

**Before a Board of Inquiry
Northern Corridor Improvements Project**

Under the Resource Management Act 1991 ('the Act')

In the matter of a Board of Inquiry appointed under section 149J of the Act to consider notices of requirement for designations and resource consent applications by the New Zealand Transport Agency for the Northern Corridor Improvements Project

**Rebuttal evidence of Robert John Schofield for the New Zealand
Transport Agency (Alternatives Assessment)**

Dated 15 June 2017

KENSINGTON SWAN

18 Viaduct Harbour Avenue Ph +64 9 379 4196
Private Bag 92101 Fax +64 9 309 4276
Auckland 1142 DX CP22001

Solicitor: C M Sheard/N McIndoe
christina.sheard@kensingtonswan.com/nicky.mcindoe@kensingtonswan.com/

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STATEMENT OF REBUTTAL EVIDENCE OF ROBERT JOHN SCHOFIELD FOR THE NEW ZEALAND TRANSPORT AGENCY

1 Qualifications and experience

- 1.1 My full name is Robert John Schofield. I am a Partner of Boffa Miskell Limited.
- 1.2 My qualifications and experience are set out in my Evidence in Chief ('**EIC**') dated 20 April 2017.
- 1.3 I repeat the confirmation that I provided in the EIC that I have read, and agree to comply with the Code of Conduct for Expert Witnesses 2014.
- 1.4 My rebuttal evidence relates to the notices of requirement ('**NoRs**') and resource consent applications lodged by the New Zealand Transport Agency ('**Transport Agency**') with the Environmental Protection Authority ('**EPA**') on 14 December 2016 for the Northern Corridor Improvements Project ('**Project**').

2 Scope of evidence

- 2.1 In this rebuttal evidence, I outline the findings of the multi-criteria assessment ('**MCA**') that was undertaken in response to the submission from AC in regard to possible additional shared use path ('**SUP**') crossings of SH18. This process had not been concluded at the time of writing my evidence-in-chief.
- 2.2 I also address matters raised in the evidence of:
 - a Stephen Brown and Maylene Barrett, for Auckland Council ('**AC**');
 - b Ian Kennedy and Andrea Brabant, for Waste Management NZ Limited ('**WMNZ**');
 - c David Willmott, for the Centre for Urban and Transport Studies ('**CUTS**'); and
 - d Peter Fogarty, for his own submission.

2.3 The fact that this rebuttal statement does not respond to every matter raised in the evidence of submitter witnesses within my area of expertise should not be taken as acceptance of the matters raised.

3 Assessment of alternative locations of the SUP along SH18

3.1 The submission from AC addressed a number of aspects of the Project in terms of improvements to the area's walking and cycling network and connections. These were addressed in the evidence of Mr Brown on landscape and urban design aspects, and of Ms Barrett on public open space and community facilities.

3.2 Mr Brown considers that the Project would be enhanced by the relocation of the proposed SUP along the south of SH18 rather than the north.

3.3 Mr Fogarty, in his evidence for his own submission, also raises similar points in regard to the SH18 SUP.

3.4 The physical design of a southern alignment of the SUP and the difficulties that would be involved in providing for this alignment were described in the evidence in chief of **Mr Moore**.¹ In particular, he identifies that there are several 'pinch points' where additional residential property would need to be acquired to accommodate a SUP along the southern side.

3.5 In my EIC,² I summarised the findings of a MCA that was undertaken of the two alignments, following the submission from AC on this point. The same team of environmental, engineering and planning specialists who undertook previous MCAs assessed both the northern alignment of the SUP (the lodged design) and a southern alignment. In summary, that assessment concluded that the northern alignment of the SUP (the lodged design) was superior to a southern alignment for the following reasons:

- a From a transportation perspective, both alignments scored similarly, except that the southern alignment scored poorly in terms of requiring more of SH18 to be realigned north, increasing the construction

¹ Paragraphs 9.3 – 9.4 of **Mr Moore's** evidence in chief (Project design).

