Review of Local Government Car Parking Requirements in Western Australia

Prepared for
WALGA

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Cardno
Shaping the Future

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1 Executive Summary

1.1 What is the Purpose of this Review?

The existing literature related to new development parking requirements makes clear that:

- The application of minimum parking requirements in Western Australia, in particular parking ratios, is unlikely to be conducive to meeting the needs of on-site users and the broader transport needs of local communities
- The application of parking ratios may inhibit the achievement of optimal built form outcomes, and
- The rationale for applying parking ratios is often uncertain or lacks reasonable justification.

Consequently, WALGA, together with the Department of Transport (WA), engaged Cardno to identify the historical basis of parking ratios currently being applied by Local Governments in Western Australia (WA).

In particular this review aims to:

- Identify the origins of car parking ratios being applied in Western Australia
- Evaluate how these ratios have been adapted and applied over time, and
- Discuss whether these ratios are likely to meet the transport needs of new development users and the broader local community, or if other approaches should be considered.

1.2 How was this Review Undertaken?

This review used a range of methods to examine the origins and evolution of adopted parking requirements. These methods include:

- Review historical and recently updated Local and State Government policy documents
- Contact Local Governments directly to identify current and previous standards and seek an anecdotal overview of parking standards in their jurisdiction, and
- Review national and international 'best-practice' sources, journals and historic documents

1.3 What does this Review Tell Us?

The outcomes of this review confirm the findings from studies prepared by Shoup, Transcore, Luxmoore and others: that the design of existing parking requirements in Western Australia is poorly related to demand and broader community needs.

This is perhaps to be expected, given that parking requirements aim to address many different considerations such as location, density, land use, the provision of public and on-street parking, public transport options, and more.

Consequently, parking requirements have usually been informed by a patchwork of sources, including:

- Parking surveys completed in the USA and Sydney, some as long ago as the 1970's
- Results of an investigation for a single development application that then become the standard for all subsequent developments
- Requirements applied by a neighbouring Council which may be perceived to be attractive to users and as such, are adopted more broadly without proper analysis
- An evolution from previous requirements, adjusted incrementally to reflect changing attitudes to the local parking supply.

Some local governments have adopted alternative approaches which are more likely to facilitate improved transport and built form outcomes. However, most local governments continue to use outdated methods.

Furthermore, the vast majority of statutory parking requirements do not seem to promote or consider the impact of pricing on parking demand, nor the role of the adjacent on-street and public parking environment.

These findings suggest that while the previously mentioned sources provide a convenient set of tools for identifying and codifying new development parking requirements, these sources are not designed to achieve the environmental, economic or social development goals of individual Local Governments and their communities, such as integrated transport systems, higher usage of public transport systems, pedestrian friendly town centres and efficient use of urban land.

1.4 What are the Policy Options?

Parking policy options are a consequence of the outcomes desired by Local Governments. These vary considerably according to the location, type of land uses and density of development, as well as the capacity of the surrounding public parking supply and the form of management applied by Councils.

Examples of policy options commonly applied include:

> Provide sufficient private parking to prevent overspill

> Support shared and public parking to maximise system efficiency

> Provide consolidated land-use standards for parking to reduce evaluation overheads

> Limit private parking supply to help achieve sustainability goals

> Establish parking capacity restrictions to limit impact on road networks

> Create a parking supply that mitigates the potential impact of technological change (electric and automated vehicles, mobility-as-a-service (Maas) etc.)

1.5 What are the Next Steps?

Following on from this Report, WALGA has the opportunity to provide guidance to Local Governments with respect to sustainable parking policy initiatives, such that they can:

> Identify local parking demand for different precincts and appropriate policy requirements.

> Review parking assessments which may be required as part of the development application process.

> Manage public parking assets through paid parking, time restrictions and enforcement, including how parking fits within the function of local town centres and adjacent areas.

> Understand the strategic importance of parking as a component of the integrated transport system, and its role in supporting activity and in travel demand management.

> Manage parking supply in the context of ‘change of use’ applications, to create appropriate conditions through the planning process.

> Establish a ‘messaging guide’ to assist the public in understanding the true cost of ‘free’ parking.

> Determine a common response to the potential impacts of technological change, to sustainably manage the transition towards AVs and MaaS, which have the potential to dramatically impact the function of parking and development in general.

The above guidance should be considered in the context of short-term policy positions and initiatives that can be undertaken by Local Government. However, there is also long-term legislative reform required from State and Federal Government that may need a consolidated response from Local Government to achieve.

2 Introduction

2.1 Aim and Objectives

In 2017 WALGA convened a workshop with Local Governments to discuss the regulation of developer car parking provisions and explore potential options for improving these practices. A key outcome of the workshop was the finding that minimum parking requirements, which are often achieved by applying car parking ratios, are the most commonly applied approach for managing changes to parking demand which may result from new development.

In particular participants at the workshop noted that: the application of parking ratios through the development assessment process may not be the best approach for meeting transport needs which are likely to result from new development; parking ratios may be inhibiting the achievement of optimal built form outcomes; and, the rationale for applying parking ratio requirements, and how these ratios have evolved over time, is currently uncertain.

As a result of the workshop, WALGA, together with the Department of Transport, engaged traffic engineering specialists at Cardno to review the historical basis of parking ratios currently being applied by Local Governments (LGs) in Western Australia (WA). In particular this Review aims to:

> Identify the origins of car parking ratios being applied in Western Australia

> Evaluate how these ratios have been adapted and applied over time, and

> Discuss whether these ratios are likely to meet the transport needs of new development users and the broader local community, or if other approaches should be considered.

2.2 Background

The Effect of High Parking Requirements

Statutory parking ratios are a tool used by Local Governments to establish a defined quantum of parking for a given land use. The desired outcomes are different depending on the location, density, mix of land uses, public parking supply and potential sensitivities. Where ***minimum*** parking standards are specified, the most common objective is to reduce the impacts of overspill by accommodating anticipated parking demand generated by development within private off-street facilities, wholly owned and controlled by that development.

However, these minimum parking ratios can have a range of detrimental effects, such as:

> an increase in private vehicle mode share, congestion and road infrastructure

> reduced safety outcomes, particularly for active transport modes

> reductions in development density, with follow-on effects on the viability of public transport

> increased construction costs for residential and commercial development, leading to reduced housing affordability and higher leasing costs

Parking Demand Factors

The drivers for parking demand are different depending on the type of land use and the location of development. Residential parking demand is related directly to ***vehicle ownership***. Limiting the number of parking spaces available to residents may reduce the convenience of using a private vehicle (assuming a well-regulated on-street parking environment). Residential parking requirements are therefore a powerful mechanism that can impact the transport mode choices of residents and the economic viability of development. Reduced parking ratios can be sustained where high-quality public transport exists, and where the density of development means that residents can access important services within close proximity to housing. Residential parking in excess of need reduces housing affordability due to the additional cost of infrastructure and the high consumption of land by parking.

Employee parking demand is affected by the availability of public transport. However, given the wide catchment of employees and relatively poor housing mobility, it is likely that many employees will need to drive to work.

Where adequate public transport options exist, reduced employee parking ratios are an excellent lever for promoting mode shift. Although enforcing parking ratios based on the number of employees can be problematic due to economic and project driven workforce fluctuations and demand on Local Government compliance resources. Land uses which are heavily employee-focused are most sensitive to these effects (e.g. commercial office and institutions).

Visitor parking demand is only moderately influenced by public transport availability (at least at the scale of Australian cities). Instead, it is the density and proximity of activity that drives private vehicle mode share. Retail, restaurant and entertainment uses are sensitive to the supply of visitor car parking. Insufficient parking can have a substantial impact on the function of nearby public on-street facilities and streetscape amenity, and may even limit the economic viability of the precinct. Excessive parking reduces development density, reducing activity and pedestrian pass-by trade, as well as imposing an additional cost on development.

The imposition of parking requirements by Local Government should therefore be considered in the context of the desired outcomes and the impact on development.

Parking Minimums

In 1999, the well-recognised transport specialist Donald Shoup, published a pre-eminent article that questions the practice of applying minimum parking standards. Shoup observes that the rationale for applying these requirements is based on “shaky foundations” (p1) because it is unknown how these requirements were established or from where they originated.

