
In the Matter of:

The Resource Management Act
1991

and

In the Matter of:

A private plan change request
(Proposed (Private) Plan
Change 40: Wallaceville) to the
Upper Hutt City District Plan

Application By:

**Wallaceville Developments
Limited**

**Statement of Evidence of Mark Grant Georgeson
On Behalf of Wallaceville Developments Limited**

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03 July 2015

Statement of Evidence of Mark Grant Georgeson, BE(Hons) CPEng MIPENZ IntPE(NZ)

Introduction

Qualifications

1. My full name is Mark Grant Georgeson. I am a Chartered Professional Engineer and hold a Bachelor of Civil Engineering degree from the University of Auckland. I am:
 - a) a Member of the Institution of Professional Engineers NZ and its specialist Transportation Group;
 - b) an International Professional Engineer;
 - c) a Member of the Institute of Transportation Engineers USA;
 - d) a Member of the Association of Local Government Engineers NZ;
 - e) a Member of the NZ Parking Association; and
 - f) an Associate Member of the NZ Planning Institute.

Appearance

2. I appear in relation to a private plan change request (Proposed (Private) Plan Change 40: Wallaceville) to the Upper Hutt City District Plan made by Wallaceville Developments Limited to rezone approximately 63 hectares of the former Ag-Research site and a small part of the Trentham Racecourse property for residential and commercial use.

Experience

3. For the last 23 years I have worked as a traffic engineer with Traffic Design Group Ltd, practicing as a traffic engineering specialist throughout New Zealand. I am a Director of the Company and Manager of the Wellington office.
4. I am very familiar with the location, having lived in the Hutt Valley for the same 23 years, and being a routine user and cyclist of the area.
5. I also have a technical background of involvement in the area, having been involved with the conceptual designs and access strategy for the site in 2005 when it was owned by Ag-Research, and also in respect of the neighbouring sites of the Summerset Retirement Village and development of industrial land on the south side of Alexander Road.

Code of Conduct

6. Although this is a Council hearing, I have read the Expert Witness Code of Conduct set out in the Environment Court Practice Note 2014. I have complied with the Code of Conduct in preparing this evidence. Except where I state that I am relying on the evidence of another person, this written evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this evidence.

Scope of Evidence

7. In this matter, I have been asked by Wallaceville Developments Limited to present my views and findings in respect of the transportation related needs and effects of the proposal to rezone the former Ag-Research site and a small part of the Trentham Racecourse property for residential and commercial uses. My findings draw from the work undertaken by myself and my company through the period of the last 12 months since first instructed in this matter in July 2014.
8. In the period since, I have visited the site and location on many separate occasions and have been responsible for:
- the transportation assessment and analysis reported by TDG;
 - contributing to the site layout;
 - the proposed intersection forms and changes to Alexander Road; and
 - engagement with and further information provided to Upper Hutt City Council and NZTA.
9. I have structured my evidence as follows, to:
- summarise the findings and conclusions from the Transportation Assessment Report;
 - describe the further information provided to Council and NZTA;
 - respond to submissions received through notification of the Plan Change Request; and
 - respond to the Section 42A Report.
10. I then present my final conclusions and, by way of summary here in my evidence, confirm the conclusions of the Transportation Assessment Report that the development enabled by the Proposed Plan Change can be achieved in an efficient and safe manner, from a transportation perspective.

