Before a Panel of Independent Hearing Commissioners appointed by Wellington City Council

IN THE MATTER OF the Resource Management Act 1991 (**RMA**)

IN THE MATTER OF the hearing of submissions on the Proposed Wellington City Plan

---

STATEMENT OF EVIDENCE OF ALASTAIR CRIBBENS FOR WAKA KOTAHI NZ TRANSPORT AGENCY

Dated: 8 February 2023

---

1. EXECUTIVE SUMMARY

1.1 My full name is Alastair James Cribbens. I am a Principal Planning Advisor at Waka Kotahi NZ Transport Agency (**Waka Kotahi**) and am presenting evidence on behalf of the organisation.

1.2 My evidence outlines my expert opinion on the importance of integrating land use and transport planning by locating higher density development within the walkable catchment of rapid transit stops, the city centre and metropolitan centres. I explain why I believe the plan change as presented in the section 42A report does not represent best practise walkable catchment mapping which has resulted in areas being inappropriately excluded from up-zoning as required by the National Policy Statement on Urban Development (NPS-UD).

1.3 I support the identification of the Johnsonville Line as rapid transit, and recommend that the walkable catchments be extended to 800m for rapid transit stops and metropolitan centres and to 1,500m for the city centre.

1.4 The key outcomes sought by Waka Kotahi in relation to the Plan Change in this regard are outlined in the evidence of Akhylesh Babu Keshaboina and they are to:

(a) Promote integration of development with public and active transport and its funding; and

(b) Reduce the distances that people travel for their everyday trips and enhance the options available to them to travel by non-car means.

2. QUALIFICATIONS AND EXPERIENCE

2.1 My full name is Alastair James Cribbens. I am a Principal Planning Advisor at Waka Kotahi. I have been in this role since August 2021. My role within Waka Kotahi includes leading the involvement of Waka Kotahi in planning processes including spatial planning, planning policy frameworks and partnerships.

2.2 I hold a Bachelor of Planning degree with Honours from the University of Auckland.

2.3 I have 16 years of experience as a planner. Prior to my current role I was employed as a Principal Transport Advisor in the Transport Strategy team at Auckland Council for four years, a Senior Transport Planner at Auckland Transport for four years, and a Planner at Auckland City Council for six years.

2.4 My relevant experience in spatial planning, plan changes, and transport planning/policy includes:

(a) Involvement in Future Proof and SmartGrowth, including the recent review of the Future Proof Strategy and the on-going SmartGrowth Future Development Strategy review process.

(b) The on-going Auckland Development Strategy review.

(c) The development of Auckland Council's initial position on applying the NPS-UD provisions relating to walkable catchments, rapid transit, and accessibility.

(d) The Proposed Auckland Unitary Plan submission and hearings process on behalf of Auckland Transport (as part of the Auckland Council group), including leading Auckland Transport input into the transport, business, heritage and special character, air quality, and zoning topics. As part of this work, I prepared evidence on behalf of Auckland Transport and Auckland Council on ped sheds and walking distances to public transport stops and centres.

(e) Plan Variation 1 (Whenuapai 1, under the Housing Accord and Special Housing Areas Act 2013), and Plan Change 196 to the Auckland City Council District Plan (Newmarket Growth Area Structure Plan).

(f) A range of transport projects including The Congestion Question, Additional Waitemata Harbour Connections, and the introduction, monitoring and evaluation of rental e-scooters in Auckland. In my role at Auckland Council, I was also involved in work on transport policy and regulatory matters such as the Clean Car proposals and Accessible Streets package.

2.5 I am authorised to give evidence on behalf of Waka Kotahi.

3. CODE OF CONDUCT

3.1 While I acknowledge that I am an employee of Waka Kotahi, I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Code of Practice Note and I agree to comply with it. I confirm that the issues addressed in this brief of evidence are within my area of expertise as a spatial planner. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

4. SCOPE OF EVIDENCE

4.1 The purpose of my evidence is to outline my expert opinion on the importance of integrating land use and transport planning by locating higher density development within the walkable catchment of rapid transit stops, the city centre and metropolitan centres. I also explain why I believe the plan change as presented in the section 42A report does not represent best practise walkable catchment mapping which has resulted in areas being inappropriately excluded from up-zoning as required by the NPS-UD.

4.2 As part of preparing this evidence, I have reviewed the following documents:

(a) The section 42A report prepared by Adam McCutcheon and Andrew Wharton dated 20 January 2023;

(b) The expert evidence of Órla Hammond, GIS Team Leader at Wellington City Council with respect to walking catchments dated 19 January 2023;

(c) The corporate evidence by Akhylesh Babu Keshaboina of Waka Kotahi dated 8 February 2023.

(d) The following section 32 Evaluation Reports:

(i) Part 1: Context to s32 evaluation and evaluation of proposed Strategic Objectives

(ii) Part 2: High Density and Medium Density Residential Zones

4.3 My evidence addresses the following matters:

(a) The classifying of rapid transit within the context of the NPS-UD, with a particular focus on the Johnsonville line;

(b) The rationale for locating development in accessible areas particularly the walkable catchments of rapid transit stops, the city centre and metro centres; and

(c) The methodology and approach to measuring walkable catchments.

