and affordability for users who choose not to own or use vehicles, or may not be able to afford vehicles.
- ✓ May help reduce car ownership and use, promoting a healthy community by facilitating shifts to public and active transport.
- ✓ May improve streetscape amenity by reducing the number of visually intrusive and inactive parking spaces.
- ✓ Unbundling may make it easier to repurpose parking spaces.
- • Unlikely to actually reduce parking over-supply where minimum parking ratios remain in force.
- • Requires authorities to exercise greater discretion which may inhibit process efficiency until normalised.
- • Requires strata managers to manage unbundled bays as common property.
- • On-street parking management may be needed to address overspill.
- • Property purchasers may perceive parking as important to property value so proponents may be hesitant to support this approach.

PARKING MAXIMUMS

- ✓ Reduces congestion, pollution and the need for large investments in road capacity.
- ✓ Promotes a healthy and active community by encouraging shifts to public and active transport modes.
- ✓ Enables higher quality streetscapes and urban design by maximising lot space for other facilities.
- ✓ Promotes fairness, equity and affordability for residents who do not own vehicles.
- ✓ Helps authorities achieve process efficiencies, by simplifying planning requirements.
- • The highest and best use of land in a particular area may require a higher level of parking provision than allowed under the parking caps, potentially hampering economic development in that area.

Off-Street Private Parking

*"This appendix outlines the key **advantages and limitations of** each policy option."*

- Resources needed to identify appropriate maximums.
- Maximums alone are not compatible with cash-in-lieu. Minimum requirements would still be needed.

LOCATION BASED REQUIREMENTS

✓ Parking requirements are set according to local supply and demand.
✓ Reduces exposure to criticism associated with conventional approaches to setting minimum parking requirements.
- Resources to regularly survey parking occupancy and adjust parking requirements.
- Loss of parking requirements as an indirect means to limit development intensity.

REMOVING OFF-STREET REQUIREMENTS

✓ Quantity of parking supplied is more likely to reflect cost and demand.
✓ Allows for more economical use of land by increasing lot space for uses other than parking.
✓ Increases revenue from land tax and council rates, as land is developed more intensively.
✓ Likely to result in only a minimal and gradual overspill effect, as existing nearby developments will continue to provide on-site parking after parking minimums are removed.
- Reduced private off-street parking supply and increased demand for public on-street or off-street parking, necessitating management.
- Real or perceived risk to local businesses of a reduction in customer access to the site. This may lead to demands for Local Governments to construct public off-street facilities.
- Loss of parking requirements as an indirect means to limit development intensity.

On-Street Public Parking

*"This appendix outlines the key **advantages and limitations of** each policy option."*

KERB USER HIERARCHY

- ✓ Ensures that users with the highest need will be able to access the kerb and local businesses.
- ✓ Improves vibrancy, functionality and safety of town centres.
- ✓ Encourages the use of rideshare services, reducing the need for parking.
- • Requires monitoring and enforcement.

TIME LIMITS

- ✓ Increase parking turnover, to benefit local businesses.
- ✓ Improve vibrancy, functionality and safety of activity centres and public places.
- ✓ Relatively cheap and easy to implement.
- • Intensive monitoring and regulation required.
- • Potential to be viewed unfavourably by users who require longer-term parking, such as residents and commuters, where priority is given to short-term users.

CONVENTIONAL PAID-PARKING

- ✓ Improves parking turnover, benefitting local businesses.
- ✓ Encourages mode shift to public and active transport.
- ✓ Reduces traffic congestion in town centres.
- ✓ Aligns with policymaking principles of fairness and equity by ensuring that the main users of public space contribute fairly to account for the direct and opportunity costs associated with using and maintaining that space.
- • May be viewed unfavourably or suspiciously by residents, visitors and staff, who have come to expect free parking or view paid parking as revenue raising.
- • Requires substantial up-front investment to purchase capital, as well as maintenance and administration costs.
- • Paid parking may reduce cruising for parking but may not reduce car dependency or encourage shifts to other transport modes.

DYNAMIC PRICING

- ✓ Helps drivers find and use underutilised parking quickly.
- ✓ Reduces congestion in town centres.
- ✓ Improves parking turnover, benefiting local businesses and visitors.
- ✓ Align with policymaking principles of fairness and equity (e.g. ensuring that the main users of public space contribute fairly to account for the costs associated with using and maintaining that space) and cost efficiency (e.g. high capital costs offset by revenue gained over time).