According to the same article, the two main methods that practitioners use to establish parking requirements include:

a) Parking usage surveys conducted by nearby cities, and

b) Handbooks published by the Institution of Transportation Engineers (ITE) (USA).

Shoup notes substantial limitations associated with the use of these sources. For example, the first approach is likely to result in the transfer of surveying technique mistakes from the jurisdiction who conducted the survey, to the potentially numerous jurisdictions who adopt the requirements resulting from the survey. Also, factors that affect the surveying jurisdiction may not affect the adopting jurisdictions, meaning that transferred parking requirements will not be tailored to suit local needs and therefore, are unlikely to meet local needs.

With regard to the second approach, the ITE’s *Parking Generation* parking guideline and other similar parking guidelines commonly define parking generation rates based on a small number of parking surveys undertaken during times of peak demand and at locations where parking is free. This approach can result in an over estimation of parking demand requirements, particularly when the average parking generation rate is established by combining results of all parking surveys for a particular land use. By extension, overestimated minimum parking requirements can cause inflated trip generation rates, and therefore are likely to have a substantial impact on land use planning and outcomes.

In 2001 the Department for Planning and Infrastructure (DPI) (WA) commissioned Transcore to review parking requirements being applied by Local Governments in the Perth Metropolitan Area. This review demonstrated a significant diversity and range in parking standards that were being applied across jurisdictions, revealing that an inconsistent approach is being applied to parking standards across Local Governments, including across land uses, parking generation rates and parking generation measures.

At the same time the Transcore study was published, national best practice in Australia was largely defined by general state-wide parking standards (rather than Local Government standards or Town Planning Schemes) as well as the USA ITE *Parking Generation* handbook (1987). However, the Transcore study observes that many of these standards are likely to have been derived from US standards from some decades earlier, suggesting that the parking requirements being applied across Australia, informed by these standards, were likely to be outdated.

Furthermore, the Transcore study references research undertaken by Morrall and Bolger (1996). This research found that:

> The use of public transport is inversely proportional to the ratio of parking bays per city centre employee

> The most negative influence of city centre transportation policies is the large amount of surface parking created within and adjacent to city centres.

The Transcore study concluded by recommending that planning authorities should undertake parking surveys in priority order of land use, and use these surveys to identify appropriate parking ratios, in particular for mixed use developments. These recommendations emphasised that the practice of adopting parking ratios from standards, guidelines or other jurisdictions was unlikely to meet local needs and required reconsideration.

In 2005, Donald Shoup wrote the book “The High Cost of Free Parking”. This book demonstrates further that applied parking requirements often lack appropriate rationale and can result in unfavourable transportation and built form outcomes. This book proposes numerous potential alternative approaches, which include:

> Fees in lieu of parking requirements and offering developers a way to reduce travel demand as an alternative to constructing parking

> Incentives for employees to use alternative modes, such as eco-passes

> Cash-out parking, where employees take cash in lieu of a parking space

> Paid street parking, to reduce spill-over effects

> Parking Benefit Districts, where the district receives some or all of the parking revenue to make transport and community improvements.

Future Directions

The growth in private shared transport and the potential for fully-automated vehicles means that despite ongoing development, the need for parking may well disappear within the 20-year horizon. Local Governments must therefore contend with managing the near-term increase in parking demand, while being sensitive towards the impacts of disruptive technological change. The consequences of getting this wrong could be significant for governments and the private sector, particularly from a financial/economic standpoint.

To accommodate this, Local Governments will need to consider a number of policy, infrastructure and planning mechanisms which can accommodate both the near-term “demand-growth” and future ”demand-collapse” scenarios, with real-world implications on parking management, infrastructure and funding choices. Policy direction may include an emphasis on off-site parking, paid for through development contributions or cash-in-lieu, requirements for convertible parking or considerations for unbundling parking to limit the exposure of residential and office tenants.

In summary, the literature makes clear that:

> The application of minimum parking requirements, in particular parking ratios, does not demonstrate rigorous consideration of end user needs, and therefore is unlikely to be conducive to meeting the needs of on-site users and the broader transport needs of local communities

> The application of parking ratios may inhibit the achievement of optimal built form outcomes

> The rationale for applying parking ratios is often uncertain or lacks reasonable justification and consequently, the application of parking ratios in Western Australia requires further examination, including consideration of alternative approaches

> Recent advancements in technology mean that parking requirements will change and that current parking management practices should be reviewed.

2.3 Methodology

The following methods have been used to undertake this analysis.

2.3.1 Data Collection

Our approach to collecting data has been to:

> Review historical and recently updated Local and State Government policy documents (see **Appendix A**)

> Contact a sample of Local Governments to identify current and previous standards, and anecdotal overview of parking standards in their jurisdiction (see **Appendix B**)

> Review of national and international 'best-practice' sources, journals and historic documents

2.3.2 Evaluation

In order to analyse this data, the following has been prepared:

> A timeline to examine the origins and evolution of Local Government car parking requirements in Western Australia (**Section 3**).

> An assessment of current practices in Western Australia, including a summary of the main resources being used by Local Governments to identify appropriate parking requirements, and examples of best practice (**Section 4**).

A summary of these evaluations is provided in **Section 5**.

A discussion of policy options for meeting the broader transport and built form needs of local communities in Western is provided in **Section 6**.

A summary of recommended next steps is provided in **Section 7**.

3 Origins and Evolution of Local Government Parking Requirements in Western Australia

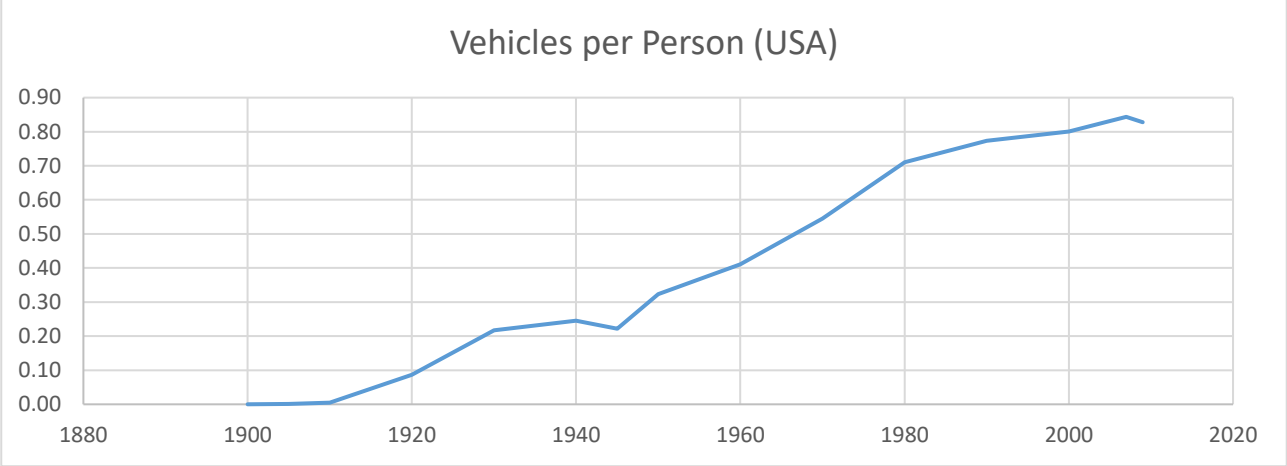
The aim of this section is to examine the origins and evolution of Local Government car parking requirements in Western Australia. To achieve this, a document analysis was undertaken and numerous Local Government staff were contacted. The information is provided in a timeline, to more easily demonstrate the origin and evolution of parking requirements.

3.1 Parking Requirements – A Timeline

(1939) Germany establishes minimum parking requirements

Barter (2013) indicates that parking requirements and ratios were likely to have been first established in, and have evolved since, 1939, when the earliest known private parking standards were applied in Germany.

These requirements were applied in response to the inadequacy of on-street supply to meet the growing demand for parking private vehicles. In the period between 1920 and 1930, worldwide private vehicle ownership rates (per person) increased markedly. For example, the following figure demonstrates the rapid growth in vehicle ownership rates in the USA since the early 1900's.