5. RAPID TRANSIT

5.1 I have reviewed the 42A report and the recommendation to include the Johnsonville Rail Line as ‘rapid transit’ and apply policy 3(c)(i) of the NPS-UD accordingly. This is in-line with the relief sought in the Waka Kotahi primary submission. I support the

recommendation and reasons given in the 42A report and in particular emphasise the following points.

5.2 The Johnsonville Line is identified as rapid transit in the Wellington Regional Land Transport Plan (RLTP), the Wellington Regional Public Transport Plan, and the Wellington Regional Growth Framework.

5.3 The NPS-UD defines a rapid transit service as one which currently or is planned to display a number of characteristics (frequent, quick, reliable etc). The Johnsonville Line clearly displays most of these characteristics (such operating on a permanent route that is largely separated from other traffic). Where it may be debatable whether the service displays the characteristic now, improvements are identified in the RLTP thereby meeting the requirements to be considered 'planned' under the NPS-UD.

5.4 Classifying the line as 'rapid transit' will support the objectives of the NPS-UD. It will:

(a) improve housing affordability by supporting competitive land and development markets (objective 2)

(b) enable more people to live in, and more businesses and community services to be located in, areas of an urban environment in which […] the area is well-serviced by existing or planned public transport (objective 3)

6. WALKABLE CATCHMENTS

6.1 Walkable catchments[1] are not a new concept. They have formed part of planning work and documents for many years and today are a core part of many modern planning and transportation plans. They are integral to popular planning and urban form concepts such as the '20-minute city', and 'Transit Oriented Development'.

6.2 At its most basic a walkable catchment is the area around a particular location (be it a town centre, public transport stop, park or other destination) within which an average person is likely to walk to reach that location. Enabling people to live within this area and ensuring that it is sufficiently safe and attractive for them to walk, increases the likelihood people will choose to walk. This has many benefits including improved health, safety and environmental outcomes.

6.3 When combined with a transport strategy with a focus on improving accessibility, increasing access to alternative modes, and reducing the environmental impacts of the

[1] Walkable catchments are also often known as pedsheds (short for pedestrian sheds). Other terminology can also often be used to discuss similar concepts with terms such as walkable neighbourhoods and walkable cities also being common.

transport system it can also help improve the efficiency and effectiveness of the transport system and investment in it.

6.4 The intent of the requirement to intensify in walkable catchments is set out clearly in objective 3 of the NPS-UD:

> *"enable more people to live in, and more businesses and community services to be located in, areas of an urban environment in which one or more of the following apply:*
>
> *a) the area is in or near a centre zone or other area with many employment opportunities*
>
> *b) the area is well-serviced by existing or planned public transport*
>
> *c) there is high demand for housing or for business land in the area, relative to other areas within the urban environment."*

6.5 While the guidance and background documents for the NPS-UD explain the reason these particular areas were selected, as well as the outcomes anticipated by enabling people, businesses and services to locate in these locations.

6.6 The s32 report prepared for the NPS-UD[2] describes the intent of objective 3 as being "to provide for urban intensification and increased densities in locations which are best suited / where benefits can be best realised". As outlined in the evidence of Akhylesh Babu Keshaboina, the government has signalled through the Government Policy Statement on Land Transport 2021 a focus on investment in "providing people with better travel options to access places for earning, learning, and participating in society". Enabling growth in these locations will support this strategic priority.

6.7 In relation to the intensification policies themselves, the MfE guidance itself does a good job of explaining the intent and rationale:

> *"Enabling higher-density development in locations with good access and amenity means people can live close to where they work, learn, shop or connect with friends and family. Such options let residents avoid congestion and long commute times. Businesses can also access more potential workers, customers and other businesses.*
>
> *"The provisions recognise the benefits of integrating transport and land-use policy. They allow for transport investment that can induce land-use*

[2] https://environment.govt.nz/assets/Publications/Files/NPS_UD_s32_evaluation_report.pdf

change by encouraging greater supply of development capacity, thereby lifting the number of people living in high-amenity areas. This can help improve the economic case for public and active transport investments, for example by increasing the likely number of people using public transport services. Intensification is also important to support the reduction of greenhouse gas emissions and therefore has a role in climate change mitigation"

6.8 I support the use of walkable catchments in land use and transport planning and believe that, applied in the way the NPS-UD requires, they will support the objectives of the NPS-UD and well-functioning urban environments. I disagree however, with how they have been calculated and then applied in the Proposed District Plan for the reasons outlined below.

Distance vs time

6.9 When discussing walkable catchments, whether distance or time is used often doesn't matter. Most guidance documents and plans use the well accepted rule of thumb of 400m being roughly equivalent to a five-minute walk (1.33m/s). As outlined in the evidence of Órla Hammond this measure can be traced back to 1892 and has been used in mapping walkable catchments (or similar concepts) since Clarence Perry's concept of the 'neighbourhood unit' in the 1920s[3].

6.10 Being based on a common walking speed these guides and plans are able to use distances and speeds interchangeably (i.e. whether one specifies ten minutes or 800m, the intent is the same distance). When deciding to adjust this relationship by using a different walking speed, it is important that the appropriate baseline is adopted (be it distance or speed) and the relationship adjusted accordingly.