On-Street Public Parking

*"This appendix outlines the key **advantages and limitations of** each policy option."*

- Requires substantial up-front investment to purchase capital.
- Increased maintenance and administration costs.
- Unlikely to be viewed favourably by residents who have come to expect free parking or residents who prefer authorities to invest in other community services.

DEMAND-RESPONSIVE PRICING

- ✓ Helps drivers find and use underutilised parking quickly.
- ✓ Reduces congestion in town centres.
- ✓ Improves parking turnover, benefiting local businesses and visitors.
- ✓ Align with policymaking principles of fairness and equity (e.g. ensuring that the main users of public space contribute fairly to account for the costs associated with using and maintaining that space) and cost efficiency (e.g. high capital costs offset by revenue gained over time).

- Requires substantial up-front investment to purchase capital.
- Increased maintenance and administration costs.
- Unlikely to be viewed favourably by residents who have come to expect or rely on cheap parking and residents who prefer that authorities invest in other public services.

PARKING BENEFITS DISTRICTS

- ✓ Reduces community opposition and concerns often associated with the introduction of paid parking.
- Requires resources to establish and support a committee of local representatives.

On-Street Public Parking

*"This appendix outlines the key **advantages and limitations of** each policy option."*

RESIDENTIAL PARKING PERMITS

- ✓ Improve the appearance and safety of streetscapes.
- ✓ Improve parking facilities in residential areas i.e. residents are more likely to use private off-street supplies such as garages and driveways.
- ✓ Paid parking permits improve fairness and equity, by ensuring that the main users of public space contribute to the costs associated with using and maintaining that space.
- ✓ Provides management authorities with greater control over on-street parking, which is particularly useful in areas experiencing significant urban consolidation.
- Free permits may not be effective because they are unlikely to encourage residents to use garages and driveways.
- Reduce parking availability for visitors and local business employees.
- Unlikely to be viewed favourably by residents who expect unregulated on-street parking.

ENFORCING OFF-STREET PARKING LAWS

- ✓ Frees up on-street parking and space for other purposes.
- ✓ Improves the appearance and safety of streetscapes.
- ✓ Aligns with policymaking principles of fairness and equity by ensuring that the main users of public space contribute fairly to account for the costs associated with using and maintaining that space.
- Unlikely to be viewed favourably by residents who have come to expect free on-street parking, although this may be offset by promoting the potential for alternative street uses.

Off-Street Public Parking

*"This appendix outlines the key **advantages and limitations of** each policy option."*

CASH-IN-LIEU

- ✓ Provides flexibility for proponents.
- ✓ Utilises land which may not be useful for purposes other than car parking or similar non-sensitive land uses.
- ✓ Potentially reduces the risk of parking requirements thwarting otherwise viable developments.
- ✓ Enables higher quality streetscapes where funds are spent on public realm improvements.
- ✓ Enables maximisation of lot space for other facilities.
- ✓ Helps promote a healthy and active community by encouraging shifts to public and active transport, where contributions are used to fund those networks.
- ✓ Enables communities to benefit from economies of scale, by pooling resources to construct, maintain and manage parking facilities.
- This option requires management authorities to stipulate minimum parking requirements. However, minimum parking requirements are often not reflective of development generated parking demand and therefore, using minimum parking requirements to substantiate cash-in-lieu requirements may be a precarious management strategy.
- Cumbersome administrative requirements, particularly where calculation methods are complex and ambiguous.
- The costs of meeting parking requirements which are poorly related to generated demand can be prohibitive to development, especially for changes of use and small business, and may prevent new development from locating in existing precincts and infill areas.
- Likely to be viewed suspiciously by landholders, particularly where there is no clear strategy outlining how funds will be invested to address parking and transport demands generated by new development.
- Without discounts, there may be limited if any incentive for development proponents to pay cash in lieu, limiting the effectiveness of this policy to reduce excessive parking provision.

