BEFORE INDEPENDENT HEARING COMMISSIONERS IN CHRISTCHURCH

IN THE MATTER	of the Resource Management Act 1991 ("the Act")
AND	
IN THE MATTER	of submission to the proposed Plan Change 14

STATEMENT OF EVIDENCE OF SHAUN HARDCASTLE ON BEHALF OF CHRISTCHURCH NZ

TRANSPORT

Dated: 20 September 2023

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1. INTRODUCTION

Qualifications and Experience

1.1 My full name is **Shaun David Hardcastle**. I am employed as the Canterbury Regional Manager at Flow Transportation Specialists, Christchurch.

1.2 I attained an honours degree from Napier University in Civil and Transportation engineering, Scotland in 1994. Since then, I have practiced as a transportation engineer in a variety of projects. In Christchurch I was involved with the anchor projects of the Christchurch post-earthquake recovery including the health precinct masterplan, bus interchange, library and metro sports, the accessible city business case and the design and delivery of phase one of the street treatments on Manchester, Durham and Lichfield Street.

Purpose and scope of evidence

1.3 I have been engaged by ChristchurchNZ to prepare and present this statement of evidence in relation to proposed Plan Change 14 (PC14). Specifically, my evidence relates to proposed changes to the transport provisions of the Christchurch District Plan, and how these relate to the proposed Mixed Use Zone (Comprehensive Housing Precinct) for the Sydenham and Lancaster Park areas.

1.4 My evidence will address the following matters:

(a) “Walkable neighbourhoods” (Section 2)

(b) The role of transport for achieving our greenhouse gas emissions targets (Section 3)

(c) Recommended amendments to PC14's transport provisions in response to the above (Section 4)

(d) Conclusions (Section 5)

Expert Witness Code of Conduct

1.5 I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2023. I have complied with the Code of Conduct in preparing this evidence and agree to comply with it while giving evidence. Except where I state that I am relying on the evidence of another person, this 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.

2. WALKABLE NEIGHBOURHOODS

2.0 In this section of my evidence, I address the conditions necessary to support a "walkable neighbourhood", from a transport perspective, and how these apply to the Sydenham Comprehensive Housing Precinct.

Walkable distances and street grids

2.1 PC14 responds to the National Policy Statement on Urban Development (NPS-UD), by allowing high-density residential development within a "walkable distance" of centres. Council has defined this walkable distance as 1.2 km from Christchurch's city centre. The proposed Comprehensive Housing Precinct within Sydenham falls within this walkable catchment. Similarly, areas within 400 m of the Sydenham Local Centre have been determined by Council to be walkable.

2.2 I refer to the statement of evidence provided by Nicola Williams (Senior Urban Designer at Christchurch City Council) paragraphs 81-92 where walkable perimeters are proposed as a maximum to be 600 m and discusses the benefits of shorter blocks and greenways. Applying a traffic lens, I agree with all that is presented by Nicola Williams on this point and note that we both cited the Urban design guidelines on Urban Structure for creating cross block pedestrian links for block sizes over 600 m.

2.3 Sourcing recommended optimal block sizes for walkable neighbourhoods is difficult as each site has unique qualities and transportation considerations such as network safety, function and access. Consideration of perimeter interaction higher movement needs also contribute to the sizing and scale discussion. I reference Objective 1.3.2

from the Victorian Government guidelines on urban design. Namely - "Where the street block perimeter is greater than 600 metres, create cross-block pedestrian links." I agree with this indicative distance for pedestrians as a guideline while accepting that variation and site specifics will dictate the actual sizes. It is the network and permeability that are important to deliver all of the desired objectives of safe, sustainable, well used and walkable.

2.4 In consideration of the block size and walkability, there is an opportunity to input guidelines and advice gathered from best practices that could be reflected in PC14 in particular the provision of laneways/greenways. For this I draw on the evidence of others.

Other requirements of walkable neighbourhoods

2.5 I consider however that the prerequisites for a walkable neighbourhood include significantly more than distance considerations alone. This is because there is a difference between a "theoretically" walkable distance, and the distance a wide range of the population can in practice walk and may want to walk. A range of factors influence the actual walkability of streets and neighbourhoods, including the provision of safe and accessible crossings, shade and shelter, places to stop and rest, clean air, a low noise environment, accessible footpaths, and many others. These are documented in Waka Kotahi's Aotearoa Urban Street Planning and Design Guide[1], in Transport for London's Healthy Streets Framework[2], Kāinga Ora's Sustainable Transport Outcomes[3] and elsewhere.

