6 October 2014

Freepost WCC
Attention: Paul Barker, Safe and Sustainable Transport Manager
Wellington City Council
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the architectural centre inc.
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Re: Island Bay Cycle Lanes

This submission is from the Architectural Centre, an incorporated society dating from 1946, which represents both professionals and non-professionals interested in the promotion of good design.

A. INTRODUCTION

1. The Architectural Centre strongly supports improvements to Wellington's cycling infrastructure, as part of good urban design and promoting Wellington as a sustainable, liveable city, but we do not think this proposal for a cycleway from Shorland Park to Wakefield Park is a good one. The proposal falls short of addressing a larger vision for cycling in the city, and we do not think it is the highest cycling infrastructure priority for our city. Given the Council's aims and determination to enhance cycling within the city, we believe that funding is better spent by developing, resolving, and implementing the critical areas of the cycling network first (i.e. working from the city centre outwards).

2. In our submission of 6 May 2014, we outlined the broader issues regarding our position - including that this segment of the Island Bay cycleway be designed in conjunction with other sections of the network, and after the more difficult parts of the route have been resolved, to ensure design consistency. In this regard we note Parkin and Koorey's observation, in relation to cycling network planning and infrastructure design, that "a strategy that is more likely to succeed will consider a whole settlement or a whole network."[1] We also note that design consistency is a key principle of UK's Sustrans, who note that "consistent high quality provision ... along a route and at both ends of the trip is essential ... Difficult engineering solutions should be addressed early on to avoid gaps being left."[2] Sustrans also states that the "[d]evelopment of a network should generally begin from the urban centre, working outwards."[3] We endorse all of these comments by Sustrans.

3. This submission addresses the proposed detail of the Island Bay Cycle lanes design. In making these comments and suggestions, we do not resile from our previous comments - but instead offer them with the aim of making the current proposal the best that it might be. We sincerely believe that, in order to justify claims made by supporters of this initiative, the design must be exemplary. Care with design is especially critical given that the remainder of the route into the CBD is yet to be designed. To have compromised design within the voluptuous widths of Island Bay's Parade would be a travesty.

B. GENERAL COMMENTS ON THE PROPOSAL

4. The Architectural Centre opposes the proposed design of this cycleway.

[1] Parkin and Koorey "Network Planning and Infrastructure Design" p. 133.
[2] Sustrans *Design Manual: Handbook for cycle-friendly design* p. 5.
[3] Sustrans *Design Manual: Handbook for cycle-friendly design* p. 9.

5. This design continues to prioritise cars over all other transport modes. This is evident in the fact that there is no reduction of service through this design for cars, and that cyclists are provided with a route requiring deviations around buses, and pedestrians suffer from footpath reduction. We believe that the council must be proactive about the kind of city it wants, and if (as much of current policy advocates) this is a city aiming to proactively advance a walkable, cycle-friendly, sustainable transport vision, then walking, cycling and public transit needs to be prioritised above car and taxi traffic. This will mean a reduction in the current appeal of car transport, due to a change in transport hierarchies. The Island Bay cycleway does not present such a vision.

6. We see the prime audience of the Island Bay to City cycleway (as a segment of a suburb to CBD route) as being the commuter cyclist - where directness of route is a key issue.[4] We conclude that the proposal compromises directness and disadvantages commuter cyclists compared to the existing situation.

7. We consider that the proposed design is not in accordance with best design standards internationally. We acknowledge that the design is consistent with the American NACTO (National Association of City Transportation Officials) guidelines, but observe that the NACTO guidelines have been criticised for not adopting best international practice, such as those implemented in the Netherlands (e.g. CROW) which has very high cycling participation rate of 27% nationwide (38% in cities). Instances where NACTO departs from current best practice include: minimum cycle lane widths (the NACTO guidelines is 1.2m (recommended 1.5m); the CROW guideline is 1.5m (recommended 2.5m).[5]

8. We also note that there has been work done at Government level which may be relevant to this proposal. Points raised in this Cycling Safety Panel "Safer journeys for people who cycle" report include:

   (a) consistent, continuous, convenient and complete networks of best practice cycling infrastructure would greatly improve cycling safety: "a whole journey approach" is recommended.[6]

   (b) most vehicle/cycle crashes occur at intersections or in driveways; extra consideration is required for intersection design.[7]

   (c) it is recommended that parking is progressively removed from arterial routes.[8]

   (d) replacing car parking with bike parking has economic advantages.[9]

   (e) there is a lack of knowledge of cyclist numbers which "inhibits planning and investment for cycling infrastructure,"[10] and presumeably has implications for the reliability of demand modelling.

[4] "Directness is more important than for other types of transport because of the added personal cost of effort, and perceived safety is paramount because of potential feelings of vulnerability when passing through certain types of environments" Parkin and Koorey "Network Planning and infrastructure Design" pp. 134-135.
[5] "Bicycle Lanes" n.p.
[6] Cycling Safety Panel "Safer journeys for people who cycle" pp. 16, 17, 18, 21, 22, 24.
[7] Cycling Safety Panel "Safer journeys for people who cycle" pp. 7, 21.
[8] Cycling Safety Panel "Safer journeys for people who cycle" p. 22.
[9] Cycling Safety Panel "Safer journeys for people who cycle" p. 23.
[10] Cycling Safety Panel "Safer journeys for people who cycle" p. 19.

(f) in Christchurch's post-earthquake development, it is proposed that in some locations cyclist will have priority over cars and reduction in car-parking is necessary to achieve this.[11]

C. SPECIFIC COMMENTS AND RECOMMENDATIONS

Dee Street roundabout

9. The consultation documents propose to replace the Dee St roundabout with traffic signals.[12] The Centre considers that this proposal is erroneous. While it is true that large multi-lane roundabouts with high traffic volumes can be difficult for cyclists and pedestrians,[13] this is not the situation at this intersection, where traffic self-regulates efficiently. In addition, single-lane roundabouts (or traffic circles) are known to operate as traffic calming measures, improving safety for cycling.[14]

