IN THE MATTER   of the Resource Management Act 1991 and the Local Government (Auckland Transitional Provisions) Act 2010

AND

IN THE MATTER   of the Proposed Auckland Unitary Plan

**ECONOMIC EVIDENCE OF FRASER JAMES COLEGRAVE FOR
MULTIPLE PARTIES
TOPICS 043/044 - TRANSPORT**

16 JUNE 2015

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1.   INTRODUCTION, QUALIFICATIONS AND EXPERIENCE

1.1   My full name is Fraser James Colegrave. I am an economist and the managing director of Insight Economics, an economics consultancy based in Auckland.

1.2   I hold a Bachelor of Commerce (1st Class Honours) in Economics from the University of Auckland. I am a member of the New Zealand Association of Economists and the Resource Management Law Association.

1.3   I have over 20 years' commercial experience, the last 15 of which I have worked as an economics consultant. I have successfully led and completed over 250 consulting projects across a broad range of sectors.

1.4   My main field of expertise is land-use economics, particularly as it relates to retail development. I have worked extensively in this area for many of the largest property developers in New Zealand, including AMP, Auckland Airport, Argosy, Fulton Hogan, Foodstuffs South Island, Tainui Group Holdings and Todd Property. I regularly provide expert evidence for hearings held before Councils, the Environment Court and the EPA.

1.5   I also work on a wide range of economic/financial/strategic/policy issues for both local and central Government, and therefore understand the issues from multiple perspectives.

1.6   For example, I have worked on the following major transport-related projects for Central Government:

(a)   Economic analysis of policies aimed at increasing mode shares for walking and cycling.

(b)   Cost benefit analysis of introducing mandatory electronic stability control on imported vehicles to improve fleet safety.

(c)   Cost benefit analysis of policies aimed at reducing emissions from the light vehicle fleet to improve health outcomes.

(d)   Economic analysis of policies aimed at reducing oil consumption from the light vehicle fleet.

(e)   Statistical analysis of variations in fuel economy standards between the Japanese and European fleets.

(f)   Econometric analysis of the technical potential for energy efficiency improvements across the transport fleets.

1.7   In addition, I have completed numerous projects on local infrastructure funding across New Zealand, including analyses of the demands created by new developments for local transport infrastructure.

Code of conduct

1.8   I confirm that I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2014. I have complied with the Code of Conduct in preparing this evidence and agree to comply with it while giving oral evidence before the Hearings Panel. Except where I have stated that I am relying on the evidence of another person, this written evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this evidence.

Scope of Evidence

1.9   This statement focuses on the proposed policy to abolish minimum parking requirements ("**MPRs**") in centres. For ease of reading, it is split into two parts. The first part provides a detailed critique of the policy, the supporting section 32 analysis and the evidence of Stuart Donovan on behalf of Auckland Council, while the second part analyses the likely costs and benefits of the alternative approach identified by other independent experts on behalf of the Key Retailers Group ("**KRG**").

2. EXECUTIVE SUMMARY

2.1 This statement focuses on the proposed policy to abolish MRPs in centres ("**the policy**"). It begins in Part 1 below by identifying a number of serious shortcomings with both the policy itself, and the Council's section 32 evaluation of it. These issues include:

(a) That the policy is too blunt and fails to recognise the critical distinction between short-stay and long-stay parking. In addition, it overlooks the importance of parking to retailers and other businesses.

(b) That shopping trips largely occur during off-peak times and therefore do not contribute significantly to peak congestion, but the policy fails to recognise this.

(c) That there are significant barriers to shifting car-based shopping trips to public transport ("**PT**"). Further, since these trips typically occur off-peak, the benefits of any PT shifts are also much smaller than for other car-based trips, particularly low-occupancy peak-time commutes.

(d) The policy could have a number of serious unintended consequences. First, it will likely to lead to a wholesale undersupply of parking spaces relative to demand, which will create localised congestion and increased travel time and frustration. Second, it will create incentives for smaller retailers to free-ride on the parks voluntarily provided by larger retailers. Over time, this may cause larger retailers to choose out-of-centre locations where MPRs exist and hence free-riding can be avoided. In doing so, they will gradually cause retail activity to be fragmented and undermine the Council's centres-based retail philosophy. This, in turn will reduce agglomeration benefits and may lead to more shopping-related travel than would have otherwise occurred.

(e) Finally, that the section 32 report ignores all the shortcomings outlined above and also fails to consider less extreme options

for meeting its objectives, such as a reduction in MPRs, rather than straight-out abolition.

2.2   Having identified serious issues with the policy and its supporting evaluations, I then analyse in Part 2 of my evidence the pros and cons of alternative MPRs proposed by independent traffic experts on behalf of the KRG.

2.3   To begin, I first compare the KRG's proposed MPRs against existing ones in legacy plans, and find that they are about 33% lower, this potentially overcoming concerns about the status quo.

2.4   Then, I consider the optimal level of retail MPRs from an economics perspective. To that end I first note that parking provision is usually defined in terms of achieving a certain level of satisfaction, which is usually set at 85%.[1]

2.5   I then compare the existing MPRs and the MPRs proposed by the KRG against "satisfaction levels" reported in the literature based on large samples of New Zealand survey data. I find that the existing MPRs closely match the 85% level while the KRG's proposed MPRs fall short.

2.6   Accordingly, I argue that the KRG's proposal will not be overly-onerous but will at least provide a minimum baseline, which some may voluntarily exceed depending on the circumstances.

2.7   Finally, I highlight a number of parallels between MPRs and Development Contributions ("**DCs**"), which the Council uses to fund a range of other infrastructure, including the local roading network.

2.8   Using this framework, I note that abolishing MPRs is the policy equivalent of deciding to waive DCs on new development, which only makes economic sense if development no longer creates a demand for the infrastructure in question.

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[1]   This means that parking should be sufficient to satisfy demand 85% of the time, and only fall short during the highest 15% of annual peak demands.

2.9   Since retail development *will* continue to generate parking demand regardless of the policy, this condition does not hold and the policy cannot be supported on economic grounds.

2.10   Accordingly, I support the reduced MPRs proposed by the KRG. Not only will these alleviate concerns held by some about the current MPRs, but they will also ensure that retail development is not adversely affected by a systematic under provision of parking spaces over time.