Transportation Assessment Report

11. I was responsible for the December 2014 Transportation Assessment Report submitted as part of the Proposed Plan Change Request to Upper Hutt City Council.
12. I do not intend to repeat the detail of the Report here, but will summarise the key points as relevant to my response to the submissions and to the Section 42A Report.
13. My Report concludes that:
 - the proposed residential and commercial land use can be established in a manner that is acceptable to Council, and in line with good practice, from a traffic and transportation perspective;
 - the traffic modelling undertaken using the available Upper Hutt Traffic Model indicates the additional traffic generated by the development will disperse well and not give rise to new deficiencies on the local road network that require mitigation works;
 - access to the site off Ward Street is expected to function satisfactorily, anticipating that a new intersection can be formed as a standard tee-intersection mid-way between the equivalent established with Seddon Street and Wilford Street;
 - the speed limit on Alexander Road can reduce to 60kph in response to development of the Structure Plan Area. This will be the subject of a separate process with Council and will facilitate the ability to achieve a good urban design outcome for the area, and enable a series of quality accesses to be established for the site, while also presenting an improved interface between the residential and industrial land uses in this part of the city; and
 - good quality pedestrian and cycle connections are included as a purposeful component of the Structure Plan.
14. The matters raised by submitters and in the Section 42A Report do not give cause for me to amend my findings and conclusions. That said, some of the matters raised require my further comment, as described through the evidence.
15. Before doing so, it is relevant for me to briefly provide some highlights from my Report.

Existing Transport Environment

16. The Wallaceville Structure Plan Area has road frontage to Ward Street and Alexander Road, both of which are defined as Secondary Arterials by the Upper Hutt District Plan.
17. Although classified as providing equivalent functions within the roading hierarchy, these two roads exhibit contrasting environments. Ward Street has a posted speed limit of 50kph, in keeping with the adjacent residential land use it provides access to, a painted median, unrestricted kerbside parking, and public footpaths on both sides of the road.
18. Alexander Road has an 80kph speed limit over most of its length, except for a short section near the Ward Street roundabout. There are currently no specific pedestrian or cycle facilities on Alexander Road between William Durant Drive and Ward Street, adjacent the site.
19. The current form and environment of Alexander Road does not lend towards a good development outcome for the Structure Plan Area. Changes are proposed to both the form and speed limit of Alexander Road, as I discuss later in my evidence and as also addressed in the evidence of Ms White.
20. Traffic flows on Ward Street and Alexander Road display similar patterns, with distinct weekday morning and afternoon peaks associated with commuters travelling to and from work. Their daily volumes, as recorded by Council, are in the order of 4,000vpd and 5,000vpd respectively. These are comparatively modest volumes for arterial roads.
21. Data from the 2013 census provides information on the travel to work mode share, by census area. The mode share of persons that travelled to work on census day is set out in Table 1 of the Report and shows the following mode share trends amongst employed residents of Wallaceville, as compared to the Upper Hutt area as a whole:
 - higher percentage of Wallaceville residents using the rail network for commuting;
 - higher number of people walking/jogging to place of work; and
 - fewer people driving to work.
22. This data serves to demonstrate the good levels of patronage on the rail network, the higher percentage of active commuter mode given the suburb's proximity to the CBD, with a correspondingly lower reliance on private vehicles for commuting purposes.

23. The same general trends can be expected for development within the Wallaceville Structure Plan Area. The Wallaceville rail station, bus stops on Ward Street, and the Upper Hutt City Centre are all very accessible from the site, indeed as identified as a positive attribute of the proposed rezoning by some submitters.
24. From initial consultation with the Regional Council, and noting the proximity of existing bus stops and bus services on Ward Street, the Council currently deems it unnecessary to route buses via Alexander Road or indeed through the site in response to the anticipated development. As currently proposed, the Structure Plan does not therefore include provision for bus routes, but equally the Wallaceville Road Typologies have flexibility to accommodate bus routes and bus stops, if and when they might be determined to be required.

Site Traffic Generation

25. The expected traffic generation of the completed development is set out at Chapter 4 of the Transportation Assessment Report. The analysis concludes that the developed site could be expected to generate total trips of:
- 660 during the weekday AM peak hour; and
 - 765 during the weekday PM peak hour.
26. These total trips include a mix of residential and commercial / retail trips. The Upper Hutt Traffic Model has been referred to in estimating the number of residential trips.
27. The model produces the number of trips to and from households (HH's). In determining an appropriate rate to apply to Wallaceville, the generation of trips from the model at other locations was inspected and values of 0.73 total trips/HH and 0.76 total trips/HH applied to the full development for the AM and PM peak hours respectively. These volumes are higher than the validated trip rates for established surrounding residential areas.
28. For the retail and commercial components, the modelled generation is based on 'employment', for which 50 retail and 200 office jobs have been assumed, to derive approximately the trips set out in Table 2 of the Transportation Assessment Report. In this instance, they act as attractors of trips rather than generators. That is, when residential trips are predominantly outbound in the AM peak, commercial trips are inbound, and vice versa for the PM peak.