Figure 1: Existing Dee St/Parade intersection with roundabout

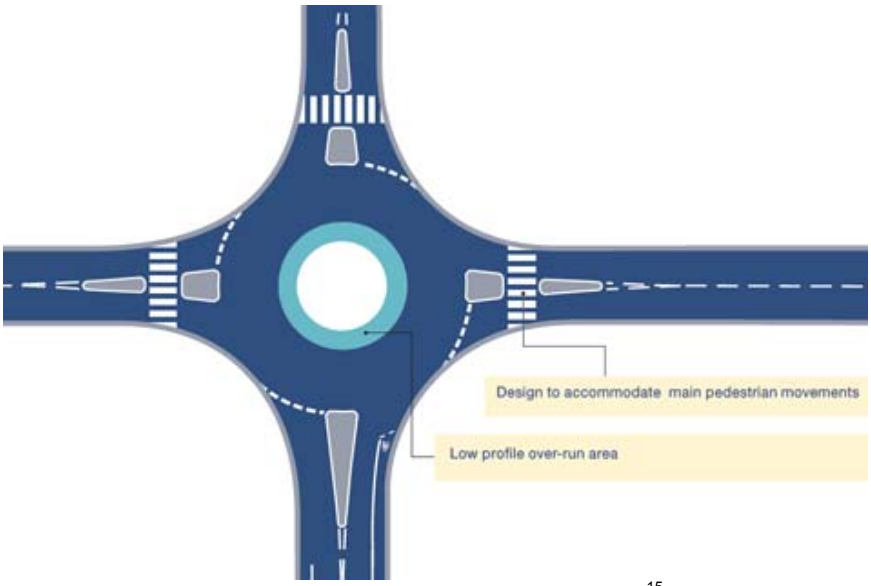

Figure 2: Compact/Continental Roundabout[15]

10. In fact the Dee St/Parade intersection roundabout is almost a model example of a roundabout designed for cycling, and compares well with the Sustrans recommended practice of the "Compact/Continental Roundabout" (Fig 2).[16] According to the Netherlands Institute for Road Safety Research (SWOV), roundabouts are generally safer than four-way intersections because "they reduce the number of potential conflicts between road users and lower the

[11] Cycling Safety Panel "Safer journeys for people who cycle" p. 16.
[12] WCC "Island Bay Cycleway: Final Design Report" pp. 1,5.
[13] Sustrans *Design Manual: Handbook for cycle-friendly design* p. 20.
[14] "Draft San Diego Regional Bicycle Plan Design Guidelines Appendix B" pp. 10, 11.
[15] Sustrans *Design Manual: Handbook for cycle-friendly design* p. 20.
[16] Sustrans *Design Manual: Handbook for cycle-friendly design* p. 20.

driving speed,"[17] and they recommend replacing intersections "with roundabouts at suitable locations."[18] The "Island Bay Cycleway: Final Design Report" states that: "In the nine years before the [Dee St] roundabout was installed [in 2005] there were no reported injury crashes at the junction, compared to three in the eight years after implementation."[19] To understand the significance of the three crashes more information is needed. For example: what kinds of vehicles were involved? how serious were the crashes? is this increase in crashes significant given the 93% increase in cycle traffic since 2006 (c.f. a 26% increase from 2001 to 2006).

11. Based on this research, and our personal cycling experience using this roundabout, the Centre considers that introducing traffic signals will simply create an inconvenience rather than improve the transport circulation and safety, and will only cause time penalties for most users without providing any benefits.

Recommendation 1: Retain the Dee St roundabout.

Position of the Humber St bus stop (northward)

12. Because of the position of the Humber St traffic island (south of the intersection), car and motorbike traffic will still be able to pass buses stopped at the northward bus stop. This suggests that bus drivers will need to look right for passing traffic, and may inadvertently drive left into the cycle lane and cyclists.

Recommendation 2: Extend the Humber St traffic island south to prevent motorised traffic overtaking stopped buses at the northward bus stop.

Recommendation 3: Alter the curbline after the bus stop to ensure better separation between motorised traffic and cyclists.

Cars vs Active and Sustainable Transport

13. The design is hampered by a commitment to car parks. The Final Design Report states that: "There are currently 265 legal on-street car parks along The Parade. Surveys show that occupancy of those car parks typically ranges from 150-180 spaces, with a peak of 216."[20] This suggests there is an over supply of 49 car parks (18%) during the times of highest demand. The proposal is to only remove 29 car parks (11%). While we acknowledge that the removal of car parks is a politically difficult decision, this appears to be a clear case where opponents to the removal of all 49 excess car parks have no substantive case. This is particularly important when in this design configuration, the retention of car parks has compromised the integrity of the design, which relies on minimum and substandard lane widths (see below **Table 1**). We again refer to the *Sustrans Design Manual* which identifies concisely the actual decision that a commitment to cycling infrastructure requires:

> Reallocation of road space makes an important statement about the relative priority of different transport users, as it not only promotes cycling but can act as a restraint on motor traffic, which is an important aspect of transport and planning policy in congested urban areas.[21]

We also note that the Cycling Safety Panel recommends progressively removing parking from arterial routes. They note that this "is consistent with the One Network Road Classification."[22]

[17] SWOV "SWOV Fact Sheet: Roundabouts" p. 1.
[18] SWOV "SWOV Fact Sheet: Roundabouts" p. 5.
[19] WCC "Island Bay Cycleway: Final Design Report" p. 5.
[20] WCC "Island Bay Cycleway: Final Design Report" p. 8.
[21] Sustrans *Design Manual: Handbook for cycle-friendly design* p. 13.
[22] Cycling Safety Panel "Safer journeys for people who cycle" p. 22.

14. The economics of privileging cycle lanes over car parking also points to additional advantages. Daniel Arancibia, in University of Toronto postgraduate research, found that bike lanes:

> should be especially appealing to businesses looking to capitalise on a strong local customer base. According to numerous studies, utilitarian cyclists are high per-capita spenders likely to live in or visit dense urban areas, more likely to be repeat customers, and more likely to reach a particular store or shopping district if bike lanes are in place.[23]

15. Arancibia notes that "[a]vailable evidence suggests bike lanes effectively act as a catalyst for economic activity,"[24] citing studies of new cycle lanes New York City, Seattle and San Francisco with findings from no negative impact to a 49% increase in retail sales resulting from cycling infrastructure. He also notes, with respect to the provision of cycle parks, that because 8-10 bikes can be parked in the same space as one car "it is possible for businesses ... to expand their customer base much more efficiently than if they relied on customers finding an available on-street parking spot nearby – bicycle parking greatly diminishes the amount of parking space required to generate profit."[25] In a similar vein, the Cycling Safety Panel notes that:

> The findings of a Portland study found that businesses see great value in replacing car parking with bicycle parking and are requesting the City Council to install bicycle corrals. Portland businesses recognise that urban spaces that attract pedestrians and bicyclists encourage higher levels of shopping and dining. Two thirds of businesses surveyed responded that the bike corrals increased foot and bike traffic in the area.[26]

16. We also note that the WCC "Cycling demand analysis" records that "Removing parking on one side of the road ... is very well supported. ... [but] the research shows most people would oppose removing parking on both sides of the road."[27]

Recommendation 4: As a minimum, remove all 49 excess carparks to provide more road space to improve the current design. We would support more removal of even more carparks if this would improve the quality of the cycle-lane design.

Lane widths

17. The lane widths proposed are often below standard or rigidly minimal. Not only does this have potential ramifications for increasing traffic conflict but it also indicates the lack of resilience and potential adaptability in the proposed design.