2.6 Many of the factors that influence walkability are the result of the built street environment, such as the provision of safe and accessible pedestrian crossings, street trees, and engineering measures to reduce vehicle speeds. These factors fall outside the control of the planning provisions within the District Plan. However, a number of factors influencing walkability are directly influenced by the planning provision within the District Plan, including:

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[1] Waka Kotahi. Aotearoa Urban Street Planning and Design Guide; He whenua, he tangata. December 2022.

[2] www.healthystreets.com

[3] Kāinga Ora. Sustainable Transport Outcomes – Developing streets, spaces and neighbourhoods that support accessibility, health and wellbeing. March 2022

(a) The safety of crossings and streets in general,

(b) Traffic noise,

(c) Air quality, and

(d) The availability of destinations that people may walk to.

2.7 (a) to (c) above are factors that directly relate to the volume of traffic on a street, with higher traffic volumes directly corresponding to greater road noise, reduced air quality, and all else being equal – reduced road safety. As examples:

(a) A street where the footpath is interrupted by frequent vehicle crossings serving a large number of off-street parking spaces will result in lower levels of pedestrian safety, and as a result reduced walkability. By contrast, a street where there are no vehicle crossings and as a result no conflicts between pedestrians and general traffic on the footpath, will result in higher levels of pedestrian safety and increased walkability.

(b) At a neighbourhood level – a community where the majority of trips are undertaken by private car will result in streets with higher traffic volumes than a neighbourhood where trips are undertaken by a range of modes. With these higher traffic volumes comes more road noise, lower air quality, and lower levels of safety for pedestrians crossing streets.

2.8 The final factor I refer to in paragraph 2.6 relates to the destinations accessible on foot for people living, working or studying within a neighbourhood. This too is directly influenced by the planning provisions within the District Plan, through zoning rules that allow a wide range of land use activities. At one end of this spectrum, a neighbourhood that contains homogenous residential land uses requires residents to travel outside of their immediate neighbourhood to access employment, education, healthcare, recreation and social opportunities. Whereas a neighbourhood with a wide range of land use activities provides residents with the option of accessing these opportunities on foot or by bike, without leaving the local area.

2.9 As an urban planning concept, this form of neighbourhood has been referred to as the "10-minute neighbourhood"[4]. The benefits of the 10-minute neighbourhood include reduced greenhouse gas emissions through reduced private car travel, and

[4] https://www.greaterchristchurch.org.nz/assets/Documents/greaterchristchurch/Our-Space-final/Our-Space-2018-2048-WEB.pdf page 36

improved public health and wellbeing outcomes through increased physical activity. While the 10-minute neighbourhood requires a wide range of interventions including planning policy, transport planning and urban design, enabling mixed use land use activities is the lever most able to be influenced by the planning provisions within the District Plan.

2.10 PC14 directly supports the factors that contribute toward a walkable neighbourhood, by:

(a) Reducing the demand for travel by private car, by limiting residents' ability to park cars on sites, and in turn creating the conditions necessary to encourage shared car ownership models[5] (refer subsequent paragraph 4.0).

(b) Restricting high trip generating activities, as proposed by ChristchurchNZ in their submission re Policy 15.2.3.2 and to Mixed Use Zone – permitted activities P4-P8 (refer subsequent paragraph 4.14).

(c) Permitting mixed use development that allows a range of land use activities that complement high density residential land use and reduce the need to travel for day to day needs.

(d) Enabling bike ownership with safe and fit for purpose space for bike and e-bike ownership, to assist in reducing the demand for travel by private car. In this regard, there are many barriers to travelling by bike, including perceptions of safety, societal norms, access to bikes and others. Enabling bike ownership by providing space to store bikes is however a barrier that planning provisions within the District Plan is directly able to address.

3. THE ROLE OF TRANSPORT IN OUR GREENHOUSE GAS EMISSIONS TARGETS

The Ministry for the Environment's Emissions Reduction Plan

3.0 Transport is responsible for 39% of New Zealand's domestic CO_2 emissions and 17% of our overall greenhouse gas emissions[6]. The Ministry for the Environment's Emissions Reduction Plan sets out the steps required to reduce this over time, with a

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[5] Martin, Shaheen, Lidicker. Impact of carsharing on household vehicle holdings: Results from North American shared-user vehicle survey. 2010.

[6] Ministry for the Environment. Te hau mārohi ki anamata; Towards a productive, sustainable and inclusive economy. Aotearoa New Zealand's first emissions reduction plan. 2022

long-term target of net zero emissions by 2050. The Plan identifies key actions including reducing reliance on private car travel, and supporting people to walk, cycle and use public transport.