Network Effects

29. The Upper Hutt Traffic Model was used as a basis for accessing the wider network effects of adding the site traffic. The model was originally developed in 2006, and subsequently used to inform the Upper Hutt Urban Growth Strategy.
30. The model was developed with a number of future year scenarios, including a 2026 forecast which, as agreed with Council, was selected as an appropriate horizon for the purposes of assessing the traffic effects of the Wallaceville proposal.
31. While some of the forecast scenarios for the Growth Strategy included a number of network variations, which relate to specific infrastructure upgrades, the models adopted for the purposes of this assessment represent the 'base' or existing network scenario, and therefore do not include any infrastructure improvements. The following assumptions relate to the Base and Option models used in this instance.

Base Model

- 2026 background traffic flows;
- existing network infrastructure;
- some infill/small scale developments, as well as five of the growth areas assessed in the Growth Strategy. These involve residential extensions at Mt Marua, Riverstone Terraces and Kingsley Heights, industrial development on Alexander Road and commercial development on the Dunlop Site; and
- no trips to/from the Wallaceville Plan Change site.

Option Model

- all development site trips added as 'new trips', with addition of accesses onto Ward Street and Alexander Road. There are no other differences from the Base model.

32. The modelling results show that the Base network is approaching capacity along the SH2 corridor by 2026, in both the southbound and northbound directions, during the AM and PM peaks respectively. These are identified future deficiencies, irrespective of the Wallaceville development, that are familiar to both the Council and NZTA. It can be reasonably anticipated that some network improvement intervention along SH2 would be undertaken prior to 2026, so that the identified deficiencies will not materialise in practice.

33. Further information clarifying the modelled differences and quantifying the effect of the added Wallaceville traffic has been provided more recently to the Council and NZTA. I detail that from paragraph 48 of my evidence.
34. Beyond these strategic corridor locations, no parts of the urban network are shown by the model to experience level of service changes that would warrant mitigation in response to partial or full development of the Wallaceville site, in the manner contemplated by the Structure Plan.

Site Access

35. Road connections between the site and the surrounding road network are proposed via both Ward Street and Alexander Road. This is in keeping with good practice wherein:
- vehicles are not required to route long distances internally, before accessing the external road network;
 - demand is spread across a number intersections to assist efficiency for access/egress to and from the site; and
 - vehicles can route via the most convenient frontage road, in consideration of their wider network trip.
36. The principal means of site access will be via Alexander Road.
37. The Ward Street access is retained in the same location as currently exists midway between the intersections of Seddon Street and Wilford Street. In the same manner as the Seddon Street and Wilford Street intersections opposite, the intersection with Ward Street will be formed as a standard tee-intersection. Except to establish this new intersection, no changes are proposed to Ward Street.
38. The existing driveway on Ward Street near the Alexander Road roundabout is proposed to be closed to vehicle traffic and re-formed as a pedestrian/cycle connection.
39. By comparison, there is no current existing access to Alexander Road from the site. Accordingly, in developing new site access intersections on Alexander Road, consideration needs to be given to the following:
- the form of the site access arrangements;