18. As an example, The Parade and Dee Street intersection provides for road lane widths of 2.5m to 3m, car park widths of 2m, a door-opening margin of 1m, cycle lanes of 1.2m to 1.4m and footpaths of 1.5m to 3m. The width at this point (including footpath) appears to be generous to a two-lane road (23.85m). As can be seen in **Table 1** below the cycle lane, footpath, car park, and road lanes are predominantly minimal or substandard.

19. While we postively note that narrowing car lanes to 2-2.5m can be productive in speed reduction,[28] substandard and minimal cycle lane, footpath and carpark widths suggest to us that even the seemingly healthy 1m door margin may, in practice, be non-existent (i.e. used for accommodating under-provided for functions).

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[23] Arancibia "Cyclists, Bike Lanes and On-Street Parking" p. 14.
[24] Arancibia "Cyclists, Bike Lanes and On-Street Parking" p. 14.
[25] Arancibia "Cyclists, Bike Lanes and On-Street Parking" p. 15.
[26] Cycling Safety Panel "Safer journeys for people who cycle" p. 23.
[27] WCC "Cycling demand analysis" p. 6.
[28] Sustrans *Design Manual: Handbook for cycle-friendly design* p. 11.

20. These proposed dimensions do not include provision for overtaking cyclists in cycle lanes, and do not appear to allow adequate space for street furniture lamp posts, bike parks/racks, or wheely bins for rubbish collection. This suggests at several places the foot path will become quite nasty, with negative urban design impacts. Given the generous width of The Parade, this inability to even meet current roading and footpath standards does not bode well for future cycling infrastructure in this city.

21. Sustrans provides a number of options for two directions of traffic for roads of significantly less width, which seem to us to provide better outcomes than the Island Bay proposal.[29] Two examples can be seen in **Figure 3**.

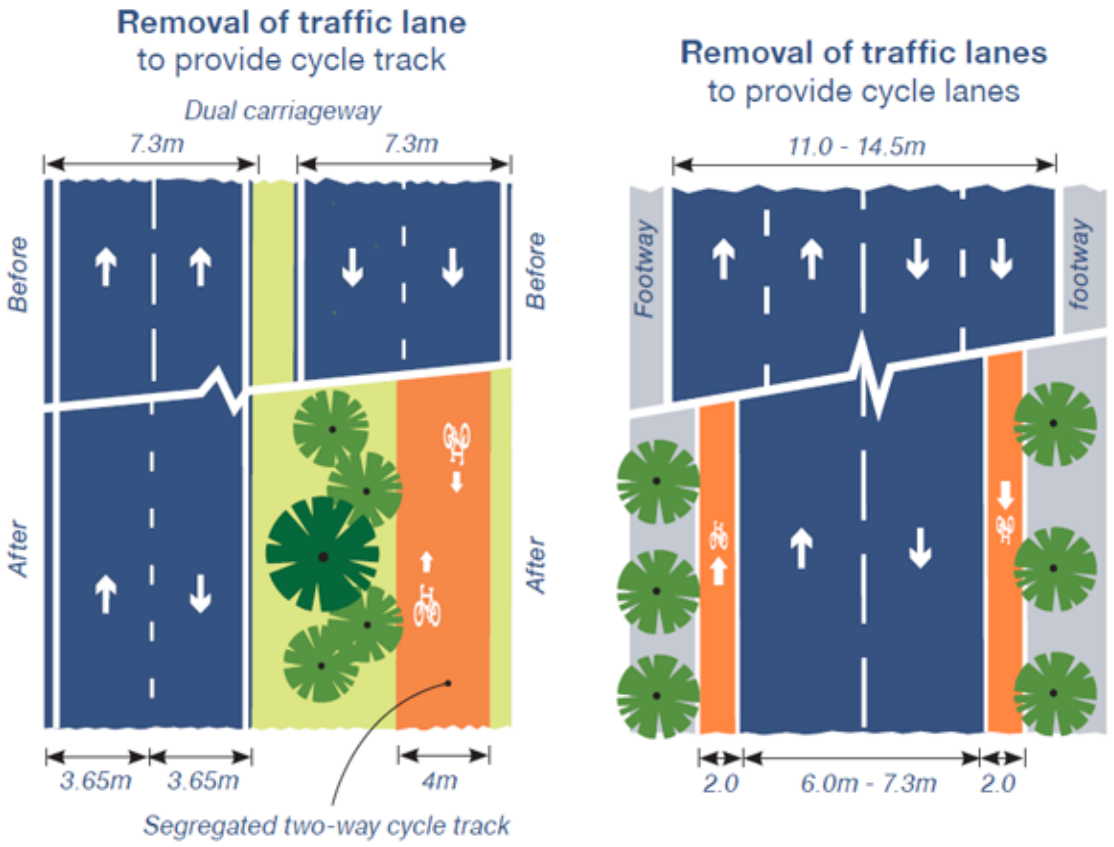

Figure 3: Sustrans diagrams re: Removal of traffic lane/s to provide cycle track/lanes.[30]

Recommendation 5: Redesign the route to ensure consistency above minimum widths for all cycle lanes, footpaths, door zones and car parks. Minimal widths for road lanes will promote slower vehicle speeds and a safer road environment and so are encouraged/supported. In addition to comments above, we point to the use of advisory roads with no centre lines as a possible technique to accommodate car traffic, especially as we assume that traffic on The Parade has a tidal flow.[31]

[29] Sustrans *Sustrans Design Manual* p. 13.
[30] Sustrans *Sustrans Design Manual* p. 13.
[31] Ellison and Gray "Suggestion Lanes (Advisory Lanes) and Shared Bicycle Lanes" n.p.

	road lane	bus stop	car park	door margin[32]	cycle lane[33]	footpath
Dee St (max)	3m	2.5m	2m	1m	1.4m	3m
Dee St (min)	2.5m			0.6m	1.2m	1.5m
Austroads	3.5m		2.5m		1.5m	1.5m
WCC	3.2m		2.5m		1.5m	1.5m
CCDG[34]					1.8-2m	

Table 1: Dimensions at Dee Street

Cycle lanes and parked cars

Figure 4: examples of One-way protected Cycle Tracks with Parking from the NACTO Design Guide

22. The proposal is for an American style on-street cycle track, consistent with the NACTO guidelines,[35] and one of the cycle track options depicted in the "Draft San Diego Regional Bicycle Plan Design Guidelines Appendix B,"[36] which states that

> There should be sidewalks adjacent to cycle tracks to prevent pedestrians from confusing cycle tracks with multi-use paths. When crossing cycle tracks, pedestrians should have the right-of-way. On the motor vehicle side of the cycle tracks, if there is an on-street vehicle parking lane then there is normally a two to three foot [0.6m-0.9m] buffer preventing car doors from entering the bikeway.[37]

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[32] The London Cycling Design Standards (Appendix C) includes drawings with a minimum of 0.5m buffer between parked cars and cycle lanes (pp. 172, 182), and a 0.5m or 2m buffer between a carriageway and separated counter-flow cycle lanes (p. 213, 214, 216), but never on the footpath side of parked cars. (Transport for London *London Cycling Design Standards* pp. 172, 182, 213-214, 216). The "Draft San Diego Regional Bicycle Plan Design Guidelines Appendix B" indicates a door zone of 2.5' (0.76m). ("Draft San Diego Regional Bicycle Plan Design Guidelines Appendix B" p. 8).