6.11 It is my view that there is now a commonly accepted New Zealand and international standard for the size of walkable catchments and that the approach adopted in the proposed plan to make a reduction in that size to account for slower walking speeds has not been adequately justified.

6.12 The s32 and 42A reports and walkable catchments evidence do not provide justification for choosing to use time instead of distance. A brief mention is made in the evidence of Órla Hammond and in a two-page information sheet for the Wellington City Spatial

[3] Perry C. *Neighborhood and Community Planning Comprising Three Monographs: The Neighborhood Unit.* New York: Regional Plan of New York and Its Environs; 1929

Plan[4], not included as part of the district plan supporting documents or evidence, that Wellington City Council has used time to create walkable catchments because it creates "a more accurate, 'real world' result". Notably though the evidence of Órla Hammond acknowledges that "The standard for a "walkable distance" is taken as 400m – 800m, ***approximately*** 5- to 10-min of walking" (emphasis added).

6.13 While there appears little evidence for adopting a starting point, or baseline, based on time rather than distance, there is plenty for the opposite approach.

6.14 Distance is the primary metric used in most examples of academic study and professional and best practice that I am aware of. The MfE guidance uses time and distance metrics interchangeably and explains the reason for this saying, "A walkable catchment of 400 metres is ***typically*** associated with a five-minute average walk and 800 metres with a 10-minute average walk" (emphasis added). While the guidance does mention time in a few other places it primarily uses distance as a metric, recommending for instance that "A distance of 800 metres from each main entrance to a transit stop is considered a minimum walkable catchment in all urban areas".

6.15 The above recommendation in the MfE guidance cites this distance as being "consistent with long-standing academic and international best practice". Examples of such best practice documents which use distance as the primary means to describe/measure a walkable catchment include:

(a) Waka Kotahi Public transport design guidance (draft)[5]

(b) Urban Design Guidelines for Victoria[6]

(c) Liveable Neighbourhoods (Western Australia)[7]

(d) Transit-Oriented Communities Design Guidelines (Vancouver)[8]

(e) Transit-Oriented Development Guidelines (San Francisco)[9]

(f) The Planning for Walking Toolkit (London)[10]

[4] https://wellington.govt.nz/-/media/your-council/plans-policies-and-bylaws/plans-and-policies/a-to-z/spatial-plan/walking-catchment-information-sheet.pdf
[5] https://www.nzta.govt.nz/walking-cycling-and-public-transport/public-transport/public-transport-design-guidance/getting-to-and-from-public-transport/walking/ (accessed 5 February 2023)
[6] https://www.urban-design-guidelines.planning.vic.gov.au (accessed 5 February 2023)
[7] Government of Western Australia: Department of Planning. (2015). Liveable neighbourhoods: 2015 Draft. https://www.wa.gov.au/system/files/2021-05/FUT-LiveableNeighbourhoods_2015.pdf
[8] Translink. (2012). Transit-Oriented Communities Design Guidelines. https://www.translink.ca/-/media/translink/documents/plans-and-projects/managing-the-transitnetwork/transit_oriented_communities_design_guidelines.pdf
[9] BART (2017) https://www.bart.gov/sites/default/files/docs/BART_TODGuidelinesFinal2017_compressed_0.pdf
[10] Transport for London (2020) https://content.tfl.gov.uk/the-planning-for-walking-toolkit.pdf

(g) NACTO Transit Street Design Guide[11].

6.16 Likewise most, if not all, of the academic studies of walkable catchments and ped sheds that I am aware of have used distance to measure and study the relationships between walking and proximity to transit and centres[12].

6.17 It is this relationship between proximity to a centre or transit stop and propensity to walk to that location that is most important. It is this relationship which underpins the intent of the NPS-UD – to increase densities in locations where people can walk to jobs and other opportunities, and/or high-quality public transport services in the form of rapid transit stops.

6.18 While the council have presented evidence that a slower walking speed should be used instead of the widely accepted practise, they have not measured the actual distance people will walk and have presented no evidence that the typical size of a walkable catchment should change. While a time-based measure could be used, the standard or starting point distance of the walkable catchment should not change without justification.

6.19 The council could have chosen to use distance to establish a baseline walkable catchment, reflecting widespread evidence and best practice around walkable catchments, and adjust the timing to reflect their slower walking time i.e. use 12-12.5 minutes instead of 10. The council has instead chosen to use a time related baseline and adjust the distance accordingly.

6.20 In my view the use of distance to establish a baseline is most appropriate. Alternatively, if time continues to be used to describe walkable catchments, the baseline times need to be changed to more closely reflect the distances people will walk to access rapid transit stops and major centres. I cover what I believe these distances should be below.

Evidence and best practice on walkable catchments

6.21 There is no single distance that can be used to categorically describe all walkable catchments. People's propensity to walk to destinations, such as rapid transit stops, and centres sits on a spectrum. While it is a fairly universal aspect of human nature that the closer a person is to something the more likely they are to walk to it, how this propensity changes as distance increases differs from person to person.