- the appropriate number of accesses and the separation distances between these accesses and other established intersections;
 - the speed limit; and
 - site integration.
40. With regard to what form the new accesses between the site and Alexander Road may take, there may be an opportunity to link with the existing William Durant Drive or George Daniels Drive intersections in the future. A revised Structure Plan map showing a proposed four-way intersection with William Durant Drive is attached to Ms Blick's evidence. In addition, Ms Blick has agreed with Council the following amendments to new Policy 4.4.15:
- *Provides an internal roading concept that retains the historic roading pattern and provides for appropriate access onto Alexander Road includes at least one intersection with Alexander Road that aligns with either George Daniels or William Durant Drive*
41. I support these amendments, and note the intersection design can be assessed at the relevant subdivision stage.
42. There is no equivalent ability to link with other existing intersections in developing the eastern portion of the site (Area A). Rather, the Structure Plan proposes a series of three new intersections. The central intersection is proposed as a crossroads junction, to also provide access to a pocket of residential development on the south side of the road. The other two intersections are proposed to be formed as tee-junctions. In this way, site traffic will be conveniently distributed via three site roads.
43. The final designs to be developed in due course will be subject to approval by Council.

Pedestrians and Cyclists

44. The Structure Plan includes provision for good pedestrian and cycle connectivity. These are in the form of footpaths and shared paths within the new site roads, and also in the form of dedicated paths away from the roads, as fully described by Ms White.
45. The connections are proposed to extend to and provide through-site connectivity to adjacent properties, including the rail corridor for which separate funding commitment has been made by NZTA and the Council for a cycle and walking path.

Alexander Road

46. Due to access limitations along the Ward Street frontage (notable fencing and trees and listed buildings) the development is dependent on Alexander Road for its primary access. As described by Ms White, it is important that Alexander Road balances its “place and link function” in order to fulfil its movement function as an arterial road while providing opportunities for community interaction and allowing “front doors” by way of a good quality, active frontage. There are a number of ways to enable good frontage without providing undue traffic conflict, including provisions for vehicle turning on site and rear lane access. It’s about striking a reasonable balance between ensuring Alexander Road continues to function as an arterial and a good urban design outcome for the city.
47. As the development site becomes established, the environment on Alexander Road will inevitably change and will prompt a downward revision of the existing 80kph speed limit. Again as explained by Ms White, there are good urban design outcomes that can be achieved from treating the fronting length of Alexander Road differently, including particularly the ability to integrate with the surrounding environment rather than be inward-facing as would need to be the case with retention of the existing 80kph limit. A change in speed limit would also give rise to good safety outcomes for the road and its new intersections, as well as for the frequent walkers, joggers and cyclists.
48. In order to advance the development form of the Structure Plan, Alexander Road is assumed to have a reduced speed limit of 60kph west of Ward Street. The details of this change will be the subject of a separate process to be advanced by Council.

Post – Application Consultation and Further Information

49. In the period since the application for the Plan Change Request was made, I have been involved with ongoing consultation with both the Upper Hutt City Council and NZTA.
50. Both parties have sought further information in respect of the modelled traffic effects of the full development. Drawing from the model plots included at Appendix B of the Transportation Assessment Report, which show the road and intersection levels of service for the Base and Wallaceville scenarios, at 2026, I provided updated plots with annotations to quantify the level of service changes. I include these same four plots as **Attachment A** to my evidence.
51. The annotations show that where level of service changes can be identified between the

Base and Wallaceville scenarios, the differences are minimal, with operational changes that will be minor. The changes are just sufficient to tip the level of service from one band to the next, for example, from the high end of LOS E to the low end of LOS F. The relevant observation to make in this regard is that the LOS E and F values as predicted by the model for 2026 are at a level where intervention is needed, irrespective of the Wallaceville development, as projected through normal growth provided for by the Urban Growth Strategy.