(1954) Melbourne establishes minimum parking ratios for new developments, varying according to land use

This appears to be when the concept of parking requirements was first applied in Australia. These ratios were likely to have been inspired by a visit from Charles B. Bennett, Director of Planning, City of Los Angeles in 1953 (Taylor 2018), and modelled on US standards, for example 1 bay / 20ft^2 of public bar in new hotels.

Over the next few decades, minimum parking requirements became standard across Australia, related either to this Australian progenitor or the original US standards themselves.

(1967 and 1971) Strategic documents sought to manage population and car growth by both catering for and managing car traffic

Strategic plans prepared during this period debated freeways but did not discuss parking directly. Behind the scenes statutory minimum requirements continued to influence trip generation rates (Taylor, 2018). The prevailing parking method throughout this period was 'predict and provide'. Developments were required to contain all parking on-site, under the assumption that driving was the primary mode of travel.

(1981) *Melbourne Strategy Implementation Report*

Melbourne introduced a strategic plan that replaced parking minimums with parking maximums in the CBD. Parking minimums were maintained throughout the rest of Melbourne. It is doubtful that Melbourne was the

first place in Australia to apply maximum parking requirements; however, the research for this project has not been able to identify where these maximum parking requirements are likely to have emerged from.

(1992) *East Perth Redevelopment Authority Scheme*

This scheme defines a minimum parking requirement and a maximum on-site provision. The Scheme allows the Authority discretion to approve cash-in-lieu of parking contributions where provision is allowed below the minimum requirement. This use of "banded" parking rates appears to predate any such clause in Local Government policy.

(1993) *Australian Standards AS 2890.5-1993 Parking facilities: On-street parking*

This is considered to be the first time Australian Standards explicitly encouraged the application of parking requirements that are tailored to suit local needs: "The exact priorities for the allocation of parking spaces can only be decided by study and consultation." (p.24).

(1999) Western Australian Government Gazette: *Perth Parking Policy*

This policy was developed as a joint initiative by the State Government and the City of Perth. Through this Policy and the associated *Perth Parking Management Act* (1999), these Agencies established a 'parking cap' and license fee for all non-residential parking within the Perth CBD.

The policy specifies that parking allowance for tenant car parking should be based on the site area, street category and whether the access is at grade or integrated. This therefore defines a fixed maximum parking allowance for the entire Perth Parking Management Area. This policy indicates a significant shift in Western Australia, away from the application of development parking requirements to a Precinct-level approach to supply.

The *Perth Parking Policy* (1999) was revised in 2012 following consultation with stakeholders and the City of Perth. The revised policy notes that "an important benefit of the policy is the framework it provides for assessing the likely impacts of proposed parking facilities in the broader context of transport and planning objectives for the city, rather than assessing parking license applications in isolation" (p.4771).

(1999) Donald Shoup: *The Trouble with Minimum Parking Requirements*

In this article Shoup observes that the rationale for applying minimum parking requirements is not usually based on the needs of locations where these requirements are applied. Citing US research undertaken in 1996 by Richard Wilson, Shoup observes that the two most frequently cited methods for identifying parking requirements include: surveying nearby cities and consulting ITE handbooks. Shoup explains that both methods are flawed (as discussed in **Section 1**) This article demonstrates a growing recognition across academia and industry, at the time the article was published, that: parking requirements being applied by local government are unlikely to suit local needs; and, other approaches that are better suited to meeting local transport and community needs are available and their application should be considered.

(2002) Roads and Traffic Authority, NSW. *Guide to Generating Traffic Developments: Parking requirements for specific land use*

This guide recommends minimum parking requirements for a range of land use types, based on surveys and research conducted by the RTA (NSW). The guide provides recommendations for what should generally be appropriate in New South Wales, and advises that the needs for each locality should be evaluated on its own merits. This guide appears to be the source for most of the requirements (ratios) being applied in Western Australia.

(2003) *City of South Perth Town Planning Scheme No.6*

This scheme introduced minimum parking requirements which vary according to land use *and location*. These parking requirements appear to be one of the earliest examples of purpose-defined parking allowances codified in Western Australia. The scheme does not establish how the requirements were derived; however, the requirements generally align with, and therefore look to be informed by, the RTA NSW Guide (2002).

(2004) *City of Rockingham Town Planning Scheme No. 2*

This document divides the city into three zones, and provides different parking allowances for each. For the general zone, both maximum and minimum parking allowances are specified. For the remaining two zones (where space is at a premium and people are unlikely to want to allocate land to parking) only minimum allowances are specified. This appears to be the earliest application of maximum parking allowances by a Local Government in Western Australia, including simpler application of ratios to NLA of a whole site, rather than requiring different ratios for individual uses within a site.

(2005) Donald Shoup, *The High Cost of Free Parking*

This internationally recognised book defines a parking area as being at capacity when available spaces are 85% occupied at times of peak demand (when one in seven bays is free). This approach is later recognised as being the "best practice approach to the management of on-street parking" by Austroads (2017 p.7).

(2009) *Auckland Regional Parking Strategy*

This strategy replaces minimum parking requirements with maximum permitted requirements for non-residential developments in town centres, in order to "avoid the continuation of policies which have generally led to an oversupply of parking" (p.5). Much is made of this strategy in the literature; however, Melbourne applied the same approach 28 years earlier, suggesting that the appetite for maximum parking ratios grew over time.

(2009) *Town of Cambridge Access and Parking Strategy*

This study compares the parking requirements of several Local Governments according to various land uses, including: Bayswater, Canning, Fremantle, Joondalup, Mandurah, Melville, Rockingham, Stirling, Subiaco, and Victoria Park. The study finds that parking allowances across these local governments are moderately varied, both in absolute value and in how they are calculated. For example, parking ratios found for secondary schools through the study include:

> Bayswater: 14 spaces/100 students;

> Fremantle: 1 space/classroom plus 1 space/25 year 12 students;

> Joondalup: 2 spaces/classroom with a minimum of 10 bays.

In particular, this study found that "parking standards used in local schemes no longer generally reflect the existing or desired quality of access by public transport, walking and cycling (most council planners consider that current standards of provision are out of date)" (p.21). This study of the Western Australia policy environment acknowledges that current approaches being used to establish parking requirements of new development are outdated and are unlikely to meet local parking, transport and built form needs.

(2014) Western Australian Government Gazette: *Perth Parking Policy 2014*

The 2014 revision of this policy maintains the tenant parking allowances provided in the 2012 policy and adds that a minimum of 5% of the total tenant parking allowance should be for motorcycle parking. The fact that the policy does not change the parking requirements implies a reasonable level of contentment with the 2012 maximum parking requirements. Notably, the 2014 revised policy does provide conditions under which the maximum allowance could be exceeded on redevelopment (increasing the allowance to the number provided for in the next street category down). This requirement is still in effect.

None of the *Perth Parking Policy* editions explain the rationale for choosing the parking requirements outlined in the policies.

(2014) *Shire of Augusta Margaret River Car Parking Strategy*

This document observes that the Shire does not have documentation explaining the rationale for the car parking requirements which have historically been applied across the Shire. The 2014 parking requirements (previously revised in 2010) vary little from those applied in 1985 and 1991. This strategy also observes that parking requirements, like those of most local governments, are "usually based on demand studies published elsewhere, or rates used successfully in adjoining Shires rather than any local assessment of demand" (p.11). The Shire's parking requirements are compared in the above strategy with other shires with similar tourism profiles: Busselton (WA), Byron Bay (NSW) and Noosa (QLD). The assumption made in this Strategy is that

the Shire's parking requirements will be similar to these jurisdictions (presumably without looking at any other data); an approach which may result in inadequate outcomes (Shoup 1999). This strategy recommends the continued reduction of minimum parking requirements across the Shire, providing an opportunity to more closely align parking requirements with the Shire's objective to reduce car use.

(2016) *City of South Perth Citywide Parking Strategy*

This strategy indicates a significant shift at the local level from the application of traditional parking management approaches toward demand management approaches which tailor parking requirements to suit local conditions. As part of this strategy, Luxmoore was commissioned to conduct on-site reviews, which were conducted on three separate occasions, approximately six months apart. These site reviews found that parking demand patterns have an average demand of less than 72% of bays, with several specific parking areas considered under-utilised. Consequently, the strategy recommends a change in approach from a "predict and provide" model to a demand management approach.