3.   PART 1: ISSUES WITH THE POLICY AND SUPPORTING ECONOMIC ANALYSES

3.1   The first part of my evidence draws on a wide range of New Zealand literature to show that, not only is the policy unlikely to have its intended effects, but that it could also have a number of serious unintended consequences. At the same time, I found that the section 32 analysis – and underlying economic evaluations – were deficient and failed to properly consider viable alternatives, such as a *reduction* in MPRs. I now work through these issues in more detail below.

The Policy is too Blunt and Overlooks the Importance of Parking to Retailers and Other Businesses

3.2   According to background economic reports completed by MRCagney on behalf of the Council[2] [3] and the evidence of Mr Donovan,[4] the key reasons for abolishing MPRs are to:

       (a)   free-up land for development;

       (b)   discourage the perceived excessive use of cars; and

       (c)   facilitate a transformational shift to public transport ("**PT**").

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[2]   MRCagney (2012). *The economic impacts of minimum parking requirements: An analysis of Dominion Rd, Takapuna, and Onehunga*. Auckland, MRCagney and Auckland Council.

[3]   MRCagney (2013). *The economic impacts of parking requirements in Auckland.* Auckland, MRCagney and Auckland Council.

[4]   Evidence of Stuart Donovan, on behalf of Auckland Council, dated 2 June 2015 at [6.8].

3.3   While I do not dispute the merits of these objectives, I do not believe that abolishing MPRs will make a meaningful contribution. As it stands, the proposed policy is too blunt and therefore unlikely to be effective.

3.4   Perhaps the most obvious problem with the proposed policy is that it fails to acknowledge the critical distinction between short-stay and long-stay parking.

3.5   Indeed, as noted in several other Council documents,[5] short-stay and long-stay parking have different roles and functions. Specifically, short-stay parking tends to support a range of day-to-day activities that largely occur during off-peak hours, while long-stay parks mainly service low-occupancy, peak-time commuter travel. Thus, short-stay parks tend to provide significant benefits with minimal adverse effects, while the opposite is generally true for long-stay parks.

3.6   Recognising these fundamental differences, the ARC's 2009 Regional Parking Strategy included a specific policy of "giving priority to short-stay parking" which, in turn, required the Council to "clearly distinguish between short stay / visitor parking and long stay / commuter parking in policies and actions in CPMPs relating to the management and supply of public parking in town centres." Unfortunately, however, this important distinction has been lost.

3.7   Another issue is that the policy appears to overlook the reliance of car-based travel to retail activity (and hence also the centres of which retail activity forms part).

3.8   For example, according to the Ministry of Transport's *Household Travel Survey,*[6] 81% of shopping trips are made by car, with 16% made on foot, and the remaining 3% made by PT and cycling.

3.9   While some may argue that these statistics are skewed by the excessive provision of parking, which encourages driving, there are

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5   See, for example, the former-ARC's 2009 Draft Parking Strategy and AT's 2014 Parking Discussion Document.

6   http://www.transport.govt.nz/research/travelsurvey/

several other reasons that car-based travel dominates shopping trips. Most importantly, car-based travel is much faster than other modes.

3.10 In fact, according to the *Household Travel Survey*, the average travel speed for car-based shopping trips is 60% higher than PT, which generates significant travel time savings.

3.11 Other reasons for the dominance of car-based travel include its easy accessibility; time and destination flexibility; safety; convenience; and carrying capacity (for heavy or bulky shopping items and a large volume, for example in malls where customers may purchase multiple items from a number of stores).

3.12 Some researchers appear to believe that retailers systematically over-estimate the importance of car-based shopping trips and under-estimate the importance of PT-based trips. Accordingly, they argue, retailers also over-estimate the importance of parking to their business.

3.13 This hypothesis formed the focus of a highly-detailed NZTA research report in 2013,[7] which considered the possible scope for road-space reallocations in and around local shopping areas.

3.14 Amongst other things, the authors attempted to replicate the results of European studies, where the proportion of car-based shopping trips was dramatically over-estimated by retailers. However, the New Zealand retailer's perceptions of travel mode importance were remarkably accurate, and even *under-estimated* the importance of car-based trips while over-estimating the importance of walking and PT. As a result, it is difficult to justify the proposed policy on the basis of retailer perceptions.

3.15 The researchers also canvassed a number of other issues and their importance to retailers. They found that an adequate provision of on-street and off-street parking were the two most important design

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[7] Fleming (Allatt), T, S Turner and L Tarjomi (2013) Reallocation of road space. *NZ Transport Agency research report 530.*

features in maintaining and supporting business trade, while the removal of on-street parking was identified as the greatest threat.

3.16   On the basis of these findings, the authors concluded that "*The availability of parking is a major issue for retailers. Transport professionals need to better understand this point of view and to understand the existing use of parking in retail areas, from both the shopper and retailer perspective.*" I agree.

3.17   However, it is not just retailers that consider parking important. In 2011, Ascari Partners and PWC analysed the drivers of firm location in Auckland and found that "access to plentiful and free/affordable parking" was second only to proximity to customers, with nearly 70% of respondents identifying sufficient parking as important or very important to their location decisions. Accordingly, the need for adequate parking is not restricted just to retailers.

3.18   To summarise: the policy is too blunt and fails to acknowledge the importance of short-stay parking to retailers and other businesses. If the Council wishes to address low-occupancy, peak-time commutes to long-stay parks (as it has previously signalled) a more fine-grained approach is required. As noted in AT's 2014 parking discussion document, one size does not fit all and overly-aggressive parking restrictions may be counter-productive in town centres until adequate alternatives are available. Absent these, the unintended adverse effects of the policy could far outweigh any perceived benefits.

The Policy Fails to Identify the Key Drivers of Congestion and Manage them Accordingly

3.19   As noted above, one of the key objectives of the policy is to reduce road congestion and hence improve levels of service. In my view, this cannot be done until the drivers of peak congestion are recognised and managed accordingly.

3.20   To better understand the drivers of peak congestion, I reviewed a range of publicly-available New Zealand research and data, including a series of NZTA research reports. The results are summarised below.

3.21   To begin, Figure 3 plots data from a 2008 NZTA research report[8]
         showing the destination of trips by hour of arrival. For the sake of
         interpretation, please note that shopping trips are shown in green,
         work trips in yellow, education in light blue, home in grey, and other
         trips in dark blue.