HYPOTHECATION OF REVENUE

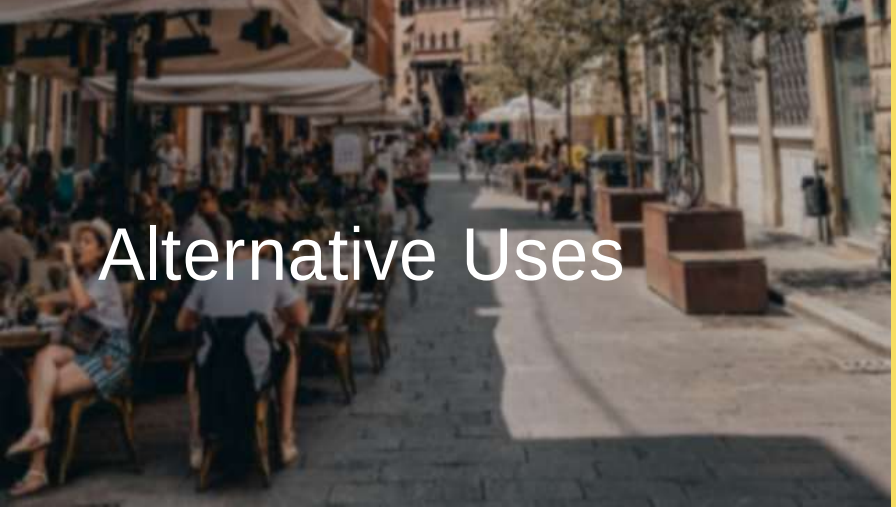
- ✓ Allows authorities to regularly set aside revenue for the specific purpose of parking construction.

ADAPTABLE PARKING FACILITIES

- ✓ Structures that are adaptable to future changes in demand for parking.
- Higher construction costs.

APPENDIX 2 – BENEFITS & COSTS OF ALTERNATIVE USES

Local Government
Car Parking Guideline
December 2020



Alternative Uses

"This appendix outlines information that can be used as a starting point for undertaking cost benefit analyses."

This appendix outlines the costs and benefits of each alternative car parking use discussed in Section 1.

Local Governments could use this information as a starting point for undertaking cost benefit analyses.

The costs and benefits provided have not been quantified in dollar values due to the likely variances in different locations, e.g. public transport access, land values.

TRAFFIC LANE

- ✓ Improved traffic flow, shortened trip times.
- • Reduced car parking revenue (where charged)
- • High construction and maintenance
- • Induced traffic, leading to air, noise and water pollution (runoff)

BIKE LANE

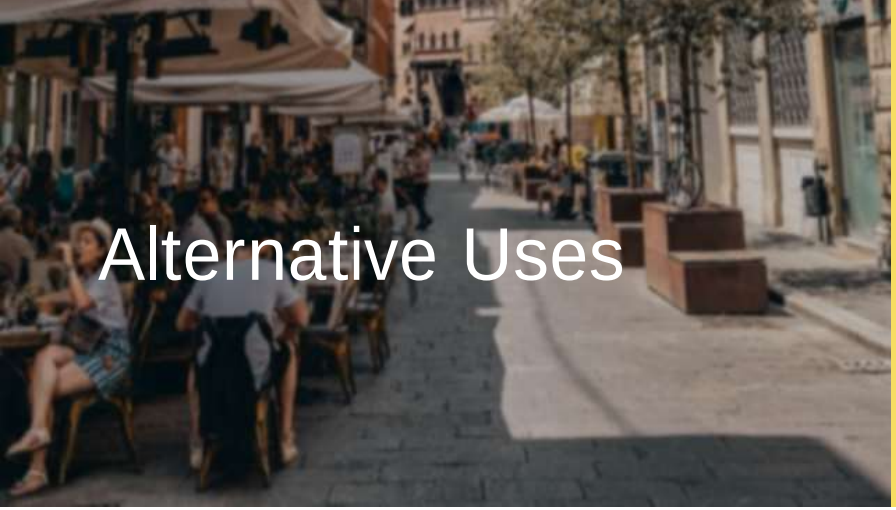
- ✓ Promotes physical health, reduces obesity and other physical disorders
- ✓ Fewer injuries to cyclists who ride on roads
- ✓ Increased safety for pedestrians, fewer injuries
- ✓ Increased bike traffic and economic activity, i.e. shop sales
- ✓ Improved air, noise and water quality, and public health
- ✓ Reduced wear and tear on roads and car accidents
- • Reduced car parking revenue (where charged)
- • Low construction and maintenance