6.22 Such propensity to walk is also impacted by a range of factors related to the walk itself as well the destination people are walking to. On the walk these features include most

[11] https://nacto.org/publication/transit-street-design-guide/transit-system-strategies/network-strategies/pedestrian-access-networks/ (accessed 5 February 2023)
[12] A non-exhaustive list of such studies is included in Appendix 1

obviously topography, but also factors such as the level of active frontages, amenity, and street permeability. Meanwhile the range and type of services available at a centre may impact a person's willingness to walk to it; while transit characteristics, such as mode and frequency, can similarly contribute to the scale of a transit stop's catchment.

6.23 It is necessary therefore to adopt a point on this spectrum that is appropriate for the purpose for which we want to use it. I address this for rapid transit stations and centres in more detail below.

Rapid Transit

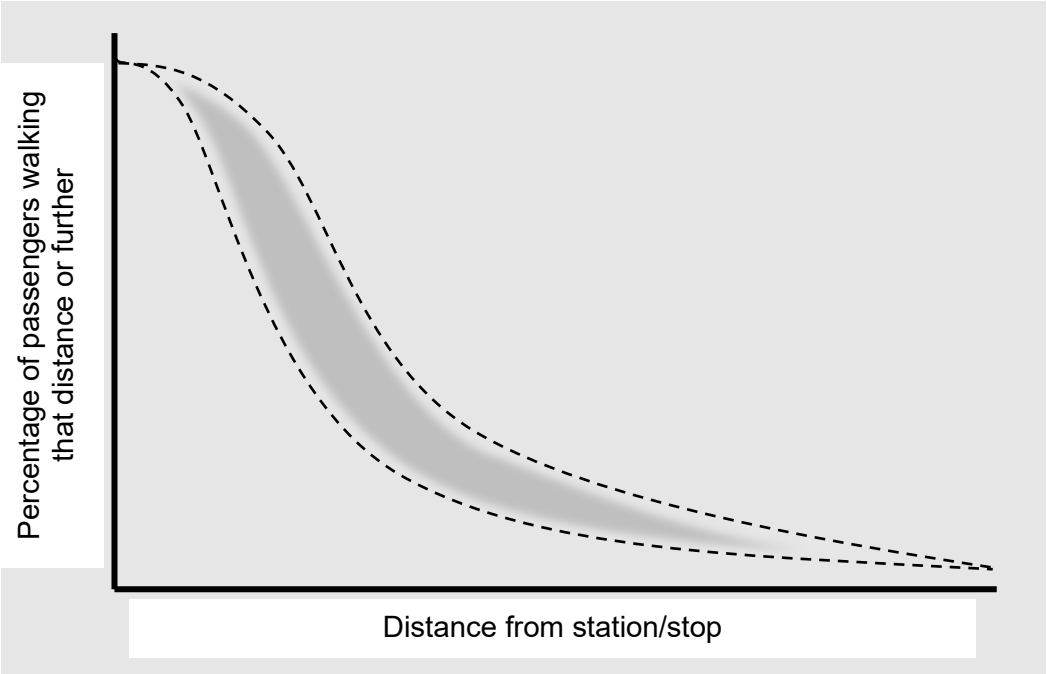
6.24 While the concept of walkable catchments is not new it has arguably gained greater prominence over the past 30 years, especially in new world countries such as the US, Australia and New Zealand, with the creation and increasing prominence of the concept of Transit Oriented Development[13] as well as the desire to better understand and plan public transport services and model patronage. Probably not coincidentally, the number of academic studies on the subject have also increased substantially with many setting out to test the historical 800m rule of thumb for rapid transit stops (and usually also the 400m rule of thumb for lower order public transit stops).

6.25 However, despite this extensive research, results from studies have been mixed[14] and therefore have not been able to provide a clear guide one way or the other for planning practice. It is useful though to consider the results of these studies to understand the range of results they have shown and what they can tell us about a "standard" walkable catchment.

6.26 Most studies demonstrate a pattern of distance decay that starts with a high proportion of patrons from close to the station, a relatively steep drop-off as the distance increases and then a long tail, similar to that shown in the indicative diagram below.

[13] Defined succinctly on Wikipedia as "a type of urban development that maximizes the amount of residential, business and leisure space within walking distance of public transport" https://en.wikipedia.org/wiki/Transit-oriented_development (accessed 6 February 2023)

[14] As with any attempt to study specific aspects of cities, controlling for all the variables is difficult, if not impossible. This difficulty comes in part from the sheer number of potential variables, as well as the interrelationships of many of these variables making it difficult to extract the impact of one from another. Compounding this challenge is the need to control for matters such as self-selection bias. Finally, the range of different study methods that have been attempted over the years make comparisons of different studies difficult; in fact, in a recent meta-analysis study design was found to have a notable effect on the variability of results.



6.27 While there is strong agreement on this finding, the distances various studies have found differs considerably. A small sample of such studies is set out below:

- A study of people in San Francisco and Portland[15] found that the median trip distance to access rail transit was 0.47 miles (756 metres).
- In Sydney a study found that a mean walking distance to rail stations is 805 metres and a 75th percentile of 1018 metres[16].
- A study of the Los Angeles Metro rail system[17] didn't look at specific distances but found that extending the study area from 400m to 800m generated more statistically stable results suggesting "that many transit riders travel to the station from between 0.4 km and 0.8 km catchment areas".
- In Montreal the median walking distance to a metro service stop or station were 527 metres with the 75th percentile is 730 metres, while rail service catchments were found to have a median distance of 785m and 75th percentile of 1102m[18].