[33] The Island Bay cycle lane varies greatly in width from 1.2-1.8m (0.6m or 33-50% difference). This suggests that cycle lane width is seen as able to be sacrificed, and so cycling is a lower priority than other transport forms. We note that the Cambridge Cycling Campaign have documented recommended cycle lane widths from eight British documents, including council design standards, all of which stipulated a recommended width of 2m, and a minimum width of 1.5m. (Cambridge Cycling Campaign "Recommended cycle lane widths" unpaginated). We also note that the London Cycling Design Standards state that Mandatory cycle lanes are "not appropriate where [the] adjacent general traffic lane is ≤ 3.0m," which would be the case at the Dee St intersection. Transport for London *London Cycling Design Standards* p. 67. Similarly Sustrans recommends 4.8m to accommodate a car travelling at 30mph (50km/hr) to pass a cyclist .

[34] CCC *Christchurch Cycling Design Guidelines* p. 56.

[35] NACTO "One-Way Protected Cycle Tracks" n.p.

[36] "Draft San Diego Regional Bicycle Plan Design Guidelines Appendix B" p. 22.

[37] "Draft San Diego Regional Bicycle Plan Design Guidelines Appendix B" p. 22.

The San Diego document also notes that: "Cycle tracks are useful along streets with minimal crossings."[38] Examples can also be seen in London streets, though usually without the problem of parked cars. The NACTO statement that "pedestrians should have the right-of-way" seems to us to be inappropriate for commuter cycling routes.

Figure 5: Tavistock Place, London; Southwark Bridge, London

23. The NACTO guide recommends that "When using a parking protected pavement marking buffer, desired parking lane and buffer combined width is 11 feet [3.35m] to discourage motor vehicle encroachment into the cycle track."[39] The equivalent Island Bay dimension varies between 2.6m and 3m (8.5-9.8 ft), suggesting that even when using the NACTO, rather than CROW guidelines, the Island Bay proposal is a compromised proposal.

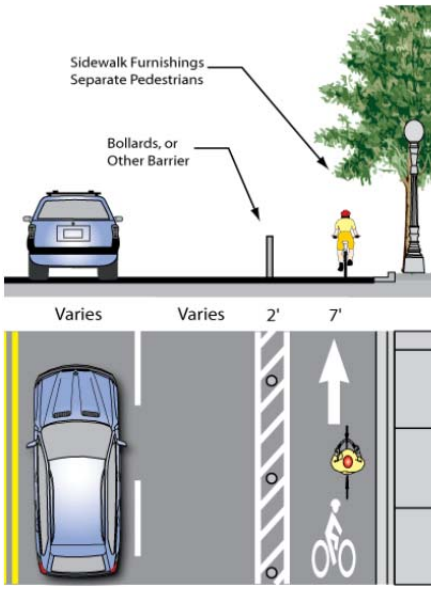

Figure 6: Cycle Tracks with No On-Street Parking (source: Alta Planning + Design, 2008).[40]

24. The proposal uses parked cars to provide separation and a buffer zone between moving cars and cyclists. This arrangment is described as kerbside cycle lanes. The cyclists are hence located between parked cars and the footpath.

25. The emphasis seems to remain on people being able to park freely on a road with a cycleway. The Architectural Centre considers that a road's primary function is the provision of high quality spaces for people and their modes of

[38] "Draft San Diego Regional Bicycle Plan Design Guidelines Appendix B" p. 23.
[39] NACTO "One-Way Protected Cycle Tracks" n.p.
[40] "Draft San Diego Regional Bicycle Plan Design Guidelines Appendix B" p. 22.

travel, and that the creation of an environment for people, active and sustainable transport and then car traffic should be prioritised over car parking in areas where these aims are in conflict. We also note that AASHTO (the American Association of State Highway and Transportation Officials) and OTM (the Ontario Traffic Council) recommend removing on-street parking where space is limited to enable the provision of better cycling infrastucture.[41] We support the removal of parking to give more room for all traffic. In Toronto bi-directional cycle lanes with parking on the other side of the road is promoted as a way to provide cycling infrastructure and some parking.[42]

26. The Architectural Centre is concerned about the proposal to use parked cars as a buffer between cycle and car traffic, largely because car passengers (c.f. car drivers) on the footpath side are not likely to consider cycle traffic when leaving a car, making cyclists very vulnerable to opening doors, and pedestrians moving into cycle lanes, exposing cyclists to a new traffic conflict. In particular, most young children, are likely to leave cars from the footpath side and may not look prior to opening doors. We also wonder if the flexi poles positioned between cars and cyclists in this option may cause additional health and safety issues. Sufficient space is needed, and (as noted above) all the critical dimensions proposed are minimal or less than minimal.

27. While we are wary of using parked cars to provide a buffer between cycle and car traffic, we consider that a bi-directional (with-flow and counter-flow) cycle track alongside a buffer of parked cars would be safer than an uni-directional cycle track, as the additional width of the bi-directional track would prevent some conflicts. We also note that commuter cycling traffic is likely to be tidal, and so a bi-directional track could provide the best space allocation for cyclists, and if adequate space allowed should enable room for cyclists overtaking, which is important (given the varying cyclist speeds esp. on hills). Possibly the best option would be a generous bi-directional track with raised kerb buffer (and breaks to enable bikes to safely join the traffic for right turns etc.) with car-parking on the other side of the road. We note that the WCC has suggested this as a solution for other stages of the cycleway which are yet to be designed, and that the Red Design study has also recommended bi-directional cycle tracks.

28. It does not appear that reverse-angle parking, or removing car parking from the outer sides of the road (and into the centre of the road), has been considered (e.g. **Figure 7**). We note that 90° angle parking would require a width of 2.5m, whereas parallel parking requires a length of 5.4m-6m,[43] and that centrally placed parking would not be interrupted by driveways or bus stops, suggesting that centrally placed angle parking could achieve a sufficient number of parks.

29. These issues suggest a range of possible options worthy of consideration which might better address the space allocation needed for cyclists. Consequently we recommend the following, while noting that they represent different approaches and so are not necessarily compatible with each other.