In particular, Luxmoore's review of the City's parking approach notes that "the current approach to development applications in the City sets minimum parking ratios based on measures such as the gross floor area. The overall capacity of the road network providing access to the City or commercial centre has not yet been taken into account. Setting a cap (maximum) on the supply of parking within a commercial centre is an appropriate parking management and supply policy for the City" (p.35). The report also notes that parking caps are not compatible with cash-in-lieu, and observes that this is the reason why the initial Rockingham Village Policy (discussed above), which included a proposed parking policy with a combination of minimum and maximum parking standards plus cash-in-lieu, was replaced with its current minimum standards plus cash-in-lieu. The report observes that: "While it is generally recognized that parking ratios need to be reviewed, the possible replacement of minimum parking ratios with maximum (permitted) parking standards (parking caps) for new developments does not appear to have been given very much detailed consideration in the Perth Metropolitan area" (p.35), emphasising that minimum parking requirements are still broadly applied despite substantial evidence to suggest that other approaches, such as maximum parking requirements, are more effective approaches for managing parking.

(2016) *WAPC Transport Impact Assessment (TIA) Guidelines*

These guidelines discuss two main methods for projecting parking demand: surveying a comparable development; and, extracting typical rates form appropriate land use databases. The first method is recognised by these guidelines as being more appropriate for identifying parking requirements. These guidelines also recognise that: TIAs should highlight opportunities for reducing the peaks of parking demand; that it is no longer appropriate to focus on providing sufficient parking to satisfy all demand; and, a more appropriate choice of trip rate will lead to more realistic parking provision. These guidelines indicate a further shift toward the consideration of more nuanced approaches to parking and transport management in Western Australia.

(2016) Department of Transport: *Parking Guidelines for Activity Centres*

These guidelines recommend that parking should be supplied and managed so that the maximum quantum and type of parking within a centre does not exceed the planned road network capacity and adhere to "any cap on parking supply for individual sites, precincts or entire centres as adopted by the WAPC or other responsible planning authority" (p.10). Additionally, "staged developments of precincts with allocated parking caps need to demonstrate a reasonable need for the proposed parking even if it does not exceed any caps" (p.10). There is no mention of minimum requirements within the guidelines, demonstrating a further significant shift in the trend away from applying minimum parking requirements.

(2017) City of Rockingham: *Community Plan Strategy: Rockingham Strategic Metropolitan Centre Public Parking*

This strategy outlines local parking average occupancy survey results. This data will be applied by the City to ensure that parking requirements used within the city centre are fit for use, highlighting a shift at the local level toward tailored parking management approaches.

(2017) Austroads: *Guide to Traffic Management Part 11: Parking*

This guide observes that: “Empirical research undertaken in some Australian states into parking demand for shops, supermarkets, restaurants and medical centres, shows that the number of spaces required is between 50% and 80% of the rates stated in their planning codes” (p.20).

The guide found that low usage rates are a result of applying parking requirements which are typically based on statistical relationships between land use and floor area, ignoring external socio-economic factors such as the convenience of public transport, the availability and price of parking, and the price of fuel.

The Guide also observes that: “While it may be convenient to base parking requirements on floor area and land use, the statistical relationships are generally weak and provide little insight into actual demand for parking, either now or into the future” (p.20).

Notably, the Guide observes that parking generation studies are typically performed at new, suburban sites with unpriced parking, which results in unnecessarily high occupancy for urban areas with good multi-model accessibility options, where parking is typically expensive. In other words, surveys commonly used to establish parking requirements are conducted where parking is free and abundant. The required supply can be reduced substantially where paid parking is used to manage demand.

The Austroads Guide clearly illustrates a number of key points for this Review:

1. Statutory requirements consistently oversupply parking, even when parking is free.
2. Past development exemplars are poor predictors of future parking needs.
3. Estimates of demand fail to capture the impact of paid parking.

Summary of Key Literature

> Local Governments have been regulating parking supply for nearly 80 years.

> Since the 1950’s, these requirements appear to have been introduced as minimum parking ratios from the USA via Melbourne and across Australia.

> Development parking ratios are still the primary form of regulation, in the form of minimums or maximums.

> Parking ratios have adapted and changed over time, but the requirements are generally unrelated to any evidenced-based metric of demand.

> As a result, these parking requirements regularly exceed the needs of development.

> Statutory parking requirements relate poorly to the actual needs of development or precinct areas.

This information suggests that while Local Government parking policies have a role in guiding the provision of parking, the supply requirement for an individual development should be assessed on its own merits. Ideally, the on-site parking supply should fit the objectives of the Local Government, including consideration for the fair and equitable use of public parking, achievable target mode shares for visitors and employees, and agreed private vehicle ownership targets.

4 Assessment of Current Practices

This section reviews current parking management practices which are being applied by Local Governments in Western Australia. The section includes a summary of the key resources being used by Local Governments to identify these requirements.

4.1 Current Practices

New development parking requirements applied by Local Governments are generally defined through local planning schemes and local planning policies and usually vary according to the type of land use and the jurisdiction. The parking requirements which are currently being applied by Local Governments in Western Australia, for a subset of land uses, is provided in **Appendix A**

A summary extract of this table is provided in **Table 4-1** (below). This table demonstrates the wide range of parking requirements for the land use 'Office' across Local Governments within the Perth Metropolitan Area.

Table 4-1 Parking requirements by LGA (office)

LGA	Parking requirement
Cockburn	1 bay per 50m^2 GLA[1]
Fremantle	1 bay per 30m^2 GLA minimum of 3 spaces
Gosnells	1 bay per 30m^2 NLA[2] Minimum 4 bays per tenancy or office unit. plus 1 bay per 10m^2 NLA open to the public
Joondalup	1 bay per 30m^2 NLA
Nedlands	4.75 bays per 100m^2 GLFA 2 bays in 3 set aside for employees
South Perth	1 bay per 25m^2 GFA[3] (not less than 10% reserved for visitors – minimum 2 bays
Stirling	1 bay per 40m^2 GFA
Subiaco	1 bay per 40m^2 NLA
Subiaco MRA	1 bay per 40m^2 NFA
Swan	4 spaces per 100m^2 GLA
Victoria Park	1 bay per 40m^2 NFA
Vincent	1 bay per 50m^2 NLA
Wanneroo	1 bay per 30m^2 NLA

In addition to the range in parking ratios, there are also restrictions on the type of use allowed, and differences in the type of area calculation used (GLA, NLA and GFA), which change the resulting requirement by as much as 25%.

This review of land uses confirms the findings of earlier studies (DPI 2009), that Local Governments are not applying consistent approaches across jurisdictions and largely continue to apply minimum parking requirements.

[1] Gross Lettable Area (GLA)
[2] Net Lettable Area (NLA)
[3] Gross Floor Allowance (GFA)

4.2 Key Resources

Most local planning schemes and local planning policies examined through this study do not explain the rationale behind the adopted parking requirements. To obtain information regarding the evolution of these policies, Cardno contacted 23 Local Government officers to identify the rationale behind adopted requirements. A total of 18 officers responded, with full commentary included in **Appendix B**.

In summary, Local Government officers identified that:

- Most Local Governments do not have documentation available which explains the rationale for adopting their current parking requirements for new development.
- No two local governments have applied the same parking requirements. Local Governments that have adopted requirements from adjacent Local Governments are likely to have drawn these requirements from multiple Local Government sources.
- Many Local Government parking ratios have been modified over time through the review of local planning schemes, informed by officers' personal experience of assessing development applications.
- Common primary resources used by Local Governments include: *Guide to Traffic Generating Development* (formerly RTA, now RMS); *Guide to Traffic Management Part 11: Parking* (Austroads); and, *Parking Generation Handbooks* (ITE). However there is no Local Government whose requirements closely mirror the ITE guides.
- It appears that the RTA / RMS guide is more often used as a source than the ITE guide. It is noted that the 2013 RTA / RMS update provides the details of the surveys from which the final numbers for that update were derived. However, Austroads' *Guide* cautions against using this evidence in a predictive manner.
- Some Local Governments have determined their statutory parking ratios from a combination of several factors, including benchmarking against neighbouring Local Governments, internal parking surveys and their own policy objectives.
- Parking requirements are applied in many cases without particular consideration of their origin or the individual needs of the proposed development site.