Figure 1: Arrival Time for Weekday Trips by Purpose
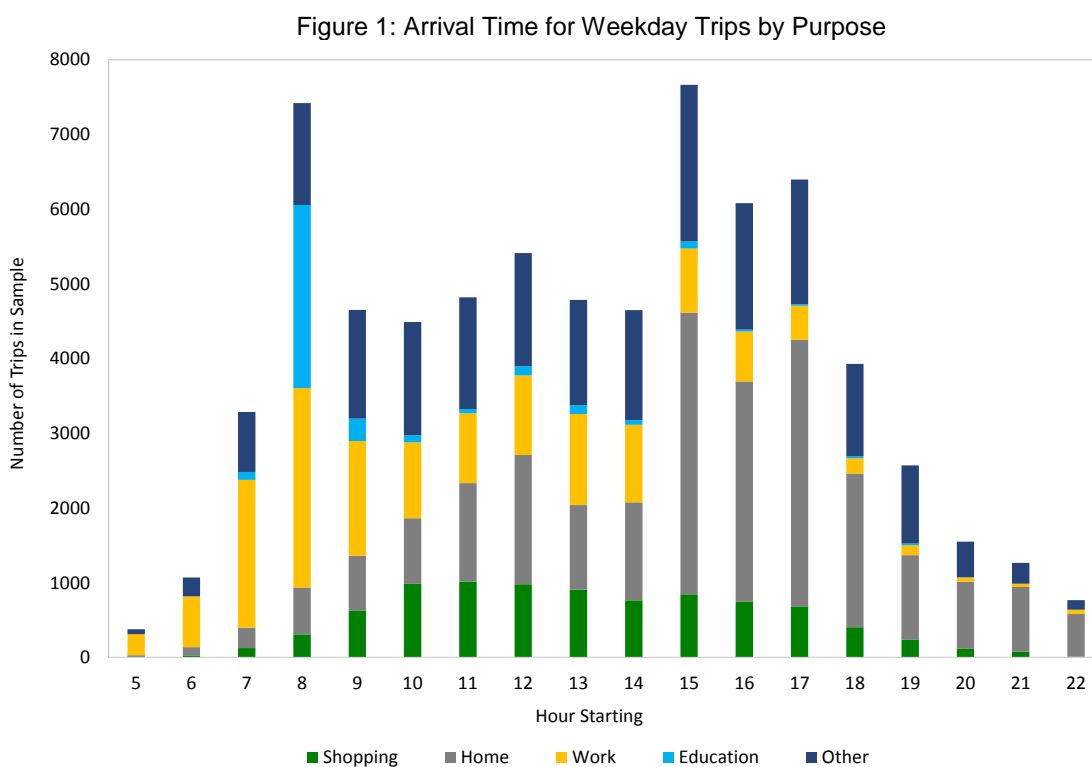
3.22   Figure 3 reveals a number of interesting features. Namely:

         (a)   Shopping trips are fairly evenly spread throughout the day.
                 They rise gradually during the morning, peak around
                 lunchtime, and fall gradually thereafter.

         (b)   The AM peak is dominated by work and education trips, with
                 shopping accounting for only 4% of movements during this
                 time.

         (c)   The highest PM peak occurs between 3pm and 4pm, with
                 trips home accounting for 50% of all movements and
                 shopping accounting for only 11%.

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8   Abley, S., Chou, M., Douglass, M. 2008. National travel profiling part A: description of
        daily travel patterns. *NZ Transport Agency Research Report 353.* 150 pp.

(d)   There is a second PM peak between 5pm and 6pm, during which shopping accounts for around 10% of total movements.

3.23   To investigate further, I purchased data covering every electronic retail transaction by BNZ customers in New Zealand in 2014.[9] It showed that, over the course of the year, just over 10% of retail purchases occurred during the AM and PM weekday peaks.[10] The other 90% occurred outside the peaks, including the weekends.

3.24   This makes sense because, unlike work- and education-related trips, the timing of shopping trips is largely discretionary. Accordingly the majority of shopping trips are purposely timed to occur away from peak traffic periods to minimise travel time and frustration. As a result, shopping trips are only a minor contributor to peak congestion.

3.25   Digging a little deeper into the research, I also discovered that the contribution of shopping to peak traffic has been falling over time. For instance, a 2011 NZTA research report[11] noted that shopping activity has spread out during the week (particularly with the advent of Sunday trading) causing the peak to be spread over a longer period rather than lifting travel demands at a particular point in time.

3.26   The NZTA report then goes on to state, for example, that peak hour trips for suburban supermarkets have fallen from around 22 per 100m^2 of GFA in the 1970s to around 18 per 100m^2 today. Accordingly, not only is shopping a minor contributor to current congestion problems, but its role is shrinking over time.

3.27   So, what really causes Auckland's worsening weekday congestion? There are two main culprits. The first is low-occupancy, work-related commutes, while the second is parents dropping kids off to school.[12]

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[9]   The data covered 92 million transactions with a combined value of $5.9 billion, which is clearly a significant sample and hence a robust basis for analysis.

[10]   These were defined as 8-9AM, 3-4PM and 5-6PM.

[11]   Douglass, M1 and S Abley2 (2011) Trips and parking related to land use. *NZ Transport Agency research report* 453. 156pp.

[12]   The school-related trips are a particular concern. According to Ministry of Transport data, the proportion of primary school children being dropped off at school has

Collectively, these accounted for 70% of the AM peak trips shown in Figure 3.

3.28   Finally, I note that not only do shopping trips contribute little to peak congestion, but that they are also more environmentally-friendly than other car-based trips due to higher average occupancy. In fact, the average occupancy for car-based shopping trips is 50% higher than for commuting trips, which means that the environmental impacts per passenger kilometre are correspondingly much lower.

The Policy Implicitly Assumes that Trips can be Readily Shifted to PT without Understanding the Barriers to Uptake

3.29   As noted above, one of the key objectives of abolishing MPRs is to facilitate a transformational shift to PT. While I consider this a valid policy goal, it cannot be advanced without first identifying current barriers to PT use and methods to overcome them.

3.30   Although reasons for shunning PT differ across people and time, some common themes emerge. These include inconvenience, destination inflexibility, limited service frequency, unreliability, longer average travel times, weather exposure and perceived safety issues.

3.31   Auckland's undulating landscape creates further challenges by limiting the scope for walking and cycling to and from bus or train stations.

3.32   For shopping trips, there are even further barriers to PT use. Namely, its use is limited by the carrying capacity of pedestrians once the PT leg of their trip has ended. Indeed, very few people would choose to carry heavy shopping items to / from a bus or train stop if a better alternative exists, which it usually does.