52. Further information has continued to be sought by NZTA, including in respect of traffic generation, trip distribution, and highway and intersection effects.
53. I have had various meetings with NZTA and the Agency's representatives, and provided further information and clarification. It is not necessary for me to detail all the exchanges, but more useful to summarise the key points which I do as follows:
- the methodology for determining traffic generation has been explained in the manner I set out at paragraphs 25 to 28, and accepted as appropriate;
 - the distribution of vehicle trips is based on predictions of the traffic model as to routes development traffic will take through the network. With orientation of the Wallaceville development towards Alexander Road, the model prefers to assign traffic south from the site along the Alexander Road and Fergusson Drive routes. The assignments are accepted as appropriate, and observed as due in part also to the modelled congestion along SH2 as a result of the poor LOS E and LOS F peak conditions expected by 2026, in the base case without the Wallaceville development. In these instances, Wallaceville traffic prefers not to use longer routes such as Moonshine Road or Whakatiki Street to access SH2, and instead chooses the more direct route of Alexander Road and Fergusson Drive, connecting to and from SH2 at the Fergusson Drive (Silverstream) intersection; and
 - from this more informed position, the SH2 / Fergusson Drive intersection has been accepted as the key location for more refined assessment of state highway effects.
54. I have undertaken and provided further analysis to NZTA, and continued to engage with their representatives, from which NZTA has resolved that the impacts on the state highway network will be indiscernible. The Agency's letter of 1 July 2015 confirms this position and withdrawal of its submission.

Response to Submissions

55. I have reviewed all 20 submissions and the four further submissions received.
56. A number of submissions raise transportation matters, which can be broadly grouped as relating to:
- pedestrians and cyclists;
 - public transport; and
 - Alexander Road.
57. I address these matters in turn next.
58. In addition, I note the submissions of NZTA and GWRC which raise a number of other particular transport – related matters. I address these directly from paragraph 63.

Pedestrian and Cyclists

59. A number of submitters make positive comments regarding the good planning and provisions made for pedestrians and cyclists, with good connectivity through the site and with adjacent areas.
60. I agree that the site is well suited to establishing an attractive and convenient environment for pedestrians and cyclists alike, and is located such that it will facilitate off-site walking and cycling in a way that will contribute positive transport outcomes.

Public Transport

61. In a similar way, some submitters also point to the future development making positive contributions toward public transport.
62. As I described earlier in my evidence, the site is well located near the Wallaceville rail station and also to bus stops and associated bus services on Ward Street. Together, these existing transport amenities present good transport choice for those that will in the future work or live in the area.
63. Again, I agree that the site and form of development proposed is well suited to enabling good public transport outcomes. Indeed, as I outlined at paragraph 24, the Wallaceville Road Typologies can be reviewed and revised to accommodate bus routes and bus stops

should such a future need arise.

NZTA Submission

64. In its original submission, the Transport Agency seeks:
- *financial contributions for the cost of bringing forward any SH2 upgrade works required as a result of the additional commuter pressure created by the development; and*
 - *to work closely with the Council as it responds to development growth to ensure that transport needs are addressed in a timely and efficient manner with investment from suitable parties and a range of modal solutions considered.*
65. The second matter is beyond the remit of this Plan Change Request, and is a matter for separate coordination between the Council and the Transport Agency.
66. Regarding financial contributions, NZTA has subsequently withdrawn its request for financial contributions towards capacity upgrades, and instead sought an interest in the interim effects between when development is implemented and when the NZTA undertakes highway upgrades.
67. Through my earlier paragraphs 48 to 53, I outlined the various meetings and discussions with NZTA and its representatives during May and June, and the additional information and clarification that have provided NZTA with a more informed view of the wider transport effects of development of the Wallaceville site that would be enabled by the rezoning.
68. I reconfirm that NZTA is now satisfied that the impacts of the proposed development on the state highway network will be indiscernible, and that it has withdrawn its submission.