5 Key Findings

This review of historical and current parking requirements in Western Australia identifies that:

> Parking ratios being applied by Local Governments in Western Australia are likely to have originated in the USA.

> USA ratios and subsequent RMS ratios are based on a small number of surveys which have examined locations where parking is free and abundant, and at times of peak demand.

> The above survey conditions mean that parking rates tend to be inflated, and therefore, where applied, may induce greater parking demand (and congestion) than would otherwise be the case.

> The variance in adopted parking requirements across Western Australia means that it is extremely difficult to identify a common rationale for the existing parking requirements, either across Local Governments or across land uses.

> Some Local Governments have considered neighbouring Local Governments, or those with similar characteristics, for guidance when determining parking requirements. While this seems a logical approach, it comes with the risk of repeating the mistakes of others.

> Some Local Governments have supplemented their adopted parking ratios by undertaking parking studies of their own (e.g. City of Rockingham, City of South Perth, Shire of Augusta Margaret River) to design tailored parking ratios that are more likely to be relevant for their communities.

> Many Local Governments do not have documentation that explains how adopted parking requirements have been identified and generally, the origin and evolution of parking requirements has not been recorded. Most adopted requirements have been adapted over time by each Local Government, without supplementary evidence. This is demonstrated in **Appendix A**.

> Few Local Governments have implemented maximum parking requirements, and mostly these exist in City Centre areas where there is high demand for parking and space. This highlights an opportunity to markedly improve regulation to meet the parking, transport and built forms needs of local communities.

6 Policy Options

There are many different objectives that parking policies may be trying to achieve:

- Provide sufficient private parking to prevent overspill.
- Manage parking conflicts between adjacent land uses.
- Support shared and public parking to maximise system efficiency.
- Provide consolidated land-use standards for parking to reduce assessment overheads.
- Differentiate between the parking needs of large and small developments.
- Limit private parking supply to help achieve sustainability goals.
- Create a parking supply that mitigates the potential impact of technological change (electric and automated vehicles, mobility-as-a-service (Maas) etc.).

A summary of the different policy approaches that can be used to achieve these objectives is provided below.

6.1 Preventing Overspill

Minimum parking ratios are often used to reduce (or even eliminate) the impact of development on the surrounding network and adjacent land uses. By nature, these policies have generous parking standards, designed to accommodate the demand on all but the peak few days.

The resulting environment tends towards an excessive amount of parking. This degrades the economic viability of development by imposing additional land and construction costs, reduces the density of activity and makes the area less pedestrian friendly.

6.2 Management of Parking Conflicts

Different land uses require parking at different times of day, and for different lengths of time. This can result in conflicts that ultimately impact the amenity of employees, residents or visitors.

Precinct-level parking ratios provide a mechanism to prioritise the use of on-road or off-street parking spaces for a specific function (e.g. residents or restaurant visitors), by ensuring sufficient private supply for a competing land use. This type of management method relies on control of on-street parking resources through restrictions and enforcement.

A common example of this is the setting of shopping centre parking requirements based on an agreed design day (e.g. Rockingham City Shopping Centre). This ensures that parking is contained within the site, limiting overflow into nearby streets for the majority of the year.

6.3 Maximise System Efficiency

Parking ratios may be used to maximise efficiency. Reducing the number of bays provided by individual lots below the natural demand rate intentionally generates overspill into more efficient public parking areas. This form of policy relies on available parking in the public realm, or paid parking management to regulate demand. These parking ratios are assisted by shared, reciprocal and cash-in-lieu clauses to help create the desired framework for communal parking.

Where public parking is provided at a level that sufficiently accommodates free, unrestrained parking demand, paid parking remains unviable (i.e. the natural price for parking in this situation is $0). However, this form of policy creates opportunities to introduce paid parking, reduce demand and hence construct fewer public car spaces.

6.4 Reduced Evaluation Overheads

Parking demand varies greatly across land uses, so it would appear that any statutory parking ratios need to include many different land use categories. This has the advantage that the sufficiency of parking for the

purpose of development approval is simple to calculate. However, there is often as much variability between different businesses, as between different land uses. Therefore defining fine-grained land-use categories (e.g. funeral home, vet clinic etc.) and then prescribing a standard parking ratio can create a false certainty in the sufficiency of parking.

This implies that standardised parking ratios only make sense where there is a large body of evidence to support them, where there are more strategic goals to achieve, and where there are mechanisms to vary the requirements to suit individual needs.

Standardised parking ratios can be accomplished in many different ways. In the context of policy the simplest approach is to apply a single parking rate across all land uses. For example, Liverpool City Council (NSW) applies a single rate of 1 space per 100sq.m of development across all land uses within its City Centre. This is well below the demand rate for parking, but the additional parking can be supplied, for a given fee, in public multi-deck and on-street parking.

This policy has the advantage of providing flexibility for developers while still satisfying the short- and long-term strategic goals of the Local Government. A single parking ratio independent of land use may be simple to manage, but it tends to be effective only in dense urban areas with ample public parking and the capacity for an established public paid parking system. Outside of these areas, variable standards by land use still make sense. However, experience shows that whether parking requirements are listed as ‘minimum’ or ‘maximum’, many developers continue to provide this ‘target’ value of parking to ensure Development Approval.

An alternative approach is to establish a banded rate that the Local Government is comfortable with. For example the recent City of Vincent and City of Subiaco policies both identify several common land use categories (e.g. office, retail) and give a required minimum and maximum parking ratio per common land use category. It is the responsibility of developers to justify and propose parking requirements for less common land uses. Both of these Local Governments include modified rates for activity areas and along transit corridors, where environment will impact parking demand.

6.5 Parking Requirements for Large Development Sites

Parking policies may require applicants to prepare an Access and Parking Plan for larger developments. These policy measures place the responsibility of identifying appropriate parking requirements onto development proponents and can help to ensure that the provision of parking is tailored to suit the particular needs of individual development sites. One issue with this approach is that planning authorities would be required to review these assessments as part of the development application process.

6.6 Sustainability Objectives and Congestion Mitigation

The Department of Transport has provided consistent guidance linking parking supply to trip generation, road upgrades and congestion, particularly through policies such as *State Planning Policy 4.2: Activity Centres for Perth and Peel*. This translates into parking policies that impose a cap on supply across an activity centre – such as has been imposed at Curtin University-Bentley, QEII-UWA, and Murdoch Specialised Centres.

Some Local Governments have used a similar approach to restrain trip generation in their activity centres. The City of Stirling applies a banded rate of 2-4 spaces per 100sqm across several activity centres. Furthermore, this parking is capped within a band of 200-400 spaces per hectare, where plot ratio exceeds 1.0. This is similar to the function of the *Perth Parking Policy*, which defines a maximum parking provision by land area, related to the pedestrian function of the adjacent road.

Applied in Activity Centre areas, and potentially to other key centres such as business parks and industrial parks, this form of policy has a powerful predictive function. It creates a known future scenario for the provision of car parking in the long-term, while restraining vehicle trip generation at a level that can be supported by the road network. This approach has the benefit of allowing businesses to diversify without having to apply for a change of use and address different parking requirements.

This parking cap can be associated with specific urban form outcomes, with policies regulating the proportion of parking to be provided in private and public facilities. The continuing growth of a ‘capped’ centre is reliant

on the provision of other transport modes and increasing population densities. Improvements to public transport support employees and residents, while the increasing density supports a high degree of internal containment of trips by walking and cycling modes. The constrained nature of the parking supply ensures that the mode share for private vehicles can be positively determined for each future development horizon, creating a mode share target that is directly related to the physical properties of the Centre.

6.7 Managing the Impacts of Technological Change

There is a high potential for autonomous vehicles (AVs) and Mobility-as-a-Service (MaaS) technologies to substantially disrupt the way parking is used. The timeframes for this likely future are not yet resolved but they are likely to be within the lifetime of the developments and parking structures being built today.