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increased from 31% in 1990 to 55% today. At the same time, the number of kids cycling to school has fallen dramatically, presumably due to safety concerns.

3.33   A 2011 NZTA research report[13] by MRCagney on Sylvia Park shopping centre sheds some interesting light. It showed that, even though Sylvia Park is serviced by both buses and trains, only 5% of visitors arrived by PT, with 91% arriving by car, and 4% walking or cycling.

3.34   The truth is that cars are highly likely to remain the mode of choice for most shoppers because they provide superior comfort, speed, convenience and safety. At the same time, their impacts are relatively minor compared to other car-based trips because they mostly occur during off-peak hours. Accordingly, both the scope for – and rewards of – shifting car-based shopping trips to PT are limited.

3.35   However, this is not to say that mode shifts are an unworthy policy goal. Rather, that efforts should be focussed on trips for which the probability and rewards of shifts occurring are as high as possible.

3.36   So, which trips should the Council target for mode shifts and why?

3.37   All other things being equal, the probability and benefits of shifting car-based trips to PT are a function of:

(a)   Vehicle occupancy – the lower the average occupancy, the higher the cost per passenger-kilometre and hence the higher probability and benefits of modal shifts.

(b)   Time of travel – removing peak time trips delivers much higher benefits than off-peak trips.

3.38   As we saw in Figure 3, work- and education-related travel dominate peak times, particularly the AM peak. But which trip types have the lowest average occupancy? Figure 2 answers this by plotting the average occupancy of car trips by purpose using data from the *Household Travel Survey*.

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13   Donovan, S, J Varghese, B Parfitt, M Huggins and N Mumby (2011) Integrated transport and land use: Sylvia Park as a case study. *NZ Transport Agency research report 444.* 80pp.

Figure 2: Average Vehicle Occupancy by Trip Purpose[14]
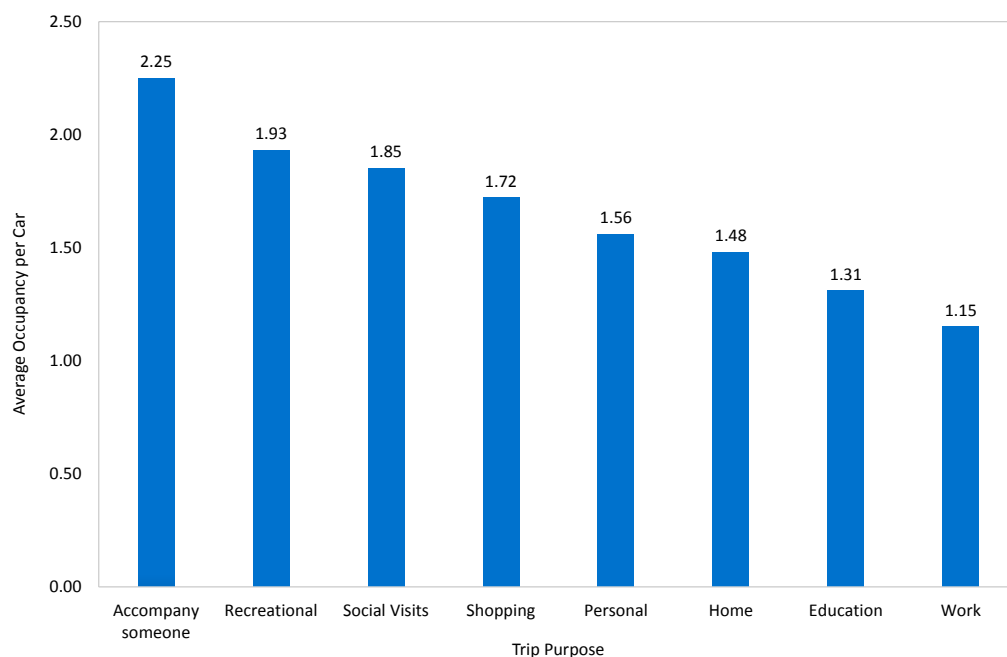
3.39   Figure 2 shows that work- and education-related trips have the lowest average occupancy. Coupled with the fact that they also dominate the AM peak as shown earlier, I consider them perfect candidates for any mode-shift policies.

3.40   Unsurprisingly, other research has also identified these trips as key policy targets. For example, a 2009 NZTA research report by GHD concluded that:[15]

"Commuter trips in peak hours to city centres and school children's travel to school in peak hours are two examples where alternative provision gives a number of benefits to both the traveller and the community. Provision of alternatives for these trips, thus reducing pressure for new road infrastructure, are likely to have long-term benefits for transport budgets."

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14   Trip purpose is recorded from the driver's point of view, hence driving children to school will have the purpose of 'accompanying someone else', not 'education'. If a driver has 'education' as the trip purpose, then he/she is travelling to their own place of study. The trip purpose 'home' is associated with a mixture of the other purposes. Forexample, because the purpose is recorded for each trip leg (ie for each stop), returning home from work is assigned the same purpose as returning home from sport.

15   Smith, NC, DW Veryard and RP Kilvington (2009) Relative costs and benefits of modal transport solutions, *NZ Transport Agency research report 393*. 70pp.

3.41 Coincidentally, AT's 2014 Parking Discussion Document also notes that it "is focussed on increasing PT mode share to the city centre and to shift away from private car use *for commuting.*" [emphasis added]. However, it makes no such claims about shopping trips.

3.42 Accordingly, in my opinion any policies aimed at shifting car trips to PT should be squarely focussed on work- and education-related travel, not off-peak shopping trips. The latter provide significant consumer benefits with relatively minor effects relative to peak-time trips.

The Policy could have Significant Unintended Consequences

3.43 Not only is the policy unlikely to achieve its objectives, but it could also have a number of serious unintended consequences.

3.44 First, absent a significant policy-induced reduction in car-based trip generation for shopping, which I consider extremely unlikely, the policy may simply lead to a wholesale undersupply of parking spaces relative to demand in centres. This, in turn, will make car parks harder to find, causing:

(a) localised congestion around parking areas;

(b) increased driver frustration and search time/cost; and

(c) incentives for shoppers to travel further to out-of-centre locations where parks are easier to find.

3.45 Even AT's own 2014 Parking Discussion Document acknowledges the need for significant future increases in centre parking capacity over time. Specifically, it notes:

"Over the period 2011 to 2041, travel demand to metropolitan centres is projected to increase significantly. Large increases car trips are projected in both the peak and interpeak periods. The strong growth in travel to metropolitan and town centres will be only partially accommodated by public transport. There will also be a significant growth in car trips to metropolitan and town centres even with public transport improvements. Provision will need to be made for growing

numbers of vehicle trips, particularly for visitors requiring short stay parking and, to a lesser extent, for commuters."