Recommendation 6: Reduce the spacing between the flexible poles located between the cycle lane and the parked cars to ensure that cars cannot park in the cycle lane.

Recommendation 7: Ensure the design of poles (including material selection) to discourage cars driving into them (and so potentially encroaching on the cycle

[41] Arancibia "Cyclists, Bike Lanes and On-Street parking: Economic Impacts" p. 16.
[42] Arancibia "Cyclists, Bike Lanes and On-Street parking: Economic Impacts" p. 16.
[43] NZTA *Traffic control devices manual* pp. 5.3-5.4.

lane/colliding with cyclists). Raised curb buffers (with breaks to allow cyclists to move into traffic when turning right) are another option.

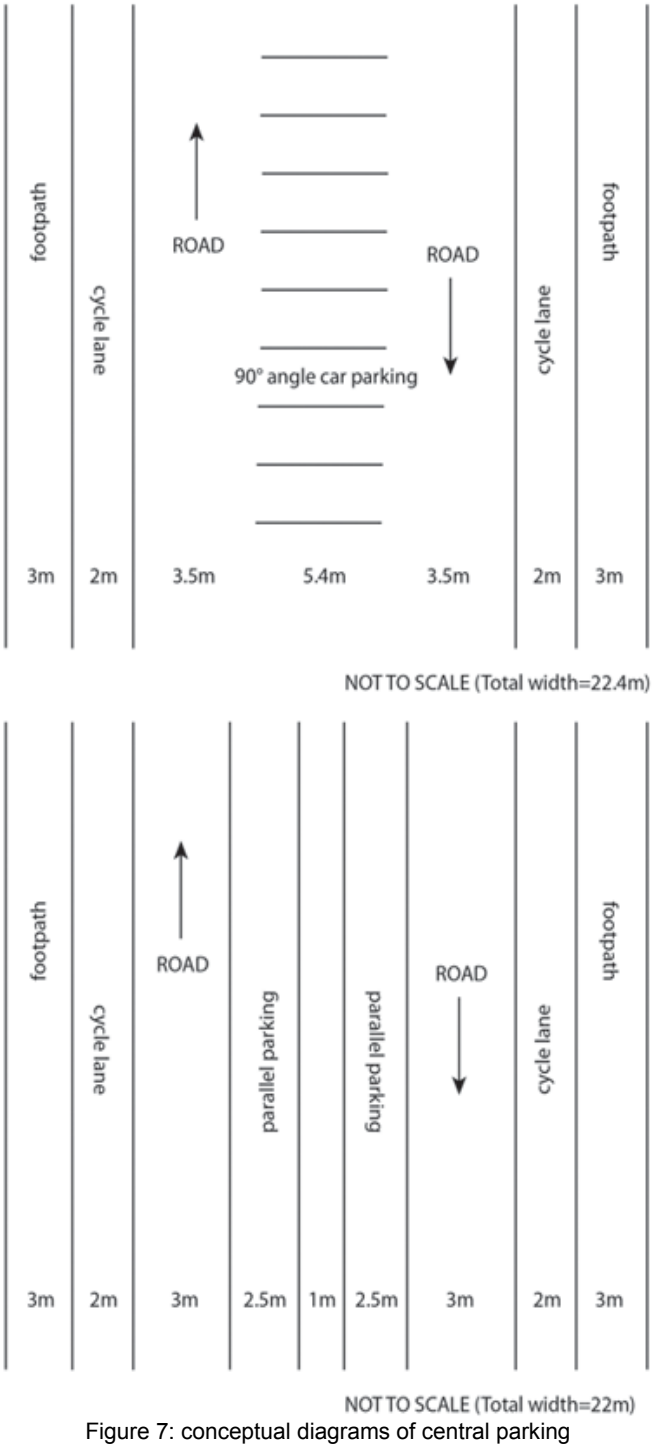

Figure 7: conceptual diagrams of central parking

Recommendation 8: Remove car parking from the outer edges of the road and into the centre of the road (we note that consideration of this option would require an evaluation of any safety issues for disabled, and older drivers/passengers, and for young children, which might be able to be addressed by design if they exist). Alternatively this idea might translate into concentrations of angled car parks on one side of the road rather than the provision of continuous parking outside most houses.

Recommendation 9: Implement paired "with-flow" and "contra-flow" cycle lanes and remove parking from the cycle lane side of the road; using angle parking on the non-cycle-lane side of the road.

Cycle lanes and Buses

30. The proposal includes two variations with respect to the cycle lanes and bus stop:

    (i) bus stop bypass with shelter on island and
    (ii) bus stop bypass on the footpath.

    There was no illustration of this second type in the consultation documentation, and it is difficult to ascertain the difference from the plan. There are diagrams of similar proposals in the *Sustrans Design Manual* and the *London Cycling Standards* Appendix C.

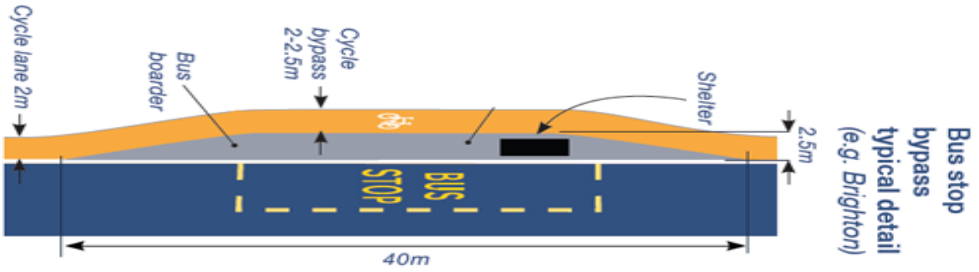

Figure 8: Sustrans' diagram for bus stop bypass typical detail (Brighton).[44] Note the bus bypass is 2-2.5m. This dimension contrasts with the Island Bay proposal for 1.2m