3.1 The Plan also sets a national target of reducing New Zealand's vehicle-km travelled (VKT) by 20% by 2035 through "improved urban form and providing better travel options, particularly in our largest cities". In Christchurch – where we have the ability to influence urban form and travel options – the implication is that a high VKT reduction will need to be met, in order to reach the national target.

3.2 In response to the Emissions Reduction Plan, Waka Kotahi NZ Transport Agency is working with Christchurch City Council and 4 other "tier 1" councils to develop VKT reduction programmes[7].

3.3 Both the Ministry for the Environment and Waka Kotahi acknowledge that VKT reductions will not be uniform across New Zealand. It is our larger urban areas, such as Christchurch, where the majority of the VKT reductions must be made.

Christchurch's climate response

3.4 Council's Climate Resilience Strategy[8] sets out Christchurch's climate response. The strategy sets emissions reduction targets, including a 50% reduction in emissions by 2030, and net zero by 2045. It also notes that land transport accounts for 36% of Christchurch's greenhouse gas emissions – significantly higher than the national average of 17%. This hints at the role that transport must play to reach Christchurch's overall emissions reduction targets.

3.5 The draft Christchurch Transport Plan[9] articulates how the transport network will respond to the Climate Resilience Strategy and to the national Emissions Reduction Plan. While the Transport Plan is in draft at the time of writing, it provides an indication of Council's intentions with regards to the national VKT reduction and transport emissions reduction targets. In the Plan, *reduced greenhouse gas emissions* are one of four overarching transport outcomes. The draft Christchurch Transport Plan goes

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[7] https://www.nzta.govt.nz/planning-and-investment/national-land-transport-programme/viewupdate/303. Retrieved 28 August 2023

[8] Christchurch City Council. Kia tūroa te Ao. Ōtautahi Christchurch Climate Resilience Strategy. Adoped 21 June 2021.

[9] Christchurch City Council. Draft Christchurch Transport Plan. 25 August 2022.

on to identify five policies that support the outcome of reduced greenhouse gas emissions. In most cases, these policies are city-wide actions, such as "*Implement road pricing if appropriate*", and "*Support the transition to zero-emission vehicles*". Policy 1.1 however is to "*Plan and implement Low Traffic Zones across Christchurch"*. This is particularly relevant to Sydenham, where there is the opportunity to limit through traffic to select streets and create a low traffic zone, because of Sydenham's grid pattern street network.

3.6 In much the same way as our VKT reductions will not be uniform across New Zealand, so too will Christchurch's VKT reductions not be uniform across the city. This is principally because:

(a) Greater reductions in VKT are achievable in areas where there is more potential for public transport and active modes. Christchurch's city centre, town centres and local centres, as well as areas close to high quality public transport routes have the highest potential. Conversely, within communities where there are few travel options other than private car, there will be little opportunity for VKT reductions without adversely affecting people's access to opportunities.

(b) Higher VKT reductions are possible where there is the greatest land use change. VKT reductions require widespread travel behaviour change, and travel behaviour change is easiest to influence when people change homes, workplaces or place of education[10]. That change in living, working or studying location and the resultant "reset" of personal travel circumstances can act as a trigger to shift an individual's long-held existing travel behaviours. As a result of this, it is easiest to influence travel behaviour change in new urban areas, and within brownfield development areas where there is widespread land use change.

3.7 Sydenham is a rare case where all the above apply, in that:

(a) It is within walking distance to city centre, as defined by Councils' 1.2 km walking catchment.

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[10] Government of South Australia; Department of Planning, Transport and Infrastructure. Travel Behaviour Change Moments Factsheet.

(b) It is a centre itself, with a business and retail strip centred along Colombo Street that is zoned as Commercial Core Zone, and classified as a Large Local Centre in Council's application of the NPS-UD

(c) It sits on a major public transport route, with several frequent bus services operating north-south along Colombo Street. Notably, Sydenham is also served by cross-town services on Moorhouse Avenue, and a series of other routes on Selwyn Street, Brougham Street, Waltham Road and other Sydenham streets, that collectively provide access to a wide range of destinations across the city by bus, including the new number 8 port to port route.

(d) PC14 will enable a very significant transition from industrial/commercial land use to medium-high density mixed use within Sydenham, attracting new residents, employees and visitors. The resulting changes in individuals' travel circumstances will for many be an opportunity to transition to new modes such as public transport, walking and cycling.