3.46   In my view, the proposed policy should reflect this and require new parking to meet growth in demand over time.

3.47   Second, the policy will create perverse incentives for retailers to "free-ride" on the carparks provided by other retailers, rather than providing their own. If this occurs, there could be significant efficiency impacts.

3.48   In my opinion, the most likely scenario is that larger retailers will continue to provide car parks because their customers will still need and demand them, but that smaller retailers may attempt to "piggy-back" on those efforts in lieu of supplying their own. Over time, this may drive a wedge between larger and smaller retailers to the point that the former no longer wish to co-locate with the latter.

3.49   If this occurs, there could be profound unintended effects. First, larger retailers may be incentivised to develop in out-of-centre locations where MPRs exist and hence "free-riding" can be avoided. If so, this could gradually undermine the Council's centre's-based retail philosophy. At the same time, the fragmentation of retail activity would reduce agglomeration benefits, and may even lead to more shopping-related travel than would have occurred otherwise.

3.50   Section 7 of Mr Donovan's evidence attempts to address these issues. It starts by first claiming that parking spill-over effects were explicitly considered in his earlier work for the Council, and hence that concerns raised by KRG about this issue are unfounded.

3.51   I disagree. As explained in the appendix, Mr Donovan's earlier quantitative work contains a number of serious logical and analytical flaws which, in my opinion, render it of limited use. For example it assumes that increased parking management will *fully* mitigate increases in parking spill-over and search costs caused by the policy.

3.52   I consider this is an extremely unlikely scenario, and note that Mr Donovan has provided no evidence to support his conclusion.

3.53   While I agree that increased parking management may partly-offset increases in spill-over and search costs in some locations some of the time, I strongly disagree that they will fully-offset them in every location all of the time (as Mr Donovan assumes).

3.54   Section 7.4 of Mr Donovan's evidence attempts to argue that spill-over effects can be easily managed for off-street parks simply by erecting a sign, but fails to acknowledge or estimate the costs of monitoring and enforcement. I understand these costs be very expensive, and that they would certainly represent a significant resource cost if permanently required at every shopping centre across the region forever more.

3.55   In addition, I note that the imposition of parking management systems can create inconvenience for shoppers and may even alienate legitimate car park users. Accordingly, they are not the preferred solution for most retailers, including the KRG.

3.56   Mr Donovan then notes that many submitters consider MPRs the most appropriate way to respond to high parking demand, but he dismisses this as "an unsubstantiated logical leap" predicated on unsubstantiated, implicit assumptions.

3.57   According to Mr Donovan, the first incorrect assumption is that floorspace is a good predictor of parking demand. He claims that this is not supported by the evidence, before then citing only one American study from 2005 and a 2011 student essay from Wellington to try and prove his point. However, he appears to have overlooked a very strong body of New Zealand evidence that clearly demonstrates the link between floorspace and parking demand.

3.58   For example, NZTA Research Report 453[16] provides a highly-detailed (156 page) analysis of the linkages between floorspace and parking demand to support policy-making at the local and central level. I consider this more compelling than Mr Donovan's evidence.

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[16]   Douglass, M1 and S Abley2 (2011) Trips and parking related to land use. *NZ Transport Agency research report* 453. 156pp.

3.59   Second, Mr Donovan attacks the assumption that smaller retailers may not provide sufficient parking to meet demand. According to Mr Donovan this will not occur because retailers are "keenly aware of the importance of parking, and will supply parking at a level that is sufficient to ensure the viability of their development."

3.60   I consider this highly unlikely. Just because smaller retailers appreciate the importance of parking, this does not automatically mean that they will strive to be self-sufficient with respect to it and not "piggy-back" on the efforts of others.

3.61   Quite the opposite. The profit-maximising strategy for many smaller retailers will include free-riding on the efforts of larger retailers because doing so maximises the benefits of parking while minimising the costs. However, Mr Donovan appears to have overlooked this simple economic fact.

3.62   Finally, Mr Donovan argues that MPRs are often supported by the incorrect belief that perceptions of parking demand are accurate, which he then attempts to refute using one study from the USA. However, as I have already shown above, Auckland retailer perceptions of car use (and hence parking demand) were shown to be highly accurate. This is a more appropriate indicator than an overseas study which is taken out of the Auckland context.

3.63   In summary: I believe that the policy will have a number of significant unintended consequences, including localised congestion.

The Section 32 Report Appears Inadequate

3.64   Finally, I briefly comment on the adequacy of the section 32 report.

3.65   I understand that the purpose of a section 32 report is to carefully examine the efficiency and effectiveness of various options for achieving the Council's objectives.

3.66   While these assessments form a critical part of the decision making process, I consider the Council's section 32 for accessory parking inadequate for several reasons.

3.67   First, if fails to identify – let alone address – the various policy shortcomings that I have outlined above.

3.68   Second, the section 32 report fails to properly acknowledge and resolve the inherent tension between two of its key objectives. Specifically, Objective 3 under Part 2 of Chapter C of the notified RPS states that the number, location and type of parking spaces should support both the:

(a)   use of more sustainable transport options (including PT); and

(b)   economic activity of businesses.

3.69   In my view, these objectives are largely in conflict, with efforts to promote one likely to undermine the other. However, this tension has neither been identified nor resolved.

3.70   Third, the section 32 fails to consider less extreme options for achieving its objectives. For example, I would have expected it to include an analysis of the pros and cons of *reducing* the MPRs, not just abolishing them. However, this option is not explored.

3.71   Finally, the section 32 report relies heavily on economic analysis undertaken by MR Cagney on behalf of the Council. While I agree with some of the introductory material included in these reports, the underlying analyses themselves contain a number of serious issues which, in my opinion, render them of little use. I explain these shortcomings further in **Appendix 1**.

Overall Summary for Part 1

3.72   This section of my evidence has analysed the policy along with the Council's section 32 evaluation and the evidence of Mr Donovan. It has identified a number of serious issues with the policy itself, and also supporting evaluations and economic evidence. Accordingly, I do not consider the policy is the best way to meet the Council's objectives and therefore analyse the pros and cons of an alternative policy proposed by the KRG in the next section.