GWRC Submission

69. The submission of Greater Wellington Regional Council presents a number of comments in respect of public transport, speed reduction on Alexander Road, and cyclist provision. It notes that:
- *the proposed plan change could potentially contribute positively to the use of public transport in the vicinity as it will give those living or working at the development good access to the public transport network;*
 - *the site is considered to have good accessibility in relation to a core rail service;*

- *GWRC supports the structure plan that provides for good connectivity through the site and with adjacent areas through the use of paths for pedestrians and cyclists; and*
- *GWRC would like to specifically support the proposal to reduce the speed limit on Alexander Road to 60kph (or to 50kph), to recognise the need for appropriate safe speeds adjacent to the proposed new residential area, and to support wider urban designs outcomes.*

70. In concluding, GWRC requests the following relief should the Upper Hutt City Council approve the Proposed Plan Change:

1. *The Alexander Road design provides safety for road cyclists by continuing an adequate on-road shoulder or cycle lane through to Ward Street. The currently proposed Alexander Road cross section suggests two 4.2m wide lanes with a 3m flush median and on-street parking on one side of the road. Given the risk associated with cycling in the door zone, a buffer zone or cycle lane between parked cars and cyclists could be provided (at the expense of a portion of the generous flush median for example).*

71. In responding, I first note that the provisions for cyclists on Alexander Road include both on and off-road facilities. A 2.5m wide shared path is proposed for use by less experienced cyclists, and pedestrians, while the current concepts for on-road cycling provide for cyclists in 'over-wide' 4.2m traffic lanes.

72. Best practice points to:

- 4.2m being the desirable minimum width for a wide kerbside lane (versus 4.2m as included in the concept cross-sections presented by Ms White), providing for cyclists alongside the moving traffic lane; and
- a desirable minimum overall width of 6.6m for a combined wide kerbside lane adjacent to a parking lane (versus 6.7m as included in the concept cross-sections presented by Ms White).

73. As such, the recommended minimum dimensions form the basis of the concept cross-sections.

74. That said, the cross-sections are provided as examples of what could be achieved in

practice, with the detail to be developed in coordination with UHCC through the next phases of the project. This will capture the kind of details referred to in the GWRC submission, including the width of the median, width of the parking lane and width of the carriageway past pedestrians crossing islands.

The Section 42A Report

75. I have read the Section 42A Report.
76. I do not intend to address or respond to any matters directly, but rather point to the Expert Conferencing Joint Statement which suitably documents the recommendations and agreements.
77. There are no transportation matters that have not been resolved.
78. By way of a final comment and explanation in relation to the recommendation and agreement around road layouts and specifically property access from Alexander Road, I note that Rule 18.9 of the Operative District Plan provides for direct vehicle access to and from arterial roads such as Alexander Road, as follows:

Where vehicle access points are shared by three or more dwelling units, for all rear sites and for all sites fronting arterial, or distributor/collector streets (identified in Chapter 37) there must be provision for turning a vehicle on site in order that vehicles do not reverse into the street.

79. As anticipated by the Plan, and agreed through the Joint Statement, the Structure Plan provides for property access to be developed from Alexander Road, with appropriate on-site turning. A better outcome can be achieved should the speed limit be reduced to 60km/h as suggested by the Applicant. I understand this has been accepted as desirable by the Council.

Conclusions

80. As I have set out and described, significant clarity and determinations have been made since the application was lodged, which confirm a practical and safe transport outcome can be achieved for all non-vehicle and vehicle users.
81. The further information and clarity provided has satisfied NZTA that the impacts on the state highway will be indiscernible, to the extent that the Agency has now withdrawn its

submission.