The expected result of the uptake of AVs and MaaS is a significant decline in demand for parking, particularly within city centres. Where parking is provided in private facilities in city centres, the parking is a potentially unnecessary ongoing cost to residents and business in the form of higher leasing rates and ownership costs.

One policy measure that could address this is to require a proportion of parking to be 'convertible' to other, more productive uses. This requires careful consideration at the design stage to increase floor-ceiling heights, provide conduits for future services, check column locations, and consider future opportunities for natural light. However, this conversion is not effective in basement parking, and is best employed for podium parking. That means that parking policies will need to be related to design guidelines to establish an appropriate built form that can undergo conversion if required. For example, the City of Melbourne has proposed new regulations which would 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 (City of Melbourne 2018, p.50).

Alternatively, parking can be located off-site, either in public facilities funded through developer contributions or cash-in-lieu, or in private facilities with ownership unbundled from the associated development. This form of parking has the advantage that it can accommodate ongoing future growth as demand declines or be demolished to make way for new development.

Importantly, policies that are considerate of these impacts need to be put in place now, so that development is resilient to the future impacts of technological change.

7 Next Steps

A reconsideration of existing parking requirements being applied by Local Governments is needed to ensure that the parking supplied by new development adequately supports community needs and objectives, as well as the needs of new development.

However the factors that affect parking demand vary so significantly that it can be difficult for Local Governments to determine the correct course of action. The current practice of parking ratio adoption and gradual modification is a natural response to this complexity. This suggests that guidance should be provided to Local Governments as to how to:

- Identify local parking demand for different precincts and appropriate policy requirements.
- Review parking assessments which may be required as part of the development application process.
- Manage public parking assets through paid parking, time restrictions and enforcement, including how parking fits within the function of local town centres and adjacent areas.
- Understand the strategic importance of parking as a component of the integrated transport system, and its role in supporting activity and in travel demand management.
- Manage parking supply in the context of ‘change of use’ applications, to create appropriate conditions through the planning process.
- Establish a messaging guide to assist the public in understanding the true cost of ‘free’ parking
- Determine a common response to the potential impacts of technological change, to sustainably manage the transition towards AVs and MaaS, which have the potential to dramatically impact the function of parking and development in general.

Private parking forms one important component of a holistic system that includes on-street and public off-street parking, land-use density and mix, and the provision of alternative transport. Any review of parking requirements must therefore also include information on how Local Governments can appropriately manage public parking assets through paid parking, time restrictions and enforcement, and how parking fits within the function of local town centres and adjacent areas.

The above guidance should be considered in the context of short-term policy positions and initiatives that can be undertaken by Local Governments. However, there is also likely to be long-term legislative reform required, from State and Federal Government, which may need a consolidated response from Local Governments to achieve.

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WALGA

APPENDIX A

LGA PARKING REQUIREMENTS

Cardno
Shaping the Future

Council	'Shop' Type Zone	'Showroom' Type Zone	'Education Establishment' Type Zone	'Office' Type Zone	'Consulting Rooms' Type Zone	'Café/restaurant' Type Zone	Notes
			INNER METRO				
Subiaco	1 bay per 20m^2 net lettable area	1 bay per 50m^2 NLA	1 bay per classroom, plus 1 per 10 students (excluding primary schools)	1 bay per 40m^2 net lettable area	4 bay per consulting room	**Restaurant** – 1 bay per 4m^2 of eating, drinking or lounge area	
Subiaco MRA area	(a) **Market, Shop or collection of Shops which has a floor area less than 1000m^2**. = 1 bay per 20m^2 of net floor area (b) **All other Shops** = 1 bay per 30m^2 of net floor area	1 bay per 100m^2 net floor area	1 bay per classroom or 1 per 2 staff whichever is the greater	1 bay per 40m^2 net floor area	1 bay per 50m^2 net floor area	'**Tavern Restaurant'** 1 bay per 4m^2 of public drinking area, 1 bay per 4 seats provided for which an eating area is designed to provide	▪ SRA area has minimum and maximum ▪ Requirements may be reduced based on proximity to public transport in Precinct 8
Stirling	'**Shop/Personal Services'** 0-5000m^2=8 bays per 100m^2 of gross leasable area (GLA). 5001 – 10,000m^2 = 400 bays plus 7 bays per- 100m^2 of GLA in excess of 5001m^2. 10,001m^2 plus = 750 bays plus 6 bays per- 100m^2 of GLA > 10001m^2	1 bay per 30m^2 of Gross Floor Area (GFA)	• **Pre-primary**= 1 bay per staff member • **Primary** = 1.25 bays per classroom; • **Secondary** = 3 bays per classroom • **Tertiary / Technical** = 1.25 bays per classroom, plus one bay per 3.5 students.	1 bay per 30m^2 of GFA	'**Consulting Rooms and Medical Centres'** 6 bays for 1 health consultant 10 bays for 2 health consultants 2 additional bays for each health consultant in excess of 2 health consultants	**Restaurant =** 1 bay per 7m^2 of gross floor area	Requirements may be reduced based on ▪ proximity to public transport ▪ proximity to existing public parking ▪ Provision of bicycle bays and/or end-of-trip facilities.
Vincent (current)	1 space per 20m^2 NLA	1 space per 100m^2 NLA	▪ **Primary/Secondary School** = 1.25 spaces per classroom	1 space per 50m^2 NLA	3 spaces per consulting room or consultant,	**'Eating House/Tavern/Small Bar'** 1 space per 5 persons	Requirements may be reduced based on: ▪ proximity to public transport

			▪ **Tertiary/Technical School** = 3 spaces per classroom ▪ **Vocational School** = 1 per 4 students.		whichever is lesser	(based on persons approved for the site)	▪ proximity to off-street parking ▪ development located in town centre ▪ development proposed mix of commercial and residential ▪ Provision of end of trip facilities. ▪ Additional factors
South Perth	**Local Shop** = 1 bay per 25m² gross floor area		**Primary/Secondary School** = 1.5 bay per classroom	1 bay per 25m² gross floor area of which not less than 10% with a minimum of 2 bays shall be reserved for visitors	1 bay for every 19m² of gross floor area with a minimum of 6; plus 1 for every person employed on the premises	**Café/Restaurant** = 1 bay per 5m² of dining area	▪ Additional parking requirements in Commercial Zones ▪ Requirements may be reduced based on ○ proximity to public transport ○ proximity to existing public parking ○ Provision of bicycle bays and/or end-of-trip facilities. ○ Proposed development contains mix of uses.
Vic Park	1 bay for every 10m^2 of retail floor area.	3 bays for the first 150m^2 net floor area and thereafter 1 for every 75m^2 of net floor area.	▪ **Public Schools =** min. of 14 bays per 100 students, plus staff car parking at a rate of 0.08 bays per student ▪ **Private Schools** = min. of 14 bays per 100 students, plus staff car parking at a rate of 0.96 bays per student ▪ **Technical/Tertiary Schools** = a bay for every 4 students and 1 bay for every teacher.	1 bay for every 40m^2 of net floor area.	4 bays per consulting room.	**Restaurant** = 1 bay for every 4.5m^2 of sit down dining area.	Reduced parking standards for certain uses in certain locations along Albany Highway.