PARKLET

- ✓ More space to sit and relax, and opportunities for socialising, improved emotional and psychological health
- ✓ Increased foot traffic and economic activity, i.e. shop sales
- ✓ Increase pedestrian safety by slowing traffic, reduced injuries
- • Reduced car parking revenue (where charged)
- • Low construction and maintenance

STREET TREES

- ✓ Reduced urban air temperatures, sun and heat exposure, heatstroke prevention
- ✓ Aesthetic streetscapes and higher land values, increased rate revenue
- ✓ Reduced traffic speeds, increased pedestrian safety, fewer injuries
- ✓ Increased foot traffic and economic activity, i.e. shop sales
- ✓ Reduced drainage infrastructure costs and maintenance
- ✓ Improved emotional and psychological health
- ✓ Improved biodiversity (using native species)
- • Reduced car parking revenue (where charged)
- • Low construction and maintenance



Alternative Uses

*"This appendix outlines **information that can be used as a starting point for undertaking** cost benefit analyses."*

WATER SENSITIVE URBAN DESIGN

- ✓ Reduced volume of stormwater entering waterways, leading to improved water quality
- ✓ Reduced maintenance costs on stormwater infrastructure
- ✓ Reduced use of drinking water to provide green space
- ✓ Improved flood mitigation, avoiding damage to built structures
- ✓ Improved biodiversity (using native species)
- ✓ Fewer permeable surfaces, reduced urban air temperatures, sun and heat exposure, heatstroke prevention
- • Reduced car parking revenue (where charged)
- • Low construction and maintenance

AL FRESCO DINING

- ✓ Increased foot traffic and economic activity, i.e. shop sales
- ✓ Aesthetic streetscapes and higher land values, increased rate revenue
- ✓ Fewer pedestrian injuries
- ✓ More opportunities for socialising, improved emotional health
- • Reduced car parking revenue (where charged)
- • Low construction and maintenance

ADDITIONAL ROOM IN DWELLING

- ✓ More liveable space, improving emotional and psychological health
- ✓ Increased public and active transport use
- • Reduced car parking
- • Construction and maintenance

ADDITIONAL COMMERCIAL OR RETAIL SPACE

- ✓ Higher property value
- ✓ Higher rate revenues
- • Reduced car parking revenue (where charged)
- • Construction and maintenance

APPENDIX 3 – DISCOUNTS: STANDARD CLAUSING AND CHECKLIST

WALGA

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Car Parking Guideline
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Information Requirements

"Standard information requirements in local planning policies can assist applicants, where variations are allowed."

STANDARD CLAUSING

The following information shall be provided with an application, where:

- The development application seeks a variation to parking requirements set out in clauses x and x of [insert "this policy" or name of local planning scheme], or
- A development proposes X [insert number] or more parking spaces, or
- The development proposes alternative methods to achieve parking requirements, including but not limited to car stackers or tandem parking bays

Information shall be prepared, in accordance with the checklist set out in Appendix X, to the satisfaction of the [insert name of Local Government] and be lodged with the development application.

Information for proposals located within a strategic metropolitan centre or specialised centre (as per State Planning Policy 4.2) or precinct (as per State Planning Policy 7.2) shall be consistent with the travel plan and/or parking supply and management plan (or equivalent) for the centre or precinct.

The [insert name of Local Government] will require notifications to be lodged under section 70A of the Transfer of Land Act notifying proprietors and/or prospective purchasers of the property of their obligations with respect to onsite parking.

Note: Local Governments should note that such notifications do not preclude a proprietor from redeveloping property.

CHECKLIST

- Location map
- Landowner and operator.
- Summary of development and proposed uses, including travel and parking generated by each use and data used to support these projections.
- Availability of public parking and high frequency public transport stations within 400m of the development site.
- Proximity to active transport networks, such as cycle and pedestrian pathways.
- Required parking bays as per relevant parking requirements (including bicycle and ACROD bays), parking bays provided, methods used to meet parking and travel demand shortfalls.
- Parking controls, including time limits, fees, fines and responsible enforcement authority.
- Signage and way finding measures.
- Strategies to reduce car parking demand and encourage alternative transport modes such as incentives for staff and customers.

APPENDIX 4 – AUTONOMOUS VEHICLES

WALGA

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Autonomous vehicles

This appendix was prepared by the Department of Transport and is available on WALGA's Planning Improvement Portal. Contact WALGA at planning@walga.asn.au for more information.

Local Government Car Parking Guideline

Western Australia

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