² Paragraphs 14.7 to 14.11 of **Schofield** evidence in chief (Alternatives assessment)

period and the constructability difficulties and duration in managing construction over a busy 'live' road;

- b From an environmental perspective, the southern alignment would have greater impacts in terms of the effects on stream environments, vegetation clearance, and adverse visual and landscape effects on reserves;
 - c The effects on the streams and vegetation from a southern alignment would have negative effects on the relationship between Mana Whenua and the environment;
 - d Both alignments would have similar social and property effects (both positive and adverse); and
 - e A southern alignment of the SUP would have significantly greater costs than the northern alignment, primarily due to the realignment of SH18 north and the need for retaining and noise walls.
- 3.6 In addition, I understand that any western extension of the busway along SH18 would occur along the south side of the motorway: the proposed northern alignment of the SUP will ensure that this pedestrian and cycle connectivity will not be disrupted by any future busway construction along the southern side of the motorway. It is also likely that the busway would be accompanied by a SUP alongside that would facilitate connectivity to bus services.

4 Additional Pedestrian Crossings of SH18 Motorway Extension

SH18 Underpass at Alexandra Stream

- 4.1 In her evidence for AC, Ms Barrett³ strongly recommends that the existing underpass beneath SH18 at Alexandra Stream be replaced as part of this Project, by either a new underpass or pedestrian overbridge. This was reiterated in the evidence of Mr Brown for AC.
- 4.2 The lodged design seeks minor upgrades of the existing Alexandra underpass which provides pedestrian and cycle access between

³ Evidence-in-Chief of Maylene Barrett, paragraphs 7.63 and 7.65.

Barbados Drive and Paul Matthews Road via a SUP that extends north from the end of Rook Place. This underpass takes advantage of the natural gully through which Alexandra Stream flows.

4.3 In response to the submission from AC, the options for upgrading the underpass as part of the Project were put through a MCA, with the same panel of experts who had undertaken MCAs on other Project elements. These options were:

- a Option 1 – Replacement of existing underpass with new 3m x 3m underpass on same alignment as existing;
- b Option 2 – Replacement of existing underpass with new 3m x 5m underpass on same alignment as existing; and
- c Option 3 – Replacement of existing underpass with new 3m x 3m underpass on more skewed alignment to improve visibility and sightlines through the underpass.

4.4 The principal findings of that assessment can be summarised as follows:

- a Options 1 and 2 were likely to require extending the culvert further into Alexandra Stream under a future widening of SH18 or Busway along SH18 – these two options therefore have greater adverse ecological and cultural impacts than the lodged design;
- b Option 3 was preferable from a CPTED/public safety perspective, as well as user experience, because it would have better sight distances and visibility into and through the underpass – however, Options 1 and 2 would also be an improvement from the current situation and compared with the lodged design;
- c All three options have significant construction issues, as all three options would require a new underpass to be cut and covered, requiring SH18 to be excavated with significant traffic management needed;

- d From an environmental perspective, all three options were relatively neutral, with all three likely to contribute to flooding risks downstream, particularly Option 2; and
 - e All three options would create significant short-term disruption in terms of connectivity for workers, recreational and other users of the SUP that connects a large commercial and business area with the Unsworth Heights residential area – however, from a long term perspective all three options would facilitate access and connectivity.
- 4.5 In sum, Option 3, involving a 3m x 3m underpass on a more skewed angle, would provide slightly improved benefits over the lodged design, whereas the others generally had fewer relative benefits. However, the costs of any of the options are significantly greater than the lodged design, and are not outweighed by the benefits. Accordingly, it is not proposed to replace this underpass because:
- a The current pedestrian and cyclist counts are too low to warrant a significant upgrade;
 - b The existing underpass in its current form retains the current level of connectivity across SH18; and
 - c There are CPTED issues on either side of the underpass that would also need addressing.
- 4.6 **Shannon Bray** further addresses this aspect in his rebuttal evidence.

Alternative Pedestrian Access Across SH18

- 4.7 In her evidence, Ms Barrett⁴ recommends an additional location for a pedestrian overbridge somewhere between Bluebird Reserve and William Pickering Drive.
- 4.8 Additional pedestrian crossings were also recommended by Mr Brown. Mr Brown considered that a third point of connection across the highway – from near the end of Unsworth Heights Drive to the opposite end of William Pickering Drive – would also seem logical. However, he does

⁴ Evidence-in-Chief of Maylene Barrett, paragraph 7.68.

note⁵ that the Transport Agency's engineers have indicated this is not feasible and that it may not be achievable.