			▪ **Academy/Other education centre** = 1 bay for every 4 students and 1 bay for every staff member				
Nedlands	8.3 spaces per every 100m^2 of leasable floor area 1 space in every 5 to be set aside for employees	2.2 spaces per every 100m^2 gross leasable floor area OR 1 space per employee. Whichever is greater	▪ **Primary School** = 1.2 spaces per staff member, 2 of every 10 spaces (or part thereof) to be set aside for student teaches or visitors. ▪ **Secondary School =** 2 spaces per staff member plus 1 per rostered canteen worker plus 2 additional spaces for each 10 provided (or part thereof). Additional spaces to be set aside for student teachers or visitors.	'Professional Office ' = 4.75 spaces per every 100m^2 of gross leasable floor area 2 spaces in every 3 set aside for employees		Restaurant = 1 space per each 2.6m^2 of restaurant seating area, OR 1 per 2 persons (a) Whichever is greater Means the number of persons for which a building has been designed or for whom seating is provided.	
OUTER METRO							
Rockingham	6 bays per 100m^2 NLA	1 bay per 50m^2 NLA		1 bay per 20m2 NLA	5 bays per consultant	1 bay for every 4 persons the building is designed to accommodate	Minimum parking requirements however 2 other tables are provided for: ▪ Primary Centre Zone (minimums and maximums) ▪ Primary Centre Waterfront Village Zone (minimums but smaller allowances)
Joondalup	1 bay per 30m^2 NLA	1 bay per 30m^2 NLA	**Primary School** = 2 bays per classroom but not less than 10 **Secondary School** = 2 bays per classroom but not less than 10 **Tertiary College** = 1 bay per 3 students accommodated.	1 bay per 30m^2 NLA	5 bays per practitioner	**Restaurant** = Greater of 1 bay per 5m^2 of dining room or 1 bay per 4 guests	

Wanneroo	1 bay per 30m^2 NLA	**Shopping Centres under 10 000m^2 =** 7 bays per 100m^2 NLA	**Kindergarten** = Provision of a drive-in pickup/set down facility plus eight (8) bays **Primary School** = Min. 46 car bays for staff and visitor for the first 475 students and then 10 car bays for every 100 students or part thereof afterwards, plus 14 pickup/set down bays for every 100 students or part thereof which may be provided in the road reserve. **Secondary School** = Min. 60 car bays for staff and visitor parking for the first 600 students and then 10 car bays for every 100 students or part thereof afterwards plus 7 pick up/set down bays for every 100 students or part thereof which may be provided in the road reserve **Tertiary College** = 1 per 3 students accommodated	1 bay per 30m^2 NLA	5	**Restaurant** = 1 bay per 4 people accommodated or 1 per 5m^2 seating area
Swan	4 spaces for every 100m^2 of display and sales area and 2 spaces for every 100m^2 of storage area, provided that the storage area is separated from the public display area by a permanent wall or divider	8 spaces for every 100m^2 of GLA.	**Private Primary School** = 1 space per classroom. **Private Secondary School** = 1 space per classroom, plus 1 space for every 25 students the school is designed to accommodate for the final year of secondary education. **Private Tertiary** = 1 space for every 6 students the building is designed to accommodate, plus 1 for each employee, plus	4 spaces per 100m^2 GLA	6 spaces for 1 general practitioner 10 spaces for 2 general practitioners All other allowable practitioners: 4 spaces for 1 practitioner 6 spaces for 2 practitioners	**Restaurant** = 1 space for every 4 persons the building is designed to accommodate

			additional requirements for auditoriums or stadiums.				
Gosnells	1 space for every 15m^2 NLA (6.7 spaces per 100m^2 NLA) Minimum 4 spaces	1 space for every 50m^2 gross leasable floor area Minimum of 4 spaces per tenancy or unit	**Pre-Primary** = 1 space for every staff member, plus 1 space for every 2 students **Primary School** = 1 space for every staff member, plus 14 drop-off spaces for every 100 students (may include on-street spaces) **Secondary School** = 1 space for every staff member, plus 7 drop-off spaces for every 100 students (may include on-street spaces) **Tertiary Institution** = 1 space for every staff member, plus 1 space for every 5 students	1 space for every 30m^2 net lettable area, Minimum 4 spaces per tenancy or office unit. plus 1 space for every 10m^2 NLA open to the public	4 spaces for every consulting room.	**Restaurant, Café =** 1 space for every 4 seats or 1 space for every 4 persons the building is designed to accommodate or 1 space for every 4m^2 seating area, whichever is the greater, plus 1 space for every staff member present at any one time	
Fremantle	**Shop local =** 1 space per 20m^2 nla (minimum 2 bays)	1 space per 50m^2 gla minimum of 4 spaces	**Primary School** = 1 space per 1 class room **High School** = 1 space per 1 class room plus 1 space per 25 year 12 students **Tertiary School** = 1 space per 1 teaching room Or *1 space per 6 students	1 space per 30m^2 gla minimum of 3 spaces	5 spaces per 1 practitioner or * 5 spaces per 1 consulting room	**Restaurant** = 1 space per 5 seats or 1 space per 5m2 dining area, whichever is the greater	▪ Schools – In addition to car-parking requirements detailed above, provision is to be made for on-site bus standing spaces, number to be determined by the council. ▪ Requirements may be reduced based on ○ proximity to public transport ○ proximity to existing public parking ○ Provision of bicycle bays and/or end-of-trip facilities. ○ Other criteria.

Cockburn	1 space per 12m^2 nla for 0-5,000m^2 nla 1 space per 14m2 nla for 5,000-10,000m^2 gla 1space per 16m^2 nla for 10000m^2 and over gla	1 space per 50m^2 gla	**Primary School** = 1 space per 1 Class Room **High School** = 1 space per 1 Class Room Plus 1 space per 25 Year 12 Students	1 space per 50m^2 gla	5 spaces per 1 Practitioner OR* 5 spaces per 1 Consulting Room 1 space per 15m^2 gla	**Restaurant** = 1 space per 4 seats OR* 1 space per 4 people accommodated	Rural Use Classes has separate parking provisions.
COUNTRY REGIONAL CENTRE							
Albany	1 bay per 20m² NLA	1 bay per 50m² NLA	1 bay per employee + bus, parent and student parking at discretion of the Local Government	1 bay per 30m² NLA	3 bays per practitioner + 1 per 3 employees	**Restaurant** = 1 bay per 4 persons the facility designed to accommodate + 1 per employee	LG may relax the requirements where it is satisfied ▪ Different uses on the premises will generate parking demand at different times allowing bays to be shared ▪ Providing the number of bays required will result in a built form that will conflict with existing or planned development of the locality; or ▪ Contractual arrangements have been made to implement parking or shared use of existing or planned parking area.
Bunbury	**'Retail Premises'** = 1 bay per 40m^2 gla for areas open to the public, plus		**Pre-Primary =** 1 bay per employee, plus parking and set down areas for students as determined by the LG				Council may grant a developer a reduction in the total number of car bays by the development

	1 bay per 100m^2 gla used for storage, with a min. 5 bays.		with consideration of the number of students the premises is designed to accommodate. **Primary =** 1 bay per employee, plus parking and set down areas for students as determined by the LG with consideration of the number of students the premises is designed to accommodate. **Secondary =** 1 bay per employee, plus student parking in addition to set down areas as determined by the LG with consideration of the number of students the premises is designed to accommodate. **Tertiary =** 1 bay per employee, plus 1 bay per 4 students – or as determined by the LG with consideration of the number of students the premises is designed to accommodate.				of up to 10% on the basis that the developer provides an acceptable alternative means of transport, e.g. an integrated cycle storage facility, within the development.
Busselton	1 space per 30m^2 of NLA plus 1 loading bay per development	1 space per 50m^2 of NLA plus 1 loading bay per development	**Pre-School** = 1 space per teacher or parent on roster Safe pick-up and set-down areas (including off-street bus zones) shall be developed as directed by the City **Primary School** = 1.25 spaces per classroom Safe pick-up and set-down areas (including off-street bus zones) shall be developed as directed by the City	1 space per 30m^2 of ground floor NLA. 1 space per 40m^2 of first or second floor NLA	1 space for the residence plus 3 spaces per consultant	**Restaurant** = 1 space per 4 seats/6m^2 of public area	Separate CBD parking provisions apply

			Secondary School = 1.5 spaces per classroom Safe pick-up and set-down areas (including off-street bus zones) shall be developed as directed by the City **Tertiary Education** = Subject to negotiations, the City shall ensure that all staff and student parking is accommodated on-site				
Geraldton	1 space per 20m^2			1 space per 50m^2	5 spaces per practitioner	**Food & Beverage** = 1 space per 4 patrons	The local government may permit land uses to share or combine parking facilities, and may approve a reduction in the total parking requirement provided it is satisfied— (a) no conflict will occur as a result of the joint use of the parking facilities; (b) the peak demands for parking bays from the individual land uses do not coincide; and (c) the combined parking provision will provide an adequate level of service for the approved uses.
Kalgoorlie-Boulder	**Shop/Personal Services** = 7 bays per 100m^2 NLA (minimum of 5 bays per shop in any centre) or part thereof	1 bay every 50m^2 NLA for first 200m^2 NLA or part thereof and thereafter 1 bay every 100m^2 NLA or part thereof	**Child care premises/kindergarten** = 1 bay for every staff member and 1 bay for every 4 children attending	1 bay for every 30m^2 NLA or part thereof	1 bay for every staff member and a minimum of 5 bays for patients or 1 bay per consulting room whichever is the greater	**Restaurant** = 1 bay for every 10m^2 NLA or 1 bay for every 4 seats provided whichever is the greater, except for Alfresco Dining areas which must provide 1 bay for every 20 square metres of NLA	Separate Central and District Business zone requirements