[15] Agrawal, A., M. Schlossberg, and K. Irvin. 2008. How far, by which route and why? A spatial analysis of pedestrian preference. Journal of Urban Design, 13 (1): 81–98. DOI:10.1080/13574800701804074.

[16] Daniels, R., & Mulley, C. (2013). Explaining walking distance to public transport: The dominance of public transport supply. *The Journal of Transport and Land Use*, 6(2), 5-20.

[17] Kim D, Ahn Y, Choi S, Kim K. Sustainable Mobility: Longitudinal Analysis of Built Environment on Transit Ridership. *Sustainability*. 2016; 8(10):1016.

[18] El-Geneidy, A., Grimsrud, M., Wasfi, R., Tétreault, P., & Surprenant- 43 Legault, J. (2014). *New evidence on walking distances to transit stops: Identifying redundancies and gaps using variable service areas*. Transportation, 41(1), 193-210

- In Auckland, Auckland Council's Research, Investigations and Monitoring Unit[19] looked at the distance people would walk to 12 rail and five bus stations (in addition to four rail stations studied previously). Some people were prepared to walk considerable distances to these services (over 4km in some cases). The median distance walked to these stations differed considerably between stations (446m-2727m). Most of the stations recorded a median walking distance in the range of 550m-950m.

6.28 Further to this, Ewing and Cervero[20] (in a well-known meta-analysis of studies) found that a ten percent decrease in household's distance to transit corresponded with a three percent increase in transit use. Cervero[21] in another study found that Californians living within one half mile (0.8 kilometres) of a transit station were four times more likely to use transit than those living between one half mile and three miles (4.8 kilometres) of transit.

6.29 While these types of studies have continued to be produced, despite, or possibly because of the research outputs, international best practice on this topic remains unchanged. Guidelines, such as those listed in paragraph 6.15, continue to recommend the use of 800m as a good benchmark or starting point for determining a walkable catchment. Likewise, as previously noted, the MfE guidance recommends 800m as a starting point for determining a walkable catchment.

6.30 In my view this is appropriate. While the differing research methodologies make it difficult to synthesise the range of study findings into particular figures, I consider that there is strong evidence that being located within ~800m of a rapid transit station is strongly associated in most cases with the likelihood of walking to catch transit.

6.31 Two counter approaches may be put forward by the council or other submitters to this position:

(a) That a lower distance should be used to reflect more of the population rather than looking at the 'average'; or

(b) That a longer distance should be used to reflect the fact that some people are prepared to walk longer distances to access rapid transit.

6.32 Both of these approaches reflect the fact that propensity to walk is a spectrum and that there is no absolute right answer to determining a walkable catchment. While much of

[19] Wilson, L (2013). *Walkable catchments analysis at Auckland train and Northern Busway stations – 2013*. Auckland Council technical report, TR2013/014

[20] Ewing, Reid and Cervero, Robert (2010) 'Travel and the Built Environment', *Journal of the American Planning Association*, First published on: 11 May 2010

[21] Cervero, R., (2007). Transit-oriented development's ridership bonus: a product of self-selection and public policies. Environment and Planning A 2007, volume 39, pages 2068-2085

my opinion on these approaches is set out above in my position for 800m, I address each of these arguments briefly below.

6.33 The first of these approaches is similar to the council's approach of adopting a slow to moderate walking speed rather than an average one. It would likely be put forward with the intent to align density with the distance a greater proportion of the population will walk.

6.34 In my view this would not be the best approach. Aligning walkable catchments with the rough average distance people are prepared to walk better caters for all people, including those that can't, or aren't prepared, to walk as far (or even to walk to the stop at all). Enabling greater development to an 'average' 800m walkable catchment enables more higher density housing to be built, thereby reducing the competition for housing closer to the transit stop and enabling more opportunities for it to be used.

6.35 The other approach is the opposite of the first, with the justification being that many studies show that people will walk long distances to access rapid transit, occasionally in excess of 3-4 kilometres. While these committed walkers will usually be the outlier, some studies have also found that a significant portion of the patrons of a station will come from outside an 800m catchment i.e. 50% from within 800m and 50% without.

6.36 I do not disagree with the findings of these studies but do differ on their interpretation and applicability. In particular:

(a) It is my view that development enabled much further than 800m from a rail station is likely to be more car dependent than development closer to the station. While some people may walk to the transit stop, many are likely to not. While even within 800m there is likely to be an increasing propensity of residents to drive rather than catch transit as distance increases, in my view the ideal spot for this sits around 800m.

(b) While some studies[22] do show a large proportion of customers from outside 800m I believe this is often misinterpreted or applied. These studies do not usually look at these totals as a proportion of potential customers i.e. of all residents, employees etc within these spatial extents. Given that the area of a circle will quadruple in response to the doubling of its radius, it is likely that the number of potential customers from these greater distances is considerably larger than closer in. Even if there are a significant number of passengers walking

[22] For instance, Wilson, L (2013). Walkable catchments analysis at Auckland train and Northern Busway stations – 2013. Auckland Council technical report, TR2013/014

from that distance, it is likely that a far greater number are not prepared to walk that far and remain car dependent[23].