4. PART 2: BRIEF ANALYSIS OF THE KRG'S PROPOSED POLICY FOR MPRs

4.1 The previous section identified a number of significant issues with the proposed policy and the Council's evaluation of it. In my view, these justify a consideration of alternative policies. To that end, this section briefly compares the likely effects of the KRG's proposed MPRs against the proposed policy of no MPRs.

4.2 For context, Figure 3 first plots the KRG's proposal (of at least 3.3 parks per 100m^2 of retail GFA) against existing MPRs in the various legacy plans.[17]

Figure 3: KRG Proposal vs MPRs in Operative Legacy Plans
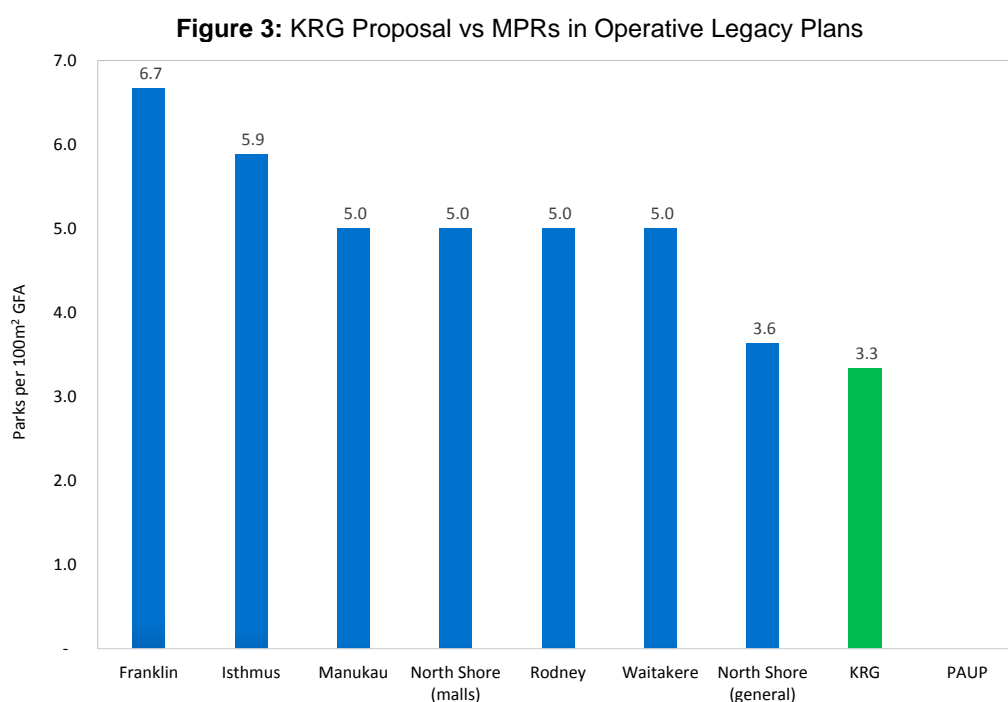
4.3 The KRG's proposed MPR is clearly lower than those currently in legacy plans, meaning that it will be less stringent overall and may thus overcome concerns held by some about the status quo. In fact,

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17 Please note that these rates are typically identified as applying to either "shops" or "retail." In many cases, they stipulate both a parking rate per 100m^2 of GFA *plus* an additional amount for ancillary uses. However, for the sake of this comparison, I only show the rate per 100m^2 of GFA, which causes current requirements to be understated. Please also note that some rules stipulate a range depending on development size. For the purpose of this exercise, I simply take the mid-point.

the KRG's proposed MPR is one-third lower than the most common current value of 5 parks per 100m^2 GFA.

4.4   This raises an important question. What is the optimal MPR for retail development in Auckland from an economics perspective, and why?

4.5   As shown in Part 1 of my evidence, abolishing MPRs is not the answer because shopping will always generate parking demand. To advance the discussion much further than this, however, it is useful to first understand how parking capacity is defined and supplied.

4.6   Put simply, like most infrastructure, parking capacity is defined in terms of its ability to meet a pre-defined measure of peak demand. For infrastructure like power and gas, that measure of peak demand is usually set very high because any capacity shortfalls will incur costly supply disruptions.

4.7   However, for other types of infrastructure like parking, the threshold is set lower because the costs of disruption are not as profound and the cost of meeting the very highest peaks often outweighs the benefits.

4.8   According to a 2011 NZTA Research report called *Trips and Parking Related to Land Use,*[18] parking supply should be designed to achieve 85% satisfaction. In other words, parking should be sufficient to satisfy demand 85% of the time, and only fall short during the highest 15% of annual peak demands.

4.9   It then goes on to define various parking "satisfaction levels" for different land uses based on large samples of New Zealand survey data.

4.10   I used this data to identify the likely satisfaction levels associated with the KRG's proposal and also the most common existing MPR of 5 parks per 100m^2 GFA. The results are shown below.

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[18]   Douglass, M1 and S Abley2 (2011) Trips and parking related to land use. *NZ Transport Agency research report* 453. 156pp.

Figure 4: Comparison of MPRs against Parking Satisfaction Levels
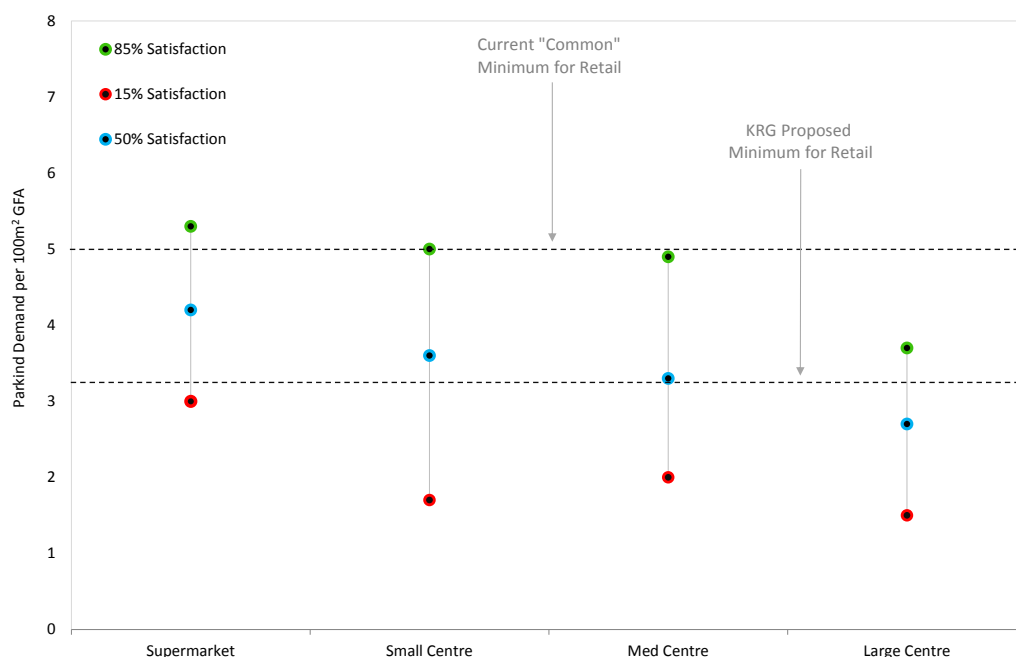
4.11