3.8 In my opinion, if Christchurch is to achieve the emissions reduction targets set out in Council's Climate Resilience Strategy, Sydenham will need to do more of the "heavy lifting" than most other parts of the city. "Car-lite" and "car-free" developments are a means to achieve this, and I discuss these concepts in the following paragraphs.

Car-lite and car-free developments

3.9 Traditionally, District Plans across New Zealand including Christchurch have mandated the provision of residential car parking, through minimum car parking rules. These rules have been phased out in recent years and banned outright through the NPS-UD for our major urban areas since 2022. Over that period, developers have begun uncoupling parking from residential developments, with a number of "car-lite" and "car-free" residential developments. Recent examples include:

(a) Williams Corporation – 240 St. Asaph Street, Christchurch: 27 units with 1, 2 and 3 bedrooms, no vehicle parking provided.

(b) Fletcher Living – One Central, Manchester Street (various sites), Christchurch: variety of housing options consisting of 1, 2 and 3 bedrooms with a range of zero vehicle parking to 2 vehicle spaced capable garages.

(c) Modal at 845 New North Road, Mt Albert, Auckland: 32 apartments with parking for 2 shared cars (0.06 spaces per dwelling), but integrated bike parking for 32 bikes, developed by Ockham Residential

(d) 82 Jellicoe Road, Panmure, Auckland: 46 apartments with parking for 5 shared cars (0.11 spaces per dwelling)

(e) 26 Aroha Avenue, Sandringham, Auckland: 12 apartments with parking for 3 cars (prioritised for families with children, with a shared car available for tenants, 0.25 spaces per dwelling)

3.10 Internationally, the concept of car-lite and car-free developments have been taken a step further, with a number of large-scale brownfield redevelopment areas designed with little to no car parking. Some examples include:

(a) Vauban[11], in Freiburg, Germany. This car-free neighbourhood was completed in 2006, and now houses around 5,500 residents. Car ownership in this community is low, with around 30% of households opting to own a car and park it outside the neighbourhood.

(b) Merwedekanaal[12], Utrecht, the Netherlands, where a new 6,000 home, "car-free" development is under construction that will maximise travel choices by sustainable modes. The development will position 1,800 parking spaces on the outskirts of the site but have no internal car parking. It will be supported by 250 shared cars and integrated bike parking for 21,500 bikes.

(c) Closer to home, Winton have proposed the car-lite Sunfield[13] development in Papakura, Auckland. This proposed 5,000 home development would provide parking for "90% fewer cars than usual", supported by walking, cycling and public transport links. While this development has stalled, it's proposal indicates that car-lite urban developments are concepts that are making their way into New Zealand's market.

3.11 The requirements for large scale car-lite and car-free developments are clear:

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[11] https://www.smartcitiesdive.com/ex/sustainablecitiescollective/life-without-cars-vauban-germany/9164/ Retrieved 30 August 2023

[12] https://www.utrecht.nl/wonen-en-leven/bouwprojecten-en-stedelijke-ontwikkeling/bouwprojecten/merwedekanaalzone/projecten-in-de-merwedekanaalzone/merwede/ (Dutch) Retrieved 30 August 2023

[13] https://winton.nz/our-neighbourhoods/sunfield/ Retrieved 30 August 2023

(a) Making it easy to travel on foot, by bike or scooter, and by public transport (or "the carrot"). Partly, this falls within Council's and Waka Kotahi's remit to provide streets that prioritise these modes and to provide quality public transport services. Equally however, this falls on our planning rules to (for example) ensure people have somewhere appropriate to store bikes.

(b) Making it difficult to travel by private car ("the stick"). Again, this partly lies with Council and Waka Kotahi in our city's streets are designed and managed. But again, planning rules have a role to play here, in discouraging private car ownership.

3.12 It is important to recognise that car-lite and car-free neighbourhoods do not preclude the use of cars as travel. Rather, they prioritise sustainable modes of travel, and allow people to choose their mode to suit their trip purpose. If for example a resident wishes to go to the city centre for work, they may choose to catch a bus, or perhaps to cycle. If they have to go somewhere that is less accessible by bus or too far to cycle, or perhaps want to shift a piano, they have the option of using a shared car or shared van service. Car lite and car-free neighbourhoods also prioritise car parking for those who most need it, such as residents that require mobility parking.

Car share models of car accessibility

3.13 Car share services are increasingly common across New Zealand's main centres[14], and can be offered either within private developments or available publicly through companies such as CityHop, Mevo and Zilch. Car shares are a feature in many of the car-lite and car-free development examples I presented in paragraphs 3.9 and 3.10.