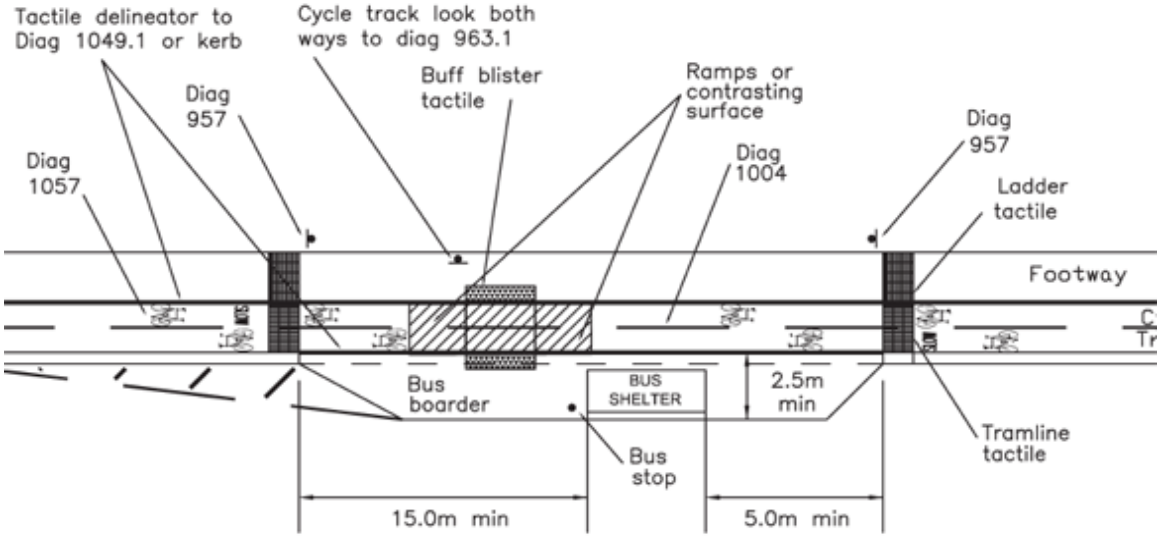

Figure 9: Transport for London's diagram for bus stop bypass - note that unlike the Sustrans example, and the Island Bay proposal, the cycleway is straight, and so a direct route.[45] This is also a bi-directional scheme.

31. The proposal for diverting cycle lanes between bus stop islands and footpaths follows a model promoted in the NACTO guidelines and will be both inconvenient for commuter cycles because of the built-in deviations from a direct path, and consequently sends the message that cyclists are not as important as car traffic. The note associated with the NACTO diagram (**Figure 11**) is:

[44] Sustrans *Sustrans Design Manual: Handbook for cycle-friendly design* p. 15.
[45] Transport for London *London Cycling Design Standards* Appendix C p. 220 (see also pp. 218, 219, 221).

"Bicyclists should yield to pedestrians in these areas. At intersection bus stops, an extended mixing zone may be provided with signage directing bicyclists to yield to buses and loading passengers."[46] We note that this is also an expectation of the Island Bay proposal: "With the bypass, they [cyclists] ride up a ramp to footpath level and around the back of the bus shelter on a dedicated cycle lane at the same level as the footpath, giving way to pedestrians."[47] The proposal is contradictory regarding this, and clear signage will be needed so car drivers do not abuse (verbally or otherwise) cyclists who do not use this bypass, as such abuse can often happen when drivers (or pedestrians) think that cyclists are not using facilities provided for them, or are cycling in the incorrect place.[48]

Figure 10: Island Bay proposal

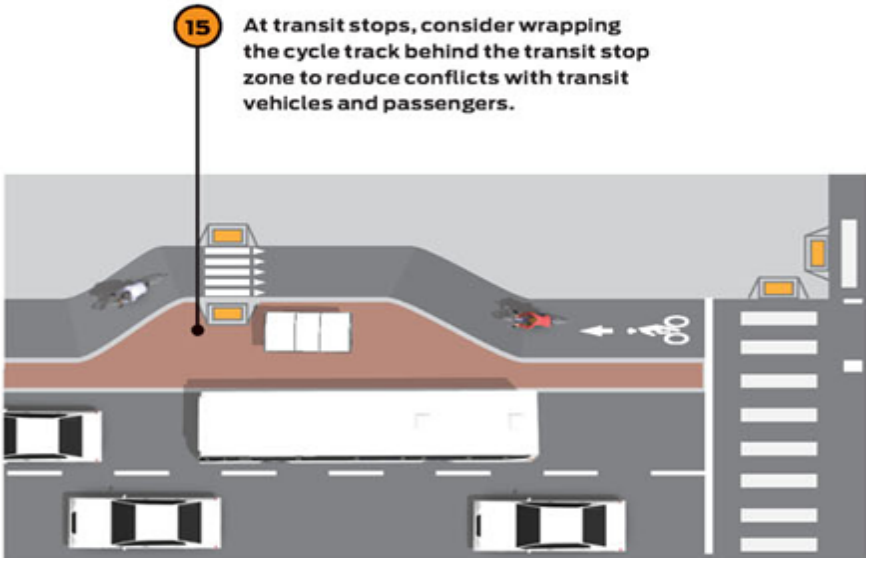

Figure 11: NACTO diagram of bus stop bypass.

32. The Architectural Centre believes that requiring cyclists to give way to pedestrians will be negative for commuter cyclists. The Island Bay bus patronage is the already amongst the highest in the city (747 people in the 2013 census in the morning peak; 2.86 times cyclists; 17% more than the city's average), so The Parade and Adelaide Rd are likely to have more people on footpaths waiting for buses than other parts of Wellington. In addition, the proposal notes that GWRC is planning on reducing the number of bus stops, which will increase the number of people waiting at bus stop, increasing likely

[46] NACTO "One-Way Protected Cycle Tracks" n.p.
[47] WCC "Island Bay safer cycle lanes" p. 6
[48] "Fast, confident cyclists are less likely to use the lane, as they prefer to go fast and will have to make lots of passing manoeuvres for people cycling slowly. They will therefore be sharing the regular traffic lane, which will be the width common to many Wellington streets." WCC "Island Bay Cycleway: Final Design Report" p. 15.

conflict. We note that guidance in the *Christchurch Cycle Design Guidelines* regarding such designs states: "The design needs to consider space for pedestrians and waiting bus passengers and be large enough to accommodate expected numbers."[49] The minimum dimensions for the cycle lane (e.g. 1.2m) previously observed suggests the design may be under capacity. The Christchurch guide also noted "This design requires space. Where there is not enough footpath width ... then ways of expanding the space should be investigated such as land purchase ..."[50]

33. We also note the observation made in the "Final Design Report," which is relevant to the whole of the cycle lane, but possibly more so to the bus stop bypass sections:

> A 2009 NZTA research report undertaken by Dr Shane Turner of Beca International Consultants concluded that off road paths adjacent to the carriageway had between 1.8 and 2.5 times the likelihood of a crash involving cyclists than if cyclists were on road with no special facility. The greatest dangers arise from conflicts with vehicles (in places such as driveways and intersections), and to a lesser extent pedestrians. This happens because they put people on bikes approaching a conflict point from the 'wrong' direction – i.e. where the other road users do not normally expect them to come from, and therefore don't look carefully before making a manoeuvre.[51]

34. Given the row of parked cars obscuring cyclists from car drivers, we imagine the comments regarding driveway conflicts to be highly relevant. We are also conscious of the increased danger of mixing pedestrians and cyclists because of the lack of attention that increasingly pedestrians pay to vehicles - a recent example being the Bond St problems - in part because an increasing number of pedestrians are glued to their mobile phones oblivious of their immediate environment, including the relative silence of cycle travel.[52]