4.12   Figure 4 shows that the current common MPR of 5 closely aligns with the 85% satisfaction level for small to medium-sized shopping centres, but falls short for supermarkets while exceeding it for larger centres. The KRG MPR, conversely, falls short of the 85% mark for all development types, and only just achieves 15% for supermarkets.

4.13   On this basis, I argue that the KRG's proposal is not overly-onerous, and requires about a third less than the current standards. However, it at least provides a minimum baseline, which some may voluntarily exceed depending on the circumstances.

4.14   The proposed policy, conversely, fails to ensure any supply and therefore effectively guarantees a satisfaction level of 0%, which I consider highly unlikely to be the economic optimum.

4.15   In fact, as an economist with significant experience in local infrastructure funding, I see a number of parallels between MPRs and DCs, which the Council uses to fund a range of other infrastructure, including the local roading network.

4.16   For example, both MPRs and DCs recognise that development creates demands for additional capacity toward which they should make a contribution for the sake of equity and efficiency. The only real differences are the types of infrastructure involved and the methods of payment.

4.17   Thus, while MPRs address the additional demand for parking caused by development and are usually "paid" in the form of physical works, DCs cover a wide range of other local infrastructure caused by development and are usually taken in the form of a cash contribution. Other than these minor differences, the rationale for – and purpose of – MPRs and DCs is very similar.

4.18   Seen in this way, it could be argued that the abolition of MPRs is no different from suddenly deciding to waive DCs on new developments.

4.19   For such a radical policy change to be economically justified, it would need to mean that development somehow no longer created a demand for the particular infrastructure in question.

4.20   While I accept that the abolition of MPRs *may* reduce car use very slightly at the margin, it is a considerable stretch of the imagination to say that they will immediately curtail all car-based shopping trips and hence decouple retail development from the need for parking.

4.21   Accordingly, it follows that the proposed policy is difficult to justify on economic grounds, and the potential unintended effects should be seriously considered before any policy decisions are made. At present, the Council's proposal has the potential to create a number of economic costs with few corresponding benefits.

4.22   As a result, I am unable to support the policy on economic grounds and strongly urge the Council to instead adopt the MPRs proposed by the KRG. Not only are these lower than the current requirements, thus alleviating many concerns, but they also ensure that retail development will not be adversely affected by a systematic under provision of parking spaces over time.

5. OVERALL CONCLUSION

5.1   My analysis has identified a number of serious issues with the policy, which will undermine its effectiveness and likely also cause a range of unintended consequences. In addition, it has considered the pros and cons of a reduction in the MPRs, as proposed by the KRG.

5.2   In my view, the KRG proposal represents a sensible balance between reducing the burden of MPRs while still ensuring that retail development pays its own way and is not undermined by a systematic lack of parking spaces over time. Accordingly, I recommend that the policy be rejected and the KRG proposal be adopted instead.

16 June 2015
Fraser Colegrave

APPENDIX 1: CRITIQUE OF MRCAGNEY REPORTS

1.1   In 2013, MRC wrote a report titled The Economic Impacts of Parking Requirements in Auckland, which strongly underpinned the section 32 report. Amongst other things, this included a cost-benefit analysis of the proposed policy to abolish MPRs.

1.2   While I agree with some of the introductory material in this report, the remainder contains a number of serious flaws which, in my opinion, render it of limited use. These issues, which are mostly over-and-above the general policy concerns already raised, are described further below.

The Analysis of Property Value Impacts is Flawed

1.3   According to MRC, abolishing MPRs will free-up land for development and unlock extra development potential.

1.4   Applying several untested assumptions to the results of a 'hedonic' model for three Auckland study areas, MRC estimate property value increases of $120 million, which equal 91% of total benefits under the medium scenario.

1.5   As I shall explain below, this analysis contains several shortcomings that seriously undermine its relevance and reliability.

1.6   To begin, the analysis attempts to challenge the widely-accepted view that car parks and floorspace are positively correlated, with increases in one requiring increases in the other to maximise commercial returns. MRC, conversely, argue that car parks crowd-out GFA, and hence decrease commercial potential.

1.7   In fact, MRC estimate that, holding all other factors constant, every additional $100m^2$ of car parking *reduces* GFA by $51m^2$.

1.8   This is a particularly odd empirical finding, not least because the existence of MPRs in all three study areas effectively ensures a positive relationship between GFA and car parks, not a negative one as reported by MRC.

1.9   To investigate further, I attempted to source the property data used by
        MRC in its cost benefit analysis. Unfortunately, however, it could not
        be released for intellectual property reasons.

1.10   As a work around, I used data from the 2013 Shopping Centre
        Database to investigate whether there was a positive or negative
        relationship between the:

        (a)   Floorspace ratio (FAR), which equals GFA divided by site
                area, and