- 4.9 In response to the original submission from Auckland Council, alternative pedestrian/cycling crossings of SH18 were investigated, either as overbridges or underbridges, at several possible locations. These options were subject to a MCA process, with which I was involved but that, at the time of writing my evidence-in-chief, had not been concluded.
- 4.10 The options for providing additional crossings of SH18 are relatively limited, primarily due to property and topographical constraints, which make it difficult to design an underpass or overbridge according to the appropriate design standards; in particular, appropriate grades for cycling and wheelchair access. There are also other issues, such as the need to ensure clear line of sight to directional signage along the motorway extension. Further, due to property constraints, a number of options were only feasible if a lift tower were provided at one end of several overbridge options.
- 4.11 Taking all of the design standards and constraints into account, four feasible alternative connections were identified for assessment:
- a Option 1 – Provision of a new overbridge immediately to the east of Alexandra Stream, connecting Rook Reserve to the SUP on the north side of SH18, with a ramp on the south side and a lift tower with stairs on the north side;
 - b Option 2 – Provision of a new overbridge from Unsworth Drive to the SUP on the north side of SH18, with a ramp on the south side and a lift tower with stairs on the north side (under this option, to limit impact on properties, no direct access to Omega Street would be provided);
 - c Option 3 – Provision of a new underpass connecting Unsworth Drive to Omega Street, with a ramp on both sides and a connection to the SUP from Unsworth Drive to Omega Street (under this option, to form a connection with Omega Street and to connect the underpass to the

⁵ Evidence-in-Chief of Stephen Brown, paragraph 15(d).

SUP on the north side of SH18, some property acquisition would be required); and

- d Option 4 – Provision of a new overbridge connecting Bluebird Reserve to the SUP on the north side of SH18, with a ramp on the south side (Bluebird Reserve) and a lift tower with stairs on the north side; this will include the direct connection to William Pickering Drive.

4.12 Plans of these options are provided in the rebuttal evidence of **Mr Moore** who provides further details over their design and their relative advantages and disadvantages⁶. He also outlines the other options that were identified but discounted from further assessment.

4.13 The four shortlisted options were assessed by the same panel of experts as for other MCA design processes over other Project elements over the last 18 months. The key findings from that assessment are as follows:

- a In overall terms, the best scoring option according to the assessment criteria was Option 3, a new underpass connecting Unsworth Drive with Omega Street, in that it would –
 - i Provide an additional connection between the commercial area and the residential neighbourhood of Unsworth Heights (none currently exists at this location), in a location that best provides enhanced connectivity;
 - ii Be the easiest option to modify for a future busway, by widening the overbridge;
 - iii Not rely on a lift tower, which has greater operational and maintenance requirements than ramps;
 - iv Have no impact on motorway signage sightlines (unlike Options 2 and 4 which are non-compliant);
 - v Not impact on any streams or existing vegetation, and therefore is preferable from an ecological and cultural perspective; and

⁶ Paragraph 7.1 to 7.5, Moore rebuttal evidence, with the plans attached as Annexure A

- vi Have largely positive social impacts, and not impact on any public reserve.
 - b However, Option 3 has the worst property impacts of the options, requiring most of the car parking area used by the commercial property at 15-17 Omega Street, likely necessitating the full acquisition of the property and relocation of the business. This area is outside the existing State Highway designation footprint and the areas to be added by the NoRs for the Project.
 - c Option 3 also has the worst constructability issues, given that it would require the excavation (for a cut and cover) of SH18, necessitating considerable traffic management.
- 4.14 Importantly, the Project design does not foreclose options for additional connections, which could be incorporated into future improvements. In particular, connectivity would be a critical consideration for a new busway along SH18.
- 4.15 Collectively, none of the options are superior to the current underpass at Alexandra Stream.

5 Centre for Urban and Transport Studies

- 5.1 In his evidence for CUTS, Mr Willmott questions a number of design elements of the Project, including the Constellation/SH1/SH18 and SH1/Greville/Albany Expressway Interchanges.
- 5.2 In his rebuttal evidence, **Mr Moore** for the Transport Agency comments on the design options recommended by Mr Willmott in his evidence.
- 5.3 In relation to the SH1/Greville Road/Albany Expressway Interchange, in my EIC I addressed the options for providing a direct connection to the Albany Expressway from SH1 that were considered as part of the Project Concept Refinement 2015-16⁷. In essence, direct northbound and southbound links between SH1 and the Albany Expressway were discarded because of significant safety and geometric constraints.