3.14 Car share schemes significantly reduce the need for private car ownership, while continuing to allow car accessibility. In practice, having access to a shared car, and the certainty of knowing one is available for those trips where a car is necessary, allows people to own fewer cars per household, or no car at all.

3.15 An Australian study[15] for example concluded that the City of Sydney's fleet of 800 car share vehicles had reduced the number of privately owned cars by around 10,000 –

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[14] https://www.rnz.co.nz/news/national/485385/growing-numbers-turn-to-car-share-services-in-wellington Retrieved 1 September 2023

[15] Phillip Boyle & Associates. The impact of car share services in Australia. 7 January 2016

a ratio of 12 privately owned cars being offset by each car share vehicle. Similar research in Wellington in 2020 concluded that this ratio was 11:1[16].

3.16 Car share services enable a form of mobility known as Mobility as a Service (MaaS), where we have access to a full range of modes to suit the needs for each trip. MaaS can be considered a menu, where we are able to choose to hire a shared car or van, hire a bike or scooter, catch a bus, or order a ride-share car, depending on the needs of each trip.

3.17 Restricting access to car parking has been shown to improve the competitiveness of car share schemes, in turn reducing private car ownership[17]. Through our District Plan rules, we can either promote private car ownership models by allowing private car parking spaces or promote shared cars and MaaS by restricting private car parking spaces. PC14 applies the latter to Comprehensive Residential Developments, and I consider this to be an appropriate approach.

How Sydenham/Lancaster can contribute to Christchurch's emissions reductions

3.18 Car-lite and car-free neighbourhoods offer us an opportunity for significant VKT and transport emissions reductions within a local area, that are much greater than the city-wide average. That is to say: car-lite and car-free neighbourhoods can contribute a disproportionate amount of the VKT and transport emissions reduction task – shouldering a greater part of the burden, so to speak. But this requires every lever be pulled to change the existing patterns of land use development and travel behaviours.

3.19 Sydenham presents us with an opportunity, as I have discussed in paragraph 3.7 previously, where there are the right conditions necessary for widespread travel behaviour change. This opportunity is very rare, as there are few brownfield redevelopment locations of such scale, so close to the city centre and with such good potential for sustainable travel as Sydenham. PC14 also offers us an equally rare opportunity to reconsider the District Plan rule "levers" that affect travel behaviours.

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16 https://wellington.govt.nz/news-and-events/news-and-information/our-wellington/2020/09/car-share-schemes

17 Martin, Shaheen, Lidicker. Impact of carsharing on household vehicle holdings: Results from North American shared-user vehicle survey. 2010.

3.20 PC14 sets in motion planning rules that I understand will have a medium- to long-term horizon. Tim Heath sets this out throughout his statement of evidence regarding the property economics of PC14, concluding that PC14 would enable residential and commercial growth that "go well beyond the 30- year timeframe". This horizon seems even more so the case with regard to Comprehensive Residential Developments within Sydenham, where the scale of change is the greatest.

3.21 Given this time scale, I consider that the planning rules set in place today need to be fit for purpose not for today, but for the next 30+ years. From a transport perspective, this means recognising longer term goals and aspirations, such as the Ministry for the Environment's Emissions Reduction Plan that targets net zero emissions by 2050.

4. TRANSPORT PROVISIONS WITHIN PLAN CHANGE 14

Rules related to car parking

4.0 Council has proposed a new rule for Comprehensive Residential Developments in the Mixed-Use Zone, which ChristchurchNZ has proposed further amendments to. The notified rule sets a maximum on-site car parking ratio of 1 space per 10 dwellings. On-site car parking would also be limited to accessible residential units, and to residential car share schemes. This differs from the existing District Plan rule, where no maximum applies.

4.1 The application and effects of car parking maxima for office, retail and other commercial land uses is well understood and documented: restricting people's ability to park at a given destination will have an effect on their choice of mode to that destination. I discuss in the following pages the application of car parking maxima to residential land uses.

4.2 It is sometimes argued that limiting people's access to car parking does not necessarily prevent people from owning a car or driving it. This I consider true, as without access to a parking space I may still chose to own a car and park it on the street or elsewhere. Conversely, it is also argued that having access to a car makes people more likely to choose to drive. This too I consider true, as I am far more likely to choose to drive to a destination if I have a car parked outside my home, than if I do not.

4.3 Residential car parking maxima have been implemented elsewhere in New Zealand before, with for example maxima applying to Auckland's city centre and Wynyard Quarter area. The latter is a useful case study, in that it is highly comparable to Sydenham, where PC14's rules for Comprehensive Residential Developments would apply. Like Sydenham is today, the Wynyard Quarter was a low density

industrial/commercial area, within walking and cycling distance to the city centre and located on a key public transport route to the city. Initiated in 2005 and enabled through a series of Plan Changes, the Wynyard Quarter is today midway through a 30-year transition into a dense, mixed-use precinct.