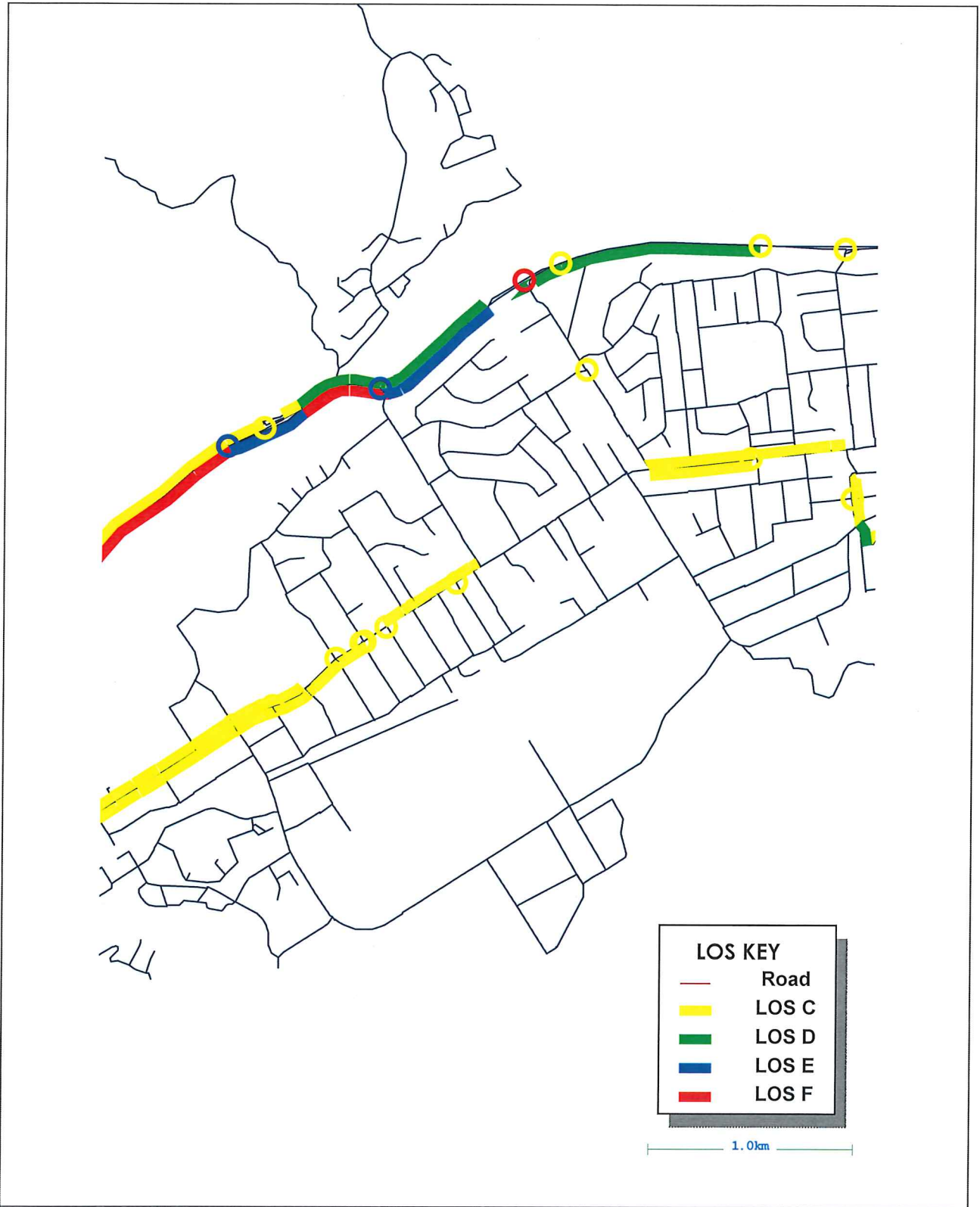
82. In a similar way, the Expert Conferencing Joint Statement confirms the agreed positions resolved between the Applicant and the Council. I am in agreement with all the responses in relation to 'traffic and road layout', and 'public transport, walking and cycling'.
83. There is nothing in the submissions or the Section 42A Report which suggest to me that there are fundamental issues that still need to be addressed or require me to reconsider my findings and conclusions.
84. I conclude from a traffic and transportation perspective that the development enabled by the Proposed Plan Change Request can be established appropriately and safely in the manner contemplated by the Structure Plan and proposed zoning provisions.