⁷ Paragraphs 8.5 – 8.6, **Schofield** evidence in chief

- 5.4 In relation to the Constellation/SH18/SH1 interchange (including the connections with Paul Matthews Road), and in particular Mr Willmott's comments on the impacts on the North Harbour Hockey ('NHH') stadium⁸ my EIC addressed the options that were considered, and the ways to avoid or minimise the impacts on property, including on the NHH stadium as well as the infrastructure and network utilities in this part of the corridor.⁹ In particular, paragraphs 10.5 to 10.7 of my EIC summarised the assessment of those options for the extension of the SH18 motorway combined with the connections between Paul Matthews Road, Constellation Drive and Caribbean Drive for reducing the impacts on the NHH and Watercare RWWTP, while avoiding impacting on the adjacent residential neighbourhood. Unfortunately, this is a relatively narrow corridor, and none of the options could fully avoid impacting on NHH. I understand the Transport Agency and stakeholders investigated whether it would be possible to reorganise the hockey fields, but none of the options could provide an arrangement that was acceptable to the Hockey Trust.
- 5.5 I further understand that the Hockey Trust supports the relocation of the stadium facilities, and there was a hearing recently to consider the resource consents required to relocate the facility.

6 Waste Management NZ Limited

- 6.1 In his evidence on behalf of WMNZ, Mr Kennedy states that it appears the Transport Agency did not consider the adverse effects of the Project on the Transfer Station run by WMNZ at 117/123 Rosedale Road.¹⁰ In her planning evidence for WMNZ, Ms Brabant states that, in her opinion, without consideration of the adverse effects of the proposed designation on the operational requirements of the Rosedale Refuse Transfer Station ('RTS'), there would not be sufficient information to confirm the NoRs. Further she considers that the alternatives assessment may have been undertaken without all of the necessary information to make an informed decision.

⁸ Refer to point (e) on page 11 of Mr Willmott's evidence

⁹ In particular, paragraphs 10.3 to 10.7 of my evidence in chief addressed the options considered to minimise the impacts on properties in terms of the Paul Matthews Road, Constellation Drive and SH18 motorway configuration.

¹⁰ Evidence-in-Chief of Ian Kennedy, paragraph 4.8.

- 6.2 **Mr Moore**, in his rebuttal evidence, addresses the concerns of WMNZ, and includes a plan which shows the area beneath the WMNZ site being bridged. This proposal, with the availability of further land under the bridge structure to the north, means that the effects on the WMNZ from the land acquisition are negligible. I understand that discussions are underway with WMNZ regarding this option.
- 6.3 In relation to the adequacy of the assessment of alternatives, I am satisfied that the consideration was adequate at the level it was undertaken. At a general level, an alternatives assessment cannot necessarily identify all potential effects, particularly on landowners or tenants, in the assessment of options impacts, particularly given the scale of the Northern Corridor Improvements Project. Issues around the effects on the operational requirements of particular land uses, including industrial activities, are typically subject to discussion through the property acquisition process.
- 6.4 I consider that the new bridge option provides an innovative solution that will ensure WMNZ's ability to continue to efficiently operate its site in this location.

7 Conclusion

- 7.1 In relation to the potential for an additional SUP crossing of SH18, an assessment of alternatives undertaken by the Project Team in response to the submission of AC indicates that there are significant issues with providing a further crossing without impacting on property or without requiring reliance on a lift tower, which has greater operational and maintenance requirements than ramps.
- 7.2 The most suitable location for a future SUP crossing would be in the location of the current Unsworth Drive/SH18 intersection. However, this option would severely impact on the commercial property on the northern side, and would require this property to be acquired. In my opinion, the project does not foreclose this crossing to be pursued in future, and it could possibly be reconsidered at a later date, such as if a western busway extension is investigated.

A handwritten signature in black ink, appearing to read "Rob Schofield". The letters are cursive and connected.

Robert John Schofield

15 June 2017