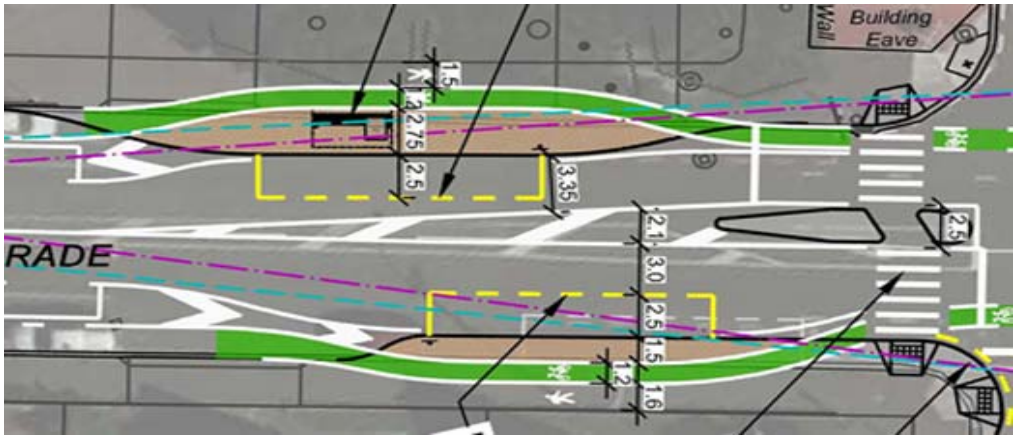

Fig 12: Island Bay proposal (Humber St to the right of the image)

35. We consider that this design will create additional disruptions to commuter cyclists, as well as causing cyclists to need to ride at slower speeds; these together will reduce the appeal of this route for commuter cyclists, because it will be slower than at present. This contradicts a basic philosophy recommended in cycle design, articulated by Sustrans: "designs should send the message that cyclists are at least as important users of the highway network as motor traffic, with cyclists being given an advantage in terms of directness and priority where possible."[53]

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[49] *Christchurch Cycling Design Guidelines* p. 40.
[50] *Christchurch Cycling Design Guidelines* p. 40.
[51] WCC "Island Bay Cycleway: Final Design Report" p. 9.
[52] c.f. *Christchurch Cycling Design Guidelines* p. 40.
[53] Sustrans *Design Manual: Handbook for cycle-friendly design* p. 5.

36. We also note that Transport for London have observed that: "For cycle lanes to be successful, it is essential that their position on the carriageway is where cyclists want and need to be. Consideration should be given to all cyclists' movements and whether the overall benefits of providing a cycle lane outweight the disbenefits."[54]

37. We are also curious as to the number of bike accidents that have occurred in Island Bay between buses and cyclists? We note that the Cycling Safely Panel Report notes that between 2003-2012 there was one urban cyclist death in New Zealand which involved a bus, and that cars, trucks and SUVs/vans were each involved 15 times more (44 times in total) than buses in urban cyclist deaths.[55] Is this apparent desire to reduce conflict between bikes and buses actually relevant for this part of the city?

Recommendation 10: Abandon the bus stop island idea.

Recommendations, if the bus stop islands are to be implemented:

Recommendation 11: Give cyclists priority over pedestrians at bus stop cycle ways. Pedestrians are there to wait for buses, so will not be inconvenienced. Cyclists are there to commuter, so disruptions are significantly adverse.

Recommendation 12: Ensure a very clear contrast of paving surfaces is used to warn pedestrians of the cycleway. Smooth road surfaces should be provided for cyclists to increase the comfort of their ride. Kerbs should be used to signal to pedestrians that cycleways are roadways and priority is to be given to cyclists.

Recommendation 13: The proposed design for the cycleway must be increased in width so it is significantly wider than the undernourished 1.2m indicated.

Infrastructure opportunities

38. The proposal will require some re-organisation of existing infrastructure, including the moving of, and reducing the number of, bus stops, and the building of bus shelters on new "island" bus stops. We consider that this will provide an opportunity to more comprehensively improve the Island Bay suburb in other aspects of infrastructure development, including:

    (a) bio-swales to filter stormwater.
    (b) the provision of cycle parking (for example near shops)
    (c) the provision of free left turns for cyclists - here and throughout the city - with a shallow angled battered kerb to provide separation between cyclists and cars at corners, while allowing straight through cyclists.
    (d) the extension of the cycle way south to link to the south coast leg of the Great Harbour Way, instead of stopping 300m away from it.
    (e) the provisions of cycling park and ride facilities at strategic bus stops (e.g. Reef St and Medway St)
    (f) the provision of bike boxes at all intersections.[56]
    (g) the placement of bicycle loop detectors to trigger traffic signals (adaptive signal timing) prior to the intersection bike box to prevent the need for stop at traffic lights.

39. In addition the proposal states that because of the lower speed limit (30km/hr) at the Island Bay shops, this area will operate as a shared space, and so no formal cycling lanes are required. If this is the case, we recommend a change in

[54] Transport for London *London Cycling Design Standards* p. 65, §4.2.6.
[55] Cycling Safety Panel "Safer journeys for people who cycle" p. 34.
[56] Cycling Safety Panel "Safer journeys for people who cycle" p. 21.

the roading treatment to indicate/reinforce this (e.g. paving and the redesign of the footpath to achieve this). The proposal notes, in relation to the Island Bay shops, that this area may or may not have sharrow markings; with the drawing annotation noting "if legally permitted." We consider that establishing the legality of all aspects of the proposal prior to consultation would be an important contribution to meaningful consultation. We also point to the consultation document's observation that: "High quality cycle facilities must be continuous so that everyone can clearly see what's going on and where to go." We consider that the Island Bay shops treatment appears to be at odds with this.[57]

Recommendation 14: Include bio-swales to filter stormwater, so the entire length of the proposal uses sustainable filtering of stormwater.

Recommendation 15: Provide of cycle parking near all stops (i.e. not just the Island Bay shops, but also neighbourhood dairies etc.)

Recommendation 16: Provide free left turns for cyclists throughout the project area (and beyond)

Recommendation 17: Extend the cycle way south to link to the south coast leg of the Great Harbour Way.

Recommendation 18: Include bicycle loop detectors to trigger traffic signals (adaptive signal timing) prior to the intersection bike box to prevent the need for stopping if traffic signals are implemented.

Recommendation 19: Provide cycling park and ride facilities at strategic bus stops (e.g. Reef St and Medway St).

Recommendation 20: Provide bike boxes at all intersections (e.g. stop/giveway signs at: Reef St, Trent St, Humber St, Mersey St, Medway St, Avon St, Tamar St etc.)

Recommendation 21: Redesign the Island Bay shops road and footpath, including roading treatment to indicate that this is a shared space and not a conventional road.