4.4 Vehicle access in and out of the Wynard Quarter is constrained however, and the Wynyard Quarter Plan Change has imposed car parking maxima for all land use activities, including a maximum of 1 space per 80 m^2 GFA for residential development. The Plan Change also notably imposed a ceiling for vehicle trips into and out of the Wynyard Quarter's streets. Our Auckland office carried out regular monitoring of travel patterns to and from the Wynyard Quarter on behalf of Auckland Transport, from 2012 to 2018, and can confirm that the general traffic ceilings were not close to being reached over that time.

4.5 Development within the Wynyard Quarter is also supported by a Travel Management framework that set a target mode split for employment trips into the quarter of 30% car/70% non-car. This mode split was considered aspirational at the time, when existing private car mode shares exceeded 50% even to the city centre. Significant investment in public transport and cycling, such as rapid transit and a bus hub, were expected to be necessary to meet these targets. While these transport investments have not generally eventuated, private car mode shares have trended consistently downward as the quarter developed, to 31% in 2018. The surveys have not been repeated since then, but the expectation is that the proportion of private car travel will continue to fall, as the options to travel by non-car modes improve.

4.6 There are a number of implications that apply to Comprehensive Residential Developments within Sydenham, including:

(a) That residential car parking maxima can, and should, be part of a suite of District Plan rules proactively managing the demand for travel by private car within a dense, mixed use, brownfield development area.

(b) That travel patterns that are perceived as "aspirational" or ambitious at the time of a Plan Change can, a generation later when that land use change eventually follows, become quite normalised and unambitious. In my opinion, District Plan rules such as car parking maxima that seek to "push levers" that affect travel behaviour change, should be pushed very hard in response to this.

4.7 While changes in technology such as electric vehicles will go some way to reducing our transport emissions, technology alone won't be enough to reach our Paris

Agreement climate targets[18]. Meeting these commitments will also require a reduction in car ownership and car travel, with these enabled by a mixture of increased car parking restrictions, improved mobility services, and other actions[19]. Conversely, allowing car parking enables car ownership, which in turn promotes private car travel at the expense of more sustainable modes.

4.8 ChristchurchNZ have made a further request in their submission, that the proposed 2 space maximum for shared cars that applies to Comprehensive Residential Developments be deleted. I agree with this suggestion, as the car parking maximum already proposed, of 1 space per 10 dwellings, is sufficient to restrict the provision of parking. The use of those permitted parking spaces, whether for shared cars or otherwise, does not need to be mandated by the District Plan from a transport perspective.

Rules related to bicycle parking

4.9 Council has proposed a suite of new and amended rules for Comprehensive Residential Developments within PC14, which ChristchurchNZ has proposed further amendments to. These include:

(a) Council's section 42a report has recommended requiring residents' bike parking within Comprehensive Residential Developments be provided at a minimum rate of 1 bike parking space per bedroom. This exceeds the District Plan's existing minimum provision of 1 residents' bike parking space per dwelling, or that proposed by Council's section 42a report of 1 bike parking space per 1-2 bedroom dwelling, and 2 bike parking spaces per 3+ bedroom dwelling.

(b) ChristchurchNZ have requested in their submission that visitor bike parking be provided at a minimum rate of 1 bike parking space per 10 dwellings. This exceeds the District Plan's existing minimum provision of 1 visitor bike parking space per 20 dwellings.

(c) ChristchurchNZ have also requested in their submission that minimum design standards for residents' bike parking be specified, including that it be at grade,

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[18] Johansson, Åkerman, Henricksson and Envall. A pathway for parking in line with the Paris Agreement. June 2022.

[19] ibid

fully enclosed, lockable, integrated with the building, accessible from the street, and that e-bike charging facilities be provided.

4.10 New Zealand has a relatively high rate of bike ownership, at around 0.8 bikes per person[20]. On a household basis, 32% of New Zealand's households own two or more bikes[21] and 16% own three or more bikes. This is understandably higher still for families with children, where 36% of households own three or more bikes. Given these levels of bike ownership, the minimum cycle parking requirements proposed in Council's section 42a report of 1 space per 1-2 bedroom dwelling and 2 spaces per 3+ bedroom dwelling will not be sufficient to cater to a large portion of households. A higher minimum rate, such as that proposed by ChristchurchNZ of 1 space per bedroom, would better cater to the wider demographic in this location.