        (b)   ratio of car park space to site area

1.11   The results are shown below for the 42 Auckland centres for which all
        the required information existed.

Figure 5: Relationship between FAR and Car Park to Site Area Ratio for Auckland Centres
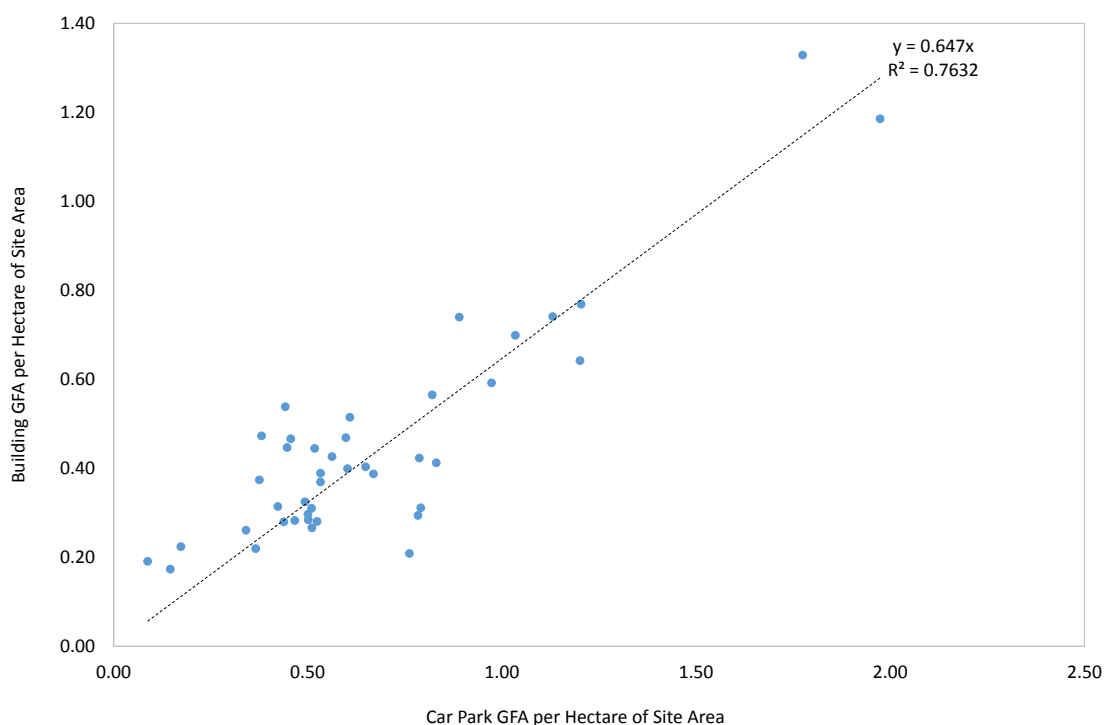
1.12   Figure 5 confirms the conventional wisdom of a positive relationship
        between GFA and car parking, not a negative one as per the MRC
        analysis.

1.13   To try and shed some light, I took a closer look at the economic
        composition of the three study areas used by MRC. I found that a

wide range of commercial activities occurs within each, but that this was not controlled for by MRC in their statistical analysis.

1.14   Since parking requirements differ by land use and land use was not controlled for, MRC's statistical analysis of MPRs is fundamentally compromised.

1.15   Upon closer inspection of the 'hedonic model' itself, I discovered further statistical issues. Namely, that the estimated coefficient on "parking space" had a counter-intuitive sign and was statistically insignificant. In other words, one of the key parameters used to calculate the $120 million of benefits was statistically invalid and not suitable for any kind of inference.[19]

1.16   To put it somewhat bluntly, the assumption of a negative relationship between car parks and GFAs is critical to MRC's analysis but lacks credibility or empirical support.

1.17   However, that is not the end of the story. The analysis of property value impacts contains a number of other problems.

1.18   For example, it assumes that GFA can be built freely without restriction. While I am not a planner, I understand that most commercial developments are subject to a range of planning restrictions that collectively limit development potential. However, the MRC analysis ignores this important fact.

1.19   In addition, the analysis assumes – on the basis of only one London study – that the abolition of MPRs will reduce parking provision by 35% under the medium scenario.

1.20   According to the MRC report, this value was chosen because New Zealand is likely be more over-supplied than the UK, making the UK example a conservative benchmark.

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[19]   I suspect that these anomalies reflect the effects of multicollinearity between several independent variables, namely land area, floor area and parking area.

1.21   However, parking provisions in the UK are actually much higher than New Zealand[20], not much lower, so this assumption does not hold. In addition, London has a far superior PT network, making the switch to PT more likely. Accordingly, I do not consider the observed reductions in London a useful guide to likely local reactions.

1.22   It is also noteworthy that one of the study areas used by MRC (Dominion Road) was the focus of an NZTA report on road space reallocations, which I mentioned earlier. As you may recall, the retailers overwhelmingly reported that the provision of on- and off-street parking was the most important feature to maintain their business and that the removal of on-street parking represented the greatest threat. This casts further doubt over MRC's assumption that the policy would reduce parking provision by 35%.

1.23   Notwithstanding all of the above, the calculation of property value benefits contains one final, fatal flaw. Namely, it fails to account for the marginal costs of constructing additional GFA and instead reports the gross increase in development value as the resulting benefit of $120 million, not the net value increase.

1.24   This is patently wrong. The benefit should be calculated as the increase in value less the increase in construction cost. If we conservatively assume a 20% development margin, this means that the "true" benefit of the extra $120 million in GFA is only $24 million. Thus, even if we ignore all the other issues raised above, MRC's reported property impact benefits are five times too high.

The Analysis Overlooks Impacts on Shopper Time & Convenience

1.25   When evaluating the economic effects of MPRs, the report overlooks the significant benefits that these create in terms of enabling car-based shopping trips. As noted earlier, cars deliver a host of significant benefits, particularly to shoppers, the realisation of which rely on appropriate levels of parking.

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[20]   See, for example, the comparisons in NZTA Research Report 453.

1.26   To the extent that the abolition of MPRs *does* cause parking provisions to fall short, some of these benefits will be lost or eroded. The MRC report neither identifies this nor quantifies the effects.

1.27   This may be because, as noted earlier, the authors assume that parking management initiatives will fully offset parking spill over and search costs. I consider this extremely unlikely and note that no evidence has been provided to support such a critical assumption.

1.28   As a result, I believe that the MRC analysis not only fundamentally overstates the benefits of abolishing MPRs, but also underestimates the costs.

The Analysis Fails to Recognise AT's Projected Growth in Car Trips

1.29   In a related vein, I also note that the MRC report fails to recognise AT's own predictions that there will be significant growth in car-based trips to centres, and that these will require increased parking provision. This further questions the reliability and relevance of the analysis overall.

The Calculation of Cost-Benefit Ratios Cites the Wrong Figures

1.30   Finally, I note that the table of costs and benefits shown on page 27 appears to cite the wrong benefit figures. Specifically, the appendix shows that the property value benefits should be $57m, $91m and $119 for the low, medium and high scenarios, respectively. However, in the main body of the report, these are reported as $76m, $120m and $158 respectively. This appears to be a simple transposition error but further undermines confidence in the wider analysis.