Maintenance

40. We would also like to stress the need for high quality maintenance and road cleaning. Often the peripheries of roads have uneven roading surfaces (due to new layers of asphalt not reaching the curb), and glass (from car crashes, and beer bottles) and other rubbish accumulates here. We consider that is it important that there is provision for regular cycle lane maintenance and cleaning. We also wonder if the proposed design will pose problems for street cleaning (e.g. slowing it down), and whether street cleaning machines can operate properly around the poles.

Recommendation 22: Review the design with specific reference to street maintenance and street cleaning.

Cycle education

41. The fact that the cycleway will be in a suburban location does provide a potential opportunity for educating children in using local cycle infrastructure, and establishing cycling as a prime mode for school children travelling to school. Engagement with schools and parents consequently needs to be embedded as part of the proposal. This will make cycling an acceptable mode of transport for

[57] WCC "Island Bay safer cycle lanes" p. 5.

the future generations of the community and put pressure on extending the cycleway into the CBD.

Recommendation 23: Establish an education strategy as part of the cycleway initiative.

Degree of Intervation necessary given traffic volumes etc.

42. We note that, according to London research "Cycle lanes as such appear to have little impact on road safety targets, but there is clear evidence of safety benefits in continuing lanes across junctions."[58] The *London Cycling Design Standards* also includes a table of traffic volumes matched to appropriate cycling facilities which suggests that up to 8,000 VPD at a 50km/hr speed (30mph) combined use with cycle symbols is possible, rather than cycle lanes, and below 3,000 VPD lanes are not recommended.[59]

43. Sustrans notes that: "the speed and volume of motor traffic ... will influence the type of provision appropriate and whether specific cycle facilities may be necessary."[60] Similarly Parkin and Koorey state that "lower speed limits and/or traffic volumes [are] often being sufficient to create a cycle-friendly environment."[61] They also state that: "More globally there are contentions about whether "providing for cycling" is the same as "providing cycle facilities," with lower speed limits and/or lower traffic volumes often being sufficient to create a cycle-friendly environment."[62] We also repeat the previously quoted observation from Transport for London (TfL) that: "Consideration should be given to all cyclists' movements and whether the overall benefits of providing a cycle lane outweight the disbenefits."[63] These comments suggest that cycle infrastructure must be considered carefully within the context (traffic volumes, traffic types, physical space etc.) proposed, and that it is possible that introducing cycling infrastructure - in some contexts - does not always have a net benefit.

Demand for the project

44. While there is a known preference for separated cycling facilities from people who are not regular utility cyclists,[64] New Zealand data indicates "that four times as many cyclists are injured from 'cycle-only' crashes on the carriageway or on footways and other routes [not including off-road mountain-biking] than those involved in motor vehicle collisions"[65] and "90% of New Zealand hospitalisations for bicycle-related injuries to children during 1999-2003 did not involve a motor vehicle."[66] Parkin and Koorey also suggest that segregated cycleways on footpaths may not significantly reduce car-bike accidents. They note that in New Zealand "58% of urban cycle collisions are at intersections, with a further 19% occurring at driveways; it is difficult to avoid those, even on a footway."[67]

45. The WCC's "Cycling demand analysis" is referred to, with respect to expected demand, in the Final Design Report.[68] The "Cycling demand analysis" predicts cycling increases relative to a route from Island Bay to the CBD. It does not

[58] Transport for London *London Cycling Design Standards* p. 65.
[59] Transport for London *London Cycling Design Standards* pp. 62-63; Figures 4.1, 4.2. See also the CCC *Christchurch Cycling Design Guidelines*, which states that "Cycle lanes should be considered where vehicular volumes (roughly more than 2000 vehicles per day) are expected to be too high for a neighbourhood greenway." p. 56.
[60] Sustrans *Design Manual: Handbook for cycle-friendly design* p. 5.
[61] Parkin and Koorey "Network Planning and infrastructure Design" p. 135.
[62] Parkin and Koorey "Network Planning and infrastructure Design" p. 135.
[63] Transport for London *London Cycling Design Standards* p. 65, §4.2.6.
[64] Parkin and Koorey "Network Planning and infrastructure Design" pp. 139-140.
[65] Parkin and Koorey "Network Planning and infrastructure Design" p. 140.
[66] Parkin and Koorey "Network Planning and infrastructure Design" p. 140.
[67] Parkin and Koorey "Network Planning and infrastructure Design" p. 140.
[68] WCC "Island Bay Cycleway: Final Design Report" pp. 4, 15.

provide an indication of the different levels of uptake in isolated segments along the route (e.g. Newtown to the CBD, c.f. Shorland Park to Wakefield Park). It does however note that: "given the cycleway to Island Bay is likely to be constructed from the southern end rather than [from] the CBD, the latent demand noted in this report will take time to be realised."[69] In addition:

(a) We note there was no weather variable in the stated-choice experiment (e.g. head-wind, tail-wind, rain) which we imagine might be relevant to the Island Bay to CBD cycleway given the high frequency and amount of N-S wind channeled along this route.

(b) A 25 minute journey time (a duration relevant to the southern end of Island Bay to CBD route) appears to be viewed negatively by all groups in the stated-choice experiment. There was little discussion of the impact of this and how it might affect the uptake of cycling.

(c) It would be useful to know what characteristics the researchers considered the current proposal to represent (i.e. barrier protected or fully separated), given the use of trees and other vegetation to (picturesquely) form full separation in the stated-choice survey,[70] (c.f. the use of parked cars in the proposed scheme).

(d) We find it strange that the report does not consider the most direct route from Island Bay to the CBD along The Parade and Adelaide Road to Newtown.[71]

(e) We note the use by the Cycling Safety Panel of the unit "total time travelling," when they state that in New Zealand cycling comprises 1.6 per cent of total time travelling."[72] Perhaps this is a useful way to more meaningfully understand the impact of cycling compared to other transport modes rather than number of journeys and/or number of cyclists.

Recommendation 24: Better ascertain how the specific design would operate in future to meet increased demand by the different types of cyclists (e.g. commuter, recreational, novice cyclists), including the issues raised above. In our opinion, the current design does not appear to adequately meet the needs of the full range of cyclists, being both too narrow and not particularly attractive to new cyclists, and the generic nature of the Cycling Demand Analysis" may not reflect the impact of the specific design of the proposal because the proposal does not continue to the CBD and the analysis fails to fully consider issues such as weather and journey length on likely demand.

Conclusion

Thank you again for this opportunity to comment on this proposal for the Island Bay cycle lanes. If you have any questions please do not hesitate to contact me.

Yours faithfully

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[69] WCC "Cycling demand analysis" p. 55.
[70] CC "Cycling demand analysis" p. 15.
[71] WCC "Cycling demand analysis" pp. 7, 43.
[72] Cycling Safety Panel "Safer journeys for people who cycle" p. 6.

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