4.11 New Zealand is experiencing significant growth in the uptake of e-bikes, with Waka Kotahi estimating that e-bikes made up 15% of national bicycle sales in 2019[22], from a base of near-zero in 2015. This steep trend continues, with imports of electric micro-transport devices[23] in 2022 accounting for 30% of the bicycle market[24]. Anne Heins refers to comparable data sets in paragraphs 47 to 51 of her statement of evidence. The New Zealand e-bike market mirrors that in many other OECD nations and falls a number of years behind countries such as the Netherlands and Belgium, where e-bike sales now exceed mechanical bicycle sales[25].

4.12 With this change in e-bike ownership patterns comes a need for improved bike storage. E-bikes tend to be heavier and of higher value than mechanical bikes. As a result, e-bikes require storage that is accessible without requiring stairs or steep

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[20] Chen, W., Carstensen, T.A., Wang, R. et al. Historical patterns and sustainability implications of worldwide bicycle ownership and use. Commun Earth Environ 3, 171 (2022).

[21] Ministry of Transport. New Zealand Household Travel Survey 2011-2014; Cycling. September 2015

[22] Waka Kotahi NZ Transport Agency. Health and Active Modes Impacts – A technical paper prepared for the Investment Decision Making Framework Review. 11 March 2020

[23] Statistics New Zealand classifies e-bikes, e-scooters and other electric micro-mobility devices into a single category

[24] https://www.stats.govt.nz/news/electric-vehicle-imports-continue-to-climb/ Retrieved 30 August 2023

[25] https://nltimes.nl/2023/02/27/people-buying-electric-bicycles-netherlands Retrieved 30 August 2023

ramps, has access to bike charging points, and has a higher level of security than would typically be provided by a "bike shed". Figure 1 below illustrates an example of a high quality, integrated bike storage area within a residential development. In my opinion, PC14 as notified does not respond to these needs. However, the proposed rule as amendment sought by ChristchurchNZ responds to the growing e-bike trend, by setting minimum design standards for residential bike parking areas.

Figure 1: Residential development with integrated, at grade bike storage visible on the ground floor[26]

4.13 In paragraph 3.8 of my evidence, I refer to Sydenham having to shoulder more of the VKT and emissions reduction burden than other areas of Christchurch, due to a range of factors. Because of this need, the Comprehensive Residential Developments enabled in Sydenham will need a bespoke set of District Plan rules that respond to that VKT and emissions reduction challenge. The proposed rules require both a greater quantity and a higher standard of bike parking for Comprehensive Residential Developments, and this is in my opinion an appropriate response.

Rules related to high trip generators

4.14 ChristchurchNZ has proposed an amendment to Policy 15.2.3.2, "*limiting new high trip generating activities*", and corresponding changes to Mixed Use Zone – permitted activities P4-P7 "*car parking shall be limited to 1 space per 150m^2*" and P8 "*Any*

[26] Modal Development, 845 New North Road, Auckland. Image courtesy Google Streetview

service station in the Sydenham and Waltham Mixed use Zones shall be located on a minor or major arterial road".

4.15 I propose that policy 15.2.3.2 read "*limiting new high **vehicle** trip generating activities*" so as not to impose any limitation on developments that attract a high number of person trips, and to influence the mode that people travel to significant land use destinations. For example, a supermarket with a traditional 500 space car park is not the intention of the zone, rather an urban "metro" form of supermarket that serves the immediate walking and cycling catchment with low car parking provision is. Similarly, a school or community centre that serves the immediate residential catchment would be anticipated, but a destination facility attracting people by car from across the wider city would not.

4.16 Ryman and the Retirement Villages Association (RTA) have in their submission opposed the proposed amendment to policy 15.2.3.2 to limit high trip generating activities. Rule 7.4.3.10 of the District Plan currently defines the thresholds for high trip generating activities, listing residential activities with more than 60 dwellings as one such threshold. This rule is frequently triggered by retirement villages, due to the number of dwellings proposed. This is somewhat unfair on retirement villages, which generate around 80% fewer vehicle trips per dwelling than traditional housing. The proposed amendment, by including the term **vehicle**, does 2 things:

(a) Firstly, it separates proposed policy 15.2.3.2 from the existing thresholds in Rule 7.4.3.10, allowing a new threshold for high **vehicle** trip generating activity to be defined (or, for discretion to be applied in the absence of a defined threshold), and

(b) Secondly, it avoids land use activities that generate a high volume of pedestrian trips such as a local school, or activities that generate few vehicle trips such as retirement villages, from infringing on this policy.