Port Hedland	1 bay per 20m^2 of NLA (minimum 3 bays per tenancy or unit)	1 bay per 50m^2 of NLA (minimum 3 bays per tenancy or unit)	**Pre-Primary** = 1 bay for every employee, and 1 bay for every 2 students **Primary School** = 1 bay for every employee, and 14 drop-off bays for every 100 students (may include on-street spaces) **Secondary School** = 1 bay for every employee, 7 drop-off bays for every 100 students (may include on-street spaces), and 1 bay per 20 driving-age students **Tertiary and other institutions** = 1 bay for every employee, and 1 bay for every 5 students	1 bay for every 30m^2 NLA (minimum 3 bays per tenancy or office unit)	4 bays for every consulting room.	**Restaurant** = 1 bay for every 4 seats or 1 bay for every 5m^2 seating area, whichever is the greater	Council may vary the requirements where: ▪ two separate and different developments with different hour of peak operation ▪ where the development is located adjacent to a constructed public carpark.
COUNTRY							
Denmark	Retail Shops = 1 bay per 40m^2 gla		**Primary** = 1.25 bays per classroom. **Secondary** = 2 bays per classroom	1 bay per 40m^2 gla	First Consultant 4 bays. Additional Consultants 4 bays each.	**Restaurant** = 1 bay per 4 persons	
Augusta-Margaret River	1 space per 25m² nla.	1 space per 50m² nla.	**Educational Establishments** Including all schools, kindergartens and child/day care centres = To be determined by the local government in each case having regard to the number of teachers in attendance at any one time and the number of support personnel also in attendance.	1 space per 25m² nla.	4 spaces for each practitioner the premises are designed to accommodate at any one time	**Restaurant** = 1 space per 4 seats.	Qualifications, Requirements or conditions may apply to various uses.
Katanning	**SHOPPING =** 6 spaces for every 100m^2 of Nett	4 spaces for up to the first 200m^2 of NLA		5 spaces for every	4 space for every consulting room up to 2 such	**Restaurant** = 1 space for every 4 seats which an eating area is	

	Lettable Area (NLA).	and thereafter 1 space for every additional 100m^2 of NLA or part thereof.		100m^2 of NLA.	rooms and 2 for every additional consulting room.	designed to provide, or 25 spaces for every 100m^2 of eating area or part thereof, whichever produces the greater number of parking spaces
Broome	**Retail Premises – Hire/Shop** = 1 bay per 15m^2 gross leasable floor area	1 bay per 50m^2 of gross floor area	**Education Centre =** 1 bay per staff member Plus adequate pickup/set down areas on site; Plus provision of on-site bus standing and turning areas; If students are of driving age, adequate provision for student onsite parking at the discretion of Council	1 bay per 30m^2 gross leasable area.	4 bays for each professional person, Plus 1 bay for each other employee	**Restaurant** = 1 bay per 4m^2 of dining area 1 bay for each 6m2 of drinking or assembly area, where provided
Carnarvon	1 space per 20m^2	1 space per 100m^2 gfs		1 space per 50m^2 gfs 4 spaces per consultant or practitioner	1 space per 50m^2 gfs 4 spaces per consultant or practitioner	**Restaurant** = 1 spaces per 2 seats + 1 space per 5m^2 of waiting area

WALGA

APPENDIX B

LG STAKEHOLDER ENGAGEMENT

Cardno
Shaping the Future

LG	Comments	
1	"I cannot identify where the current parking standards are derived from. The car parking standards within the Scheme are similar to those contained within the (previous) Scheme, which was originally gazette in 1983."	
2	"As with most Local Authorities, it is difficult to pinpoint exactly where car parking requirements were established or what the basis for the ratios were. They have evolved over time. I do know that the current Local Planning Scheme No.(provided) based most figures from the previous Scheme However the basis for (the requirements in that previous scheme) is harder to discern… I believe a few local schemes were in part based on findings from a NSW study some 20-30 years ago but I am not sure of the exact name of that study."	
3	"Centre zone parking standards were taken from the (City Centre Parking Strategy). The rates suggested in the document were modified by the Department of Planning via modifications to Scheme Amendment No. (provided) to Town Planning Scheme No. (provided). The parking rates for land uses in all other zones (not Centre zone) have been in the Scheme since its gazettal … but amended numerous times to align more with other Schemes and generally require less parking."	
4	"Our original provisions date back to 1984. As with most councils there is no universal standard these were drawn from. Our base standards have not been altered; however, a number of clauses have been added to our Scheme over the years to add flexibility and encourage sharing of bays."	
5	"The calculation is derived from years of 'trial and error'."	
6	"The number of bays required per gross square metre has evolved over time as a result of supply and demand depending on the type of land use permitted by the Town. The vehicle parking requirements [in the current TPS] has been a result of a carrying over similar vehicle parking requirements from the Town's previous Local planning Scheme (provided), with comparisons made with the surrounding local councils in order to provide consistency with the surrounding local authorities."	
7	"We don't have a planning officer here who was working at the time the Scheme was drafted and Gazetted."	
8	"When drafting LPS (No. provided), in the years prior to the Scheme's… gazettal, it is my understanding that many factors were looked at to determine the car parking standards…including the City's existing TPS (No. provided) parking standards, what other local government schemes contained in regards to vehicle parking standards at the time and the City's own experience with requiring car parking through land use and development applications."	
9	"The parking standards in (the current LPS) are based on previous parking standards, such as those in Town Planning Scheme No. (provided). As (the LPS) was gazetted in 2000, we do not have specific information on where those parking standards came from."	
10	"These are a result of research that was undertaken at the time when the Scheme was updated."	
11	"The requirements come from assessing car parking for uses and coming up with a rationale which is justifiable but also consistent, where possible, with requirements other councils have for car parking."	
12	"Having looked through our records, and considering when TPS (No. provided) was gazette… which at the time included the same parking requirements as what we have currently, unfortunately we are unable to confirm where the car parking requirements under Schedule III originated from. I can only assume that the parking requirements under the City's TPS (No. provided) were deemed to be too onerous at the time, and the current requirements might have been based on previous planning application decisions and/or other planning legislation which existed at the time."	
13	"To the best of my knowledge, the parking requirements under Town Planning Scheme (No. provided) were based on best practice at the time. Unfortunately the Shire's electronic records only date back to 1995 so I'm unable to confirm if there was any other justification for the parking provisions."	
14	"The origins of the parking requirements in the scheme are not readily available as the Scheme has been operational now for 15 years."	
15	"Most of the ratios (in the current LPP) were carried over from the City's previous District Planning Scheme No. (provided)… The previous Scheme was originally gazette in 1985."	
16	"LGs tended to base their car parking standards on a document cited as Chris O'Neill and Associates 1998, I think the title is something around car parking standards in comparable regions. Our scheme was adopted back in 2001 and we only have very foggy records around the justification for certain measures. But the car parking standards were probably based on the aforementioned document, perhaps with some alterations to account for local characteristics."	
17	"I was the project lead on writing the revised… parking policy. In terms of where the parking requirements came from, the City appointed Cardno to undertake an investigation and make recommendations for the parking requirements. The parking requirements were formed on this basis and the land uses attributed to these numbers were both a combination of the findings of this report, the City's current policy requirements	

	and an understanding of similar land use requirements through a number of recent Development Applications."	
18	"To my knowledge, traffic and parking reports/investigations were conducted when the current Scheme was originally being written based on existing uses which determined these requirements by the City."	

About Cardno

Cardno is a professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD].

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