6.37 For these reasons, while the 800m rule of thumb appears more an artefact of history than a proof-based construct, I believe it has proven robust in its applicability and usefulness around the globe and should be used here as the starting point for mapping walkable catchments for rapid transit. In doing so it best achieves the intent of enabling high density development in well-connected locations, enabling people to reduce car use, and supporting transport investment in the rapid transit network.

Centres

6.38 While there are numerous studies of the relationship between walking/exercise levels and the proximity of local shops, especially by researchers in health fields, studies that have attempted to measure a specific catchment or distance are less common. This is especially the case in relation to the walkable catchments of higher order centres such as metropolitan and city centres.

6.39 Auckland Council have included a useful literature review as part of their section 32 report for plan change 78[24] (the Auckland Council Intensification plan change). The review describes the findings of a number of studies, with a spread of results and lack of consensus similar to that described previously in this evidence in relation to rapid transit.

6.40 This review summarises around a dozen studies looking at the relationship between walking and centres. Findings from these studies range from:

- One that found distances under 400m are required to incentivise walking, and another that found it was 200m for trips to retail;
- Another which found the overall median walking distance for any purpose (work, shopping, school, leisure) was 650m;
- One which found that walking trips had a median of 800m (10 minutes) and a mean of 1,100m (14-15 minutes);
- An Australian study found that proximity and mix of destinations appears associated with walking for transport, this association was found for activities within both 400m and 1500m;

[23] Expanding on the example at the end of paragraph 6.35 – if 50% of patrons were to come from within 0-800m and 50% from between 800-1600m, assuming a reasonably connected pedestrian network and similar land use pattern, the proportion of people from within 800m who choose to walk would be three times greater than those from between 800m and 1600m who choose to walk.
[24] https://www.aucklandcouncil.govt.nz/UnitaryPlanDocuments/02-1-pc-78-section-32-policy-3-intensification.pdf (pages 159-162)

- To another study which calculated the average walking journey was 1km with not many people walking more than 2km. The accepted threshold for walking to local facilities was 400m while 800m was a suggested threshold for walking to a town centre.

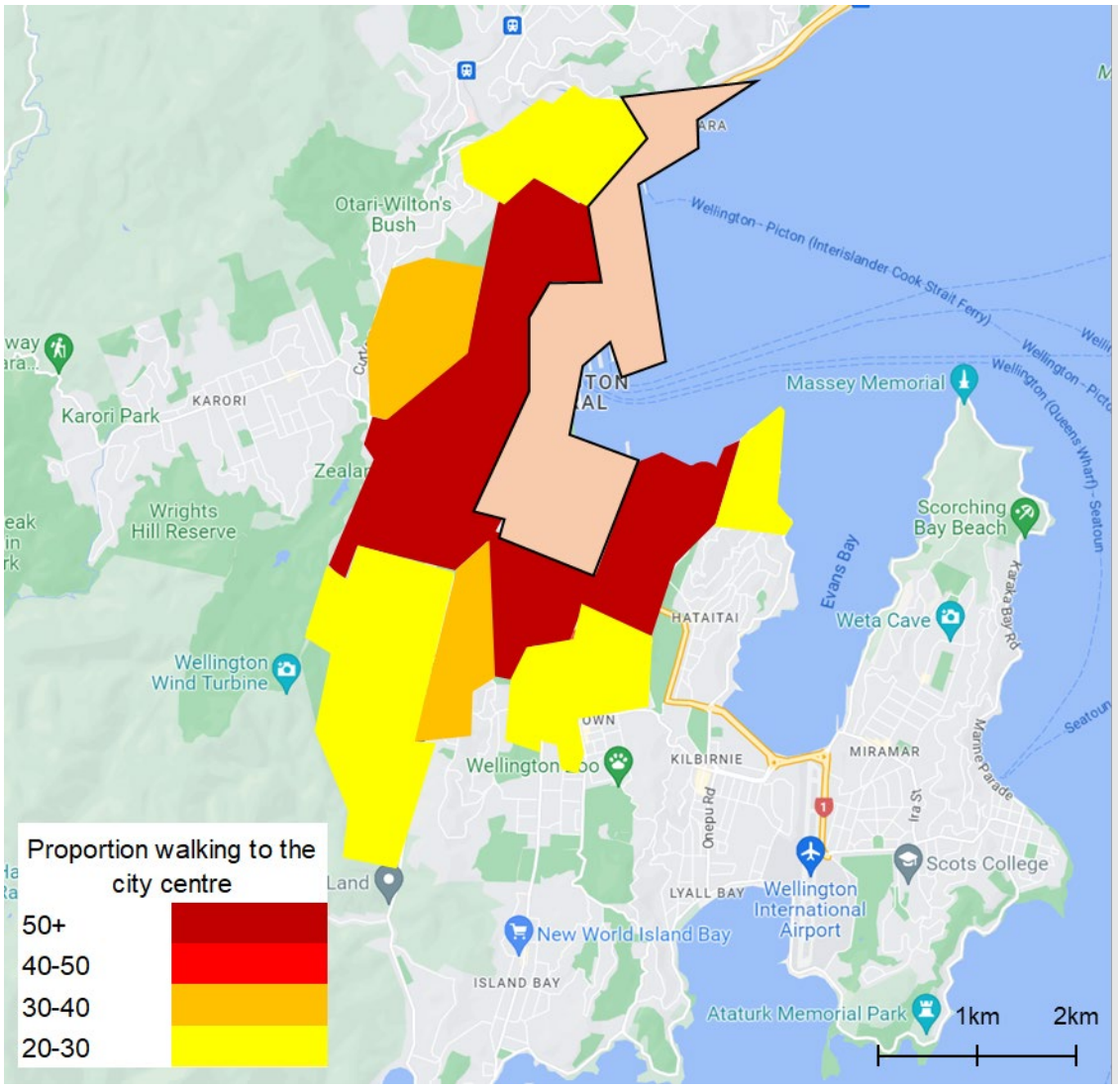
6.41 Looking at New Zealand specific data, the two main data sources are the Household Travel Survey and Census.