4.17 Mr. Lightbody suggests that the high trip generators rule 7.4.3.10 (note it is referenced as 7.4.10 in paragraph 8.4.44) of the transport chapter "*would require an associated built form rule and in my opinion, this would be inconsistent with Objective 3.3.2 to reduce prescriptiveness in the District Plan when rules on this matter already exist in 7.4.10*."

4.18 Mr Lightbody continues that "*the alternative would be to amend rule 7.4.10 but limiting high trip generating activities beyond the status quo would also not be appropriate in the context of Objective 3.3.2….*"

4.19 Rule 7.4.10 within the transport chapter is used to consider safety, network efficiency and amenity of potential high trip generating land use developments. While the rule requires these effects to be assessed and mitigated, it does not preclude high vehicle trip generating land use activities from gaining consent. And nor should it: chapter 7 relates to city-wide transport rules and does not respond to the unique challenges and opportunities that Sydenham face, as I have discussed throughout my evidence. Broader transport issues such as the provision of block sizes, walkability and active mode accessibility are considered within the zone chapter, and this is in my opinion an appropriate location for a high vehicle-trip generating rule to sit. This also means that no amendment to the transport chapter is required, as per Mr Lightbody's suggestion.

4.20 My position is that the submission made on the high trip generating rule should be focused on the **vehicles** not the trips. The existing treatment of high vehicle trip generating activities has its place in the transport chapter and should continue to be used. For mixed use zones with higher residential densities and transition to walkable high density neighbourhoods, the need to promote people friendly environments and meet VKT and lower emission targets results in a different high vehicle trip generation treatment that can be covered in the zone treatment.

Compliant pathway RD3 or non-compliant Pathway RD4

4.21 With a transport lens, if a potential developer complies with the car and bike parking rules set out in PC14, this consenting pathway follows the RD3 pathway. If the developer wishes not to follow the consented pathway, they enter the RD4 pathway. The provision for the assessment is listed in 15.14.3.40 "*Comprehensive Residential development in the Mixed Use Zone*" and reads as follows;

RD4 – other assessment matters labelled q, r, s and t below.

(q) Whether the development prioritises active and low carbon modes of transport i.e., by linking with existing and planned cycle routes, providing plentiful secure bicycle and micro-mobility storage and charging, and any shared parking area.

(r) In relation to outdoor communal storage space and outdoor service space, whether the residential activities achieve the matters in rule 15.13.2.3(b) and (c).

(s) Providing physically secure and user-friendly storage for bicycles of all sizes, cargo bikes, pushchairs, scooters, and convenient charging points for e-bikes and scooters

(t) Providing sufficient space and facilities for bike maintenance.

4.22 The Sydenham area is in my opinion a long-term growth area with a unique set of attributes that could contribute significantly to the Christchurch goals of VKT reduction and lower emissions. I therefore agree with the proposed RD4 provisions should the developers not choose the compliant RD3 path. I support long-term thinking and provision of infrastructure and space to enable support for active mode adoption contributing to reduction in the Christchurch VKT and emissions commitment targets for 2030 and 2050.

5. CONCLUSIONS

5.1 **I Support** promoting a network of safe, convenient and attractive pedestrian and cycle connections within the zone and to adjoining neighbourhoods.

5.2 The proposed PC14 can assist in meeting VKT reduction and vehicle emission targets through encouraging walkable / active mode and car-lite if not car-free neighbourhoods.

5.3 I have provided examples from around the World of neighbourhood wide policy and New Zealand based solutions, as proposed in Sydenham that support emission reduction targets and support infrastructure for active modes.

5.4 The Sydenham Comprehensive Housing Precinct has unique attributes and can play a vital role in achieving emission and VKT targets. One of the many levers to pull is the proposed low car parking maximum of 1 space per 10 dwellings, which differs from the District Plan rule where no maxima apply. **I support the car parking maximum** in the context of reaching the VKT and emissions targets.

5.5 The perceived 'stick' of the car maximum lever is offset by the 'carrot' of the higher cycle and active mode storage. **I support the proposed bike parking requirements of 1 visitor bike space per 10 dwellings and 1 residents' space per bedroom**. These rules would result in greater provision for bike parking than the current and proposed PC14 District Plan rules. The quality of the storage is important and **I support the compliant RD3 and RD4 non-compliant pathway** requirements to ensure that active mode storage can succeed.

5.6 I support a high ***vehicle*** trip generating policy that removes them from the Sydenham development core and promotes high generating activities on the edges.

Shaun Hardcastle
20 September 2023