Mark Grant Georgeson

03 July 2015

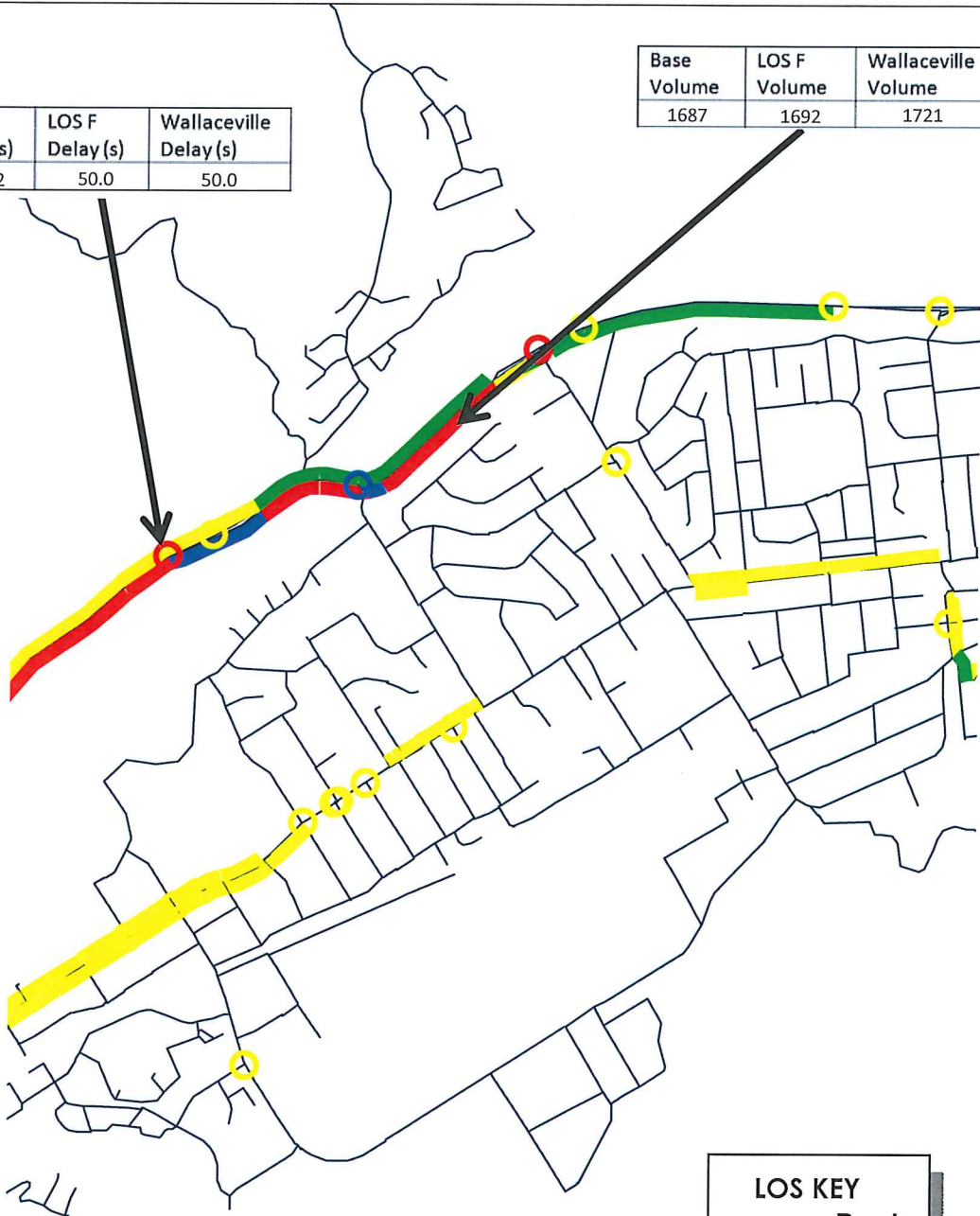
Attachment A

Annotated LOS Plots



Base Delay (s)	LOS F Delay (s)	Wallaceville Delay (s)
49.2	50.0	50.0

Base Volume	LOS F Volume	Wallaceville Volume
1687	1692	1721



LOS KEY	
—	Road
—	LOS C
—	LOS D
—	LOS E
—	LOS F

1.0km