6.42 According to the Waka Kotahi draft Walking Standards and Guidelines "For walk only trips, New Zealand Household Travel Survey data show that half are more than 10 minutes, 18 percent are more than 20 minutes and nine percent are more than 30 minutes."[25]

6.43 Meanwhile the census results enable us to understand the extent of walking to the city centre for work purposes. These results show a high proportion of people walking to work in the city centre for well over 1km, with notably high proportions of walking trips in SA2s[26] that extend as far as 2000m or more from the city centre[27].

6.44 Shown below are a map and table summarising some of the results for inner Wellington SA2s. Both figures show the proportion of people travelling to the city centre for work who choose to do so by foot. The map shows those SA2s with over 20% walking mode share into the city centre. The table provides closest and furthest walking distance measurements (not "as the crow flies") for the SA2s to support an understanding of how far they are located from the edge of the city centre. The proportion of people travelling from those SA2s to the city centre by walking and by active and public transport combined is also provided.

[25] https://www.nzta.govt.nz/walking-cycling-and-public-transport/walking/walking-standards-and-guidelines/pedestrian-network-guidance/walking-in-new-zealand/walking-activity-and-trends-in-new-zealand (accessed 7 February 2023)
[26] SA2 stands for Statistical Area 2. They are a geographical unit used by Statistics New Zealand providing higher aggregations than the smallest Statistical Area 1. The SA2 geography aims to reflect communities that interact together socially and economically. In populated areas, SA2s generally contain similar sized populations.
[27] It should be noted here that the shape and scale of SA2s make definitive conclusions difficult. SA2s tend to be fairly large and across their spatial extent will experience the distance-decay effect. They are still considered informative if considered with this limitation in mind.



SA2	Approximate walking distance from the edge of the City Centre[28]	% who work in the City Centre that walk to there	% who work in the city centre that use active or public transport to get there
Mount Cook West	0-800m	73%	87%
Mount Cook East	0-800m	60%	88%
Aro Valley	0-2500m	65%	85%
Brooklyn East	150-2400m	30%	68%
Wadestown	0-2500m	29%	62%
Newtown West	800-1900m	20%	77%

[28] These walking distances have been estimated from google maps. They are included to provide a general scale of the proximity and size of the SA2s and should not be taken as definitive.

Oriental Bay	0-1200m	56%	70%
Roseneath	1200-2900m	24%	61%

6.45 Based on the above I consider that the 1500m starting point sought by Waka Kotahi for the City Centre walkable catchment is the most appropriate. This distance reflects the greater number and range of opportunities available in the city centre and enables growth in locations where people are able to walk to the city centre and access many of their needs by walking or other 'alternative' modes (such as cycling and public transport). This is supported by the census results, which show that people are willing to walk to the city centre from a distance much further than the 1000m proposed by the council (based on the 15-minute catchment and proposed walking rate).

6.46 Enabling greater levels of development in this area will also align with the objectives and policies of the NPS-UD by enabling more people to live in an area well-serviced by public transport (objective 3) and contribute to an urban environment that has good accessibility for people (policy 1(c)) [29].

6.47 In relation to metropolitan centres, the data from the census is less useful (with far smaller sample sizes). Nevertheless, I believe the evidence from the relevant studies as well as that of the Household Travel Survey indicates that 800m is in most circumstances an appropriate threshold distance for a centre of this scale. Combined with the range of best practice guidance which also focuses on this distance in relation to centres and walkable neighbourhoods, it is my view that 800m is the appropriate starting point for walkable catchments from metropolitan centres.

Applying adjustments to the starting point

6.48 For the avoidance of doubt, the above evidence is concerned with the appropriate starting position for calculating walkable catchments. This evidence is not intended to otherwise challenge the methods proposed for adjusting the walkable catchments to take account of other factors including, in particular, topography.

Walking speed

6.49 While it is my view that, for the purpose of determining the size of a walkable catchment, using a distance metric as the starting point is most appropriate; should the panel

[29] Whatever mode of transport people living in these areas choose to take, they are still relatively closer to the centre of the city than other locations in the region and will therefore will likely travel shorter distances on average than if they lived in a more remote location.

disagree I make the following comments about the approach adopted by the council to determine an appropriate walking speed.

6.50 My main concern with the approach proposed relates to the selection of a speed "that encompasses most pedestrian journeys"[30] based on slow to moderate walkers. There are certainly circumstances where using a slower walking speed to cater for a greater proportion of the population is appropriate, such as when determining pedestrian crossing phase lengths. However, in keeping with my previously stated view that an average distance is most appropriate distance metric, I am of the view that using an average walking speed is more appropriate for spatial and land use planning than a slower one.

6.51 The reason for this is much the same as previously stated – while a slower speed purports to serve a greater range of people, what it instead will likely do is reduce the range of living options for people, putting those who can walk faster in more direct competition with those who can't. Adopting an 'average' speed, and consequentially higher levels of development within a larger catchment, will provide greater options for those who can walk faster, reducing pressure for those who walk slower and need/want to live closer.

6.52 This position is also in line with the MfE guidance which says "A walkable catchment is the area that an ***average*** person could walk from a specific point to get to multiple destinations" (emphasis added).

6.53 While the above is my main concern with the approach, a walking speed of 1.3m/s is well established and has been used for many years for walkable catchment and transit-oriented development planning and design processes with little issue. The literature review undertaken by Órla Hammond is extensive, yet I retain concerns about its applicability with many of the studies cited having looked at rural hiking and/or recreational trips, rather than the relatively short, urban, transportation trips we are considering. This is especially important when, even within urban areas, many factors of walking trips for recreation and transportation purposes have been found to differ[31].

6.54 Likewise, I have concerns about the strength of the Wellington specific walking evidence presented in the evidence of Órla Hammond. In particular:

[30] Section 42A report
[31] See for instance: Lee C, Moudon AV. Correlates of walking for transportation and recreational purposes. *J Phys Act Health* 2006;3(Suppl. 1):S77–98.; and Yang, Y., Diez-Roux, A. Walking Distance by Trip Purpose and Population Subgroups. *American Journal of Preventive Medicine* 2012, Vol 43, P11-19

(a) The WCC trendline (in blue) on figure 9 appears to show a steady walking rate across most slopes of ~1.6m/s

(b) Figure 12 shows the median Wellington City Council rate at around 1.5m/s

(c) The test in section 6 that is claimed to support the model, shows that the average speed in all cases was faster than the model (though not by much for 2 of the 5 routes), suggesting the model underestimates walking speed.

7. CONCLUSION

7.1 In conclusion, due to the importance and benefits of co-locating development close to places and services that people want and need to visit, I recommend that the Johnsonville Line be included as a rapid transit service and that the walkable catchments in the Proposed District Plan be increased. This would be 800m for rapid transit stops and metropolitan centres and 1,500m for the city centre. These changes would be in line with standard practice across New Zealand and overseas and are based on a substantial body of evidence.

Alastair Cribbens

8 February 2023

Appendix 1

List of academic studies

Agrawal, W. A., Schlossberg, M., & Irvin, K. (2008). How Far, by Which Route and Why? A Spatial Analysis of Pedestrian Preference, *Journal of Urban Design*, 13:1, 81-98.

Burke, M., Brown, A.L., Distances people walk for transport. *Road & transport research*, Vol 16 No 3, September 2007

Crowley, D., Shalaby, A., Zarei, H., 2009. Access walking distance, transit use, and transit-oriented development in North York City Center, Toronto, Canada. *Transp. Res. Rec. J. Transp. Res. Board* 2110, 96–105.

Daniels, R., Mulley, C., 2013. Explaining walking distance to public transport: The dominance of public transport supply. *The Journal of Transport and Land Use*, Vol 6 No2, 5-20.

El-Geneidy, A., Grimsrud, M., Wasfi, R., Tétreault, P., Surprenant-Legault, J., 2014. New evidence on walking distances to transit stops: identifying redundancies and gaps using variable service areas. *Transportation* 41(1), 193–210.

De Gruyter, C., Ma, L., Saghapour, T., & Dodson, J. (2020). How does the built environment affect transit use by train, tram and bus? *Journal of Transport and Land Use*, *13*(1), 625–650. https://www.jstor.org/stable/26967262

Guerra, E., Cervero, R., Tischler, D., 2012. Half-mile circle does it best represent transit station catchments? *Transp. Res. Rec. J. Transp. Res. Board* 2276, 101–109.

Gutiérrez, J., Cardozo, O. D., & García-Palomares, J. C. (2011). Transit ridership forecasting at station level: an approach based on distance-decay weighted regression*. Journal of Transport Geography,* 19(6), 1081–1092.

Millward, H., Spinney, J., Scott, D., 2013. Active-transport walking behavior: destinations, durations, distances. *Journal of Transport Geography* 28 (2013) 101–110.

Park, K., Ewing, R., Scheer, B., Tian, G., 2018. The impacts of built environment characteristics of rail station areas on household travel behavior. *Cities*, Volume 74, 2018, Pages 277-283,

Wilson, L (2013). *Walkable catchments analysis at Auckland train and Northern Busway stations – 2013*. Auckland Council technical report, TR2013/014

Zhao et al (2002) *FSUTMS Mode Choice Modeling: Factors Affecting Transit Use and Access*. Research Reports. 196.